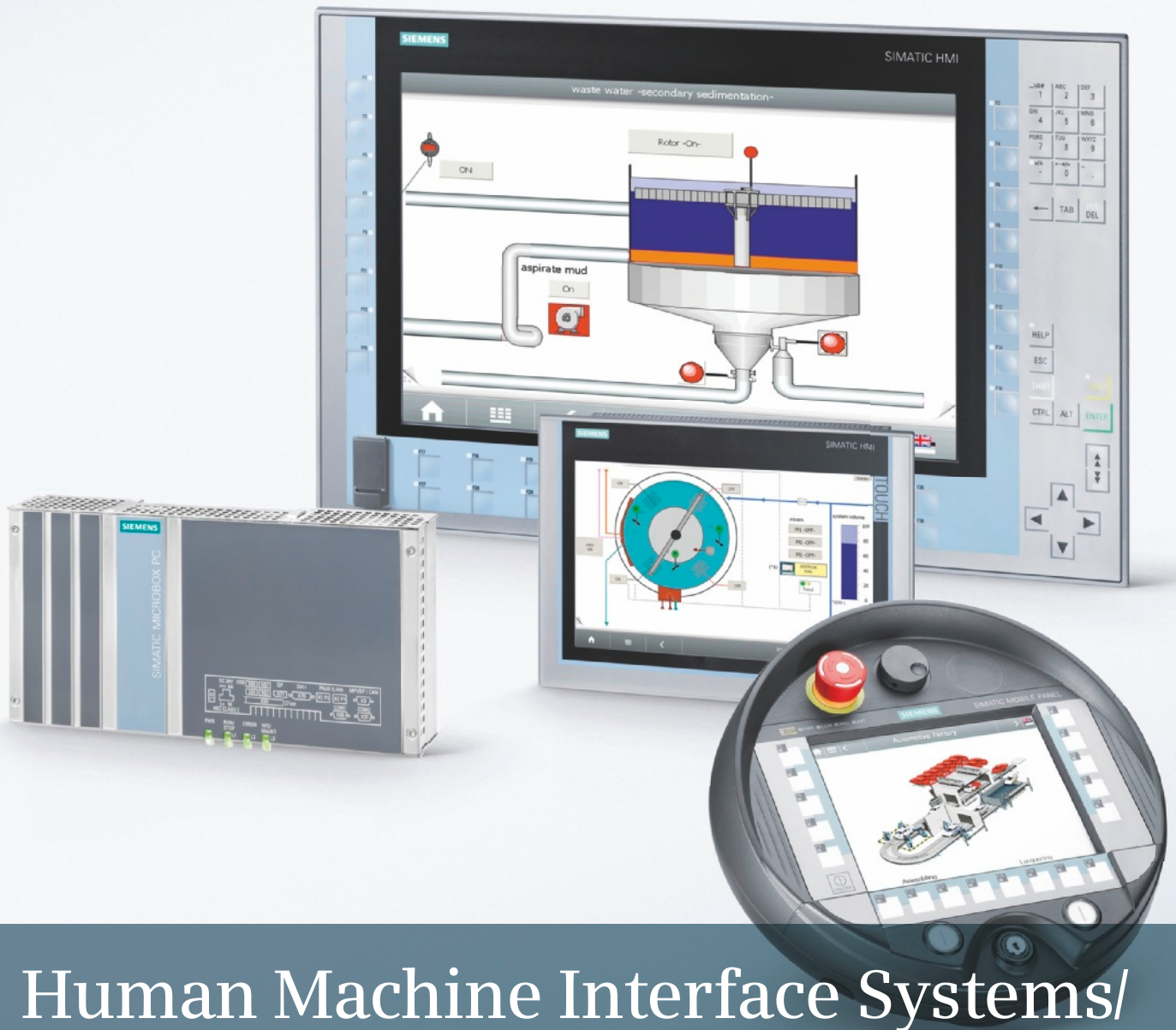# SIEMENS

Human Machine Interface Systems/ PC-based Automation

SIMATIC HMI / PC-based Automation

Catalog
ST 80/
ST PC

Edition
2013

Answers for industry.

Related catalogs

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SIMATIC HMI / PC-based Automation

Operator Control and Monitoring Systems

Catalog ST 80 / ST PC · 2013

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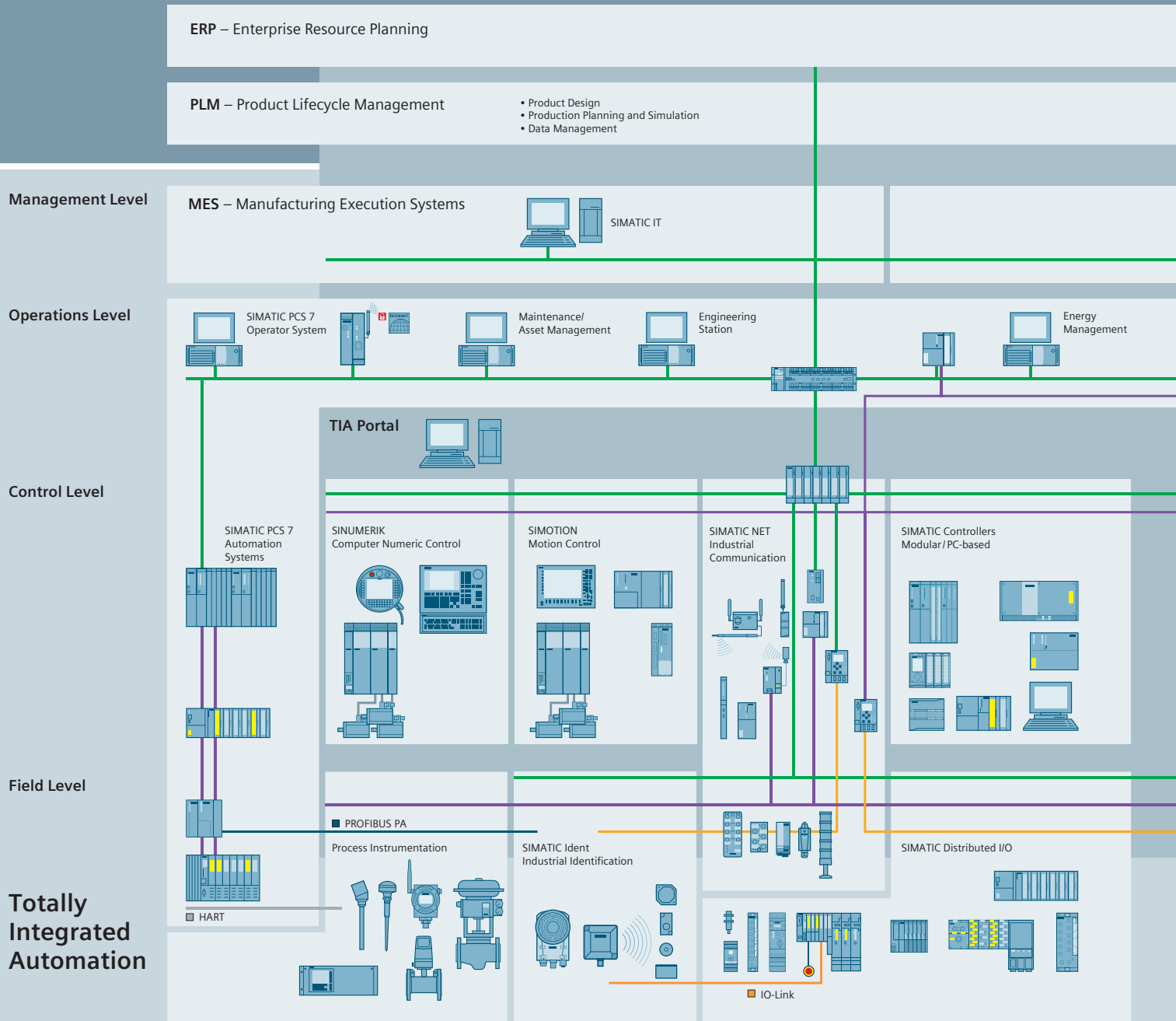|	
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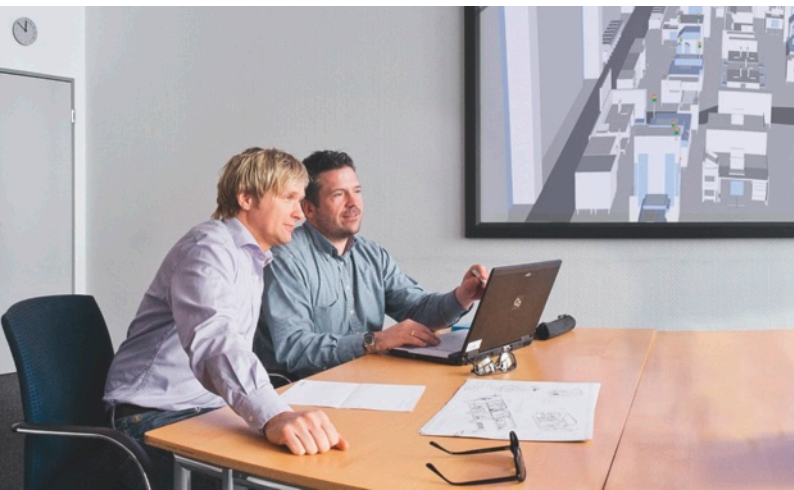
Answers for industry.

Integrated technologies, vertical market expertise and services for greater productivity, energy efficiency, and flexibility.

The Siemens Industry Sector is the world's leading supplier of innovative and environmentally friendly products and solutions for industrial companies. End-to-end automation technology and industrial software, solid market expertise, and technology-based services are the levers we use to increase our customers' productivity, efficiency and flexibility. With a global workforce of more than 100 000 employees, the Industry Sector comprises the Industry Automation, Drive Technologies, and Customer Services divisions, as well as the Metals Technologies Business Unit.

We consistently rely on integrated technologies and, thanks to our bundled portfolio, we can respond more quickly and flexibly to our customers' wishes. With our globally unmatched range of automation technology, industrial control and drive technology as well as industrial software, we equip companies with exactly what they need over their entire value chain – from product design and development to production, sales and service. Our industrial customers benefit from our comprehensive portfolio, which is tailored to their market and their needs.

Market launch times can be reduced by up to 50% due to the combination of powerful automation technology and intelligent industrial software from Siemens Industry. At the same time, the costs for energy or waste water for a manufacturing company can be reduced significantly. In this way, we increase our customers' competitive strength and make an important contribution to environmental protection with our energy-efficient products and solutions.

ERP – Enterprise Resource Planning

PLM – Product Lifecycle Management
- Product Design
- Production Planning and Simulation
- Data Management

Management Level

MES – Manufacturing Execution Systems

SIMATIC IT

Operations Level

SIMATIC PCS 7
Operator System

INTERNET

Maintenance/
Asset Management

Engineering
Station

Energy
Management

TIA Portal

Control Level

SIMATIC PCS 7
Automation
Systems

SINUMERIK
Computer Numeric Control

SIMOTION
Motion Control

SIMATIC NET
Industrial
Communication

SIMATIC Controllers
Modular / PC-based

Field Level

■ PROFIBUS PA

Process Instrumentation

SIMATIC Ident
Industrial Identification

SIMATIC Distributed I/O

**Totally
Integrated
Automation**

□ HART

■ IO-Link

Setting standards in productivity and competitiveness.

Totally Integrated Automation.

Plant Engineering
COMOS

■ Ethernet

SIMATIC WinCC
SCADA System

■ Industrial Ethernet

SIMATIC HMI
Human Machine Interface

SIRIUS Industrial Controls

■ PROFINET

■ Industrial Ethernet

■ PROFIBUS

■ AS-Interface

■ KNX GAMMA instabus

SINAMICS Drive Systems

SITOP Power Supply

Low-Voltage Distribution

**Totally
Integrated
Power**

SIMOTICS Motors
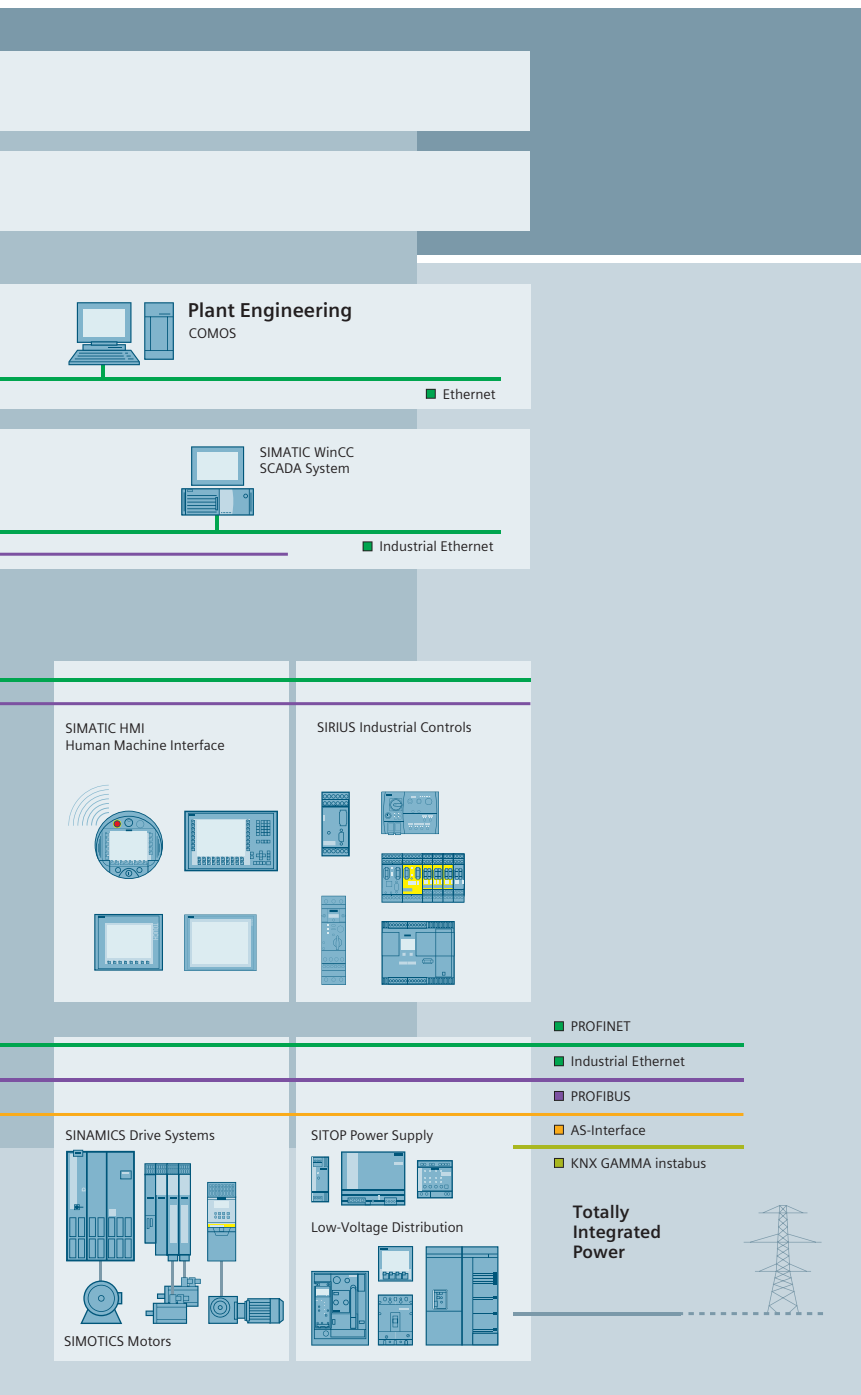
TIA is characterized by its unique continuity.

It provides maximum transparency at all levels with reduced interfacing requirements – covering the field level, production control level, up to the corporate management level. With TIA you also profit throughout the complete life cycle of your plant – starting with the initial planning steps through operation up to modernization, where we offer a high measure of investment security resulting from continuity in the further development of our products and from reducing the number of interfaces to a minimum.

The unique continuity is already a defined characteristic at the development stage of our products and systems.
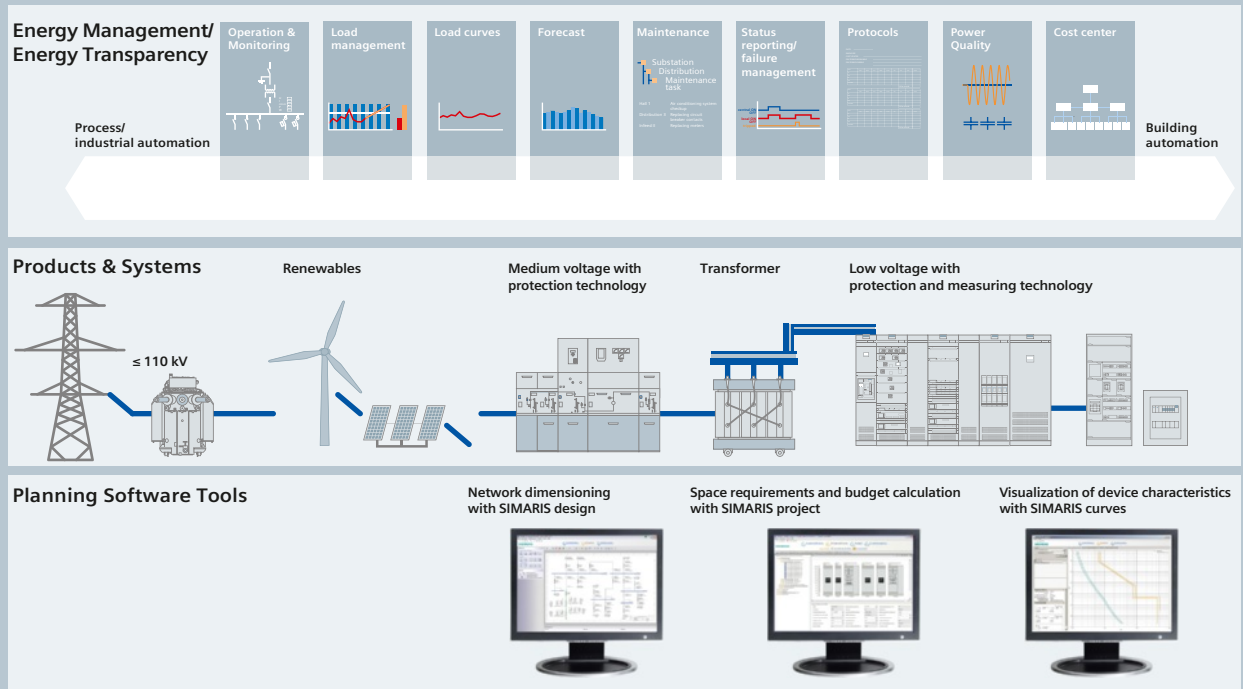
The result: maximum interoperability – covering the controller, HMI, drives, up to the process control system. This reduces the complexity of the automation solution in your plant. You will experience this, for example, in the engineering phase of the automation solution in the form of reduced time requirements and cost, or during operation using the continuous diagnostics facilities of Totally Integrated Automation for increasing the availability of your plant.

Thanks to Totally Integrated Automation, Siemens provides an integrated basis for the implementation of customized automation solutions – in all industries from inbound to outbound.

Totally Integrated Power: Future-proof power supply from one source.

Software tools, products, systems and support for integrated electrical power distribution

Energy Management/ Energy Transparency

Process/ industrial automation

| Operation & Monitoring | Load management | Load curves | Forecast | Maintenance | Status reporting/ failure management | Protocols | Power Quality | Cost center |

Building automation

Products & Systems

Renewables Medium voltage with protection technology Transformer Low voltage with protection and measuring technology

≤ 110 kV

Planning Software Tools

Network dimensioning with SIMARIS design

Space requirements and budget calculation with SIMARIS project

Visualization of device characteristics with SIMARIS curves

The power supply system acts like a "vital artery", forming the basis for the reliable and efficient functioning of all electrically operated building installations. Electrical power distribution therefore requires integrated solutions. Our answer: Totally Integrated Power (TIP).

This includes software tools and support for planning and configuration and a complete, optimally aligned product and system portfolio for integrated power distribution from medium-voltage switchgear right to socket outlets.

The power distribution products and systems can be interfaced to building or industrial automation systems (Total Building Solutions or Totally Integrated Automation) via communication-capable circuit breakers and components, allowing the full potential for optimization that an integrated solution offers to be exploited throughout the project cycle – from planning right through to installation and operation.

Get more information:

www.siemens.com/tip
www.siemens.com/simaris
www.siemens.com/specifications

Operator control and monitoring systems / PC-based Automation

1

Introduction
Gain transparency and lower costs

SIMATIC HMI operator control and monitoring systems

1

Overview

The interface between human and machine – the human machine interface or HMI for short – connects the world of automation with the individual requirements of the operator.

Human machine interfacing is about managing the process, optimizing machine and system operation, availability and productivity.

■ **Overview** (continued)

Everything from a single source

With SIMATIC HMI, Siemens Automation and Drives offers a complete range of innovative and low-cost products and systems for the multi-faceted tasks of operator control and monitoring: Ranging from operator panels and visualization software for operator control and monitoring at the machine through to SCADA systems for widely differing requirements in process visualization. For special requirements, optimally adapted products are offered such as especially rugged HMI devices with all-round protection for mounting on support arms/pedestals, or operator panels with stainless steel front for use in the food and beverages industry. Of course, individual, customer-specific requirements can also be implemented.

Perfectly equipped for integration in the world of automation

With their open, standardized interfaces in hardware and software, SIMATIC HMI products can be integrated at any time in the production and automation level as well as in the company management level. Connectability to almost every controller on the market as well as multiple language capability of the configuration and visualization software – including Asian ideographic languages, of course – facilitate operation worldwide.

Increased production transparency through Plant Intelligence

Plant Intelligence is based on the intelligent utilization of information to improve processes within the company.

It is designed to lower plant costs, consolidate and improve quality, avoid wastage, utilize production facilities better and ultimately ensure greater efficiency and cost effectiveness within the company. WinCC provides the best requirements for achieving this since WinCC features an integrated Historian for acquiring important production data.

Using intelligent functions and tools, this process data can be edited into information necessary for making decisions and can be made available throughout the company whenever and wherever it is required – for operators as well as production managers or anyone else within the company.

Even the WinCC basic system provides a wealth of display and evaluation functions, such as the statistics function for the message and measured value logs. WinCC options for IT & business integration make additional "smart" tools available for optimizing production using Plant Intelligence.

Integrated into the World Wide Web

SIMATIC HMI makes the Internet into a control desk - within a plant as well as in the worldwide network.

Using the WinCC/Web Navigator, you can monitor and operate plants over the Internet or over the internal corporate intranet. Thin client solutions can be used to integrate rugged, local devices which simultaneously establish the connection between the automation level and the control center. And over a wireless LAN or cell phone connection, you can use mobile thin clients such as laptop computers, PDAs (personal digital assistants) or WebPads.

In this way, process, service or management information can be made individually available to users. At the machine level, many control units support remote operation, e.g. as a link between the automation level and the control room through to service and diagnostics over the Internet.

For operation and monitoring at the machine, concepts with so-called Sm@rtClients and servers facilitate plant-wide access to variables and graphics, distributed operator stations as well as remote operation and diagnostics via the Internet – also in conjunction with SIMATIC Panels.

www.siemens.com/simatic-hmi

Introduction
Gain transparency and lower costs

SIMATIC HMI operator control and monitoring systems

■ **Overview** (continued)

Traceability and easy validation

SIMATIC HMI software with "FDA options" provides a high degree of support to machine and plant manufacturers who must fulfill high quality requirements, both with respect to the products to be manufactured as well as to the manufacturing processes themselves.

These options simplify plant validation enormously and thus provide the most convincing and comprehensive solution for the requirements of these industries.

They support the user in fulfilling high quality requirements as specified by the FDA (Food and Drug Administration) 21 CFR Part 11 for the food, beverages and pharmaceutical industries.

Increased plant availability

All operator panels and Panel PCs are designed for harsh industrial use. Redundant process visualization systems ensure a high degree of plant availability during normal operation.

Distributed operator control concepts

SIMATIC HMI offers different solutions for different requirements for operator control of large machines and plants spread over extensive areas.

Thus, the Sm@rtAccess option of the SIMATIC WinCC flexible visualization software, for example, allows HMI devices such as panels, Thin Clients and PCs plant-wide access via PROFINET/Ethernet to current process values and the local screen images of all involved stations.

SIMATIC HMI software offers appropriate options for diagnostics, maintenance and telecontrol over the Internet from local operator stations.

As remote operator stations, SIMATIC Thin Clients make the functionality of machine-level panels available in the control room or in the office, thanks to their connection to PROFINET/Ethernet, and in the other direction, they bring SIMATIC WinCC or office or IT functionality straight to the machine.

In PC-based applications, a SIMATIC Flat Panel monitor can take over the function of the operating unit from PCs, such as SIMATIC Rack or Box PC, at a distance of up to 30 m.

More than just operator control and monitoring

The Multi Panels under Windows CE combine the advantages of two worlds: On the one hand, the ruggedness of an operator panel and on the other hand the flexibility typical of a PC.

Apart from classical operator control and monitoring, other automation functions such as control functions can execute simultaneously. And for PC-based automation, the SIMATIC Panel PCs are available as a compact automation platform - the embedded versions being especially compact and rugged as well as maintenance-free.

Overview (continued)

All the advantages of Totally Integrated Automation

With Totally Integrated Automation (TIA), Siemens is the only supplier who offers a system-wide, integrated product and system range for automating the complete production workflow. The distinguishing feature of TIA is that it is completely integrated. The reduced number of interfaces results in very clear structures.

This reduces time and costs required for engineering the automation solution and increases the availability of the plant.

In conjunction with other SIMATIC components, SIMATIC HMI also supports system diagnostics and process diagnostics during normal operation. You can start STEP 7 diagnostics directly from WinCC for comprehensive error diagnostics from the circuit diagram through to the PLC program.

The SIMATIC Maintenance Station visualizes the maintenance information for the automation technology of a system – from the controller and network components to switchgear, protective equipment and control devices and the drives.

This gives a clear overview of the status of the automation at any time.

A competent partner for automation solutions

With SIMATIC HMI, you not only get excellent products to suit your requirements, we will also support you when selecting a partner for your automation solution. In our worldwide network of Siemens Automation Solution Partners, you will find competent contact partners in your area who are always up-to-date with SIMATIC HMI technology.

The Siemens-internal WinCC Competence Centers implement technology-specific products as well as customer and industry-specific solutions on the basis of WinCC.

WinCC specialists are external system integrators who combine their WinCC expertise with their industry and technology know-how to create tailor-made, cost-effective solutions. Numerous products from our partners that perfectly interact with WinCC are available as WinCC Add-ons.

Investment protection is included

Our many years of experience in the automation engineering sector are to your advantage. The same applies to our global service network with its expert support.

Further services, such as a software update service, training, ordering over the Internet, etc. round off what we have to offer.
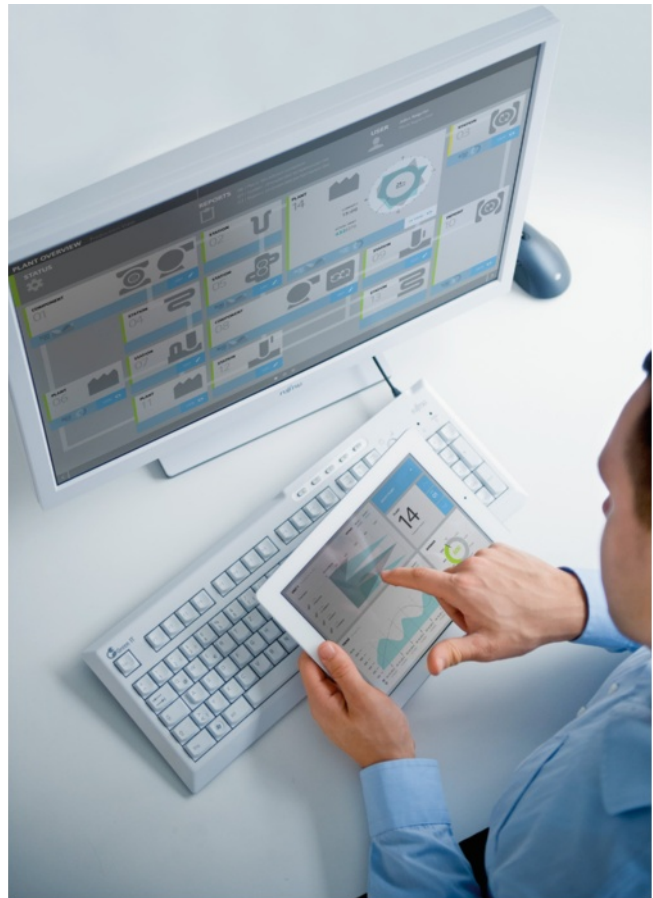
Introduction
A whole world of operator control and monitoring

SIMATIC HMI operator control and monitoring systems

1

SIMATIC® HMI®

HMI devices

SIMATIC HMI Key Panels

Operator panels with bus capability for easy and direct operation of machines.
www.siemens.com/key-panels

SIMATIC HMI Basic Panels

Operator panels with basic functionality for low-cost operator control and monitoring of simple applications.
www.siemens.com/basic-panels

SIMATIC HMI Comfort Panels

HMI devices with high-end functionality for demanding applications.
www.siemens.com/comfort-panels

SIMATIC HMI Mobile Panels

Mobile operator panels with or without cables for direct operator control of the plant and machine from any location.
www.siemens.com/simatic-mobile-panels

HMI devices for special requirements

Fully enclosed HMI devices for SIMATIC

The fully enclosed SIMATIC HMI devices (MP 377 PRO, HMI IPC477C PRO, Flat Panel PRO and Thin Client PRO) are ideal for industrial applications in harsh environments due to their extremely robust design. They are, for example, specially designed for mounting on a support arm/stand.
www.siemens.com/ip65-hmi-devices

Devices with stainless steel fronts

Panels and Panel PCs with touch screens and stainless steel fronts are designed for machine-level operator control and monitoring in the food, beverages and tobacco industry.
www.siemens.com/inox-hmi-devices

HMI devices for hazardous areas

Intrinsically safe Panel PCs and Thin Clients that were specifi-cally developed for hazardous areas.
www.siemens.com/simatic-hmi-ex

HMI software

Flexibility in any HMI application – from Basic Panels through to process visualization

SIMATIC WinCC in the Totally Integrated Automation Portal (TIA Portal) is part of a new, integrated engineering framework which offers a uniform engineering environment for programming and configuration of control, visualization and drive solutions.

WinCC in the TIA Portal is the software for all HMI applications ranging from the simplest operation solutions with Basic Panels to SCADA applications on PC-based multi-user systems.
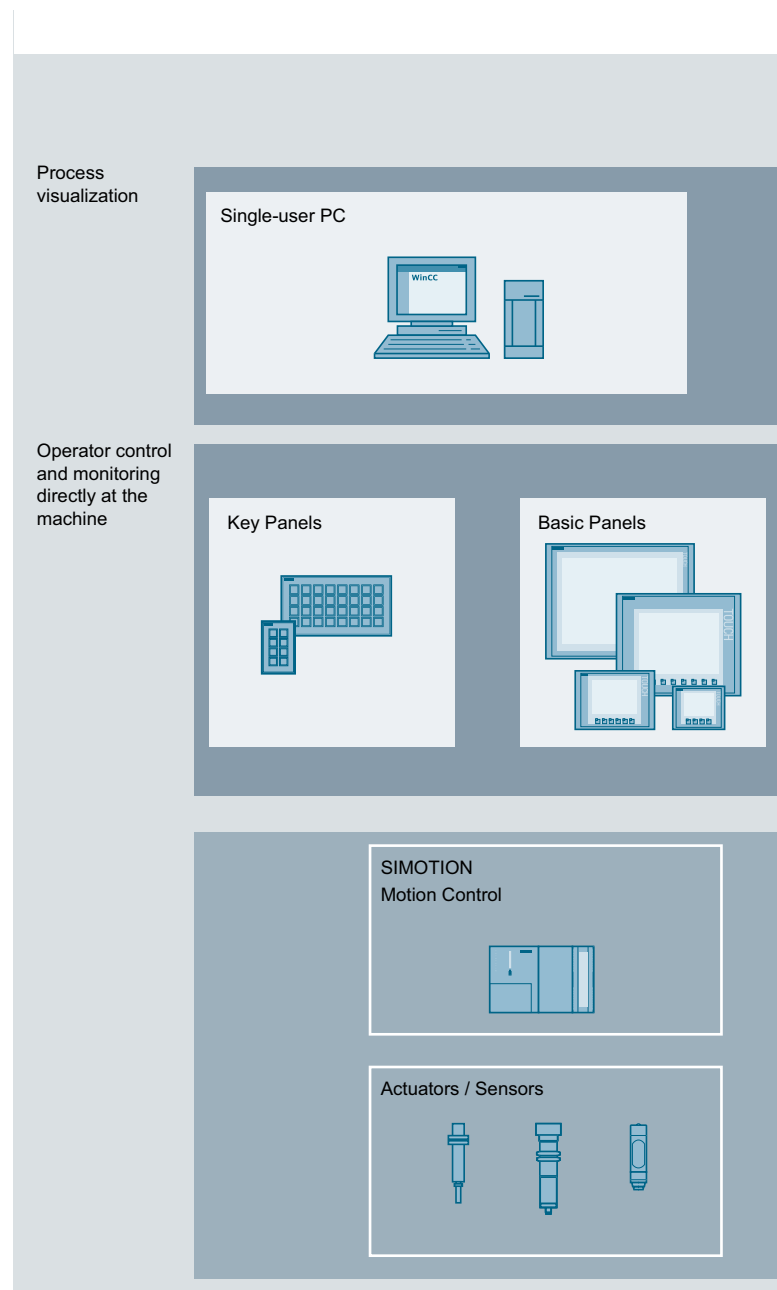www.siemens.com/tia-portal

SIMATIC WinCC V7 remains available for extremely complex applications featuring Plant Intelligence solutions, integrated archive servers or redundant architectures, whereas WinCC Open Architecture addresses applications with demanding customization requirements, also on non-Windows platforms.
www.siemens.com/wincc

WinCC Open Architecture adressiert Anwendungen mit hohem kundenspezifischen Anpassungsbedarf – auch auf Nicht-Windows-Plattformen.
www.siemens.com/wincc-open-architecture

Process visualization

Single-user PC

WinCC

Operator control and monitoring directly at the machine

Key Panels

Basic Panels
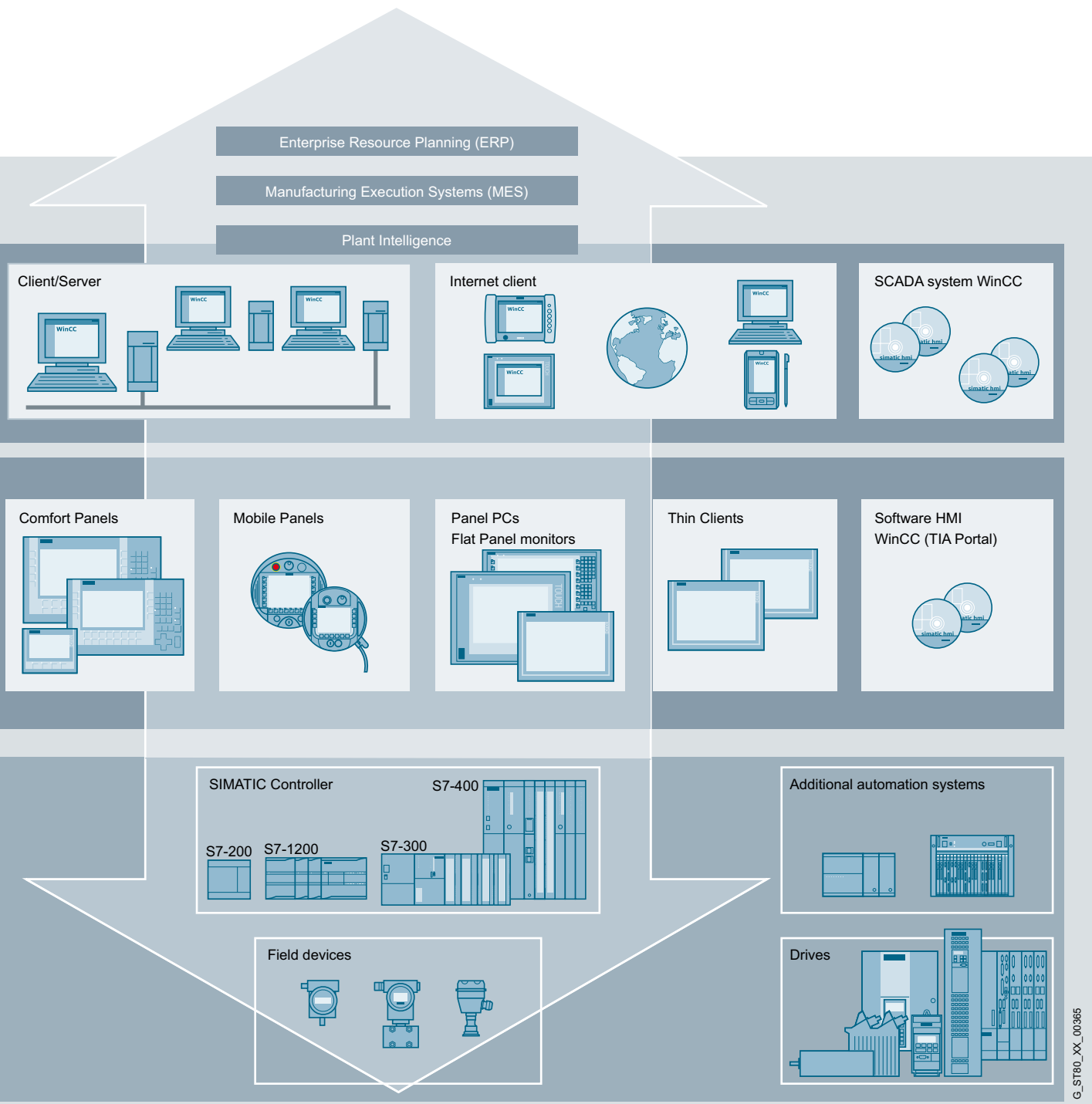
SIMOTION
Motion Control

Actuators / Sensors

Customized Automation

With Customized Automation, field-proven SIMATIC, SIMATIC IPC and SIMATIC HMI standards are transferred to individual products and systems – tailored precisely to the customer's requirements. The portfolio covers the hardware and software range, as well as support and logistics.
www.siemens.com/customized-automation

Enterprise Resource Planning (ERP)

Manufacturing Execution Systems (MES)

Plant Intelligence

Client/Server

WinCC

Internet client

WinCC

SCADA system WinCC

simatic hmi

Comfort Panels

Mobile Panels

Panel PCs
Flat Panel monitors

Thin Clients

Software HMI
WinCC (TIA Portal)

simatic hmi

SIMATIC Controller

S7-400

S7-200　S7-1200　S7-300

Additional automation systems

Field devices

Drives

G_ST80_XX_00365

Introduction

1

SIMATIC PC-based Automation

■ Overview
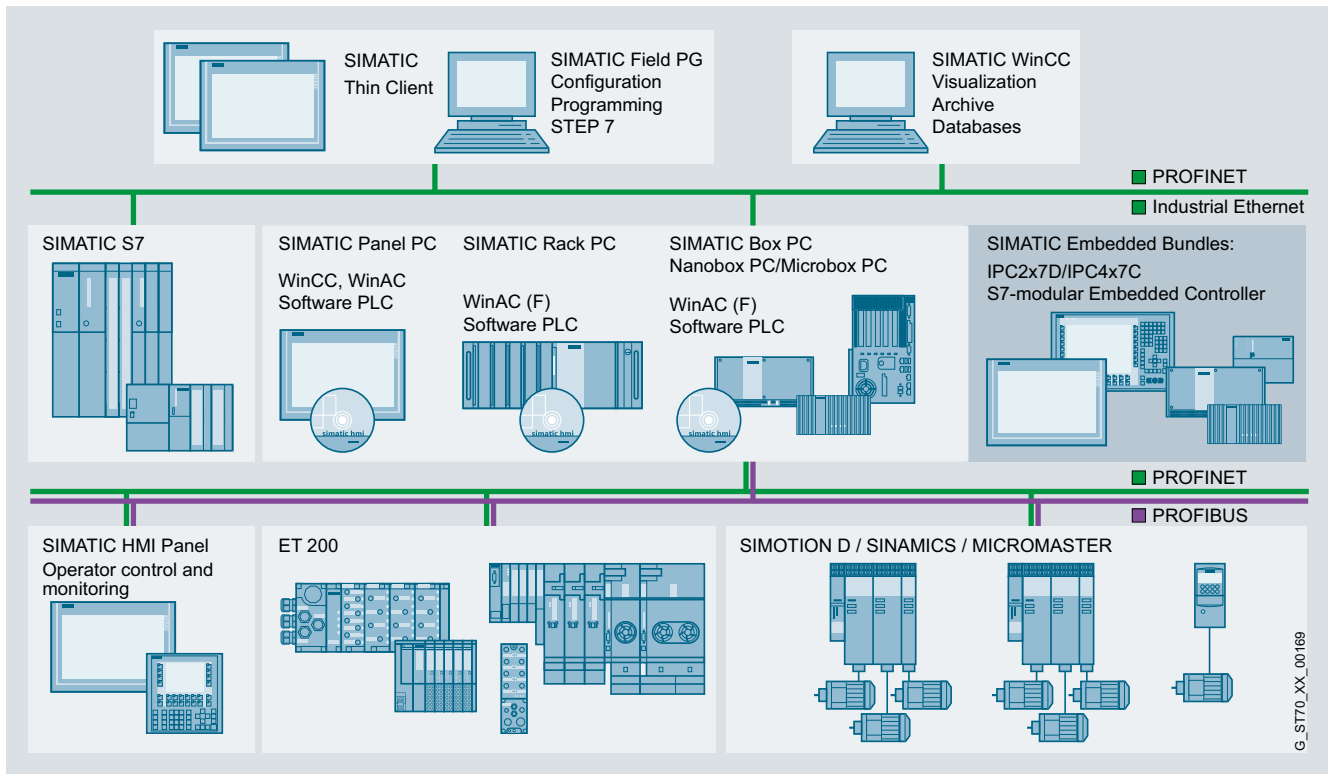
SIMATIIC PC-based Automation

www.siemens.com/pc-based

Industrial PCs

Our reliable and innovative industrial PCs are the optimal PC hardware platform for PC-based Automation from Siemens.

www.siemens.com/simatic-ipc

PC-based controllers

Siemens has developed a wide range of coordinated hardware and software components for PC-based Automation. Focal point: SIMATIC PC-based Control with SIMATIC WinAC, the open, flexible and reliable software controller for your PC-based automation solution, also approved by the German Technical Inspectorate and fail-safe.

www.siemens.com/winac

Embedded controllers

SIMATIC S7-mEC is a modular controller in S7-300 design with the latest embedded PC technology. It comprises the EC31 (CPU) as well as the optionally available expansion modules.

www.siemens.com/simatic-s7-mec

Embedded bundles with industrial PCs

Embedded bundles based on the embedded industrial PCs are extremely compact, robust, and maintenance-free systems for use at machine level. The functions PC-based Control (also fail-safe) and/or visualization are already pre-installed and ready to use.

www.siemens.com/simatic-embedded-bundles

Software packages for SIMATIC IPCs

SIMATIC industrial PCs are offered with low-cost software packages. For the runtime versions with the visualization software products SIMATIC WinCC or WinCC Professional, WinCC flexible or WinCC Advanced, as well as the software controller SIMATIC WinAC RTX (F). The simultaneous purchase of industrial PC and software package results in the price advantage.

www.siemens.com/simatic-ipc-packages

Industrial monitors and thin clients

Flexible distributed operating concepts can be implemented via Flat Panel monitors and thin clients. These are industry-standard LCD monitors with high-luminance displays that are placed up to 30 m away from the PC, or high-performance industrial thin clients. SIMATIC ITC, for one or even several operator stations, can be placed as far away as required via Industrial Ethernet.

www.siemens.com/simatic-ifp
www.siemens.com/simatic-itc

■ **Overview** (continued)

Application examples

Unit-type cogeneration unit

When redesigning unit-type cogeneration units, the automation approach should also be restructured. The objective was to execute all control, visualization and archiving tasks which were previously handled by a PLC and a PC on a compact unit. Space was to be saved in the control cabinet, and the administration and training requirements reduced. At the same time a rugged, maintenance-free device was required which can also be easily connected over the Internet.

The advantages of the solution with SIMATIC PC-based Automation:

• Microbox PC IPC427C as a rugged, compact embedded system
  - Control, visualization and archiving of the process parameters in one device
  - Space and cost savings thanks to integration of several tasks on a single embedded industrial PC
    Previously: one PLC and one visualization PC
• Easy and quick access to the embedded IPC over the Internet
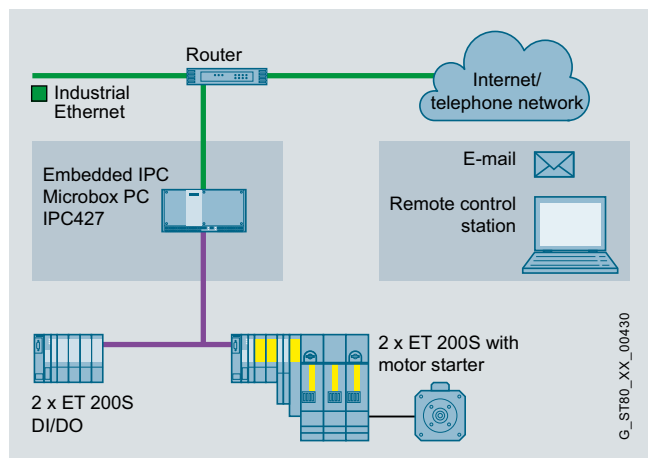
The plant concept

Measurement of foil thickness
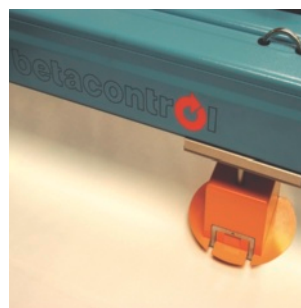
During the manufacture of plastic films, a highly accurate and uniform foil thickness over the entire width is a decisive quality criterion.
For this purpose, a measuring head with radioactive source moves back and forth above the film and perpendicular to the continuously transported reel, and a sensor moves underneath the foil.

From the attenuation of the radiation, the foil thickness can be determined exactly at each position by extensive mathematical calculations, and deviations from the reference thickness can be compensated.

The advantages of the solution with SIMATIC PC-based Automation:

• Visualization is performed using WinCC, and control using WinAC RTX on a PC.
• Complex mathematical algorithms are required for evaluation of the extensive measured data.
• These are meaningfully implemented in the high-level language C++. Seamless and high-performance integration of these algorithms into the STEP 7 program is via the ODK (Open Development Kit).
• Data exchange between WinAC RTX and WinCC, for visualization of the extensive measured curves, takes place very quickly via the hard drive cache. This functionality was also implemented via the ODK.
• Interconnection of the standardized technology function is via CFC (Continuous Function Chart).

The plant concept

Introduction

1
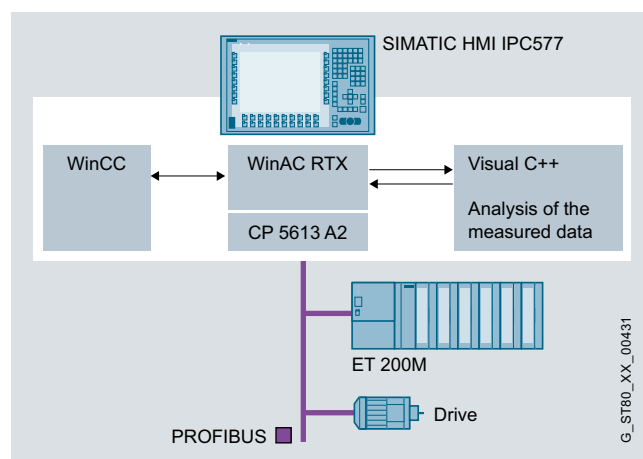
SIMATIC PC-based Automation

■ **Overview** (continued)

PC-based control of paint shops for plastic automotive parts

For reasons of quality assurance and product liability, paint shop manufacturers are obliged to use a host computer for archiving the process data of a paint shop for flat parts, but this quickly developed into a PC-based automation system with control tasks.

The advantages of the solution with SIMATIC PC-based Automation:

- Performance of the SIMATIC WinAC PC-based control.
- Coupling to Linux servers through an Industrial Ethernet fiber-optic network.
- Open and flexible for expansions.
- Possibility of integration into the existing automation concept.
- Archiving and backup of process data, as well as production data acquisition.

The plant concept

Innovative PC-based solution with safety for solar panel production

For a new plant for the production of solar panels, the existing highly heterogeneous concept is to be replaced by a new, state-of-the-art automation solution which can cover the comprehensive demands in a compact and integrated way.

There are increased performance and memory requirements due to the increased complexity of the system. The PLC should also be able to provide the specified safety functions (emergency stop, access protection to hazardous areas).

Various bus systems must be linked in plant 3. Also a customer-specific Windows application is to be used on the selected systems and therefore the connection to a higher-level MES system has to be implemented.

The system is designed for high throughput and three-shift operation.

The advantages of the solution with SIMATIC PC-based Automation:

- Very high performance and available memory with the SIMATIC Modular Embedded Controller EC31-RTX F. In the RTX F version (worldwide the first software PLC with safety functionality), the EC31 offers full coverage of all safety requirements in the plant. This system is integrated seamlessly in Totally Integrated Automation and enables effective, plant-wide engineering.
- Thanks to its openness (Open Development Kit), WinAC RTX on the host SCADA industrial PC offers the possibility for integrating a Windows customer application with very little effort, and is thus used as a data concentrator (process quality/diagnostic data), and communication with the host MES system is also implemented in combination with WinCC (SCADA).
- Industry-standard products from the SIMATIC range offer maximum quality for 24/7 round the clock operation.

SIMATIC PC-based Automation
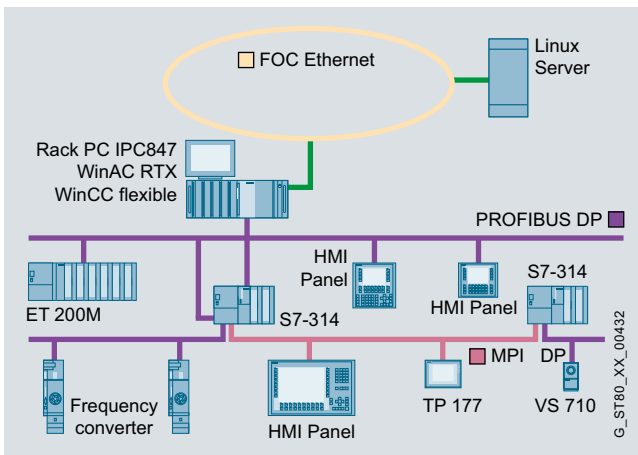
■ Overview (continued)

Safe transfer at sea

For transferring persons at sea to wind energy plants or oil platforms, a Dutch company has developed a six-legged platform on hydraulic cylinders. This platform is basically an upside-down flight simulator, and allows safe transfer from a ship even in bad weather.

A SIMATIC S7 modular embedded controller (S7-mEC) with fast I/O cards measures the movements of the ship and controls the extending or retracting of the cylinders so that all movements are compensated.

The advantages of the solution with SIMATIC PC-based Automation:

- Fault-tolerant SIMATIC S7-400H in redundant design for general control tasks.
- Two lower-level SIMATIC S7 modular embedded controllers which meet the requirements for high speeds, integration of fast I/O cards, and a flexible, modular and rugged design.
- An integrated programming environment with SIMATIC STEP 7.
- Automation products from Siemens comply with the stringent requirements of the offshore sector.

PC-based machine data acquisition optimizes the production of farming machinery

To introduce more efficient, resource-saving and therefore cost-effective production processes in the factory, a leading farming machinery manufacturer has integrated a central, plant-wide machine data acquisition system using Panel PCs. Due to the need for retrofitting in the existing environment, flexible and space-saving installation of the Panel PCs was paramount.

More than 200 fully enclosed SIMATIC HMI IPC477C PRO Panel PCs for central machine data acquisition with communications interfacing to the production machines and the production planning computer. Mounting of the Panel PCs directly at the machine without additional control boxes on stand-alone columns.

The advantages of the solution with SIMATIC PC-based Automation:

- Enhanced efficiency by optimizing the complete production organization through a high degree of uniformity.
- Minimized use of resources
  (less paper is required in production).
- Simple, low-cost retrofitting of the Panel PC directly in production on a stand, without the installation of an additional operator console.

Introduction

1

■ **Overview** (continued)

PC-based control in automotive test rigs

Test rigs in the automotive industry require trouble-free operation and high quality.

A high-performance system is required in the control, processing, archiving and visualization of measured data which can also provide openness and flexibility for connection to different bus systems and for the use of software.

The advantages of the solution with SIMATIC PC-based Automation:

- Flexible, easy-to-service and maintenance-friendly system with Windows XP Embedded in conjunction with SIMATIC WinAC.
- Reduction in integration overhead thanks to integral interfaces such as PROFINET, PROFIBUS, Ethernet, CAN, and the flexibility when using modules for different bus systems, e.g. PC/104.
- System availability concept ensures round-the-clock operation and reduced downtime costs.
- Fan-free, temperature-resistant operation up to 50°C saves additional cooling measures.
- High investment security through long-term availability of the components.
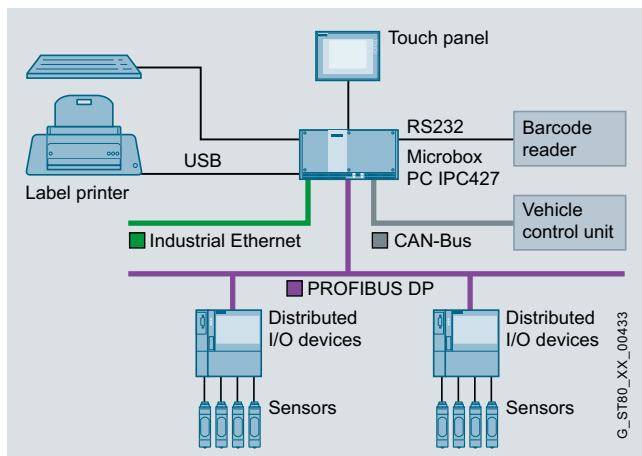
PC-based control in the semiconductor industry

In the semiconductor industry, high quality and fault-free operation round-the-clock are decisive criteria. A high-performance system that guarantees fast and precise production of the semiconductors is required for controlling the machines, monitoring the production system, and processing the production data.

High flexibility and openness are also required for connecting to the production control system and machine engineering system.

The advantages of the solution with SIMATIC PC-based Automation:

- Compact, rugged industrial PCs with powerful processors and the latest technology enable high processing performance.
- Pre-installed systems save time and costs when integrated into the overall system.
- WinCC ToolLink-EDA (equipment data acquisition) enables diagnostics of process and machine data in real time.
- System availability concept with integral RAID1 functionality and remote monitoring with SIMATIC PC DiagMonitor ensures fault-free 24-hour operation.
- High investment security through long-term availability of the components.
- International certification and worldwide support guarantee global use.
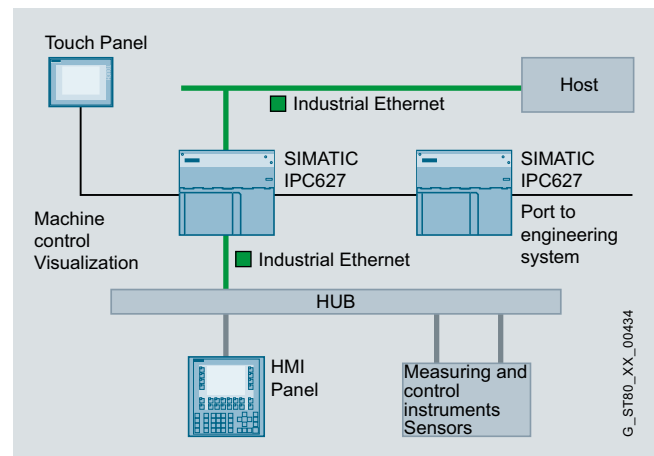
The plant concept

The plant concept

Overview (continued)

Track & trace line controller for tobacco industry

In order to comply with new legal regulations, a track & trace system in an existing plant has been extended.
The requirement is to test 100 cartons per minute in three-shift operation and to save the data in an SQL database for traceability reasons.

The automation system should be characterized by high ruggedness, but also offer the openness required to connect additional components such as printers and the Machine Vision system.

The advantages of the solution with SIMATIC PC-based Automation:

- Compact automation solution consisting of embedded industrial PC Microbox PC IPC427, PLC with preinstalled and ready-to-use software PLC WinAC RTX, and visualization with WinCC flexible.
- Control of the entire track & trace system and interfacing to the control system.
- Open solution with the help of the WinAC ODK (Open Development Kit) thanks to a link to an SQL database for managing the serial numbers and other data.
- Additional openness and flexibility by connecting printers and vision system.

Retrofit of a woodworking machine – safe!

In the past, machines and plants for wood-working were equipped with specially developed, proprietary controllers. Today, future-oriented standard components are used for retrofit projects. The customer decided in favor of integrating standard automation and safety technology in a single unit with the SIMATIC WinAC RTX F software controller in a fan-free and maintenance-free IPC, the SIMATIC IPC427C Microbox PC. PROFINET as an innovative fieldbus connects distributed I/O, safety and operator panels quickly and easily.

The advantages of the solution with SIMATIC PC-based Automation:

- The compact PC-based automation solution multiplies the performance and precision of the plant.
- Implementation of PROFINET resulted in a series of additional advantages such as the diagnostics capability.
- Integration of standard and fail-safe automation in a single unit achieved component savings. The size of the cabinet was reduced by 20 percent and the wiring by 50 percent. The customer benefited from a high level of operating convenience and minimized machine downtimes.

www.siemens.com/reference-video-kuper

Introduction

## SIMATIC PC-based Automation

■ **Overview** (continued)

Image processing with data backup

In image processing applications, high performance computers are required due to the large volume of data to be processed. The image data must be recorded, processed and saved quickly. Frame grabber cards with a high data throughput, for example, are used for recording image data. The interfaces for the expansion cards must not become bottle-necks in this case. To ensure continued problem-free processing of the acquired data, you need a state-of-the-art system with up-to-date processor and memory technology.

Lots of data is produced again during the subsequent data backup. Thus the available storage medium must be fast and fail-safe at the same time. An open system is required for connecting to existing plants.

The advantages of the solution with SIMATIC PC-based Automation:

- Rugged SIMATIC PC with state-of-the-art processor performance and the latest technology.
- Current interfaces such as PCI Express for applications with a high data throughput rate, e.g. frame grabber cards for recording image data.
- Visualization on up to two monitors with an optional, high-performance graphics card.
- Onboard communication interfaces such as Ethernet and PROFINET, e.g. for connecting to EPS systems or integration in existing systems.
- International certifications and global support facilitate the worldwide use of the image processing solution.
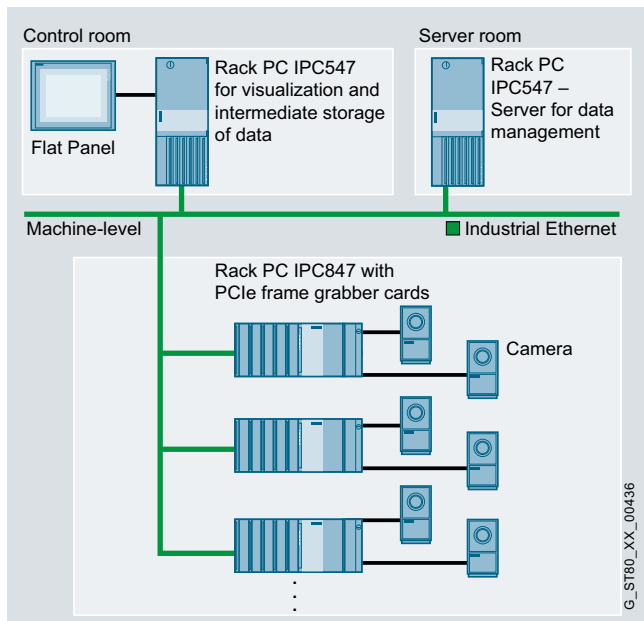
The plant concept

High-performance industrial PC for reliable control and monitoring of wind power plants.
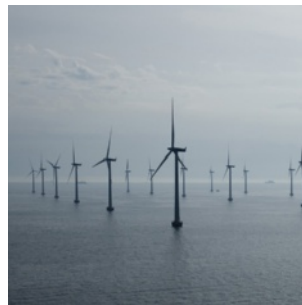
All Siemens turbines for offshore wind power plants feature special technical characteristics that ensure long-term, low-maintenance operation. In contrast to sites on land, offshore wind farms are not always accessible to service teams. The basic quality requirements and standards for all components used in terms of absolute fail-safety and reliability, are therefore extremely high.

The SIMATIC Box PC of the 627 series that has been implemented matches the requirements of the solution provider all the way down the line. The rugged industrial PC is designed for 24-hour continuous duty at ambient temperatures up to 55 °C. For reliable operation, the Box PC is installed in a solid metal enclosure that is resistant to shock and vibration and that demonstrates a high degree of of electromagnetic compatibility (EMC). For a high level of data security, the option of a mirror disk system with two hard disks (RAID1) was selected. The RAID1 controller is already onboard, and does not occupy a PCI slot.

The rugged, reliable hardware with extremely compact dimensions in durable industrial design also stands up to the demands of continuous operation in a harsh environment.

The advantages of the solution with SIMATIC PC-based Automation:

- The mounting dimensions of Box PCs remain identical over several device generations and mounting solutions can be simply reused for the next generation.
- Furthermore, when a new device generation is used, any front-accessible interfaces and function elements can be retained. For example, the Siemens Wind division already utilized a complete lifecycle of a Box PC generation and no adjustments to a new hardware platform were required when the successor product was introduced.
- Through compliance with international standards, such as CE and UL, and worldwide service, the Box PC can be implemented round the globe.

Operator panels

2

Operator panels
Introduction

2

Introduction

■ **Overview**

A finely graded range of HMI devices is available for local operator control and monitoring: From Key Panels and Basic Panels to Comfort Panels and Mobile Panels. HMI devices with all-round IP65/NEMA 4 protection for distributed configurations are available for applications with especially high requirements with regard to ruggedness.

Key Panels

Key Panels (KP) are the innovative alternative to conventionally wired operator keypads. Supplied pre-assembled and ready for installation, the bus-compatible operator panels are the key to drastically reducing wiring times when compared with conventional methods.

Basic Panels

Basic Panels offer basic HMI functionality for small machines and applications. They are available in 3" and 4" sizes as a pure Key Panel (KP), from 4" to 10" with touch screen and additional keys (KTP), and as a pure Touch Panel (TP) in size 15". Variants can be selected for connection to PROFINET/Ethernet or PROFIBUS DP/MPI.

Comfort Panels

Comfort Panels offer high-end functionality for demanding applications. They offer high-resolution widescreen displays in sizes from 4" to 22", alternatively for touch screen operation (TP) or key operation (KP). In size 4" also with touch screen and additional keys (KTP).

The Comfort Panels are equipped with PROFINET/Ethernet as well as PROFIBUS DP/MPI interfaces.

Mobile Panels

The portable operator panels facilitate operator control and monitoring at the actual scene of the event with direct access and visual contact to the process. They provide simple and safe reconnection during operation (Mobile Panel 177 and Mobile Panel 277) or wireless freedom (Mobile Panel 277 (F) IWLAN) and can therefore be used flexibly on a machine or system.

2

■ Overview (continued)

Rugged and compact for use at machine level

With IP65/NEMA 4 degree of protection at the front, high EMC and extreme vibration resistance, the SIMATIC HMI operator panels are ideally suited for use at machine level in rough industrial environments. Thanks to their compact design with a shallow mounting depth, the stationary HMI devices can be fitted anywhere, even where only restricted space is available. For distributed configurations, there are also devices available with all-round IP65/NEMA 4 protection.

The extremely rugged and shock-proof enclosure with degree of protection IP65 makes the Mobile Panels especially suitable for industrial applications. Their low weight and ergonomic design means that they are user-friendly and easy to operate.

One configuration software for everything

SIMATIC WinCC (TIA Portal) is a tool for the uniform configuration of all SIMATIC HMI Panels as well as PC-based systems. Graded variants are available for every task. The software permits simple and efficient configuration. Programming experience is not required.

Once created, configurations can be reused within the family.

Component of Totally Integrated Automation

Siemens provides the complete modular system of matched components for automation solutions from one source and — with Totally Integrated Automation — one of the most globally successful automation concepts. SIMATIC WinCC (TIA Portal) is an integral component of this world. It offers crucial advantages. Thanks to the triple uniformity in configuration/programming, data management and communication, automation solution engineering costs are significantly reduced.

Open for a wide variety of automation systems

Despite being consistently incorporated into the SIMATIC world, the Panels are nevertheless open for connection to PLCs from many different vendors. The standard delivery includes a comprehensive range of user-friendly drivers.

Innovative operator control and monitoring

The SIMATIC HMI Panels facilitate innovative operator control and monitoring combined with ruggedness, stability and simplicity. On the Comfort Panels in particular, standard hardware and software interfaces, e.g. the Multimedia Card/SD Card, USB, Ethernet, PROFIBUS DP and Visual Basic scripts, provide more flexibility and openness as well as access to the office world.

Worldwide application

The SIMATIC HMI Panels are ideally equipped for global use. Online language switching permits selection of up to 32 languages during operation simply by pressing a button. The wide variety available also includes, for example, Asian logographic languages (Chinese, Taiwanese, Korean, Japanese) or Russian. The configuration interface of WinCC (TIA Portal) including the online help and the complete documentation is also multilingual. Up to 32 languages can be used in one project. And all this is complemented by global service and support from Siemens.

Operator panels
Introduction

Introduction

■ **Overview** (continued)
Configuration at a Glance

	WinCC (TIA Portal) engineering software			
	Basic	**Comfort**	**Advanced**	**Professional**
Basic Panels				
KP300 Basic	•	•	•	•
KTP400 Basic mono PN	•	•	•	•
KTP400/KP400 Basic color PN	• [2]	• [2]	• [2]	• [2]
KTP600 Basic	•	•	•	•
KTP1000 Basic	•	•	•	•
TP1500 Basic	•	•	•	•
Comfort Panels				
KTP400/KP400 Comfort		•	•	•
TP700/KP700 Comfort		•	•	•
TP900/KP900 Comfort		•	•	•
TP1200/KP1200 Comfort		•	•	•
TP1500/KP1500 Comfort		• [2]	• [2]	• [2]
TP1900 Comfort		• [2]	• [2]	• [2]
TP2200 Comfort		• [2]	• [2]	• [2]
Mobile Panels				
Mobile Panel 177		•	•	•
Mobile Panel 277		•	•	•
Mobile Panel 277(F) IWLAN		• [3]	• [3]	• [3]
Panels – 70 series				
OP73		•	•	•
OP77A		•	•	•
OP77B		•	•	•
Panels – 170 series				
TP 177A		•	•	•
TP/OP 177B		•	•	•
Panels – 270 series				
TP 277/OP 277		•	•	•
Multi Panels – 170 series				
MP 177		•	•	•
Multi Panels – 270 series				
MP 277		•	•	•
Multi Panels – 370 series				
MP 377		•	•	•
WinAC MP				
WinAC MP 177		• [1]	• [1]	• [1]
WinAC MP 277		• [1]	• [1]	• [1]
WinAC MP 377		• [1]	• [1]	• [1]

• Possible

[1] from WinCC (TIA Portal) V11 SP1

[2] from WinCC (TIA Portal) V11 SP2 Update 2

[3] from WinCC (TIA Portal) V11 SP2

2

■ **Overview** (continued)

	WinCC flexible engineering software			
	Micro	**Compact**	**Standard**	**Advanced**
Basic Panels				
KTP400 Basic mono PN		●[5]	●[5]	●[5]
KTP600 Basic		●[5]	●[5]	●[5]
KTP1000 Basic		●[4]	●[4]	●[4]
TP1500 Basic		●[4]	●[4]	●[4]
Mobile Panels				
Mobile Panel 177		●[1]	●[1]	●[1]
Mobile Panel 277			●[2] [4]	●[2] [4]
Mobile Panel 277(F) IWLAN			●[3]	●[3]
Micro Panels				
OP 73micro	●	●	●	●
TP 177micro	●	●	●	●
Panels – 70 series				
OP 73		●	●	●
OP 77A/B		●	●	●
Panels – 170 series				
TP 177A		●	●	●
TP/OP 177B		●[1]	●[1]	●[1]
Panels – 270 series				
TP 277/OP 277			●[2]	●[2]
Multi Panels – 170 series				
MP 177		●[5]	●[4]	●[4]
Multi Panels – 270 series				
MP 277			●	●
Multi Panels – 370 series				
MP 377			●[3]	●[3]
WinAC MP				
WinAC MP 177		●[5]	●[5]	●[5]
WinAC MP 277			●[5]	●[5]
WinAC MP 377			●[5]	●[5]

● Possible

[1] WinCC flexible 2005 or higher and TP 177B 4" with WinCC flexible 2008 and higher

[2] WinCC flexible 2005 SP1 and higher

[3] WinCC flexible 2007 and higher: Mobile Panel 277(F) IWLAN V1; WinCC flexible 2008 SP2 and higher: Mobile Panel 277(F) IWLAN V2

[4] WinCC flexible 2008 and higher

[5] WinCC flexible 2008 SP1 and higher

Operator panels
Key Panels

■ **Overview**
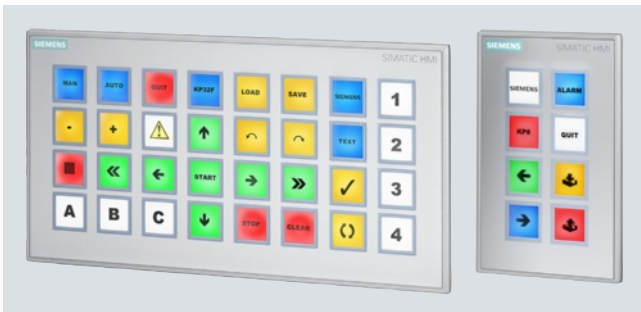
SIMATIC HMI KP32F and HMI KP8

Empty front (similar to figure)

Empty front (similar to figure)

SIMATIC HMI Key Panels

- Optimum operability thanks to large mechanical keys and multi-colored LED backlighting (daylight readable)
- Over 60% time savings for wiring and installation (Plug&Play)
- More than 30% savings in material costs compared to conventional keypad operator panels
- 2 PROFINET ports (incl. switch) already integrated for setting up line and ring topologies
- Freely configurable digital I/Os on the rear for connecting key-operated switches, indicator lamps, etc.
- Connection of fail-safe emergency stop buttons or other fail-safe signals with KP8F and KP32F (in SIL2 or SIL3)
- Functionally compatible with all standard PROFINET master CPUs, also non-Siemens
- KP8 and empty front design, also optimized for installation in IPC Extension Units in IP65
- Maximum flexibility due to parameterization
- Empty front design for standardized assembly of flexible operator panels
- KP8 and empty front design, also optimized for installation in IPC Extension Units in IP65

■ **Technical specifications**

	6AV3688-3AY36-0AX0	6AV3688-3AF37-0AX0	6AV3688-3EH47-0AX0	6AV3688-3XY38-3AX0
	SIMATIC HMI KP8 PN	SIMATIC HMI KP8F PN	SIMATIC HMI KP32F PN	SIMATIC HMI design empty front
Control elements				
With parameterizable keys	Yes	Yes	Yes	No
With key and signal lamp test	Yes; Automatically when switching on	Yes; Automatically when switching on	Yes; Automatically when switching on	No
Keyboard fonts • freely inscribable membrane keys • Short stroke keys	Yes	Yes	Yes	No
- Number of short-stroke keys	8	8	32	0
Expansions for operator control of the process • Number/LEDs	8	8	32	0
• Number of color modes for LED	5; Red, green, blue, white, yellow	5; Red, green, blue, white, yellow	5; Red, green, blue, white, yellow	0
• Number/keys	8	8	32	0
Installation type/mounting				
Rack mounting possible	No	No	No	No
Design/front/fastening	Yes; Compatible with extension unit dimensions	Yes; Compatible with extension unit dimensions	Yes	Yes; Compatible with extension unit dimensions
Mounting rail installation possible	No	No	No	No
Wall mounting/direct mounting possible	No	No	No	No
Mounting in portrait format possible	Yes	Yes	Yes	Yes
Mounting in landscape format possible	Yes	Yes	Yes	Yes
Mounting technology • Clamp terminals	Yes	Yes	Yes	Yes
Number of slots for command devices and signaling units	0	0	0	5; Max. 5 possible
Supply voltage				
Type of supply voltage	DC	DC	DC	external
Rated voltage/DC	24 V	24 V	24 V	
permissible range, lower limit (DC)	20.4 V	20.4 V	20.4 V	
permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V	
Type of output LED colors • Red	Yes	Yes	Yes	No
• Yellow	Yes	Yes	Yes	No
• Green	Yes	Yes	Yes	No
• white	Yes	Yes	Yes	No
• blue	Yes	Yes	Yes	No
Digital inputs				
Number/binary inputs	8; Max. 8 inputs and outputs (total)	8; Max. 32 inputs and outputs (total)	32; Max. 32 inputs and outputs (total)	0
Digital outputs				
Number/binary outputs	8; Max. 8 inputs and outputs (total)	8; Max. 8 inputs and outputs (total)	16; Max. 32 inputs and outputs (total)	0
Load "resistive"	100 mA	100 mA	100 mA	
Voltage (DC)	24 V; Non-isolated	24 V; Non-isolated	24 V; Non-isolated	
Number of digital outputs • Output current (per output) max.	100 mA	100 mA	100 mA	
• Total current (per group), max.	800 mA	800 mA	800 mA	
• Short-circuit protection	Yes	Yes	Yes	No

Operator panels
Key Panels

SIMATIC HMI KP8/KP8F/32F

■ **Technical specifications** (continued)

	6AV3688-3AY36-0AX0 SIMATIC HMI KP8 PN	6AV3688-3AF37-0AX0 SIMATIC HMI KP8F PN	6AV3688-3EH47-0AX0 SIMATIC HMI KP32F PN	6AV3688-3XY38-3AX0 SIMATIC HMI design empty front
Interfaces				
Supports protocol for PROFINET IO				
• Number of PROFINET interfaces	2; Incl. switch	2; Incl. switch	2; Incl. switch	0
Industrial Ethernet				
• Number of industrial Ethernet interfaces	2; For the construction of lines and rings without external switch	2; For the construction of lines and rings without external switch	2; For the construction of lines and rings without external switch	0
• Industrial Ethernet status LED	2; Per port	2; Per port	2; Per port	0
• Number of ports of the integrated switch	2; Per port	2; Per port	2; Per port	0
Protocols				
PROFINET	Yes; Incl. shared device	Yes; Incl. shared device	Yes; Incl. shared device	No
Supports protocol for PROFINET IO	Yes	Yes	Yes	No
IRT supported	Yes	Yes	Yes	No
MRP supported	Yes	Yes	Yes	No
PROFINET CBA	No	No	No	No
Supports protocol for PROFIsafe	No	Yes; Mode V2.0; 2 inputs can be used	Yes; Mode V2.0; 4 inputs can be used	No
PROFIBUS	No	No	No	No
Test commissioning functions				
Illuminant test	Yes; During switch on	Yes; During switch on	Yes; During switch on	No
Pushbutton and lamp test	Yes; During switch on	Yes; During switch on	Yes; During switch on	No
EMC				
Emission of radio interference acc. to EN 55 011				
• Emission of radio interferences acc. to EN 55 011 (limit class A)	Yes; Group 1, measured at a distance of 10 m	Yes; Group 1, measured at a distance of 10 m	Yes; Group 1, measured at a distance of 10 m	No
• Emission of radio interference acc. to EN 55 011 (limit class B)	No	No	No	No
Degree and class of protection				
Type of protection	IP20	IP20	IP20	IP20
IP (at the front)	IP65	IP65	IP65	IP65
Enclosure type 4x at the front	Yes; Incl. NEMA12	Yes; Incl. NEMA12	Yes; Incl. NEMA12	No
Standards, approvals, certificates				
CE	Yes	Yes	Yes	Yes
KC approval	Yes	Yes	Yes	No
cULus	Yes	Yes	Yes	No
C-TICK	Yes	Yes	Yes	No
GL	No	No	No	No
ABS	No	No	No	No
BV	No	No	No	No
DNV	No	No	No	No
LRS	No	No	No	No
Class NK	No	No	No	No
PRS	No	No	No	No
Suitable for safety functions	No	Yes	Yes	Yes; e.g. installation of emergency stop
Use in hazardous areas				
• ATEX Zone 2	Yes	Yes	No; On request	No
• ATEX Zone 22	Yes	Yes	No; On request	No
• cULus Class I Zone 1	No	No	No	No
• cULus Class I Zone 2, Division 2	Yes	Yes	Yes	No
• FM Class I Division 2	Yes	Yes; Available soon	Yes	No

■ **Technical specifications** (continued)

	6AV3688-3AY36-0AX0 SIMATIC HMI KP8 PN	6AV3688-3AF37-0AX0 SIMATIC HMI KP8F PN	6AV3688-3EH47-0AX0 SIMATIC HMI KP32F PN	6AV3688-3XY38-3AX0 SIMATIC HMI design empty front
Ambient conditions				
Mounting position	vertical	vertical	vertical	Any
maximum permissible angle of inclination without external ventilation	30°; To the front/rear	30°; To the front/rear	30°; To the front/rear	180°; To the front/rear
Operating temperature				
• Operating temperature range, max.	55 °C	55 °C	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C	0 °C
• Operation (vertical installation)				
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	55 °C	55 °C	55 °C	55 °C
• Operation (max. tilt angle)				
- at maximum tilt angle/ minimum	0 °C	0 °C	0 °C	0 °C
- at maximum tilt angle/ maximum	45 °C	45 °C	45 °C	45 °C
• Operation (vertical installation, portrait format)				
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	45 °C	45 °C	45 °C	45 °C
• Operation (max. tilt angle, portrait format)				
- at maximum tilt angle/ minimum	0 °C	0 °C	0 °C	0 °C
- at maximum tilt angle/ maximum	45 °C	45 °C	45 °C	45 °C
Storage/transport temperature				
• Min.	-20 °C	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C	60 °C
Relative humidity				
• max. relative humidity	95 %	95 %	95 %	95 %
Configuration				
Configuration software				
• STEP 7 Basic (TIA Portal)	Yes	Yes	Yes	No
• STEP 7 Professional (TIA Portal)	Yes	Yes	Yes	No
Functionality under WinCC (TIA Portal)				
Process coupling				
• S7-1200	Yes	Yes	Yes	Yes
• S7-1500	Yes	Yes	Yes	Yes
• S7-200	No	No	No	No
• S7-300/400	Yes	Yes	Yes	Yes
• LOGO!	No	No	No	No
• Win AC	Yes	Yes	Yes	Yes
• SINUMERIK	No	No	No	No
• SIMOTION	No	No	No	No
• Allen Bradley (EtherNet/IP)	No	No	No	No
• Allen Bradley (DF1)	No	No	No	No
• Mitsubishi (MC TCP/IP)	No	No	No	No
• Mitsubishi (FX)	No	No	No	No
• OMRON (FINS TCP)	No	No	No	No
• OMRON (LINK/Multilink)	No	No	No	No
• Modicon (Modbus TCP/IP)	No	No	No	No
• Modicon (Modbus)	No	No	No	No

Operator panels
Key Panels

SIMATIC HMI KP8/KP8F/32F

■ **Technical specifications** (continued)

	6AV3688-3AY36-0AX0 SIMATIC HMI KP8 PN	6AV3688-3AF37-0AX0 SIMATIC HMI KP8F PN	6AV3688-3EH47-0AX0 SIMATIC HMI KP32F PN	6AV3688-3XY38-3AX0 SIMATIC HMI design empty front
Mechanics/material				
Type of housing (front)				
• Plastic	Yes	Yes	No	No
• Aluminum	No	No	Yes	Yes
Lifetime, typ.				
• Short-stroke keys (in switching cycles)	1500000	1500000	1500000	
Dimensions				
Width of the housing front	98 mm	98 mm	295 mm	98 mm
Height of housing front	155 mm	155 mm	155 mm	155 mm
Mounting cutout (W x H x D)				
• Mounting cutout, width	68 mm; Max. thickness of mounting plate 2-6 mm	68 mm; Max. thickness of mounting plate 2-6 mm	277 mm; Max. thickness of mounting plate 2-6 mm	68 mm; Max. thickness of mounting plate 2-6 mm
• Mounting cutout, height	129 mm	129 mm	137 mm	129 mm
Depth/installation dimension	49 mm; Incl. angled SIMATIC Ethernet connector	49 mm; Incl. angled SIMATIC Ethernet connector	69 mm; Incl. angled SIMATIC Ethernet connector	49 mm
Weight				
Weight without packaging	270 g	280 g	1 220 g	240 g

■ **Ordering data** | **Order No.**

SIMATIC HMI KP8 PN — **6AV3688-3AY36-0AX0**

Key Panel, 8 short-stroke keys with multicolored LEDs, PROFINET interfaces, 2 x parameterizable with STEP 7 V5.5 or higher

SIMATIC HMI KP8F PN — **6AV3688-3AF37-0AX0**

Key Panel, 8 short-stroke keys with multicolored LEDs, PROFINET interfaces with PROFIsafe, parameterizable with STEP 7 V5.5 or higher; 4 additional fail-safe inputs. Can be used as 2 x SIL 2 or 1 x SIL 3

SIMATIC HMI KP32F PN — **6AV3688-3EH47-0AX0**

Key Panel, 32 short-stroke keys with multicolored LEDs, PROFINET interfaces with PROFIsafe, parameterizable with STEP 7 V5.5 or higher; including 8 fail-safe inputs. Can be used as 4 x SIL 2 or 2 x SIL 3

Empty front design — **6AV3688-3XY38-3AX0**

for standard 22.5 mm operator controls, same mounting dimensions as KP8

Demo case — **A5E31477788**

SIMATIC HMI Key Panel – low-cost demo and experiment case
• Includes:
 - 1x case
 - 1x KP8 PN
 - 1x CPU1211C
 - 1x stand, permanently wired, including program
• Power supply possible with a standard laptop mains adapter (not included in scope of supply)

Only by fax to Siemens AG, Mr. Michael Christ Industry Sector, I IA CE SE MF RS FDS Wuerzburger Str. 121, 90766 Fuerth, Germany Tel.: +49 911 750-4128 Fax: +49 911 750-2411

Documentation | **Order No.**

You can find the manual for the Key Panels on the Internet at: http://support.automation.siemens.com/WW/view/en/56652789

Accessories — See SIMATIC HMI accessories, from page 2/96

Dimensional drawings

All dimensions in mm. For installation cutout, see technical specifications.
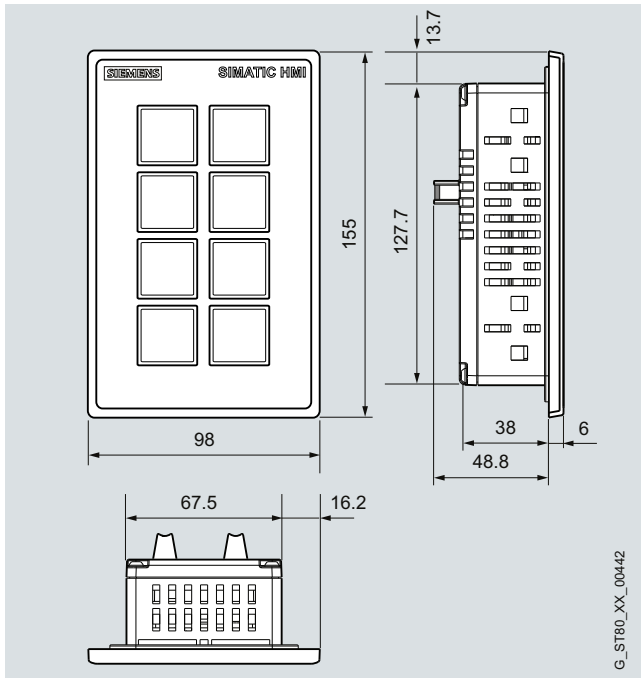
SIMATIC HMI Key Panel KP8; installation dimensions also valid for empty front design
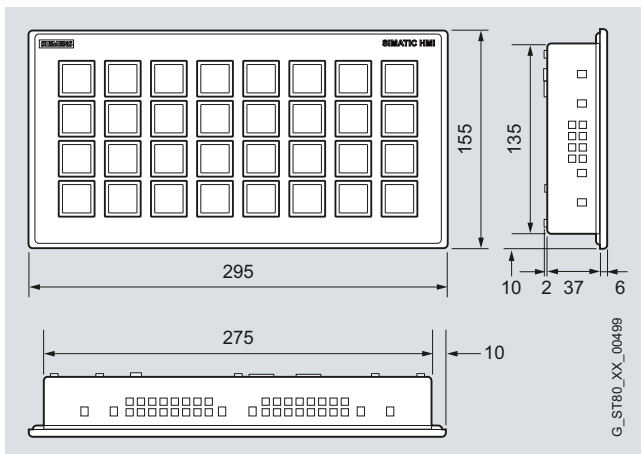
SIMATIC HMI Key Panel KP32F

More information

Additional information is available on the Internet at:
http://www.siemens.com/simatic-key-panels

Note:

Do you need a specific modification or extension to the products described here? If so, refer to "Customized Automation". There you will find information about additional and generally available sector-specific products as well as options for customer-specific modification and adaptation.

Demo case

Can be ordered by fax:

Siemens AG, Mr. Michael Christ
Industry Sector, I IA CE SE MF RS FDS
Wuerzburger Str. 121, 90766 Fuerth, Germany
Phone: +49 911 750-4128
Fax: +49 911 750-2411

Operator panels
Basic Panels

Basic Panels – Standard

■ Overview
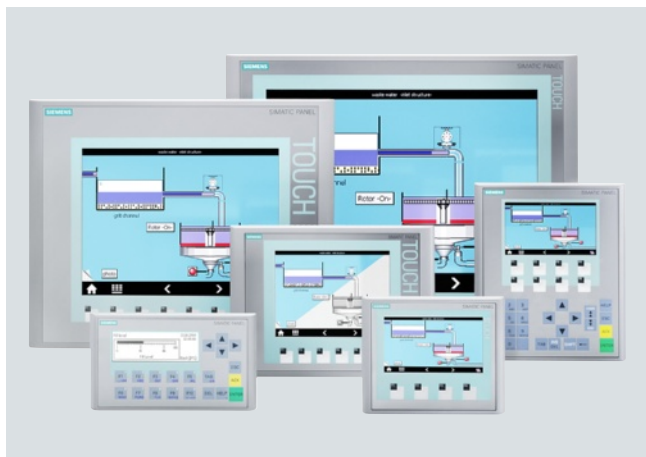
- Ideal entry-level series from 3" to 15" for operating and monitoring compact machines and systems
- Clear process representation thanks to use of pixel-graphics displays
- Intuitive operation using Touch and tactile function keys
- Equipped with all the necessary basic functions such as alarm logging, recipe management, plots, vector graphics, and language switching
- Simple connection to the controller via integral Ethernet interface or separate version with RS 485/422
- Faster commissioning thanks to integrated diagnostics viewer and IP setting for SIMATIC S7-1200 and S7-1500 PLCs

■ Technical specifications

	6AV6647-0AA11-3AX0	6AV6647-0AK11-3AX0	6AV6647-0AB11-3AX0	6AV6647-0AC11-3AX0
	SIMATIC HMI KTP400 Basic mono PN	**SIMATIC HMI KTP400 Basic color PN**	**SIMATIC HMI KTP600 Basic mono PN**	**SIMATIC HMI KTP600 Basic color DP**
Display				
Design of display	STN	TFT	STN	TFT
Screen diagonal	3.8 in	4.3 in	5.7 in	5.7 in
Number of colors	4; Grayscales	256	4; Grayscales	256
Resolution (pixels)				
• Horizontal image resolution	320	480	320	320
• Vertical image resolution	240	272	240	240
Backlighting				
• MTBF backlighting (at 25 °C)	30 000 h	50 000 h	50 000 h	50 000 h
• Dimmable backlight	No	No	No	No
Control elements				
Keyboard fonts				
• Number of function keys	4	4	6	6
Touch operation				
• Design as touch screen	Yes	Yes	Yes	Yes
Installation type/mounting				
Mounting in portrait format possible	Yes	Yes	Yes	Yes
Supply voltage				
Type of supply voltage	DC	DC	DC	DC
Rated voltage/DC	24 V	24 V	24 V	24 V
Memory				
Usable memory for user data	1 Mbyte	1 Mbyte	1 Mbyte	1 Mbyte
Type of output				
Acoustics				
• Buzzer	Yes	Yes	Yes	Yes
Time of day				
Clock				
• Software clock	Yes	Yes	Yes	Yes
• Battery-backed	No	No	No	No
• Synchronizable	Yes	Yes	Yes	Yes
Interfaces				
Number of RS 485 interfaces	0	0	0	1
Number of USB interfaces	0	0	0	0
Number of SD card slots	0	0	0	0
Industrial Ethernet				
• Number of industrial Ethernet interfaces	1	1	1	0

■ **Technical specifications** (continued)

	6AV6647-0AA11-3AX0	6AV6647-0AK11-3AX0	6AV6647-0AB11-3AX0	6AV6647-0AC11-3AX0
	SIMATIC HMI KTP400 Basic mono PN	SIMATIC HMI KTP400 Basic color PN	SIMATIC HMI KTP600 Basic mono PN	SIMATIC HMI KTP600 Basic color DP
Protocols				
PROFINET	Yes	Yes	Yes	No
PROFIBUS	No	No	No	Yes
MPI	No	No	No	Yes
Degree and class of protection				
Type of protection	IP20	IP20	IP20	IP20
IP (at the front)	IP65	IP65	IP65	IP65
Enclosure type 4x at the front	Yes	Yes	Yes	Yes
Standards, approvals, certificates				
CE	Yes	Yes	Yes	Yes
cULus	Yes	Yes	Yes	Yes
GL	Yes	Yes	Yes	Yes
ABS	Yes	Yes	Yes	Yes
BV	Yes	Yes	Yes	Yes
DNV	Yes	Yes	Yes	Yes
LRS	Yes	Yes	Yes	Yes
Class NK	Yes	Yes	Yes	Yes
Use in hazardous areas				
• ATEX Zone 2	No	No	No	No
• ATEX Zone 22	No	No	No	No
• cULus Class I Zone 2, Division 2	No	No	No	No
• FM Class I Division 2	No	No	No	No
Ambient conditions				
Operating temperature				
• Operation (vertical installation)				
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	50 °C	50 °C	50 °C	50 °C
Relative humidity				
• max. relative humidity	90 %	90 %	90 %	90 %
Configuration				
Configuration software				
• STEP 7 Basic (TIA Portal)	Yes; via integrated WinCC Basic (TIA Portal)	Yes; via integrated WinCC Basic (TIA Portal)	Yes; via integrated WinCC Basic (TIA Portal)	Yes; via integrated WinCC Basic (TIA Portal)
• WinCC flexible Compact	Yes	No	Yes	Yes
• WinCC Basic (TIA Portal)	Yes	Yes	Yes	Yes
Languages				
Online languages				
• Number of online/runtime languages	5	5	5	5
Functionality under WinCC (TIA Portal)				
Task planner				
• time-controlled	No	No	No	No
• task-controlled	Yes	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment)				
• Number of bit messages	200	200	200	200
• Number of analog messages	15	15	15	15
• Message buffer				
- Number of entries	256	256	256	256
- Circulating buffer	Yes	Yes	Yes	Yes
- retentive	Yes	Yes	Yes	Yes
Recipes				
• Number of recipes	5	5	5	5
• Size of internal recipe memory	40 kbyte	40 kbyte	40 kbyte	40 kbyte
• Recipe memory expandable	No	No	No	No

Operator panels
Basic Panels

Basic Panels – Standard

■ **Technical specifications** (continued)

	6AV6647-0AA11-3AX0 **SIMATIC HMI KTP400 Basic mono PN**	6AV6647-0AK11-3AX0 **SIMATIC HMI KTP400 Basic color PN**	6AV6647-0AB11-3AX0 **SIMATIC HMI KTP600 Basic mono PN**	6AV6647-0AC11-3AX0 **SIMATIC HMI KTP600 Basic color DP**
Variables				
• Number of variables per device	250	500	500	500
• Number of variables per screen	30	30	30	30
Images				
• Number of configurable images	50	50	50	50
Archiving				
• Number of archives per device	0	0	0	0
Security				
• Number of user groups	50	50	50	50
• Number of users	50	50	50	50
Transfer (upload/download)				
• MPI/PROFIBUS DP	No	No	No	Yes
• Ethernet	Yes	Yes	Yes	No
Process coupling				
• S7-1200	Yes	Yes	Yes	Yes
• S7-1500	Yes	Yes	Yes	Yes
• S7-200	Yes	Yes	Yes	Yes
• S7-300/400	Yes	Yes	Yes	Yes
• LOGO!	Yes	Yes	Yes	Yes
• Win AC	Yes	No	Yes	Yes
• SIMOTION	No	No	No	No
• Allen Bradley (EtherNet/IP)	Yes	Yes	Yes	No
• Allen Bradley (DF1)	No	No	No	Yes
• Mitsubishi (MC TCP/IP)	Yes	Yes	Yes	No
• Mitsubishi (FX)	No	No	No	Yes
• OMRON (FINS TCP)	No	No	No	No
• OMRON (LINK/Multilink)	No	No	No	Yes
• Modicon (Modbus TCP/IP)	Yes	Yes	Yes	No
• Modicon (Modbus)	No	No	No	Yes
I/O				
I/O devices				
• Printer	No	No	No	No
• Multi Media Card	No	No	No	No
• SD card	No	No	No	No
• USB memory	No	No	No	No
Mechanics/material				
Type of housing (front)				
• Plastic	Yes	Yes	Yes	Yes
Dimensions				
Width of the housing front	140 mm	140 mm	214 mm	214 mm
Height of housing front	116 mm	116 mm	158 mm	158 mm
Mounting cutout (W x H x D)				
• Mounting cutout, width	123 mm	123 mm	197 mm	197 mm
• Mounting cutout, height	99 mm	99 mm	141 mm	141 mm
Weight				
Weight without packaging	0.32 kg	0.34 kg	1.07 kg	1.07 kg

Technical specifications (continued)

	6AV6647-0AD11-3AX0	6AV6647-0AE11-3AX0	6AV6647-0AF11-3AX0
	SIMATIC HMI KTP600 Basic color PN	**SIMATIC HMI KTP1000 Basic color DP**	**SIMATIC HMI KTP1000 Basic color PN**
Display			
Design of display	TFT	TFT	TFT
Screen diagonal	5.7 in	10.4 in	10.4 in
Number of colors	256	256	256
Resolution (pixels)			
• Horizontal image resolution	320	640	640
• Vertical image resolution	240	480	480
Backlighting			
• MTBF backlighting (at 25 °C)	50 000 h	50 000 h	50 000 h
• Dimmable backlight	No	No	No
Control elements			
Keyboard fonts			
• Number of function keys	6	8	8
Touch operation			
• Design as touch screen	Yes	Yes	Yes
Installation type/mounting			
Mounting in portrait format possible	Yes	No	No
Supply voltage			
Type of supply voltage	DC	DC	DC
Rated voltage/DC	24 V	24 V	24 V
Memory			
Usable memory for user data	1 Mbyte	2 Mbyte	2 Mbyte
Type of output			
Acoustics			
• Buzzer	Yes	Yes	Yes
Time of day			
Clock			
• Software clock	Yes	Yes	Yes
• Battery-backed	No	No	No
• Synchronizable	Yes	Yes	Yes
Interfaces			
Number of RS 485 interfaces	0	1	0
Number of USB interfaces	0	0	0
Number of SD card slots	0	0	0
Industrial Ethernet			
• Number of industrial Ethernet interfaces	1	0	1
Protocols			
PROFINET	Yes	No	Yes
PROFIBUS	No	Yes	No
MPI	No	Yes	No
Degree and class of protection			
Type of protection	IP20	IP20	IP20
IP (at the front)	IP65	IP65	IP65
Enclosure type 4x at the front	Yes	Yes	Yes
Standards, approvals, certificates			
CE	Yes	Yes	Yes
cULus	Yes	Yes	Yes
GL	Yes	Yes	Yes
ABS	Yes	Yes	Yes
BV	Yes	Yes	Yes
DNV	Yes	Yes	Yes
LRS	Yes	Yes	Yes
Class NK	Yes	Yes	Yes

Operator panels
Basic Panels

Basic Panels – Standard

■ **Technical specifications** (continued)

	6AV6647-0AD11-3AX0 SIMATIC HMI KTP600 Basic color PN	6AV6647-0AE11-3AX0 SIMATIC HMI KTP1000 Basic color DP	6AV6647-0AF11-3AX0 SIMATIC HMI KTP1000 Basic color PN
Use in hazardous areas			
• ATEX Zone 2	No	No	No
• ATEX Zone 22	No	No	No
• cULus Class I Zone 2, Division 2	No	No	No
• FM Class I Division 2	No	No	No
Ambient conditions			
Operating temperature			
• Operation (vertical installation)			
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	50 °C	50 °C	50 °C
Relative humidity			
• max. relative humidity	90 %	90 %	90 %
Configuration			
Configuration software			
• STEP 7 Basic (TIA Portal)	Yes; via integrated WinCC Basic (TIA Portal)	Yes; via integrated WinCC Basic (TIA Portal)	Yes; via integrated WinCC Basic (TIA Portal)
• WinCC flexible Compact	Yes	Yes	Yes
• WinCC Basic (TIA Portal)	Yes	Yes	Yes
Languages			
Online languages			
• Number of online/runtime languages	5	5	5
Functionality under WinCC (TIA Portal)			
Task planner			
• time-controlled	No	No	No
• task-controlled	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment)			
• Number of bit messages	200	200	200
• Number of analog messages	15	15	15
• Message buffer			
- Number of entries	256	256	256
- Circulating buffer	Yes	Yes	Yes
- retentive	Yes	Yes	Yes
Recipes			
• Number of recipes	5	5	5
• Size of internal recipe memory	40 kbyte	40 kbyte	40 kbyte
• Recipe memory expandable	No	No	No
Variables			
• Number of variables per device	500	500	500
• Number of variables per screen	30	30	30
Images			
• Number of configurable images	50	50	50
Archiving			
• Number of archives per device	0	0	0
Security			
• Number of user groups	50	50	50
• Number of users	50	50	50
Transfer (upload/download)			
• MPI/PROFIBUS DP	No	Yes	No
• Ethernet	Yes	No	Yes

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■ Technical specifications (continued)

	6AV6647-0AD11-3AX0 SIMATIC HMI KTP600 Basic color PN	6AV6647-0AE11-3AX0 SIMATIC HMI KTP1000 Basic color DP	6AV6647-0AF11-3AX0 SIMATIC HMI KTP1000 Basic color PN
Process coupling			
• S7-1200	Yes	Yes	Yes
• S7-1500	Yes	Yes	Yes
• S7-200	Yes	Yes	Yes
• S7-300/400	Yes	Yes	Yes
• LOGO!	Yes	Yes	Yes
• Win AC	Yes	Yes	Yes
• SIMOTION	No	No	No
• Allen Bradley (EtherNet/IP)	Yes	No	Yes
• Allen Bradley (DF1)	No	Yes	No
• Mitsubishi (MC TCP/IP)	Yes	No	Yes
• Mitsubishi (FX)	No	Yes	No
• OMRON (FINS TCP)	No	No	No
• OMRON (LINK/Multilink)	No	Yes	No
• Modicon (Modbus TCP/IP)	Yes	No	Yes
• Modicon (Modbus)	No	Yes	Yes
I/O			
I/O devices			
• Printer	No	No	No
• Multi Media Card	No	No	No
• SD card	No	No	No
• USB memory	No	No	No
Mechanics/material			
Type of housing (front)			
• Plastic	Yes	Yes	Yes
Dimensions			
Width of the housing front	214 mm	335 mm	335 mm
Height of housing front	158 mm	275 mm	275 mm
Mounting cutout (W x H x D)			
• Mounting cutout, width	197 mm	310 mm	310 mm
• Mounting cutout, height	141 mm	248 mm	248 mm
Weight			
Weight without packaging	1.07 kg	2.65 kg	2.65 kg

Operator panels
Basic Panels

Basic Panels – Standard

■ **Technical specifications** (continued)

	6AV6647-0AH11-3AX0 SIMATIC HMI KP300 Basic mono PN	6AV6647-0AJ11-3AX0 SIMATIC HMI KP400 Basic color PN	6AV6647-0AG11-3AX0 SIMATIC HMI TP1500 Basic color PN
Display			
Design of display	FSTN	TFT	TFT
Screen diagonal	3.6 in	4.3 in	15 in
Number of colors	4; Backlit display only (white, red, green, yellow)	256	256
Resolution (pixels)			
• Horizontal image resolution	240	480	1 024
• Vertical image resolution	80	272	768
Backlighting			
• MTBF backlighting (at 25 °C)	50 000 h	50 000 h	50 000 h
• Dimmable backlight	No	No	No
Control elements			
Keyboard fonts			
• Number of function keys	10	8	0
Touch operation			
• Design as touch screen	No	No	Yes
Installation type/mounting			
Mounting in portrait format possible	No	No	No
Supply voltage			
Type of supply voltage	DC	DC	DC
Rated voltage/DC	24 V	24 V	24 V
Memory			
Usable memory for user data	1 Mbyte	1 Mbyte	2 Mbyte
Type of output			
Acoustics			
• Buzzer	No	No	Yes
Time of day			
Clock			
• Software clock	Yes	Yes	Yes
• Battery-backed	No	No	No
• Synchronizable	Yes	Yes	Yes
Interfaces			
Number of RS 485 interfaces	0	0	0
Number of USB interfaces	0	0	0
Number of SD card slots	0	0	0
Industrial Ethernet			
• Number of industrial Ethernet interfaces	1	1	1
Protocols			
PROFINET	Yes	Yes	Yes
PROFIBUS	No	No	No
MPI	No	No	No
Degree and class of protection			
Type of protection	IP20	IP20	IP20
IP (at the front)	IP65	IP65	IP65
Enclosure type 4x at the front	Yes	Yes	Yes
Standards, approvals, certificates			
CE	Yes	Yes	Yes
cULus	Yes	Yes	Yes
GL	Yes	No	No
ABS	Yes	No	No
BV	Yes	No	No
DNV	Yes	No	No
LRS	Yes	No	No
Class NK	Yes	No	No

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■ Technical specifications (continued)

	6AV6647-0AH11-3AX0	6AV6647-0AJ11-3AX0	6AV6647-0AG11-3AX0
	SIMATIC HMI KP300 Basic mono PN	SIMATIC HMI KP400 Basic color PN	SIMATIC HMI TP1500 Basic color PN
Use in hazardous areas			
• ATEX Zone 2	No	No	No
• ATEX Zone 22	No	No	No
• cULus Class I Zone 2, Division 2	Yes	No	No
• FM Class I Division 2	No	No	No
Ambient conditions			
Operating temperature			
• Operation (vertical installation)			
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	50 °C	50 °C	50 °C
Relative humidity			
• max. relative humidity	90 %	90 %	90 %
Configuration			
Configuration software			
• STEP 7 Basic (TIA Portal)	Yes; via integrated WinCC Basic (TIA Portal)	Yes; via integrated WinCC Basic (TIA Portal)	Yes; via integrated WinCC Basic (TIA Portal)
• WinCC flexible Compact	No	No	Yes
• WinCC Basic (TIA Portal)	Yes	Yes	Yes
Languages			
Online languages			
• Number of online/runtime languages	5	5	5
Functionality under WinCC (TIA Portal)			
Task planner			
• time-controlled	No	No	No
• task-controlled	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment)			
• Number of bit messages	200	200	200
• Number of analog messages	15	15	15
• Message buffer			
- Number of entries	256	256	256
- Circulating buffer	Yes	Yes	Yes
- retentive	Yes	Yes	Yes
Recipes			
• Number of recipes	5	5	5
• Size of internal recipe memory	40 kbyte	40 kbyte	40 kbyte
• Recipe memory expandable	No	No	No
Variables			
• Number of variables per device	250	500	500
• Number of variables per screen	30	30	30
Images			
• Number of configurable images	50	50	50
Archiving			
• Number of archives per device	0	0	0
Security			
• Number of user groups	50	50	50
• Number of users	50	50	50
Transfer (upload/download)			
• MPI/PROFIBUS DP	No	No	No
• Ethernet	Yes	Yes	Yes

Operator panels
Basic Panels

Basic Panels – Standard

■ **Technical specifications** (continued)

	6AV6647-0AH11-3AX0 SIMATIC HMI KP300 Basic mono PN	6AV6647-0AJ11-3AX0 SIMATIC HMI KP400 Basic color PN	6AV6647-0AG11-3AX0 SIMATIC HMI TP1500 Basic color PN
Process coupling			
• S7-1200	Yes	Yes	Yes
• S7-1500	Yes	Yes	Yes
• S7-200	Yes	Yes	Yes
• S7-300/400	Yes	Yes	Yes
• LOGO!	Yes	Yes	Yes
• Win AC	Yes	No	Yes
• SIMOTION	No	No	No
• Allen Bradley (EtherNet/IP)	Yes	Yes	Yes
• Allen Bradley (DF1)	No	No	No
• Mitsubishi (MC TCP/IP)	Yes	Yes	Yes
• Mitsubishi (FX)	No	No	No
• OMRON (FINS TCP)	No	No	No
• OMRON (LINK/Multilink)	No	No	No
• Modicon (Modbus TCP/IP)	Yes	Yes	Yes
• Modicon (Modbus)	No	No	Yes
I/O			
I/O devices			
• Printer	No	No	No
• Multi Media Card	No	No	No
• SD card	No	No	No
• USB memory	No	No	No
Mechanics/material			
Type of housing (front)			
• Plastic	Yes	Yes	Yes
Dimensions			
Width of the housing front	165 mm	162 mm	400 mm
Height of housing front	97 mm	189 mm	310 mm
Mounting cutout (W x H x D)			
• Mounting cutout, width	149 mm	135 mm	367 mm
• Mounting cutout, height	82 mm	171 mm	289 mm
Weight			
Weight without packaging	0.25 kg	0.51 kg	4.2 kg

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■ Ordering data	Order No.
SIMATIC HMI Basic Panels, Key and Touch	
SIMATIC HMI KTP400 Basic mono PN	**6AV6647-0AA11-3AX0**
SIMATIC HMI KTP400 Basic color PN	**6AV6647-0AK11-3AX0**
SIMATIC HMI KTP600 Basic mono PN	**6AV6647-0AB11-3AX0**
SIMATIC HMI KTP600 Basic color DP	**6AV6647-0AC11-3AX0**
SIMATIC HMI KTP600 Basic color PN	**6AV6647-0AD11-3AX0**
SIMATIC HMI KTP1000 Basic color DP	**6AV6647-0AE11-3AX0**
SIMATIC HMI KTP1000 Basic color PN	**6AV6647-0AF11-3AX0**
SIMATIC HMI Basic Panels, Key	
SIMATIC HMI KP300 Basic mono PN	**6AV6647-0AH11-3AX0**
SIMATIC HMI KP400 Basic color PN	**6AV6647-0AJ11-3AX0**
SIMATIC HMI Basic Panels, Touch	
SIMATIC HMI TP1500 Basic color PN	**6AV6647-0AG11-3AX0**

|	Order No.
Starter kits	
Starter kit SIMATIC S7-1200 + KP300 Basic mono PN	**6AV6651-7HA01-3AA3**
Starter kit SIMATIC S7-1200 + KTP400 Basic color PN	**6AV6651-7KA01-3AA3**
Starter kit SIMATIC S7-1200 + KTP600 Basic color PN	**6AV6651-7DA01-3AA3**

Starter kits with an S7-1200 consist of:
• the respective SIMATIC HMI Basic Panel
  - SIMATIC HMI KP300 Basic mono PN
  - SIMATIC HMI KTP400 Basic color PN
  - SIMATIC HMI KTP600 Basic color PN
• SIMATIC S7-1200 CPU 1212C AC/DC/Rly
• SIMATIC S7-1200 Simulator Module SIM 1274
• SIMATIC STEP 7 BASIC CD
• SIMATIC S7-1200 HMI Manual Collection CD
• Ethernet CAT5 cable, 2 m	

LOGO! starter kit + KP300 Basic mono PN	**6AV2132-0HA00-0AA0**
LOGO! starter kit + KTP400 Basic color PN	**6AV2132-0KA00-0AA0**

Starter kits with a LOGO! consist of:
• the respective SIMATIC HMI Basic Panel
  - SIMATIC HMI KP300 Basic mono PN
  - SIMATIC HMI KTP400 Basic color PN
• LOGO! 12/24 RCE
• LOGO! POWER 24 V 1.3 A
• LOGO! SOFT COMFORT V7
• WINCC BASIC (TIA Portal)
• Ethernet CAT5 cable, 2 m	

Documentation	
You can find the manual for the Basic Panels on the Internet at:	http://support.automation.sie-mens.com
Accessories	See HMI accessories, from page 2/96

Operator panels
Basic Panels

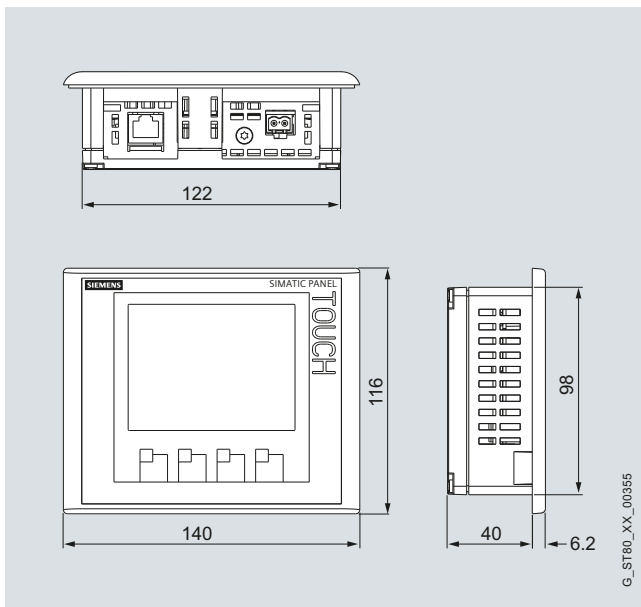■ **Dimensional drawings**

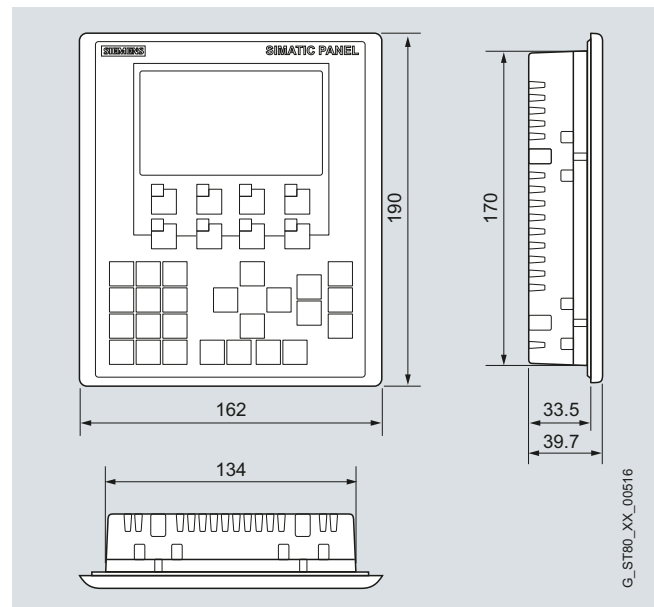All dimensions in mm. For installation cutout, see technical specifications.
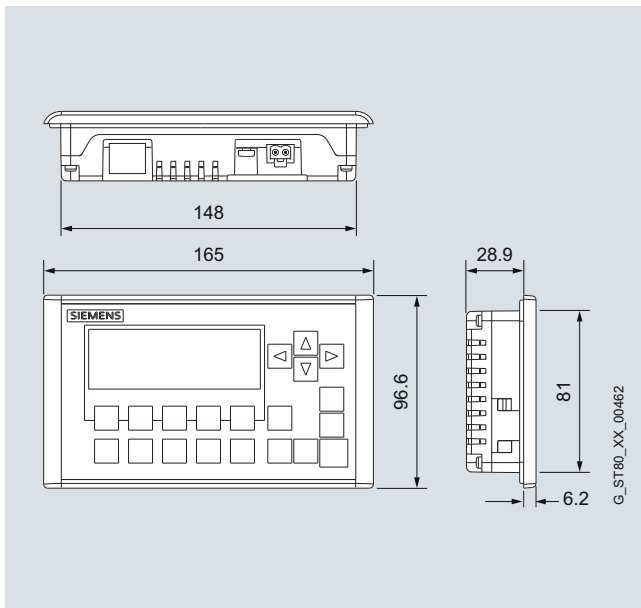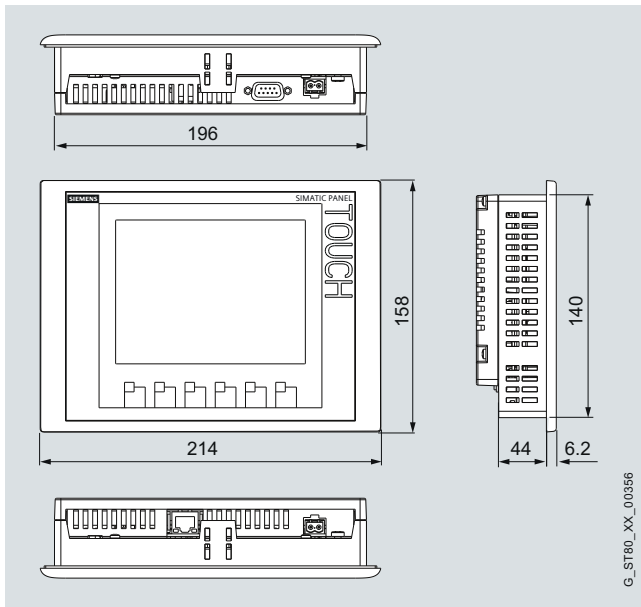

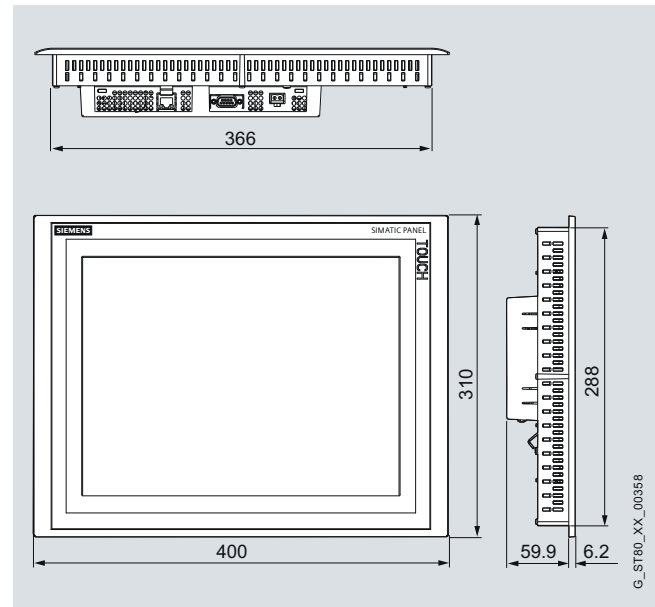KP300 Basic
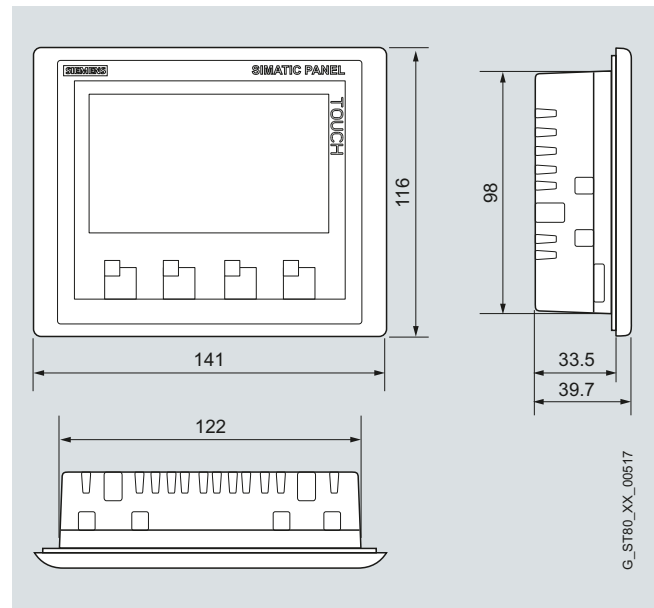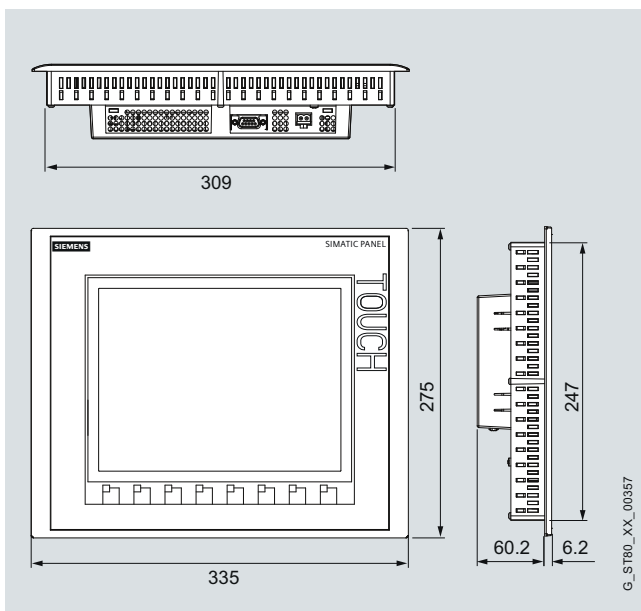

KTP400 Basic color PN

KTP400 Basic mono PN

KP400 Basic

2

Dimensional drawings (continued)

KTP600 Basic

196

158

214

44 | 6.2

140

G_ST80_XX_00356

TP1500 Basic

366

310

400

59.9 | 6.2

288

G_ST80_XX_00358

KTP1000 Basic

309

275

335

60.2 | 6.2

247

G_ST80_XX_00357

More information

Additional information is available in the Internet under:
http://www.siemens.com/simatic-basic-panels

Note

Do you require a specific modification to or supplement for the products described here? Look under "Customized products". We provide information there about additional and generally available sector products, and about the customer-specific modification and adaptation options.

Operator panels
SIPLUS Basic Panels

SIPLUS Basic Panels

■ Overview

- Ideal entry-level series of 3.8 inches to 15 inches for operating and monitoring compact machines and systems
- Clear process representation through the use of full-graphic displays
- Intuitive operation via touch and tactile function keys
- Equipped with all the necessary basic functions such as reporting, recipe management, curve representation, vector graphics, and language selection
- Easy connection to the controller via integrated Ethernet interface or a separate version with RS485/422

Note:

SIPLUS extreme products are based on Siemens Industry standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme specific information was added.

	SIPLUS HMI KTP300 BASIC MONO PN	SIPLUS HMI KTP400 BASIC MONO PN	SIPLUS HMI KTP600 BASIC COLOR PN	SIPLUS HMI KTP1000 BASIC COLOR DP	SIPLUS HMI KTP1000 BASIC COLOR PN	SIPLUS HMI TP1500 BASIC COLOR PN
Order number	**6AG1647-0AH11-2AX0**	**6AG1647-0AA11-2AX0**	**6AG1647-0AD11-2AX0**	**6AG1647-0AE11-4AX0**	**6AG1647-0AF11-4AX0**	**6AG1647-0AG11-4AX0**
Order No. based on	**6AV6647-0AH11-3AX0**	**6AV6647-0AA11-3AX0**	**6AV6647-0AD11-3AX0**	**6AV6647-0AE11-3AX0**	**6AV6647-0AF11-3AX0**	**6AV6647-0AG11-3AX0**
Ambient temperature range	-25 ... +60 °C	-10 ... +60 °C	-25 ... +60 °C	0 ... +50 °C	0 ... +50 °C	0 ... +50 °C
Conformal coating	Coating of the printed circuit boards and the electronic components					
Technical data	The technical data of the standard product applies except for the ambient conditions.					
Ambient conditions						
Relative humidity	100 %, condensation/frost permissible. No commissioning if condensation present.					
Biologically active substances, compliance with EN 60721-3-3	Class 3B2 mold and fungal spores (excluding fauna). The supplied plug covers must remain in place over the unused interfaces during operation!					
Chemically active substances, compliance with EN 60721-3-3	Class 3C4 incl. salt spray in accordance with EN60068-2-52 (degree of severity 3). The supplied plug covers must remain in place over the unused interfaces during operation!					
Mechanically active substances, compliance with EN 60721-3-3	Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation!					
Air pressure (depending on the highest positive temperature range specified)	1 080 ... 795 hPa (-1 000 ... +2 000 m) see ambient temperature range 795 ... 658 hPa (+2000 ... +3500 m) derating 10 K658 ... 540 hPa (+3 500 ... +5 000 m) derating 20 K					

For technical documentation on SIPLUS, see:
http://www.siemens.com/siplus-extreme

■ **Ordering data**

	Order No.		Order No.
SIPLUS HMI KTP300 **Basic mono PN** For areas with extreme medial exposure (conformal coating); ambient temperature -25 ... +60 °C	**6AG1647-0AH11-2AX0**	**SIPLUS HMI KTP1000** **Basic Color DP** For areas with extreme medial exposure (conformal coating); ambient temperature 0 ... +50 °C	**6AG1647-0AE11-4AX0**
SIPLUS HMI KTP400 **Basic mono PN** For areas with extreme medial exposure (conformal coating); ambient temperature -10 ... +60 °C	**6AG1647-0AA11-2AX0**	**SIPLUS HMI KTP1000** **Basic Color PN** For areas with extreme medial exposure (conformal coating); ambient temperature 0 ... +50 °C	**6AG1647-0AF11-4AX0**
SIPLUS HMI KTP600 **Basic color PN** For areas with extreme medial exposure (conformal coating); ambient temperature -25 ... +60 °C	**6AG1647-0AD11-2AX0**	**SIPLUS HMI TP1500** **Basic Color PN** For areas with extreme medial exposure (conformal coating); ambient temperature 0 ... +50 °C	**6AG1647-0AG11-4AX0**
		Accessories	See SIMATIC Basic Panels, from page 2/12

Additional information is available in the Internet under:
http://www.siemens.com/simatic-basic-panels

Note

Do you require a specific modification to or supplement for the products described here? Look under "Customized products". We provide information there about additional and generally available sector products, and about the customer-specific modification and adaptation options.

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Operator panels
Comfort Panels

Comfort Panels – Standard

■ Overview

- Excellent HMI functionality for demanding applications
- Widescreen TFT displays with 4", 7", 9", 12", 15", 19" and 22" diagonals (all 16 million colors) with up to 40% more visualization area as compared to the predecessor devices
- Integrated high-end functionality with archives, scripts, PDF/Word/Excel viewer, Internet Explorer, Media Player and Web Server
- Dimmable displays from 0 to 100% via PROFIenergy, via the HMI project or via a controller

- Modern industrial design, cast aluminum fronts for 7" upwards
- Upright installation for all touch devices
- Optimal selection option: seven touch and five key versions are available
- Data security in the event of a power failure for the device and for the SIMATIC HMI Memory Card
- Innovative service and commissioning concept through second SD card (automatic backup)
- Easy project transfer via standard cable (standard Ethernet cable, standard USB cable)
- Maximum performance with short screen refresh times
- Suitable for extremely harsh industrial environments thanks to extended approvals such as ATEX 2/22 and marine approvals
- Wide range of communication options: PROFIBUS and PROFINET onboard; 2 x PROFINET with integrated switch for 7" models or larger; plus 1 x PROFINET with Gigabit support for 15" models or larger
- All variants can be used as an OPC UA client or as an OPC DA server
- Key-operated devices with LED in every function key and new text input mechanism, similar to the keypads of mobile phones
- All keys have a service life of 2 million operations
- Configuring with the WinCC engineering software of the TIA Portal

■ Technical specifications

	6AV2124-2DC01-0AX0	6AV2124-0GC01-0AX0	6AV2124-0JC01-0AX0	6AV2124-0MC01-0AX0
	SIMATIC HMI KTP400 Comfort	**SIMATIC HMI TP700 Comfort**	**SIMATIC HMI TP900 Comfort**	**SIMATIC HMI TP1200 Comfort**
Display Design of display	TFT	TFT	TFT	TFT
Screen diagonal	4.3 in	7 in	9 in	12.1 in
Number of colors	16 777 200	16 777 200	16 777 200	16 777 200
Resolution (pixels) • Horizontal image resolution • Vertical image resolution	480 272	800 480	800 480	1 280 800
Backlighting • MTBF backlighting (at 25 °C) • Dimmable backlight	80 000 h Yes; 0-100 %	80 000 h Yes; 0-100 %	80 000 h Yes; 0-100 %	80 000 h Yes; 0-100 %
Control elements Keyboard fonts • Number of function keys	4	0	0	0
Touch operation • Design as touch screen	Yes	Yes	Yes	Yes
Installation type/mounting Mounting in portrait format possible	Yes	Yes	Yes	Yes
Supply voltage Type of supply voltage	DC	DC	DC	DC
Rated voltage/DC	24 V	24 V	24 V	24 V
Memory Usable memory for user data	4 Mbyte	12 Mbyte	12 Mbyte	12 Mbyte
Type of output Acoustics • Speaker	No	Yes	Yes	Yes

Technical specifications (continued)

	6AV2124-2DC01-0AX0 SIMATIC HMI KTP400 Comfort	6AV2124-0GC01-0AX0 SIMATIC HMI TP700 Comfort	6AV2124-0JC01-0AX0 SIMATIC HMI TP900 Comfort	6AV2124-0MC01-0AX0 SIMATIC HMI TP1200 Comfort
Time of day				
Clock				
• Hardware clock (real-time clock)	Yes	Yes	Yes	Yes
• Battery-backed	Yes	Yes	Yes	Yes
• Synchronizable	Yes	Yes	Yes	Yes
Interfaces				
Number of RS 485 interfaces	1; RS 422/485 combined	1; RS 422/485 combined	1; RS 422/485 combined	1; RS 422/485 combined
Number of USB interfaces	1; USB 2.0	2; USB 2.0	2; USB 2.0	2; USB 2.0
Number of USB Mini B interfaces	1; 5-pole	1; 5-pole	1; 5-pole	1; 5-pole
Number of SD card slots	2	2	2	2
Industrial Ethernet				
• Number of industrial Ethernet interfaces	1	2	2	2
• Number of ports of the integrated switch	1	2	2	2
Protocols				
PROFINET	Yes	Yes	Yes	Yes
IRT supported	No	Yes	Yes	Yes
MRP supported	No	Yes	Yes	Yes
PROFIBUS	Yes	Yes	Yes	Yes
MPI	Yes	Yes	Yes	Yes
Degree and class of protection				
Type of protection	IP20	IP20	IP20	IP20
IP (at the front)	IP65	IP65	IP65	IP65
Enclosure type 4x at the front	Yes	Yes	Yes	Yes
Standards, approvals, certificates				
CE	Yes	Yes	Yes	Yes
cULus	Yes	Yes	Yes	Yes
GL	Yes	Yes	Yes	Yes
ABS	Yes	Yes	Yes	Yes
BV	Yes	Yes	Yes	Yes
DNV	Yes	Yes	Yes	Yes
LRS	Yes	Yes	Yes	Yes
Class NK	No; Available soon	No; Available soon	No; Available soon	No; Available soon
PRS	No	No	No	No
Use in hazardous areas				
• ATEX Zone 2	Yes	Yes	Yes	Yes
• ATEX Zone 22	Yes	Yes	Yes	Yes
• cULus Class I Zone 2, Division 2	Yes	Yes	Yes	Yes
• FM Class I Division 2	Yes	Yes	Yes	Yes
Ambient conditions				
Operating temperature				
• Operation (vertical installation)				
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	50 °C	50 °C	50 °C	50 °C
Relative humidity				
• max. relative humidity	90 %	90 %	90 %	90 %
Configuration				
Configuration software				
• WinCC Comfort (TIA Portal)	Yes; from V11	Yes; from V11	Yes; from V11	Yes; from V11

Operator panels
Comfort Panels

Comfort Panels – Standard

■ **Technical specifications** (continued)

	6AV2124-2DC01-0AX0 SIMATIC HMI KTP400 Comfort	6AV2124-0GC01-0AX0 SIMATIC HMI TP700 Comfort	6AV2124-0JC01-0AX0 SIMATIC HMI TP900 Comfort	6AV2124-0MC01-0AX0 SIMATIC HMI TP1200 Comfort
Languages				
Online languages				
• Number of online/runtime languages	32	32	32	32
Functionality under WinCC (TIA Portal)				
Applications/options				
• Internet Explorer	Yes	Yes	Yes	Yes
• Pocket Word	Yes	Yes	Yes	Yes
• Pocket Excel	Yes	Yes	Yes	Yes
• PDF Viewer	Yes	Yes	Yes	Yes
• Media Player	Yes	Yes	Yes	Yes
• SIMATIC WinCC Sm@rtServer	Yes	Yes	Yes	Yes
Visual Basic Scripts	Yes	Yes	Yes	Yes
Task planner				
• time-controlled	Yes	Yes	Yes	Yes
• task-controlled	Yes	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment)				
• Number of bit messages	2 000	4 000	4 000	4 000
• Number of analog messages	50	200	200	200
• Message buffer				
- Number of entries	256	1 024	1 024	1 024
- Circulating buffer	Yes	Yes	Yes	Yes
- retentive	Yes	Yes	Yes	Yes
Recipes				
• Number of recipes	100	300	300	300
• Size of internal recipe memory	512 kbyte	2 Mbyte	2 Mbyte	2 Mbyte
• Recipe memory expandable	Yes	Yes	Yes	Yes
Variables				
• Number of variables per device	1 024	2 048	2 048	2 048
• Number of variables per screen	50	400	400	400
Images				
• Number of configurable images	500	500	500	500
Archiving				
• Number of archives per device	10	50	50	50
Security				
• Number of user groups	50	50	50	50
• Number of users	50	50	50	50
• SIMATIC Logon	Yes	Yes	Yes	Yes
Logging through printer				
• Alarms	Yes	Yes	Yes	Yes
• Report (shift log)	Yes	Yes	Yes	Yes
• Hardcopy	Yes	Yes	Yes	Yes
• Electronic print to file	Yes; pdf, html	Yes; pdf, html	Yes; pdf, html	Yes; pdf, html
Transfer (upload/download)				
• MPI/PROFIBUS DP	Yes	Yes	Yes	Yes
• USB	Yes	Yes	Yes	Yes
• Ethernet	Yes	Yes	Yes	Yes

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■ **Technical specifications** (continued)

	6AV2124-2DC01-0AX0	6AV2124-0GC01-0AX0	6AV2124-0JC01-0AX0	6AV2124-0MC01-0AX0
	SIMATIC HMI KTP400 Comfort	SIMATIC HMI TP700 Comfort	SIMATIC HMI TP900 Comfort	SIMATIC HMI TP1200 Comfort
Process coupling				
• S7-1200	Yes	Yes	Yes	Yes
• S7-1500	Yes	Yes	Yes	Yes
• S7-200	Yes	Yes	Yes	Yes
• S7-300/400	Yes	Yes	Yes	Yes
• LOGO!	Yes	Yes	Yes	Yes
• Win AC	Yes	Yes	Yes	Yes
• SIMOTION	No; With WinCC, subsequent version	No; With WinCC, subsequent version	No; With WinCC, subsequent version	No; With WinCC, subsequent version
• Allen Bradley (EtherNet/IP)	Yes	Yes	Yes	Yes
• Allen Bradley (DF1)	Yes	Yes	Yes	Yes
• Mitsubishi (MC TCP/IP)	Yes	Yes	Yes	Yes
• Mitsubishi (FX)	Yes	Yes	Yes	Yes
• OMRON (FINS TCP)	No	No	No	No
• OMRON (LINK/Multilink)	Yes	Yes	Yes	Yes
• Modicon (Modbus TCP/IP)	Yes	Yes	Yes	Yes
• Modicon (Modbus)	Yes	Yes	Yes	Yes
• OPC UA Client	Yes	Yes	Yes	Yes
• OPC UA Server	No	No	No	No
I/O				
I/O devices				
• Printer	Yes	Yes	Yes	Yes
• Multi Media Card	Yes	Yes	Yes	Yes
• SD card	Yes	Yes	Yes	Yes
• USB memory	Yes	Yes	Yes	Yes
• Network camera	Yes	Yes	Yes	Yes
Mechanics/material				
Type of housing (front)				
• Plastic	Yes	No	No	No
• Aluminum	No	Yes	Yes	Yes
Dimensions				
Width of the housing front	140 mm	214 mm	274 mm	330 mm
Height of housing front	116 mm	158 mm	190 mm	241 mm
Mounting cutout (W x H x D)				
• Mounting cutout, width	123 mm	197 mm	251 mm	310 mm
• Mounting cutout, height	99 mm	141 mm	166 mm	221 mm
Weight				
Weight without packaging	0.6 kg	1.4 kg	1.9 kg	2.8 kg

	6AV2124-1DC01-0AX0	6AV2124-1GC01-0AX0	6AV2124-1JC01-0AX0	6AV2124-1MC01-0AX0	6AV2124-1QC02-0AX0
	SIMATIC HMI KP400 Comfort	SIMATIC HMI KP700 Comfort	SIMATIC HMI KP900 Comfort	SIMATIC HMI KP1200 Comfort	SIMATIC HMI KP1500 Comfort
Display					
Design of display	TFT	TFT	TFT	TFT	TFT
Screen diagonal	4.3 in	7 in	9 in	12.1 in	15.4 in
Number of colors	16 777 200	16 777 200	16 777 200	16 777 200	16 777 200
Resolution (pixels)					
• Horizontal image resolution	480	800	800	1 280	1 280
• Vertical image resolution	272	480	480	800	800
Backlighting					
• MTBF backlighting (at 25 °C)	80 000 h	80 000 h	80 000 h	80 000 h	80 000 h
• Dimmable backlight	Yes; 0-100 %	Yes; 0-100 %	Yes; 0-100 %	Yes; 0-100 %	Yes; 0-100 %
Control elements					
Keyboard fonts					
• Number of function keys	8	24	26	34	36
Touch operation					
• Design as touch screen	No	No	No	No	No
Installation type/mounting					
Mounting in portrait format possible	No	No	No	No	No
Supply voltage					
Type of supply voltage	DC	DC	DC	DC	DC
Rated voltage/DC	24 V	24 V	24 V	24 V	24 V

Operator panels
Comfort Panels

Comfort Panels – Standard

■ **Technical specifications** (continued)

	6AV2124-1DC01-0AX0 SIMATIC HMI KP400 Comfort	6AV2124-1GC01-0AX0 SIMATIC HMI KP700 Comfort	6AV2124-1JC01-0AX0 SIMATIC HMI KP900 Comfort	6AV2124-1MC01-0AX0 SIMATIC HMI KP1200 Comfort	6AV2124-1QC02-0AX0 SIMATIC HMI KP1500 Comfort
Memory					
Usable memory for user data	4 Mbyte	12 Mbyte	12 Mbyte	12 Mbyte	24 Mbyte
Type of output					
Acoustics					
• Speaker	No	Yes	Yes	Yes	Yes
Time of day					
Clock					
• Hardware clock (real-time clock)	Yes	Yes	Yes	Yes	Yes
• Battery-backed	Yes	Yes	Yes	Yes	Yes
• Synchronizable	Yes	Yes	Yes	Yes	Yes
Interfaces					
Number of RS 485 interfaces	1; RS 422/485 combined	1; RS 422/485 combined	1; RS 422/485 combined	1; RS 422/485 combined	1; RS 422/485 combined
Number of USB interfaces	1; USB 2.0	2; USB 2.0	2; USB 2.0	2; USB 2.0	2; USB 2.0
Number of USB Mini B interfaces	1; 5-pole	1; 5-pole	1; 5-pole	1; 5-pole	1; 5-pole
Number of SD card slots	2	2	2	2	2
Industrial Ethernet					
• Number of industrial Ethernet interfaces	1	2	2	2	3
• Number of ports of the integrated switch	1	2	2	2	2
Protocols					
PROFINET	Yes	Yes	Yes	Yes	Yes
IRT supported	No	Yes	Yes	Yes	Yes
MRP supported	No	Yes	Yes	Yes	Yes
PROFIBUS	Yes	Yes	Yes	Yes	Yes
MPI	Yes	Yes	Yes	Yes	Yes
Degree and class of protection					
Type of protection	IP20	IP20	IP20	IP20	IP20
IP (at the front)	IP65	IP65	IP65	IP65	IP65
Enclosure type 4x at the front	Yes	Yes	Yes	Yes	Yes
Standards, approvals, certificates					
CE	Yes	Yes	Yes	Yes	Yes
cULus	Yes	Yes	Yes	Yes	Yes
GL	Yes	Yes	Yes	Yes	No
ABS	Yes	Yes	Yes	Yes	No
BV	Yes	Yes	Yes	Yes	No
DNV	Yes	Yes	Yes	Yes	No
LRS	Yes	Yes	Yes	Yes	No
Class NK	No; Available soon	No; Available soon	No; Available soon	No; Available soon	No
PRS	No	No	No	No	No
Use in hazardous areas					
• ATEX Zone 2	No; Available soon	Yes	Yes	Yes	No
• ATEX Zone 22	No; Available soon	Yes	Yes	Yes	No
• cULus Class I Zone 2, Division 2	Yes	Yes	Yes	Yes	Yes
• FM Class I Division 2	Yes	Yes	Yes	Yes	Yes
Ambient conditions					
Operating temperature					
• Operation (vertical installation)					
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	50 °C	50 °C	50 °C	50 °C	50 °C
Relative humidity					
• max. relative humidity	90 %	90 %	90 %	90 %	90 %

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■ **Technical specifications** (continued)

	6AV2124-1DC01-0AX0	6AV2124-1GC01-0AX0	6AV2124-1JC01-0AX0	6AV2124-1MC01-0AX0	6AV2124-1QC02-0AX0
	SIMATIC HMI KP400 Comfort	SIMATIC HMI KP700 Comfort	SIMATIC HMI KP900 Comfort	SIMATIC HMI KP1200 Comfort	SIMATIC HMI KP1500 Comfort
Configuration					
Configuration software					
• WinCC Comfort (TIA Portal)	Yes; from V11	Yes; from V11	Yes; from V11	Yes; from V11	Yes; V11 SP2 or higher
Languages					
Online languages					
• Number of online/runtime languages	32	32	32	32	32
Functionality under WinCC (TIA Portal)					
Applications/options					
• Internet Explorer	Yes	Yes	Yes	Yes	Yes
• Pocket Word	Yes	Yes	Yes	Yes	Yes
• Pocket Excel	Yes	Yes	Yes	Yes	Yes
• PDF Viewer	Yes	Yes	Yes	Yes	Yes
• Media Player	Yes	Yes	Yes	Yes	Yes
• SIMATIC WinCC Sm@rtServer	Yes	Yes	Yes	Yes	Yes
Visual Basic Scripts	Yes	Yes	Yes	Yes	Yes
Task planner					
• time-controlled	Yes	Yes	Yes	Yes	Yes
• task-controlled	Yes	Yes	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment)					
• Number of bit messages	2 000	4 000	4 000	4 000	6 000
• Number of analog messages	50	200	200	200	200
• Message buffer					
- Number of entries	256	1 024	1 024	1 024	1 024
- Circulating buffer	Yes	Yes	Yes	Yes	Yes
- retentive	Yes	Yes	Yes	Yes	Yes
Recipes					
• Number of recipes	100	300	300	300	500
• Size of internal recipe memory	512 kbyte	2 Mbyte	2 Mbyte	2 Mbyte	4 Mbyte
• Recipe memory expandable	Yes	Yes	Yes	Yes	Yes
Variables					
• Number of variables per device	1 024	2 048	2 048	2 048	4 096
• Number of variables per screen	50	400	400	400	400
Images					
• Number of configurable images	500	500	500	500	750
Archiving					
• Number of archives per device	10	50	50	50	50
Security					
• Number of user groups	50	50	50	50	50
• Number of users	50	50	50	50	50
• SIMATIC Logon	Yes	Yes	Yes	Yes	Yes
Logging through printer					
• Alarms	Yes	Yes	Yes	Yes	Yes
• Report (shift log)	Yes	Yes	Yes	Yes	Yes
• Hardcopy	Yes	Yes	Yes	Yes	Yes
• Electronic print to file	Yes; pdf, html	Yes; pdf, html	Yes; pdf, html	Yes; pdf, html	Yes; pdf, html
Transfer (upload/download)					
• MPI/PROFIBUS DP	Yes	Yes	Yes	Yes	Yes
• USB	Yes	Yes	Yes	Yes	Yes
• Ethernet	Yes	Yes	Yes	Yes	Yes

Operator panels
Comfort Panels

Comfort Panels – Standard

■ Technical specifications (continued)

	6AV2124-1DC01-0AX0	6AV2124-1GC01-0AX0	6AV2124-1JC01-0AX0	6AV2124-1MC01-0AX0	6AV2124-1QC02-0AX0
	SIMATIC HMI **KP400 Comfort**	**SIMATIC HMI** **KP700 Comfort**	**SIMATIC HMI** **KP900 Comfort**	**SIMATIC HMI** **KP1200 Comfort**	**SIMATIC HMI** **KP1500 Comfort**
Process coupling					
• S7-1200	Yes	Yes	Yes	Yes	Yes
• S7-1500	Yes	Yes	Yes	Yes	Yes
• S7-200	Yes	Yes	Yes	Yes	Yes
• S7-300/400	Yes	Yes	Yes	Yes	Yes
• LOGO!	Yes	Yes	Yes	Yes	Yes
• Win AC	Yes	Yes	Yes	Yes	Yes
• SIMOTION	No; With WinCC, subsequent version	No; With WinCC, subsequent version	No; With WinCC, subsequent version	No; With WinCC, subsequent version	No; With WinCC, subsequent version
• Allen Bradley (EtherNet/IP)	Yes	Yes	Yes	Yes	Yes
• Allen Bradley (DF1)	Yes	Yes	Yes	Yes	Yes
• Mitsubishi (MC TCP/IP)	Yes	Yes	Yes	Yes	Yes
• Mitsubishi (FX)	Yes	Yes	Yes	Yes	Yes
• OMRON (FINS TCP)	No	No	No	No	No
• OMRON (LINK/Multilink)	Yes	Yes	Yes	Yes	Yes
• Modicon (Modbus TCP/IP)	Yes	Yes	Yes	Yes	Yes
• Modicon (Modbus)	Yes	Yes	Yes	Yes	Yes
• OPC UA Client	Yes	Yes	Yes	Yes	Yes
• OPC UA Server	No	No	No	No	No
I/O					
I/O devices					
• Printer	Yes	Yes	Yes	Yes	Yes
• Multi Media Card	Yes	Yes	Yes	Yes	Yes
• SD card	Yes	Yes	Yes	Yes	Yes
• USB memory	Yes	Yes	Yes	Yes	Yes
• Network camera	Yes	Yes	Yes	Yes	Yes
Mechanics/material					
Type of housing (front)					
• Plastic	Yes	No	No	No	No
• Aluminum	No	Yes	Yes	Yes	Yes
Dimensions					
Width of the housing front	152 mm	308 mm	362 mm	454 mm	483 mm
Height of housing front	188 mm	204 mm	230 mm	289 mm	310 mm
Mounting cutout (W x H x D)					
• Mounting cutout, width	135 mm	281 mm	338 mm	434 mm	450 mm
• Mounting cutout, height	171 mm	177 mm	206 mm	269 mm	291 mm
Weight					
Weight without packaging	0.8 kg	2.2 kg	2.7 kg	4.4 kg	5.4 kg

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■ **Technical specifications** (continued)

	6AV2124-0QC02-0AX0	6AV2124-0UC02-0AX0	6AV2124-0XC02-0AX0
	SIMATIC HMI TP1500 Comfort	**SIMATIC HMI TP1900 Comfort**	**SIMATIC HMI TP2200 Comfort**
Display			
Design of display	TFT	TFT	TFT
Screen diagonal	15.4 in	18.5 in	21.5 in
Number of colors	16 777 200	16 777 200	16 777 200
Resolution (pixels)			
• Horizontal image resolution	1 280	1 366	1 920
• Vertical image resolution	800	768	1 080
Backlighting			
• MTBF backlighting (at 25 °C)	80 000 h	50 000 h	30 000 h
• Dimmable backlight	Yes; 0-100 %	Yes; 0-100 %	Yes; 0-100 %
Control elements			
Keyboard fonts			
• Number of function keys	0	0	0
Touch operation			
• Design as touch screen	Yes	Yes	Yes
Installation type/mounting			
Mounting in portrait format possible	Yes	Yes	Yes
Supply voltage			
Type of supply voltage	DC	DC	DC
Rated voltage/DC	24 V	24 V	24 V
Memory			
Usable memory for user data	24 Mbyte	24 Mbyte	24 Mbyte
Type of output			
Acoustics			
• Speaker	Yes	Yes	Yes
Time of day			
Clock			
• Hardware clock (real-time clock)	Yes	Yes	Yes
• Battery-backed	Yes	Yes	Yes
• Synchronizable	Yes	Yes	Yes
Interfaces			
Number of RS 485 interfaces	1; RS 422/485 combined	1; RS 422/485 combined	1; RS 422/485 combined
Number of USB interfaces	2; USB 2.0	2; USB 2.0	2; USB 2.0
Number of USB Mini B interfaces	1; 5-pole	1; 5-pole	1; 5-pole
Number of SD card slots	2	2	2
Industrial Ethernet			
• Number of industrial Ethernet interfaces	3	3	3
• Number of ports of the integrated switch	2	2	2
Protocols			
PROFINET	Yes	Yes	Yes
IRT supported	Yes	Yes	Yes
MRP supported	Yes	Yes	Yes
PROFIBUS	Yes	Yes	Yes
MPI	Yes	Yes	Yes
Degree and class of protection			
Type of protection	IP20	IP20	IP20
IP (at the front)	IP65	IP65	IP65
Enclosure type 4x at the front	Yes	Yes	Yes

Operator panels
Comfort Panels

Comfort Panels – Standard

■ **Technical specifications** (continued)

	6AV2124-0QC02-0AX0	6AV2124-0UC02-0AX0	6AV2124-0XC02-0AX0
	SIMATIC HMI TP1500 Comfort	SIMATIC HMI TP1900 Comfort	SIMATIC HMI TP2200 Comfort
Standards, approvals, certificates			
CE	Yes	Yes	Yes
cULus	Yes	Yes	Yes
GL	No	No	No
ABS	No	No	No
BV	No	No	No
DNV	No	No	No
LRS	No	No	No
Class NK	No	No	No
PRS	No	No	No
Use in hazardous areas			
• ATEX Zone 2	No	No	No
• ATEX Zone 22	No	No	No
• cULus Class I Zone 2, Division 2	Yes	Yes	Yes
• FM Class I Division 2	Yes	Yes	Yes
Ambient conditions			
Operating temperature			
• Operation (vertical installation)			
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	50 °C	45 °C	45 °C
Relative humidity			
• max. relative humidity	90 %	90 %	90 %
Configuration			
Configuration software			
• WinCC Comfort (TIA Portal)	Yes; V11 SP2 or higher	Yes; V11 SP2 or higher	Yes; V11 SP2 or higher
Languages			
Online languages			
• Number of online/runtime languages	32	32	32
Functionality under WinCC (TIA Portal)			
Applications/options			
• Internet Explorer	Yes	Yes	Yes
• Pocket Word	Yes	Yes	Yes
• Pocket Excel	Yes	Yes	Yes
• PDF Viewer	Yes	Yes	Yes
• Media Player	Yes	Yes	Yes
• SIMATIC WinCC Sm@rtServer	Yes	Yes	Yes
Visual Basic Scripts	Yes	Yes	Yes
Task planner			
• time-controlled	Yes	Yes	Yes
• task-controlled	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment)			
• Number of bit messages	6 000	6 000	6 000
• Number of analog messages	200	200	200
• Message buffer			
- Number of entries	1 024	1 024	1 024
- Circulating buffer	Yes	Yes	Yes
- retentive	Yes	Yes	Yes
Recipes			
• Number of recipes	500	500	500
• Size of internal recipe memory	4 Mbyte	4 Mbyte	4 Mbyte
• Recipe memory expandable	Yes	Yes	Yes
Variables			
• Number of variables per device	4 096	4 096	4 096
• Number of variables per screen	400	400	400

■ **Technical specifications** (continued)

	6AV2124-0QC02-0AX0	6AV2124-0UC02-0AX0	6AV2124-0XC02-0AX0
	SIMATIC HMI TP1500 Comfort	**SIMATIC HMI TP1900 Comfort**	**SIMATIC HMI TP2200 Comfort**
Images			
• Number of configurable images	750	750	750
Archiving			
• Number of archives per device	50	50	50
Security			
• Number of user groups	50	50	50
• Number of users	50	50	50
• SIMATIC Logon	Yes	Yes	Yes
Logging through printer			
• Alarms	Yes	Yes	Yes
• Report (shift log)	Yes	Yes	Yes
• Hardcopy	Yes	Yes	Yes
• Electronic print to file	Yes; pdf, html	Yes; pdf, html	Yes; pdf, html
Transfer (upload/download)			
• MPI/PROFIBUS DP	Yes	Yes	Yes
• USB	Yes	Yes	Yes
• Ethernet	Yes	Yes	Yes
Process coupling			
• S7-1200	Yes	Yes	Yes
• S7-1500	Yes	Yes	Yes
• S7-200	Yes	Yes	Yes
• S7-300/400	Yes	Yes	Yes
• LOGO!	Yes	Yes	Yes
• Win AC	Yes	Yes	Yes
• SIMOTION	No; With WinCC, subsequent version	No; With WinCC, subsequent version	No; With WinCC, subsequent version
• Allen Bradley (EtherNet/IP)	Yes	Yes	Yes
• Allen Bradley (DF1)	Yes	Yes	Yes
• Mitsubishi (MC TCP/IP)	Yes	Yes	Yes
• Mitsubishi (FX)	Yes	Yes	Yes
• OMRON (FINS TCP)	No	No	No
• OMRON (LINK/Multilink)	Yes	Yes	Yes
• Modicon (Modbus TCP/IP)	Yes	Yes	Yes
• Modicon (Modbus)	Yes	Yes	Yes
• OPC UA Client	Yes	Yes	Yes
• OPC UA Server	No	No	No
I/O			
I/O devices			
• Printer	Yes	Yes	Yes
• Multi Media Card	Yes	Yes	Yes
• SD card	Yes	Yes	Yes
• USB memory	Yes	Yes	Yes
• Network camera	Yes	Yes	Yes
Mechanics/material			
Type of housing (front)			
• Plastic	No	No	No
• Aluminum	Yes	Yes	Yes
Dimensions			
Width of the housing front	415 mm	483 mm	560 mm
Height of housing front	310 mm	337 mm	380 mm
Mounting cutout (W x H x D)			
• Mounting cutout, width	396 mm	465 mm	542 mm
• Mounting cutout, height	291 mm	319 mm	362 mm
Weight			
Weight without packaging	5.2 kg	6.5 kg	7.1 kg

Operator panels
Comfort Panels

Comfort Panels – Standard

2

■ **Ordering data**	Order No.		Order No.
SIMATIC HMI Comfort Panels, Key and Touch		**Starter kits for SIMATIC HMI Comfort Panels**	
SIMATIC HMI KTP400 Comfort	6AV2124-2DC01-0AX0	Consisting of: the respective SIMATIC HMI Comfort Panel, SIMATIC WinCC Comfort, Ethernet cable, 2 m SIMATIC HMI memory card 2 GB 10 protective films for touch screen devices	
SIMATIC HMI Comfort Panels, Touch		**Starter kit for SIMATIC HMI KTP400 Comfort, Key and Touch**	6AV2181-4DB20-0AX0
SIMATIC HMI TP700 Comfort	6AV2124-0GC01-0AX0	**Starter kit for SIMATIC HMI TP700 Comfort, Touch**	6AV2181-4GB00-0AX0
SIMATIC HMI TP900 Comfort	6AV2124-0JC01-0AX0	**Starter kit for SIMATIC HMI TP900 Comfort, Touch**	6AV2181-4JB00-0AX0
SIMATIC HMI TP1200 Comfort	6AV2124-0MC01-0AX0	**Starter kit for SIMATIC HMI TP1200 Comfort, Touch**	6AV2181-4MB00-0AX0
SIMATIC HMI TP1500 Comfort	6AV2124-0QC02-0AX0	**Starter kit for SIMATIC HMI TP1500 Comfort, Touch**	6AV2181-4QB00-0AX0
SIMATIC HMI TP1900 Comfort	6AV2124-0UC02-0AX0	**Starter kit for SIMATIC HMI TP1900 Comfort, Touch**	6AV2181-4UB00-0AX0
SIMATIC HMI TP2200 Comfort	6AV2124-0XC02-0AX0	**Starter kit for SIMATIC HMI TP2200 Comfort, Touch**	6AV2181-4XB00-0AX0
SIMATIC HMI Comfort Panels, Key		**Starter kit for SIMATIC HMI KP400 Comfort, Key**	6AV2181-4DB10-0AX0
SIMATIC HMI KP400 Comfort	6AV2124-1DC01-0AX0	**Starter kit for SIMATIC HMI KP700 Comfort, Key**	6AV2181-4GB10-0AX0
SIMATIC HMI KP700 Comfort	6AV2124-1GC01-0AX0	**Starter kit for SIMATIC HMI KP900 Comfort, Key**	6AV2181-4JB10-0AX0
SIMATIC HMI KP900 Comfort	6AV2124-1JC01-0AX0	**Starter kit for SIMATIC HMI KP1200 Comfort, Key**	6AV2181-4MB10-0AX0
SIMATIC HMI KP1200 Comfort	6AV2124-1MC01-0AX0	**Starter kit for SIMATIC HMI KP1500 Comfort, Key**	6AV2181-4QB10-0AX0
SIMATIC HMI KP1500 Comfort	6AV2124-1QC02-0AX0	**Accessories**	See HMI accessories, from page 2/96

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Dimensional drawings

All dimensions in mm. For installation cutout, see technical specifications.
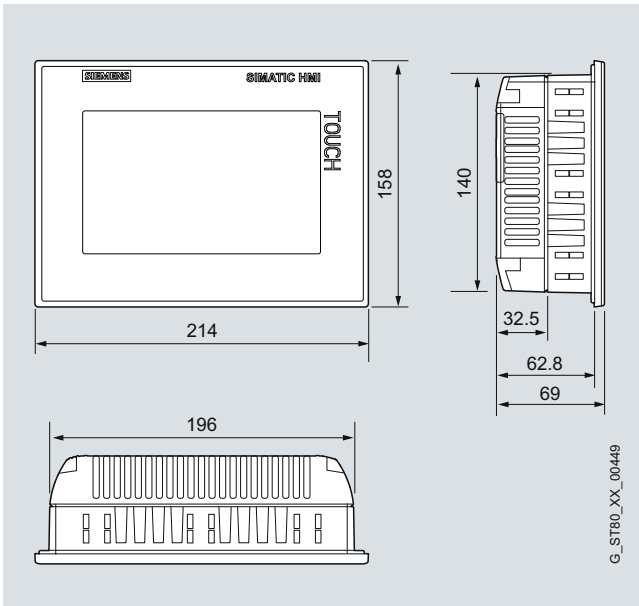
TP700 Comfort
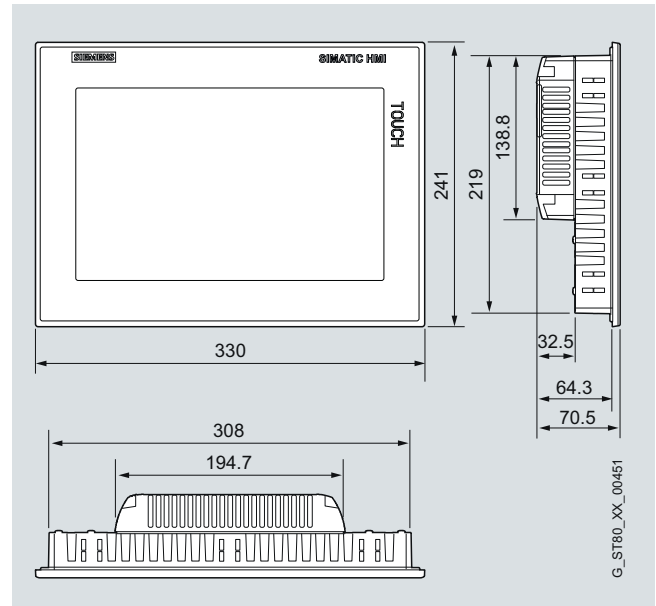
TP1200 Comfort
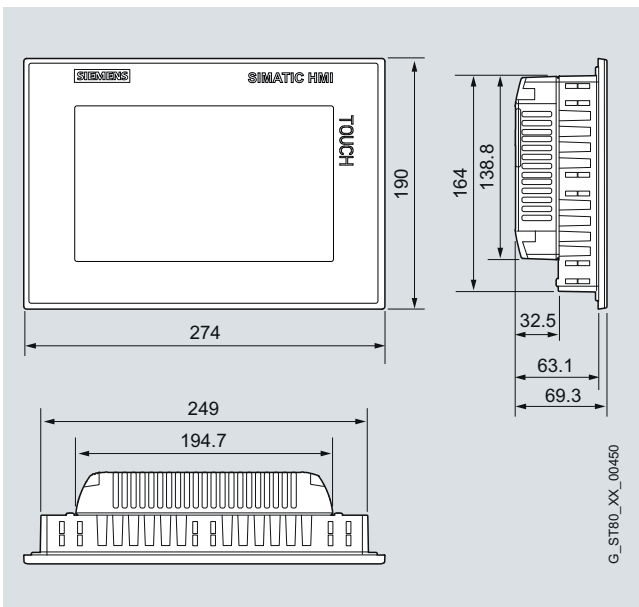
TP900 Comfort
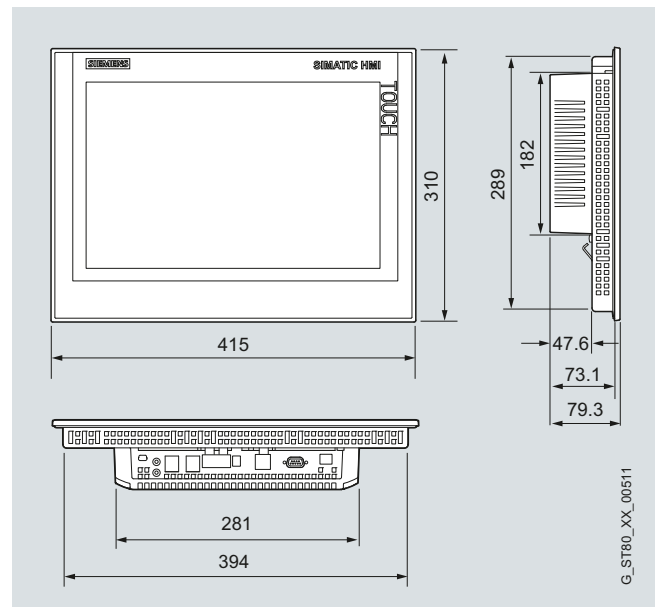
TP1500 Comfort

Operator panels
Comfort Panels

■ **Dimensional drawings** (continued)
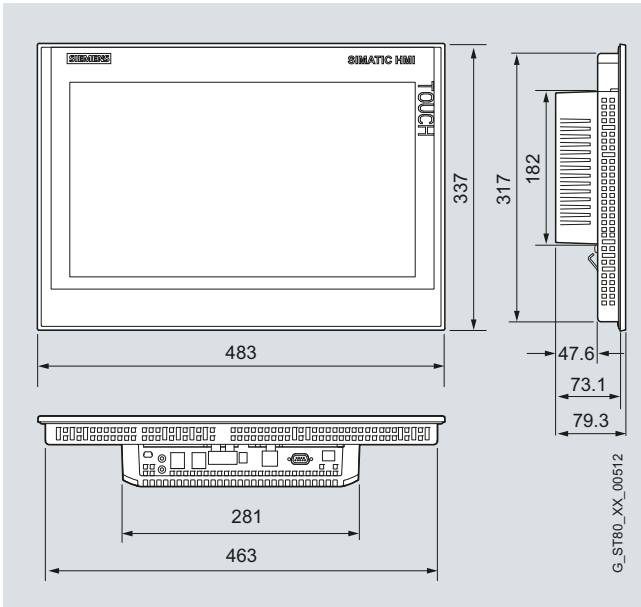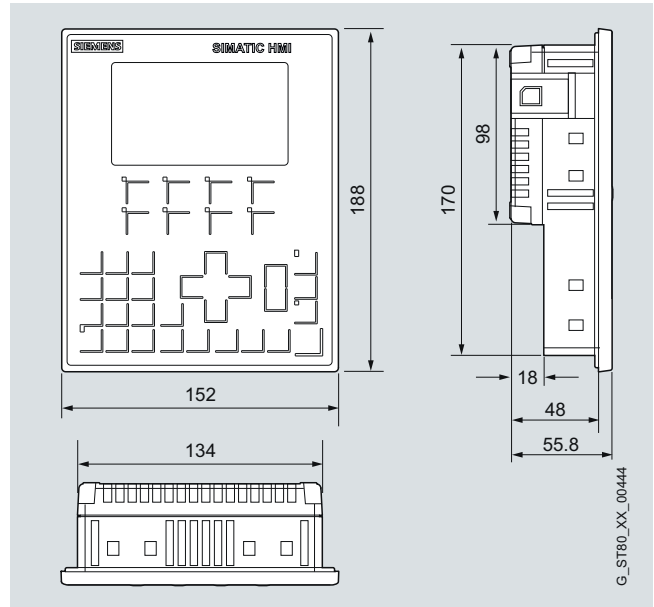
TP1900 Comfort

KP400 Comfort
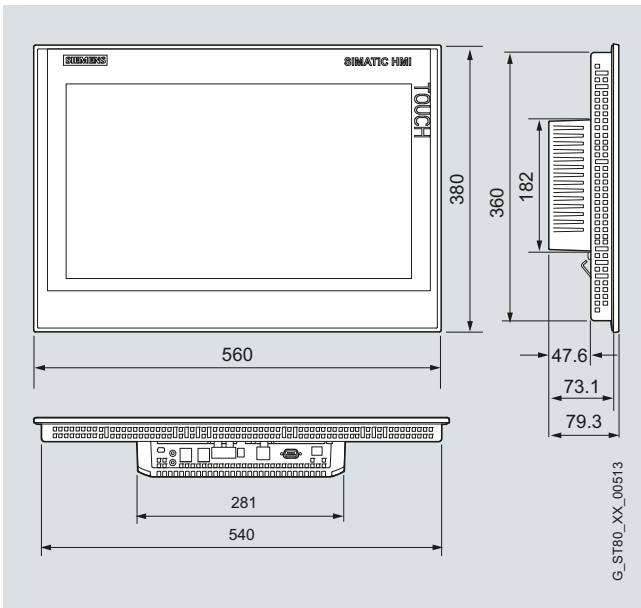
TP2200 Comfort

KP700 Comfort

2
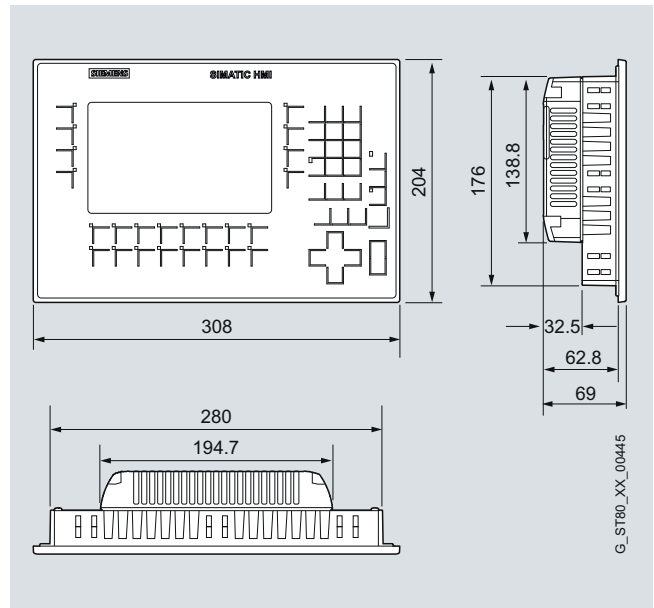
■ Dimensional drawings (continued)
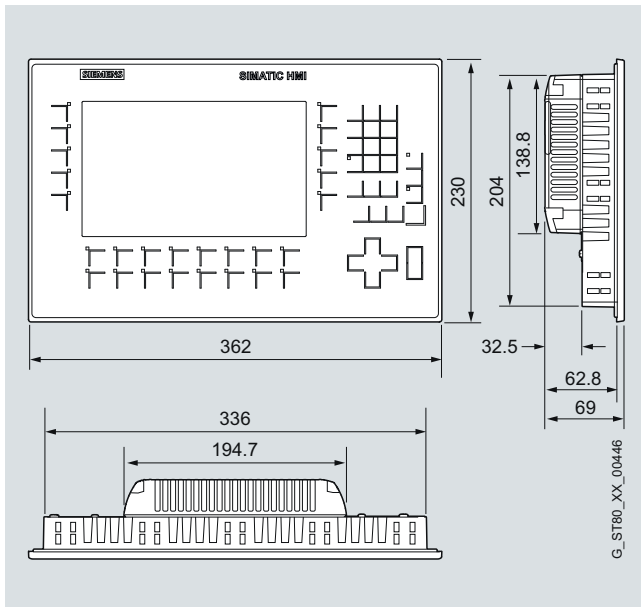
KP900 Comfort
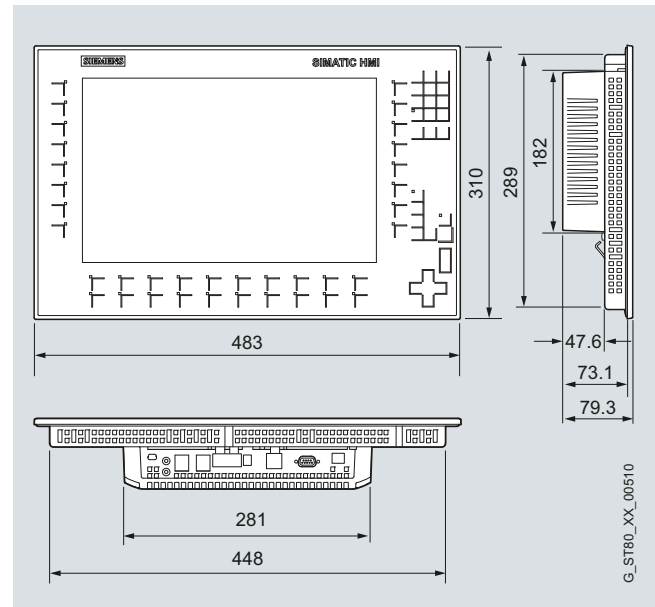
KP1500 Comfort
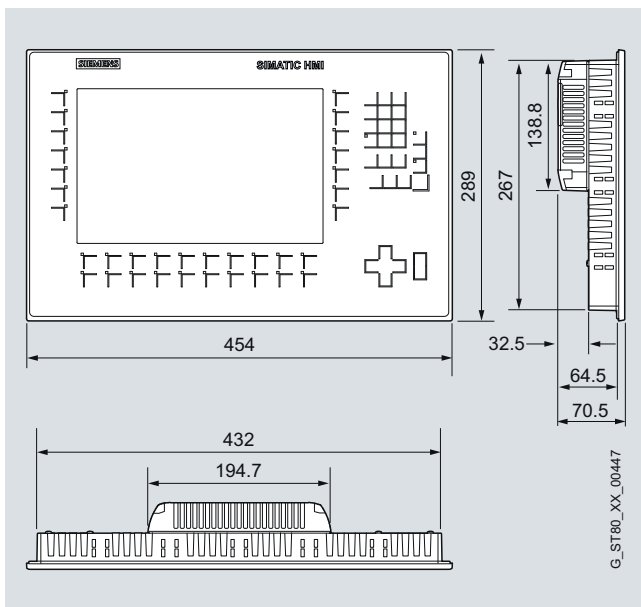
KP1200 Comfort
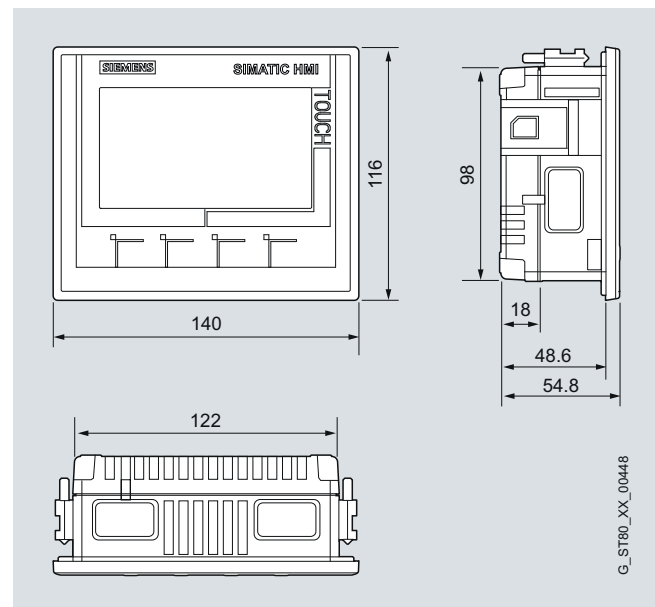
KTP400 Comfort

■ More information

Additional information is available on the Internet at:
http://www.siemens.com/simatic-comfort-panels

You can find an overview of approved printers, supply sources and printer settings on the Internet at:
http://support.automation.siemens.com/WW/view/en/11376409

Note

Do you need a specific modification or extension to the products described here? If so, refer to "Customized Automation". There you will find information about additional and generally available sector-specific products as well as options for customer-specific modification and adaptation.

Operator panels
SIPLUS Comfort Panels

SIPLUS Comfort Panels

■ **Overview**

- Excellent HMI functionality for demanding applications
- Widescreen TFT displays with 4", 7", 9", 12", 15", 19" and 22" diagonals (all 16 million colors) with up to 40% more visualization area as compared to the predecessor devices
- Integrated high-end functionality with archives, scripts, PDF/Word/Excel viewer, Internet Explorer, Media Player
- Dimmable displays from 0 to 100% via PROFIenergy, via the HMI project or via a controller
- Modern industrial design, cast aluminum fronts for 7" upwards
- Upright installation for all touch devices
- Optimal selection option: seven touch and five key versions are available

- Data security in the event of a power failure for the device and for the SIMATIC HMI Memory Card
- Innovative service and commissioning concept through second SD card (automatic backup)
- Easy project transfer via standard cable (standard Ethernet cable, standard USB cable)
- Maximum performance with short screen refresh times
- Suitable for extremely harsh industrial environments thanks to extended approvals such as ATEX 2/22
- Wide range of communication options: PROFIBUS and PROFINET onboard; 2x PROFINET with integrated switch for 7" models or larger; plus 1 additional PROFINET with Gigabit support for 15" models or larger
- All variants can be used as an OPC UA client or as an OPC DA server
- Key-operated devices with LED in every function key and new text input mechanism, similar to the keypads of mobile phones
- Key-operated devices with stamped keys for optimum tactile feedback
- All keys have a service life of 2 million operations
- Configuring with the WinCC engineering software of the TIA Portal

Note:

SIPLUS extreme products are based on Siemens Industry standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

2

◼ Technical specifications

	6AG1124-2DC01-4AX0	6AG1124-0GC01-4AX0	6AG1124-0JC01-4AX0	6AG1124-0MC01-4AX0
	SIPLUS HMI KTP400 Comfort	**SIPLUS HMI TP700 Comfort**	**SIPLUS HMI TP900 Comfort**	**SIPLUS HMI TP1200 Comfort**
Ambient conditions				
Operating temperature				
• Operation (vertical installation)				
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	50 °C	50 °C	50 °C	50 °C
Extended ambient conditions				
• Relative humidity				
- With condensation/ maximum/tested in accordance with IEC 60068-2-38	100 %	100 %	100 %	100 %
• Resistance				
- to biologically active substances	Yes	Yes	Yes	Yes
- to chemically active substances	Yes	Yes	Yes	Yes
- to mechanically active substances	Yes	Yes	Yes	Yes

	6AG1124-1DC01-4AX0	6AG1124-1GC01-4AX0	6AG1124-1JC01-4AX0	6AG1124-1MC01-4AX0	6AG1124-1QC02-4AX0
	SIPLUS HMI KTP400 Comfort	**SIPLUS HMI KP700 Comfort**	**SIPLUS HMI KP900 Comfort**	**SIPLUS HMI KP1200 Comfort**	**SIPLUS HMI KP1500 Comfort**
Ambient conditions					
Operating temperature					
• Operation (vertical installation)					
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	50 °C	50 °C	50 °C	50 °C	50 °C
Extended ambient conditions					
• Relative humidity					
- With condensation/ maximum/tested in accordance with IEC 60068-2-38	100 %	100 %	100 %	100 %	100 %
• Resistance					
- to biologically active substances	Yes	Yes	Yes	Yes	Yes
- to chemically active substances	Yes	Yes	Yes	Yes	Yes
- to mechanically active substances	Yes	Yes	Yes	Yes	Yes

Operator panels
SIPLUS Comfort Panels

SIPLUS Comfort Panels

■ **Technical specifications** (continued)

	6AG1124-0QC02-4AX0	6AG1124-0UC02-4AX0	6AG1124-0XC02-4AX0
	SIPLUS HMI TP1500 Comfort	**SIPLUS HMI TP1900 Comfort**	**SIPLUS HMI TP2200 Comfort**
Ambient conditions			
Operating temperature			
• Operation (vertical installation)			
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	50 °C	45 °C	45 °C
Extended ambient conditions			
• Relative humidity			
- With condensation/ maximum/tested in accordance with IEC 60068-2-38	100 %	100 %	100 %
• Resistance			
- to biologically active substances	Yes	Yes	Yes
- to chemically active substances	Yes	Yes	Yes
- to mechanically active substances	Yes	Yes	Yes

■ Ordering data

Ordering data	Order No.
SIPLUS HMI Comfort Panels, Keys and Touch	
SIPLUS HMI KTP400 Comfort	**6AG1124-2DC01-4AX0**
SIPLUS HMI Comfort Panels, Touch	
SIPLUS HMI TP700 Comfort	**6AG1124-0GC01-4AX0**
SIPLUS HMI TP900 Comfort	**6AG1124-0JC01-4AX0**
SIPLUS HMI TP1200 Comfort	**6AG1124-1MC01-4AX0**
SIPLUS HMI TP1500 Comfort	**6AG1124-0QC02-4AX0**
SIPLUS HMI TP1900 Comfort	**6AG1124-0UC02-4AX0**
SIPLUS HMI TP2200 Comfort	**6AG1124-0XC02-4AX0**
SIPLUS HMI Comfort Panels, Keys	
SIPLUS HMI KP400 Comfort	**6AG1124-1DC01-4AX0**
SIPLUS HMI KP700 Comfort	**6AG1124-1GC01-4AX0**
SIPLUS HMI KP900 Comfort	**6AG1124-1JC01-4AX0**
SIPLUS HMI KP1200 Comfort	**6AG1124-1MC01-4AX0**
SIPLUS HMI KP1500 Comfort	**6AG1124-1QC02-4AX0**
Accessories	See HMI accessories, from page 2/26

■ More information

Additional information is available on the Internet at:
http://www.siemens.com/simatic-comfort-panels

You can find an overview of approved printers, supply sources and printer settings on the Internet at:
http://support.automation.siemens.com/WW/view/en/11376409

Note

Do you need a specific modification or extension to the products described here? If so, refer to "Customized Automation". There you will find information about additional and generally available sector-specific products as well as options for customer-specific modification and adaptation.

2

Operator panels
Mobile Panels

■ Overview

SIMATIC Mobile Panel

- Mobile operator panel for direct operator control of the plant and machine from any point
- Supports an optimum view of the workpiece or process and, at the same time, direct access and visual contact with the operator panel
- Versatile use thanks to easy unplugging and replugging during normal operation (Mobile Panel 177 and Mobile Panel 277) or
- Wireless freedom (Mobile Panel 277(F) IWLAN)
- Pixel-graphics, high-luminance color display with touch screen (analog/resistive)
- PROFIBUS or PROFINET communication, PROFINET over WLAN for Mobile Panel 277(F) IWLAN
- Freely-configurable function keys with customized labels (with LED) (not for Mobile Panel 277 10")

SIMATIC Mobile Panel 177 and SIMATIC Mobile Panel 277

- Two three-stage acknowledgement buttons;
  Optional versions include:
  - STOP button
  - STOP button, handwheel, key-operated switch and illuminated pushbutton (not for Mobile Panel 277 10")
- Communication is supported via a serial link, MPI/PROFIBUS or PROFINET
- Connection point recognition for local identification of the device based on the connection point ID
- Fast system availability after plugging into the connection boxes
- Connection to the controller and power supply is made via the connection box and the connecting cable

SIMATIC Mobile Panel 277(F) IWLAN

- Wireless, mobile operator panel for flexible and location-independent system and machine operation
- WLAN communication in accordance with IEEE 802.11 (a/b/g/h) and PROFINET support
- Powerful batteries and flexible concept for changing permit battery replacement "on the fly" without interrupting operation
- Effective range limitation and the local identification of the device by using transponder technology
- Low-cost, safety-related mobile operator control and monitoring via RFID technology (MOBY D) for plants with pre-installed safety resources (e.g. robot cells)
- Optional variants with: Handwheel, key switch and illuminated pushbutton
- Fail-safe operator controls of the SIMATIC Mobile Panel 277F IWLAN using PROFIsafe:
  - Two three-stage acknowledgment buttons
  - Emergency stop button

IWLAN Access Points SCALANCE W for SIMATIC Mobile Panel 277(F) IWLAN

- The Access Points of the product line SCALANCE W-780 are ideally suited for setting up Industrial Wireless LAN (IWLAN) radio networks for 2.4 GHz and 5 GHz with data rates of up to 54 Mbps; they can be used for all applications that require a high degree of operational reliability, even under extremely harsh ambient conditions
- Suitable for any application:
  - SCALANCE W-788 for cabinet-free installation
  - SCALANCE W-786 for cabinet-free installation, also with integral antennas
  - SCALANCE W-784 for installation in control cabinets or integration into devices
- Wireless communication suitable for use in applications with high real-time and reliability requirements, such as PROFINET, PROFIsafe or video
- Standard-compliant thanks to IEEE 802.11 support, additional functional expansions especially for use with increased reliability
- Effective encryption mechanisms protect against unauthorized access, spying, tapping, and corruption
- The SINEMA E engineering tool, wizards and online help support planning, simulation, configuration and documentation; easy management with the web server and SNMP
- Fast commissioning of the Access Points thanks to the optional swap medium PRESET-PLUG and fast device replacement in the event of a fault thanks to the optional swap medium C-PLUG (Configuration Plug)
- Accessories such as antennas, connectors, cables incl. RCoax cables (radiating cables) that are tuned to one another for a reliable radio link.

Overview

SIMATIC Mobile Panel 177

Technical specifications

	6AV6645-0AA01-0AX0 **with integrated acknowledgment button**	6AV6645-0AB01-0AX0 **with integrated acknowledgment button and STOP button**	6AV6645-0AC01-0AX0 **with integrated acknowledgment button, STOP button, handwheel, keyswitch and illuminated pushbutton**
Display			
Size	5.7" (121 mm x 92 mm)	5.7" (121 mm x 92 mm)	5.7" (121 mm x 92 mm)
Display type	STN, 256 colors	STN, 256 colors	STN, 256 colors
Resolution (pixels)			
• Resolution (WxH in pixel)	320 x 240	320 x 240	320 x 240
Backlighting			
• MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours	about 50,000 hours
• MTBF backlighting (at 25 °C)	50 000 h	50 000 h	50 000 h
Control elements			
Operating options	Keys and Touch	Keys and Touch	Keys and Touch
Function keys, programmable	14 function keys, 8 with LEDs	14 function keys, 8 with LEDs	14 function keys, 8 with LEDs
Keyboard fonts			
• System keys	0	0	0
Touch operation			
• Touch screen	Analog, resistive	Analog, resistive	Analog, resistive
Special operator controls			
• Stop button	No	Yes	Yes
• Acknowledgement button	Yes	Yes	Yes
• Key-operated switch	No	No	Yes
• Illuminated pushbutton	No	No	Yes
• Handwheel	No	No	Yes
Supply voltage			
Supply voltage	via connection box	via connection box	via connection box
Processor			
Processor	RISC 32-bit, 200 MHz	RISC 32-bit, 200 MHz	RISC 32-bit, 200 MHz
Memory			
Type	Flash / RAM	Flash / RAM	Flash / RAM
Usable memory for user data	2048 KB of usable memory for user data / no user memory for options	2048 KB of usable memory for user data / no user memory for options	2048 KB of usable memory for user data / no user memory for options
Battery			
Backup battery			
• Battery operation	maximum buffer time 10 min	maximum buffer time 10 min	maximum buffer time 10 min

Operator panels
Mobile Panels – 170 series

2

Technical specifications (continued)

	6AV6645-0AA01-0AX0 **with integrated acknowledgment button**	6AV6645-0AB01-0AX0 **with integrated acknowledgment button and STOP button**	6AV6645-0AC01-0AX0 **with integrated acknowledgment button, STOP button, handwheel, keyswitch and illuminated pushbutton**
Interfaces			
Interfaces	1 x RS422, 1 x RS485 (max. 12 Mbit/s)	1 x RS422, 1 x RS485 (max. 12 Mbit/s)	1 x RS422, 1 x RS485 (max. 12 Mbit/s)
USB port	No	No	No
Number of USB interfaces	0	0	0
PC card slot	No	No	No
CF card slot	No	No	No
SD card slot	No		
Multimedia card/SD card slot	combined	combined	combined
Industrial Ethernet			
• Industrial Ethernet interface	No	No	No
Degree and class of protection			
IP65 enclosure	Yes	Yes	Yes
Standards, approvals, certificates			
Certifications	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE
CE	Yes	Yes	Yes
cULus	Yes	Yes	Yes
C-TICK	Yes		
Safety category according to EN954-1	Safety category according to EN954-1 (acknowledgment button, STOP button if present) 3	Safety category according to EN954-1 (acknowledgment button, STOP button if present) 3	Safety category according to EN954-1 (acknowledgment button, STOP button if present) 3
Highest safety class achievable in safety mode			
• Performance Level in accordance with EN ISO 13849-1	d	d	d
Ambient conditions			
Drop height	1.5 m	1.5 m	1.5 m
Operating temperature			
• Operation	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C
Storage/transport temperature			
• Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C
Relative humidity			
• max. relative humidity	80 %	80 %	80 %
Operating systems			
Operating system	Windows CE	Windows CE	Windows CE
Languages			
Online languages			
• Number of online/runtime languages	5	5	5
Functionality under WinCC (TIA Portal)			
Libraries	Yes	Yes	Yes
Task planner	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment)			
• Number of messages	2 000	2 000	2 000
• Bit messages	Yes	Yes	Yes
• Analog messages	Yes	Yes	Yes
Recipes			
• Number of recipes	100	100	100
• Data records per recipe	200	200	200
• Entries per data record	200	200	200
• Recipe memory	32 KB integrated Flash, expandable	32 KB integrated Flash, expandable	32 KB integrated Flash, expandable

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Technical specifications (continued)

	6AV6645-0AA01-0AX0 **with integrated acknowledgment button**	6AV6645-0AB01-0AX0 **with integrated acknowledgment button and STOP button**	6AV6645-0AC01-0AX0 **with integrated acknowledgment button, STOP button, handwheel, keyswitch and illuminated pushbutton**
Variables			
• Number of variables per device	1 024	1 024	1 024
• Limit values	Yes	Yes	Yes
• Multiplexing	Yes	Yes	Yes
Images			
• Number of configurable images	500	500	500
Image objects			
• Text objects	2,500 text elements	2,500 text elements	2,500 text elements
• Graphics object	Bit maps, vector graphics	Bit maps, vector graphics	Bit maps, vector graphics
Complex image objects			
• Status/control	With SIMATIC S7	With SIMATIC S7	With SIMATIC S7
• dynamic objects	Diagrams, bar graphs, sliders, invisible buttons	Diagrams, bar graphs, sliders, invisible buttons	Diagrams, bar graphs, sliders, invisible buttons
Lists			
• Number of text lists per project	300	300	300
• Number of graphics lists per project	100	100	100
Archiving			
• Number of archives per device	0	0	0
Security			
• Number of user groups	50	50	50
• Number of user rights	32	32	32
• Password export/import	Yes	Yes	Yes
Data carrier support			
• PC card	No	No	No
• CF card	No	No	No
Logging through printer			
• Recording/Printing	-	-	-
Transfer (upload/download)			
• Transfer of configuration	MPI/PROFIBUS DP, serial, automatic transfer recognition	MPI/PROFIBUS DP, serial, automatic transfer recognition	MPI/PROFIBUS DP, serial, automatic transfer recognition
Process coupling			
• Connection to controller	S5, S7-200, S7- 300/400, TI 505, Win AC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multi-link), Modicon (Modbus), further non-Siemens drivers, see chapter "System interfaces"	S5, S7-200, S7- 300/400, TI 505, Win AC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multi-link), Modicon (Modbus), further non-Siemens drivers, see chapter "System interfaces"	S5, S7-200, S7- 300/400, TI 505, Win AC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multi-link), Modicon (Modbus), further non-Siemens drivers, see chapter "System interfaces"
• S7-1200	Yes	Yes	Yes
• S7-1500	Yes	Yes	Yes
Expandability/openness			
• Open Platform Program	Yes	Yes	Yes
I/O I/O devices			
• Multi Media Card	Yes	Yes	Yes
Mechanics/material Type of housing (front)	Plastic	Plastic	Plastic
Dimensions Housing diameter/depth (mm)	Dia 245 mm / D 58 mm	Dia 245 mm / D 58 mm	Dia 245 mm / D 58 mm
Weight Weight	1.3 kg	1.3 kg	1.3 kg

Operator panels
Mobile Panels – 170 series

SIMATIC Mobile Panel 177

■ **Technical specifications** (continued)

	6AV6645-0BA01-0AX0	6AV6645-0BB01-0AX0	6AV6645-0BC01-0AX0
	with integrated acknowledgment button	**with integrated acknowledgment button and STOP button**	**with integrated acknowledgment button, STOP button, handwheel, keyswitch and illuminated pushbutton**
Display			
Size	5.7" (121 mm x 92 mm)	5.7" (121 mm x 92 mm)	5.7" (121 mm x 92 mm)
Display type	STN, 256 colors	STN, 256 colors	STN, 256 colors
Resolution (pixels)			
• Resolution (WxH in pixel)	320 x 240	320 x 240	320 x 240
Backlighting			
• MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours	about 50,000 hours
• MTBF backlighting (at 25 °C)	50 000 h	50 000 h	50 000 h
Control elements			
Operating options	Keys and Touch	Keys and Touch	Keys and Touch
Function keys, programmable	14 function keys, 8 with LEDs	14 function keys, 8 with LEDs	14 function keys, 8 with LEDs
Keyboard fonts			
• System keys	0	0	0
Touch operation			
• Touch screen	Analog, resistive	Analog, resistive	Analog, resistive
Special operator controls			
• Stop button	No	Yes	Yes
• Acknowledgement button	Yes	Yes	Yes
• Key-operated switch	No	No	Yes
• Illuminated pushbutton	No	No	Yes
• Handwheel	No	No	Yes
Supply voltage			
Supply voltage	via connection box	via connection box	via connection box
Processor			
Processor	RISC 32-bit, 200 MHz	RISC 32-bit, 200 MHz	RISC 32-bit, 200 MHz
Memory			
Type	Flash / RAM	Flash / RAM	Flash / RAM
Usable memory for user data	2048 KB of usable memory for user data / no user memory for options	2048 KB of usable memory for user data / no user memory for options	2048 KB of usable memory for user data / no user memory for options
Battery			
Backup battery			
• Battery operation	maximum buffer time 10 min	maximum buffer time 10 min	maximum buffer time 10 min
Interfaces			
Interfaces	1 x RS485, 1 x Ethernet (RJ45)	1 x RS485, 1 x Ethernet (RJ45)	1 x RS485, 1 x Ethernet (RJ45)
USB port	No	No	No
Number of USB interfaces	0	0	0
PC card slot	No	No	No
CF card slot	No	No	No
Multimedia card/SD card slot	combined	combined	combined
Industrial Ethernet			
• Industrial Ethernet interface	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)
Protocols			
PROFINET	Yes	Yes	Yes
Supports protocol for PROFINET IO	Yes	Yes	Yes
Degree and class of protection			
IP65 enclosure	Yes	Yes	Yes

■ **Technical specifications** (continued)

	6AV6645-0BA01-0AX0 with integrated acknowledgment button	6AV6645-0BB01-0AX0 with integrated acknowledgment button and STOP button	6AV6645-0BC01-0AX0 with integrated acknowledgment button, STOP button, handwheel, keyswitch and illuminated pushbutton
Standards, approvals, certificates			
Certifications	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE
CE	Yes	Yes	Yes
cULus	Yes	Yes	Yes
Safety category according to EN954-1	Safety category according to EN954-1 (acknowledgment button, STOP button if present) 3	Safety category according to EN954-1 (acknowledgment button, STOP button if present) 3	Safety category according to EN954-1 (acknowledgment button, STOP button if present) 3
Highest safety class achievable in safety mode • Performance Level in accordance with EN ISO 13849-1	d	d	d
Ambient conditions			
Drop height	1.5 m	1.5 m	1.5 m
Operating temperature • Operation	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C
Storage/transport temperature • Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C
Relative humidity • max. relative humidity	80 %	80 %	80 %
Operating systems			
Operating system	Windows CE	Windows CE	Windows CE
Languages			
Online languages • Number of online/runtime languages	5	5	5
Functionality under WinCC (TIA Portal)			
Libraries	Yes	Yes	Yes
Task planner	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment) • Number of messages • Bit messages • Analog messages	2 000 Yes Yes	2 000 Yes Yes	2 000 Yes Yes
Recipes • Number of recipes • Data records per recipe • Entries per data record • Recipe memory	100 200 200 32 KB integrated Flash, expandable	100 200 200 32 KB integrated Flash, expandable	100 200 200 32 KB integrated Flash, expandable
Variables • Number of variables per device • Limit values • Multiplexing	1 024 Yes Yes	1 024 Yes Yes	1 024 Yes Yes
Images • Number of configurable images	500	500	500
Image objects • Text objects • Graphics object	2,500 text elements Bit maps, vector graphics	2,500 text elements Bit maps, vector graphics	2,500 text elements Bit maps, vector graphics
Complex image objects • Status/control • dynamic objects	With SIMATIC S7 Diagrams, bar graphs, sliders, invisible buttons	With SIMATIC S7 Diagrams, bar graphs, sliders, invisible buttons	With SIMATIC S7 Diagrams, bar graphs, sliders, invisible buttons

2

Operator panels
Mobile Panels – 170 series

SIMATIC Mobile Panel 177

■ Technical specifications (continued)

	6AV6645-0BA01-0AX0 with integrated acknowledgment button	6AV6645-0BB01-0AX0 with integrated acknowledgment button and STOP button	6AV6645-0BC01-0AX0 with integrated acknowledgment button, STOP button, handwheel, keyswitch and illuminated pushbutton
Lists			
• Number of text lists per project	300	300	300
• Number of graphics lists per project	100	100	100
Archiving			
• Number of archives per device	0	0	0
Security			
• Number of user groups	50	50	50
• Number of user rights	32	32	32
• Password export/import	Yes	Yes	Yes
Data carrier support			
• PC card	No	No	No
• CF card	No	No	No
Logging through printer			
• Recording/Printing	-	-	-
Transfer (upload/download)			
• Transfer of configuration	Serial, Ethernet, automatic transfer recognition	Serial, Ethernet, automatic transfer recognition	Serial, Ethernet, automatic transfer recognition
Process coupling			
• Connection to controller	S7-200, S7- 300/400, Win AC, PC (TCP/IP), SIMOTION, Modicon (Modbus), see the chapter "System interfaces"	S7-200, S7- 300/400, Win AC, PC (TCP/IP), SIMOTION, Modicon (Modbus), see the chapter "System interfaces"	S7-200, S7- 300/400, Win AC, PC (TCP/IP), SIMOTION, Modicon (Modbus), see the chapter "System interfaces"
• S7-1200	Yes	Yes	Yes
• S7-1500	Yes	Yes	Yes
Expandability/openness			
• Open Platform Program	Yes	Yes	Yes
I/O			
I/O devices	Printer	Printer	Printer
• Multi Media Card	Yes	Yes	Yes
Mechanics/material			
Type of housing (front)	Plastic	Plastic	Plastic
Dimensions			
Housing diameter/depth (mm)	Dia 245 mm / D 58 mm	Dia 245 mm / D 58 mm	Dia 245 mm / D 58 mm
Weight			
Weight	1.3 kg	1.3 kg	1.3 kg

2

■ **Ordering data**

	Order No.
SIMATIC Mobile Panel 177 DP (MPI/PROFIBUS) [1]	
• With integrated acknowledgement button	**6AV6645-0AA01-0AX0**
• With integrated acknowledgement button and STOP button	**6AV6645-0AB01-0AX0**
• With integrated acknowledgement button, STOP button, handwheel, key-operated switch and illuminated pushbutton	**6AV6645-0AC01-0AX0**
SIMATIC Mobile Panel 177 PN (PROFINET) [1]	
• With integrated acknowledgement button	**6AV6645-0BA01-0AX0**
• With integrated acknowledgement button and STOP button	**6AV6645-0BB01-0AX0**
• With integrated acknowledgement button, STOP button, handwheel, key-operated switch and illuminated pushbutton	**6AV6645-0BC01-0AX0**
Documentation	
You can find the manuals for the Mobile Panels on the Internet at:	
http://support.automation.siemens.com/WW/view/en/11599011/133300	
SIMATIC HMI Manual Collection	**6AV6691-1SA01-0AX0**
Electronic documentation on DVD, 5 languages (English, German, French, Italian and Spanish); contains: all currently available user manuals, device manuals and communication manuals for SIMATIC HMI	
System components for Mobile Panels	
DP connection box for Mobile Panels (MPI/PROFIBUS)	
• Basic	**6AV6671-5AE00-0AX0**
• Plus	**6AV6671-5AE10-0AX0**
PN connection box for Mobile Panel (PROFINET)	
• Basic	**6AV6671-5AE01-0AX0**
• Plus	**6AV6671-5AE11-0AX0**
Connecting cable and accessories for Mobile Panels	See HMI accessories, from page 2/99

[1] The system components (connecting cables and connection boxes) must be ordered separately.

[2] Delivery time approximately 6 weeks

■ **Dimensional drawings**

All dimensions in mm. For installation cutout, see technical specifications.

Mobile Panel 177, front and side view

■ **More information**

Additional information is available in the Internet under:
http://www.siemens.com/simatic-mobile-panels

Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

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Operator panels
Mobile Panels – 270 series

SIMATIC Mobile Panel 277

■ **Overview**

SIMATIC Mobile Panel 277 8"

SIMATIC Mobile Panel 277 10"

■ **Technical specifications**

	6AV6645-0CA01-0AX0	6AV6645-0CB01-0AX0	6AV6645-0CC01-0AX0	6AV6645-0BE02-0AX0
	8" with integrated acknowledgment button	8" with integrated acknowledgment button and STOP button	8" with integrated acknowledgment button, STOP button, handwheel, keyswitch and illuminated pushbutton	10" with integrated acknowledgment button and STOP button
Display				
Size	7.5"	7.5"	7.5"	10.4"
Display type	TFT, 65536 colors	TFT, 65536 colors	TFT, 65536 colors	TFT, 65536 colors
Resolution (pixels)				
• Resolution (WxH in pixel)	640 x 480	640 x 480	640 x 480	800 x 600
Backlighting				
• MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours	about 50,000 hours	about 50,000 hours
• MTBF backlighting (at 25 °C)	50 000 h	50 000 h	50 000 h	50 000 h
Control elements				
Operating options	Keys and Touch	Keys and Touch	Keys and Touch	Touch
Function keys, programmable	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs	none
Connection for mouse/ keyboard/barcode reader	USB / USB / USB	USB / USB / USB	USB / USB / USB	USB / USB / USB
Keyboard fonts				
• System keys				0
Touch operation				
• Touch screen	Analog, resistive	Analog, resistive	Analog, resistive	Analog, resistive
Special operator controls				
• Stop button	No	Yes	Yes	Yes
• Acknowledgement button	Yes	Yes	Yes	Yes
• Key-operated switch	No	No	Yes	No
• Illuminated pushbutton	No	No	Yes; Two illuminated pushbuttons	No
• Handwheel	No	No	Yes	No

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Technical specifications (continued)

	6AV6645-0CA01-0AX0	6AV6645-0CB01-0AX0	6AV6645-0CC01-0AX0	6AV6645-0BE02-0AX0
	8" with integrated acknowledgment button	8" with integrated acknowledgment button and STOP button	8" with integrated acknowledgment button, STOP button, handwheel, keyswitch and illuminated pushbutton	10" with integrated acknowledgment button and STOP button
Supply voltage				
Supply voltage	via connection box	via connection box	via connection box	via connection box, DC
Processor				
Processor	ARM, 520 MHz	ARM, 520 MHz	ARM, 520 MHz	ARM, 520
Memory				
Type	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM
Usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data
Battery				

Backup battery
• Battery operation
  - Charging duration
  - Number of loading cycles, min
	maximum buffer time 10 min	maximum buffer time 10 min	maximum buffer time 10 min	maximum buffer time 10 min
				5 h
				500

Time of day Clock • Type	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable
Interfaces				
Interfaces	1 x RS422, 1 x RS485, 1 x Ethernet (RJ45) (max. 12 Mbit/s)	1 x RS422, 1 x RS485, 1 x Ethernet (RJ45) (max. 12 Mbit/s)	1 x RS422, 1 x RS485, 1 x Ethernet (RJ45) (max. 12 Mbit/s)	1 x RS422, 1 x RS485, 1 x Ethernet (RJ45) (max. 12 Mbit/s)
USB port	1 x USB	1 x USB	1 x USB	1 x USB
Multi Media Card slot	1 MMC/SD card slot	1 MMC/SD card slot	1 MMC/SD card slot	
Multimedia card/SD card slot				combined
Industrial Ethernet • Industrial Ethernet interface	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)
Protocols PROFINET	Yes	Yes	Yes	Yes
Supports protocol for PROFINET IO	Yes	Yes	Yes	Yes
Degree and class of protection IP65 enclosure	Yes	Yes	Yes	Yes
Standards, approvals, certificates Certifications	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE	CE, cULus, C-TICK, SIBE
Safety category according to EN954-1	Safety category according to EN954-1 (acknowledgment button, STOP button if present) 3	Safety category according to EN954-1 (acknowledgment button, STOP button if present) 3	Safety category according to EN954-1 (acknowledgment button, STOP button if present) 3	Safety category according to EN954-1 (acknowledgment button, STOP button if present) 3
Highest safety class achievable in safety mode • Performance Level in accordance with EN ISO 13849-1	d	d	d	d

Operator panels
Mobile Panels – 270 series

SIMATIC Mobile Panel 277

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Technical specifications (continued)

	6AV6645-0CA01-0AX0 8" with integrated acknowledgment button	6AV6645-0CB01-0AX0 8" with integrated acknowledgment button and STOP button	6AV6645-0CC01-0AX0 8" with integrated acknowledgment button, STOP button, handwheel, keyswitch and illuminated pushbutton	6AV6645-0BE02-0AX0 10" with integrated acknowledgment button and STOP button
Ambient conditions Drop height	1.2 m	1.2 m	1.2 m	1 m
Operating temperature • Operation	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C
Storage/transport temperature • Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C
Relative humidity • max. relative humidity	80 %	80 %	80 %	80 %
Operating systems Operating system	Windows CE	Windows CE	Windows CE	Windows CE
Languages Online languages • Number of online/runtime languages	16	16	16	16
Functionality under WinCC (TIA Portal) Libraries	Yes	Yes	Yes	Yes
Task planner	Yes	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment) • Number of messages • Bit messages • Analog messages	4 000 Yes Yes	4 000 Yes Yes	4 000 Yes Yes	4 000 Yes Yes
Recipes • Number of recipes • Data records per recipe • Entries per data record • Recipe memory	300 500 1 000 64 KB integrated Flash, expandable	300 500 1 000 64 KB integrated Flash, expandable	300 500 1 000 64 KB integrated Flash, expandable	300 200 1 000 64 KB integrated Flash, expandable
Variables • Number of variables per device • Limit values • Multiplexing	2 048 Yes Yes	2 048 Yes Yes	2 048 Yes Yes	2 048 Yes Yes
Images • Number of configurable images	500	500	500	500
Image objects • Text objects • Graphics object	10,000 text elements Bit maps, icons, vector graphics	10,000 text elements Bit maps, icons, vector graphics	10,000 text elements Bit maps, icons, vector graphics	10,000 text elements Bit maps, icons, vector graphics
Complex image objects • Status/control • dynamic objects	With SIMATIC S7 Diagrams, bar graphs, sliders, analog display, invisible buttons	With SIMATIC S7 Diagrams, bar graphs, sliders, analog display, invisible buttons	With SIMATIC S7 Diagrams, bar graphs, sliders, analog display, invisible buttons	With SIMATIC S7 Diagrams, bar graphs, sliders, analog display, invisible buttons

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■ **Technical specifications** (continued)

	6AV6645-0CA01-0AX0	6AV6645-0CB01-0AX0	6AV6645-0CC01-0AX0	6AV6645-0BE02-0AX0
	8" with integrated acknowledgment button	8" with integrated acknowledgment button and STOP button	8" with integrated acknowledgment button, STOP button, handwheel, keyswitch and illuminated pushbutton	10" with integrated acknowledgment button and STOP button
Lists				
• Number of text lists per project	500	500	500	500
• Number of graphics lists per project	400	400	400	400
Archiving				
• Number of archives per device	20	20	20	20
• Number of measuring points per project	20	20	20	20
• Number of entries per archive	10 000	10 000	10 000	10 000
Security				
• Number of user groups	50	50	50	50
• Number of user rights	32	32	32	32
• Password export/import	Yes	Yes	Yes	Yes
Logging through printer				
• Recording/Printing	Alarms, report (shift report), color print, hardcopy	Alarms, report (shift report), color print, hardcopy	Alarms, report (shift report), color print, hardcopy	Alarms, report (shift report), color print, hardcopy, PROFINET
Transfer (upload/download)				
• Transfer of configuration	MPI/PROFIBUS DP, USB, Ethernet, automatic transfer recognition	MPI/PROFIBUS DP, USB, Ethernet, automatic transfer recognition	MPI/PROFIBUS DP, USB, Ethernet, automatic transfer recognition	MPI/PROFIBUS DP, USB, Ethernet, automatic transfer recognition
Process coupling				
• Connection to controller	S5, S7-200, S7-300/400, TI 505, Win AC, PC (TCP/IP), SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), further non-Siemens drivers, see chapter "System interfaces"	S5, S7-200, S7-300/400, TI 505, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), further non-Siemens drivers, see chapter "System interfaces"	S5, S7-200, S7-300/400, TI 505, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), further non-Siemens drivers, see chapter "System interfaces"	S5, S7-200, S7-300/400, TI 505, Win AC, SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), further non-Siemens drivers, see chapter "System interfaces"
• S7-1200	Yes	Yes	Yes	Yes
• S7-1500	Yes	Yes	Yes	Yes
I/O				
I/O devices	Printer, barcode reader	Printer, barcode reader	Printer, barcode reader	Printer, barcode reader
• Multi Media Card	Yes	Yes	Yes	Yes
Mechanics/material				
Type of housing (front)	Plastic	Plastic	Plastic	Plastic
Dimensions				
Housing diameter/depth (mm)	Dia 290 mm / D 103 mm	Dia 290 mm / D 103 mm	Dia 290 mm / D 103 mm	
Weight				
Weight	1.7 kg	1.7 kg	1.7 kg	2.3 kg

Operator panels
Mobile Panels – 270 series

2

SIMATIC Mobile Panel 277

Ordering data	Order No.
SIMATIC Mobile Panel 277 8" [1]	
• With integrated acknowledgement button	**6AV6645-0CA01-0AX0**
• With integrated acknowledgement button and STOP button	**6AV6645-0CB01-0AX0**
• With integrated acknowledgement button, STOP button, handwheel, key-operated switch and two illuminated pushbuttons	**6AV6645-0CC01-0AX0**
SIMATIC Mobile Panel 277 10"	
• With integrated acknowledgement button and STOP button	**6AV6645-0BE02-0AX0**
Documentation	
You can find the manuals for the Mobile Panels on the Internet at:	
http://support.automation.siemens.com/WW/view/en/11599011/133300	
SIMATIC HMI Manual Collection	**6AV6691-1SA01-0AX0**
Electronic documentation, on DVD	
5 languages (English, French, German, Italian and Spanish); contains: all currently available user manuals, device manuals and communication manuals for SIMATIC HMI	
System components for Mobile Panels	
DP connection box for Mobile Panels (MPI/PROFIBUS)	
• Basic	**6AV6671-5AE00-0AX0**
• Plus	**6AV6671-5AE10-0AX0**
PN connection box for Mobile Panel (PROFINET)	
• Basic	**6AV6671-5AE01-0AX0**
• Plus	**6AV6671-5AE11-0AX0**
Connecting cable and accessories for Mobile Panels	See HMI accessories, from page 2/99

[1] The system components (connecting cables and connection boxes) must be ordered separately.

[2] Delivery time approximately 6 weeks

Dimensional drawings

All dimensions in mm. For installation cutout, see technical specifications.

Mobile Panel 277 8", front and side view

Mobile Panel 277 10", front and side view

More information

Additional information is available in the Internet under:
http://www.siemens.com/simatic-mobile-panels

Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

2

Overview

SIMATIC Mobile Panel 277(F) IWLAN

Technical specifications

	6AV6645-0DD01-0AX1	6AV6645-0DE01-0AX1 with integrated handwheel, keyoperated switch and two illuminated pushbuttons	6AV6645-0EB01-0AX1 with integrated acknowledgement button and emergency stop button	6AV6645-0EC01-0AX1 with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons	6AV6645-0EF01-0AX1 RFID TAG with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons
Display					
Size	7.5"	7.5"	7.5"	7.5"	7.5"
Display type	TFT, 65536 colors	TFT, 65536 colors	TFT, 65536 colors	TFT, 65536 colors	TFT, 65536 colors
Resolution (pixels)					
• Resolution (WxH in pixel)	640 x 480	640 x 480	640 x 480	640 x 480	640 x 480
Backlighting					
• MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours	about 50,000 hours	about 50,000 hours	about 50,000 hours
• MTBF backlighting (at 25 °C)	50 000 h	50 000 h	50 000 h	50 000 h	50 000 h
Control elements					
Operating options	Keys and Touch	Keys and Touch	Keys and Touch	Keys and Touch	Keys and Touch
Function keys, programmable	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs
Connection for mouse/keyboard/barcode reader	USB / USB / USB	USB / USB / USB	USB / USB / USB	USB / USB / USB	USB / USB / USB
Touch operation					
• Touch screen	Analog, resistive	Analog, resistive	Analog, resistive	Analog, resistive	Analog, resistive
Special operator controls					
• Stop button	No	No	Yes	Yes	Yes
• Acknowledgement button	No	No	Yes	Yes	Yes
• Key-operated switch	No	Yes	No	Yes	Yes
• Illuminated pushbutton	No	Yes	No	Yes	Yes
• Handwheel	No	Yes	No	Yes	Yes

Operator panels
Mobile Panels – 270 series

SIMATIC Mobile Panel 277(F) IWLAN

■ **Technical specifications** (continued)

	6AV6645-0DD01-0AX1	6AV6645-0DE01-0AX1 with integrated handwheel, keyoperated switch and two illuminated pushbuttons	6AV6645-0EB01-0AX1 with integrated acknowledgement button and emergency stop button	6AV6645-0EC01-0AX1 with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons	6AV6645-0EF01-0AX1 RFID TAG with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons
Supply voltage					
Supply voltage	DC	DC	DC	DC	DC
Via charging station	Yes	Yes	Yes	Yes	Yes
Via table power supply	Yes	Yes	Yes	Yes	Yes
Processor					
Processor	ARM, 520 MHz	ARM, 520 MHz	ARM, 520 MHz	ARM, 520 MHz	ARM, 520 MHz
Memory					
Type	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM
Usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data
Battery Main battery					
• Rated voltage	7.2 V	7.2 V	7.2 V	7.2 V	7.2 V
• Capacity	5 100 mA·h	5 100 mA·h	5 100 mA·h	5 100 mA·h	5 100 mA·h
• Number of loading cycles, min	500	500	500	500	500
• Charging time, typ.	4 h	4 h	4 h	4 h	4 h
• Operating time, typ.	4 h	4 h	4 h	4 h	4 h
• Display for battery capacity	Yes	Yes	Yes	Yes	Yes
• Energy-saving mode	Yes	Yes	Yes	Yes	Yes
• Battery replacement during operation	Yes	Yes	Yes	Yes	Yes
Type of output Status LEDs	Yes	Yes	Yes	Yes	Yes
LED for safe			Yes	Yes	Yes
LED for communication	Yes	Yes	Yes	Yes	Yes
LED for battery	Yes	Yes	Yes	Yes	Yes
Vibrations	Yes	Yes	Yes	Yes	Yes
Time of day Clock					
• Type	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable
Interfaces					
Interfaces	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)
USB port	1 x USB	1 x USB	1 x USB	1 x USB	1 x USB
Multi Media Card slot	1 MMC/SD card slot	1 MMC/SD card slot	1 MMC/SD card slot	1 MMC/SD card slot	1 MMC/SD card slot
Industrial Ethernet					
• Industrial Ethernet interface	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)
WLAN					
• Wireless LAN	Yes	Yes	Yes	Yes	Yes
• Supports rapid roaming	Yes	Yes	Yes	Yes	Yes
Protocols PROFINET	Yes	Yes	Yes	Yes	Yes
Supports protocol for PROFINET IO	Yes	Yes	Yes	Yes	Yes
Supports protocol for PROFIsafe			Yes	Yes	Yes

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■ **Technical specifications** (continued)

	6AV6645-0DD01-0AX1	6AV6645-0DE01-0AX1 with integrated handwheel, keyoperated switch and two illuminated pushbuttons	6AV6645-0EB01-0AX1 with integrated acknowledgement button and emergency stop button	6AV6645-0EC01-0AX1 with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons	6AV6645-0EF01-0AX1 RFID TAG with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons
EMC Emission of radio interference acc. to EN 55 011					
• Emission of radio interferences acc. to EN 55 011 (limit class A)	Yes; The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information refer to the user documentation	Yes; The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information refer to the user documentation	Yes; The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information refer to the user documentation	Yes; The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information refer to the user documentation	Yes; The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information refer to the user documentation
Degree and class of protection IP65 enclosure	Yes	Yes	Yes	Yes	Yes
Standards, approvals, certificates Certifications	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK
TÜV safety certification			Yes	Yes	Yes
Safety category according to EN954-1			Safety category according to EN954-1 (enabling button, STOP button if present) 4	Safety category according to EN954-1 (enabling button, STOP button if present) 4	Safety category according to EN954-1 (enabling button, STOP button if present) 4
Highest safety class achievable in safety mode • Performance Level in accordance with EN ISO 13849-1			e	e	e
Ambient conditions Drop height	1.2 m	1.2 m	1.2 m	1.2 m	1.2 m
Operating temperature • Operation	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C
Storage/transport temperature • Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C
Relative humidity • max. relative humidity	80 %	80 %	80 %	80 %	80 %
Operating systems Operating system	Windows CE	Windows CE	Windows CE	Windows CE	Windows CE
Languages Online languages • Number of online/run-time languages	16	16	16	16	16
Functionality under WinCC (TIA Portal) Libraries	Yes	Yes	Yes	Yes	Yes
Task planner	Yes	Yes	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment) • Number of messages • Bit messages • Analog messages	4 000 Yes Yes	4 000 Yes Yes	4 000 Yes Yes	4 000 Yes Yes	4 000 Yes Yes
Recipes • Number of recipes • Data records per recipe • Entries per data record • Recipe memory	300 500 1 000 64 KB integrated Flash, expandable	300 500 1 000 64 KB integrated Flash, expandable	300 500 1 000 64 KB integrated Flash, expandable	300 500 1 000 64 KB integrated Flash, expandable	300 500 1 000 64 KB integrated Flash, expandable

Technical specifications (continued)

	6AV6645-0DD01-0AX1	6AV6645-0DE01-0AX1 with integrated handwheel, keyoperated switch and two illuminated pushbuttons	6AV6645-0EB01-0AX1 with integrated acknowledgement button and emergency stop button	6AV6645-0EC01-0AX1 with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons	6AV6645-0EF01-0AX1 RFID TAG with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons
Variables					
• Number of variables per device	2 048	2 048	2 048	2 048	2 048
• Limit values	Yes	Yes	Yes	Yes	Yes
• Multiplexing	Yes	Yes	Yes	Yes	Yes
Images					
• Number of configurable images	500	500	500	500	500
Image objects					
• Text objects	10,000 text elements	10,000 text elements	10,000 text elements	10,000 text elements	10,000 text elements
• Graphics object	Bit maps, icons, vector graphics	Bit maps, icons, vector graphics	Bit maps, icons, vector graphics	Bit maps, icons, vector graphics	Bit maps, icons, vector graphics
Complex image objects					
• Status/control	With SIMATIC S7	With SIMATIC S7	With SIMATIC S7	With SIMATIC S7	With SIMATIC S7
• dynamic objects	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons
Lists					
• Number of text lists per project	500	500	500	500	500
• Number of graphics lists per project	400	400	400	400	400
Archiving					
• Number of archives per device	20	20	20	20	20
• Number of measuring points per project	20	20	20	20	20
• Number of entries per archive	10 000	10 000	10 000	10 000	10 000
Security					
• Number of user groups	50	50	50	50	50
• Number of user rights	32	32	32	32	32
• Password export/import	Yes	Yes	Yes	Yes	Yes
Logging through printer					
• Recording/Printing	Alarms, report (shift report), PROFINET	Alarms, report (shift report), PROFINET	Alarms, report (shift report), PROFINET	Alarms, report (shift report), PROFINET	Alarms, report (shift report), PROFINET
Transfer (upload/download)					
• Transfer of configuration	USB, Ethernet, automatic transfer recognition	USB, Ethernet, automatic transfer recognition	USB, Ethernet, automatic transfer recognition	USB, Ethernet, automatic transfer recognition	USB, Ethernet, automatic transfer recognition
• Wireless LAN	Yes	Yes	Yes	Yes	Yes

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Technical specifications (continued)

	6AV6645-0DD01-0AX1	6AV6645-0DE01-0AX1 with integrated handwheel, keyoperated switch and two illuminated pushbuttons	6AV6645-0EB01-0AX1 with integrated acknowledgement button and emergency stop button	6AV6645-0EC01-0AX1 with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons	6AV6645-0EF01-0AX1 RFID TAG with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons
Process coupling					
• Connection to controller	S7-200, S7- 300/400 see section on "System interfaces"	S7-200, S7- 300/400 see section on "System interfaces"	S7-200, S7- 300/400 see section on "System interfaces"	S7-200, S7- 300/400 see section on "System interfaces"	S7-200, S7- 300/400 see section on "System interfaces"
• S7-1200	Yes	Yes	No	No	No
• S7-1500	Yes	Yes	No	No	No
• Zones	Yes	Yes	Yes	Yes	
- Number of zones per project, max.	254	254	254	254	
- Number of transponders for zones per project, max.	255	255	255	255	
• Effective range			Yes	Yes	Yes
- Number of effective ranges per project, max.			127	127	127
- Number of transponders for effective ranges per project, max.			127	127	
• Transponder	Yes	Yes	Yes	Yes	
- Number of transponders per project, max.	256	256	256	256	
- Adjustable distance range	Yes	Yes	Yes	Yes	
- Adjustable distance, min.	2 m	2 m	2 m	2 m	
- Adjustable distance, max.	8 m	8 m	8 m	8 m	
I/O					
I/O devices	Barcode reader	Barcode reader	Barcode reader	Barcode reader	Barcode reader
• Multi Media Card	Yes	Yes	Yes	Yes	Yes
Mechanics/material					
Type of housing (front)	Plastic	Plastic	Plastic	Plastic	Plastic
Dimensions					
Housing diameter/depth (mm)	Dia 290 mm / D 103 mm	Dia 290 mm / D 103 mm	Dia 290 mm / D 103 mm	Dia 290 mm / D 103 mm	Dia 290 mm / D 103 mm
Weight					
Weight	2.2 kg	2.2 kg	2.2 kg	2.2 kg	2.2 kg

Operator panels
Mobile Panels – 270 series

SIMATIC Mobile Panel 277(F) IWLAN

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■ **Technical specifications** (continued)

	6AV6645-0FD01-0AX1	6AV6645-0FE01-0AX1	6AV6645-0GB01-0AX1	6AV6645-0GC01-0AX1	6AV6645-0GF01-0AX1
	USA version	**USA version with handwheel, keyoperated switch and two illuminated pushbuttons**	**USA version with integrated acknowledgement button and emergency stop button**	**USA version with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons**	**USA version RFID TAG with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons**
Display					
Size	7.5"	7.5"	7.5"	7.5"	7.5"
Display type	TFT, 65536 colors	TFT, 65536 colors	TFT, 65536 colors	TFT, 65536 colors	TFT, 65536 colors
Resolution (pixels)					
• Resolution (WxH in pixel)	640 x 480	640 x 480	640 x 480	640 x 480	640 x 480
Backlighting					
• MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours	about 50,000 hours	about 50,000 hours	about 50,000 hours
• MTBF backlighting (at 25 °C)	50 000 h		50 000 h	50 000 h	50 000 h
Control elements					
Operating options	Keys and Touch	Keys and Touch	Keys and Touch	Keys and Touch	Keys and Touch
Function keys, programmable	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs	18 function keys, 18 with LEDs
Connection for mouse/ keyboard/barcode reader	USB / USB / USB	USB / USB / USB	USB / USB / USB	USB / USB / USB	USB / USB / USB
Touch operation					
• Touch screen	Analog, resistive	Analog, resistive	Analog, resistive	Analog, resistive	Analog, resistive
Special operator controls					
• Stop button	No	No	Yes	Yes	Yes
• Acknowledgement button	No	No	Yes	Yes	Yes
• Key-operated switch	No	Yes	No	Yes	Yes
• Illuminated pushbutton	No	Yes	No	Yes	Yes
• Handwheel	No	Yes	No	Yes	Yes
Supply voltage					
Supply voltage	DC	DC	DC	DC	DC
Via charging station	Yes	Yes	Yes	Yes	Yes
Via table power supply	Yes	Yes	Yes	Yes	Yes
Processor					
Processor	ARM, 520 MHz	ARM, 520 MHz	ARM, 520 MHz	ARM, 520 MHz	ARM, 520 MHz
Memory					
Type	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM	Flash / RAM
Usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data	6 MB usable memory for user data
Battery					
Main battery					
• Rated voltage	7.2 V	7.2 V	7.2 V	7.2 V	7.2 V
• Capacity	5 100 mA·h	5 100 mA·h	5 100 mA·h	5 100 mA·h	5 100 mA·h
• Number of loading cycles, min	500	500	500	500	500
• Charging time, typ.	4 h	4 h	4 h	4 h	4 h
• Operating time, typ.	4 h	4 h	4 h	4 h	4 h
• Display for battery capacity	Yes	Yes	Yes	Yes	Yes
• Energy-saving mode	Yes	Yes	Yes	Yes	Yes
• Battery replacement during operation	Yes	Yes	Yes	Yes	Yes

■ **Technical specifications** (continued)

	6AV6645-0FD01-0AX1 USA version	6AV6645-0FE01-0AX1 USA version with handwheel, keyoperated switch and two illuminated pushbuttons	6AV6645-0GB01-0AX1 USA version with integrated acknowledgement button and emergency stop button	6AV6645-0GC01-0AX1 USA version with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons	6AV6645-0GF01-0AX1 USA version RFID TAG with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons
Type of output					
Status LEDs	Yes	Yes	Yes	Yes	Yes
LED for safe			Yes	Yes	Yes
LED for communication	Yes	Yes	Yes	Yes	Yes
LED for battery	Yes	Yes	Yes	Yes	Yes
Vibrations	Yes	Yes	Yes	Yes	Yes
Time of day Clock					
• Type	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable	Hardware clock, battery backup, synchronizable
Interfaces					
Interfaces	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)
USB port	1 x USB	1 x USB	1 x USB	1 x USB	1 x USB
Multi Media Card slot	1 MMC/SD card slot	1 MMC/SD card slot	1 MMC/SD card slot	1 MMC/SD card slot	1 MMC/SD card slot
Industrial Ethernet • Industrial Ethernet interface	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)
WLAN • Wireless LAN	Yes	Yes	Yes	Yes	Yes
• Supports rapid roaming	Yes	Yes	Yes	Yes	Yes
Protocols					
PROFINET	Yes	Yes	Yes	Yes	Yes
Supports protocol for PROFINET IO	Yes	Yes	Yes	Yes	Yes
Supports protocol for PROFIsafe			Yes	Yes	Yes
EMC Emission of radio interference acc. to EN 55 011					
• Emission of radio interferences acc. to EN 55 011 (limit class A)	Yes; The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information refer to the user documentation	Yes; The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information refer to the user documentation	Yes; The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information refer to the user documentation	Yes; The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information refer to the user documentation	Yes; The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information refer to the user documentation

Operator panels
Mobile Panels – 270 series

■ Technical specifications (continued)

	6AV6645-0FD01-0AX1 USA version	6AV6645-0FE01-0AX1 USA version with handwheel, keyoperated switch and two illuminated pushbuttons	6AV6645-0GB01-0AX1 USA version with integrated acknowledgement button and emergency stop button	6AV6645-0GC01-0AX1 USA version with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons	6AV6645-0GF01-0AX1 USA version RFID TAG with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons
Degree and class of protection					
IP65 enclosure	Yes	Yes	Yes	Yes	Yes
Standards, approvals, certificates					
Certifications	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK
TÜV safety certification			Yes	Yes	Yes
Safety category according to EN954-1			Safety category according to EN954-1 (enabling button, STOP button if present) 4	Safety category according to EN954-1 (enabling button, STOP button if present) 4	Safety category according to EN954-1 (enabling button, STOP button if present) 4
Highest safety class achievable in safety mode					
• Performance Level in accordance with EN ISO 13849-1			e	e	e
Ambient conditions					
Drop height	1.2 m	1.2 m	1.2 m	1.2 m	1.2 m
Operating temperature					
• Operation	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C	0 °C to +40 °C
Storage/transport temperature					
• Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C	-20 °C to +60 °C
Relative humidity					
• max. relative humidity	80 %	80 %	80 %	80 %	80 %
Operating systems					
Operating system	Windows CE	Windows CE	Windows CE	Windows CE	Windows CE
Languages					
Online languages					
• Number of online/ runtime languages	16	16	16	16	16
Functionality under WinCC (TIA Portal)					
Libraries	Yes	Yes	Yes	Yes	Yes
Task planner	Yes	Yes	Yes	Yes	Yes
With alarm logging system (incl. buffer and acknowledgment)					
• Number of messages	4 000	4 000	4 000	4 000	4 000
• Bit messages	Yes	Yes	Yes	Yes	Yes
• Analog messages	Yes	Yes	Yes	Yes	Yes
Recipes					
• Number of recipes	300	300	300	300	300
• Data records per recipe	500	500	500	500	500
• Entries per data record	1 000	1 000	1 000	1 000	1 000
• Recipe memory	64 KB integrated Flash, expandable	64 KB integrated Flash, expandable	64 KB integrated Flash, expandable	64 KB integrated Flash, expandable	64 KB integrated Flash, expandable

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■ **Technical specifications** (continued)

	6AV6645-0FD01-0AX1	6AV6645-0FE01-0AX1	6AV6645-0GB01-0AX1	6AV6645-0GC01-0AX1	6AV6645-0GF01-0AX1
	USA version	**USA version with handwheel, keyoperated switch and two illuminated pushbuttons**	**USA version with integrated acknowledgement button and emergency stop button**	**USA version with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons**	**USA version RFID TAG with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons**
Variables					
• Number of variables per device	2 048	2 048	2 048	2 048	2 048
• Limit values	Yes	Yes	Yes	Yes	Yes
• Multiplexing	Yes	Yes	Yes	Yes	Yes
Images					
• Number of configurable images	500	500	500	500	500
Image objects					
• Text objects	10,000 text elements	10,000 text elements	10,000 text elements	10,000 text elements	10,000 text elements
• Graphics object	Bit maps, icons, vector graphics	Bit maps, icons, vector graphics	Bit maps, icons, vector graphics	Bit maps, icons, vector graphics	Bit maps, icons, vector graphics
Complex image objects					
• Status/control	With SIMATIC S7	With SIMATIC S7	With SIMATIC S7	With SIMATIC S7	With SIMATIC S7
• dynamic objects	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons	Diagrams, bar graphs, sliders, analog display, invisible buttons
Lists					
• Number of text lists per project	500	500	500	500	500
• Number of graphics lists per project	400	400	400	400	400
Archiving					
• Number of archives per device	20	20	20	20	20
• Number of measuring points per project	20	20	20	20	20
• Number of entries per archive	10 000	10 000	10 000	10 000	10 000
Security					
• Number of user groups	50	50	50	50	50
• Number of user rights	32	32	32	32	32
• Password export/import	Yes	Yes	Yes	Yes	Yes
Logging through printer					
• Recording/Printing	Alarms, report (shift report), PROFINET	Alarms, report (shift report), PROFINET	Alarms, report (shift report), PROFINET	Alarms, report (shift report), PROFINET	Alarms, report (shift report), PROFINET
Transfer (upload/download)					
• Transfer of configuration	USB, Ethernet, automatic transfer recognition	USB, Ethernet, automatic transfer recognition	USB, Ethernet, automatic transfer recognition	USB, Ethernet, automatic transfer recognition	USB, Ethernet, automatic transfer recognition
• Wireless LAN	Yes	Yes	Yes	Yes	Yes

Operator panels
Mobile Panels – 270 series

Technical specifications (continued)

	6AV6645-0FD01-0AX1 USA version	6AV6645-0FE01-0AX1 USA version with handwheel, keyoperated switch and two illuminated pushbuttons	6AV6645-0GB01-0AX1 USA version with integrated acknowledgement button and emergency stop button	6AV6645-0GC01-0AX1 USA version with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons	6AV6645-0GF01-0AX1 USA version RFID TAG with integrated acknowledgement button and emergency stop button, handwheel, key-operated switch, and two illuminated pushbuttons
Process coupling					
• Connection to controller	S7-200, S7- 300/400 see section on "System interfaces"	S7-200, S7- 300/400 see section on "System interfaces"	S7-200, S7- 300/400 see section on "System interfaces"	S7-200, S7- 300/400 see section on "System interfaces"	S7-200, S7- 300/400 see section on "System interfaces"
• S7-1200	Yes	Yes	No	No	No
• S7-1500	Yes	Yes	No	No	No
• Zones	Yes	Yes	Yes	Yes	
- Number of zones per project, max.	254	254	254	254	
- Number of transponders for zones per project, max.	255	255	255	255	
• Effective range			Yes	Yes	Yes
- Number of effective ranges per project, max.			127	127	127
- Number of transponders for effective ranges per project, max.			127	127	
• Transponder	Yes	Yes	Yes	Yes	
- Number of transponders per project, max.	256	256	256	256	
- Adjustable distance range	Yes	Yes	Yes	Yes	
- Adjustable distance, min.	2 m	2 m	2 m	2 m	
- Adjustable distance, max.	8 m	8 m	8 m	8 m	
I/O					
I/O devices	Barcode reader	Barcode reader	Barcode reader	Barcode reader	Barcode reader
• Multi Media Card	Yes	Yes	Yes	Yes	Yes
Mechanics/material					
Type of housing (front)	Plastic	Plastic	Plastic	Plastic	Plastic
Dimensions					
Housing diameter/depth (mm)	Dia 290 mm / D 103 mm	Dia 290 mm / D 103 mm	Dia 290 mm / D 103 mm	Dia 290 mm / D 103 mm	Dia 290 mm / D 103 mm
Weight					
Weight	2.2 kg	2.2 kg	2.2 kg	2.2 kg	2.2 kg

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■ Ordering data

	Order No.		Order No.
SIMATIC Mobile Panel 277 IWLAN V2 (RoW version [1]**)**		Accessories	See HMI accessories, from page 2/99
• Communication via WLAN (PROFINET)	**6AV6645-0DD01-0AX1**		
• Communication via WLAN (PROFINET) with integrated handwheel, key-operated switch and two illuminated pushbuttons	**6AV6645-0DE01-0AX1**	Note: Please order the table-top power supply or charging station as well. Required for charging the battery.	
SIMATIC Mobile Panel 277F IWLAN V2 PROFIsafe (RoW version [1]**)**		Documentation	
• Communication via WLAN (PROFINET) with acknowledgement button and emergency stop button	**6AV6645-0EB01-0AX1**	You can find the manuals for the Mobile Panels on the Internet at: http://support.automation.siemens.com/WW/view/en/11599011/133300	
• Communication via WLAN (PROFINET) with acknowledgement button and emergency stop button with integrated handwheel, key-operated switch, and two illuminated pushbuttons	**6AV6645-0EC01-0AX1**	**SIMATIC HMI Manual Collection** Electronic documentation on DVD, 5 languages (English, German, French, Italian and Spanish); contains: all currently available user manuals, device manuals and communication manuals for SIMATIC HMI	**6AV6691-1SA01-0AX0**
• RFID tag version: Communication via WLAN (PROFINET) with acknowledgement button and emergency stop button with integrated handwheel, key-operated switch, and two illuminated pushbuttons	**6AV6645-0EF01-0AX1**		
SIMATIC Mobile Panel 277 IWLAN V2 (USA version)			
• Communication via WLAN (PROFINET)	**6AV6645-0FD01-0AX1**		
• Communication via WLAN (PROFINET) with integrated handwheel, key-operated switch and two illuminated pushbuttons	**6AV6645-0FE01-0AX1**		
SIMATIC Mobile Panel 277F IWLAN V2 PROFIsafe (USA version)			
• with acknowledgement button and emergency stop button	**6AV6645-0GB01-0AX1**		
• with acknowledgement button and emergency stop button with integrated handwheel, key-operated switch, and two illuminated pushbuttons	**6AV6645-0GC01-0AX1**		
• with acknowledgement button and emergency stop button with integrated handwheel, key-operated switch, and two illuminated pushbuttons (tag version)	**6AV6645-0GF01-0AX1**		
Starter kit SIMATIC Mobile Panel 277(F) IWLAN (RoW version[1]**)**			
for			
• Mobile Panel 277 IWLAN V2	**6AV6651-5GA01-0AA1**		
• Mobile Panel 277F IWLAN V2	**6AV6651-5HA01-0AA1**		

[1] RoW version: "Rest of World" version: Version for worldwide sales except in the U.S.

[2] Already prepared for Rapid Roaming (iPCF-MC). iPCF-MC is already included from SCALANCE FW version V4.3.37 and higher.

For national approvals see:
http://www.siemens.com/wireless-approvals

The Function Manuals "Fail-Safe Operation of the Mobile Panel 277F IWLAN V1" are available for downloading in English, German, and Japanese.

http://support.automation.siemens.com/WW/view/en/31255853

Operator panels
Mobile Panels – 270 series

SIMATIC Mobile Panel 277(F) IWLAN

■ **Dimensional drawings**

All dimensions in mm. For installation cutout, see technical specifications.
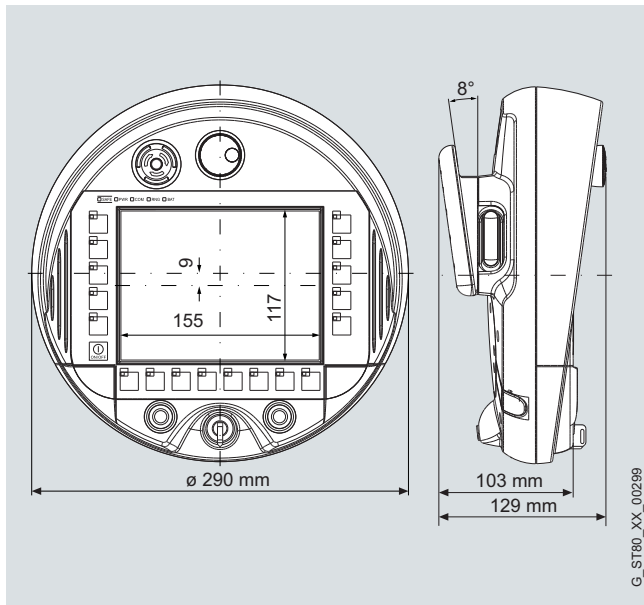
Mobile Panel 277(F) IWLAN, front and side view

■ **More information**

Additional information is available in the Internet under:
http://www.siemens.com/simatic-mobile-panels

Note

Do you need a specific modification or addition to the products described here? Then take a look under "Customer-specific products". There, you will find information on ordering additional and standard industry products as well as possibilities for customer-specific modifications and adjustments.

■ Overview

System components for Mobile Panels are perfectly matched to the SIMATIC HMI Mobile Panels. Charging stations, transponders, and diverse connection boxes are available for various applications.

Accessories for SIMATIC HMI Mobile Panels can be found under "SIMATIC HMI accessories".

Only the latest SIMATIC HMI accessories are listed in this section; the full range of SIMATIC HMI accessories is available in the Mall and in our other online media.

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Operator panels
System components

■ Overview

■ Technical specifications

	6AV6671-5AE00-0AX0 **DP connection box for Mobile Panel 177/277 (MPI/PROFIBUS) Basic**	6AV6671-5AE10-0AX0 **DP connection box for Mobile Panel 177/277 (MPI/PROFIBUS) Plus**	6AV6671-5AE01-0AX0 **PN connection box for Mobile Panel 177/277 (PROFINET) Basic**	6AV6671-5AE11-0AX0 **PN connection box for Mobile Panel 177/277 (PROFINET) Plus**
Control elements				
Expansions for operator control of the process				
• Hot swapping	with emergency stop circuit interruption	without emergency stop circuit interruption	with emergency stop circuit interruption	without emergency stop circuit interruption
- without emergency stop circuit interruption	No	Yes	No	Yes
- with emergency stop circuit interruption	Yes	No	Yes	No
- Monitoring the STOP button	No	Yes	No	Yes
- Location identifier	Yes	Yes	Yes	Yes
Supply voltage				
Type of actuation	DC	DC	DC	DC
• AC	No	No	No	No
• DC	Yes	Yes	Yes	Yes
Rated voltage	24 V	24 V	24 V	24 V
permissible range	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC	+20.4 V to +28.8 V DC
• Supply voltage range	20.4 V	20.4 V	20.4 V	20.4 V
• Supply voltage range	28.8 V	28.8 V	28.8 V	28.8 V
Supply voltage	24 V DC	24 V DC	24 V DC	24 V DC
Input current				
Rated current	0.4 A	0.5 A	0.4 A	0.5 A
Power				
Power	10 W	12 W	10 W	12 W
Interfaces				
Interfaces	1 x RS232, 1 x RS422, 1 x RS485 (max. 12 Mbit/s)	1 x RS232, 1 x RS422, 1 x RS485 (max. 12 Mbit/s)	2 x Ethernet (RJ45)	2 x Ethernet (RJ45)
Number of 20 mA interfaces (TTY)	0	0		
Number of RS 232 interfaces	1	1		
Number of RS 422 interfaces	1	1		
Industrial Ethernet				
• Industrial Ethernet interface			2 x Ethernet (RJ45)	2 x Ethernet (RJ45)
• Industrial Ethernet status LED			6	6

2

■ **Technical specifications** (continued)

	6AV6671-5AE00-0AX0	6AV6671-5AE10-0AX0	6AV6671-5AE01-0AX0	6AV6671-5AE11-0AX0
	DP connection box for Mobile Panel 177/277 (MPI/PROFIBUS) Basic	**DP connection box for Mobile Panel 177/277 (MPI/PROFIBUS) Plus**	**PN connection box for Mobile Panel 177/277 (PROFINET) Basic**	**PN connection box for Mobile Panel 177/277 (PROFINET) Plus**
Degree and class of protection				
Enclosure according to EN 60529	IP65	IP65	IP65	IP65
IP20 housing	No	No	No	No
IP54 housing	No	No	No	No
IP65 enclosure	Yes	Yes	Yes	Yes
NEMA 4	No	No	No	No
NEMA 4X	No	No	No	No
NEMA 12	No	No	No	No
Standards, approvals, certificates				
Certifications	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK	CE, cULus, C-TICK
CE	Yes	Yes	Yes	Yes
CSA	No	No	No	No
UL	No	No	No	No
FM Class I Div. 2	No	No	No	No
GL	No	No	No	No
ABS	No	No	No	No
BV	No	No	No	No
DNV	No	No	No	No
LRS	No	No	No	No
PRS	No	No	No	No
Gost-R	No	No	No	No
Use in hazardous areas				
• EX zone 2	No	No	No	No
• EX zone 22	No	No	No	No
Ambient conditions				
Operating temperature				
• Operation (vertical installation)	0 °C to +50 °C	0 °C to +50 °C	0 °C to +50 °C	0 °C to +50 °C
- in vertical mounting position/ minimum	0 °C	0 °C	0 °C	0 °C
- in vertical mounting position/ maximum	50 °C	50 °C	50 °C	50 °C
Storage/transport temperature				
• Ambient temperature during storage, minimum	-20 °C	-20 °C	-20 °C	-20 °C
• Ambient temperature during storage, maximal	70 °C	70 °C	70 °C	70 °C
• Transport, storage	-20 °C to +70 °C	-20 °C to +70 °C	-20 °C to +70 °C	-20 °C to +70 °C
Relative humidity				
• max. relative humidity	85 %	85 %	85 %	85 %
Functionality under WinCC (TIA Portal)				
Applications/options				
• Connection point identification	Yes	Yes	Yes	Yes
Dimensions				
External dimensions (W x H x D) in mm	160 x 120 x 70	160 x 120 x 70	230 x 120 x 80	230 x 120 x 80
• Width	160	160	230	230
• Height	120	120	120	120
• Depth	70	70	80	80
Weight				
Weight	0.35 kg	0.4 kg	0.45 kg	0.5 kg
other				
free hotline	Yes	Yes	Yes	Yes
Warranty period	1 a	1 a	1 a	1 a

Operator panels
System components

Terminal boxes

Ordering data	Order No.
DP connection box **for Mobile Panels 177/277** **(MPI/PROFIBUS)**	
• Basic	**6AV6671-5AE00-0AX0**
• Plus	**6AV6671-5AE10-0AX0**
PN connection box **for Mobile Panels 177/277** **(PROFINET)**	
• Basic	**6AV6671-5AE01-0AX0**
• Plus	**6AV6671-5AE11-0AX0**

Dimensional drawings

All dimensions in mm. For installation cutout, see technical specifications.
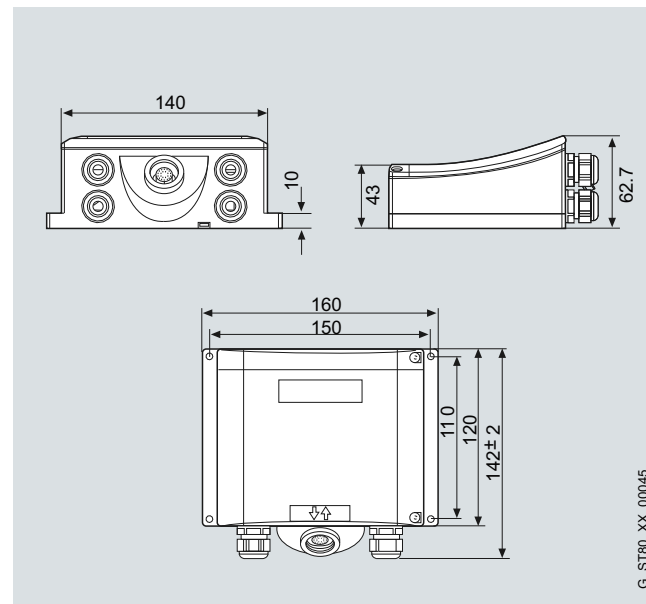
DP connection box for SIMATIC Mobile Panel
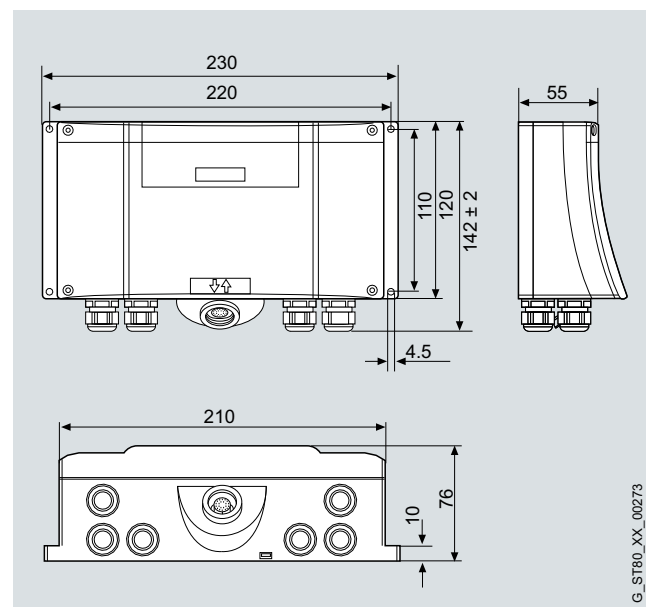
PN connection box for SIMATIC Mobile Panel

Overview

Note:

SIPLUS extreme products are based on Siemens Industry standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

	SIPLUS connection box DP Plus
Order number	**6AG1 671-5AE10-4AX0**
Order number based on	**6AV6 671-5AE10-0AX0**
Ambient temperature range	0 ... +50 °C
Conformal coating	Coating of the printed circuit boards and the electronic components
Technical data	The technical data of the standard product applies except for the ambient conditions.
Ambient conditions	
Relative humidity	100%, condensation/frost permissible. No commissioning if condensation present.
Air pressure (depending on the highest positive temperature range specified)	1080 ... 795 hPa (-1000 ... +2000m) see ambient temperature range
	795 ... 658 hPa (+2000 ... +3500m) derating 10 K
	658 … 540 hPa (+3500 … +5000m) derating 20 K

Ordering data

	Order No.
SIPLUS connection box DP Plus for Mobile Panels 177/277 (MPI/PROFIBUS)	**6AG1671-5AE10-4AX0**

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Operator panels
System components

Charging station

■ **Overview**

■ **Technical specifications**

	6AV6671-5CE00-0AX1
Supply voltage	
Type of actuation	DC
• DC	Yes
Rated voltage	24 V
permissible range	+19.2 V to +28.8 V DC
• Supply voltage range	19.2 V
• Supply voltage range	28.8 V
Supply voltage	24 V DC
Input current	
Rated current	3.2 A
Power	
Power	77 W
Degree and class of protection	
Enclosure according to EN 60529	IP65
IP65 enclosure	Yes
Standards, approvals, certificates	
Certifications	CE, cULus, C-TICK
CE	Yes
Ambient conditions	
Operating temperature	
• Operation (vertical installation)	0 °C to +40 °C
- in vertical mounting position/ minimum	0 °C
- in vertical mounting position/ maximum	40 °C
Storage/transport temperature	
• Ambient temperature during storage, minimum	-20 °C
• Ambient temperature during storage, maximal	60 °C
• Transport, storage	-20 °C to +60 °C
Relative humidity	
• max. relative humidity	85 %
Dimensions	
External dimensions (W x H x D) in mm	208 x 333 x 75
• Width	208
• Height	333
• Depth	75
Weight	
Weight	1.1 kg

■ **Ordering data**   **Order No.**

Charging station for Mobile Panels	6AV6671-5CE00-0AX1

■ **Dimensional drawings**

All dimensions in mm. For installation cutout, see technical specifications.

Overview

Technical specifications

	6AV6671-5CM00-0AX1
Degree and class of protection	
Enclosure according to EN 60529	IP65
IP65 enclosure	Yes
Enclosure according to NEMA	NEMA 4x, NEMA 12
NEMA 4X	Yes
NEMA 12	Yes
Standards, approvals, certificates	
Certifications	CE, cULus, C-TICK, NEMA 4x, NEMA 12
CE	Yes
Ambient conditions	
Operating temperature	
• Operation (vertical installation)	0 °C to +50 °C
- in vertical mounting position/ minimum	0 °C
- in vertical mounting position/ maximum	50 °C
Storage/transport temperature	
• Ambient temperature during storage, minimum	-20 °C
• Ambient temperature during storage, maximal	60 °C
• Transport, storage	-20 °C to +60 °C
Relative humidity	
• max. relative humidity	85 %
Dimensions	
External dimensions (W x H x D) in mm	172 x 90 x 38.5
• Width	172
• Height	90
• Depth	38.5
Weight	
Weight	0.3 kg

Ordering data

	Order No.
Transponder for Mobile Panels 277	**6AV6671-5CM00-0AX1**

Dimensional drawings

All dimensions in mm. For installation cutout, see technical specifications.

Operator panels
System interfaces with WinCC (TIA Portal)

System interfaces with WinCC (TIA Portal)

■ **Overview**

The SIMATIC Touch Panel (TP), Operator Panel (OP),
Basic Panel, Comfort Panel, Mobile Panel, multifunctional
platforms (MP)[1] offer HMI functionality for the control systems:

- SIMATIC S7
- Non-Siemens controllers:
  - Allen Bradley
  - Mitsubishi
  - Modicon
  - Omron

For more detailed information, refer to the WinCC (TIA Portal)
user manual, the "Windows-based systems communication"
manual, or the WinCC (TIA Portal) online help.

OPC communication and HTTP communication are offered for all
Panels with an integrated Ethernet interface. Both OPC and
HTTP communication can be used in parallel with the process
links to SIMATIC S7 or non-Siemens PLCs.

[1] For the sake of simplicity, SIMATIC Panel is always used in the text below.
This is not restrictive, as the information is valid for all systems referred to
above. If there are constraints, direct reference is made to them in the text.

Note:

Interface options for HMI devices: See the individual device
descriptions.

OPC communication

OPC Data Access is an open standard for exchanging both local
and remote variables between various applications via Industrial
Ethernet. The original version of OPC is based on Microsoft
COM/DCOM and, therefore, requires a Microsoft Windows-
based PC operating system (not Windows CE) on both clients
and servers. As OPC XML, communication is based on the
Internet standard SOAP/XML and is, therefore, suitable for
embedded systems with Windows CE.

*HTTP communication for variable exchange between
SIMATIC HMI systems*

Communication based on HTTP message frames enables
variables to be exchanged between SIMATIC HMI systems.

Communication standard	SIMATIC HMI				
Version	**Comfort Panel**	**TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 PN** **MP 177**	**TP 277** **OP 277** **Mobile Panel 277**	**MP 277** **MP 377**	**WinCC Runtime** **Advanced**
OPC Data Access V2.05a + OPC UA Data Access V1.01 + OPC Data Access XML V1.00					
OPC DA Client (COM/DCOM)	–	–	–	–	•
OPC DA server (COM/DCOM)	–	–	–	–	•
OPC UA client	•	–	–	–	•
OPC XML DA client (SOAP/XML)	–	–	–	–	• [1]
OPC XML DA server (SOAP/XML)	•	–	–	•	–
HTTP communication for variable exchange between SIMATIC HMI systems					
HTTP client	•	•	•	•	•
HTTP server	•	•	•	•	•

• System interface possible

– System interface not possible

[1] Only through DCOM/XML gateway in scope of delivery of
WinCC Advanced for access to OPC XML server of the SIMATIC Panel

■ Overview

The following types of interface are differentiated in respect of the link between the SIMATIC Panels and SIMATIC S7 controllers:

- PROFINET interface:
  Coupling of SIMATIC Panel to SIMATIC S7 controllers via Industrial Ethernet TCP/IP using the integrated PROFINET interface of the CPU or, alternatively, a PROFINET interface module.

- MPI/PROFIBUS interface:
  Coupling of SIMATIC Panel to SIMATIC S7 controllers via MPI/PROFIBUS using the integrated MPI/PROFIBUS interface of the CPU for S7-300, S7-400 or the integrated PPI interface of the CPU in the case of S7-200 or, alternatively, a PROFIBUS interface module in the case of S7-1200, S7-300 and S7-400.

- PPI interface:
  Coupling of SIMATIC Panel to SIMATIC S7-200 via PPI network using the integrated PPI interface of the CPU

The maximum possible number of S7 connections of one CPU is determined by its performance capacity (see Catalog ST 70); from the point of view of SIMATIC Panel, the following restrictions apply:

- OP 73: max. 2 connections

- OP 77A, TP 177A, Basic Panel, OP 77B, TP177B, OP 177B, Mobile Panel 177: max. 4 connections

- Comfort Panel, TP 277, OP 277; Mobile Panel 277, MP 177, MP 277, MP 377: max. 6 connections

- PC with WinCC Runtime Advanced: max. 8 connections

PPI interface

The PPI interface is a point-to-point connection between a SIMATIC Panel (PPI master) or alternatively a PG (PPI master) and an S7-200 (PPI slave).

The corresponding multipoint-enabled communication interfaces of SIMATIC Panels and SIMATIC S7 are used.
The following are possible:

- Interface between one or a number of SIMATIC Panels (MPI master) and one or a number of S7-1200/300/400s or WinAC (MPI master).(possible network topology: MPI/PROFIBUS or Industrial Ethernet, TCP/IP)

- Interface between one or a number of SIMATIC Panels (MPI master) and one or a number of S7-200s (MPI slave)[1] (possible network topology: PPI, MPI/PROFIBUS)

Unlike PPI connections, MPI connections are static connections that are set up during booting and then monitored.

The original format of a master/master link has been joined by a master/slave link, which has enabled integration of the S7-200 (except CPU 212).[1]

In principle this type of information exchange between SIMATIC Panels and SIMATIC S7 is independent of the network used, PPI, MPI/PROFIBUS or Industrial Ethernet: SIMATIC Panels are S7 clients and SIMATIC S7 CPUs are S7 servers.

[1] With regard to restricted baud transmission rates for S7-200, see Catalog ST 70.

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SIMATIC S7

■ **Overview** (continued)

Controller	SIMATIC HMI					
Target hardware (PROTOCOL) (physics)	**OP 73** **OP 77A** **TP 177A**	**Basic Panel**	**Comfort Panel**	**OP 77B** **TP 177B DP** **OP 177B DP** **TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 DP** [1] **Mobile Panel 177 PN** [1]	**TP 277** **OP 277** **Mobile Panel 277** [1] **MP 177** **MP 277** **MP 377**	**WinCC Runtime Advanced**
SIMATIC S7-1200 [2]						
via Ethernet (TCP/IP) to max. 4 x S7-1200	–	• [5]	•	• [5]	•	•
via MPI or PROFIBUS network to max. 4 x S7-1200 with PROFIBUS module (DP-Master) CM 1243-5	• [3] [4]	• [6]	•	• [5]	•	• [7]
SIMATIC S7-300, -400, Win AC [2]						
via Ethernet (TCP/IP) to max. 4 x S7-300, -400, WinAC	–	• [5]	•	• [5]	•	•
via MPI or PROFIBUS network to up to 4 x S7-300, S7-400, WinAC	• [3] [4]	• [6]	•	• [6]	•	• [7]
SIMATIC S7-200 [2]						
via Ethernet (TCP/IP) (MPI protocol) to max. 4 x S7-200	–	• [5]	•	• [5]	•	•
via MPI or PROFIBUS network (MPI protocol) to up to 4 x S7-200	• [3] [4]	• [6]	• [8]	• [6] [8]	• [8]	• [7] [8]
via PPI network (MPI protocol) to up to 4 x S7-200	• [3] [4]	• [6]	–	• [9]	–	–
via PPI network (PPI protocol) to max. 1 x S7-200	–	–	• [10]	• [10]	• [10]	• [7][10]

• System interface possible

– System interface not possible

[1] Mobile Panel connection via special connecting cable and junction box (see Mobile Panel), see Manual for cable layout.

[2] Controllers can be combined as desired

[3] OP 73 can only be interfaced with max. 2 x SIMATIC S7 (MPI); network operation (parallel PG, etc.) possible

[4] Max. transmission rate 1.5 Mbit/s

[5] Only Basic Panel PN, TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN

[6] Not Basic Panel PN, Mobile Panel 177 PN

[7] Connection via integrated MPI/PROFIBUS interface; use the CP 5611 A2 with a standard PC

[8] Only on passive S7-200; OP 77B also on active S7-200

[9] Only OP 77B

[10] Can be interfaced via PPI to max. 1 x S7-200 (PPI); network operation (parallel PG, etc) is possible

Note:

Detailed information regarding cable layout can be found in the online help for WinCC.

2

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■ **Overview**

The SIMATIC Touch Panel (TP), Operator Panel (OP), Basic Panel, Comfort Panel, Mobile Panel, multifunctional platforms (MP) and the SIMATIC HMI software package for PC WinCC Runtime Advanced support the following protocols for the linking of control systems from other manufacturers:

- Allen Bradley
  - Ethernet IP protocol
  - DF1 protocol

- Mitsubishi
  - MC TCP/IP protocol
  - FX protocol
- Modicon
  - Modbus TCP/IP protocol
  - Modbus RTU protocol
- Omron
  - Link/Multi-Link protocol

The following table contains more detailed information.

Controller	SIMATIC HMI					
Target hardware (PROTOCOL) (physics)	OP 77A TP 177A	Basic Panel	Comfort Panel	OP 77B TP 177B DP OP 177B DP TP 177B DP/PN OP 177B DP/PN Mobile Panel 177 DP[1] Mobile Panel 177 PN [1]	TP 277 OP 277 Mobile Panel 277 [1] MP 177 MP 277 MP 377	WinCC Runtime Advanced
Allen Bradley (Ethernet IP)						
via Ethernet TCP/IP network to max. 4 x controllers [2] • ControlLogix 1756-L6x, -L6xS with Ethernet module 1756-ENBT • Guard Logix System • CompactLogix 1769-L2xE, -L3xE • CompactLogix 1769-L4x with ETHERNET module 1768-ENBT • SLC 5/05 • MicroLogix 1100, 1400	–	• [3]	•	• [3]	•	•
Allen Bradley (DF1)						
to max. 1 x controller • SLC 5/03, /04, /05 • MicroLogix (RS 232)	• [4]	• [4] [5]	• [4]	• [4] [5]	• [4]	• [6]
to max. 1 x controller • PLC5/11, /20, /30, /40, /60, /80 (RS 232)	• [4]	• [4] [5]	• [4]	• [4] [5]	• [4]	• [7]
via KF2 gateway and DH+ network to max. 4 x controllers [2] • SLC 5/04 • PLC5/11, /20, /30, /40, /60, /80 (RS 232)	• [4]	• [4] [5]	• [4]	• [4] [5]	• [4]	• [7] [8]
via KF2 gateway and DH+ network to max. 4 x controllers [2] • SLC 5/04 • PLC5/11, /20, /30, /40, /60, /80 (RS 422)	•	• [5]	•	• [5]	•	–
via KF3 gateway and DH485 network to max. 4 x controllers [2] • SLC 500 • MicroLogix (RS 232)	• [4]	• [4] [5]	• [4]	• [4] [5]	• [4]	• [7] [8]

- • System interface possible

- – System interface not possible

[1] Mobile Panel connection via special connecting cable and junction box (see Mobile Panel), see Manual for cable layout.

[2] The following listed controllers can be combined as required

[3] Only Basic Panel PN, TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN

[4] For Basic Panel, Touch Panel, Operator Panel, Comfort Panel, Multi Panel, the RS 422/RS 232 adapter 6AV6 671-8XE00-0AX0 is required

[5] Not Basic Panel PN, Mobile Panel 177 PN

[6] Connection via Allen Bradley PC cable 1747 CP3

[7] Connection via Allen Bradley PC cable 1784 CP10

[8] For connection to KF2/KF3 gateway, a gender-changer (25-pin socket/25-pin socket) is required on the gateway side

Note:

For detailed information on cable assignment, refer to Online Help of WinCC; see also FAQs:
http://support.automation.siemens.com/WW/view/en/29034071

Operator panels
System interfaces with WinCC (TIA Portal)

Controllers from other manufacturers

■ **Overview** (continued)

Controller	SIMATIC HMI					
Target hardware (PROTOCOL) (physics)	**OP 77A** **TP 177A**	**Basic Panel**	**Comfort Panel**	**OP 77B** **TP 177B DP** **OP 177B DP** **TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 DP**[1] **Mobile Panel 177 PN**[1]	**TP 277** **OP 277** **Mobile Panel 277** [1] **MP 177** **MP 277** **MP 377**	**WinCC Runtime Advanced**
Mitsubishi (MC TCP/IP)						
via Ethernet IP network to max. 4 x controllers [2] • FX series FX3G, FX3U, FX3UC with Ethernet module FX3U ENET, • Series Q with Ethernet module QJ71E71-100 • iQ series/QnUD QnUDEH	–	●[3]	●	●[3]	●	●
Mitsubishi FX (serial)						
to max. 1 x controller FX series FX1N, FX2N (RS 232)	●	●[4]	●	●[4]	●	●[5]

● System interface possible
– System interface not possible

[1] Mobile Panel connection via special connecting cable and junction box (see Mobile Panel), see Manual for cable layout.

[2] The following listed controllers can be combined as required

[3] Only Basic Panel PN, TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN

[4] Not Basic Panel PN, Mobile Panel 177 PN

[5] Connection using a Mitsubishi PC cable SC-09 with integrated level converter RS 232/RS 422

Note:

For detailed information on cable assignment, refer to Online Help of WinCC; see also FAQs:
http://support.automation.siemens.com/WW/view/en/29034071

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■ **Overview** (continued)

Controller	SIMATIC HMI					
Target hardware (PROTOCOL) (physics)	**OP 77A** **TP 177A**	**Basic Panel**	**Comfort Panel**	**OP 77B** **TP 177B DP** **OP 177B DP** **TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 DP** [1] **Mobile Panel 177 PN** [1]	**TP 277** **OP 277** **Mobile Panel 277** [1] **MP 177** **MP 277** **MP 377**	**WinCC Runtime Advanced**
Modicon (MODBUS TCP/IP)						
Via MODBUS TCP/IP network to max. 4 x controllers [2] • Concept Quantum, Unity Quantum • Momentum • Premium (TSX57) • TSX Micro (TSX37) • Modicon M340 20x0 (except 2010)	–	• [3]	•	• [3]	•	•
Via TCP/IP Modbus Plus Bridge 174 CEV 200 40 and MODBUS PLUS network to max. 4 x controllers [2] • Concept Quantum, Unity Quantum • Momentum • Compact	–	• [3]	•	• [3]	•	•
Modicon (MODBUS RTU)						
to max. 1 x controller • Concept Quantum • Momentum • Compact (RS 232)	• [4]	• [4] [5]	• [4]	• [4] [5]	• [4]	•
Via bridge BM85-000 or PLC with bridge functionality and MODBUS PLUS network to max. 4 x controllers [2] • Concept Quantum • Compact (RS 232)	• [4]	• [4] [5]	• [4]	• [4] [5]	• [4]	•

• System interface possible

– System interface not possible

[1] Mobile Panel connection via special connecting cable and junction box (see Mobile Panel), see Manual for cable layout.

[2] The following listed controllers can be combined as required

[3] Only Basic Panel PN, TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN

[4] For Basic Panel, Touch Panel, Operator Panel, Comfort Panel, Multi Panel, the RS 422/RS 232 adapter 6AV6 671-8XE00-0AX0 is required

[5] Not Basic Panel PN, Mobile Panel 177 PN

Note:

For detailed information on cable assignment, refer to Online Help of WinCC; see also FAQs:
http://support.automation.siemens.com/WW/view/en/29034071

Operator panels
System interfaces with WinCC (TIA Portal)

Controllers from other manufacturers

■ **Overview** (continued)

Controller	SIMATIC HMI					
Target hardware (PROTOCOL) (physics)	**OP 77A** **TP 177A**	**Basic Panel**	**Comfort Panel**	**OP 77B** **TP 177B DP** **OP 177B DP** **TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 DP**[1] **Mobile Panel 177 PN** [1]	**TP 277** **OP 277** **Mobile Panel 277** [1] **MP 177** **MP 277** **MP 377**	**WinCC Runtime Advanced**
Omron (Link/MultiLink)						
to max. 1 x controller • CP1L, CP1H, CP1E • CJ1M, CJ1H, CJ1G • CJ2H • CS1G, CS1H, CS1D • CP2MC (RS 232)	–	–	•[3]	•[3][4]	•[3]	•
via converter NT-AL001 and RS 422 network to max.4 x controllers [2] • CP1L, CP1H, CP1E • CJ1M, CJ1H, CJ1G • CJ2H • CS1G, CS1H, CS1D • CP2MC (RS 232)	–	–	•[3]	•[3][4]	•[3]	•
via RS 422 network to max. 4 x controllers [2] • CP1L, CP1H, CP1E • CJ1M, CJ1H, CJ1G (RS 422)	•	•[4]	•	•[4]	•[4]	–
via RS422 network to max. 4 x controllers [2] • CJ2H • CS1G, CS1H, CS1D • CP2MC (RS 422)	–	–	–	•[4]	•[4]	–

• System interface possible

– System interface not possible

[1] Mobile Panel connection via special connecting cable and junction box (see Mobile Panel), see Manual for cable layout.

[2] The controllers listed below can be combined in any way required; connection via RS 422 interface of the controller or via RS 422 module

[3] For Basic Panel, Touch Panel, Operator Panel, Comfort Panel, Multi Panel, the RS 422/RS 232 adapter 6AV6 671-8XE00-0AX0 is required

[4] Not Basic Panel PN, Mobile Panel 177 PN

Note:

For detailed information on cable assignment, refer to Online Help of WinCC; see also FAQs:
http://support.automation.siemens.com/WW/view/en/29034071

Overview

SIMATIC Basic Panel, Touch Panels (TP), Operator Panels (OP), Mobile Panel, Multifunctional Platforms (MP)[1] and the SIMATIC HMI software package for PC WinCC flexible Runtime support HMI functionality in conjunction with:

- SIMATIC S7
- SIMATIC S5
- SIMATIC 505
- SIMOTION
- SINUMERIK [2]
- Non-Siemens controllers:
  - Allen Bradley - DF1, DH485 and Ethernet IP protocols
  - GE Fanuc - SNP/SNPX protocol
  - LG GLOFA GM - dedicated protocol
  - Mitsubishi - FX and MP 4 protocols
  - Modicon - Modbus RTU and TCP/IP protocols
  - Omron I - Link/MultiLink protocol
  - Telemecanique - UNI-TELWAY protocol

For more detailed information, refer to the WinCC flexible user manual, the "Windows-based systems communication" manual, and the WinCC flexible online help.

[1] For the sake of simplicity, SIMATIC TP/OP/MP is always used in the text below. This is not restrictive, as the information is valid for all systems referred to above. If there are constraints, direct reference is made to them in the text.

[2] Required under WinCC flexible: "SINUMERIK HMI copy license WinCC flexible CE" and "SINUMERIK HMI copy license OA". For configuring, a "SINUMERIK HMI engineering package WinCC flexible" is also necessary.

Note

Interface options for HMI devices: See the individual device descriptions.

Extended functionality with WinCC flexible

WinCC flexible supports OPC communication for Multi Panel and WinCC flexible Runtime and HTTP communication for all panels with integrated Ethernet interface. Both OPC and HTTP communication can be used in parallel with the process links to SIMATIC S7/S5/505 or non-Siemens PLCs.

OPC Data Access
(MP 277, MP 377, WinCC flexible Runtime only)

OPC Data Access is an open standard for exchanging both local and remote variables between various applications via Industrial Ethernet. The original version of OPC is based on Microsoft COM/DCOM and, therefore, requires a Microsoft Windows-based PC operating system (not Windows CE) on both clients and servers. As OPC XML, communication is based on the Internet standard SOAP/XML and is, therefore, suitable for embedded systems with Windows CE.
Options that are required: WinCC flexible/OPC server

HTTP communication for the variable exchange between SIMATIC HMI systems
(only TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN, TP 277, OP 277, Mobile Panel 277, Mobile Panel 277 IWLAN, MP 277, MP 377, WinCC flexible Runtime)

Communication based on HTTP message frames enables variables to be exchanged between SIMATIC HMI systems.
Options that are required: WinCC flexible/Sm@rt Access

Communication standard	SIMATIC HMI				
Version	**TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 PN** **MP 177**	**TP 277** **OP 277**	**Mobile Panel 277** [6] **Mobile Panel 277 IWLAN** **MP 277** **MP 377**	**WinCC flexible Runtime**	**Connection via**
OPC Data Access V2.05a + OPC Data Access XML V1.00					
OPC client (COM/DCOM)	–	–	–	●	**Industrial Ethernet** (see Catalog IK PI)
OPC server (COM/DCOM)	–	–	–	●[1]	**Industrial Ethernet** (see Catalog IK PI)
OPC XML client (SOAP/XML)	–	–	–	●[2]	**Industrial Ethernet** (see Catalog IK PI)
OPC XML server (SOAP/XML)	–	–	●[3]	–	**Industrial Ethernet** (see Catalog IK PI)
HTTP communication for variable exchange between SIMATIC HMI systems					
HTTP client	●[4]	●[4]	●[4]	●[5]	**Industrial Ethernet** (see Catalog IK PI)
HTTP server	●[4]	●[4]	●[4]	●[5]	**Industrial Ethernet** (see Catalog IK PI)

● System interface possible

– System interface not possible

[1] Option WinCC flexible/OPC Server for WinCC flexible Runtime required

[2] Only with DCOM/XML gateway included in the scope of delivery of WinCC flexible for access to MP 277, MP 377 and MP 370 OPC XML servers

[3] Option WinCC flexible/OPC Server for SIMATIC Multi Panel required

[4] Option WinCC flexible/Sm@rtAccess for SIMATIC Panel required

[5] Option WinCC flexible/Sm@rtAccess for WinCC flexible Runtime required

[6] Depending on the terminal box used

Operator panels
System interfaces with WinCC flexible

SIMATIC S7

■ Overview

The following types of interface are supported in respect of the link between SIMATIC HMI Panels and SIMATIC WinCC flexible Runtime with SIMATIC S7:

- PPI interface:
  Interface between SIMATIC HMI Panels and SIMATIC S7-200 via PPI. Communication runs on the PPI protocol, a standard FB as with SIMATIC S5 is not required.

- MPI interface:
  Interface between SIMATIC HMI Panels and SIMATIC S7 via the integrated PPI interface with S7-200 or MPI interface with S7-300/-400 or alternatively via the MPI interface of a separate interface module and the backplane bus to the SIMATIC S7-CPU. Communication runs on the MPI protocol (PG/OP communication), a standard FB as with SIMATIC S5 is not required.

- PROFIBUS interface:
  Interface between SIMATIC HMI Panels and SIMATIC S7 via the integrated PROFIBUS interface on the CPU or alternatively via the PROFIBUS interface on a separate interface module and the backplane bus to the SIMATIC S7-CPU. Communication runs on the MPI protocol (PG/OP communication), a standard FB as with SIMATIC S5 is not required.

- PROFINET interface:
  Interface between SIMATIC HMI Panels and SIMATIC S7 via the integrated PROFINET interface on the CPU or alternatively via the Industrial Ethernet interface on a separate interface module and the backplane bus to the SIMATIC S7-CPU. Communication runs on the MPI protocol (PG/OP communication), a standard FB as with SIMATIC S5 is not required.

The maximum possible number of S7 connections of a CPU is determined by its power (see Catalog ST 70); from the point of view of SIMATIC HMI Panels the following restrictions apply:

- OP 73micro, TP 177micro: 1 connection
- OP 73: max. 2 connections
- OP 77A, TP 177A, Basic Panel, OP 77B, TP177B, OP 177B, Mobile Panel 177: max. 4 connections
- TP 277, OP 277; Mobile Panel 277, MP 177, MP 277, MP 377: max. 6 connections
- PC with WinCC flexible Runtime: max. 8 connections

PPI interface

From the point of view of the concept, the PPI interface is a point-to-point connection between a SIMATIC HMI Panel (PPI master) or alternatively a PG (PPI master), and an S7-200 (PPI slave).

MPI interface/PROFIBUS interface/
Industrial Ethernet interface

The multipoint-enabled communication interfaces of SIMATIC HMI Panels and SIMATIC S7 are used.
Options are:

- Interface between one or a number of SIMATIC HMI Panels (MPI master) and one or a number of S7-300/400s or WinAC (MPI master)
  (possible network topology: **"MPI/PROFIBUS/Industrial Ethernet"**)

- Interface between one or a number of SIMATIC HMI Panels (MPI master) and one or a number of S7-200s (MPI slave) [1]
  (possible network topology: **"PPI/MPI/PROFIBUS"**)

Unlike PPI connections, MPI connections are static connections that are set up during booting and then monitored.

The original format of a master/master link has in the meantime been joined by a master/slave link, which has enabled integration of the S7-200 (except CPU 212). [1]

In principle this type of information exchange between SIMATIC HMI Panels and SIMATIC S7 is independent of the network used, PPI, MPI, PROFIBUS or Industrial Ethernet: SIMATIC HMI Panels are S7 clients and SIMATIC S7 CPUs are S7 servers.

[1] Constraints with regard to baud rate for S7-200; see Catalog ST 70.

2

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■ **Overview** (continued)

Controller	SIMATIC HMI				
Target hardware (PROTOCOL) (physics)	**TD 100C** **TD 200** **TD 200C** **TD 400C**	**OP 73micro** **TP 177micro**	**OP 73**	**OP 77A** **TP 177A**	**Connection via**
SIMATIC S7 (PPI/MPI)					
via PPI on **S7-200 (PPI)**	• [1]	–	–	–	**MPI cable** [5]
via MPI or PROFIBUS (**PG/OP communication**) with S7-200	–	• [2]	• [3]	• [4]	**MPI cable** [5]
via MPI or PROFIBUS (**PG/OP communication**) with S7-300, -400	–	–	• [3]	• [4]	**MPI cable** [5]
via PPI network **(PPI)** with max. 1 x **S7-200**	• [1]	–	–	–	**PPI network** [6] (see Catalog ST 70 and IK PI)
via PPI network (**PG/OP communication**) with max. 4 x **S7-200**	• [1]	• [2]	• [3]	• [4]	**PPI network** [6] (see Catalog ST 70 and IK PI)
via MPI or PROFIBUS network (**PG/OP communication**) with max. 4 x **S7-200**	–	• [2]	• [3]	• [4]	**MPI or PROFIBUS network** [6] (see Catalogs ST 70 and IK PI)
via MPI or PROFIBUS network (**PG/OP communication**) with max. 4 x **S7-300, -400, WinAC**	–	–	• [3]	• [4]	**MPI or PROFIBUS network** [6] (see Catalogs ST 70 and IK PI)
via Industrial Ethernet (TCP/IP) (**PG/OP communication**) with max. 4 x **S7-200, -300, -400, WinAC**	–	–	–	–	**Industrial Ethernet** (see Catalog IK PI)

• System interface possible

– System interface not possible

[1] TD series can only be interfaced with max. 1 x S7-200 via PPI (PPI/MPI); network operation (parallel PG, etc.) possible; max. data transfer rate 187.5 kbit/s; cable included in scope of supply

[2] OP 73micro, TP 177 micro can only be interfaced with max. 1 x S7-200 (MPI); network operation (parallel PG, etc.) possible; max. data transfer rate 187.5 kbit/s

[3] OP 73 can only be interfaced with max. 2 x SIMATIC S7 (MPI); network operation (parallel PG, etc.) possible; max. data transfer rate 1.5 Mbit/s

[4] Max. transmission rate 1.5 Mbit/s

[5] MPI cable 6ES7 901-0BF00-0AA0 (max. 187.5 Kbit/s) included in PG scope of delivery

[6] Bus connector 6GK1 500-0EA02

Operator panels
System interfaces with WinCC flexible

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■ Overview (continued)

Controller	SIMATIC HMI				
Target hardware (PROTOCOL) (physics)	**Basic Panels**	**OP 77B** **TP 177B DP** **OP 177B DP** **TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 DP** **Mobile Panel 177 PN**	**TP 277** **OP 277** **Mobile Panel 277** **Mobile Panel 277 IWLAN** **MP 177** **MP 277** **MP 377**	**WinCC flexible Runtime**	**Connection via**
via PPI on **S7-200 (PPI)**	–	• [1] [2]	• [1] [2]	• [1] [3]	**MPI cable** [11]
via MPI or PROFIBUS (**PG/OP communication**) on **S7-200**	• [2]	• [2] [5]	• [2] [5]	• [3] [5]	**MPI cable** [11]
via MPI or PROFIBUS (**PG/OP communication**) with **S7-300, -400**	• [2]	• [2]	• [2]	• [3]	**MPI cable** [11]
via PPI network (**PPI**) with max. 1 x **S7-200**	–	• [1] [2]	• [1] [2]	• [1] [3]	**PPI network** [12] (see Catalog ST 70 and IK PI)
via PPI network (**PG/OP communication**) with max. 4 x **S7-200**	• [2]	• [6]	–	–	**PPI network** [12] (see Catalog ST 70 and IK PI)
via MPI or PROFIBUS network (**PG/OP communication**) with max. 4 x **S7-200**	• [2]	• [2] [5]	• [2] [5]	• [3] [5]	**MPI or PROFIBUS network** [12] (see Catalogs ST 70 and IK PI)
via MPI or PROFIBUS network (**PG/OP communication**) with max. 4 x **S7-300, -400, WinAC**	• [2]	• [2]	• [2]	• [3]	**MPI or PROFIBUS network** [12] (see Catalogs ST 70 and IK PI)
via Industrial Ethernet (TCP/IP) (**PG/OP communication**) with max. 4 x **S7-200, -300, -400, WinAC**	– [7]	• [7] [8]	• [8] [9]	• [10]	**Industrial Ethernet** (see Catalog IK PI)

• System interface possible

– System interface not possible

[1] Can only be interfaced with max. 1 x S7-200 via PPI (PPI); network operation (parallel PG, etc.) possible

[2] Not Basic Panel PN, Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); Please refer to the manual for cable assignment

[3] Connection via integrated MPI/PROFIBUS interface; use the CP 5611 A2 with a standard PC.

[4] Max. transmission rate 1.5 Mbit/s

[5] Only on passive S7-200; OP 77B (MPI) also on active S7-200

[6] Only OP 77B (MPI)

[7] Only Basic Panel PN, TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN

[8] Mobile Panel 177 PN, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); Please refer to the manual for cable assignment

[9] Mobile Panel 277 IWLAN (wireless interface, see Mobile Panel)

[10] Connection via integrated Industrial Ethernet interface; use the CP 1612 with a standard PC

[11] MPI cable 6ES7 901-0BF00-0AA0 (max. 187.5 Kbit/s) included in PG scope of delivery (for download and test purposes only)

[12] Bus connector 6GK1 500-0EA02

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■ **Overview**

A variety of interfaces differing in respect of type and performance are available for linking SIMATIC HMI Panels to SIMATIC S5 (not S5-150U). However, a feature common to all is that from the point of view of the connected SIMATIC HMI Panel, the connection is always a logical point-to-point one, i.e. there is always a fixed assignment between a SIMATIC HMI Panel and a PLC.

AS511 interface
(not for OP 77A, TP 177A, Basic Panel, Mobile Panel 177, Mobile Panel 277)

S5-90U to -135U, -155U
(except CPU 922 < Version 9,
except CPU 928 [6ES5 928-3UA11],
except CPU 946/947 [6ES5 94•-3UA11],
except CPU 946/947 [6ES5 94•-3UA21],
except CPU 946/947 [6ES5 94•-3UA22] < Version 5)

The AS511 interface is implemented via the PG interface of SIMATIC S5 and uses the associated CPU resources, that is, the performance capability of the SIMATIC HMI Panel is determined by the performance capability of the SIMATIC CPU used.

PROFIBUS DP interface
(not for OP 77A, TP 177A, Basic Panel, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

S5-115U, -135U, -155U via IM 308C or
CP 5431 FMS/ DP (except CPU 922 < Version 9,
except CPU 928 [6ES5 928-3UA11],
except CPU 946/947 [6ES5 94•-3UA11],
except CPU 946/947 [6ES5 94•-3UA21],
except CPU 946/947 [6ES5 94•-3UA22] < Version 5)

The PROFIBUS DP interface supports the connection of:

- Up to 2 SIMATIC HMI Panels as SLAVES via a PROFIBUS network to a SIMATIC S5-95U with integrated PROFIBUS DP/master interface [6ES5 095-8ME01]
- Up to 30 SIMATIC HMI Panels as SLAVES via a PROFIBUS network to a SIMATIC S5 with separate PROFIBUS DP/master interface IM 308C, or CP 5431 FMS/DP

Communication between SIMATIC HMI Panels (DP slaves) and SIMATIC S5 (DP master) runs via PROFIBUS DP message frames in accordance with EN 50170 with higher-level "HMI profile". A function block which must be called for each connected SIMATIC HMI Panel is required in the PLC (FB is included in scope of delivery).

Operator panels
System interfaces with WinCC flexible

SIMATIC S5

■ **Overview** (continued)

Controller	SIMATIC HMI				
Target hardware (PROTOCOL) (physics)	**OP 77A** **TP 177A** **Basic Panel**	**OP 77B** **TP 177B DP** **OP 177B DP** **TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 DP** **Mobile Panel 177 PN**	**TP 277** **OP 277** **Mobile Panel 277** **Mobile Panel 277 IWLAN** **MP 177** **MP 277** **MP 377**	**WinCC flexible Runtime**	**Connection via**
SIMATIC S5 (AS511)					
S5-90U to 155U except CPU 922 < version 9, except CPU 928 (6ES5 928-3UA11) except CPU 946/947 (6ES5 94.-3UA11, 6ES5 94.-3UA21, 6ES5 94.-3UA22 < version 5) (TTY)	–	● [2]	–	●	**6ES5 734-1BD20** [1] (3.2 m) **6XV1 440-2A…** (see HMI accessories/ connecting cables)
S5-90U to 155U except CPU 922 < version 9, except CPU 928 (6ES5 928-3UA11) except CPU 946/947 (6ES5 94.-3UA11, 6ES5 94.-3UA21, 6ES5 94.-3UA22 < version 5) (TTY)	–	● [3] [5]	● [3]	–	**6AV6 671-8XJ00-0AX0** (RS422-TTY adapter) **6XV1 440-2A…** (see HMI accessories/ connecting cables)
SIMATIC S5 (PROFIBUS DP + HMI)					
via PROFIBUS DP with 1 x **S5-95U/L2-DP/master** (6ES5 095-8ME02)	–	● [3]	● [3]	● [4]	**PROFIBUS** [4] (see Catalog IK PI)
via PROFIBUS DP with IM 308C on **S5-115U, -135U, -155U** except CPU 922 < version 9, except CPU 928 (6ES5 928-3UA11), except CPU 946/947 (6ES5 94.-3UA11, 6ES5 94.-3UA21, 6ES5 94.-3UA22 < version 5)	–	● [3]	● [3]	● [4]	**PROFIBUS** [4] (see Catalog IK PI)
via PROFIBUS DP with CP 5431 FMS/DP on **S5-115U, -135U, -155U** except CPU 922 < version 9, except CPU 928 (6ES5 928-3UA11), except CPU 946/947 (6ES5 94.-3UA11, 6ES5 94.-3UA21, 6ES5 94.-3UA22 < version 5)	–	● [3]	● [3]	● [4]	**PROFIBUS** [4] (see Catalog IK PI)

● System interface possible

– System interface not possible

[1] PC cable with integrated level converter RS 232/TTY

[2] OP 77B only

[3] WinCC flexible 2008 Service Pack 2 and higher

[4] Connection via integrated MPI/PROFIBUS interface: use the CP 5611 A2 for a standard PC.

[5] not for OP 77B; in this case the RS 232 interface is to be used.

■ Overview

A variety of interfaces differing in respect of type and performance are available for linking SIMATIC HMI Panels to SIMATIC 505.

However, a feature common to all is that from the point of view of the connected SIMATIC HMI Panel, the connection is always a logical point-to-point one, that is, there is always a fixed assignment between an HMI Panel and a PLC.

NITP interface
(not for OP 77A, TP 177A, Basic Panel, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

The NITP interface runs via the PG interface of the SIMATIC 505 and uses the associated CPU resources, that is, the performance capability of the SIMATIC HMI Panel is determined by the performance capability of the SIMATIC CPU used.

PROFIBUS DP interface
(not for OP 77A, TP 177A, Basic Panel, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

SIMATIC 505 PLC or SIMATIC 545, SIMATIC 555 with CP 5434

With the PROFIBUS DP interface, up to 30 SIMATIC HMI Panels can be connected as SLAVES to one SIMATIC 545, 555 via a PROFIBUS network, with plug-in PROFIBUS DP/master interface type CP 5434.

Communication between SIMATIC HMI Panels (DP slaves) and SIMATIC 505 (DP master) runs via PROFIBUS DP message frames in accordance with EN 50170 with higher-level "HMI profile". An application ladder which must be called for each connected SIMATIC HMI Panel is required in the PLC (example of application ladder included in ProTool scope of delivery).

Controller	SIMATIC HMI				
Target hardware (PROTOCOL) (physics)	**OP 77A** **TP 177A** **Basic Panel**	**OP 77B** **TP 177B DP** **OP 177B DP** **TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 DP** **Mobile Panel 177 PN**	**TP 277** **OP 277** **Mobile Panel 277** **Mobile Panel 277 IWLAN** **MP 177** **MP 277** **MP 377**	**WinCC flexible Runtime**	**Connection via**
SIMATIC 505 (NITP)					
PLC 525, 535, 565T (RS 232)	–	• [1] [2]	• [1] [2]	•	**PPX: 2601 094-8001** [3] See online help [6]
PLC 545, 555 (RS 232)	–	• [1] [2]	• [1] [2]	•	**PPX: 2601 094-8001** [3] **6XV1 440-2K…** (see HMI accessories/ connecting cables)
PLC 535, 545/CPU 1101, 565T (RS 422)	–	• [1]	• [1]	• [4]	See online help [6]
PLC 545/CPU 1102, 555 (RS 422)	–	• [1]	• [1]	• [4]	See online help [6]
SIMATIC 505 (PROFIBUS DP + HMI)					
via PROFIBUS DP to 1 x **PLC 545, 555** with **CP 5434**	–	• [1]	• [1]	• [5]	**PROFIBUS** [7] (see Catalog IK PI)

• System interface possible

– System interface not possible

[1] Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.

[2] The RS 422/RS 232 adapter 6AV6 671-8XE00-0AX0 is required for Touch Panels, Operator Panels, and Multi Panels

[3] A standard adapter (9-/25-pin male) is required on the PLC

[4] A commercially available level converter (RS 232/RS 422) is required on the PC

[5] Connection via integrated MPI/PROFIBUS interface, use the CP 5611 A2 with a standard PC

[6] Detailed information (cable assignment) can be found in the online help for WinCC flexible and in the Communication User Manual for Windows-based systems

[7] Bus connector 6GK1 500-0EA02

Operator panels
System interfaces with WinCC flexible

PLCs from other manufacturers

■ **Overview**

Allen Bradley

Three communication protocols are available for the interface between SIMATIC TP/OP/MP and Allen Bradley:

DF1 interface
(not on OP 73, Basic Panel PN, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

This communication between SIMATIC TP/OP/MP and Allen Bradley runs on the basis of the DF1 protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and the PG interface on an Allen Bradley PLC5 or the DF1 interface on an Allen Bradley SLC500 (point-to-point link)
- The integration of SIMATIC TP/OP/MP via Allen Bradley KF2 gateway in an Allen Bradley DH+ network. Communication is possible between SIMATIC TP/OP/MP and up to 4 SLC 500 PLCs or PLC5s (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)
- The integration of SIMATIC TP/OP/MP via Allen Bradley KF3 gateway in an Allen Bradley DH485 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 PLCs type SLC 500 or MicroLogix (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

DH485 interface
(not on OP 73, OP 77A, TP 177A, Basic Panel, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

This communication between SIMATIC TP/OP/MP and Allen Bradley runs on the basis of the DH485 protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and an Allen Bradley SLC500 or MicroLogix (point-to-point link)
- The integration of SIMATIC TP/OP/MP via Allen Bradley AIC adapter in an Allen Bradley DH485 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 PLCs type SLC 500 or MicroLogix (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)
- The integration of SIMATIC TP/OP/MP (not PC with WinCC flexible Runtime) in an Allen Bradley DH485 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 PLCs type SLC 500 or MicroLogix (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

Ethernet IP protocol
(not on OP 73, OP 77A, TP 177A, Basic Panel, OP 77B, TP 177B DP, OP 177B DP, Mobile Panel 177 DP, Mobile Panel 277 IWLAN)

This communication between SIMATIC TP/OP/MP and Allen Bradley runs based on the Ethernet IP protocol; SIMATIC TP/OP/MP integration is tested and released in an Ethernet IP network. Communication is possible between SIMATIC TP/OP/MP and up to 4 ControlLogix or CompactLogix PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP)

GE-Fanuc
(not on OP 73, OP 77A, TP 177A, Basic Panel, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Communication between SIMATIC TP/OP/MP and GE-Fanuc runs on the basis of the SNP protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and a GEF 90-Micro, 90-30 or 90-70 (point-to-point link)
- Integration of SIMATIC TP/OP/MP in an RS 422 network via adapter. Communication is possible between SIMATIC TP/OP/MP and up to 4 GEF 90-Micro, 90-30 or 90-70 PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)
- The integration of SIMATIC TP/OP/MP (not PC with ProTool/ Pro Runtime or WinCC flexible Runtime) in an RS 422 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 GEF 90-Micro, 90-30 or 90-70 PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

LG GLOFA GM
(not on OP 73, OP 77A, TP 177A, Basic Panel, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Communication between SIMATIC TP/OP/MP and LG GLOFA GM runs on the basis of the dedicated protocol; the following have been tested and released:

- Connection between a SIMATIC TP/OP/MP and an LG GLOFA GM with Cnet module (point-to-point link)
- Integration of SIMATIC TP/OP/MP in an RS 422 network via LG Cnet module. Communication is possible between SIMATIC TP/OP/MP (not PC with ProTool/Pro Runtime) and up to 4 LG GLOFA GM PLCs on the network (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

Mitsubishi
(not with OP 73, Basic Panel, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Two communication protocols are available for the interface between SIMATIC TP/OP/MP and Mitsubishi:

FX protocol

This communication between SIMATIC TP/OP/MP and Mitsubishi runs on the basis of the FX protocol; the direct connection between a SIMATIC TP/OP/MP and the PG interface of a Mitsubishi FX/FX0 (logical point-to-point link) has been tested and released.

MP4 protocol

This communication between SIMATIC TP/OP/MP and Mitsubishi runs on the basis of the MP4 protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and a Mitsubishi Series FX, Series A or Series Q (point-to-point link)
- Integration of SIMATIC TP/OP/MP in an RS 422 network via Mitsubishi converter FX-48SC-IF. Communication is possible between SIMATIC TP/OP/MP and up to 4 Series FX, Series A or Series Q PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)
- The integration of SIMATIC TP/OP/MP (not PC with ProTool/ Pro Runtime or WinCC flexible Runtime) in an RS 422 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 Series FX, Series A or Series Q PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

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■ **Overview** (continued)

Modicon

Two communication protocols are available for the interface between SIMATIC TP/OP/MP and Modicon:

Modbus protocol
(not for OP 73, Basic Panel PN, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Communication between SIMATIC TP/OP/MP and Modicon runs on the basis of the Modbus protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and the Modbus interface on a Modicon 984, TSX Quantum or TSX Compact (point-to-point link)
- The integration of a SIMATIC TP/OP/MP via Modicon Modbus PLUS bridge BM85-000 or the bridge function of a MODICON 984-145 or TSX Quantum into a Modbus PLUS network and communication between SIMATIC TP/OP/MP (Modbus/master) and up to 4 Modicon 984 or TSX Quantum PLCs (Modbus/slave) on the network (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A).

Modbus TCP/IP protocol
(not for OP 73, OP 77A, TP 177A, Basic Panel DP, OP77B, TP 177B DP, OP 177B DP, Mobile Panel 177 DP, Mobile Panel 277 IWLAN)

This communication between SIMATIC TP/OP/MP and Modicon runs on the basis of the Modbus TCP/IP protocol; the following have been tested and released:

- Integration of SIMATIC TP/OP/MP into a Modbus TCP/IP network. Communication is possible between SIMATIC TP/OP/MP and up to 4 Momentum, TSX Micro (TSX 37), TSX Premium (TSX 57), TSX Unity Premium, TSX Quantum or TSX Unity Quantum PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP)
- The communication between SIMATIC TP/OP/MP via TCP/IP Modbus Plus Bridge 174 CEV 200 40 / Modbus PLUS network to Modicon 984 (except 984A, 984B, 984X), TSX Compact, TSX Quantum or TSX Unity Quantum (multipoint link from the point of view of the SIMATIC TP/OP/MP)

Omron
(not with OP 73, Basic Panel PN, Mobile Panel 177 PN, Mobile Panel 277 IWLAN)

Communication between SIMATIC TP/OP/MP and Omron runs on the basis of the Link/MultiLink protocol; the following have been tested and released:

- Direct connection between a SIMATIC TP/OP/MP and an Omron Sysmac C, Sysmac α or Sysmac CV (point-to-point link)
- Integration of SIMATIC TP/OP/MP in an RS 422 network via Omron converter NT-AL001. Communication is possible between SIMATIC TP/OP/MP and up to 4 Sysmac C, Sysmac α or Sysmac CV PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)
- The integration of SIMATIC TP/OP/MP (not PC with ProTool/ Pro Runtime or WinCC flexible Runtime) in an RS 422 network. Communication is possible between SIMATIC TP/OP/MP and up to 4 Sysmac C, Sysmac α or Sysmac CV PLCs (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A)

Telemecanique
(not on OP 73, OP 77A, TP 177A, Basic Panel, Mobile Panel 177 PN, Mobile Panel 277 IWLAN, WinCC flexible Runtime)

Data exchange between SIMATIC TP/OP/MP and Telemecanique runs on the basis of the UNI-TELWAY protocol; the following have been tested and released:

- Connection between a SIMATIC TP/OP/MP (UNI-T/slave) via Telemecanique outlet TSX SCA62 and a Telemecanique TSX 17 or TSX 47/67/87/107 (UNI-T/master) (logical point-to-point link)
- Connection between a SIMATIC TP/OP/MP (UNI-T/slave) via Telemecanique outlets TSX SCA62 + ACC01 and a Telemecanique TSX 37 or TSX 57 (UNI-T/master) (logical point-to-point link)
- The integration of a SIMATIC TP/OP/MP via Telemecanique outlet TSX SCA62 in a UNI-TELWAY network and communication between SIMATIC TP/OP/MP (UNI-T/slave) and up to 4 TSX 17, TSX 37, TSX 57 or TSX 47/67/87/107 PLCs (UNI-T/ master or slave) on the network (multipoint link from the point of view of the SIMATIC TP/OP/MP; only one connection possible with TP 170A).

Operator panels
System interfaces with WinCC flexible

PLCs from other manufacturers

■ **Overview** (continued)

Controller	SIMATIC HMI					
Target hardware (PROTOCOL) (physics)	**OP 77A** **TP 177A**	**Basic Panel**	**OP 77B** **TP 177B DP** **OP 177B DP** **TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 DP / 177 PN**	**TP 277** **OP 277** **Mobile Panel 277 / 277 IWLAN** **MP 177** **MP 277** **MP 377**	**WinCC flexible Runtime**	**Connection via**
Allen Bradley (DF1)						
SLC 500/03,04,05 or **MicroLogix** (RS 232)	• [1] [2]	• [1] [2]	• [1] [2]	• [1] [2]	•	**1747 CP3** [7] See FAQ [9]
PLC 5/11,20,30,40,60,80 (RS 232)	• [1] [2]	• [1] [2]	• [1] [2]	• [1] [2]	•	**1784 CP10** [7] See FAQ [9]
PLC 5/11,20,30,40,60,80 (RS 422)	• [1]	• [1]	• [1]	• [1]	–	See FAQ [9]
via **KF2 gateway** and DH+ network with up to 4 x **SLC 50/04** or **PLC 5/11,20,30,40,60,80** (RS 232)	• [1] [2]	• [1] [2]	• [1] [2]	• [1] [2]	•	**1784 CP10** [7] [8] See FAQ [9]
via **KF2 gateway** and DH+ network with up to 4 x **SLC 50/04** or **PLC 5/11,20,30,40,60,80** (RS 422)	• [1]	• [1]	• [1]	• [1]	–	See FAQ [9]
via **KF3 gateway** and DH485 network with up to 4 x **SLC 500/00,01,02,03,04,05** or **MicroLogix** (RS 232)	• [1] [2]	• [1] [2]	• [1] [2]	• [1] [2]	•	**1784 CP10** [7] [8] See FAQ [9]
Allen Bradley (DH485)						
SLC 500/03,04,05 or **MicroLogix** (RS 232)	–	–	• [1] [2]	• [1] [2]	•	See FAQ [9]
via **AIC adapter** and DH485 network with up to 4 x **SLC 500** or **MicroLogix** (RS 232)	–	–	• [1] [2]	• [1] [2]	•	See FAQ [9]
via DH485 network with up to 4 x **SLC 500/00,01,02,03,04,05** or **MicroLogix** (RS 485)	–	–	• [1]	• [1]	–	See FAQ [9]
Allen Bradley (Ethernet IP)						
via Ethernet IPnetwork with up to 4 x **ControlLogix** (1756-L61, 1756-L62, 1756-L63, 1756-L64, 1756-L65, each with Ethernet module 1756-ENBT) **GuardLogix** (1756-L61S, 1756-L62S, 1756-L61S, each with Ethernet module 1756-ENBT) or **CompactLogix** (1769-L32E, 1769-L35E, each with Ethernet interface onboard	–	–	• [3] [4]	• [4]	•	See FAQ [9]

• System interface possible

– System interface not possible

[1] Not Basic Panel PN, Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.

[2] The RS 422/RS 232 adapter 6AV6 671-8XE00-0AX0 is required for Basic Panel, Touch Panel, Operator Panel, and Multi Panel

[3] Only TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN

[4] Mobile Panel 177 PN, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.

[5] Not Mobile Panel 277 IWLAN (wireless interface, see Mobile Panel)

[6] Connection via integrated Industrial Ethernet interface; use the CP 1612 with a standard PC

[7] Allen Bradley PC cable

[8] Cable for connection to KF2/KF3 gateway; a gander changer (25-pin socket/25-pin socket) is required on the gateway side

[9] Detailed information (cables used) see FAQ: http://support.automation.siemens.com/WW/view/en/29034071 in the online help for WinCC flexible and in the Communication User Manual for Windows-based systems

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◼ Overview (continued)

Controller	SIMATIC HMI					
Target hardware (PROTOCOL) (physics)	**OP 77A** **TP 177A**	**Basic Panel**	**OP 77B** **TP 177B DP** **OP 177B DP** **TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 DP** **Mobile Panel 177 PN**	**TP 277** **OP 277** **Mobile Panel 277** **Mobile Panel 277 IWLAN** **MP 177** **MP 277** **MP 377**	**WinCC flexible Runtime**	**Connection via**
GE-Fanuc (SNP)						
GEF 90-Micro, 90-30, 90-70 (RS 232)	–	–	• 1) 2)	• 1) 2)	•	See FAQ 4)
via **adapter** with up to 4 x **GEF 90-Micro, 90-30, 90-70** (RS 232)	–	–	• 1) 2)	• 1) 2)	•	See FAQ 4)
via **adapter** with up to 4 x **GEF 90-Micro, 90-30, 90-70** (RS 422)	–	–	• 1)	• 1)	–	See FAQ 4)
LG GLOFA (Dedicated)						
GLOFA-GM with Cnet module (RS 232)	–	–	• 1) 2)	• 1) 2)	•	See FAQ 4)
With up to 4 x **GLOFA-GM with Cnet module** (RS 422)	–	–	• 1)	• 1)	–	See FAQ 4)
Mitsubishi FX						
FX0 (RS 422)	–	–	–	–	•	SC-09 6)
	–	–	• 1)	• 1)	–	See FAQ 4)
FX0n, FX1n, FX2n (RS 422)	–	–	–	–	•	SC-09 6)
	–	–	• 1)	• 1)	–	See FAQ 4)
• **FX1N-14MR-DS** • **FX1S-10MR-DS** • **FX2N-16MR-DS** (RS 422)	• 1) 6)	• 1) 6)	–	–	–	SC-09 6)
Mitsubishi (MP4)						
• **Series FX** with communications module • **Series A** (AnN, AnA, AnU, AnS) with interface module • **Series Q** (QnA, QnAS) with interface module (RS 232)	–	–	• 1) 2)	• 1) 2)	•	See FAQ 4)
via **FX-48SC-IF converter** with up to 4 PLCs • **Series FX** with communications module • **Series A** (AnN, AnA, AnU, AnS) with interface module • **Series Q** (QnA, QnAS) with interface module (RS 232)	–	–	• 1) 2)	• 1) 2)	•	See FAQ 4)
with up to 4 PLCs • **Series FX** with communications module • **Series A** (AnN, AnA, AnU, AnS) with interface module • **Series Q** (QnA, QnAS) with interface module (RS 422)	–	–	• 1)	• 1)	–	See FAQ 4)

• System interface possible

– System interface not possible

1) Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.

2) The RS 422/RS 232 adapter 6AV6 671-8XE00-0AX0 is required for Touch Panels, Operator Panels, and Multi Panels

3) With connection using a Mitsubishi PC cable, an 15-pin/9-pin adapter 6XV1 440-2UE32 is required

4) Detailed information (cables used) see FAQ:
http://support.automation.siemens.com/WW/view/de/29034071 in the online help for WinCC flexible and in the Communication User Manual for Windows-based systems

5) Mitsubishi PC cable with integrated level converter RS 232/RS 422

6) WinCC flexible 2008 Service Pack 2 and higher

Operator panels
System interfaces with WinCC flexible

PLCs from other manufacturers

■ **Overview** (continued)

Controller	SIMATIC HMI					
Target hardware (PROTOCOL) (physics)	**OP 77A** **TP 177A**	**Basic Panel**	**OP 77B** **TP 177B DP** **OP 177B DP** **TP 177B DP/PN** **OP 177B DP/PN** **Mobile Panel 177 DP** **Mobile Panel 177 PN**	**TP 277** **OP 277** **Mobile Panel 277** **Mobile Panel 277 IWLAN** **MP 177** **MP 277** **MP 377**	**WinCC flexible Runtime**	**Connection via**
Modicon (Modbus)						
984-120, 130, 131, 141, 145, 380, 381, 185, 480, 485, 680, 685, 780, 785, or TSX-Quantum-CPU 113, 213, 424, 434, 534 (RS 232)	● 1) 2)	● 1) 2)	● 1) 2)	● 1) 2)	●	See FAQ 7)
via **bridge BM85-000** or **PLC with bridge function.** / Modbus PLUS network with up to 4 x **984-120**, ... or **TSX Quantum - CPU 113**, or **TSX Contact** (RS 232)	● 1) 2)	● 1) 2)	● 1) 2)	● 1) 2)	●	See FAQ 7)
TSX Compact (RS 232)	● 1) 2)	● 1) 2)	● 1) 2)	● 1) 2)	●	See FAQ 7)
Modicon (Modbus TCP/IP)						
via Modbus TCP/IP network with up to 4 x **TSX Unity Quantum** or **TSX Unity Premium** or **TSX Quantum** or **TSX Quantum** with **TCP/IP module 140 NOE 771 01** or **TSX Unity Premium** or **TSX Premium** with **TCP/IP module TSX ETY 110** or **TSX Micro** with **TCP/IP module TSX ETY 410** or **Momentum** with **CPU adapter 171 CCC 980 30**	–	–	● 3) 4)	● 4) 5)	●	
via **TCP/IP ModbusPlus bridge 174 CEV 200 40** / Modbus PLUS network with up to 4 x **TSX Unity Quantum** or **TSX Quantum** or **TSX Compact** or **984-120**, ... (except **984A, 984B, 984X**)	–	–	● 3) 4)	● 4) 5)	●	
via Modbus TCP/IP network with up to 4 x **TSX Unity Quantum** or **TSX Unity Premium** or **TSX Quantum** or **TSX Quantum** with **TCP/IP module 140NOE 771 01** or **TSX Unity Premium** or **TSX Premium** with **TCP/IP module TSX ETY 110** or **TSX Micro** with **TCP/IP module TSX ETY 410** or **Momentum** with **CPU adapter 171 CCC 980 30**	● 3) 8)	● 3) 8)	–	–	–	
via **TCP/IP ModbusPlus Bridge 174 CEV 200 40** / Modbus PLUS network with up to 4 x **TSX Unity Quantum** or **TSX Quantum** or **TSX Compact**	● 3) 8)	● 3) 8)	–	–	–	

● System interface possible
– System interface not possible

1) Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.

2) The RS 422/RS 232 adapter 6AV6 671-8XE00-0AX0 is required for Touch Panels, Operator Panels, and Multi Panels

3) Only TP 177B DP/PN, OP 177B DP/PN, Mobile Panel 177 PN

4) Mobile Panel 177 PN, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.

5) Not Mobile Panel 277 IWLAN (wireless interface, see Mobile Panel)

6) Connection via integrated Industrial Ethernet interface; use the CP 1612 with a standard PC

7) Detailed information (cables used) see FAQ: http://support.automation.siemens.com/WW/view/en/29034071 in the online help for WinCC flexible and in the Communication User Manual for Windows-based systems

8) WinCC flexible 2008 Service Pack 2 and higher

■ **Overview** (continued)

Controller	SIMATIC HMI					
Target hardware (PROTOCOL) (physics)	OP 77A TP 177A	Basic Panel	OP 77B TP 177B DP OP 177B DP TP 177B DP/PN OP 177B DP/PN Mobile Panel 177 DP Mobile Panel 177 PN	TP 277 OP 277 Mobile Panel 277 Mobile Panel 277 IWLAN MP 177 MP 277 MP 377	WinCC flexible Runtime	Connection via
Omron (Link/MultiLink)						
• **SYSMAC C** (except CPU CQM1 – CPU 11/21) • **SYSMAC Alpha** • **SYSMAC CV** (RS 232)	–	–	• [1] [2]	• [1] [2]	•	See FAQ [3]
via **NT-AL001 converter** with up to 4 PLCs • **SYSMAC C** (except CPU CQM1 – CPU 11/21) • **SYSMAC Alpha** • **SYSMAC CV** (RS 232)	–	–	• [1] [2]	• [1] [2]	•	See FAQ [3]
with up to 4 PLCs • **SYSMAC C** (except CPU CQM1 – CPU 11/21) • **SYSMAC Alpha** • **SYSMAC CV** (RS 422)	–	–	• [1]	• [1]	–	See FAQ [3]
• CP1L-L14DT1-D • C1H-Y20DT-D • CJ1M CPU11	• [1] [4]	• [1] [4]	–	–	–	
Telemecanique (UNI-TELWAY)						
via **TSX SCA62 outlet** with **TSX 17** or **TSX 47/67/87/107** (RS 485)	–	–	• [1]	• [1]	–	See FAQ [3]
via **TSX SCA62 + ACC01 outlets** with **TSX 37/57** (RS 485)	–	–	• [1]	• [1]	–	See FAQ [3]
via **TSX SCA62 outlet** and UNI-TELWAY network with 4 x **TSX 17** or **TSX 37/57** (+ACC 01) or **TSX 47/67/87/107 (**RS 485)	–	–	• [1]	• [1]	–	See FAQ [3]

• System interface possible

– System interface not possible

[1] Not Mobile Panel 177 PN, Mobile Panel 277 IWLAN; Mobile Panel 177 DP, Mobile Panel 277 connection via special connecting cable and junction box (see Mobile Panel); see manual for cable assignment.

[2] The RS 422/RS 232 adapter 6AV6 671-8XE00-0AX0 is required for Touch Panels, Operator Panels, and Multi Panels

[3] Detailed information (cables used) see FAQ: http://support.automation.siemens.com/WW/view/en/29034071 in the online help for WinCC flexible and in the Communication User Manual for Windows-based systems

[4] WinCC flexible 2008 Service Pack 2 and higher

Operator panels
SIMATIC HMI accessories

■ **Overview**
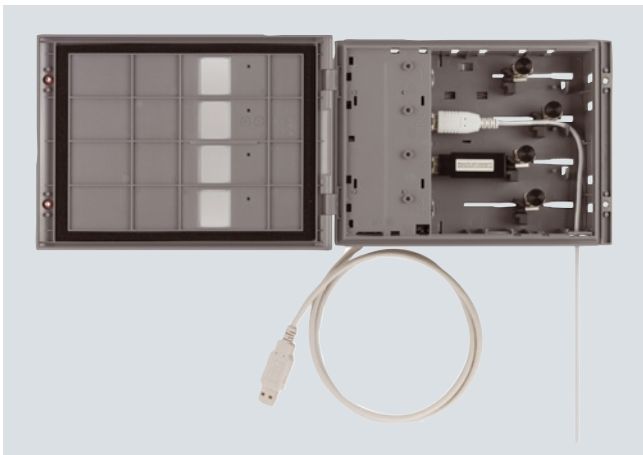
Industrial USB Hub 4

Touchscreen stylus and touch pen

The specially coordinated range of accessories supplements the SIMATIC HMI core products perfectly. Industrial Hub 4 can be used, for example, to make a USB port available to the user exactly where it is required. Touch pens can be used to operate extremely small buttons, and they also ensure that the display stays clean for longer.

SIMATIC HMI accessories can also be used in non-Siemens devices; see the technical specifications for more detailed information.

General SIMATIC HMI accessories for all currently available Panels are listed in this chapter; the full range of SIMATIC HMI accessories is available in the Mall and in our other online media.

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Overview
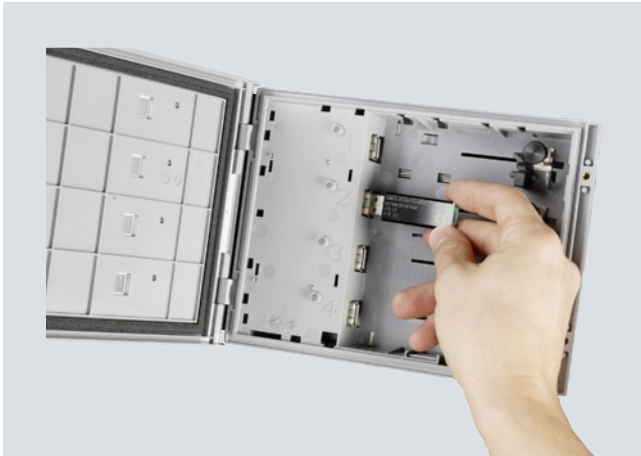
- The Industrial USB Hub 4 is used as a USB port extender (4 in 1) for the connection of peripheral devices to USB 2.0 interfaces of Comfort Panels, Multi Panels, IPCs, and standard PCs.
- The Industrial USB Hub 4 (IP65 degree of protection on the front, service kit may be required) can also be mounted directly in a control cabinet.
- With the USB Hub 4, the USB port can be moved forwards to the control cabinet door, making it accessible without opening the cabinet door
- The USB Hub 4 can also be mounted on a standard mounting rail in the control cabinet, in which case it serves as a simple interface multiplier

Technical specifications

	6AV6671-3AH00-0AX0 Industrial USB Hub 4
Installation type/mounting Mounting rail installation possible	Yes; Standard - DIN rail
Mounting in landscape format possible	Yes
Supply voltage Type of supply voltage	24 V DC
Rated voltage/DC	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Interfaces Number of USB interfaces	4; Type USB 2.0, 500 mA each; e.g. connection of mouse, keyboard, printer, USB stick, USB IPC flash drive
Degree and class of protection Type of protection	20
IP (at the front)	65
Standards, approvals, certificates CE	Yes

	6AV6671-3AH00-0AX0 Industrial USB Hub 4
Ambient conditions Operating temperature	
• Operation (vertical installation)	0 °C to +50 °C
- in vertical mounting position/ minimum	0 °C
- in vertical mounting position/ maximum	50 °C
Storage/transport temperature	
• Min.	-20 °C
• max.	60 °C
Relative humidity	
• max. relative humidity	90 %
Mechanics/material Type of housing (front)	
• Plastic	Yes
Dimensions Width of the housing front	212 mm
Height of housing front	156 mm
Depth/installation dimension	50 mm
Weight Weight without packaging	460 g
Scope of supply Delivery unit in items	1; Content: 1 X USB Hub 4, 10 x plastic mounting clip, 1 x female 2-pin connector
other Note:	for access to the USB interface of a built-in device without having to open the control cabinet, mounting on standard rail possible, suitable for standard USB interfaces

Ordering data

	Order No.
Industrial USB Hub 4 4 x USB 2.0, IP65, for control cabinet door or standard rail, for use with MP 177/MP 277/MP 377, Panel PCs, HMI IPCs and standard PCs	**6AV6671-3AH00-0AX0**
Service set for Industrial USB Hub 4 (incl. IP65 expansion)	See HMI accessories service sets, from page 2/118

More information

Note for SIMATIC Panel PCs

The Industrial USB Hub 4 is approved for the Windows CE/2000/ XP/Windows 7 operating systems. The appropriate drivers are supplied with the operating system software.

Operator panels
SIMATIC HMI accessories

Touch pen and touch stylus

Overview

Optional package: Touchscreen stylus and touch pen

If you are working with gloves, touch pens are often extremely useful when operating touch displays. They protect the display from dirt and scratching during operation and use. They are also useful for operating small buttons or input fields accurately.

Technical specifications

	6AV7672-1JB00-0AA0 Touch pen, thick, resistive technology	6AV6645-7AB14-0AS0 Touch pen, thin, resistive technology
Installation type/mounting Wall mounting/direct mounting possible	Yes; Terminal holder can be attached	Yes; using 40 cm retaining cord
Standards, approvals, certificates CE	Yes	Yes
Ambient conditions Operating temperature		
• Operating temperature range, max.	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C
Storage/transport temperature		
• Min.	-20 °C	-20 °C
• max.	70 °C	70 °C
Relative humidity		
• max. relative humidity	90 %	90 %
Mechanics/material Screw type		
• Torx	Yes	
Plastic	Yes	Yes
Dimensions Height	155 mm; Length	125 mm; Length
Thickness	20 mm; Diameter	8 mm; Diameter
Scope of supply Delivery unit in items	1; Optional for extension units of the PRO devices	5; Incl. retaining cord for Mobile Panel 277 10"
other Note:	for resistive touch screens, optimized for operating while wearing gloves	for resistive touch screens

Ordering data
Order No.

Touch stylus	6AV7672-1JB00-0AA0
for Panels, Panel PC, Touch Monitor and other touch applications, including screw-on wall holder • 1 unit	
Touch pen	6AV6645-7AB14-0AS0
Specially designed for Mobile Panel 277 10", but also other touch displays, including attachment cord • 5 units	

Note:

This catalog only includes accessories for current products.

The complete range of accessories can be found in the Mall:
https://eb.automation.siemens.com

or on our SIMATIC Support pages:
http://support.automation.siemens.com

■ **Overview**

Mobile Panel accessories

General Mobile Panel accessories, such as service sets and protective membranes, are listed in the respective accessories section.

Special Mobile Panel accessories are listed in the following section.

System components for SIMATIC HMI Mobile Panels can be found directly under the respective Mobile Panel in the products section.

2

Operator panels
Mobile Panel accessories

Power supply unit

■ Overview

The external power supply for the Mobile Panel IWLAN is intended for laboratory and office operation.
Suitable SITOP power supplies are available for use with machinery and plants.

■ Technical specifications

	6AV6671-5CN00-0AX2 Power pack, external, Mobile Panel IWLAN
Supply voltage	
Type of supply voltage	100-240 V AC
Rated voltage/DC	12 V; Output side
Input current	
Current consumption (rated value)	1.5 A; 50-60 Hz
Output current	
each output	5 A
Power	
Output power	60 W
Interfaces	
HMI-side interface	Connector 5.5 mm jack (-) / 2.1 mm pin (+) 12 V DC
EMC Emission of radio interference acc. to EN 55 011	
• Emission of radio interferences acc. to EN 55 011 (limit class A)	Yes; EN61000-4-2,3,4,5,6,8,11 light industry level
Standards, approvals, certificates CE	Yes; UL69950, TÜVEN600950-1, BSMI CNS14336, CCC GB4942 approved

	6AV6671-5CN00-0AX2 Power pack, external, Mobile Panel IWLAN
Ambient conditions Operating temperature	
• Operating temperature range, max.	50 °C
• Operating temperature range, min.	-10 °C
Storage/transport temperature	
• Min.	-20 °C
• max.	85 °C
Relative humidity	
• max. relative humidity	90 %
Vibrations	
• Vibration	2 g; 10 min./1 cycle
• Frequency	500 Hz; 10~500 Hz
Mechanics/material Type of housing (front)	
• Plastic	Yes
Dimensions	
Width	125 mm
Height	50 mm
Thickness	31.5 mm
Weight	
Weight without packaging	305 g
Scope of supply	
Delivery unit in items	1; Incl. AC and DC connecting cable
Number of sets	4; AC cable for EU, US, UK and JP
other	
Note:	for Mobile Panel IWLAN

■ Ordering data

	Order No.
Accessories for Mobile Panel 277(F) IWLAN	
Power supply unit, external, Mobile Panel IWLAN Only suitable for operation under laboratory/office conditions.	6AV6671-5CN00-0AX2

Note:

This catalog only includes accessories for current products.

The complete range of accessories can be found in the Mall:
https://eb.automation.siemens.com

or on our SIMATIC Support pages:
http://support.automation.siemens.com

2

■ Overview

Wall-mounting bracket for Mobile Panel, front view

Spare keys for Mobile Panel

Moby D data card transponder

■ Technical specifications

	6AV6574-1AF04-4AA0	6AV6574-1AG04-4AA0
	Wall-mounting bracket Mobile Panel	**Spare key Mobile Panel**
Installation type/mounting		
Mounting in portrait format possible	Yes	
Mounting in landscape format possible	No	
Standards, approvals, certificates		
CE	Yes	Yes
Ambient conditions		
Operating temperature		
• Operating temperature range, max.	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C
Storage/transport temperature		
• Min.	-20 °C	-20 °C
• max.	70 °C	70 °C
Relative humidity		
• max. relative humidity	90 %	90 %
Mechanics/material		
Sheet steel		Yes; Handle made of plastic
Type of housing (front)		
• Sheet steel	Yes; Powder-coated	
Dimensions		
Width	200 mm	35 mm
Height	230 mm	18 mm
Thickness		4 mm
Depth	25 mm; Constructive	
Weight		
Weight without packaging	550 g; 880 g incl. cable holder	30 g
Scope of supply		
Delivery unit in items	1; Color: Black	10; Coupled with key ring
other		
Note:	Mobile Panel 170, Mobile Panel 177, Mobile Panel 277 IWLAN, Mobile Panel 277F IWLAN, without mounting parts	For all Mobile Panels with key-operated switch

Operator panels
Mobile Panel accessories

Additional accessories

Ordering data	Order No.		Order No.
Wall mounting bracket for Mobile Panels metal, without mounting accessories, suitable for all Mobile Panels • 1 unit	6AV6574-1AF04-4AA0	**SCALANCE W-786 Access Points for SIMATIC Mobile Panel 277(F) IWLAN** IWLAN Access Points with integrated wireless interfaces; wireless networks; IEEE 802.11b/g/a/h at 2.4/5 GHz up to 54 Mbps. National approvals; WPA2/AES; Power over Ethernet (PoE), degree of protection IP65 (-40 °C to +70 °C); scope of delivery: Mounting hardware, 48 V DC terminal block; manual on CD-ROM; English/German	
Replacement keys for Mobile Panels metal/plastic, for all Mobile Panels, two linked by keyring • 10 units	6AV6574-1AG04-4AA0		
SCALANCE			
SCALANCE W-788 Access Points IWLAN Access Points with built-in wireless interface; wireless networks IEEE 802.11b/g/a/h at 2.4/5 GHz to 54 Mbps; national approvals; WPA2/AES; Power over Ethernet (PoE), degree of protection IP65 (-20°C to +60°C); scope of delivery: 2 ANT795-4MR antennas, IP 67 hybrid connector, installation material, manual on CD-ROM, English/German		**SCALANCE W-786-2RR** IWLAN Dual Access Point with two integrated wireless interfaces for setting up radio connections with iPCF; RJ45 connection	
		Four internal antennas	
		• National approvals for operation outside the U.S. [1] [2]	6GK5786-2BA60-6AA0
SCALANCE W788-2RR IWLAN Dual Access Point with two built-in radio interfaces for establishment of radio connections with iPCF		• National approvals for operation within the U.S. [2]	6GK5786-2BA60-6AB0
• National approvals for operation outside the U.S.[1] [2]	6GK5788-2AA60-6AA0	**SCALANCE W-786-1PRO** IWLAN Access Points with built-in wireless interface RJ45 connection	
• National approvals for operation within the U.S. [2]	6GK5788-2AA60-6AB0	Two internal antennas	
SCALANCE W788-1PRO IWLAN Access Point with one built-in wireless interface		• National approvals for operation outside the U.S. [1]	6GK5786-1BA60-2AA0
• National approvals for operation outside the U.S. [1]	6GK5788-1AA60-2AA0	• National approvals for operation within the U.S.	6GK5786-1BA60-2AB0
• National approvals for operation within the U.S.	6GK5788-1AA60-2AB0	**SCALANCE W-784 Access Points** IWLAN Access Points with built-in wireless interfaces; wireless networks IEEE 802.11b/g/a/h at 2.4/5 GHz to 54 Mbps. National approvals; WPA2/AES; Power over Ethernet (PoE), IP30 degree of protection (-20 °C to +60 °C); scope of supply: Installation material, 24 V DC terminal block; manual on CD-ROM English/German	
		SCALANCE W784-1 IWLAN Access Points with one built-in wireless interface	
		• National approvals for operation outside the U.S. [1]	6GK5784-1AA30-2AA0
		• National approvals for operation within the U.S.	6GK5784-1AA30-2AB0

[1] RoW version: "Rest of World" version: Version for sale worldwide, apart from in the USA.

[2] Already prepared for rapid roaming (iPCF-MC); iPCF-MC is already included as of SCALANCE FW version V4.3.37.

Ordering data	Order No.
Further IWLAN Access Point versions	
SCALANCE W-784 Access Points IWLAN Access Points with integrated wireless interfaces (see Catalog IK PI), wireless networks IEEE 802.11b/g/a/h at 2.4/5 GHz up to 54 Mbps. National approvals; WPA2/AES; Power over Ethernet (PoE), degree of protection IP30 (-20 °C to +60 °C); scope of delivery: Installation material, 24 V DC terminal block; manual on CD-ROM; English/German;	**6GK5784-1AA30-...** (see Catalog IK PI)
SCALANCE W-786 Access Points IWLAN Access Points with integrated wireless interfaces (see Catalog IK PI); wireless networks IEEE 802.11b/g/a/h at 2.4/5 GHz up to 54 Mbps. National approvals; WPA2/AES; Power over Ethernet (PoE), degree of protection IP65 (-40°C to +70°C); scope of delivery: Installation material, 48 V DC terminal block; manual on CD-ROM; English/German;	**6GK5786-...** (see Catalog IK PI)
SCALANCE W-788 Access Points IWLAN Access Points with integrated wireless interfaces (see Catalog IK PI); wireless networks IEEE 802.11b/g/a/h at 2.4/5 GHz up to 54 Mbps. National approvals; WPA2/AES; Power over Ethernet (PoE), degree of protection IP65 (-20°C to +60°C); scope of delivery: 2 ANT795-4MR antennas, IP67 hybrid plug-in connector, installation material, manual on CD-ROM, English/German	**6GK5788-...** (see Catalog IK PI)
PS791-2DC power supply 24 V DC power supply for installation in SCALANCE W-786 products; operating instructions in English/German	**6GK5791-2DC00-0AA0**
PS791-2AC power supply 110 V AC to 230 V AC power supply for installation in SCALANCE W-786 products; operating instructions in English/German	**6GK5791-2AC00-0AA0**
MOBY D accessories	
MOBY D, MDS D100 • 1 unit	**6GT2600-0AD10**
Spacer • 1 unit	**6GT2190-0AA00**
Fixing pocket • 1 unit	**6GT2190-0AB00**

Dimensional drawings
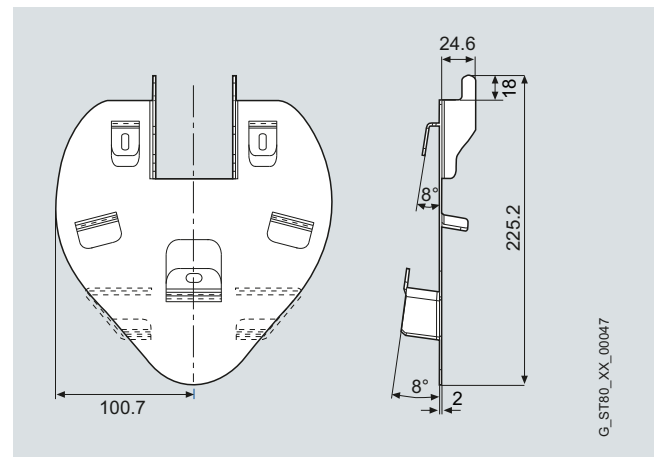
SIMATIC Mobile Panel wall-mounting bracket

This catalog only includes accessories for current products.

The complete range of accessories can be found in the Mall: https://eb.automation.siemens.com

or on our SIMATIC Support pages: http://support.automation.siemens.com

Connectors/converters/adapters

■ Overview
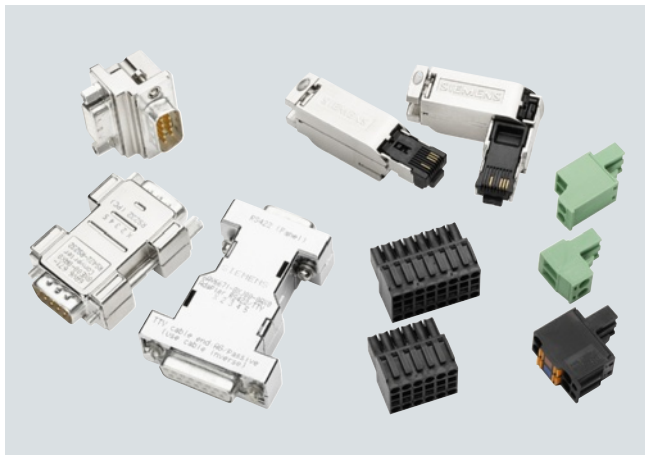
Connectors/converters/adapters

Components for the connection of SIMATIC HMI Panels

The range comprises connectors, adapters, converters, and transducers.

An adapter can be used, for example, to mechanically rotate the connector of a 9-pin panel plug by 90°. This may be beneficial in confined spaces in the control desk or installation cabinet, and is an easy way to provide additional flexibility.

A converter can be used to simulate a connection type that is missing at the panel. In this way, for example, a TTY (20 mA) can be generated from an RS422 signal, which is required for connection to various types of PLC. Connectors are required for power supply and I/O.

- 2-pin to n-pin connectors
- Converters
- Transducers
- Adapters for changing the cable outlet direction
- Bus connector

SIMATIC HMI accessories can also be used on non-Siemens devices; see the technical specifications for more detailed information.

General SIMATIC HMI accessories are listed in this subsection; the full range of SIMATIC HMI accessories is available in the Mall and in our other online media.

■ **Overview**
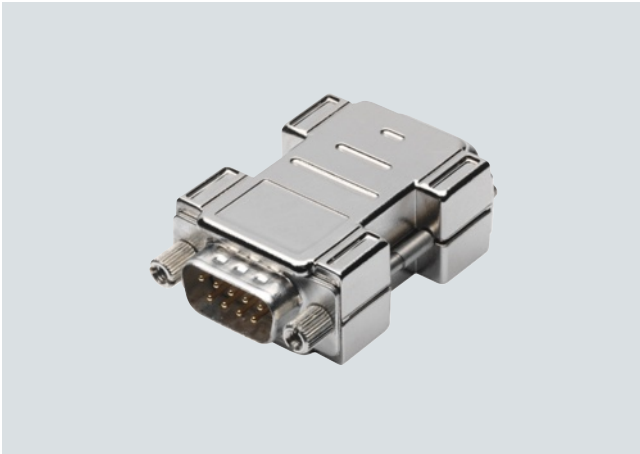
RS 422 to RS 232 converter

Connector, female, 16-pin, I/O
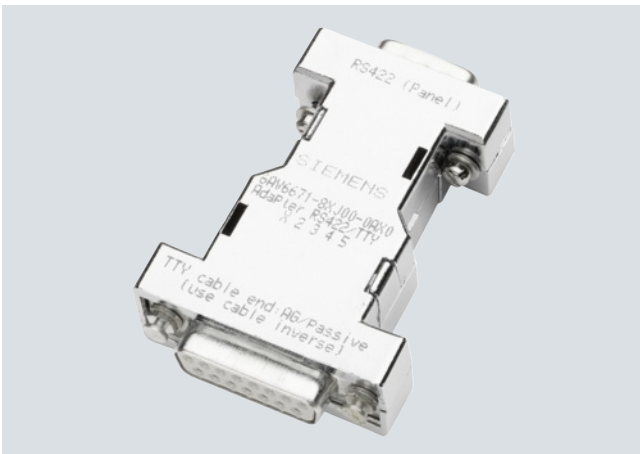
RS 422 to TTY converter

Connector, female, 2x2-pin, jumpered internally

90 degree angle adapter, 1:1
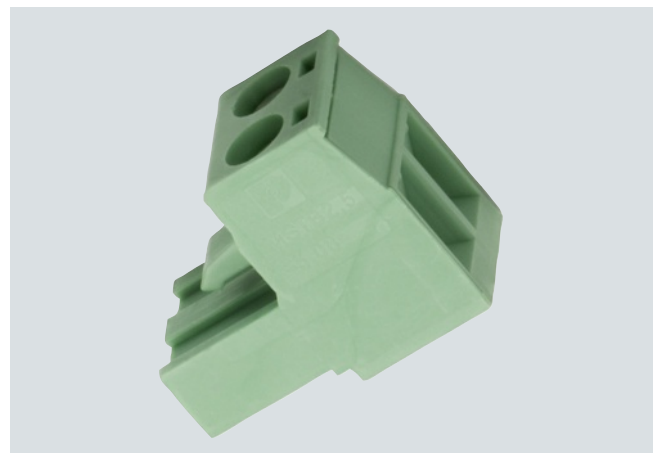
Connector, female, 2-pin

For:
• Push Button Panels
• Key Panels
• Text Displays
• Operator Panels
• Touch Panels
• Multi Panels

• Basic Panels
• Comfort Panels
• Mobile Panels
• Thin Clients
• Industrial USB Hub

Operator panels
SIMATIC HMI Accessories

HMI connecting components

■ **Technical specifications**

	6AV6671-8XA00-0AX0	6ES7193-4JB00-0AA0
	Connector, female, 2-pin	**Connector, female, 2x2-pin**
Installation type/mounting		
Wall mounting/direct mounting possible	Yes; can be plugged into SIMATIC HMI device	Yes; can be plugged into SIMATIC HMI device
Supply voltage		
Rated voltage/DC	24 V; DC	24 V; DC
Interfaces		
Number of pins HMI-side	2; Female	2; Outgoing side jumpered internally, color-coded
Number of pins device-side	2; Female, screw terminals	4; Female, spring-loaded terminals, 0.75 mm2
Standards, approvals, certificates		
CE	Yes	Yes
Ambient conditions		
Operating temperature		
• Operating temperature range, max.	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C
Storage/transport temperature		
• Min.	-20 °C	-20 °C
• max.	70 °C	70 °C
Relative humidity		
• max. relative humidity	95 %	95 %
Mechanics/material		
Screw type		
• 4.5 V	Yes	
Type of housing (front)		
• Plastic	Yes	Yes
Dimensions		
Width	10 mm	10 mm
Height	15 mm	22 mm
Thickness	27 mm	25 mm
Scope of supply		
Delivery unit in items	10	10
other		
Note:	for SIMATIC HMI Panels, except for Key Panel	for ET 200S, interface module, KP32F, PN-to-PN coupler

	6AV6671-3XY38-4AX0	6AV6671-3XY48-4AX0	6AV6671-3XY58-4AX0
	Connector, female, 12-pin	**Connector, female, 16-pin**	**Connector, female, 24-pin**
Installation type/mounting			
Wall mounting/direct mounting possible	Yes; can be plugged into SIMATIC HMI device	Yes; can be plugged into SIMATIC HMI device	Yes; can be plugged into SIMATIC HMI device
Supply voltage			
Rated voltage/DC	24 V; DC	24 V; DC	24 V; DC
Interfaces			
Number of pins HMI-side	12; Female	16; Female	24; Female
Number of pins device-side	12; Female, spring-loaded terminals	16; Female, spring-loaded terminals, 0.75 mm2	24; Female, spring-loaded terminals, 0.75 mm2
Standards, approvals, certificates			
CE	Yes	Yes	Yes
Ambient conditions			
Operating temperature			
• Operating temperature range, max.	55 °C	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C
Storage/transport temperature			
• Min.	-20 °C	-20 °C	-20 °C
• max.	70 °C	70 °C	70 °C
Relative humidity			
• max. relative humidity	95 %	95 %	95 %
Mechanics/material			
Type of housing (front)			
• Plastic	Yes	Yes	Yes

■ **Technical specifications** (continued)

	6AV6671-3XY38-4AX0 **Connector, female, 12-pin**	6AV6671-3XY48-4AX0 **Connector, female, 16-pin**	6AV6671-3XY58-4AX0 **Connector, female, 24-pin**
Dimensions			
Width	16 mm	16 mm	16 mm
Height	20 mm	28 mm	54 mm
Thickness	20 mm	20 mm	20 mm
Scope of supply			
Delivery unit in items	10; Without ejector	10; Without ejector	4; Without ejector
other			
Note:	for KP8 PN	for KP8F PN, KP32F PN	for KP32F PN

	6AV6671-8XE00-0AX0 **Converter, RS 422 to RS 232**	6AV6671-8XJ00-0AX0 **Converter RS 422 to TTY**	6AV6671-8XD00-0AX0 **90 degree angle adapter, 1:1**
Installation type/mounting			
Wall mounting/direct mounting possible	Yes; Can be screwed onto the HMI	Yes; Can be screwed onto the HMI	Yes; Can be screwed onto the HMI
Interfaces			
Number of pins HMI-side	9; Pin (RS422)	9; Pin (RS422)	9; Male
Number of pins device-side	9; Pin (RS232)	15; Socket (TTY)	9; Female
Standards, approvals, certificates			
CE	Yes	Yes	Yes
Ambient conditions			
Operating temperature			
• Operating temperature range, max.	55 °C	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C
Storage/transport temperature			
• Min.	-20 °C	-20 °C	-20 °C
• max.	70 °C	70 °C	70 °C
Relative humidity			
• max. relative humidity	95 %	95 %	95 %
Mechanics/material			
Screw type			
• 4.5 V	Yes; HMI page	Yes; HMI page	Yes; HMI page
Type of housing (front)			
• Plastic	Yes	Yes	
• Cast light alloy			Yes
Dimensions			
Width	31 mm	42 mm	31 mm
Height	50 mm	62 mm	25 mm
Thickness	11 mm	11 mm	25 mm
Weight			
Weight without packaging	26 g	28 g	34 g
Scope of supply			
Delivery unit in items	1	1	1
other			
Note:	suitable for all SIMATIC HMI RS422 interfaces, for details refer to the operating instructions of the respective device	suitable for all SIMATIC HMI RS422 interfaces, for details refer to the operating instructions of the respective device	suitable for all appropriate interfaces

Operator panels
SIMATIC HMI Accessories

HMI connecting components

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Ordering data	Order No.		Order No.
Connectors		**Converters**	
24 V DC connector (2-pin)	**6AV6671-8XA00-0AX0**	**RS422 to RS232 converter**	**6AV6671-8XE00-0AX0**
for all SIMATIC HMI Panels, without screw mounting, loop-through not possible. Approved for all SIMATIC HMI Panels except Key Panels.		9-pin male contact (on HMI) to 9-pin male contact, to be screwed onto HMI RS422 interface, cable outlet 180 degrees, for connection of non-Siemens PLC	
24 V DC connector (2-pin) (can be looped through)	**6ES7193-4JB00-0AA0**	**RS422 to TTY converter**	**6AV6671-8XJ00-0AX0**
for all SIMATIC HMI Panels, without screw mounting, loop through possible, even if connecter unplugged. Approved for Key Panels.		9-pin male contact (on HMI) to 15-pin female contact, to be screwed onto HMI RS422 interface, 180 degree cable outlet, for the connection to SIMATIC S5	
12-pin cable connector	**6AV6671-3XY38-4AX0**	**Adapters**	
12-pin, 24 V DC for SIMATIC HMI Key Panel KP8 PN		**90 degree angle adapter**	**6AV6671-8XD00-0AX0**
16-pin cable connector	**6AV6671-3XY48-4AX0**	9-pin male contact (on HMI) to 9-pin female contact, 1:1 connection, to be screwed onto the RS485/422/232 HMI interface, or any other suitable interface	
16-pin, 24 V DC for SIMATIC HMI Key Panel KP8F PN and Key Panel KP32F PN			
24-pin cable connector	**6AV6671-3XY58-4AX0**		
24-pin, 24 V DC for SIMATIC HMI Key Panel KP32F PN			

Note:

Delivery units/quantities are specified in the applicable technical data.

This catalog only includes accessories for current products. The complete range of accessories can be found in the Mall: https://eb.automation.siemens.com

or on our SIMATIC Support pages: http://support.automation.siemens.com

2

◾ Overview

- Used for connecting PROFIBUS nodes to the PROFIBUS bus cable
- Easy installation
- FastConnect plugs ensure extremely short assembly times due to their insulation-displacement technology
- Integrated terminating resistors (not in the case of 6ES7 972-0BA30-0XA0)
- Connectors with Sub-D socket permit PG connection without the additional installation of network nodes

◾ Ordering data

	Order No.		Order No.
RS485 bus connector with axial cable outlet (180°)	**6GK1500-0EA02**	**PROFIBUS bus connector RS485 with FastConnect technology**	
For industrial PC, SIMATIC HMI OP, OLM; max. transmission rate 12 Mbit/s		**PROFIBUS FastConnect bus connector RS485 with 90° cable outlet**	
SIPLUS DP PB RS485 connector with axial cable outlet (180°)	**6AG1500-0EA02-2AA0**	With insulation displacement, max. transmission rate 12 Mbps	
For medial stress; Based-on 6GK1 500-0EA02		Without PG interface	
		• 1 unit	**6ES7972-0BA52-0XA0**
		• 100 units	**6ES7972-0BA52-0XB0**
RS485 bus connector with cable outlet (90°)		With PG interface	
With screw-terminals, max. transmission rate 12 Mbit/s		• 1 unit	**6ES7972-0BB52-0XA0**
• without PG interface	**6ES7972-0BA12-0XA0**	• 100 units	**6ES7972-0BB52-0XB0**
• with PG interface	**6ES7972-0BB12-0XA0**	Without PG interface, grounding via control cabinet cover	
SIPLUS DP PB RS485 connector with 90° cable outlet		• 1 unit	**6ES7972-0BA70-0XA0**
For extended temperature range -25 … + 60 °C		With PG interface, grounding via control cabinet cover	
• without PG interface Based on 6ES7 972-0BA12-0XA0	**6AG1972-0BA12-2XA0**	• 1 unit	**6ES7972-0BB70-0XA0**
• with PG interface Based on 6ES7 972-0BB12-0XA0	**6AG1972-0BB12-2XA0**	**PROFIBUS FastConnect RS485 bus connector with angled cable outlet (35°)**	
RS485 bus connector with angled cable outlet (35°)		With insulation displacement, max. transmission rate 12 Mbps	
With screw-terminals, max. transmission rate 12 Mbit/s		• without PG interface	**6ES7972-0BA60-0XA0**
• without PG interface	**6ES7972-0BA42-0XA0**	• with PG interface	**6ES7972-0BB60-0XA0**
• with PG interface	**6ES7972-0BB42-0XA0**	**PROFIBUS FastConnect bus connector RS485 Plug 180**	**6GK1500-0FC10**
SIPLUS DP PB RS485 connector with inclined cable outlet (35°)		With insulation displacement terminals, with 180° cable outlet, for industrial PC, SIMATIC HMI OP, OLM; max. transmission rate 12 Mbit/s	
For extended temperature range -25 … + 60 °C			
• without PG interface Based on 6ES7 942-0BA42-0XA0	**6AG1972-0BA42-7XA0**	**SIMATIC S5/S7 plug-in cable for PROFIBUS**	**6ES7901-4BD00-0XA0**
• with PG interface Based on 6ES7 942-0BB42-0XA0	**6AG1972-0BB42-7XA0**	Preassembled with two 9-pin sub-D connectors; max. transmission rate 12 Mbit/s; 3 m	
RS485 bus connector with cable outlet (30°)	**6ES7972-0BA30-0XA0**	**SIMATIC NET Manual Collection**	**6GK1975-1AA00-3AA0**
With screw-terminals, low-cost variant, max. transmission rate 1.5 Mbit/s		Electronic manuals for communication systems, communication protocols, and communication products; on DVD; German/English	

Operator panels
SIMATIC HMI Accessories

IE FC RJ45 Plug 2 x 2

Overview
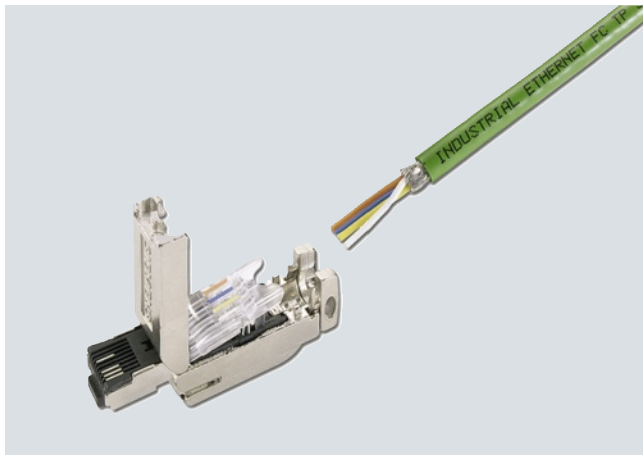
- Implementation of direct device connections over distances of up to 100 m with Industrial Ethernet FC installation cable 2 x 2 without patching
- Easy connection (insulation displacement contacts) for 4-core Twisted Pair installation cables (100 Mbit/s) without the need for special tools
- Error-preventing connection technique thanks to visible connection area as well as colored blade terminals
- Industry-compatible design (rugged metal housing, no easily lost small parts)
- Excellent EMC shielding and deflection (metal housing)
- Integrated strain-relief for installation cables
- Compatible to the EN 50173 (RJ45) / ISO IEC 11801 standard
- Additional strain and bending relief of plug connector possible through latching of plug on device housing, e.g. with SCALANCE X, SCALANCE S, ET 200S.

Ordering data

	Order No.		Order No.
IE FC RJ45 plugs		**IE FC TP Standard Cable GP 2 x 2 (Type A)**	
RJ45 plug connector for Industrial Ethernet with a rugged metal housing and integrated insulation displacement contacts for connecting Industrial Ethernet FC installation cables		4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug; PROFINET-compatible; with UL approval;	
IE FC RJ45 Plug 180		Sold by the meter	
180° cable outlet; for network components and CPs/CPUs with Industrial Ethernet interface		max. length 1,000 m; minimum order 20 m	**6XV1840-2AH10**
• 1 pack = 1 unit	**6GK1901-1BB10-2AA0**	Preferred length	
• 1 pack = 10 units	**6GK1901-1BB10-2AB0**	• 1000 m	**6XV1840-2AU10**
• 1 pack = 50 units	**6GK1901-1BB10-2AE0**	**IE FC TP Flexible Cable GP 2 x 2 (Type B)**	**6XV1870-2B**
IE FC RJ45 Plug 90		4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	
90° cable outlet; e.g. for ET 200S			
• 1 pack = 1 unit	**6GK1901-1BB20-2AA0**		
• 1 pack = 10 units	**6GK1901-1BB20-2AB0**		
• 1 pack = 50 units	**6GK1901-1BB20-2AE0**	**IE FC TP Trailing Cable GP 2 x 2 (Type C)**	**6XV1870-2D**
IE FC RJ45 Plug 145		4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use in trailing cables; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	
145° cable outlet; e.g. for SIMOTION and SINAMICS			
• 1 pack = 1 unit	**6GK1901-1BB30-0AA0**		
• 1 pack = 10 units	**6GK1901-1BB30-0AB0**		
• 1 pack = 50 units	**6GK1901-1BB30-0AE0**		
IE FC stripping tool	**6GK1901-1GA00**		
Preadjusted stripping tool for fast stripping of Industrial Ethernet FC cables			

2

■ Ordering data

	Order No.		Order No.
IE FC TP Trailing Cable 2 x 2 (Type C) 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use in trailing cables; PROFINET-compatible; without UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	6XV1840-3AH10	**IE FC TP Festoon Cable GP 2 x 2 (Type B)** 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for use in festoon applications; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	6XV1871-2S
IE TP Torsion Cable GP 2 x 2 (Type C) 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for use with robots; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	6XV1870-2F	**IE FC TP Food Cable GP 2 x 2 (Type C)** 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90 for the food and beverages industry; PROFINET-compliant; sold by the meter; max. length 1000 m, minimum order 20 m	6XV1871-2L
IE FC TP Marine Cable 2 x 2 (Type B) 4-core, shielded TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug 180/90; marine approval; sold by the meter; max. length 1000 m, minimum order 20 m	6XV1840-4AH10	**IE FC Blade Cassettes (5 mm)** Replacement blade cassette for the Industrial Ethernet stripping tool; for use with IE FC RJ45 Plugs and Modular Outlet, 5 items	6GK1901-1GB01
IE FC TP FRNC Cable GP 2 x 2 (Type B) 4-core, shielded, halogen-free TP installation cable for connection to IE FC Outlet RJ45/ IE FC RJ45 Plug for occasional movement; PROFINET-compatible; with UL approval; sold by the meter; max. length 1000 m, minimum order 20 m	6XV1871-2F		

Operator panels
SIMATIC HMI Accessories

Connecting cables

■ **Overview**

Example - connecting cables

Connecting cable PN (PROFINET) for Mobile Panels

Key

P = PROCESS COUPLING

K = optional process coupling (option required)

D = DOWNLOAD (update operating system, project, …)

U = booting (factory setting in the case of a missing or damaged operating system)

MBP = Mobile Panel

You can find order numbers for the connecting cables required to link SIMATIC Panels under ordering data.

Connecting cable DP (PROFIBUS) for Mobile Panels

■ **Overview** (continued)

Overview of SIMATIC HMI connection options

	RS 232 external (15/9-pole)	TD-PPI (incl. voltage)	RS 232 Null modem	RS 232/PPI multi-master cable	USB/PPI multi-master cable	MPI (PG-S7) up to 187.5 kbaud
	6XV1 440-2Kxxx	6ES7 901-3EB10-0XA0	6ES7 901-1BF00-0XA0	6ES7 901-3CB30-0XA0	6ES7 901-3DB30-0XA0	6ES7 901-0BF00-0AA0
Key Panel KP8/KP8F, KP32F	-	-	-	-	-	-
PP7, PP17-I, PP17-II	-	-	-	-	-	-
KTP400 Basic mono PN	-	-	-	-	-	-
KTP600 Basic mono PN	-	-	-	-	-	-
KTP600 Basic color DP	-	-	-	D/U	D/U	P/D
KTP600 Basic color PN	-	-	-	-	-	-
KTP1000 Basic color DP	-	-	-	D/U	D/U	P/D
KTP1000 Basic color PN	-	-	-	-	-	-
KTP1500 Basic color PN	-	-	-	-	-	-
K(T)P400 Comfort	-	-	-	-	-	P/D
K(T)P700 - KP1500 Comfort	-	-	-	-	-	P/D
TP700 -TP2200 Comfort	-	-	-	-	-	P/D
MBP 177	-	-	-	D/U	-	-
MBP 277	-	-	-	D/U	-	-
TD200	-	P	-	D/U	-	P
TD400C	-	P	-	D/U	-	P
OP73micro	-	P	-	D/U	D/U	P
TP177micro	-	-	-	D/U	D/U	-
OP73	-	P	-	D/U	D/U	P/D
OP77A	-	-	-	D/U	D/U	P/D
OP77B	P	-	D/U	-	-	P/D
TP177A	-	-	-	D/U	D/U	P/D
TP177B	P [1]	-	-	D/U	-	P/D
TP177B 4"	P [1]	-	D	D	-	P/D
OP177B	P [1]	-	-	D/U	-	P/D
TP277-6	P [1]	-	-	D/U	-	P/D
OP277-6	P [1]	-	-	D/U	-	P/D
MP177-6 T	P [1]	-	-	D/U	-	P/D
MP277-8 T	P [1]	-	-	D/U	-	P/D
MP277-10 T	P [1]	-	-	D/U	-	P/D
MP377-12 T	P [1]	-	-	D	-	P/D
MP377-15 T	P [1]	-	-	D	-	P/D
MP377-19 T	P [1]	-	-	D	-	P/D

[1] Only in conjunction with the RS 422/232 converter

Operator panels
SIMATIC HMI Accessories

Connecting cables

■ **Overview** (continued)

	DP PtP	DP Standard	DP (Mobile Panel)	PN (cross cable) [2] Point-to-point	PN (standard cable) [2]	PN (Mobile Panel)	RS 422 to RS 232 converter	RS 232 to TTY converter (20 mA)	90° angular (9-pin 1:1)
	6XV1 830-0Axxx	Standard PROFIBUS (2-contact)	6XV1 440-4Axxx	6XV1 870-3RH20	Standard Ethernet CAT5	6XV1 440-4Bxxx	6AV6 671-8XE00-0AX0	6ES5 734-1BD20	6AV6 671-8XD00-0AX0
Key Panel KP8/KP8F, KP32F	-	-	-	P/D	P/D	-	-	-	-
PP7, PP17-I, PP17-II	P	P	-	-	-	-	-	-	-
KTP400 Basic mono PN	-	-	-	P/D/U	P/D/U	-	-	-	-
KTP600 Basic mono PN	-	-	-	P/D/U	P/D/U	-	-	-	-
KTP600 Basic color DP	P/D	P/D	-	-	-	-	-	-	P/D/U
KTP600 Basic color PN	-	-	-	P/D/U	P/D/U	-	-	-	-
KTP1000 Basic color DP	P/D	P/D	-	-	-	-	-	-	P/D/U
KTP1000 Basic color PN	-	-	-	P/D/U	P/D/U	-	-	-	-
KTP1500 Basic color PN	-	-	-	P/D/U	P/D/U	-	-	-	-
K(T)P400 Comfort	P/D	P/D	-	P/D/U	P/D/U	-	-	-	P/D/U
K(T)P700 - TP1500 Comfort	P/D	P/D	-	P/D/U	P/D/U	-	-	-	P/D/U
TP700 -TP2200 Comfort	P/D	P/D	-	P/D/U	P/D/U	-	-	-	P/D/U
MBP 177 DP	P/D	P/D	P/D	-	-	-	-	-	-
MBP 177 PN	-	-	-	-	-	P/D	-	-	-
MBP 277	P/D	P/D	P/D	-	-	P/D	-	-	-
TD200	-	-	-	-	-	-	-	-	-
TD400C	-	-	-	-	-	-	-	-	-
OP73micro	P	-	-	-	-	-	-	-	-
TP177micro	P	P	-	-	-	-	-	-	P/D/U
OP73	P	P	-	-	-	-	-	-	-
OP77A	P	P	-	-	-	-	-	-	P/D/U
OP77B	P/D	P/D	-	-	-	-	-	P	P/D/U
TP177A	P	P	-	-	-	-	-	-	P/D/U
TP177B DP	P/D	P/D	-	-	-	-	P	P [4]	P/D/U
TP177B PN/DP	P/D	P/D	-	P/D	P/D	-	P	P [4]	P/D/U
TP177B 4"	P/D	P/D	-	P/D/U	P/D/U	-	P	P [4]	P/D/U
OP177B DP	P/D	P/D	-	-	-	-	P	P [4]	P/D/U
OP177B PN/DP	P/D	P/D	-	P/D	P/D	-	P	P [4]	P/D/U
TP277-6	P/D	P/D	-	P/D	P/D	-	P	P [4]	P/D/U
OP277-6	P/D	P/D	-	P/D	P/D	-	P	P [4]	P/D/U
MP177-6 T	P/D	P/D	-	P/D	P/D	-	P	P [4]	P/D/U
MP277-8 T	P/D	P/D	-	P/D	P/D	-	P	P [4]	P/D/U
MP277-8 K	P/D	P/D	-	P/D	P/D	-	P	P [4]	P/D/U
MP277-10 T	P/D	P/D	-	P/D	P/D	-	P	P [4]	P/D/U
MP277-10 K	P/D	P/D	-	P/D	P/D	-	P	P [4]	P/D/U
MP377-12 T	P/D	P/D	-	P/D/U	P/D/U	-	P	P [4]	P/D
MP377-12 K	P/D	P/D	-	P/D/U	P/D/U	-	P	P [4]	P/D
MP377-15 T	P/D	P/D	-	P/D/U	P/D/U	-	P	P [4]	P/D
MP377-19 T	P/D	P/D	-	P/D/U	P/D/U	-	P	P [4]	P/D

Note:

This table is for basic orientation only. Technical characteristics are described in the communication manual or the respective user manual:

[1] With gender changer

[2] PROFINET IRT (Isochronous Runtime); isochronous mode only possible with IRT-enabled switch

[3] Only in conjunction with the RS422/RS232 converter 6AV6 671-8XE00-0AX0

[4] WinCC flexible 2008 SP2 and higher

2

Ordering data

	Order No.		Order No.
Connecting cables		**Industrial Ethernet TP XP Cord RJ45/RJ45**	
SIMATIC S7 connecting cables		Crossed TP cable 4 x 2, preassembled with 2 x RJ45 connectors	
MPI cable	6ES7901-0BF00-0AA0	• 1.0 m	6XV1870-3RH10
		• 6.0 m	6XV1870-3RH60
Between SIMATIC S7 and programming device via MPI max. 187.5 kBaud, standard length 5.0 m		• 10.0 m	6XV1870-3RN10
Connecting cable	6ES7901-1BF00-0XA0	**DP connecting cable (MPI/PROFIBUS)**	
Between HMI adapter and PC/TS Adapter (RS 232 cable/null-modem cable) for OP 77B, TP 177A/B, OP 177B, standard length 5.0 m		For wired Mobile Panels 177, Mobile Panels 277, standard lengths	
		• 2 m	6XV1440-4AH20
Connecting cables 6XV1440-2A [2]	6XV1440-2A…	• 5 m	6XV1440-4AH50
		• 8 m	6XV1440-4AH80
Connecting cable between TD/TP/OP and AG S5 95U to -155U, 1000 m max.		• 10 m	6XV1440-4AN10
		• 15 m	6XV1440-4AN15
		• 20 m	6XV1440-4AN20
PROFIBUS connecting cable 830-1T		• 25 m [1]	6XV1440-4AN25
For connection of data terminals, preassembled with two sub-D connectors, 9-pin terminated at both ends for PP, OP 73micro, OP 73, TP 177micro, OP 77A/B, TP 177A, TP/OP 177B		**PN connecting cable (PROFINET)**	
		For wired Mobile Panels 177, Mobile Panels 277, standard lengths	
		• 2 m	6XV1440-4BH20
		• 5 m	6XV1440-4BH50
• 1.5 m	6XV1830-1CH15	• 8 m	6XV1440-4BH80
• 3.0 m	6XV1830-1CH30	• 10 m	6XV1440-4BN10
USB/PPI multi-master cable	6ES7901-3DB30-0XA0	• 15 m	6XV1440-4BN15
		• 20 m	6XV1440-4BN20
For connecting the S7-200 to the serial PC/OP interface Standard length 5 m		• 25 m [1]	6XV1440-4BN25
PROFIBUS FC Standard Cable [2]	6XV1830-0E…		
For connection to PPI; standard type with special design for quick mounting, 2-core, shielded, sold by the meter, max. delivery unit 1000 m, minimum ordering quantity 20 m			

[1] Instead of using longer cables, we recommend that you use additional connection boxes, see length code in catalog appendix.

[2] See length code in catalog appendix.

Note:

Cable pin assignments can be found on the Internet in the online help of WinCC flexible and under FAQs
http://support.automation.siemens.com

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Operator panels
SIMATIC HMI Accessories

Memory media

Overview

Memory media

SIMATIC HMI memory media are suitable for industry and optimized for the requirements in industrial environments. Special formatting and write logarithms ensure fast read/write cycles and a long service life of the memory cells.

- Push Button Panels
- Operator Panels
- Touch Panels
- Multi Panels
- Comfort Panels
- Mobile Panels
- Industrial USB Hub

Technical specifications

	6AV6671-1CB00-0AX2	6AV6671-8XB10-0AX1	6AV2181-8XP00-0AX0	6AV6574-2AC00-2AA1	6ES7 648-0DC50-0AA0
	SIMATIC HMI MM memory card, 128 MB	**SIMATIC HMI SD memory card, 512 MB**	**SIMATIC HMI SD memory card, 2 GB**	**SIMATIC HMI CF memory card, 512 MB**	**SIMATIC IPC USB FLASH DRIVE, bootable, 8GB**
Installation type/mounting					
Mounting in portrait format possible	Yes	Yes	Yes	Yes	Yes
Mounting in landscape format possible	Yes	Yes	Yes	Yes	Yes
Supply voltage					
Type of supply voltage	DC	DC	DC	DC	DC
Rated voltage/DC	3.3 V	3.3 V	3.3 V	3.3 V	5.5 V
Input current Current consumption (rated value)	60 mA	60 mA	60 mA	75 mA	60 mA
Memory Type of memory	Multi Media Card	Secure Digital memory card	Secure Digital memory card	CompactFlash memory CF type I	USB flash drive
Size	128 Mbyte	512 Mbyte	2 048 Mbyte	512 Mbyte	8 192 Mbyte
Standards, approvals, certificates CE	Yes	Yes	Yes	Yes	Yes
Ambient conditions Operating temperature					
• Operating temperature range, max.	50 °C	50 °C	50 °C	50 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C	0 °C	5 °C
Storage/transport temperature					
• Min.	-20 °C	-20 °C	-20 °C	-20 °C	-40 °C
• max.	60 °C	60 °C	60 °C	60 °C	70 °C
Relative humidity					
• max. relative humidity	90 %	90 %	90 %	90 %	85 %
Mechanics/material Type of housing (front)					
• Plastic	Yes	Yes	Yes	Yes	Yes

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Technical specifications (continued)

	6AV6671-1CB00-0AX2	6AV6671-8XB10-0AX1	6AV2181-8XP00-0AX0	6AV6574-2AC00-2AA1	6ES7 648-0DC50-0AA0
	SIMATIC HMI MM memory card, 128 MB	SIMATIC HMI SD memory card, 512 MB	SIMATIC HMI SD memory card, 2 GB	SIMATIC HMI CF memory card, 512 MB	SIMATIC IPC USB FLASH DRIVE, bootable, 8GB
Dimensions					
Width	24 mm	24 mm	24 mm	42.8 mm	16.7 mm
Height	32 mm	32 mm	32 mm	36.4 mm	59.1 mm
Thickness	2.1 mm	2.1 mm	2.1 mm	3.3 mm	7 mm
Weight					
Weight without packaging	3 g	3 g	3 g	10 g	12 g
Scope of supply					
Delivery unit in items	1	1	1	1	1
other					
Note:	for OP 77B, TP177B, OP 177B, TP 277, OP 277, C7-635, MP 177, MP 277, MP 377, Mobile Panel 177, Mobile Panel 277, Comfort Panel	for MP 177, MP 277, MP 377 and Mobile Panel 277, WinCC flexible 2008 SP1 and higher for OP 77, TP/OP 177, TP/OP 277, Mobile Panel 177, with SD/MMC slot	For all Comfort Panels	for SIMATIC HMI Panels and IPCs with CF slot	for SIMATIC HMI devices with USB slot and SIMATIC IPC, with installed SIMATIC IPC BIOS Manager

Ordering data

	Order No.
SIMATIC HMI MM memory card 128 MB	**6AV6671-1CB00-0AX2**
For contents and matching devices, see Technical Data in the Mall	
SIMATIC HMI SD memory card 512 MB	**6AV6671-8XB10-0AX1**
For contents and matching devices, see Technical Data in the Mall	
SIMATIC HMI SD memory card 2 GB	**6AV2181-8XP00-0AX0**
For contents and matching devices, see Technical Data in the Mall	
SIMATIC HMI CF memory card 512 MB	**6AV6574-2AC00-2AA1**
For contents and matching devices, see Technical Data in the Mall	
PC card adapter for CF memory card	**6AV6574-2AF00-8AX0**
For contents and matching devices, see Technical Data in the Mall	
PC memory card, 512 MB	**6AV6574-2AC00-2AF1**
For contents and matching devices, see Technical Data in the Mall	
SIMATIC IPC USB flash drive 8 GB	**6ES7648-0DC50-0AA0**
For contents and matching devices, see Technical Data in the Mall	
SIMATIC memory module for Push Button Panel	**6ED1056-1BA00-0AA0**
For contents and matching devices, see Technical Data in the Mall	

Note:

For delivery units/amounts, see the technical data for the relevant product.

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Operator panels
SIMATIC HMI Accessories

Service sets

■ **Overview**
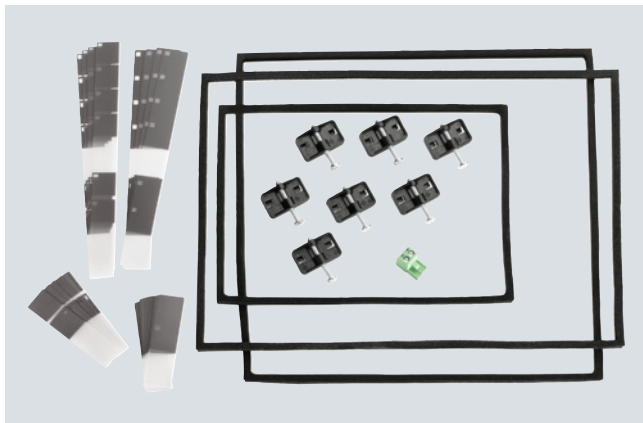
Service sets are available for the product groups listed below:
- Push Button Panels
- Key Panels
- Operator Panels
- Touch Panels
- Multi Panels
- Basic Panels
- Comfort Panels
- Mobile Panels
- Industrial USB Hub

■ **Technical specifications**

	6AV6671-2EA00-0AX0	6AV6675-3AA00-0AX0	6AV6671-4CA00-0AX0	6AV6574-1AA04-4AA0	6AV6671-5CA00-0AX2	6AV6671-3EA01-0AX0
	Service set 4" and 6" devices	Service set 10" devices, Type 2	Service set 15" devices	Service set Mobile Panel	Service set Mobile Panel 277(F) IWLAN V2	Service set Industrial USB Hub 4
Battery Design • Special design					Yes; Spare 3.6 V 1.5 Ah backup battery included in the package	
Standards, approvals, certificates CE	Yes	Yes	Yes	Yes	Yes	Yes
Ambient conditions Operating temperature • Operating temperature range, max.	55 °C	55 °C	55 °C	55 °C	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C	0 °C	0 °C	0 °C
Storage/transport temperature • Min.	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C
• max.	70 °C	70 °C	70 °C	70 °C	70 °C	70 °C
Relative humidity • max. relative humidity	95 %	95 %	95 %	95 %	95 %	95 %

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■ **Technical specifications** (continued)

	6AV6671-2EA00-0AX0	6AV6675-3AA00-0AX0	6AV6671-4CA00-0AX0	6AV6574-1AA04-4AA0	6AV6671-5CA00-0AX2	6AV6671-3EA01-0AX0
	Service set 4" and 6" devices	**Service set 10" devices, Type 2**	**Service set 15" devices**	**Service set Mobile Panel**	**Service set Mobile Panel 277(F) IWLAN V2**	**Service set Industrial USB Hub 4**
Scope of supply Number of sets	1; Content: 2 x seal KTP 400-TP 177B 4", 2 x seal for KTP 600, 7 x aluminum mounting clip, 1 x 2-pin female connector	1; Content: 1 x mounting seal, 10 x cast aluminum mounting clip, 1 x 2-pin female connector	1; Content: 1 x mounting seal, 1 x memory card lock, 12 x cast aluminum mounting clip, 1 x 2-pin female connector, 1 x Allen key	1; Content: 1 x blanking plug, 2 x PG cable gland A-Box, 2 x 12-pole terminal box, 1 x 3-pole terminal box, 1 x blanking cover A-Box, 2 x corner seal l/r and O-ring, 4 x decorative film for corner seal l/r	1; Content: 2 x charging station cover l/r, 1 x charging station connector, 2 x corner seal l/r, 2 x gasket corner seal, 4 x decorative film corner seal l/r, 1 x battery incl. cover, 1 x spare key	1; Content: 1 x mounting seal, 1 x mounting frame, 5 x plastic mounting clip, 1 x 2-pin female connector
other Note:	for KTP 400 Basic, KTP 600 Basic, TP 177B 4"	for MP 277 10" Touch with stainless steel front	for MP 377 15" Touch with stainless steel front	for Mobile Panel 170, Mobile Panel 177	for Mobile Panel 277 IWLAN V2, Mobile Panel 277F IWLAN V2	For the Industrial USB Hub 4

	6AV3678-3XC30	6AV3678-1CC10	6AV6671-1XA00-0AX0	6AV6574-1AA00-4AX0	6AV2181-8XA80-0AX0	6AV6671-2XA00-0AX0
	Service set Push Button Panel	**Service set TD17, OP7/17**	**Service set OP73micro, OP73, OP77**	**Service set 6" devices, Type 1**	**Service set 6" devices, Type 2**	**Service set 6" devices, Type 3**
Standards, approvals, certificates CE	Yes	Yes	Yes	Yes	Yes	Yes
Ambient conditions Operating temperature						
• Operating temperature range, max.	55 °C	55 °C	55 °C	55 °C	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C	0 °C	0 °C	0 °C
Storage/transport temperature						
• Min.	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C
• max.	70 °C	70 °C	70 °C	70 °C	70 °C	70 °C
Relative humidity						
• max. relative humidity	95 %	95 %	95 %	95 %	95 %	95 %
Scope of supply Number of sets	1; Content: 1 x mounting seal PP7, 1 x mounting seal PP17, 5 x plastic mounting clip, 1 x 2-pin female connector, 1 x 3-pin female connector, 1 x 4-pin female connector, 2 x 16-pin female connector	1; Content: 1 x mounting seal TD17, 1 x mounting seal OP7, 1 x mounting seal TD/OP17, 5 x plastic mounting clip	1; Content: 1 x mounting seal OP77, 4 x plastic mounting clip, 1 x 2-pin female connector	1; Content: 3 x mounting seal, 2 x labeling strip, 7 x plastic mounting clip, 1 x 2-pin female connector	1; Content: 3 x mounting seal, 2 x labeling strip, 7 x plastic mounting clip, 20 x aluminum mounting clip, 1 x 2-pin female connector	1; Content: 1 x mounting seal TP 177, 1 x mounting seal OP 177, 7 x plastic mounting clip, 1 x 2-pin female connector
other Note:	for PP7, PP17-I, PP17-II	for TD17, OP7, OP17	for OP73micro, OP73, OP77A, OP77B	for TP 070, TP 170A/B, OP 170B, TP 170micro, OP 270 6", TP 270 6", MP 270B 6" Touch	for TP 070, TP 170A/B, OP 170B, TP 170micro, OP /TP 270 6", MP 177 6"T, MP 270B 6" Touch	for TP 177micro, TP 177A, TP 177B, OP 177B

Operator panels
SIMATIC HMI Accessories

Service sets

■ **Technical specifications** (continued)

	6AV6574-1AA00-2CX0 **Service set 10" to 15" devices**	6AV6574-1AA00-2DX0 **Service set 10" devices, Type 1**	6AV6671-3XA01-0AX0 **Service set 6" to 10" devices**	6AV6671-3XA01-0AX1 **Service set 8" to 10" devices**	6AV6574-1AA00-2BX0 **Service set 12" devices**	6AV6671-4XA00-0AX0 **Service set 12" to 19" devices**	6AV6671-5CA00-0AX1 **Service set Mobile Panel 277 (F) IWLAN V1**
Battery Design • Special design							Yes; Spare battery included in the package
Standards, approvals, certificates CE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ambient conditions Operating temperature • Operating temperature range, max. • Operating temperature range, min.	55 °C 0 °C	55 °C 0 °C	55 °C 0 °C	55 °C 0 °C	55 °C 0 °C	55 °C 0 °C	55 °C 0 °C
Storage/transport temperature • Min. • max.	-20 °C 70 °C	-20 °C 70 °C	-20 °C 70 °C	-20 °C 70 °C	-20 °C 70 °C	-20 °C 70 °C	-20 °C 70 °C
Relative humidity • max. relative humidity	95 %	95 %	95 %	95 %	95 %	95 %	95 %
Scope of supply Number of sets	1; Content: 2 x mounting seal, 7 x mounting clip, 1 x 2-pin female connector, 1 x CF card lock, 1 x PC card lock	1; Content: 1 x slide-in labels OP 270 10" and MP 270 10" Key, 1 x mounting seal OP 270 10" and MP 270 10" Key, 10 x cast aluminum mounting clip, 1 x 2-pin female connector	1; Content: 6 x device-specific seal, 15 x aluminum mounting clip, 1 x 2-pin female connector	1; Content: 14 x spring mounting clip, 1 x connector, female, 2-pin	1; Content: 2 x labeling strip, 6 x aluminum mounting clip, 1 x 2-pin female connector, 2 x memory card lock	1; Content: 1 x mounting seal MP 377 12" Key, 1 x mounting seal MP 377 12" Touch, 1 x mounting seal MP 377 15" Touch, 1 x mounting seal MP 377 19" Touch, 18 x aluminum mounting clip, 1 x 2-pin female connector	1; Content: 2 x charging station cover l/r, 1 x charging station connector, 2 x corner seal l/r, 2 x gasket corner seal, 4 x decorative film corner seal l/r, 1 x battery incl. cover, 1 x spare key
other Note:	for C7-636 Touch, TP270 10", MP270B 10" Touch, MP370 12" Touch, MP370 15" Touch	for OP 270 10", MP 270B Key	for TP/OP 277 6", MP 277 8" Touch, MP 277 8" Key, MP 277 10" Key product version "ES 14" and later, MP 277 10" Touch product version "ES 14" and later	for MP 277 8" Touch, MP 277 8" Key product version "ES 15" and later, MP 277 10" Touch product version "ES 15" and later	for MP 370 12" Key	for MP 377 12" Key, MP 377 12" Touch, MP 377 15" Touch, MP 377 19" Touch	for Mobile Panel 277 IWLAN, Mobile Panel 277F IWLAN

Operator panels
SIMATIC HMI Accessories

Service sets

Ordering data	Order No.
Service set for 4" and 6" devices	**6AV6671-2EA00-0AX0**
For contents and matching devices, see Technical Data	
Service set for 10" devices, Type 2	**6AV6675-3AA00-0AX0**
For contents and matching devices, see Technical Data	
Service set for 15" devices	**6AV6671-4CA00-0AX0**
For contents and matching devices, see Technical Data	
Service set for Mobile Panel	**6AV6574-1AA04-4AA0**
For contents and matching devices, see Technical Data	
Service set for Mobile Panel 277(F) IWLAN	**6AV6671-5CA00-0AX2**
For contents and matching devices, see Technical Data	
Service Kit Industrial USB Hub 4	**6AV6671-3EA01-0AX0**
For contents and matching devices, see Technical Data	
Service set for pushbutton panel	**6AV3678-3XC30**
For contents and matching devices, see Technical Data in the Mall	
Service set for TD17, OP7/17	**6AV3678-1CC10**
For contents and matching devices, see Technical Data in the Mall	
Service set for OP73 micro, OP73, OP77	**6AV6671-1XA00-0AX0**
For contents and matching devices, see Technical Data in the Mall	

	Order No.
Service set for 6" devices, Type 1	**6AV6574-1AA00-4AX0**
For contents and matching devices, see Technical Data in the Mall	
Service set for 6" devices, Type 2	**6AV2181-8XA80-0AX0**
For contents and matching devices, see Technical Data in the Mall	
Service set for 6" devices, Type 3	**6AV6671-2XA00-0AX0**
For contents and matching devices, see Technical Data in the Mall	
Service set for 10" to 15" devices	**6AV6574-1AA00-2CX0**
For contents and matching devices, see Technical Data in the Mall	
Service set for 10", Type 1	**6AV6574-1AA00-2DX0**
For contents and matching devices, see Technical Data in the Mall	
Service set for 6" to 10" devices	**6AV6671-3XA01-0AX0**
For contents and matching devices, see Technical Data in the Mall	
Service set for 8" to 10" devices	**6AV6671-3XA01-0AX1**
For contents and matching devices, see Technical Data in the Mall	
Service set for 12" devices	**6AV6574-1AA00-2BX0**
For contents and matching devices, see Technical Data in the Mall	
Service set for 12" to 19" devices	**6AV6671-4XA00-0AX0**
For contents and matching devices, see Technical Data in the Mall	
Service set for Mobile Panel 277(F) IWLAN V1	**6AV6671-5CA00-0AX1**
For contents and matching devices, see Technical Data in the Mall	

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Operator panels
SIMATIC HMI Accessories

Protective covers

◼ Overview

Protective covers with IP65 degree of protection provide complete frontal protection of the panel against dirt and scratches; the protective covers can be kept clean using high-pressure cleaning equipment. Ready-made templates can be downloaded to help you create and print out your own low-cost frame designs between panel and protective cover.

Adhesive protective membranes are available for simple display protection.

Protective covers are available for the following SIMATIC HMI Panels:
- Touch Panels
- Operator Panels
- Multi Panels

◼ Technical specifications

	6AV6574-1AE00-4AX0	6AV6671-1AJ00-0AX0	6AV6671-2DJ00-0AX0	6AV6671-3CK01-0AX0	6AV6671-3CK00-0AX0
	Protective cover 6" Touch devices	**Protective cover OP77**	**Protective cover OP177**	**Protective cover MP 277 8" Touch**	**Protective cover MP 277 10" Touch**
Installation type/mounting					
Mounting in portrait format possible	Yes	Yes	Yes	Yes	Yes
Mounting in landscape format possible	Yes	Yes	Yes	Yes	Yes
Degree and class of protection					
IP (at the front)	IP65	IP65	IP65	IP65	IP65
Standards, approvals, certificates					
CE	Yes	Yes	Yes	Yes	Yes
Ambient conditions					
Operating temperature					
• Operating temperature range, max.	50 °C	50 °C	50 °C	50 °C	50 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C	0 °C	0 °C
Storage/transport temperature					
• Min.	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C	60 °C	60 °C
Relative humidity					
• max. relative humidity	95 %	95 %	95 %	95 %	95 %
Mechanics/material					
Plastic	Yes	Yes	Yes	Yes	Yes
Dimensions					
Width	242.3 mm	178.6 mm	274.3 mm	270.8 mm	355.8 mm
Height	186.3 mm	214.6 mm	243.26 mm	211 mm	294 mm
Thickness	10 mm	7.8 mm	7.8 mm	7.8 mm	7.8 mm
Height of housing front					
• Mounting cutout, width	198 mm	135 mm	229 mm	226 mm	310 mm
• Mounting cutout, height	142 mm	171 mm	196 mm	166 mm	248 mm
Weight					
Weight without packaging	750 g	750 g	750 g	750 g	750 g

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Technical specifications (continued)

| | 6AV6574-1AE00-4AX0 | 6AV6671-1AJ00-0AX0 | 6AV6671-2DJ00-0AX0 | 6AV6671-3CK01-0AX0 | 6AV6671-3CK00-0AX0 |
	Protective cover 6" Touch devices	**Protective cover OP77**	**Protective cover OP177**	**Protective cover MP 277 8" Touch**	**Protective cover MP 277 10" Touch**
Scope of supply Number of sets	2; 2 cover frames, 2 base frames, 2 protective covers, molded (for TP 070, TP 170micro, TP 170A/B), 2 protective covers, smooth (for TP 177micro, TP 177A/B, TP 270 6", MP 177 6" Touch, MP 270 6" Touch)	2; 2 cover frames, 2 base frames, 2 protective covers	2; 2 cover frames, 2 base frames, 2 protective covers	2; 2 cover frames, 2 base frames, 2 protective covers	2; 2 cover frames, 2 base frames, 2 protective covers
other Note:	for TP 070, TP 170A, TP 170B, TP 170micro, TP 177micro, TP 177A, TP 177B, TP 270 6 ", TP 277 6 ", MP 270 6" Touch	for OP 77A, OP 77B	For OP177B	for MP 277 8" Touch as far as product version "ES 14" with narrow frame	for MP 277 10" Touch up to product version "ES 14 ", Thin Client 10" up to "ES 03" (6AV6646-0AA21-2AX0) with narrow frame

Ordering data

	Order No.
Protective covers for 6" Touch devices For TP 070, TP 170micro, TP 177micro, TP 170A/B, TP 177A/B, TP 270 6", TP 277 6", MP 177 6" Touch, MP 270 6" Touch consisting of: see technical data	**6AV6574-1AE00-4AX0**
Protective covers for OP 77 For OP77 and OP77B consisting of: see technical data	**6AV6671-1AJ00-0AX0**
Protective covers for OP 177 For OP177B consisting of: see technical data	**6AV6671-2DJ00-0AX0**
Protective covers for MP 277 8" Touch devices Only suitable for MP 277 8" Touch up to E14 [1] (for devices with a narrow frame geometry) consisting of: see technical data	**6AV6671-3CK01-0AX0**
Protective covers for MP 277 10" Touch devices Only suitable for MP 277 10" Touch up to E14 [1] and 10" Thin Client up to E03 [2] (for devices with a narrow frame geometry) consisting of: see technical data	**6AV6671-3CK00-0AX0**

[1] E14 = Product version 14

[2] E03 = Product version 03

Note:

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The complete range of accessories can be found in the Mall: https://eb.automation.siemens.com

or on our SIMATIC Support pages: http://support.automation.siemens.com

Operator panels
SIMATIC HMI Accessories

Protective films

Overview

Protective films for:
- Touch Panels
- C7 devices
- Multi Panels
- Thin Clients
- Touch Panels
- Basic Panels
- Comfort Panels
- Mobile Panels

Protective films protect the display from dirt and scratching during operation and use.

For complete protection of the front side in harsh environments, protective covers are available for some devices.

Note:

During installation, the protective films must completely cover the display. For compatibility reasons, not all protective films extend as far as the edge of the enclosure. This does not, however, affect the protective function.

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■ Technical specifications

	6AV6671-2EC00-0AX0	6AV6671-2XC00-0AX0	6AV6574-1AD04-4AA0	6AV6671-5BC00-0AX0	6AV6645-7AB15-0AS0	6AV6671-3DC00-0AX0
	Protective film 4" Touch devices	**Protective film 6" Touch devices, Type 3**	**Protective film 6" Touch devices, Type 10**	**Protective film 8" Touch devices, Type 10**	**Protective film 10" Touch devices, Type 10**	**Protective film 10" Thin Client and MP277 up to ES14**
Installation type/mounting						
Mounting in portrait format possible	Yes	Yes	Yes	Yes	Yes	Yes
Mounting in landscape format possible	Yes	Yes	Yes	Yes	Yes	Yes
Standards, approvals, certificates						
CE	Yes	Yes	Yes	Yes	Yes	Yes
Ambient conditions						
Operating temperature						
• Operating temperature range, max.	50 °C	50 °C	50 °C	50 °C	50 °C	50 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C	0 °C	0 °C	0 °C
Storage/transport temperature						
• Min.	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C	60 °C	60 °C	60 °C
Relative humidity						
• max. relative humidity	90 %	90 %	90 %	90 %	90 %	90 %
Films						
printable with laser printer	Yes	Yes	Yes	Yes	Yes	Yes
Mechanics/material						
Plastic	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting
Dimensions						
Width	120 mm	179.4 mm	120.5 mm	155.5 mm	223.17 mm	292 mm
Height	105 mm	141.4 mm	91 mm	124.9 mm	170.37 mm	248 mm
Thickness	0.125 mm	0.125 mm	0.125 mm	0.3 mm	0.3 mm	0.125 mm
Scope of supply						
Delivery unit in items	10	10	10	2	10	10
other						
Note:	for TP 177B 4", KTP 400 Basic	for TP 177micro, TP 177A, TP 177B, OP 177B, KTP 600 Basic	for Mobile Panel 170, Mobile Panel 177	for Mobile Panel 277 8"	for Mobile Panel 277 10"	

Operator panels
SIMATIC HMI Accessories

Protective films

■ **Technical specifications** (continued)

	6AV6671-3DC00-0AX5	6AV6574-1AD00-4EX0	6AV2124-6DJ00-0AX0	6AV2124-6GJ00-0AX0	6AV2124-6JJ00-0AX0	6AV2124-6MJ00-0AX0
	Protective film 10" Key Panel, Thin Client and MP277 as of ES15	Protective film 15" TP1500, MP370/377 and ThinClient	Protective film 4" widescreen	Protective film 7" widescreen	Protective film 9" widescreen	Protective film 12" widescreen
Installation type/mounting						
Mounting in portrait format possible	Yes	Yes	Yes	Yes	Yes	Yes
Mounting in landscape format possible	Yes	Yes	Yes	Yes	Yes	Yes
Standards, approvals, certificates						
CE	Yes	Yes	Yes	Yes	Yes	Yes
Ambient conditions						
Operating temperature						
• Operating temperature range, max.	50 °C	50 °C	50 °C	50 °C	50 °C	50 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C	0 °C	0 °C	0 °C
Storage/transport temperature						
• Min.	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C	60 °C	60 °C	60 °C
Relative humidity						
• max. relative humidity	90 %	90 %	90 %	90 %	90 %	90 %
Films						
printable with laser printer	Yes	Yes	Yes	Yes	Yes	Yes
Mechanics/material						
Plastic	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting
Dimensions						
Width	299.8 mm	362 mm	131.4 mm	205.4 mm	265.4 mm	321.4 mm
Height	259.9 mm	289 mm	107.4 mm	149.4 mm	181.4 mm	232.4 mm
Thickness	0.125 mm	0.125 mm	0.125 mm	0.125 mm	0.125 mm	0.125 mm
Scope of supply						
Delivery unit in items	10	10	10	10	10	10
other						
Note:			for KTP400 Comfort, KTP400 Basic color PN	for TP700 Comfort, IPC277D	for TP900 Comfort, IPC277D	for TP1200 Comfort, IPC277D

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■ Technical specifications (continued)

	6AV2124-6QJ00-0AX1	6AV2124-6UJ00-0AX1	6AV2124-6XJ00-0AX1
	Protective film 15" widescreen	**Protective film 19" widescreen**	**Protective film 22" widescreen**
Installation type/mounting			
Mounting in portrait format possible	Yes	Yes	Yes
Mounting in landscape format possible	Yes	Yes	Yes
Standards, approvals, certificates			
CE	Yes	Yes	Yes
Ambient conditions Operating temperature			
• Operating temperature range, max.	50 °C	50 °C	50 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C
Storage/transport temperature			
• Min.	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C
Relative humidity			
• max. relative humidity	90 %	90 %	90 %
Films			
printable with laser printer	Yes	Yes	Yes
Mechanics/material			
Plastic	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting
Dimensions			
Width	368 mm	451 mm	518 mm
Height	231 mm	285 mm	334 mm
Thickness	0.125 mm	0.125 mm	0.125 mm
Weight			
Weight without packaging	26 g; Per unit	34 g; Per unit	44 g; Per unit
Scope of supply			
Delivery unit in items	10	10	10
other			
Note:	for Comfort Panel, IPC, Flat Panel, Thin Client	for Comfort Panel, IPC, Flat Panel, Thin Client	for Comfort Panel, IPC, Flat Panel, Thin Client

Operator panels
SIMATIC HMI Accessories

Protective films

Technical specifications (continued)

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	6AV6574-1AD00-4DX0	6AV6574-1AD00-4CX0	6AV6671-2XC00-0AX0	6AV6671-3CC00-0AX0	6AV6671-3CC00-0AX5	6AV7672-1CE00-0AA0
	Protective film 6" Touch devices, Type 2	**Protective film 10" - 12" TP/MP 270/370/377 and C7-636**	**Protective film 6" Touch devices, Type 3**	**Protective film 8" Touch devices, Type 1**	**Protective film 8" Touch devices, Type 2**	**Protective film 19" MP377, panel PC and Flat Panel**
Installation type/mounting						
Mounting in portrait format possible	Yes	Yes	Yes	Yes	Yes	Yes
Mounting in landscape format possible	Yes	Yes	Yes	Yes	Yes	Yes
Standards, approvals, certificates						
CE	Yes	Yes	Yes	Yes	Yes	Yes
Ambient conditions						
Operating temperature						
• Operating temperature range, max.	50 °C	50 °C	50 °C	50 °C	50 °C	50 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C	0 °C	0 °C	0 °C
Storage/transport temperature						
• Min.	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C	60 °C	60 °C	60 °C
Relative humidity						
• max. relative humidity	90 %	90 %	90 %	90 %	90 %	90 %
Films						
printable with laser printer	Yes	Yes	Yes	Yes	Yes	Yes
Mechanics/material						
Plastic	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting	Yes; Nonreflecting
Dimensions						
Width	178.4 mm	297.4 mm	179.4 mm	207 mm	217 mm	378 mm
Height	135.4 mm	254.4 mm	141.4 mm	165 mm	217 mm	302.5 mm
Thickness	0.125 mm	0.125 mm	0.125 mm	0.125 mm	0.125 mm	0.2 mm
Scope of supply						
Delivery unit in items	10	10	10	10	10	10
other						
Note:	for TP 270 6", TP 277 6", MP 177 6" Touch, MP 270B 6" Touch		for TP 177micro, TP 177A, TP 177B, OP 177B, KTP 600 Basic	for MP 277 8" Touch up to product version "ES 14"	for MP 277 8" Touch in product version "ES 15" and later	

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▪ Ordering data

	Order No.		Order No.
Protective films for 4" Touch devices For contents and matching devices, see Technical Data and Mall	6AV6671-2EC00-0AX0	**Protective films for 6" Touch devices, type 1** For contents and matching devices, see Technical Data and Mall	6AV6574-1AD00-4AX0
Protective films for 6" Touch devices, type 4 For contents and matching devices, see Technical Data and Mall	6AV6671-2XC00-0AX0	**Protective films for 6" Touch devices, type 4** For contents and matching devices, see Technical Data and Mall	6AV3672-2CS00
Protective films for 6" Touch devices, type 10 For contents and matching devices, see Technical Data and Mall	6AV6574-1AD04-4AA0	**Protective films for 10" Touch devices, type 3** For contents and matching devices, see Technical Data and Mall	6AV3672-2CS11
Protective films for 8" Touch devices, type 10 For contents and matching devices, see Technical Data and Mall	6AV6671-5BC00-0AX0	**Protective films for 10" Touch devices, type 2** For contents and matching devices, see Technical Data and Mall	6AV6574-1AD00-4DX0
Protective films for 10" Touch devices, type 10 For contents and matching devices, see Technical Data and Mall	6AV6645-7AB15-0AS0	**Protective films for 10" to 12" Touch devices** For contents and matching devices, see Technical Data and Mall	6AV6574-1AD00-4CX0
Protective films for 10" Touch devices, type 1 For contents and matching devices, see Technical Data and Mall	6AV6671-3DC00-0AX0	**Protective films for 6" Touch devices, type 3** For contents and matching devices, see Technical Data and Mall	6AV6671-2XC00-0AX0
Protective films for 10" Touch devices, type 2 For contents and matching devices, see Technical Data and Mall	6AV6671-3DC00-0AX5	**Protective films for 8" Touch devices, type 1** For contents and matching devices, see Technical Data and Mall	6AV6671-3CC00-0AX0
Protective films for 15" Touch devices For contents and matching devices, see Technical Data and Mall	6AV6574-1AD00-4EX0	**Protective films for 8" Touch devices, type 2** For contents and matching devices, see Technical Data and Mall	6AV6671-3CC00-0AX5
Protective films 4" widescreen For contents and matching devices, see Technical Data and Mall	6AV2124-6DJ00-0AX0	**Protective films for 19" Touch devices** For contents and matching devices, see Technical Data and Mall	6AV7672-1CE00-0AA0
Protective films 7" widescreen For contents and matching devices, see Technical Data and Mall	6AV2124-6GJ00-0AX0		
Protective films 9" widescreen For contents and matching devices, see Technical Data and Mall	6AV2124-6JJ00-0AX0		
Protective films 12" widescreen For contents and matching devices, see Technical Data and Mall	6AV2124-6MJ00-0AX0		
Protective films 15" widescreen For contents and matching devices, see Technical Data and Mall	6AV2124-6QJ00-0AX1		
Protective films 19" widescreen For contents and matching devices, see Technical Data and Mall	6AV2124-6UJ00-0AX1		
Protective films 22" widescreen For contents and matching devices, see Technical Data and Mall	6AV2124-6XJ00-0AX1		

Note:

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Operator panels
SIMATIC HMI Accessories

Overview

All parts required to install a SIMATIC HMI Panel are listed here. Mounting frames enable compliance with device-specific degrees of protection IP65, NEMA4x and NEMA12 (indoor only) if the thickness of the mounting plate is less than the minimum plate thickness specified in the operating instructions. The mounting frame has been specially developed for plate thicknesses of less than 2 mm.

Depending on the device, different mounting clips are available for attaching the panel.

Memory card locks (snappable and slideable) are also available to secure memory cards in the SIMATIC HMI Comfort Panels.

- Push Button Panel
- Key Panel
- Text Display
- Operator Panel
- Touch Panel
- Multi Panel
- Basic Panel
- Comfort Panel

Note regarding Industrial USB Hub 4:

The mounting frame is only available in the service pack 6AV6671-3EA01-0AX0.

Technical specifications

	6AV6671-3CS00-0AX0 Mounting frame 8" Touch	6AV6671-3CS01-0AX0 Mounting frame 8" Key	6AV6671-8XS00-0AX0 Mounting frame 10" to 12" Touch devices
Installation type/mounting Mounting in portrait format possible	Yes	Yes	Yes
Mounting in landscape format possible	Yes	Yes	Yes
Standards, approvals, certificates CE	Yes	Yes	Yes
Ambient conditions Operating temperature			
• Operating temperature range, max.	55 °C	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C
Storage/transport temperature			
• Min.	-20 °C	-20 °C	-20 °C
• max.	70 °C	70 °C	70 °C
Relative humidity			
• max. relative humidity	90 %	90 %	90 %
Mechanics/material Type of housing (front)			
• Sheet steel	Yes	Yes	Yes
Scope of supply Delivery unit in items	1	1	1
other Note:	For MP 277 8" Touch	For MP 277 8" Key	For KTP1000 Basic, MP 277 10" Touch, MP 377 12" Touch, Thin Client 10"

■ **Technical specifications** (continued)

	6AV6671-8XK00-0AX2	6AV6671-8XK00-0AX1	6AV6671-8XK00-0AX0
	Mounting clip, plastic	**Mounting clip, spring**	**Mounting clip, aluminum**
Installation type/mounting			
Mounting in portrait format possible	Yes	Yes	Yes
Mounting in landscape format possible	Yes	Yes	Yes
Standards, approvals, certificates			
CE	Yes	Yes	Yes
Ambient conditions			
Operating temperature			
• Operating temperature range, max.	55 °C	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C
Storage/transport temperature			
• Min.	-20 °C	-20 °C	-20 °C
• max.	70 °C	70 °C	70 °C
Relative humidity			
• max. relative humidity	90 %	90 %	90 %
Mechanics/material			
Screw type			
• 4.5 V	Yes; Original partially Phillips screw		Yes
Type of housing (front)			
• Plastic	Yes	Yes	
• Aluminum			Yes
Dimensions			
Width	30 mm	20 mm	15 mm
Height	17 mm; Without screw	35 mm	21 mm; Without screw
Thickness	8 mm	20 mm	15 mm
Weight			
Weight without packaging	4 g; Per unit	8 g; Per unit	5 g; Per unit
Scope of supply			
Delivery unit in items	20	20	20
other			
Note:	TD17, OP7/17/73, OP77A/B, TP/OP170, KP300 mono, KTP400 color, TP/OP177 except TP177 4", MP270-6T, TP/OP270-6"	TP177-4", TP/OP 277-6", MP177-6, MP277-10" T, MP277-8", MP277-8"T, MP277-10"K, MP377 12-19", TC 10", TC 15", KTP400 Basic mono, KTP600, KTP1000, KTP1500, KP700 Comfort, TP700 Comfort, KP900 Comfort, TP900 Comfort, KP1200 Comfort, TP1200 Comfort and IPC 277D 7, 9, 12"	TP177-4", TP/OP 277-6", MP177-6, MP277-10" T, MP277-8", MP277-8"T, MP277-10"K, MP377 12-19", TC 10", TC 15", KTP400 Basic mono, KTP600, KTP1000, KTP1500, KP700 Comfort, TP700 Comfort, KP900 Comfort, TP900 Comfort, KP1200 Comfort, TP1200 Comfort and IPC 277D 7, 9, 12"

Operator panels
SIMATIC HMI Accessories

Fasteners

■ **Technical specifications** (continued)

	6AV6671-8XK00-0AX3 Mounting clip, steel	6AV6671-8XK00-0AX4 Mounting bracket, steel
Installation type/mounting		
Mounting in portrait format possible	Yes	Yes
Mounting in landscape format possible	Yes	Yes
Standards, approvals, certificates		
CE	Yes	Yes
Ambient conditions		
Operating temperature		
• Operating temperature range, max.	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C
Storage/transport temperature		
• Min.	-20 °C	-20 °C
• max.	70 °C	70 °C
Relative humidity		
• max. relative humidity	90 %	90 %
Mechanics/material		
Screw type		
• 4.5 V	Yes	Yes
Type of housing (front)		
• Sheet steel	Yes	Yes
Dimensions		
Width	20 mm	142 mm
Height	15 mm; Without screw	18 mm; Without screw
Thickness	8 mm	8 mm
Scope of supply		
Delivery unit in items	20	10
other		
Note:	15", 19" and 22" widescreen - Comfort Panels, IPCs, Flat Panels and Thin Clients. Plate thicknesses up to 6 mm	15", 19" and 22" widescreen - Comfort Panels, IPCs, Flat Panels and Thin Clients, except SCD1900 19" widescreen. Plate thicknesses up to 6 mm

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■ Technical specifications (continued)

	6AV2181-4DM10-0AX0	6AV2181-4XM00-0AX0
	Memory card lock 4"	**Memory card lock 7" - 22"**
Installation type/mounting		
Wall mounting/direct mounting possible	Yes; Snap-on	Yes; Snap-on
Degree and class of protection		
IP (at the front)	20	20
Standards, approvals, certificates		
CE	Yes	Yes
Ambient conditions		
Operating temperature		
• Operating temperature range, max.	55 °C	55 °C
• Operating temperature range, min.	0 °C	0 °C
Storage/transport temperature		
• Min.	-20 °C	-20 °C
• max.	70 °C	70 °C
Relative humidity		
• max. relative humidity	90 %	90 %
Mechanics/material		
Plastic	Yes	Yes
Dimensions		
Width	25 mm	45 mm
Height	30 mm	59 mm
Thickness	10 mm	12 mm
Weight		
Weight without packaging	4 g; Per unit	6 g; Per unit
Scope of supply		
Delivery unit in items	5	5
other		
Note:	Comfort Panel 4"	Comfort Panels 7" to 22"

Fasteners

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Ordering data	Order No.		Order No.
Mounting frame 8" Touch	**6AV6671-3CS00-0AX0**	**4" memory card lock**	**6AV2181-4DM10-0AX0**
For contents and matching devices, see Technical Data and Mall		For contents and matching devices, see Technical Data and Mall	
Mounting frame for 8" Key	**6AV6671-3CS01-0AX0**	**7" … 22" memory card lock**	**6AV2181-4XM00-0AX0**
For contents and matching devices, see Technical Data and Mall		For contents and matching devices, see Technical Data and Mall	
Mounting frame 10"/12" Touch	**6AV6671-8XS00-0AX0**		
For contents and matching devices, see Technical Data and Mall			
Mounting clip/bracket			
Plastic mounting clip	**6AV6671-8XK00-0AX2**		
For contents and matching devices, see Technical Data and Mall			
Spring mounting clip	**6AV6671-8XK00-0AX1**		
For contents and matching devices, see Technical Data and Mall			
Aluminum mounting clip	**6AV6671-8XK00-0AX0**		
For contents and matching devices, see Technical Data and Mall			
Steel mounting clip	**6AV6671-8XK00-0AX3**		
For contents and matching devices, see Technical Data and Mall			
Steel mounting bracket	**6AV6671-8XK00-0AX4**		
For contents and matching devices, see Technical Data and Mall			

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■ Overview

Labeling strips

Labeling strips and membranes are available for:
- Text display
- Multi Panel
- Mobile Panel

The labeling strips, blank membranes, and protective membranes should be printed at a printing works.

Templates can be used to create labeling strips for SIMATIC HMI devices. Alternatively, a tool for the creation of labeling strips is available.

Download templates from:
http://support.automation.siemens.com/WW/view/en/11274631
and

download Label Creator from:
http://support.automation.siemens.com/WW/view/en/61507590

Protective cover for labeling strips for Mobile Panel 170, Mobile Panel 177

■ Technical specifications

	6AV6574-1AB04-4AA0	6AV6671-5BF00-0AX0	6AV6574-1AB00-2BA0	6ES7272-1BF00-7AA0	6ES7272-1AF00-7AA0	6AV6671-0AP00-0AX0
	Protective sleeve labeling strips	**Labeling set Mobile Panel 277**	**Labeling strip MP 37x Key**	**Front membrane TD100C, blank**	**Front membrane TD200C, blank**	**Front membrane TD400C, blank**
Installation type/mounting						
Mounting in portrait format possible	Yes	Yes	Yes	Yes	Yes	Yes
Mounting in landscape format possible	Yes	Yes	Yes	Yes	Yes	Yes
Standards, approvals, certificates						
CE	Yes	Yes	Yes	Yes	Yes	Yes
Ambient conditions						
Operating temperature						
• Operating temperature range, max.	50 °C	50 °C	50 °C	50 °C	50 °C	50 °C
• Operating temperature range, min.	0 °C	0 °C	0 °C	0 °C	0 °C	0 °C
Storage/transport temperature						
• Min.	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C	60 °C	60 °C	60 °C
Relative humidity						
• max. relative humidity	90 %	90 %	90 %	90 %	90 %	90 %

Operator panels
SIMATIC HMI Accessories

Labeling strips

■ **Technical specifications** (continued)

	6AV6574-1AB04-4AA0	6AV6671-5BF00-0AX0	6AV6574-1AB00-2BA0	6ES7272-1BF00-7AA0	6ES7272-1AF00-7AA0	6AV6671-0AP00-0AX0
	Protective sleeve labeling strips	**Labeling set Mobile Panel 277**	**Labeling strip MP 37x Key**	**Front membrane TD100C, blank**	**Front membrane TD200C, blank**	**Front membrane TD400C, blank**
Films						
Number of films per sheet		6		6	3	2
printable with laser printer	No	Yes	Yes	Yes	Yes	Yes
Dimensions						
Width		210 mm	210 mm	210 mm	210 mm	210 mm
Height		297 mm	297 mm	297 mm	297 mm	297 mm
Width of the housing front						163 mm
Height of housing front						91 mm
Scope of supply						
Delivery unit in items	5	2	1	10	10	10
Number of sets		6	2	60	30	20
other						
Note:	for Mobile Panel 170, Mobile Panel 177	For Mobile Panel 277	For MP 370 Key, MP 377 Key	For TD100C	For TD200C	For TD400C

■ **Ordering data** | **Order No.**

Protective cover for Mobile Panel 17x For contents and matching devices, see Technical Data in the Mall	**6AV6574-1AB04-4AA0**
Labeling set for Mobile Panel 277 For contents and matching devices, see Technical Data in the Mall	**6AV6671-5BF00-0AX0**
Labeling set for MP 377 Key For contents and matching devices, see Technical Data in the Mall	**6AV6574-1AB00-2BA0**
Front membrane TD100C, unprinted For contents and matching devices, see Technical Data in the Mall	**6ES7272-1BF00-7AA0**
Front membrane TD200C, unprinted For contents and matching devices, see Technical Data in the Mall	**6ES7272-1AF00-7AA0**
Front membrane TD400C, unprinted For contents and matching devices, see Technical Data in the Mall	**6AV6671-0AP00-0AX0**

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■ **Overview**
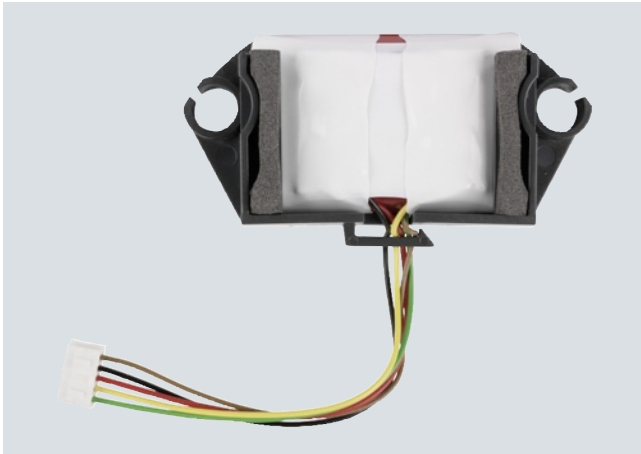
Rechargeable buffer battery for Mobile Panel

Lithium battery for SIMATIC HMI, C7 and S7

■ **Technical specifications**

	W790 84-E1001-B2	6ES7 623-1AE01-5AA0	6AV6 671-5CL00-0AX0	6AV6 671-5AD00-0AX0
	Lithium battery SIMATIC HMI and C7	**Lithium battery SIMATIC HMI, C7 and S7**	**Main battery Mobile Panel IWLAN**	**Rechargeable back-up battery Mobile Panel**
Installation type/mounting Wall mounting/direct mounting possible	Yes; in HMI devices, battery compartment	Yes; in HMI devices, battery compartment	Yes; in HMI devices, battery compartment	Yes; in HMI devices, battery compartment
Supply voltage Type of supply voltage	DC	DC	DC	DC
Rated voltage/DC	3.6 V; 1.6 Ah	3.6 V; 1.6 Ah	7.2 V; 5.1 Ah	3.6 V; 1.15 Ah
Battery Design • Special design	Yes; 2/3 AA	Yes; 2/3 AA	Yes; bent	Yes; flat
Technology • Lithium-ion	Yes; SL-361	Yes; SL-361	Yes; 2ICR19/65-2 CGR	Yes; 1/CP7/34/50 01 CGA
Standards, approvals, certificates CE	Yes	Yes	Yes	Yes
Ambient conditions Operating temperature • Operating temperature range, max. • Operating temperature range, min.	55 °C 0 °C	55 °C 0 °C	55 °C 0 °C; Don't charge below	55 °C 0 °C; Don't charge below
Storage/transport temperature • Min. • max.	-20 °C 70 °C	-55 °C 85 °C	-20 °C 70 °C	-20 °C 70 °C
Relative humidity • max. relative humidity	90 %	90 %	90 %	90 %
Dimensions Width			75 mm	35 mm
Height	33 mm; Length	33 mm; Length	78 mm	50 mm
Thickness	14.7 mm; Diameter	14.7 mm; Diameter	33 mm	10 mm
Weight Weight without packaging	12 g	14 g	320 g	38 g
Scope of supply Delivery unit in items	1; incl. 220 mm connecting cable	1; Incl. 45 mm + 210 mm connecting cable	1	1; incl. 65 mm connecting cable
other Note:	for TD17, OP17, OP25, OP27, OP35, OP37, TP27, TP37, OP/TP270, MP 270, MP 270B, MP 370, C7-621, C7-623, C7-624, C7-626 and PG 7xx	for TD17, OP17, OP25, OP27, OP35, OP37, TP27, TP37, OP/TP270, MP 270, MP 270B, MP 370, C7-621, C7-623, C7-624, C7-626 and PG 7xx	for Mobile Panel 277 IWLAN, Mobile Panel 277F IWLAN, Mobile Panel 277 IWLAN V2, Mobile Panel 277F IWLAN V2, Mobile Panel 277F IWLAN (RFID tag)	for Mobile Panel DP cabled, Mobile Panel PN cabled, Mobile Panel 277 IWLAN, Mobile Panel 277F IWLAN

Operator panels
SIMATIC HMI Accessories

Batteries

Ordering data	Order No.
Lithium battery for SIMATIC HMI and C7	W79084-E1001-B2
For contents and matching devices, see Technical Data	
Lithium battery for SIMATIC PG7xx, HMI and C7	6ES7623-1AE01-5AA0
incl. 250 mm adapter cable	
Main rechargeable battery for Mobile Panel IWLAN	6AV6671-5CL00-0AX0
For contents and matching devices, see Technical Data	
Rechargeable buffer battery for Mobile Panel	6AV6671-5AD00-0AX0
For contents and matching devices, see Technical Data	

Note:

This catalog only includes accessories for current products.

The complete range of accessories can be found in the Mall:
https://eb.automation.siemens.com

or on our SIMATIC Support pages:
http://support.automation.siemens.com

HMI devices
for special requirements

3

HMI devices for special requirements

Introduction

■ **Overview**

Fully enclosed HMI devices

The fully enclosed SIMATIC HMI devices (MP 377 PRO, HMI IPC477C PRO, Flat Panel PRO and Thin Client PRO) are specially designed for mounting on a support arm/stand. Thanks to their extremely rugged design, the devices are ideal for industrial applications in harsh environments.

Devices with stainless steel front

For special requirements, the HMI IPC677C INOX with stainless steel front for use in the food and beverages industry.

HMI devices for hazardous areas

The SIMATIC HMI Ex devices (HMI Panel PC Ex and HMI Thin Client Ex) are intrinsically safe Panel PCs and Thin Clients that have been specially developed for hazardous areas "Zone 1" and "Zone 2". Further SIMATIC HMI devices are also available for the hazardous area "Zone 2" and can be found in the chapter "Operator panels".

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■ Overview

The SIMATIC HMI PRO (PRO = protected) devices have been designed for mounting on a support arm/pedestal. Thanks to their rugged aluminum enclosures, the SIMATIC HMI PRO devices offer overall IP65 protection and are also suitable for use in harsh environments. The separation of HMI and control cabinet allows flexible design concepts.

The SIMATIC HMI PRO devices are used wherever the HMI device cannot be installed direct in the control cabinet due to restricted space, or whenever an operator control unit is required direct at the machine. All the devices are fan-free, and only standard connecting cables are used.

The SIMATIC HMI PRO devices can be mounted direct on the support arm head of the desired support arm system using the basic adapter supplied. The adapter set can be ordered separately. The basic adapter can be attached to the top or bottom of the device. The connecting cables are run through the support arm.

With the extension units, the range of possible on-site operations can be expanded. The extension units can be mounted on the right and/or left side of the SIMATIC HMI PRO device and can be equipped individually with, for example, illuminated pushbuttons, emergency stop buttons, RFID readers, etc.

The following are available as SIMATIC fully enclosed HMI devices:

- SIMATIC MP 377 PRO 15" Touch:
  Multi Panel for operator control and monitoring of machines and plants
- SIMATIC HMI IPC477C PRO 15"/19" Touch:
  Compact, high-performance and maintenance-free embedded IPC
- SIMATIC Flat Panel PRO 15"/19" Touch:
  Industrial monitor with touch functionality, can be located up to 30 m from the operator control unit
  (as with Flat Panel Extended)
- SIMATIC Thin Client PRO 15" Touch:
  HMI device for terminal and web client applications

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HMI devices for special requirements
Fully enclosed HMI devices

SIMATIC MP 377 PRO

Overview
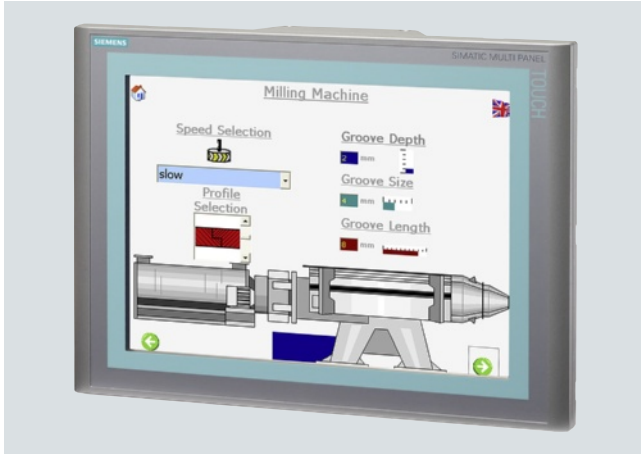
SIMATIC MP 377 PRO 15"

Technical specifications

MP 377 PRO 15"	6AV6 644-2AB01-2AX0
Display	
Size	15" (304.1 mm x 228.1 mm)
Display type	TFT, 65536 colors
Resolution (pixels) • Resolution (WxH in pixel)	1024 x 768
Backlighting • MTBF backlighting (at 25 °C)	about 50000 hours
Control elements	
Control elements	Touch screen
Connection for mouse/keyboard/barcode reader	USB / USB / USB
Touch operation • Touch screen	Analog, resistive
Supply voltage	
Supply voltage	24 V DC
Input current	
Rated current	1.8 A
Memory	
Type	Flash / RAM
Usable memory for user data	12288 KB usable memory for user data / 12288 KB additional memory for options
Time of day Clock • Type	Hardware clock, battery backup, synchronizable
Interfaces	
Interfaces	1 x RS422, 1 x RS485, 2 x Ethernet (RJ45)
USB port	2 x USB
CF card slot	1 x CF card slot
Multi Media Card slot	1 x Multi Media Card slot
Industrial Ethernet • Industrial Ethernet interface	2 x Ethernet (RJ45)
Protocols Protocols (terminal link) • Sm@rtServer	Yes
Degree and class of protection	
Front	IP65, NEMA 4, (when installed)
Rear	IP65
Standards, approvals, certificates	
Certifications	CE, cULus, C-TICK, NEMA 4
FM Class I Div. 2	No
Suitable for safety functions	No
Use in hazardous areas • EX zone 22	No

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HMI devices for special requirements
Fully enclosed HMI devices

3

Technical specifications (continued)

MP 377 PRO 15"	6AV6 644-2AB01-2AX0
Ambient conditions	
Mounting position	vertical
maximum permissible angle of inclination without external ventilation	+/- 45 °
Operating temperature	
• Operation	0 °C to +45 °C
Storage/transport temperature	
• Transport, storage	-20 °C to +60 °C
Relative humidity	
• max. relative humidity	85 %
Operating systems	
Operating system	Windows CE
Configuration	
Configuration software	
• Configuration tool	WinCC flexible Standard Version 2008 or higher (to be ordered separately)
Languages	
Online languages	
• Number of online/runtime languages	5
Functionality under WinCC (TIA Portal)	
Libraries	Yes
Task planner	Yes
With alarm logging system (incl. buffer and acknowledgment)	
• Number of messages	4 000
• Bit messages	Yes
• Analog messages	Yes
Recipes	
• Number of recipes	500
• Data records per recipe	1 000
• Entries per data record	1 000
• Recipe memory	128 KB integrated Flash, expandable
Variables	
• Number of variables per device	4 096; Configuration with WinCC flexible 2008 and higher
• Limit values	Yes
• Multiplexing	Yes
Images	
• Number of configurable images	500
Image objects	
• Text objects	30000 text elements
• Graphics object	Bit maps, icons, vector graphics
Complex image objects	
• Status/control	With SIMATIC S7
• dynamic objects	Diagrams, bar graphs, sliders, analog display, invisible buttons

MP 377 PRO 15"	6AV6 644-2AB01-2AX0
Functionality under WinCC (TIA Portal) (continued)	
Lists	
• Number of text lists per project	500
• Number of graphics lists per project	500
Archiving	
• Number of archives per device	50
• Number of measuring points per project	50
• Number of entries per archive	50 000
• external evaluation	Readable, e.g. with MS Excel, MS Access, etc.
• Size of archive	depending on free memory on ext. card/stick or on free hard disk space via network drive
Security	
• Number of user groups	50
• Number of user rights	32
• Password export/import	Yes
Data carrier support	
• CF card	Yes
Logging through printer	
• Recording/Printing	Alarms, report (shift report), color print, hardcopy
Transfer (upload/download)	
• Transfer of configuration	MPI/PROFIBUS DP, serial, USB, Ethernet, by means of external storage medium, automatic transfer recognition
Process coupling	
• Connection to controller	S5, S7-200, S7-300/400, TI 505, Win AC, PC (TCP/IP), SINUMERIK, SIMOTION, Allen Bradley (DF1), Allen Bradley (DF485), Mitsubishi (FX), OMRON (LINK/Multilink), Modicon (Modbus), further non-Siemens drivers, see chapter "System interfaces"
• S7-1200	Yes
• S7-1500	Yes
Expandability/openness	
• Open Platform Program	Yes
I/O	
I/O devices	Printer, card reader, barcode reader
• Multi Media Card	Yes
Dimensions	
Front of enclosure (W x H)	400 mm x 310 mm
Weight	
Weight	7.25 kg

HMI devices for special requirements
Fully enclosed HMI devices

SIMATIC MP 377 PRO

| Ordering data	Order No.
SIMATIC MP 377 PRO 15" Touch	**6AV6644-2AB01-2AX0**
15" color TFT display, 12 MB configuration memory, can be configured from WinCC Comfort (TIA Portal) or from WinCC flexible 2008	

Note:

An adapter plate is required for mounting on the support arm systems of well-known manufacturers; see "Accessories for fully enclosed HMI devices".

Dimensional drawings

All dimensions in mm. For installation cutout, see technical specifications.

SIMATIC MP 377 PRO 15" Touch

More information

Additional information is available on the Internet at:

http://www.siemens.com/ip65-hmi-devices

Note:

Do you require a specific modification or extension to the products described here? Under "Customized products" you can find information about additional and generally available products for the sector, and about the possibilities for customized modification and adaptation.

HMI devices for special requirements
Fully enclosed HMI devices

SIMATIC HMI IPC477C PRO

■ Overview

SIMATIC HMI IPC477C PRO 19"

SIMATIC HMI IPC477C PRO 19" (rear view)

■ Technical specifications

HMI IPC477C PRO	6AV7 883-6….-…. 15"	6AV7 883-7….-…. 19"
General features		
Supply voltage	24 V DC	24 V DC
Processors	Intel Celeron M 1.2 GHz, Intel Core2 Solo 1.2 GHz or Core2 Duo 1.2 GHz	Intel Celeron M 1.2 GHz, Intel Core2 Solo 1.2 GHz or Core2 Duo 1.2 GHz
Memory type	DDR3-RAM	DDR3-RAM
Main memory	1 GB, 2 GB or 4 GB	1 GB, 2 GB or 4 GB
free slots	1 x CF card slot	1 x CF card slot
Operating system	Windows Embedded Standard 2009, Windows Embedded Standard 7, Windows 7, or Windows XP Professional Multi Language	Windows Embedded Standard 2009, Windows Embedded Standard 7, Windows 7, or Windows XP Professional Multi Language
Additional OS information	Language: EN/DE	Language: EN/DE
SIMATIC Software	Optionally with pre-installed bundle software SIMATIC WinCC flexible 2008 or WinCC RT Advanced and/or SIMATIC WinAC RTX / RTX F 2010, SIMATIC WinCC or WinCC RT Professional as web client or standard client	Optionally with pre-installed bundle software SIMATIC WinCC flexible 2008 or WinCC RT Advanced and/or SIMATIC WinAC RTX / RTX F 2010, SIMATIC WinCC or WinCC RT Professional as web client or standard client
Drives		
Floppy drive	optional via external USB floppy drive	optional via external USB floppy drive
Optical drives	possible as an external drive via USB	possible as an external drive via USB
Hard disk/mass storage	CompactFlash drive with 4, 8, or 16 GB and/or 50 GB SSD (High Endurance)	CompactFlash drive with 4, 8, or 16 GB and/or 50 GB SSD (High Endurance)

HMI devices for special requirements
Fully enclosed HMI devices

SIMATIC HMI IPC477C PRO

Technical specifications (continued)

HMI IPC477C PRO	6AV7 883-6….-…. 15"	6AV7 883-7….-…. 19"
Interfaces		
Graphics interface	DVI-I can be used for additional display unit (only VGA via adapter); 32-bit color depth, graphics memory up to 128 MB; resolution as for integrated display in each case	DVI-I can be used for additional display unit (only VGA via adapter); 32-bit color depth, graphics memory up to 128 MB; resolution as for integrated display in each case
Connection for keyboard/mouse	USB / USB	USB / USB
serial interface	COM1: 1 x V.24 (RS232)	COM1: 1 x V.24 (RS232)
PROFIBUS/MPI	Optionally onboard, isolated, max. 12 Mbit/s, no plug-in card required, CP5611-compatible, not upgradable	Optionally onboard, isolated, max. 12 Mbit/s, no plug-in card required, CP5611-compatible, not upgradable
PROFINET (RT/IRT)	Optional: 3 x RJ45, CP1616-compatible; not for retrofitting	Optional: 3 x RJ45, CP1616-compatible; not for retrofitting
USB	4 x on rear, USB 2.0 (500 mA)	4 x on rear, USB 2.0 (500 mA)
PROFINET (IE), Ethernet	onboard, 2 x 10/100/1000 Mbit (RJ45 without/with PROFIBUS), 1 x 10/100/1000 Mbit (RJ45 with PROFINET), no plug-in card necessary	onboard, 2 x 10/100/1000 Mbit (RJ45 without/with PROFIBUS), 1 x 10/100/1000 Mbit (RJ45 with PROFINET), no plug-in card necessary
Multimedia	No	No
Monitoring functions		
Temperature	Yes	Yes
Watchdog	Yes	Yes
DiagBit (similar to S.M.A.R.T.)	Yes (for CF cards and SSD)	Yes (for CF cards and SSD)
Status LEDs	Yes	Yes
Front side according to EN 60529	IP65 all-round to EN 60529 and NEMA4	IP65 all-round to EN 60529 and NEMA4
Ambient conditions		
Vibration load during operation	Tested according to DIN IEC 60068-2-6: 10 to 58 Hz: 0.075 mm, 58 to 200 Hz: 9.8 m/s² (1 g)	Tested according to DIN IEC 60068-2-6: 10 to 58 Hz: 0.075 mm, 58 to 200 Hz: 9.8 m/s² (1 g)
Shock loading during operation	Tested according to DIN IEC 60068-2-7: 50 m/s² (5 g), 30 ms, 100 shocks	Tested according to DIN IEC 60068-2-7: 50 m/s² (5 g), 30 ms, 100 shocks
Relative humidity	Tested according to DIN IEC 68-78, DIN IEC 60068-2-30: 5 % to 80 % at 25 °C (no condensation)	Tested according to DIN IEC 68-78, DIN IEC 60068-2-30: 5 % to 80 % at 25 °C (no condensation)
maximum permissible installation angle +/-	+/- 45° from the vertical	+/- 45° from the vertical
Ambient temperature	0°C to 45 °C	0°C to 40°C
Certifications & standards		
Approvals	CE, cULus(508)	CE, cULus(508)
EMC	CE, 55022A, EN 61000-6-4, EN 61000-6-2	CE, 55022A, EN 61000-6-4, EN 61000-6-2
Degree of protection	Overall device IP65/enclosure type 4x/type 12 (indoor use only)	Overall device IP65/enclosure type 4x/type 12 (indoor use only)
Dimensions	400 mm x 310 mm x 98 mm	483 mm x 400 mm x 115 mm
Weight	7.4 kg	10.9 kg

3

■ **Ordering data**　　　　Order No.　　　　　　　　　　　　　Order No.

IPC477C PRO as "Built to Order" versions
(max. delivery time is 15 working days and with identified repair).

SIMATIC HMI IPC477C PRO optionally with WinAC / WinCC flexible	6AV7883- ■ A ■ ■ ■ - ■ ■ ■ 0

Embedded and fan-free, with IP65 housing with all-round protection;
5 x USB (500 mA),
1 of which on the front
24 V DC power supply
with On/Off switch

Front panels
• 15" TFT Touch (IP65 enclosure)	6
• 19" TFT Touch (IP65 enclosure)	7

Processors and fieldbus
• Celeron M 1.2 GHz, 2 x PROFINET (IE)	A
• Celeron M 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12	B
• Core2 Solo 1.2 GHz, 2 x PROFINET (IE)	D
• Core2 Solo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12	E
• Core2 Solo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (3 ports)	F
• Core2 Duo 1.2 GHz, 2 x PROFINET (IE)	G
• Core2 Duo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12	H
• Core2 Duo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (3 ports)	J

Main memory
(DDR3 RAM), 1 database
• 1 GB	1
• 2 GB	2
• 4 GB	3

Mass storage swappable
(formatted with a partition)
• None	0
• CompactFlash 2 GB	2
• CompactFlash 4 GB	3
• CompactFlash 8 GB	4
• CompactFlash 16 GB	5
• 50 GB SSD (High Endurance)	6

Mass storage
(with Windows Embedded Standard 2009 (EN/DE) / Windows Embedded Standard 7 pre-installed and optionally with SIMATIC software)
• CompactFlash 2 GB (only with Windows Embedded Standard 2009)	2
• CompactFlash 4 GB	3
• CompactFlash 8 GB	4
• CompactFlash 16 GB	5
• 50 GB SSD (High Endurance)	6

SIMATIC HMI IPC477C PRO optionally with WinAC / WinCC flexible (continued)	6AV7883- ■ A ■ ■ ■ - ■ ■ ■ 0

Operating system
(pre-installed and activated)
• Windows Embedded Standard 2009	B A
• Windows XP Professional Multi-Language, only with SSD; without SIMATIC software	D A
• Windows Embedded Standard 7 SP1, pre-installed on internal drive, CF > 4 GB, SSD, and 2 GB main memory	E A
• Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp) pre-installed on SSD	G A

Software packages

WinAC / WinCC flexible
CF 4 GB or more and SSD,
only together with
Windows Embedded Standard 2009
or Windows Embedded Standard 7
• With WinAC RTX pre-installed and configured for PROFIBUS and with WinCC flexible 2008 RT (incl. Archives/Recipes) pre-installed and configured	B
- Number of tags 128 PT	
- Number of tags 512 PT	C
- Number of tags 2048 PT	D
- Number of tags 4096 PT	E
	F
• With WinAC RTX and WinCC flexible 2008 RT (incl. Archives/Recipes) pre-installed and configured	
- Number of tags 128 PT	K
- Number of tags 512 PT	L
- Number of tags 2048 PT	M
- Number of tags 4096 PT	N
• With WinAC RTX F pre-installed and configured for PROFIBUS DP 12	P
- Number of tags 128 PT	R
• With WinAC RTX F and WinCC flexible 2008 RT (incl. Archives/Recipes), pre-installed and configured	
- Number of tags 512 PT	S
- Number of tags 2048 PT	T
- Number of tags 4096 PT	U

3

SIMATIC HMI IPC477C PRO

3

Ordering data	**Order No.**
SIMATIC HMI IPC477C PRO optionally with WinAC / WinCC RT Advanced	**6AV7883- ■ A ■ ■ ■ - ■ ■ ■ 1**

Embedded and fan-free, with IP65 housing with all-round protection; 5 x USB (500 mA), 1 of which on the front 24 V DC power supply with On/Off switch

Front panels
• 15" TFT Touch (IP65 enclosure)	**6**
• 19" TFT Touch (IP65 enclosure)	**7**

Processors and fieldbus
• Celeron M 1.2 GHz, 2 x PROFINET (IE)	**A**
• Celeron M 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12	**B**
• Core2 Solo 1.2 GHz, 2 x PROFINET (IE)	**D**
• Core2 Solo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12	**E**
• Core2 Solo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (3 ports)	**F**
• Core2 Duo 1.2 GHz, 2 x PROFINET (IE)	**G**
• Core2 Duo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12	**H**
• Core2 Duo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (3 ports)	**J**

Main memory
(DDR3 RAM), 1 database
• 2 GB	**2**
• 4 GB	**3**

Mass storage, removable
• None	**0**
• CompactFlash 2 GB (only with Windows Embedded Standard 2009)	**2**
• CompactFlash 4 GB	**3**
• CompactFlash 8 GB	**4**
• CompactFlash 16 GB	**5**
• 50 GB SSD (High Endurance)	**6**

Mass storage, installed
(Windows Embedded Standard 7 pre-installed and optionally with SIMATIC software)
• CompactFlash 4 GB	**3**
• CompactFlash 8 GB	**4**
• CompactFlash 16 GB	**5**
• 50 GB SSD (High Endurance)	**6**

Ordering data	**Order No.**
SIMATIC HMI IPC477C PRO optionally with WinAC / WinCC RT Advanced (continued)	**6AV7883- ■ A ■ ■ ■ - ■ ■ ■ 1**

Operating system
(pre-installed and activated)
• Windows Embedded Standard 7, pre-installed on internal drive	**E A**

Software packages
WinAC / WinCC RT Advanced

• With WinAC RTX pre-installed and configured for PROFIBUS and with WinCC RT Advanced (incl. Logging & Recipes) pre-installed and configured
- Number of tags 128 PT	**B**
- Number of tags 512 PT	**C**
- Number of tags 2048 PT	**D**
- Number of tags 4096 PT	**E**
	F

• With WinAC RTX and WinCC RT Advanced (incl. Logging & Recipes) pre-installed and configured
- Number of tags 128 PT	**K**
- Number of tags 512 PT	**L**
- Number of tags 2048 PT	**M**
- Number of tags 4096 PT	**N**

• With WinAC RTX F pre-installed and configured for PROFIBUS DP 12 | **P**

• With WinAC RTX F and WinCC RT Advanced (incl. Logging & Recipes) pre-installed and configured
- Number of tags 128 PT	**R**
- Number of tags 512 PT	**S**
- Number of tags 2048 PT	**T**
- Number of tags 4096 PT	**U**

Note:

An adapter plate is required for mounting on the support arm systems of well-known manufacturers; see "Accessories for fully enclosed HMI devices".

For further bundles with SIMATIC HMI IPC477C PRO with SIMATIC WinCC V7.0 and SIMATIC WinCC RT Professional (TIA Portal), see under SIMATIC HMI IPC477C bundles

■ **Dimensional drawings**

All dimensions in mm. For installation cutout, see technical specifications.
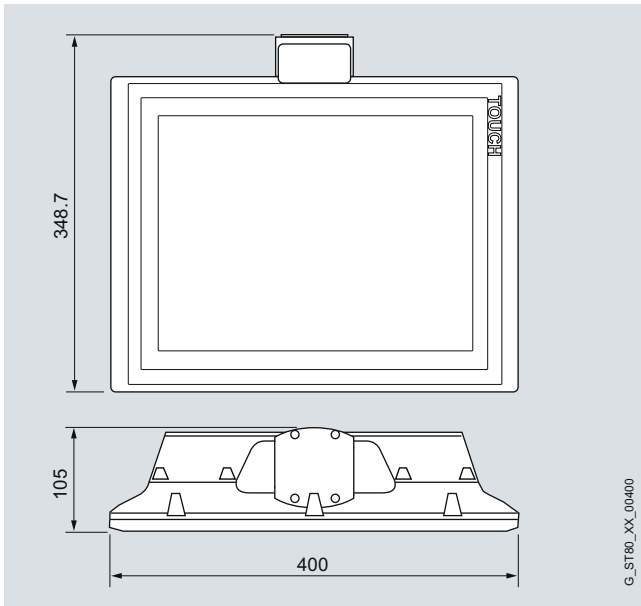
SIMATIC HMI IPC477C PRO 15" Touch version
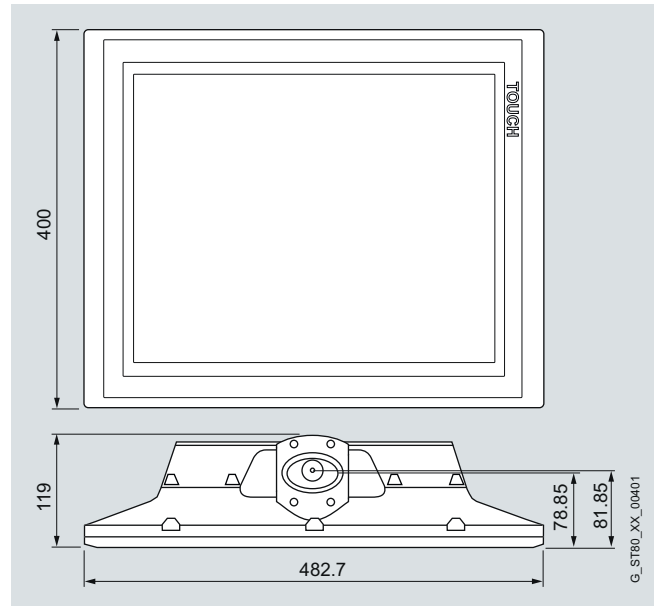
SIMATIC HMI IPC477C PRO 19" Touch version

■ **More information**

Additional information is available on the Internet at:

http://www.siemens.com/ip65-hmi-devices

Note:

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HMI devices for special requirements
Fully enclosed HMI devices

SIMATIC Flat Panel PRO

Overview
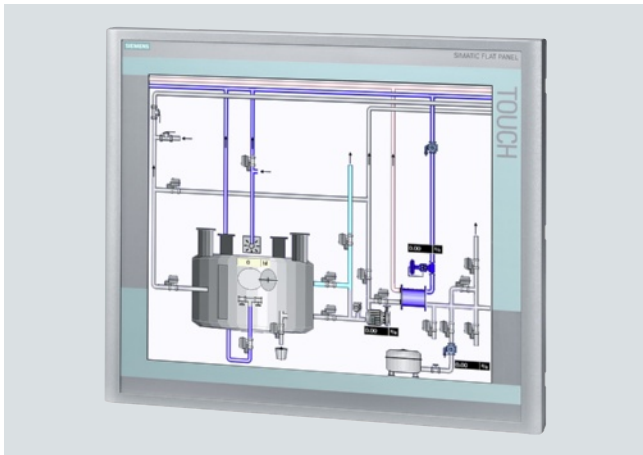
SIMATIC Flat Panel Monitor PRO 19"

SIMATIC Flat Panel Monitor PRO 15" with expansion unit (rear view)

Technical specifications

Flat Panel	PRO 15"	PRO 19"
Supply voltage		
Supply voltage	24 V DC and 230 V AC combined	24 V DC and 230 V AC combined
permissible frequency range	47 to 63 Hz	47 to 63 Hz
Power consumption, max.	35 VA	35 VA
General features		
Can be separate from the computer	up to 30 m	up to 30 m
Display		
On-screen display (OSD) configuration	Yes	Yes
Display version	15" TFT	19" TFT
visible area (H x W) in mm	304 x 228	376 x 301
Viewing angle	140° x 120° (min)	140° x 120° (min)
Pixel pitch	0.297 mm x 0.297 mm	0.297 mm x 0.297 mm
Resolution (W x H in pixels)	1024 x 768	1280 x 1024
Refresh rate	60 to 75 Hz	60 to 75 Hz
Line frequency	46.7 - 80 kHz	46.7 - 80 kHz
Brightness/contrast	> 260 cd/m^2 / 350:1	> 300 cd/m^2 / 300:1
Number of colors	16.7 million	16.7 million
MTBF of backlit display (at 25 °C, 24 hours continuous operation)	50,000 h	50,000 h
Type of operation		
Touch screen	analog-resistive	analog-resistive
Connection for keyboard/mouse/barcode reader	Yes, via USB	Yes, via USB
Degree of protection		
	Overall device IP65/enclosure type 4x/type 12 (indoor use only)	Overall device IP65/enclosure type 4x/type 12 (indoor use only)

Flat Panel	PRO 15"	PRO 19"
Certifications & standards		
Certification	cULus (UL 508), NEMA4-tested	cULus (UL 508), NEMA4-tested
EMC	CE EN 55011 class A	CE EN 55011 class A
Standards, approvals, certificates		
CE mark	Yes	Yes
UL approval	Yes	Yes
Ambient conditions		
Vibration load during operation	1 g (10 m/s^2)	1 g (10 m/s^2)
Shock loading during operation	5 g (50 m/s^2)	5 g (50 m/s^2)
Temperature • Ambient temperature during operation	5 to +45 °C	5 to +45 °C
Mounting		
Inclination angle	+/- 45° from the vertical	+/- 45° from the vertical
Interfaces		
Graphics interface	Standard VGA interface 15-pin sub-D/digital DVI-D interface	Standard VGA interface 15-pin sub-D/digital DVI-D interface
Interface for Touch	USB (V1.1)	USB (V1.1)
USB interface for touch screen	Yes	Yes
Dimensions		
External dimensions (W x H x D)	400 mm x 310 mm x 91 mm	483 mm x 400 mm x 105 mm
Weight		
Weight	6.7 kg	10 kg

■ **Ordering data**

	Order No.
SIMATIC Flat Panel PRO 15" Touch	**6AV7861-5TB10-1BA0**
SIMATIC Flat Panel PRO 19" Touch	**6AV7861-6TB10-1BA0**

Note:

An adapter plate is required for mounting on the support arm systems of well-known manufacturers; see "Accessories for fully enclosed HMI devices".

■ **Dimensional drawings**

All dimensions in mm. For installation cutout, see technical specifications.
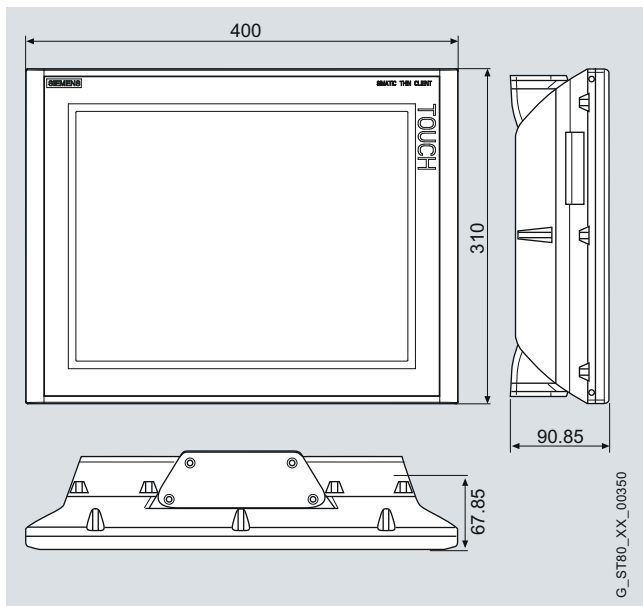
SIMATIC Flat Panel PRO 15" Touch
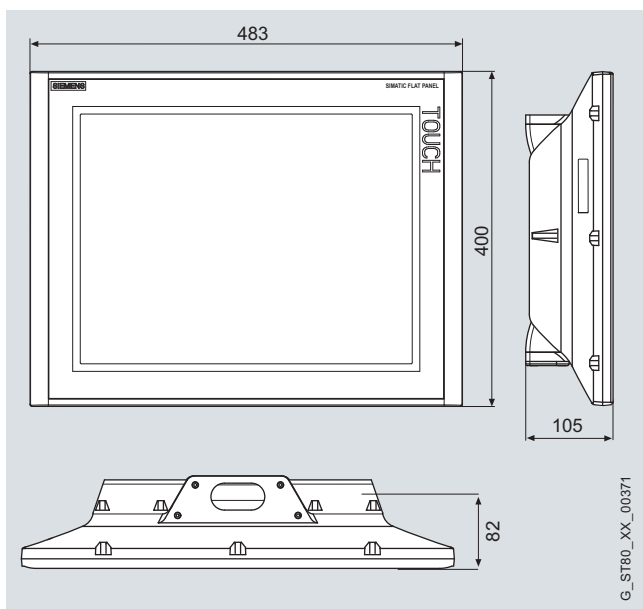
SIMATIC Flat Panel PRO 19" Touch

■ **More information**

Additional information is available on the Internet at:

http://www.siemens.com/ip65-hmi-devices

Note:

Do you require a specific modification or extension to the products described here? Under "Customized products" you can find information about additional and generally available products for the sector, and about the possibilities for customized modification and adaptation.

HMI devices for special requirements
Fully enclosed HMI devices

SIMATIC Thin Client PRO

Overview

SIMATIC Thin Client PRO 15"

3

Technical specifications

Thin Client PRO 15" Touch	6AV6646-2AB21-2AX0
Display	
Size	15.1"
Display type	TFT, 65536 colors
Resolution (pixels)	
• Resolution (WxH in pixel)	1024 x 768
Backlighting	
• MTBF backlighting (at 25 °C)	about 50000 hours
Control elements	
Control elements	Touch screen
Connection for mouse/keyboard/ barcode reader	USB / USB
Touch operation	
• Touch screen	Analog, resistive
Supply voltage	
Supply voltage	24 V DC
Processor	
Processor	ARM, 266 MHz
Memory	
Type	Flash / RAM
Usable memory for user data	No info
Interfaces	
Interfaces	1 x Ethernet (RJ45)
USB port	1 x USB
Industrial Ethernet	
• Industrial Ethernet interface	1 x Ethernet (RJ45)
Protocols	
WEB characteristics	
• HTTP	Yes
• HTML	Yes
• CSS	Yes
Protocols (terminal link)	
• Sm@rtServer	Yes
• RDP	Yes
EMC	
Emission of radio interference acc. to EN 55 011	
• Emission of radio interferences acc. to EN 55 011 (limit class A)	Yes; EN 61000-6-4, interference emission: Intended for use in industrial areas.
Degree and class of protection	
Front	IP65, NEMA 4x, NEMA 12 (when installed)
Rear	IP65
Standards, approvals, certificates	
Certifications	CE, cULus, C-TICK, NEMA 4x (Enclosure Type 4X, Type 12), NEMA 12
EMC	The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information please refer to the user documentation.
Suitable for safety functions	No

■ Technical specifications (continued)

Thin Client PRO 15" Touch	6AV6646-2AB21-2AX0
Ambient conditions maximum permissible angle of inclination without external ventilation	+/- 45 °
Operating temperature • Operation	0 °C to +45 °C
Storage/transport temperature • Transport, storage	-20 °C to +60 °C
Relative humidity • max. relative humidity	85 %; (Storage)
Dimensions Front of enclosure (W x H)	400 mm x 310 mm
Weight Weight	6.5 kg

■ Ordering data

	Order No.
SIMATIC Thin Client PRO 15" Touch	**6AV6646-2AB21-2AX0**
Starter packages	
SIMATIC Thin Client with Sm@rtAccess	
• Touch device 15" PRO with Sm@rtAccess license (panels)	**6AV6653-6CA01-2AA0**
• Touch device 15" PRO with Sm@rtAccess license for WinCC flexible 2008 Runtime	**6AV6653-6FA01-2AA0**

Note:

An adapter plate is required for mounting on the support arm systems of well-known manufacturers; see "Accessories for fully enclosed HMI devices".

■ Dimensional drawings

All dimensions in mm. For installation cutout, see technical specifications.

SIMATIC Thin Client PRO 15" Touch

■ More information

Additional information is available on the Internet at:

http://www.siemens.com/ip65-hmi-devices

Note:

Do you require a specific modification or extension to the products described here? Under "Customized products" you can find information about additional and generally available products for the sector, and about the possibilities for customized modification and adaptation.

HMI devices for special requirements
Accessories for fully enclosed HMI devices

Adapter sets

■ **Overview**

Adapter sets

- The adapter sets are required for connecting the SIMATIC HMI PRO device with the support arm head of the respective support arm system
- By directly connecting the support arm head to the device, there is complete flexibility in the choice of support arm components
- Adapter sets are available for the VESA 75 and VESA 100 systems.
- Further adapter sets can be obtained directly from the respective supporting bracket manufacturer: Bernstein, Rittal, Rose and Haseke

■ **Ordering data**

Ordering data	Order No.
VESA 100 adapter set [1] **for** • VESA 100 • Rose GTN II	**6AV7674-0KD00-0AA0**
Adapter set VESA 75 for • VESA 75	**6AV7674-0KE00-0AA0**
Replacement basic adapter, **suitable for** **SIMATIC HMI PRO devices**	**6AV7674-0KA00-0AA0**

[1] The VESA 100 adapter set cannot be used in combination with the 19" Flat Panel PRO.

Note:

The internal diameter of the 48 mm supporting bracket tubes is not suitable for passage of the standard DVI-D cable.

Scope of delivery:

- One basic adapter or one adapter plate
- Mounting hardware

■ **More information**

Additional information is available on the Internet at:

http://www.siemens.com/ip65-hmi-devices

Note:

Do you require a specific modification to or option for the products described here? Under "Customized products" you can find information about additional and generally available products for the sector, and about the possibilities for customized modification and adaptation.

3

■ Overview

Extension units

With the extension units, the range of possible on-site operations can be extended. They are mounted on the SIMATIC HMI PRO device and can be equipped individually, e.g. with Key Panel (KP8), 3SB elements, emergency stop buttons, key switches, RFID reader, etc.

- They can be mounted on the left or right side of the PRO device, as required
- Direct installation of up to 2 Key Panels KP8 / KP8F
- IP65 - cable routing
- Can be equipped individually
- For all 15"/19" PRO devices

The combination of HMI PRO device and KP8 PN offers the following advantages:

- No control cabinet required
- Low cabling overhead
- Optimally coordinated design

■ Ordering data

	Order No.
Extension Unit 15" For mounting on all 15" PRO devices	**6AV7674-0KG00-0AA0**
Extension Unit 15" KP8 For mounting on all 15" PRO devices for direct installation of up to 2 KP8 / KP8F	**6AV7674-0KG01-0AA0**
Starter package Extension Unit 15" with KP8 1 x Extension Unit 15" KP8, 1 x Key Panel 8 PN, 1 x blank front	**6AV7674-0KG11-0AA0**
Extension Unit 19" right • For support arm mounting from above Mounting of the Extension Unit on the right side of the 19" PRO device • For support arm mounting from below Mounting of the Extension Unit on the left side of the 19" PRO device	**6AV7674-0KJ00-0AA0**
Extension Unit 19" KP8 right • For support arm mounting from above Mounting of the Extension Unit on the right side of the 19" PRO device • For support arm mounting from below Mounting of the Extension Unit on the left side of the 19" PRO device • For direct installation of up to 2 KP8 / KP8F	**6AV7674-0KJ01-0AA0**
Starter package Extension Unit 19" with KP8 right 1 x Extension Unit 19" KP8 right, 1 x Key Panel 8 PN, 1 x blank front	**6AV7674-0KJ11-0AA0**
Extension Unit 19" left • For support arm mounting from above Mounting of the Extension Unit on the left side of the 19" PRO device • For support arm mounting from below Mounting of the Extension Unit on the right side of the 19" PRO device	**6AV7674-0KH00-0AA0**
Starter package Extension Unit 19" with KP8 left 1 x Extension Unit 19" KP8 left, 1 x Key Panel 8 PN, 1 x blank front	**6AV7674-0KH11-0AA0**
Extension Unit 19" KP8 left • For support arm mounting from above Mounting of the Extension Unit on the left side of the 19" PRO device • For support arm mounting from below Mounting of the Extension Unit on the right side of the 19" PRO device • For direct installation of up to 2 KP8 / KP8F	**6AV7674-0KH01-0AA0**

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HMI devices for special requirements
Accessories for fully enclosed HMI devices

Extension units

Ordering data	Order No.
KP8 front plate **for the Extension Unit** • For installing up to two KP8 in an Extension Unit • Suitable for all 15" and 19" Extension Units	**6AV7674-0KH30-0AB0**
Empty front KP8 design **in combination** **with front panel KP8**	**6AV3688-3XY38-3AX0**
Spare front plate **for the Extension Unit** • Suitable for all 15" and 19" Extension Units • Required if the front plate supplied with the Extension Unit must be replaced	**6AV7674-0KH30-0AA0**

Scope of delivery:

• 1 Extension Unit box

• 1 front plate for the Extension Unit

• 1 connecting tube

• Mounting accessories

More information

Additional information is available on the Internet at:

http://www.siemens.com/ip65-hmi-devices

Note:

Do you require a specific modification to or option for the products described here? Under "Customized products" you can find information about additional and generally available products for the sector, and about the possibilities for customized modification and adaptation.

3

Overview

IP65 keyboards

With the stainless steel IP65 keyboards, the range of possible on-site operations can be extended. They are mounted on the SIMATIC HMI PRO device underneath the base adapter, and they are available in two versions.

- Anti-twist and non-removable stainless steel key caps
- Abrasion-resistant laser labeling
  (depth engraving with annealing marking)
- Secure, pleasant key feel
- Maximum user-friendliness thanks to withdrawable long-stroke key
- Windows layout (EN/US) with two additional keys
  (left and right mouse key function) via cursor block
- USB interface
- Angle-adjustable connection for optimal ergonomics
- Water and dust protection in accordance with degree of protection IP65
- For all 15"/19" PRO devices

Ordering data	Order No.
Stainless steel IP65 keyboard 15" • Width: 400 mm (adapted to 15" SIMATIC HMI PRO) • Windows layout (EN/US) without NUM block • Angle-adjustable adapter	**6AV7674-0NC00-0AA0**
Stainless steel IP65 keyboard 19" • Width: 483 mm (adapted to 19" SIMATIC HMI PRO) • Windows layout (EN/US) with NUM block • Angle-adjustable adapter	**6AV7674-0NE00-0AA0**
Tool and keyboard tray • Width: 483 mm (adapted to 19" SIMATIC HMI PRO) • Including 2-port USB interface • Angle-adjustable adapter	**6AV7674-0NE01-0AA0**

Scope of delivery:

- One stainless steel IP65 keyboard incl. mounting adapter for PRO devices
- Mounting accessories

More information

Additional information is available on the Internet at:

http://www.siemens.com/ip65-hmi-devices

Note:

Do you require a specific modification to or option for the products described here? Under "Customized products" you can find information about additional and generally available products for the sector, and about the possibilities for customized modification and adaptation.

3

HMI devices for special requirements
Accessories for fully enclosed HMI devices

USB interfaces

■ **Overview**

- The USB interface is used for connecting external peripheral devices to the MP 377 PRO, the HMI IPC477C PRO, the Flat Panels PRO, and the Thin Client PRO.
- USB peripheral devices can thus be connected and operated without opening the device
- Extension of the internal USB interface externally

Ordering data	Order No.
1-port USB interface For fully enclosed HMI devices, length USB cable: 0.5 m	**6AV7674-0LX00-0AA0**
2-port USB interface For fully enclosed HMI devices, length USB cable: 0.5 m. Not suitable for: Thin Client, MP 377, and Flat Panel	**6AV7674-0LX01-0AA0**

■ **More information**

Additional information is available on the Internet at:

http://www.siemens.com/ip65-hmi-devices

Note:

Do you require a specific modification to or option for the products described here? Under "Customized products" you can find information about additional and generally available products for the sector, and about the possibilities for customized modification and adaptation.

3

■ **Overview**

For special requirements, the following HMI devices with stainless steel front (DIN EN 1672-2), e.g. for use in the food, beverages and tobacco industries, are offered.

SIMATIC HMI IPC677C INOX

PC platform with high degree of industrial compatibility for demanding tasks in the area of PC-based automation.

Rugged construction:
The PC is resistant to the harshest mechanical stress and is reliable in operation.

- Compact design
- High degree of investment protection
- Fast integration capability
- 15" TFT Touch, stainless steel/INOX
- All interfaces such as PROFIBUS or PROFINET onboard

More SIMATIC HMI INOX panels

You will find further INOX industry products, as well as customer-specific product variants, in the "Customized Automation" section, e.g.

- SIMATIC HMI Flat Panel 15" Touch INOX
- SIMATIC HMI Flat Panel 19" Touch INOX
- SIMATIC HMI Flat Panel 19" Touch INOX fully enclosed

Note:

Do you require a specific modification to or option for the products described here? Then look up "Customized products", where you will find information about additional generally-available industry-specific products that can be ordered, as well as about options for customer-specific modifications and adaptations.

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HMI devices for special requirements
Devices with stainless steel front

SIMATIC HMI IPC677C INOX

■ Overview

PC platform with high degree of industrial compatibility for demanding tasks in the area of PC-based automation.

Rugged design:
The PC is resistant to the harshest mechanical stress and is reliable in operation.

- Compact design
- High degree of investment protection
- Fast integration capability
- Front panel versions:
  - 15" TFT Touch, stainless steel/INOX

■ Technical specifications

HMI IPC677C INOX 15" Touch	6AV789...
General features	
Front panel	15" TFT Touch
Display	
Screen diagonal	15"
Resolution (W x H in pixels)	1024 x 768
MTBF of backlighting (at 25 °C)	50 000 h at 24 h continuous operation, temperature-dependent
Type of operation	
Touch screen	Yes
Design	
Central design	Yes
Dimensions	
Installation cutout/device depth (W x H x D) in mm	450 x 290 x 142 (incl. optical drive)
Mounting dimensions in centralized configuration (W x H x D, without optical drive) in mm	450 x 290 x 121
Additional mounting depth (optical drive) in mm	21
Weight	
HMI IPC in a centralized configuration approx.	14 kg

3

Ordering data

	Order No.					
SIMATIC HMI IPC677C INOX	**6AV789 ■ - ■ ■ ■ ■ ■ - ■ ■ ■ ■**					

Front panels
- 15" TFT Touch — **2**

Front options
- INOX front, without front USB, with 15" TFT Touch only — **2**

Power supply
- 24 V DC — **A**
- 110/230 V AC, power cable for Europe — **B**
- 110/230 V AC, without power cable — **C**
- 110/230 V AC, power cable for UK — **D**
- 110/230 V AC, power cable for CH — **E**
- 110/230 V AC, power cable for the USA — **F**
- 110/230 V AC, power cable for Italy — **G**
- 110/230 V AC, power cable for China — **H**

Processor
- Intel Celeron 1.86 GHz (2 MB shared cache), 2 cores — **A**
- Intel Celeron 1.86 GHz (2 MB shared cache), 2 cores, PROFIBUS MPI, 2 MB buffered SRAM — **B**
- Intel Celeron 1.86 GHz (2 MB shared cache), 2 cores, PROFINET (3x RJ45, CP1616-compatible), 2 MB buffered SRAM — **C**
- Intel Core i3, 2.13 GHz (3 MB shared cache), 2 cores, hyper-threading — **D**
- Intel Core i3, 2.13 GHz (3 MB shared cache), 2 cores, hyper-threading, PROFIBUS MPI, 2 MB buffered SRAM — **E**
- Intel Core i3, 2.13 GHz (3 MB shared cache), 2 cores, hyper-threading, PROFINET (3x RJ45, CP1616-compatible), 2 MB buffered SRAM — **F**
- Intel Core i7, 2.53 GHz (4 MB shared cache), 2 cores, hyper-threading, turbo boost — **G**
- Intel Core i7, 2.53 GHz (4 MB shared cache), 2 cores, hyper-threading, turbo boost, PROFIBUS MPI, 2 MB buffered SRAM — **H**
- Intel Core i7, 2.53 GHz (4 MB shared cache), 2 cores, hyper-threading, turbo boost, PROFINET (3 x RJ45, CP 1616-compatible), 2 MB buffered SRAM — **J**

	Order No.					
SIMATIC HMI IPC677C INOX (continued)	**6AV789 ■ - ■ ■ ■ ■ ■ - ■ ■ ■ ■**					

Main memory
- 1 GB DDR3 — **0**
- 2 GB DDR3 — **1**
- 3 GB DDR3 — **2**
- 4 GB DDR3 — **3**
- 8 GB DDR3 — **4**
- 2 GB DDR3 with ECC — **5**
- 4 GB DDR3 with ECC — **6**
- 8 GB DDR3 with ECC — **7**

Mass storage
- 250 GB SATA hard disk — **0**
- 500 GB SATA hard disk — **1**
- RAID1 dual hard disk module 2 x 250 GB SATA, preconfigured — **2**
- Dual hard disk module 2 x 250 GB SATA — **3**
- 50 GB SSD (SLC) — **4**
- Second CF card slot (only in combination with Windows XP embedded), internal, empty, only with version without opt. drive and without HDD — **5**
- Without mass storage — **8**

Optical drives
- None — **0**
- DVD±RW±R combo drive — **1**

Communication Interfaces
- 2 x PCI available — **A**
- 1 x PCI, 1 x PCIe (x16) available — **B**

Operating system
(pre-installed and activated)
- Without operating system — **A**
- Windows XP Professional Multi-Language [1] — **B**
- Windows 7 Ultimate 32-bit Multi-Language [1] — **C**
- Windows Embedded Standard on 8 GB CF card [2] — **D**
- Windows 7 Ultimate 64-Bit Multi-Language [1] — **E**

Software expansion
- None — **0**
- SIMATIC IPC DiagMonitor V4.3 enclosed — **1**
- SIMATIC IPC Image & Partition Creator V3.2 enclosed — **2**
- SIMATIC IPC DiagMonitor V4.3, Image & Partition Creator V3.2 enclosed — **3**

[1] Multi-language means: D/E/F/I/SP/CHIN traditional/CHIN simplified/ Korean/Japanese

[2] Without RAID 1 option only

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HMI devices for special requirements
Devices with stainless steel front

SIMATIC HMI IPC677C INOX

Ordering data	Order No.
Accessories	
Memory expansion	
• 1 GB DDR3 DIMM	**6ES7648-2AJ40-0KA0**
• 2 GB DDR3 DIMM	**6ES7648-2AJ50-0KA0**
• 4 GB DDR3 DIMM	**6ES7648-2AJ60-0KA0**
• 1 GB DDR3 DIMM with ECC	**6ES7648-2AJ40-1KA0**
• 2 GB DDR3 DIMM with ECC	**6ES7648-2AJ50-1KA0**
• 4 GB DDR3 DIMM with ECC	**6ES7648-2AJ60-1KA0**
Non-heating apparatus cable for SIMATIC Box and Panel PC	
SIMATIC PC power cable, 230 V AC, angled, 3 m, for:	
• Germany	**6ES7900-1AA00-0XA0**
• United Kingdom	**6ES7900-1BA00-0XA0**
• Switzerland	**6ES7900-1CA00-0XA0**
• USA	**6ES7900-1DA00-0XA0**
• Italy	**6ES7900-1EA00-0XA0**
• China	**6ES7900-1FA00-0XA0**
Touch pen	**6AV7672-1JB00-0AA0**
Captive pen for operation of the touch devices, mounting of the support on the control cabinet	
Expansion components	From page 5/153
Communication components	From page 5/186

Dimensional drawings

All dimensions in mm.

Panel PC 677C INOX 15" Touch

Control units PC 677 INOX	G	H	J	K	L	M	N
Touch devices							
15"	289	271	138	11	24	367	42

More information

Additional information is available in the Internet under:

http://www.siemens.com/inox-hmi-devices

Note:

Do you require a specific modification or supplement to the products described here? Then refer to "Customized products", where you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

Overview

The SIMATIC HMI Ex devices are intrinsically-safe Panel PCs and Thin Clients which have been specially developed for hazardous areas. The intrinsically-safe design allows simple installation on site. The variety of certification allows use in many parts of the world without further approvals.

The devices are fanless and permit completely maintenance-free installation without batteries or rotating parts.

Available as HMI devices for hazardous areas "Zone 1" and "Zone 2" are:
- SIMATIC HMI Panel PC Ex
- SIMATIC HMI Thin Client Ex

Further SIMATIC HMI devices are also available for the hazardous area "Zone 2/22" and can be found in the chapter "Operator panels":
- SIMATIC HMI Comfort Panels

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HMI devices for special requirements
HMI devices for hazardous areas

SIMATIC HMI Panel PC Ex

3

■ **Overview**

SIMATIC HMI Panel PC Ex with international approvals for operation and monitoring in hazardous areas.

■ **Technical specifications**

HMI Panel PC Ex	6AV7200-1...
General features	
Design	Panel PC built-in unit, protective enclosure available as an option
Front	15" and 19", optional 15" sunlight-readable displays
Operation	Touch with 8 function keys
Processor	Intel Atom N270 with 1.6 GHz
Main memory	1 GB DDR2 SDRAM, 2 GB optional
Operating system, preinstalled and configured	Windows XP Professional, Windows XP Embedded, Windows 7 MUI
Mass storage	CompactFlash 4 GB / 16 GB, hard disk 100 GB
Power supply	24 V DC, max. 2.1 A (19")
Interfaces	
Ethernet	10/100 Mbit Ex e, or fiber-optics 100 Mbit (SC) Ex op is
USB 2.0	2 x Ex i, 2 x Ex e (Zone 1) or 2 x Ex nA (Zone 2)
Serial	1 x RS232 or 1 x RS422/485
Ambient conditions	
Degree of protection	IP66 at front, IP65 at rear, IP66 in protective enclosure
Ambient temperature during operation	-20 °C ... +50 °C (cold start -10 °C) with optional additional heating down to -30 °C
Relative humidity during operation	90 % at + 40 °C, no condensation

HMI Panel PC Ex	6AV7200-1...
Approvals/directives	
Devices in version "Zone 1"	
ATEX directive 94/9/EC	
• Network 10/100 Base-Tx	II 2 (2) G Ex d e ia ib mb [ia ib] IIC T4 Gb II 2 (2) D Ex ia tb [ia ib] IIIC T80°C Db IP66
• Network 10/100 Base-Fx	II 2 (2) G Ex d e ia ib mb [ia ib op is] IIC T4 Gb II 2 (2) D Ex ia tb [ia ib op is] IIIC T80°C Db IP66
IECEx	
• Network 10/100 Base-Tx	Ex d e ia ib mb [ia ib] IIC T4 Gb Ex ia tb [ia ib] IIIC T80°C Db IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb [ia ib op is] IIC T4 Gb Ex ia tb [ia ib op is] IIIC T80°C Db IP66
GOST-R	
• Network 10/100 Base-Tx	2 Ex d e ia ib mb [iaib] IIC T4 DIP A21 TA80°C, IP66
• Network 10/100 Base-Fx	2 Ex d e ia ib mb [iaibopis] IIC T4 DIP A21 TA80°C, IP66
CSA	Ex d e ia ib mb [ia ib] IIC T4 Gb, Type 4X, IP66 Class II, Division 1, Groups E, F, G, T80°C Ex ia tb [ia ib] IIIC T80°C Db, IP66
KGS	Ex d e ia ib mb [ia ib] IIC T4 Ex ia tb [ia ib] IIIC T80°C Db IP66
InMetro	
• Network 10/100 Base-Tx	Ex d e ia ib mb [ia ib] IIC T4 Gb Ex ia tb [ia ib] IIIC T80°C Db IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb [ia ib op is] IIC T4 Gb Ex ia tb [ia ib op is] IIIC T80°C Db IP66
Device version "UL Class 1, Division 2"	Class 1, Division 2, Groups A, B, C, D Class 2, Division 2, Groups F, G Class 3, Hazardous Locations

HMI devices for special requirements
HMI devices for hazardous areas

■ Technical specifications (continued)

HMI Panel PC Ex	6AV7200-1...
Devices in version "Zone 2"	
ATEX directive 94/9/EC	
• Network 10/100 Base-Tx	II 3 (2/3) G Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc II3 (2/3) D Ex ia tc [ib Db] [ic] IIIC T80°C Dc IP66
• Network 10/100 Base-Fx	II 3 (2/3) G Ex d e ia ib mb nA [ib op is Gb] [ic] IIC T4 Gc II 3 (2/3) D Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
IECEx	
• Network 10/100 Base-Tx	Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc Ex ia tc [ib Db] [ic] IIIC T80°C Dc IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb nA [ib op is Gb] [ic] IIC T4 Gc Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
GOST-R	
• Network 10/100 Base-Tx	2 Ex d e ia ib mb nA [ib][ic] IIC T4 DIP A21 TA80°C, IP66
• Network 10/100 Base-Fx	2 Ex d e ia ib mb nA [ib opis][ic] IIC T4 DIP A21 TA80°C, IP66
CSA	Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc, Type 4X, IP66 Class II, Division 2, Groups E, F, G, T80°C; Ex ia tc [ib ic] IIIC T80°C Dc, IP66
InMetro	
• Network 10/100 Base-Tx	Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc Ex ia tc [ib Db] [ic] IIIC T80°C Dc IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb nA [ib op is Gb] IIC T4 Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
Device version "UL Class 1, Division 2"	Class 1, Division 2, Groups A, B, C, D Class 2, Division 2, Groups F, G Class 3, Hazardous Locations

HMI Panel PC Ex	6AV7200-1...
Dimensions	
Mounting dimensions (W x H x D)	15": 427.5 mm x 327.5 mm x 165 mm 19": 522.5 mm x 412.5 mm x 165 mm
Front dimensions (W x H)	15": 440 mm x 340 mm 19": 535 mm x 425 mm
Weight	15": 15 kg 19": 23 kg

3

HMI devices for special requirements
HMI devices for hazardous areas

SIMATIC HMI Panel PC Ex

Ordering data	Order No.		Order No.

SIMATIC HMI Panel PC Ex — 6AV7200- 1 ▪ ▪ ▪ ▪ - ▪ ▪ A 0

Design / display size
- Zone 2: 15" Touch with function keys — **A**
- Zone 2: 19" Touch with function keys — **B**
- Zone 1: 15" Touch with function keys — **D**
- Zone 1: 19" Touch with function keys — **E**
- UL Class 1, Division 2: 15" Touch with function keys — **G**
- UL Class 1, Division 2: 19" Touch with function keys — **H**
- Zone 2: 15" Touch, sunlight readable with 8 function keys — **J**
- Zone 1: 15" Touch, sunlight readable with 8 function keys — **K**

Communication interfaces
- 10/100 base Tx, Ex e — **A**
- 100 base Fx FOC (SC), Ex op is — **B**

Mass storage
- CF 4 GB, 1 GB RAM — **1**
- CF 16 GB, 1 GB RAM — **2**
- HDD 100 GB, 1 GB RAM — **3**
- CF 4 GB, 2 GB RAM — **4**
- CF 16 GB, 2 GB RAM — **5**
- HDD 100 GB, 2 GB RAM — **6**

Operating system (preinstalled)
- Windows XP Embedded on CF (language package 1) [1] — **1**
- Windows XP Professional MUI (only on HDD) — **3**
- Windows 7 Ultimate (only on HDD) — **4**

Enclosure options (device is delivered already fitted)
- without — **0**
- Stainless steel enclosure for:
  - Wall mounting — **2**
  - Stand (incl. coupling, 300° rotation possible) — **3**
  - Suspension bracket (incl. coupling, 300° rotation possible) — **4**
  - Support arm (incl. coupling, 300° rotation possible) — **5**
  - Swivel arm from above (incl. coupling, 300° rotation possible) — **6**

External keyboard for stainless steel enclosure (incl. keyboard enclosure)
- without — **A**
- QWERTZ keyboard — **B**
- QWERTY keyboard — **C**
- AZERTY keyboard — **D**
- QWERTZ keyboard with trackball — **E**
- QWERTY keyboard with trackball — **F**
- AZERTY keyboard with trackball — **G**

Further options together with stainless steel enclosure
- Breather glands — **-z A 0 1**
- Heating (requires breather glands) — **-z B 0 1**
- Handles — **-z C 0 1**
- Front USB (at bottom) — **-z D 0 1**

[1] Package 1: upon initial startup, select the language from: English, German, French, Italian, Spanish, Portuguese, Brazilian, Dutch, Danish, Swedish, Norwegian, Finnish, Greek, Hungarian, Czech, Polish, Turkish, Russian, Hebrew, Arabic, Chinese, Japanese, Korean, Thai

Accessories

	Order No.
Digital KVM for HMI Thin Client Ex	**6AV7675-0EX00-0AA0**
USB drive	
• Intrinsically-safe, 8 GB	**6AV7675-0FX00-0AA0**
• Intrinsically-safe, 8 GB with recovery function	**6AV7675-0FX10-0AA0**
Ethernet switch	**6AV7675-0PX00-0AA0**

with FOC 4 x 100 Base Tx, 1 x 100 Base (MTRJ) Fx Ex op is

3

3

▋ Dimensional drawings

Legend: i = Clamping frame

h = Mounting clamp (10 x)   j = Control cabinet or enclosure

All dimensions in mm. For mounting cut-out see technical specifications.
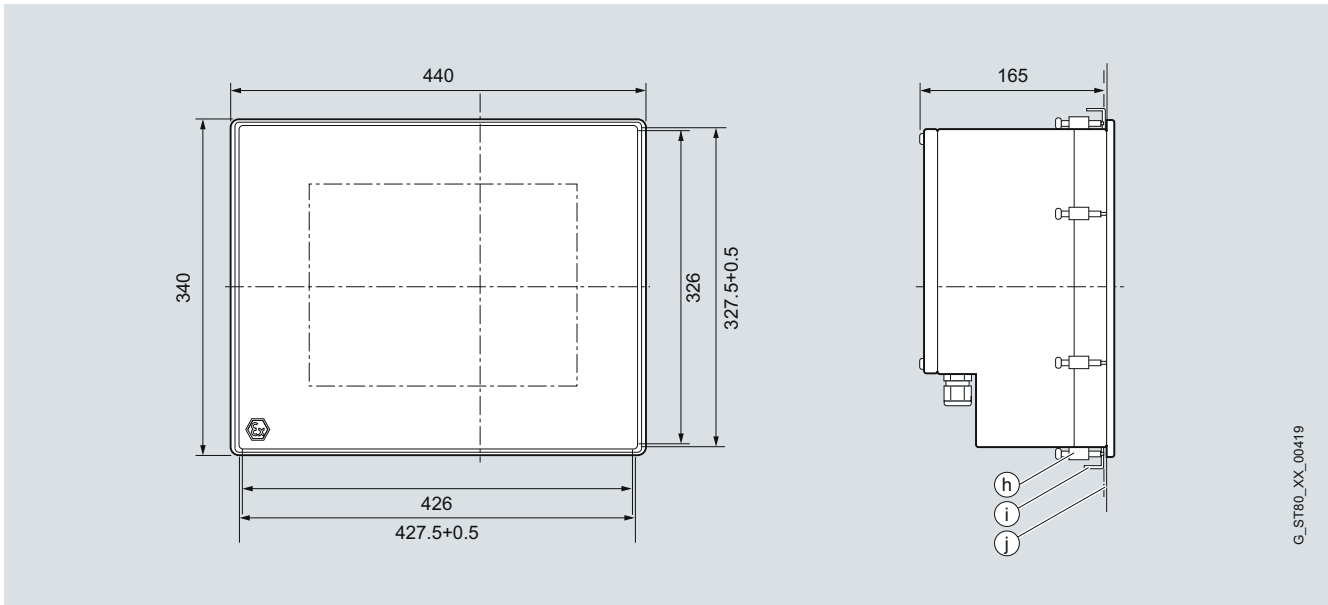
SIMATIC HMI Panel PC Ex 15"
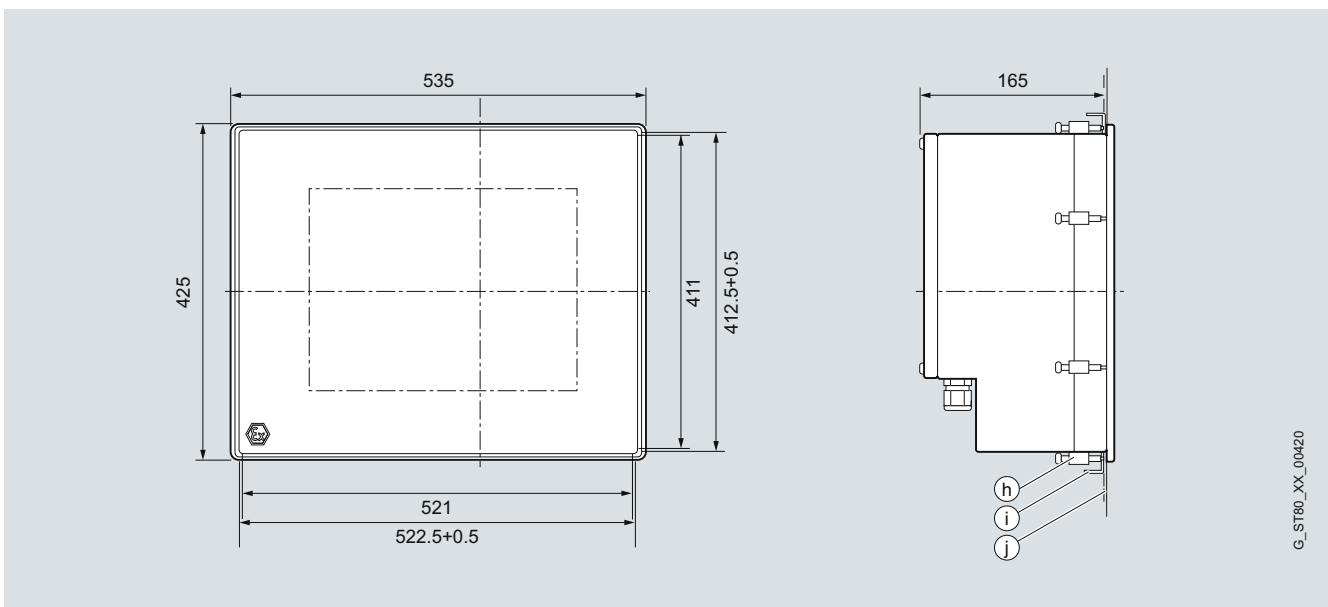
SIMATIC HMI Panel PC Ex 19"

▋ More information

Additional information is available on the Internet at:

http://www.siemens.com/simatic-hmi-ex

HMI devices for special requirements
HMI devices for hazardous areas

SIMATIC HMI Thin Client Ex

Overview

SIMATIC HMI Thin Client Ex with international approvals for operation and monitoring in hazardous areas.

Technical specifications

HMI Thin Client Ex	6AV7200-0...
General features	
Design	Thin Client built-in unit, available in protective enclosure as an option
Front	15", 19", and 15" sunlight readable display
Operation	Touch with 8 function keys
MTBF backlight	50 000 h
Operating system	Closed system on Windows XP Embedded basis
Mass storage	Integrated
Power supply	24 V DC, max. 2.1 A (19")
Interfaces	
Ethernet	100 Mbit Ex e, or alternatively fiber-optics 100 Mbit (SC) Ex op is
USB 2.0	2 x Ex i, 2 x Ex e (Zone 1) or 2 x Ex nA (Zone 2)
Serial	1 x RS232 or 1 x RS422/485
Ambient conditions	
Degree of protection	IP66 at front, IP65 at rear, IP66 in protective enclosure
Ambient temperature during operation	- 20 °C ... + 50 °C, cold start -10 °C, with optional additional heating down to -30 °C
Relative humidity during operation	90 % at 40 °C, no condensation
Approvals/directives	
Devices in "Zone 1" version	
ATEX directive 94/9/EC	
• Network 10/100 Base-Tx	II 2 (2) G Ex d e ia ib mb [ia ib] IIC T4 Gb II 2 (2) D Ex ia tb [ia ib] IIIC T80°C Db IP66
• Network 10/100 Base-Fx	II 2 (2) G Ex d e ia ib mb [ia ib op is] IIC T4 Gb II 2 (2) D Ex ia tb [ia ib op is] IIIC T80°C Db IP66

HMI Thin Client Ex	6AV7200-0...
IECEx	
• Network 10/100 Base-Tx	Ex d e ia ib mb [ia ib] IIC T4 Gb Ex ia tb [ia ib] IIIC T80°C Db IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb [ia ib op is] IIC T4 Gb Ex ia tb [ia ib op is] IIIC T80°C Db IP66
GOST-R	
• Network 10/100 Base-Tx	2 Ex d e ia ib mb [iaib] IIC T4 DIP A21 TA80°C, IP66
• Network 10/100 Base-Fx	2 Ex d e ia ib mb [iaibopis] IIC T4 DIP A21 TA80°C, IP66
CSA	Ex d e ia ib mb [ia ib] IIC T4 Gb, Type 4X, IP66 Class II, Division 1, Groups E, F, G, T80°C Ex ia tb [ia ib] IIIC T80°C Db, IP66
KGS	Ex d e ia ib mb [ia ib] IIC T4 Ex ia tb [ia ib] IIIC T80°C Db IP66
InMetro	
• Network 10/100 Base-Tx	Ex d e ia ib mb [ia ib] IIC T4 Gb Ex ia tb [ia ib] IIIC T80°C Db IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb [ia ib op is] IIC T4 Gb Ex ia tb [ia ib op is] IIIC T80°C Db IP66
Devices in version "Zone 2"	
ATEX directive 94/9/EC	
• Network 10/100 Base-Tx	II 3 (2/3) G Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc II3 (2/3) D Ex ia tc [ib Db] [ic] IIIC T80°C Dc IP66
• Network 10/100 Base-Fx	II 3 (2/3) G Ex d e ia ib mb nA [ib op is Gb] [ic] IIC T4 Gc II 3 (2/3) D Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
IECEx	
• Network 10/100 Base-Tx	Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc Ex ia tc [ib Db] [ic] IIIC T80°C Dc IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb nA [ib op is Gb] [ic] IIC T4 Gc Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
GOST-R	
• Network 10/100 Base-Tx	2 Ex de i a ib mb nA [ib][ic] IIC T4 DIP A21 TA80°C, IP66
• Network 10/100 Base-Fx	2 Ex de i a ib mb nA [ibopis][ic] IIC T4 DIP A21 TA80°C, IP66
CSA	Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc, Type 4X, IP66 Class II, Division 2, Groups E, F, G, T80°C; Ex ia tc [ib ic] IIIC T80°C Dc, IP66
InMetro	
• Network 10/100 Base-Tx	Ex d e ia ib mb nA [ib Gb] [ic] IIC T4 Gc Ex ia tc [ib Db] [ic] IIIC T80°C Dc IP66
• Network 10/100 Base-Fx	Ex d e ia ib mb nA [ib op is Gb] IIC T4 Ex ia tc [ib op is Db] [ic] IIIC T80°C Dc IP66
Protocols	RDP, RealVNC
Digital KVM switch	Input: DVI / VGA, PS/2 / USB, output: RJ45 (IP network)
Dimensions	
Mounting dimensions (W x H x D) in mm	15": 427.5 x 327.5 x 165 19": 522.5 x 412.5 x 165
Front dimensions in mm	15": 440 x 340 19": 535 x 425
Weight	15": 15 kg, 19": 23 kg

3

■ Ordering data

	Order No.
SIMATIC HMI Thin Client Ex	**6AV7200-** 0 ■ ■ 0 0 - ■ ■ A 0

Design / display size
- Zone 2: 15" Touch with function keys — **A**
- Zone 2: 19" Touch with function keys — **B**
- Zone 1: 15" Touch with function keys — **D**
- Zone 1: 19" Touch with function keys — **E**
- Zone 2: 15" Touch, sunlight readable with function keys — **G**
- Zone 1: 15" Touch, sunlight readable with function keys — **H**

Communication interfaces
- 10/100 base Tx, Ex e — **A**
- 100 base Fx FOC (SC), Ex op is — **B**

Enclosure options (device is delivered already fitted)
- without — **0**
- Stainless steel enclosure for:
  - Wall mounting — **2**
  - Stand (incl. coupling, 300° rotation possible) — **3**
  - Suspension bracket (incl. coupling, 300° rotation possible) — **4**
  - Support arm (incl. coupling, 300° rotation possible) — **5**
  - Swivel arm from above (incl. coupling, 300° rotation possible) — **6**

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Further options together with stainless steel enclosure
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- Heating (requires breather glands) — **-z B 0 1**
- Handles — **-z C 0 1**
- Front USB (at bottom) — **-z D 0 1**

Accessories

	Order No.
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USB drive	
• Intrinsically-safe, 8 GB	**6AV7675-0FX00-0AA0**
• Intrinsically-safe, 8 GB with recovery function	**6AV7675-0FX10-0AA0**
Ethernet switch	**6AV7675-0PX00-0AA0**

With FOC 4 x 100 Base Tx,
1 x 100 Base (MTRJ) Fx Ex op is

HMI devices for special requirements
HMI devices for hazardous areas

SIMATIC HMI Thin Client Ex

Dimensional drawings

Legend:

h = Mounting clamp (10 x)

i = Clamping frame

j = Control cabinet or enclosure

All dimensions in mm. For mounting cut-out see technical specifications.
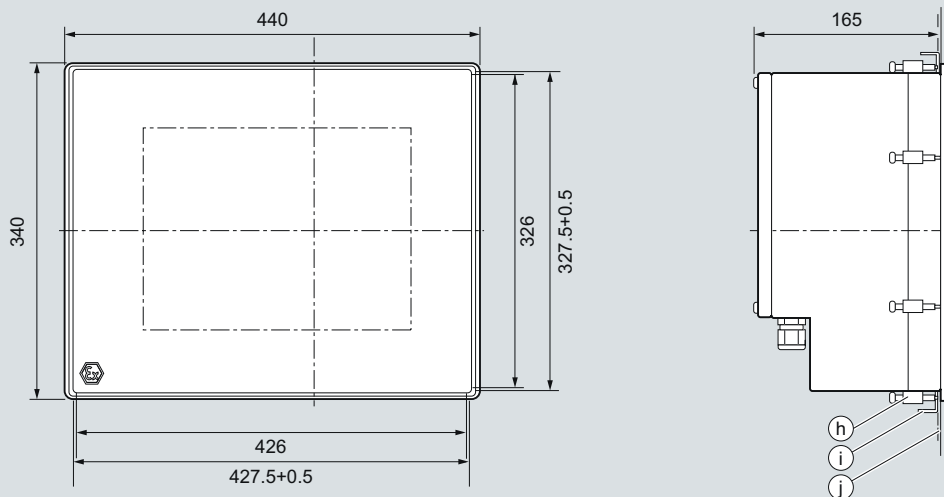
SIMATIC HMI Thin Client Ex 15"

15" touch front	Width in mm	Height in mm	Depth in mm
Operating unit	440	340	165
Installation cutout	427.5 ± 0.5	327.5 ± 0.5	-
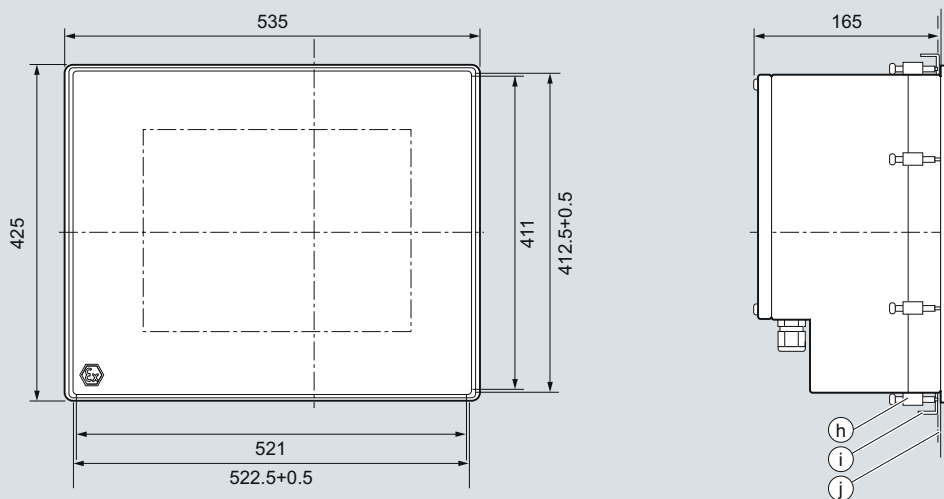
SIMATIC HMI Thin Client Ex 19"

19" touch front	Width in mm	Height in mm	Depth in mm
Operating unit	535	425	165
Installation cutout	522 ± 0.5	412.5 ± 0.5	-

More information

Additional information is available on the Internet at:
http://www.siemens.com/simatic-hmi-ex

HMI Software

4

HMI Software
Introduction

■ **Overview**

With the product families SIMATIC WinCC (TIA Portal), SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinCC Open Architecture, SIMATIC HMI offers visualization and configuration software for the entire HMI spectrum:

- SIMATIC WinCC (TIA Portal)
  Creation of applications in the machine-level area and of process visualization or SCADA systems
- SIMATIC WinCC flexible
  Creation of applications in the machine-level area:
- SIMATIC WinCC
  Creation of process visualization or SCADA systems
- SIMATIC WinCC Open Architecture
  Creation of applications with a high demand for customer-specific adaptations, large and/or complex applications, as well as projects that demand special system requirements and functions.

SIMATIC WinCC (TIA Portal)

WinCC (TIA Portal) is based on the new central engineering framework Totally Integrated Automation Portal (TIA Portal), which provides users with an integrated, efficient and intuitive solution to all automation tasks. SIMATIC WinCC (TIA Portal) covers applications in the machine-level area and applications in the process visualization or SCADA environment. WinCC (TIA Portal) offers the uniform and scalable configuration tools WinCC Basic, Comfort, Advanced and Professional for configuring the current SIMATIC HMI devices:

- SIMATIC Basic Panels
- SIMATIC Comfort Panels
- SIMATIC Mobile Panels
- SIMATIC Panels 77/177/277 series
- SIMATIC Multi Panels of the 177/277/377 series
- PC-based systems
  - SIMATIC WinCC Runtime Advanced
  - SIMATIC WinCC Runtime Professional

In addition, WinCC (TIA Portal) offers:

- Intuitive user interface with maximum degree of operator friendliness
- Clear configuration of devices and network topologies
- Shared data management and uniform symbols via controller and HMI
- Optimum interaction with the controller and HMI in a working environment
- Powerful editors for efficient engineering
- Integrated mass data operations for efficient configuration
- System diagnostics as an integral component
- Comprehensive library concept

■ **Overview** (continued)

SIMATIC WinCC flexible

Covers applications in the machine-level area. WinCC flexible offers the integrated and scalable configuration tools WinCC flexible Micro, Compact, Standard and Advanced for configuring SIMATIC HMI devices:

- SIMATIC Basic Panels
- SIMATIC Mobile Panels
- SIMATIC Micro Panels
- SIMATIC Panels of the 70/170/270 series as well as C7-635 and C7-636
- SIMATIC Multi Panels of the 170/270/370 series
- PC-based systems
  - SIMATIC WinCC flexible Runtime
- Runs under Windows XP Professional / Windows 7 Professional, Ultimate, Enterprise
- Expanded integration into STEP 7 and SIMOTION
- Optionally expandable with functions for version administration and logging changes (WinCC flexible /ChangeControl)
- Modular PC-based HMI solution for single-user systems directly at the machine level
- Basic package for visualization, reporting and logging; can be expanded by implementing option packages
- Flexible expansion possible with VB scripts and customized ActiveX controls created with OPP (Open Platform Program)

SIMATIC WinCC

The process visualization or SCADA system for visualizing and operating processes, production flows, machines and plants in all sectors – from the simple single-user station through to distributed multi-user systems with redundant servers and cross-location solutions with web clients. WinCC is the information hub for company-wide, vertical integration (process visualization and platform for IT & business integration).

- For universal use thanks to solutions for all sectors, e.g. conforming to FDA 21 CFR Part 11, and multiple languages for worldwide use
- All HMI functions on-board with industry-standard functions for signaling and acknowledging events, archiving of messages and measured values, logging of all process and configuration data, user administration and visualization (WinCC basic software).
- Company-wide, flexible client/server structures with operator stations on the Web, distributed servers and data integrity thanks to redundancy
- Easy to integrate over standard interfaces such as OPC (OLE for Process Control), WinCC OLE-DB, VBA (Visual Basic for Applications), VB script, C-API (ODK)
- Integration platform in the company thanks to the Historian functionality integrated into WinCC based on the Microsoft SQL Server, standard and programming interfaces and tools and clients for evaluation
- Modular expansion with options and add-ons as well as individual functional expansions with VB Script, Visual Basic for Applications, C-API (ODK) and integration of ActiveX elements.
- Object-orientation supports efficient engineering and flexible plant expansion
- For large, distributed systems with up to 2048 servers
- Scalable – from a small single-user system up to a networked, redundant high-end system
- WinCC OA can be used on any platform and is available for Windows, Linux and Solaris
- Hot-standby redundancy and disaster recovery system assure maximum fail-safety and availability
- WinCC OA offers a platform for customer-specific solutions
- Extensive driver and interfacing options: S7, SINAUT, OPC, OPC UA, Modbus, IEC 60870-5-101/104, DNP3, BACnet, and many others.
- Flexible logging of data either in file-based value archive or in a relational database (ORACLE)
- Modular expansion is possible using options and add-ons as well as individual functional expansions by means of own script language CONTROL, API(C++) and integration of ActiveX elements

4

HMI Software
Introduction

HMI software

■ **Overview** (continued)

SIMATIC WinCC Open Architecture

The SCADA system SIMATIC WinCC Open Architecture addresses applications with high demand for customer-specific adaptations, large and/or complex applications, as well as projects that demand special system requirements and functions.

SIMATIC WinCC Open Architecture demonstrates its high performance in networked and redundant high-end control systems in particular. From the field level to the control station, from the machine to the company headquarters – integrated, high-performance communication is ensured. In every situation, a high level of availability, reliable information, fast interaction and user friendliness are guaranteed. Applications can also be changed without interrupting the process. Profitability, efficiency and safety are therefore always in equilibrium.

With its disaster recovery system and SIL3 certification, SIMATIC WinCC Open Architecture demonstrates its reliability in a wide range of critical applications.

SIMATIC WinCC Open Architecture is open for independent in-house developments, which means that ideas can be turned into new applications quickly and easily.

- Object-orientation supports efficient engineering and flexible plant expansion
- For large, distributed systems with up to 2048 servers
- Scalable – from a small single-user system up to a networked, redundant high-end system
- WinCC OA can be used on any platform and is available for Windows, Linux and Solaris
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- Flexible logging of data either in file-based value archive or in a relational database (ORACLE)
- Modular expansion is possible using options and add-ons as well as individual functional expansions by means of own script language CONTROL, API(C++) and integration of ActiveX elements

4

Overview

SIMATIC WinCC (TIA Portal) engineering software

- Family of configuration systems with WinCC Basic, Comfort, Advanced and Professional for SIMATIC operator panels, as well as for the PC-based visualization systems WinCC Runtime Advanced and WinCC Runtime Professional

SIMATIC WinCC Runtime Advanced visualization software

- PC-based HMI solution for single-user systems directly at the machine
- Basic package for visualization, reporting and logging, user administration, can be expanded flexibly with VB scripts
- Basic package expandable by means of option packages
- Integration of customer-specific ActiveX Controls created with WinCC ControlDevelopment
- Can be integrated into automation solutions based on TCP/IP networks
- Expanded service concepts with remote operation, diagnostics and administration over the Intranet and Internet in combination with e-mail communication

SIMATIC WinCC Runtime Professional visualization software

- PC-based operator control and monitoring system for visualization and operator control of processes, production flows, machines and plants in all sectors – from the simple single-user station through to distributed multi-user systems and cross-location solutions with web clients. WinCC Runtime Professional is the information hub for corporation-wide vertical integration.
- Industry-standard functions for signaling and acknowledging events, archiving of messages and measured values, logging of all process and configuration data, user administration, can be expanded flexibly with VB and C scripts
- Basic package expandable by means of option packages
- Also included are APIs for the Runtime to utilize the open programming interfaces
- Integration of customer-specific ActiveX Controls created with WinCC ControlDevelopment

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HMI Software
HMI Software in the TIA Portal

SIMATIC WinCC (TIA Portal) Engineering

Overview

- Integrated family of engineering tools for configuring SIMATIC HMI operator panels, as well as for the PC-based visualization systems WinCC Runtime Advanced and WinCC Runtime Professional.
- WinCC (TIA Portal) is based on the new central engineering framework Totally Integrated Automation Portal (TIA Portal), which offers the user a uniform, efficient and intuitive solution to all automation tasks.
- WinCC (TIA Portal) also offers uniform engineering from the Basic Panel through to the SCADA application.
- Together with the STEP 7 (TIA Portal) products, WinCC (TIA Portal) forms the optimum solution for integrated, efficient engineering.

Current version:

- SIMATIC WinCC Basic V12 SP1
- SIMATIC WinCC Comfort V12 SP1
- SIMATIC WinCC Advanced V12 SP1
- SIMATIC WinCC Professional V12 SP1

Benefits

- The integrated configuration software reduces training, maintenance and service overhead and protects the customer's investments.
- Minimized engineering overhead and reduction of lifecycle costs thanks to Totally Integrated Automation (TIA)
- Minimized configuration overhead due to reuse of scalable and dynamizable objects
- Intelligent tools for efficient and simple configuration:
  - Wizard for defining the basic structure of the HMI project
  - Table-based editors simplify the generation and processing of similar types of object, e.g. for tags, texts, or alarms.
  - Complex configuration tasks such as the definition of paths of motion or the creation of the fundamental operator prompting are simplified by means of graphical configuration.
- Comprehensive support of multi-language configurations for worldwide use
  - Selectable views for entering configuration data in several languages
  - System and user-specific text lexicons
  - Export/import of language-dependent texts
- Investment protection due to
  - Import of the configuration from WinCC flexible 2008 SP2 and 2008 SP3
  - Transfer of the configuration from WinCC V7.0 SP3

Application

SIMATIC WinCC in the editions Basic, Comfort, Advanced and Professional are innovative engineering tools for configuring SIMATIC HMI operator panels, as well as for the PC-based visualization systems WinCC Runtime Advanced and WinCC Runtime Professional.

Depending on the selected product, various target systems can be configured:

WinCC Basic

- Basic Panels

WinCC Comfort

- As WinCC Basic, plus:
- Comfort Panels
- Mobile Panels: Mobile Panel 177, Mobile Panel 277
- Panels of the 70 series: OP 73, OP 77A, OP 77B
- Panels of the 170 series: TP 177A, TP 177B, OP 177B
- Panels of the 270 series: TP 277, OP 277
- Multi Panels: MP 177, MP 277, MP 377

WinCC Advanced

- As WinCC Comfort, plus:
- SIMATIC PCs with WinCC Runtime Advanced:
  - SIMATIC Panel PC: IPC277D, Panel PC 477B, IPC477C, IPC477D, Panel PC 577B, IPC577C, Panel PC 677B, IPC677C
  - SIMATIC Box PC: IPC227D, Box PC 427B, IPC427C, IPC427D, Box PC 627B, IPC627C, Box PC 827B, IPC827C
  - SIMATIC Rack PC: Rack PC 547B, IPC547C, IPC547D, Rack PC 647B, IPC647C, Rack PC 847B, IPC847C
  - SIMATIC modular Embedded Controller: EC31
- Standard PC with WinCC Runtime Advanced
- SINUMERIK PC: PCU 50.3, PCU 50.5

WinCC Professional

- As WinCC Advanced, plus:
- SIMATIC PCs with WinCC Runtime Professional:
  - SIMATIC Panel PC: IPC477C, IPC477D, Panel PC 577B, IPC577C, Panel PC 677B, IPC677C,
  - SIMATIC Box PC: IPC427C, IPC427D, Box PC 627B, IPC627C, IPC827C
  - SIMATIC Rack PC: Rack PC 547B, IPC547C, IPC547D, Rack PC 647B, IPC647C, Rack PC 847B, IPC847C
- Standard PC with WinCC Runtime Professional

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SIMATIC WinCC (TIA Portal) Engineering

■ Design

The functionalities of the engineering tools of the SIMATIC WinCC family are based on each other. The available editors are largely determined by the respective configurable target systems and their function. A more comprehensive engineering tool such as WinCC Advanced can always be used to configure lower-level target devices as well (e.g. Basic Panels)

A Powerpack can be used to upgrade from a smaller edition to a larger one. This does not apply to WinCC Basic.

The functionality of WinCC engineering tools already contains the configuration support of the available Runtime options for SIMATIC Panels, WinCC Runtime Advanced or WinCC Runtime Professional, irrespective of the purchased RT licenses. A separate license is required for the target system when using the configured Runtime options.

■ Function

Integration into automation systems

Integration into the SIMATIC Totally Integrated Automation Portal (TIA Portal)

- Shared data management and uniform symbols via the controller and HMI
- Optimum interaction between the controller and HMI in a working environment
- System diagnostics as an integral component
- Shared use of communication settings and process point definitions
- Simple dragging and dropping of tags from STEP 7 to an HMI device, e.g. onto a screen
- Excellent support for the new SIMATIC S7-1500 controller
  - With symbolic addressing
  - Access to the new memory-optimized data blocks
  - New alarm and diagnostics concept

Configuration interface

- Intuitive user interfaces with maximum degree of user friendliness
- Comprehensive and fast access to editors and project data
- Adaptive user interface of engineering tools depending on configured target system
- User-definable user interface settings, e.g. layout, toolbars
- Integrated mass data operations for efficient configuration

Project handling

- Device-independent configuration data can be used on a variety of target systems without the need for conversion. The interface adapts itself to the functional possibilities of the target device.
- Cross-device utilization of common configuration data (e.g. alarm classes, text library) in multi-device projects
- Wizard-assisted definition of basic structure of HMI projects (e.g. display layout, operator prompting)

Screen editor with comprehensive options for efficient and fast screen configuration

- Generation of interconnected screen objects via Drag&Drop, e.g. tags for the creation of input/output fields with process interfacing or buttons with screen selection function
- Definition of screen templates and functions (comparable with the Slide Master in MS PowerPoint)
- User-friendly editor for the creation of faceplates with defined external interface from screen objects
- Graphics-based configuration of motion paths
- Layer technology with up to 32 layers
- Tools for the Align, Rotate and Mirror functions

Import/export

- of tags, links, text lists, and alarms

Tabular editors

- Quick and easy generation and modification of configuration objects of the same type, e.g. tags, texts or messages, in tabular editors
- Intelligent default settings depending on previously configured data, e.g. automatic incrementing of addresses when generating consecutive tags
- Simple access to the properties of an object without superfluous user intervention
- Simultaneous modification of common object properties

Object-based data management with user-friendly search and edit options

- Configuration of alarms and logs directly on the HMI tag, no switching between different editors
- Cross-reference list with direct access to all objects, e.g. for editing or selection
- Search for objects in entire project
- Text search and replace functions

Project documentation

- Selective project documentation, the following contents can be printed:
  - An entire project
  - One or more project-associated devices
  - Contents of an editor
  - Libraries

4

SIMATIC WinCC (TIA Portal) Engineering

■ **Function** (continued)

Libraries for predefined/user-defined configuration objects

- Storage of all configuration objects in the library, e.g. blocks and even entire screens or tags
- Faceplates can be constructed from simple screen objects on a customer-specific or project-specific basis. Changes to these faceplates can be made centrally (block definition).
- A large number of scalable and dynamizable screen objects is included in the scope of delivery
- Size-scalable graphics for industrial applications are included in the scope of delivery
- Preview function for library objects

Language support

- Multilingual project creation (max. 32 languages) in editors thanks to selectable views
- Central management of language-specific texts and graphics in libraries
- Edit, export and import of texts for translation
- Language-specific graphics

Visual Basic and C-Script Support

- IntelliSense function for fast programming of access to runtime objects
- Simple creation of control sequences in script code
- Visual Basic Script debugging in simulator and WinCC Runtime Advanced and WinCC Runtime Professional

Test and commissioning support

- Simulation of HMI projects on engineering PC
- Marking of incomplete or incorrect configuration directly in the respective editor
- Jump to error cause based on alarm messages in the Compiler

Migration of existing HMI projects

- Data transfer in projects from WinCC flexible
- Data transfer in projects from WinCC

System prerequisites

	WinCC engineering software
Processor type (min.)	Core i5; 2.4 GHz or comparable
RAM (min.)	3 GB (32-bit operating system)
	8 GB (64-bit operating system)
Free hard disk space	2 GB on system drive "C:"
Operating systems	32-bit operating systems • Windows XP Home SP3 (only WinCC Basic) • Windows XP Professional SP3 • Windows 7 Home Premium SP1 (only WinCC Basic) • Windows 7 Professional SP1 • Windows 7 Enterprise SP1 • Windows 7 Ultimate SP1 • Windows Server 2003 R2 Standard Edition SP2 (only WinCC Advanced and Professional) • Windows Server 2008 Standard Edition SP2 (only WinCC Advanced and Professional) 64-bit operating systems • Windows 7 Home Premium SP1 (only WinCC Basic) • Windows 7 Professional SP1 • Windows 7 Enterprise SP1 • Windows 7 Ultimate SP1 • Windows Server 2008 R2 Standard Edition SP2 (only WinCC Advanced and Professional)
Screen resolution	at least 1280 x 1024
Optical drive	DVD-ROM

Note:

Opening several instances of WinCC on your engineering PC at the same time may result in more demanding hardware requirements.

In addition to WinCC, Windows also requires space on the hard disk; e.g. free disk space should be available for the swap file.

The following formula has proven itself in the past: Size of swap file = 3 x size of RAM.

For further information, refer to your Windows documentation

■ Ordering data	Order No.		Order No.

WinCC Basic V12 SP1

Engineering software for the configuration and simulation of Basic Panels;
electronic documentation in English, French, German, Italian, Spanish, simplified Chinese, traditional Chinese

- Software and documentation on DVD, floating license, license key on USB stick — **6AV2100-0AA02-0AA5**
- New type of delivery: Online software delivery [1], floating license, software and license key download, e-mail address required for the delivery — **6AV2100-0AA02-0AH5**

WinCC Comfort V12 SP1

Engineering software for the configuration and simulation of SIMATIC Panels;
electronic documentation in English, French, German, Italian, Spanish, simplified Chinese, traditional Chinese

- Software and documentation on DVD, floating license, license key on USB stick — **6AV2101-0AA02-0AA5**
- New type of delivery: Online software delivery [1], floating license, software and license key download, e-mail address required for the delivery — **6AV2101-0AA02-0AH5**

WinCC Advanced V12 SP1

Engineering software for the configuration and simulation of SIMATIC Panels;
WinCC Runtime Advanced, electronic documentation in English, French, German, Italian, Spanish, simplified Chinese, traditional Chinese

- Software and documentation on DVD, floating license, license key on USB stick — **6AV2102-0AA02-0AA5**
- New type of delivery: Online software delivery [1], floating license, software and license key download, e-mail address required for the delivery — **6AV2102-0AA02-0AH5**

WinCC Professional 512 PowerTags V12 SP1

Engineering software for the configuration and simulation of SIMATIC Panels;
WinCC Runtime Professional (with max. 512 PowerTags), WinCC Runtime Advanced electronic documentation in English, French, German, Italian, Spanish, simplified Chinese, traditional Chinese

- Software and documentation on DVD, floating license, license key on USB stick — **6AV2103-0DA02-0AA5**
- New type of delivery: Online software delivery [1], floating license, license key download, e-mail address required for the delivery — **6AV2103-0DA02-0AH5**

WinCC Professional 4096 PowerTags V12 SP1

Engineering software for the configuration and simulation of SIMATIC Panels;
WinCC Runtime Professional (with max. 4096 PowerTags), WinCC Runtime Advanced electronic documentation in English, French, German, Italian, Spanish, simplified Chinese, traditional Chinese

- Software and documentation on DVD, floating license, license key on USB stick — **6AV2103-0HA02-0AA5**
- New type of delivery: Online software delivery [1], floating license, software and license key download, e-mail address required for the delivery — **6AV2103-0HA02-0AH5**

WinCC Professional max. PowerTags V12 SP1

Engineering software for the configuration and simulation of SIMATIC Panels;
WinCC Runtime Professional (unlimited PowerTags), WinCC Runtime Advanced electronic documentation in English, French, German, Italian, Spanish, simplified Chinese, traditional Chinese

- Software and documentation on DVD, floating license, license key on USB stick — **6AV2103-0XA02-0AA5**
- New type of delivery: Online software delivery (OSD) [1], floating license, software and license key download, e-mail address required for the delivery — **6AV2103-0XA02-0AH5**

Trial licenses

on DVD, 21 day trial
- WinCC Basic V12 SP1 — **6AV2100-0AA02-0AA7**
- WinCC Comfort/Advanced V12 SP1 — **6AV2102-0AA02-0AA7**
- WinCC Professional V12 SP1 — **6AV2103-0AA02-0AA7**

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[1] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

HMI Software
HMI Software in the TIA Portal

SIMATIC WinCC (TIA Portal) Engineering

Ordering data	Order No.		Order No.
Powerpacks		**Software Update Service**	
SIMATIC WinCC Engineering System Powerpacks (without version change)		For a period of 12 months and for a fixed price, the customer is automatically provided with all upgrades and service packs for each installed WinCC engineering system or option.	
Floating license, license key only on USB stick			
• WinCC Basic to WinCC Comfort V12 [2]	6AV2101-2AA02-0AC5	The contract is automatically extended by a further year unless canceled at least 12 weeks prior to expiration.	
• WinCC Comfort to WinCC Advanced V12	6AV2102-2AA02-0BD5		
• WinCC Advanced to WinCC Professional 512 PowerTags V12	6AV2103-2AD02-0AC5	**Software Update Service (Standard Edition)**	
• WinCC Professional Powerpack 512 PowerTags to 4096 PowerTags V12	6AV2103-2DH02-0BD5	The delivery is implemented according to the number of ordered SUS products (e.g. 10 upgrade packages with 10 DVDs, 10 USB flash drives, etc.)	
• WinCC Professional Powerpack 4096 PowerTags to max. PowerTags V12	6AV2103-2HX02-0BD5	• WinCC Comfort	6AV6612-0AA00-0AL0
		• WinCC Advanced	6AV6613-0AA00-0AL0
Online software delivery (OSD) [1]		• WinCC Professional 512 PowerTags	6AV2103-0DA00-0AL0
Floating license, license key download only e-mail address required for the delivery		• WinCC Professional 4096 PowerTags	6AV2103-0HA00-0AL0
• WinCC Basic to WinCC Comfort V12 [2]	6AV2101-2AA02-0BJ5	• WinCC Professional max. PowerTags	6AV2103-0XA00-0AL0
• WinCC Comfort to WinCC Advanced V12	6AV2102-2AA02-0BJ5	**Software Update Service (Compact Edition)**	
• WinCC Advanced to WinCC Professional 512 PowerTags V12	6AV2103-2AD02-0BJ5	The delivery items are combined. For several contracts, only 1 package with 1 data medium set, 1 USB flash drive with the corresponding number of licenses and the corresponding number of CoLs will be supplied.	
• WinCC Professional Powerpack 512 PowerTags to 4096 PowerTags V12	6AV2103-2DH02-0BJ5		
• WinCC Professional Powerpack 4096 PowerTags to max. PowerTags	6AV2103-2HX02-0BJ5	Delivery items to be combined must be ordered as one item.	
		• WinCC Comfort	6AV6612-0AA00-0AM0
		• WinCC Advanced	6AV6613-0AA00-0AM0
		• WinCC Professional 512 PowerTags	6AV2103-0DA00-0AM0
		• WinCC Professional 4096 PowerTags	6AV2103-0HA00-0AM0
		• WinCC Professional max. PowerTags	6AV2103-0XA00-0AM0
		Online software delivery (OSD) [1]	
		Software Update Service (Download)	
		All deliveries to be downloaded. E-mail address required for the delivery	
		• WinCC Comfort	6AV6612-0AA00-0AY0
		• WinCC Advanced	6AV6613-0AA00-0AY0
		• WinCC Professional 512 PowerTags	6AV2103-0DA00-0AY0
		• WinCC Professional 4096 PowerTags	6AV2103-0HA00-0AY0
		• WinCC Professional max. PowerTags	6AV2103-0XA00-0AY0

[1] Current information and availability regarding the new delivery package can be found at:
http://www.siemens.com/tia-online-software-delivery

[2] Valid only for order numbers 6AV2100-0AA02-0AA5 and 6AV2100-0AA02-0AH5

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Ordering data	Order No.
Upgrades	
WinCC V11 -> WinCC V12 SP1	
Software and documentation on DVD, upgrade license, license key on USB stick	
• SIMATIC WinCC Basic V12 SP1 Upgrade V11 -> V12 SP1	6AV2100-3AA02-0AE5
• SIMATIC WinCC Comfort V12 SP1 Upgrade V11 -> V12 SP1	6AV2101-3AA02-0AE5
• SIMATIC WinCC Advanced V12 SP1 Upgrade V11 -> V12 SP1	6AV2102-3AA02-0AE5
• SIMATIC WinCC Professional 512 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	6AV2103-3DA02-0AE5
• SIMATIC WinCC Professional 4096 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	6AV2103-3HA02-0AE5
• SIMATIC WinCC Professional max. PowerTags V12 SP1 Upgrade V11 -> V12 SP1	6AV2103-3XA02-0AE5
Online software delivery (OSD) [1]	
Floating license, software and license key download e-mail address required for the delivery	
• SIMATIC WinCC Basic V12 SP1 Upgrade V11 -> V12 SP1	6AV2100-3AA02-0AK5
• SIMATIC WinCC Comfort V12 SP1 Upgrade V11 -> V12 SP1	6AV2101-3AA02-0AK5
• SIMATIC WinCC Advanced V12 SP1 Upgrade V11 -> V12 SP1	6AV2102-3AA02-0AK5

Ordering data	Order No.
Upgrades	
WinCC flexible 2008 -> WinCC V12 SP1	
Software and documentation on DVD, upgrade license, license key on USB stick	
• WinCC flexible 2008 Compact to WinCC Comfort V12 SP1	6AV2101-4AB02-0AE5
• WinCC flexible 2008 Standard to WinCC Comfort V12 SP1	6AV2101-4BB02-0AE5
• WinCC flexible 2008 Advanced to WinCC Advanced V12 SP1	6AV2102-4AA02-0AE5
Online software delivery (OSD) [1]	
Upgrade license, software and license key download, e-mail address required for the delivery	
• WinCC flexible 2008 Compact to WinCC Comfort V12 SP1	6AV2101-4AB02-0AK5
• WinCC flexible 2008 Standard to WinCC Comfort V12 SP1	6AV2101-4BB02-0AK5
• WinCC flexible 2008 Advanced to WinCC Advanced V12 SP1	6AV2102-4AA02-0AK5
WinCC V7 RC -> WinCC V12 SP1	
Software and documentation on DVD, upgrade license, license key on USB stick	
• Upgrade SIMATIC WinCC V7.0 RC 128 -> WinCC Professional 512 PowerTags V12 SP1 and WinCC RT Professional 128 PowerTags	6AV2103-4BD02-0AE5
• Upgrade SIMATIC WinCC V7.0 RC 512 -> WinCC Professional 512 PowerTags V12 SP1 and WinCC RT Professional 512 PowerTags	6AV2103-4DD02-0AE5
• Upgrade SIMATIC WinCC V7.0 RC 2048 -> WinCC Professional 4096 PowerTags V12 SP1 and WinCC RT Professional 2048 PowerTags	6AV2103-4FH02-0AE5
• Upgrade SIMATIC WinCC V7.0 RC 8192 -> WinCC Professional max. PowerTags V12 SP1 and WinCC RT Professional 8192 PowerTags	6AV2103-4KX02-0AE5
• Upgrade SIMATIC WinCC V7.0 RC 65536 -> WinCC Professional max. PowerTags V12 SP1 and WinCC RT Professional 65536 PowerTags	6AV2103-4MX02-0AE5

[1] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

More information

Further information can be found in the Internet at:
http://www.siemens.com/tia-portal

HMI Software
SIMATIC WinCC (TIA Portal) Runtime

SIMATIC WinCC (TIA Portal) Runtime

■ **Overview**
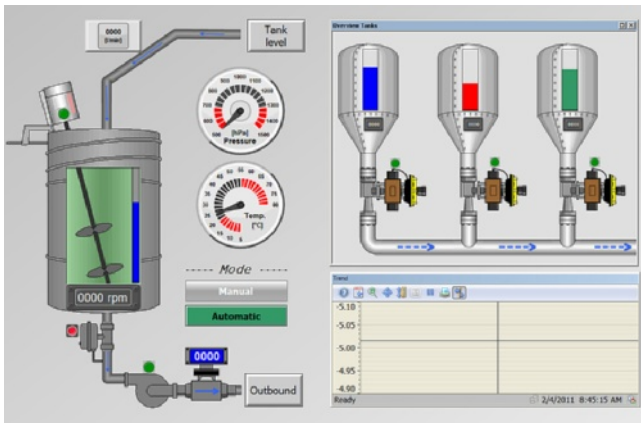
***SIMATIC WinCC Runtime Advanced
visualization software***

- PC-based HMI solution for single-user systems directly at the machine
- Basic package for visualization, reporting and logging, user administration, can be expanded flexibly with VB scripts
- Basic package expandable by means of option packages
- Can be integrated into automation solutions based on TCP/IP networks
- Expanded service concepts with remote operation, diagnostics and administration over the intranet and Internet in combination with email communication

***SIMATIC WinCC Runtime Professional
visualization software***

- PC-based operator control and monitoring system for visualization and operator control of processes, production flows, machines and plants in all sectors – from the simple single-user station through to distributed multi-user systems and cross-location solutions with web clients. WinCC Runtime Professional is the information hub for corporation-wide vertical integration.
- Industry-standard functions for signaling and acknowledging events, archiving of messages and measured values, logging of all process and configuration data, user administration, can be expanded flexibly with VB and C scripts
- Basic package expandable by means of option packages
- Also included are APIs for the Runtime to utilize the open programming interfaces

■ **Overview**

PC-based HMI solution for single-user systems directly at the machine. SIMATIC WinCC Runtime Advanced is configured with the SIMATIC WinCC Advanced or SIMATIC WinCC Professional configuration software.

■ **Benefits**

- Functions for all visualization tasks:
  - Operator functions
  - Graphics and trend displays
  - Alarm logging
  - Report system
  - Archiving (option)
  - Recipe management (option)
  - Audit Trail (option)
- Flexible runtime functionality due to Visual Basic scripts
- Innovative service concepts with remote operation, diagnostics and administration via intranet and Internet as well as e-mail communication to increase availability (option)
- Support for simple distributed automation solutions based on TCP/IP networks at the machine level (option)
- Part of the Totally Integrated Automation Portal
  - Direct access to the tag and message configuration of the SIMATIC controller
  - Excellent support of the new SIMATIC S7-1500 controller
    With symbolic addressing
    Access to the new memory-optimized data blocks
    New alarm and diagnostics concept
  - Integrated diagnostic functions for increasing productivity

■ **Application**

SIMATIC WinCC Runtime Advanced is the high-performance visualization software for simple, machine-oriented visualization tasks. It can be used as a single-user solution for all automation applications in production automation, process automation and building services automation.

SIMATIC WinCC Runtime Advanced can be used in combination with the following HMI devices:

- SIMATIC Panel PC: IPC277D, Panel PC 477B, HMI IPC477C, IPC477D, Panel PC 577B, HMI IPC577C, Panel PC 677B, HMI IPC677C
- SIMATIC Box PC: IPC227D, Box PC 427B, IPC427C, IPC427D, Box PC 627B, IPC627C, Box PC 827B, IPC827C
- SIMATIC Rack PC: Rack PC 547B, IPC547C, IPC547D, Rack PC 647B, IPC647C, Rack PC 847B, IPC847C
- SIMATIC modular Embedded Controller: EC31
- SINUMERIK PC: PCU 50.3, PCU 50.5
- Standard PCs with resolutions (W x H in pixels) of:
  - 4:3 format: 640 x 480, 800 x 600, 1024 x 768, 1280 x 1024, 1600 x 1200
  - Widescreen format: 800 x 480, 1280 x 800, 1366 x 768, 1440 x 900, 1680 x 1050, 1920 x 1080, 1920 x 1200, 1980 x 1080

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HMI Software
SIMATIC WinCC (TIA Portal) Runtime

WinCC Runtime Advanced

■ **Design**

SIMATIC WinCC Runtime Advanced is available as a software package with 128, 512, 2 048 or 4 096 PowerTags.

The term PowerTags is used to identify process variables and area pointers that have a process link to the controller.

Variables without process link, constant limit values of variables, and messages (up to 4 000 bit-triggered messages) are also available for additional system performance.

The range of functions of WinCC Runtime Advanced includes the centralized HMI components for visualizing and reporting, and it can be expanded to suit requirements and costs by using optional packages.

SIMATIC WinCC Runtime Advanced is configured with the SIMATIC WinCC Advanced or SIMATIC WinCC Professional configuration software.

■ **Function**

Visualization via Windows-compliant user interface

Made up of parameterizable screen objects and faceplates created on a project-specific basis:

- Numeric and alphanumeric input/output fields
- Static text and graphic display plus vector graphics
- Dynamizable graphics from HMI symbol library
- Bar graph, trend curve graph with scroll and zoom function as well as read line
- Signal-specific text and graphic lists
- Buttons and switches for operator-process communication
- Editing fields for process values (signals)
- Analog display, slider as example for further screen objects
- Project-specific faceplates created from basic objects of the system
- Graphic displays for various standard graphic formats, e.g. bitmaps, .jpg, .wmf

Alarms and messages

- Discrete alarms and analog alarms as well as event-driven Alarm-S/Alarm-D message procedure with SIMATIC S7
- The new alarm and diagnostics concept of the S7-1500 controller is also supported
- Freely-definable alarm classes for definition of acknowledgment response and display of alarm events

Logging of alarms and process values [1]

- Logging in files (e.g. CSV or TXT file) and Microsoft SQL databases
- Online evaluation of process value and alarm logs
- Evaluation of process value and alarm logs using standard Microsoft tools such as Excel

Recipes [1]

- Generation of data records for machine data or production data
- Display or entry of data records via a configurable screen object or via process screens distributed within the project
- Transmission of data records from or to the controller
- Import/export of data records from/to CSV files for further processing with other tools (e.g. MS Excel)

[1] Option for SIMATIC WinCC Runtime Advanced, runtime licenses must be purchased separately. For further information, refer to "WinCC options".

Documentation of process data, alarm events, and recipes

- Time or event-driven report output
- User-definable layout

Flexible expansion of integrated system function using Visual Basic script

Language support for multilingual projects

- Up to 32 online languages
- Language-dependent texts and graphics
- Language selection during runtime

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■ Function (continued)

User-oriented access protection according to requirements of regulated sectors

- Authentication with user ID and password
- User group-specific rights
- Central system-wide user administration based on SIMATIC Logon[1]
- Monitoring of changes by operators in runtime operation[1]
- Recording of operator actions in an Audit Trail [1]

Onboard controller connection to many different controllers

- Communication via native drivers and standard OPC channel
- Simultaneous connection using several protocols: OPC Client and SIMATIC HMI HTTP protocol are additive, i.e. they can be used in conjunction with other controller connections

Open communication between HMI systems and with higher-level systems

- OPC server
  - Use of the visualization system as a data server (OPC Server) for higher-level automation components, e.g. control systems or systems in the office area
  - OPC-DA-Server: tags, e.g. process values
- Communication between HMI systems is established on the basis of Ethernet networks, or via the Intranet/Internet
  - Read and write access to tags. The WinCC Runtime Advanced or SIMATIC Panels provide other SIMATIC HMI systems or office applications with data (variables)
- Sending of e-mails on demand or event-driven
  - e.g. to maintenance personnel via SMTP server (Simple Mail Transfer Protocol)
  - The optional use of e-mail/SMS gateways enables access to standard networks (external service provider required)
- System diagnostics via device-specific HTML pages; the following functions are available:
  - Starting and stopping the HMI runtime for maintenance
  - Remote access to recipe data records, passwords and information specific to the HMI system
  - Access to the HMI system files via a file explorer
  - Download of configuration data via the Intranet/Internet
  - Supplement with own HTML pages

WinCC Sm@rtServer
for the remote control via the Intranet and Internet [1]

- Display and control of process screens on remote PC or Panel
- A SIMATIC HMI system can be used to control or monitor another system remotely; entry level for client/server configurations for distributed operator stations or for solutions with head end or control room

WinCC ControlDevelopment
for extending the functionality by adding own Controls [1]

- Development of proprietary VB.net or C# Controls for integration in SIMATIC WinCC Runtime Advanced

[1] Option for SIMATIC WinCC Runtime Advanced, runtime licenses must be purchased separately. For further information, refer to "WinCC options".

■ System prerequisites

	SIMATIC WinCC Runtime Advanced
Processor type (min.) [1]	All processors of the SIMATIC IPC, Pentium III or processor running at 500 MHz or comparable
RAM (min.) [2]	512 MB
Free hard disk space [3]	2 GB on system drive "C:"
Operating systems	32-bit operating systems • Microsoft Windows XP Professional SP3 • Windows Embedded Standard 2009 (for IPC / IPC2x7D, HMI IPC4x7C only) • Microsoft Windows Server 2003 R2 StdE SP2 • Microsoft Windows Server 2008 StdE SP2 • Microsoft Windows 7 Professional SP1 • Microsoft Windows 7 Enterprise SP1 • Microsoft Windows 7 Ultimate SP1 • Microsoft Windows Embedded Standard 7 SP1 (for IPC / IPC2x7D, HMI IPC4x7C only) 64-bit operating systems • Microsoft Windows 7 Professional SP1 • Microsoft Windows 7 Enterprise SP1 • Microsoft Windows 7 Ultimate SP1 • Microsoft Windows Server 2003 R2 StdE SP2 • Microsoft Windows Server 2008 R2 Standard Edition SP1
Optical drive	DVD-ROM

[1] In combination with options, more powerful systems may be required

[2] The required RAM is determined primarily by the size of the graphics used.

[3] Without taking archives into account.

In addition to WinCC, Windows also requires space on the hard disk; e.g. free disk space should be available for the swap file.

The following formula has proven itself in the past: Size of swap file = 3 x size of RAM.

For further information, refer to your Windows documentation.

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HMI Software
SIMATIC WinCC (TIA Portal) Runtime

WinCC Runtime Advanced

■ **Technical specifications**

The following tables of system limitations provide assistance in estimating whether a specific project is still within the system limitations for WinCC Runtime Advanced.

The stated maximum values are not additive.

We cannot guarantee proper functioning of configurations that make full use of all system limits on the HMI devices.

In addition to the limitations specified, allowances must be made for restrictions in configuration memory resources.

	SIMATIC WinCC Runtime Advanced
Tags	
Number of tags in the project	6 144
Number of PowerTags	128 – 4 096
Number of elements per array	1 600
Number of local tags	2 048
Alarms	
Number of alarm classes	32
Number of discrete alarms	4 000
Number of analog alarms	500
Length of an alarm in characters	80
Number of process values per alarm	8
Size of the alarm buffer	1 024
Number of queued alarm events	500
Screens	
Number of screens	500
Number of fields per screen	400
Number of tags per screen	400
Number of complex objects per screen[1]	40
Recipes	
Number of recipes	999
Number of elements per recipe[2]	2 000
User data length in KB per data record	256
Number of data records per recipe	5 000

	SIMATIC WinCC Runtime Advanced
Logs	
Number of logs	100
Number of entries per log (including all log segments)[3]	500 000
Number of log segments	400
Cyclical trigger for tag logging	1 s
Number of tags that can be logged per log	6 144
Trends	
Number of trends	800
Text lists and graphics lists	
Number of graphic lists	500
Number of text lists	500
Number of entries per text or graphic list	3 500
Number of graphic objects	2 000
Number of text elements	30 000
Scripts	
Number of scripts	200
Communication	
Number of connections	8
Number of connections based on "SIMATIC HMI HTTP"	16
Maximum number of connected Sm@rtClients (including a service client)	4 [4]
Help system	
Number of characters in a help text	320
Languages	
Number of runtime languages	32
Scheduler	
Time-triggered tasks[5]	48
User administration	
Number of user groups	50
Number of user rights	32
Number of users	100

[1] Complex objects are: Bars, sliders, symbol library, clock, and all objects from the Controls area.

[2] When using arrays, each array element represents a recipe element

[3] For the "segmented circular log" logging method, the number of entries for all sequence logs is valid. The product derived from the number of circular logs times the number of data records in this log may not be exceeded.

[4] Up to three Sm@rtClients can interconnect with the Sm@rtServer on Panel PC 477.

[5] Event-triggered tasks are not relevant for the system limits.

WinCC Runtime Advanced

Ordering data	Order No.		Order No.
Basic Packages		**Online software delivery (OSD)** [2]	
SIMATIC WinCC Runtime Advanced V12 SP1		Single license, software and license key download. E-mail address required for the delivery.	
Software and documentation on DVD, including options software [1]		• WinCC Runtime Advanced 128 PowerTags to WinCC Runtime Professional 128 PowerTags	**6AV2105-2BB02-0AJ0**
Single license, license key on USB stick		• WinCC Runtime Advanced 512 PowerTags to WinCC Runtime Professional 512 PowerTags	**6AV2105-2DD02-0AJ0**
• 128 PowerTags	**6AV2104-0BA02-0AA0**		
• 512 PowerTags	**6AV2104-0DA02-0AA0**	• WinCC Runtime Advanced 2048 PowerTags to WinCC Runtime Professional 2048 PowerTags	**6AV2105-2FF02-0AJ0**
• 2048 PowerTags	**6AV2104-0FA02-0AA0**		
• 4096 PowerTags	**6AV2104-0HA02-0AA0**	• WinCC Runtime Advanced 4096 PowerTags to WinCC Runtime Professional 4096 PowerTags	**6AV2105-2HH02-0AJ0**
Online software delivery (OSD) [2]			
Single license, software and license key download. E-mail address required for the delivery.		**SIMATIC WinCC Runtime Advanced to SIMATIC WinCC Runtime Professional ASIA V12 SP1**	
• 128 PowerTags	**6AV2104-0BA02-0AH0**	• SIMATIC WinCC Runtime Professional Powerpack Runtime Advanced 128 PowerTags -> Runtime Professional 128 PowerTags ASIA V12 SP1	**6AV2105-2BB12-0AC0**
• 512 PowerTags	**6AV2104-0DA02-0AH0**		
• 2048 PowerTags	**6AV2104-0FA02-0AH0**		
• 4096 PowerTags	**6AV2104-0HA02-0AH0**	• SIMATIC WinCC Runtime Professional Powerpack Runtime Advanced 512 PowerTags -> Runtime Professional 512 PowerTags ASIA V12 SP1	**6AV2105-2DD12-0AC0**
Powerpacks			
SIMATIC WinCC Runtime Advanced V12 (without version change)		• SIMATIC WinCC Runtime Professional Powerpack Runtime Advanced 2048 PowerTags -> Runtime Professional 2048 PowerTags ASIA V12 SP1	**6AV2105-2FF12-0AC0**
Single license, license key only on USB stick for PowerTags from			
• 128 PowerTags to 512 PowerTags	**6AV2104-2BD02-0BD0**		
• 512 PowerTags to 2048 PowerTags	**6AV2104-2DF02-0BD0**	• SIMATIC WinCC Runtime Professional Powerpack Runtime Advanced 4096 PowerTags -> Runtime Professional 4096 PowerTags ASIA V12 SP1	**6AV2105-2HH12-0AC0**
• 2048 PowerTags to 4096 PowerTags	**6AV2104-2FH02-0BD0**		
Online software delivery (OSD) [2]		**Upgrades**	
Single license, software and license key download. E-mail address required for the delivery.		**WinCC V11 to WinCC V12 SP1**	
• 128 PowerTags to 512 PowerTags	**6AV2104-2BD02-0BJ0**	**SIMATIC WinCC Runtime Advanced V11 to SIMATIC WinCC Runtime Advanced V12 SP1**	
• 512 PowerTags to 2048 PowerTags	**6AV2104-2DF02-0BJ0**		
• 2048 PowerTags to 4096 PowerTags	**6AV2104-2FH02-0BJ0**	Software and documentation on DVD, including options software	
SIMATIC WinCC Runtime Advanced V12 to SIMATIC WinCC Runtime Professional V12 SP1		Single license, license keys on USB stick for	
Single license, software and documentation on DVD, license key on USB stick for PowerTags from		• SIMATIC WinCC Runtime Advanced 128 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2104-3BB02-0AE0**
• WinCC Runtime Advanced 128 PowerTags to WinCC Runtime Professional 128 PowerTags	**6AV2105-2BB02-0AC0**		
• WinCC Runtime Advanced 512 PowerTags to WinCC Runtime Professional 512 PowerTags	**6AV2105-2DD02-0AC0**	• SIMATIC WinCC Runtime Advanced 512 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2104-3DD02-0AE0**
• WinCC Runtime Advanced 2048 PowerTags to WinCC Runtime Professional 2048 PowerTags	**6AV2105-2FF02-0AC0**	• SIMATIC WinCC Runtime Advanced 2048 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2104-3FF02-0AE0**
• WinCC Runtime Advanced 4096 PowerTags to WinCC Runtime Professional 4096 PowerTags	**6AV2105-2HH02-0AC0**	• SIMATIC WinCC Runtime Advanced 4096 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2104-3HH02-0AE0**

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[1] Runtime licenses for WinCC flexible Runtime Advanced options must be purchased separately for each target system

[2] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

HMI Software
SIMATIC WinCC (TIA Portal) Runtime

WinCC Runtime Advanced

Ordering data	Order No.
Online software delivery (OSD) [2]	
Single license, software and license key download. E-mail address required for the delivery.	
• SIMATIC WinCC Runtime Advanced 128 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2104-3BB02-0AK0**
• SIMATIC WinCC Runtime Advanced 512 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2104-3DD02-0AK0**
• SIMATIC WinCC Runtime Advanced 2048 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2104-3FF02-0AK0**
• SIMATIC WinCC Runtime Advanced 4096 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2104-3HH02-0AK0**
Upgrades WinCC flexible 2008 to WinCC V12 SP1	
SIMATIC WinCC flexible 2008 to SIMATIC WinCC Runtime Advanced V12 SP1	
Software and documentation on DVD, including options software single license, license keys on USB stick for	
• WinCC flexible 2008 Runtime 128 PowerTags to WinCC Runtime Advanced 128 PowerTags [1]	**6AV2104-4BB02-0AE0**
• WinCC flexible 2008 Runtime 512 PowerTags to WinCC Runtime Advanced 512 PowerTags [1]	**6AV2104-4DD02-0AE0**
• WinCC flexible 2008 Runtime 2048 PowerTags to WinCC Runtime Advanced 2048 PowerTags [1]	**6AV2104-4FF02-0AE0**
• WinCC flexible 2008 Runtime 4096 PowerTags to WinCC Runtime Advanced 4096 PowerTags [1]	**6AV2104-4HH02-0AE0**
Online software delivery (OSD) [2]	
Single license, software and license key download. E-mail address required for the delivery.	
• WinCC flexible 2008 Runtime 128 PowerTags to WinCC Runtime Advanced 128 PowerTags [1]	**6AV2104-4BB02-0AK0**
• WinCC flexible 2008 Runtime 512 PowerTags to WinCC Runtime Advanced 512 PowerTags [1]	**6AV2104-4DD02-0AK0**
• WinCC flexible 2008 Runtime 2048 PowerTags to WinCC Runtime Advanced 2048 PowerTags [1]	**6AV2104-4FF02-0AK0**
• WinCC flexible 2008 Runtime 4096 PowerTags to WinCC Runtime Advanced 4096 PowerTags [1]	**6AV2104-4HH02-0AK0**

	Order No.
SIMATIC WinCC flexible Panel Options to SIMATIC WinCC V11 / V12 Panel Options	**6AV2107-4XP00-0BF0**
• WinCC flexible /Audit for SIMATIC Panels to SIMATIC WinCC Audit for SIMATIC Panels	
• WinCC flexible /Sm@rtAccess for SIMATIC Panel to SIMATIC WinCC Sm@rtServer for SIMATIC Panels	
• WinCC flexible /Sm@rtService for SIMATIC Panels to SIMATIC WinCC Sm@rtServer for SIMATIC Panels	
Online software delivery (OSD) [2]	
Single license, license key download only. E-mail address required for the delivery.	
SIMATIC WinCC flexible Panel Options to SIMATIC WinCC V11 / V12 Panel Options	**6AV2107-4XP00-0BK0**
• WinCC flexible /Audit for SIMATIC Panels to SIMATIC WinCC Audit for SIMATIC Panels	
• WinCC flexible /Sm@rtAccess for SIMATIC Panel to SIMATIC WinCC Sm@rtServer for SIMATIC Panels	
• WinCC flexible /Sm@rtService for SIMATIC Panels to SIMATIC WinCC Sm@rtServer for SIMATIC Panels	

[1] Each including 1 upgrade license to the WinCC Runtime Advanced options

[2] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

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More information

Further information can be found in the Internet at:
http://www.siemens.com/tia-portal

Overview

PC-based operator control and monitoring system for visualization and operator control of processes, production flows, machines and plants in all sectors – from the simple single-user station through to distributed multi-user systems and cross-location solutions with web clients.

SIMATIC WinCC Runtime Professional is the information hub for corporation-wide vertical integration. SIMATIC WinCC Runtime Professional is configured with the SIMATIC WinCC Professional configuration software.

Benefits

- Functions for all visualization tasks:
  - Operator functions
  - Graphics and trend displays
  - Alarm logging
  - Report system
  - Archiving (option)
  - Recipe management (option)
- Universally scalable
  - Expandable from single station to client-server configurations
  - Process visualization via the web with the WinCC WebNavigator
- Open standards for easy integration
  - Efficient real-time database MS SQL Server
  - Open for application modules with ActiveX controls
  - Visual Basic for Applications for individual expansions
  - OPC for cross-vendor communication
- Part of the Totally Integrated Automation Portal
  - Direct access to the tag and message configuration of the SIMATIC controller
  - Excellent support of the new SIMATIC S7-1500 controller
    With symbolic addressing
    Access to the new memory-optimized data blocks
    New alarm and diagnostics concept
  - Integrated diagnostic functions for increasing productivity

Application

SIMATIC WinCC Runtime Professional is designed for visualization and operation of processes, manufacturing cycles, machines and plants. With its powerful process interface, especially to the SIMATIC family, and the secure data logging, WinCC Runtime Professional enables solutions for the process control.

The sector-neutral basic system enables universal usage in all automation applications.

SIMATIC WinCC Runtime Professional can be used in combination with the following HMI devices:

SIMATIC PCs:

- SIMATIC Panel PC: HMI IPC477C, IPC477D, Panel PC 577B, HMI IPC577C, Panel PC 677B, HMI IPC677C
- SIMATIC Box PC: IPC427C, IPC427D, Box PC 627B, IPC627C, IPC827C
- SIMATIC Rack PC: Rack PC 547B, IPC547C, IPC547D, Rack PC 647B, IPC647C, Rack PC 847B, IPC847C
- Standard PC

Design

SIMATIC WinCC Runtime Professional is available as a software package with 128, 512, 2 048, 4 096, 8 192, 65 536 PowerTags.

PowerTags are data points that are connected to controllers or other data sources via a WinCC Runtime Professional channel. Up to 32 alarms can be obtained from one data point. Moreover, internal tags without coupling are available for additional system performance.

WinCC Runtime Professional also contains 500 archive tags. Additional archive licenses can be obtained for greater quantity structures.

Licenses for a multi-user configuration

The system software with the required number of PowerTags and additionally the SIMATIC WinCC Server for Runtime Professional option must be installed on the server. For the clients in the basic configuration, a SIMATIC WinCC Client for Runtime Professional license is sufficient.

Function

Visualization via Windows-compliant user interface

Made up of parameterizable screen objects and faceplates created on a project-specific basis:

- Numeric and alphanumeric input/output fields
- Static text and graphic display plus vector graphics
- Dynamizable graphics from HMI symbol library
- Bar graph, trend curve graph with scroll and zoom function as well as read line
- Signal-specific text and graphic lists
- Buttons and switches for operator-process communication
- Editing fields for process values (signals)
- Analog display, slider as example for further screen objects
- Project-specific faceplates created from basic objects of the system
- Graphic displays for various standard graphic formats, e.g. bitmaps, .jpg, .wmf

Alarms and messages

- Discrete alarms and analog alarms, as well as event-driven Alarm-S/Alarm-D message procedure with SIMATIC S7
- The new alarm and diagnostics concept of the S7-1500 controller is also supported
- Freely-definable alarm classes for definition of acknowledgment response and display of alarm events

Logging of alarms and process values [1]

- Signaling system for detecting and archiving events with display and control options according to DIN 19235
- Process logging for the acquisition, compression and storage of measured values
- Online evaluation of process value and alarm logs

[1] Option for SIMATIC WinCC Runtime Professional; runtime licenses must be purchased separately. For further information, refer to "WinCC options".

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HMI Software
SIMATIC WinCC (TIA Portal) Runtime

WinCC Runtime Professional

Function (continued)

Recipes [1]
- Generation of data records for machine data or production data
- Display or entry of data records via a configurable screen object or via process screens distributed within the project
- Transmission of data records from or to the controller
- Import/export of data records for further processing with other tools (e.g. MS Excel)

Documentation of process data, alarm events, and recipes
- Time or event-driven report output
- User-definable layout

Flexible expansion by means of Visual Basic Script and ANSI-C
- Programming interfaces for individual access to data and functions of WinCC Runtime Professional and for the integration in user programs with VBA, VB Script, C-API, C-Script (ANSI-C)

Language support for multilingual projects
- Language-dependent texts and graphics
- Language selection during runtime

Onboard controller connection to many different controllers
- Communication via native drivers and standard OPC channel
- For communication with subordinate controls (SIMATIC protocols, PROFIBUS DP, PROFIBUS FMS, DDE and OPC server included in the scope of delivery)

Open communication between HMI systems and with higher-level systems
- OPC-Server
  Use of the visualization system as a data server (OPC-Server) for higher-level automation components such as control systems or systems in the office sector
  - OPC-DA-Server: tags, e.g. process values
  - OPC-HDA-Server: logged process values
  - OPC-A&E-Server: Alarms
  - OPC-XML-DA-Server: tags, e.g. process values
  - OPC-UA-DA-Server: tags, e.g. process values

- OLE DB Server
  - Standardized and user-friendly access to WinCC log data (MS SQL Server 2005).
  - Access is via the OLE-DB Provider supplies all WinCC log data available along with the accompanying process values, as well as alarm and user texts.
  - The WinCC OLE-DB provider also supports analysis functions such as minimum, maximum, alarm hit list, etc.

- WinCC WebNavigator for Runtime Professional [1]
  - Option for SIMATIC WinCC Runtime Professional for operating and monitoring plants over the Internet, company Intranet or LAN.
  - Configuration from a web server with the SIMATIC WinCC Runtime Professional software as a single-user, client or server version and a web client that enables operator control and monitoring of a current WinCC Runtime Professional project via an Internet browser with ActiveX support. The WinCC basic system does not have to be installed on the client computer.

- WinCC DataMonitor for Runtime Professional [1]
  - The WinCC DataMonitor is used for displaying and evaluating current process states and historical data on office PCs using standard tools such as Microsoft Internet Explorer or Microsoft Excel.
  The DataMonitor Client is supported by a web server with current and historic process data and alarms. All staff ranging from machine operators to corporate managers can use the DataMonitor to obtain information.

[1] Option for SIMATIC WinCC Runtime Professional; runtime licenses must be purchased separately. For further information, refer to "WinCC options".

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■ Function (continued)

WinCC ControlDevelopment
for extending the functionality by adding own Controls [1]

- Development of proprietary VB.net or C# Controls for integration in WinCC Runtime Professional

[1] Option for SIMATIC WinCC Runtime Professional; runtime licenses must be purchased separately. For further information, refer to "WinCC options".

System prerequisites	SIMATIC WinCC Runtime Professional
Processor type (min.) [1]	• Windows XP: 2.5 GHz P4 or comparable, Pentium M, 1.6 GHz or comparable • Windows 7 (32-bit): 3.5 GHz P4 or comparable, dual core • Windows Server 2003: 3 GHz P4 or comparable • Windows Server 2008: 3 GHz P4 or comparable, dual/multi core
RAM (min.) [2]	2 GB
Free hard disk space [3]	2 GB on system drive "C:"
Operating systems	32-bit operating systems • Microsoft Windows XP Professional SP3 • Windows Embedded Standard 2009 (for IPC / IPC2x7D, HMI IPC4x7C only) • Microsoft Windows Server 2003 R2 StdE SP2 • Microsoft Windows Server 2008 StdE SP2 • Microsoft Windows 7 Professional SP1 • Microsoft Windows 7 Enterprise SP1 • Microsoft Windows 7 Ultimate SP1 • Microsoft Windows Embedded Standard 7 SP1 (for IPC / IPC2x7D, HMI IPC4x7C only) 64-bit operating systems • Microsoft Windows 7 Professional SP1 • Microsoft Windows 7 Enterprise SP1 • Microsoft Windows 7 Ultimate SP1 • Microsoft Windows Server 2003 R2 StdE SP2 • Microsoft Windows Server 2008 R2 Standard Edition SP1
Graphics card	32 MB RAM, 24 bit color depth
Network	Ethernet 10 Mbit/s or higher
Optical drive	DVD-ROM

[1] In combination with options, more powerful systems may be required

[2] The required RAM is determined primarily by the size of the graphics used.

[3] Without taking archives into account.

Note:

In addition to WinCC, Windows also requires space on the hard disk; e.g. free disk space should be available for the swap file.

The following formula has proven itself in the past:
Size of swap file = 3 x size of RAM.

For further information, refer to your Windows documentation.

■ Integration

Integration in company-wide solutions (IT and business integration)

WinCC Runtime Professional is strictly based on Microsoft technology, which provides for the greatest possible compatibility and integration ability. ActiveX and .net Controls support technology and sector-specific expansions.

Cross-manufacturer communication is also a simply exercise. The reason: WinCC Runtime Professional can be used as an OPC client and server, and in addition to access to current process values, it also supports standards such as OPC HDA (Historical Data Access), OPC Alarm & Events, OPC UA Data Access and OPC XML Data Access. Just as important: Visual Basic Scripting (VBS) as an easy-to-learn, open Runtime language. If desired, professional application developers can also use ANSI-C.

WinCC Runtime Professional integrates a powerful and scalable Historian function based on the Microsoft SQL Server in the basic system.

Thus the user is given all possibilities: from high-performance archiving of current process data, to long-term archiving with high data compression, through to a central information turntable in form of a company-wide Process Historian.

Open interfaces form the basis for an effective IT and business integration.

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HMI Software
SIMATIC WinCC (TIA Portal) Runtime

WinCC Runtime Professional

■ Technical specifications

The following tables of system limits provide assistance in estimating whether a specific project is still within the system limitations for WinCC Runtime Professional. The stated maximum values are not additive.

We cannot guarantee proper functioning of configurations that make full use of all system limits on the HMI devices. In addition to the limitations specified, allowances must be made for restrictions in configuration memory resources.

	SIMATIC WinCC Runtime Professional
Alarms	
Configurable alarms per server/single user	20 000
PowerTags per alarm line	10
User text blocks per alarm line	10
Alarm classes (incl. system alarm classes)	18
Alarm types	16
Alarm priorities	17 (0...16)
Alarms in Runtime	
Alarms per alarm log	Unlimited [1]
Alarms per short-term log list	1 000
Alarms per long-term log list	1 000 [2]
Alarms per alarm display	5 000 [3]
Screens	
Objects per screen [4]	3 000 [5]
Levels per screen	32
Screens per project	1 000 [5]
Instances of fixed faceplates in a process screen	31 instances of the same picture type
Screen size in pixels	10 000 x 10 000
Nesting levels of screen objects	20
Recipes	
Number of recipes	1 000 [5]
Number of recipe elements	500 [6]
Number of recipe data records	3 000 [6]
Number of views	Unlimited [5]

	SIMATIC WinCC Runtime Professional
Logs	
Trend views per screen	25
Trends per trend view	80
Tables per screen	25
Columns per table	12
Values per table	30 000
Logs per single-user station/server	100
Log tags per single-user station/ server [7]	8 000
Trends	
Trend views per image	25
Trends per trend view	80
User administration	
Number of user groups	128
Number of user rights	999
Number of users	128
Configurations – Quantity structure in a multi-user system	
WinCC clients in a system	32 [8] [9]
Web clients in a system	50 [10]

[1] Limited by system resources.

[2] On single-user station or server or on client per server if "LongTimeArchiveConsistency" is set to "No". On single-user station, server, or client if "LongTimeArchiveConsistency" is set to "Yes".

[3] On single-user station or server or on client per server.

[4] The number and complexity of the objects affect the performance.

[5] Limited by system resources.

[6] The sum of the number of recipe elements and number of data records must not exceed a value of 320,000.

[7] Dependent on the Logging Powerpack used for the log tags. 500 log tags are contained in the basis version.

[8] If the server is also used as an operating unit, the number of clients for this server is reduced to four.

[9] Mixed configuration: 32 Clients + 3 Web Clients

[10] Mixed configuration: 50 Web Clients + 1 WinCC Client

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■ **Ordering data**

	Order No.		Order No.
Basic software		**Powerpacks**	
SIMATIC WinCC Runtime Professional V12 SP1		**SIMATIC WinCC Runtime Professional V12 and SIMATIC WinCC Runtime Professional ASIA V12**	
For PC systems; incl. software options [1], language/script versions: DE, EN, FR, IT, ES Single License, on DVD incl. licensing, on USB stick, for:		Single license, license key only on USB sticks for PowerTags from	
• 128 PowerTags	6AV2105-0BA02-0AA0	• 128 to 512 PowerTags	6AV2105-2BD02-0BD0
• 512 PowerTags	6AV2105-0DA02-0AA0	• 512 to 2048 PowerTags	6AV2105-2DF02-0BD0
• 2048 PowerTags	6AV2105-0FA02-0AA0	• 2048 to 4096 PowerTags	6AV2105-2FH02-0BD0
• 4096 PowerTags	6AV2105-0HA02-0AA0	• 4096 to 8192 PowerTags	6AV2105-2HK02-0BD0
• 8192 PowerTags	6AV2105-0KA02-0AA0	• 8192 to 65536 PowerTags	6AV2105-2KM02-0BD0
• 65535 PowerTags	6AV2105-0MA02-0AA0	**Online software delivery (OSD)** [3]	
Incl. 500 archive tags each		Single license, license key download only. E-mail address required for the delivery.	
Online software delivery (OSD) [3]		• 128 to 512 PowerTags	6AV2105-2BD02-0BJ0
Single license, software and license key download. E-mail address required for the delivery.		• 512 to 2048 PowerTags	6AV2105-2DF02-0BJ0
• 128 PowerTags	6AV2105-0BA02-0AH0	• 2048 to 4096 PowerTags	6AV2105-2FH02-0BJ0
• 512 PowerTags	6AV2105-0DA02-0AH0	• 4096 to 8192 PowerTags	6AV2105-2HK02-0BJ0
• 2048 PowerTags	6AV2105-0FA02-0AH0	• 8192 to 65536 PowerTags	6AV2105-2KM02-0BJ0
• 4096 PowerTags	6AV2105-0HA02-0AH0	**Upgrades WinCC V11 to WinCC V12 SP1**	
• 8192 PowerTags	6AV2105-0KA02-0AH0	**SIMATIC WinCC Runtime Professional V11 to SIMATIC WinCC Runtime Professional V12 SP1 and SIMATIC WinCC Runtime Professional ASIA V11 to SIMATIC WinCC Runtime Professional ASIA V12 SP1**	
• 65535 PowerTags	6AV2105-0MA02-0AH0		
Incl. 500 archive tags each			
SIMATIC WinCC Runtime Professional ASIA V12 SP1			
For PC systems; incl. software options [1], language/script versions: EN, CHs, CHt, KOR, JPN Single License, on DVD incl. licensing, for:		Single license, on DVD incl. licensing on USB stick	
		• SIMATIC WinCC Runtime Professional 128 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	6AV2105-3BB02-0AE0
• 128 PowerTags	6AV2105-0BA12-0AA0	• SIMATIC WinCC Runtime Professional 512 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	6AV2105-3DD02-0AE0
• 512 PowerTags	6AV2105-0DA12-0AA0		
• 2048 PowerTags	6AV2105-0FA12-0AA0		
• 4096 PowerTags	6AV2105-0HA12-0AA0	• SIMATIC WinCC Runtime Professional 2048 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	6AV2105-3FF02-0AE0
• 8192 PowerTags	6AV2105-0KA12-0AA0		
• 65535 PowerTags	6AV2105-0MA12-0AA0		
Incl. 500 archive tags each		• SIMATIC WinCC Runtime Professional 4096 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	6AV2105-3HH02-0AE0
SIMATIC WinCC Client for Runtime Professional			
• WinCC Client for Runtime Professional	6AV2107-0DB02-0AA0	• SIMATIC WinCC Runtime Professional 8192 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	6AV2105-3KK02-0AE0
• WinCC Client for Runtime Professional (form of delivery OSD [3])	6AV2107-0DB02-0AH0		
• WinCC Client for Runtime Professional ASIA	6AV2107-0DB12-0AA0	• SIMATIC WinCC Runtime Professional 65536 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	6AV2105-3MM02-0AE0

[1] Runtime licenses for WinCC Runtime Professional options must be purchased separately for each target system.

[2] Each including 1 upgrade license to the WinCC Runtime Professional options.

[3] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

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HMI Software
SIMATIC WinCC (TIA Portal) Runtime

WinCC Runtime Professional

Ordering data	Order No.
Upgrades WinCC V11 to WinCC V12 SP1 (continued)	
Online software delivery (OSD) [2]	
Single license, software and license key download. E-mail address required for the delivery.	
• SIMATIC WinCC Runtime Professional 128 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2105-3BB02-0AK0**
• SIMATIC WinCC Runtime Professional 512 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2105-3DD02-0AK0**
• SIMATIC WinCC Runtime Professional 2048 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2105-3FF02-0AK0**
• SIMATIC WinCC Runtime Professional 4096 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2105-3HH02-0AK0**
• SIMATIC WinCC Runtime Professional 8192 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2105-3KK02-0AK0**
• SIMATIC WinCC Runtime Professional 65536 PowerTags V12 SP1 Upgrade V11 -> V12 SP1	**6AV2105-3MM02-0AK0**
Upgrades WinCC V7 to WinCC V12 SP1	
SIMATIC WinCC V7.0 to SIMATIC WinCC Runtime Professional V12 SP1 and SIMATIC WinCC V7.0 ASIA to SIMATIC WinCC Runtime Professional ASIA V12 SP1	
Single license, on DVD incl. licensing on USB stick	
• WinCC V7.0 Runtime 128 PowerTags to WinCC Runtime Professional 128 PowerTags V12 SP1 [1]	**6AV2105-4BB02-0AE0**
• WinCC V7.0 Runtime 512 PowerTags to WinCC Runtime Professional 512 PowerTags V12 SP1 [1]	**6AV2105-4DD02-0AE0**
	6AV2105-4FF02-0AE0

Ordering data	Order No.
Upgrades WinCC V7 to WinCC V12 SP1 (continued)	
SIMATIC WinCC V7.0 to SIMATIC WinCC Runtime Professional V12 SP1 and SIMATIC WinCC V7.0 ASIA to SIMATIC WinCC Runtime Professional ASIA V12 SP1	
• WinCC V7.0 Runtime 2048 PowerTags to WinCC Runtime Professional 2048 PowerTags V12 SP1 [1]	**6AV2105-4KK02-0AE0**
• WinCC V7.0 Runtime 8192 PowerTags to WinCC Runtime Professional 8192 PowerTags V12 SP1 [1]	**6AV2105-4MM02-0AE0**
• WinCC V7.0 Runtime 65536 PowerTags to WinCC Runtime Professional 65536 PowerTags V12 SP1 [1]	**6AV2107-4DB02-0AE0**
• WinCC V7.0 RC/RT128 / RC/RT Client to WinCC Client for Runtime Professional V12 SP1	**6AV2105-4BB02-0AE0**
Online software delivery (OSD) [2]	
Single license, software and license key download. E-mail address required for the delivery.	
• WinCC V7.0 Runtime 128 PowerTags to WinCC Runtime Professional 128 PowerTags V12 SP1 [1]	**6AV2105-4BB02-0AK0**
• WinCC V7.0 Runtime 512 PowerTags to WinCC Runtime Professional 512 PowerTags V12 SP1 [1]	**6AV2105-4DD02-0AK0**
• WinCC V7.0 Runtime 2048 PowerTags to WinCC Runtime Professional 2048 PowerTags V12 SP1 [1]	**6AV2105-4FF02-0AK0**
• WinCC V7.0 Runtime 8192 PowerTags to WinCC Runtime Professional 8192 PowerTags V12 SP1 [1]	**6AV2105-4KK02-0AK0**
• WinCC V7.0 Runtime 65536 PowerTags to WinCC Runtime Professional 65536 PowerTags V12 SP1 [1]	**6AV2105-4MM02-0AK0**
• WinCC V7.0 RC/RT128 / RC/RT Client to WinCC Client for Runtime Professional V12 SP1	**6AV2107-4DB02-0AK0**

[1] Each including 1 upgrade license to the WinCC Runtime Professional options.

[2] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

More information

Further information can be found in the Internet at:
http://www.siemens.com/tia-portal

■ **Overview**

Communication – SIMATIC WinCC Runtime Advanced

WinCC Advanced is an open visualization system and offers the option of connecting the most diverse control systems.

Number of connectable controllers

WinCC Advanced permits the parallel coupling of up to 8 controllers.
Connection to third-party controllers

The following "Coupling overview" table lists third-party protocols and controllers which are directly supported by WinCC Advanced. Generally it is also possible to connect third-party controllers via OPC (OLE for Process Control).

Current notes and information about OPC servers from many different suppliers can be found at:
http://www.opcfoundation.org/

WinCC Advanced supports the standards:

- OPC Data Access 2.05a
- OPC UA Data Access 1.01
- OPC XML Data Access 1.00 (client via DCOM/XML gateway)

Protocol	Description	PC interface
SIMATIC HMI		
Ethernet TCP/IP (HTTP communication)	HTTP communication for data exchange between SIMATIC HMI (client + server) [1]	CP 1612 A2
SIMATIC S7		
Ethernet TCP/IP (S7 communication)	Channel for communication via Ethernet TCP/IP with max. 8 x SIMATIC S7 controllers S7-1200, S7-1500 S7-300, S7-400, S7-200 with CP 243-1	CP 1612 A2 CP 1613 A2 CP 1623
MPI, PROFIBUS (S7 communication)	Channel for communication via MPI, PROFIBUS with max. 8 x SIMATIC S7 controllers S7-1200 with CM 1243-5 (DP master), S7-1500 S7-300, S7-400 S7-200 (only passive S7-200)	CP 5611 A2 CP 5621 CP 5512 CP 5711 CP 5613 A2 CP 5623
PPI (PPI protocol)	Channel for communication via PPI with 1 x SIMATIC S7-200 (network operation, e.g. parallel PG possible)	CP 5611 A2 CP 5621 CP 5512 CP 5711 CP 5613 A2 CP 5623
Software interface (S7 communication)	Channel for communication via software interface with WinAC	
SINUMERIK [2]		
Ethernet TCP/IP (S7 communication)	Channel for communication via Ethernet TCP/IP with SINUMERIK 840D sl	CP 1612 A2 CP 1613 A2 CP 1623
MPI (S7 communication)	Channel for communication via MPI with SINUMERIK 840D sl	CP 5611 A2 CP 5621 CP 5512 CP 5711 CP 5613 A2 CP 5623

Protocol	Description	PC interface
Third-party controllers (from WinCC V11.0) [3]		
Allen Bradley Ethernet IP	Channel for communication with max. 4 x Allen Bradley controllers via Ethernet TCP/IP with Allen Bradley Ethernet IP protocol The controllers ControlLogix / CompactLogix, SLC500 / MicroLogix and PLC5 are supported	CP 1612 A2
Allen Bradley DF1	Channel for communication with Allen Bradley controllers via DF1 protocol The controllers SLC500 / MicroLogix and PLC5 are supported [3]	COM1/COM2
Mitsubishi MC TCP/IP	Channel for communication with max. 4 x Mitsubishi controllers via Ethernet TCP/IP with Mitsubishi MC TCP/IP protocol The FX3, Q, and iQ/QnUD controller series are supported	CP 1612 A2
Mitsubishi FX	Channel for communication with Mitsubishi controllers via FX protocol The FX1N, FX2N controllers are supported	COM1/COM2
Modbus TCP/IP	Channel for communication with max. 4 x Modicon controllers via Ethernet TCP/IP using the Modbus TCP/IP protocol The Quantum, Momentum, Premium, TSX Micro, Compact and M340 controllers are supported	CP 1612 A2
Modbus RTU	Channel for communication with Modicon controllers via the Modbus RTU protocol The Quantum, Momentum, and Compact controllers are supported	COM1/COM2
Omron Link / Multi Link	Channel for communication with Omron controllers via the Link/Multi protocol The CP1x, CJ1x, CJ2H, CS1x, and CP2MC controllers are supported	COM1/COM2
Cross-manufacturer		
OPC client [1] [4] **for OPC DA, OPC UA DA, XML DA**	Channel for OPC communication, WinCC can acquire data from OPC server applications	CP 1612 A2
OPC server for OPC DA	Server applications for OPC communication; WinCC provides process data to OPC clients	CP 1612 A2

[1] HTTP and OPC communication can be used in combination with the other couplings; regarding SIMATIC Panels that support HTTP or OPC communication, see the overview under "System interfaces (WinCC V11)".

[2] "SINUMERIK Operate WinCC RT Advanced" license required; for further information, see NC 60 Catalog.

[3] For detailed information regarding supported controllers, see "System interfaces (WinCC V11)"

[4] Application note:
The parallel use of the OPC client channel allows, for example, the connection to an SNMP OPC Server for visualization of the data present there. The SNMP OPC Server enables monitoring of any network components (e.g. switch) that support the SNMP protocol. Further information can be found under SIMATIC NET communications systems/SNMP OPC Server.

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HMI Software
SIMATIC WinCC (TIA Portal) Runtime

WinCC Runtime Communication

■ **Overview** (continued)

Communication – SIMATIC WinCC Runtime Professional

WinCC Professional is an open process visualization system and offers the option of connecting the most diverse control systems.

Released communication software

Only communication software with the listed (or higher) product versions should be used. Corresponding SIMATIC NET upgrades are available for the upgrading of older versions.

Number of connectable controllers

With CP 1613, a maximum of 64 S7 controllers can be connected via Industrial Ethernet; with CP 5611 a maximum of 8 and with CP 5613 a maximum of 44 S7 controllers can be connected via PROFIBUS. With approx. 10 or more controllers, the use of Industrial Ethernet is recommended.

Client-server communication

Communication between the clients and the server is implemented using the TCP/IP protocol. The construction of a separate PC-LAN is recommended. For small projects with correspondingly small message frame advent, a SIMATIC NET Industrial Ethernet can be used for both process communication (WinCC/server ↔ PLC) and for PC-PC communication (WinCC/client ↔ WinCC/server)

Connection to third-party controllers

The following "Coupling overview" table lists third-party protocols and controllers which are directly supported by WinCC Professional. Generally it is also possible to connect third-party controllers via OPC (OLE for Process Control).

Current notes and information about OPC servers from many different suppliers can be found at:
http://www.opcfoundation.org/

WinCC Professional supports the standards:
- OPC Data Access 2.05a
- OPC Data Access 3.00
- OPC UA Data Access 1.01
- OPC XML Data Access 1.00
- OPC HDA 1.20
- OPC A&E 1.10

Protocol	Description	PC interface
SIMATIC S7		
SIMATIC S7	Protocol Suite with channel units for communication with SIMATIC S7 via • Ethernet TCP/IP (S7 communication) to S7-1200, S7-1500, S7-300, S7-400 • MPI, PROFIBUS (S7 communication) to S7-1200 with CM 1243-5 (DP master), S7-1500, S7-300, S7-400 • Software interface (S7 communication) to Win AC	CP 1612 A2 CP 1613 A2 CP 5611 A2 CP 5621 CP 5512 CP 5711 CP 5613 A2 CP 5623
Third-party controllers (from WinCC V11.0)		
Allen Bradley Ethernet IP	Channel for communication with Allen Bradley controllers via Ethernet TCP/IP with Ethernet IP protocol The controllers ControlLogix / CompactLogix, SLC500 / MicroLogix, and PLC5 are supported	CP 1612 A2
Mitsubishi MC TCP/IP	Channel for communication with Mitsubishi controllers via Ethernet TCP/IP with Mitsubishi MC TCP/IP protocol The FX3, Q, and iQ/QnUD controller series are supported	CP 1612 A2
Modbus TCP/IP	Channel for communication with Modicon controllers via Ethernet TCP/IP using the Modbus TCP/IP protocol The Quantum, Momentum, Premium, TSX Micro, Compact and M340 controllers are supported	CP 1612 A2
Cross-manufacturer		
OPC client [1] for OPC DA, OPC XML DA	Channel for OPC communication, WinCC can acquire data from OPC server applications	CP 1612 A2
OPC server for OPC DA, OPC UA DA, OPC XML DA, OPC A&E, OPC HDA	Server applications for OPC communication; WinCC provides process data to OPC clients	CP 1612 A2

[1] Application note:
The parallel use of the OPC client channel allows, for example, the connection to an SNMP OPC Server for visualization of the data present there.
The SNMP OPC Server enables monitoring of any network components (e.g. switch) that support the SNMP protocol.
Further information can be foundunder SIMATIC NET communications systems/SNMP OPC Server.

■ **Overview** (continued)
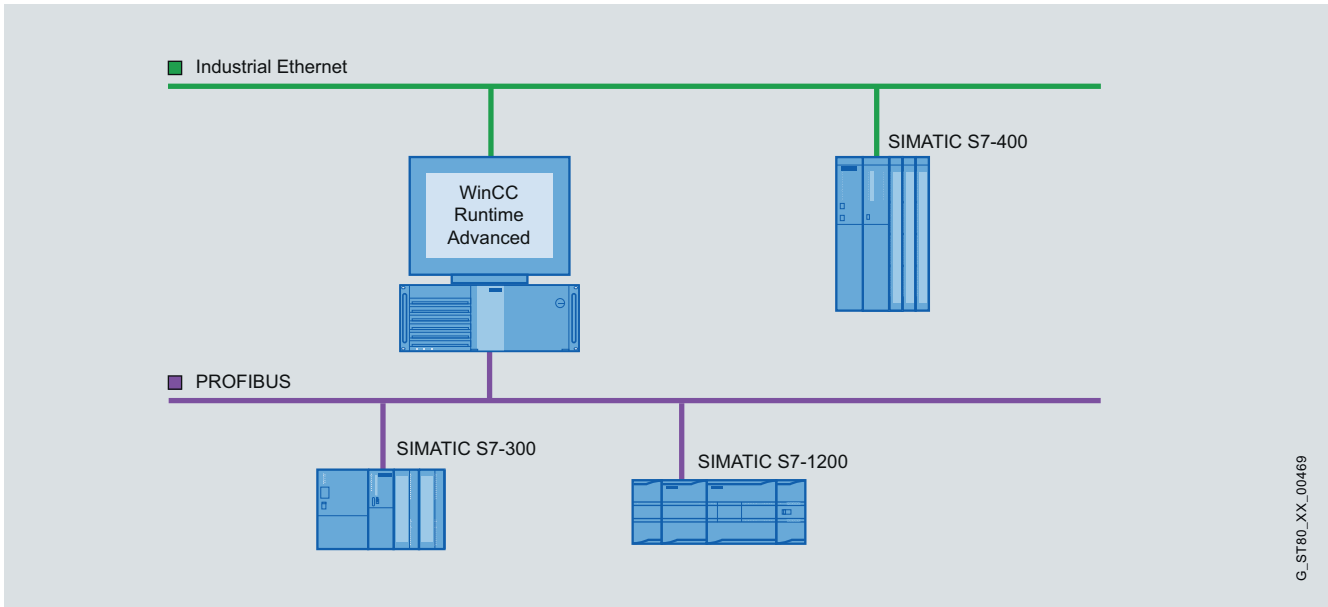
WinCC Runtime Advanced single-user system
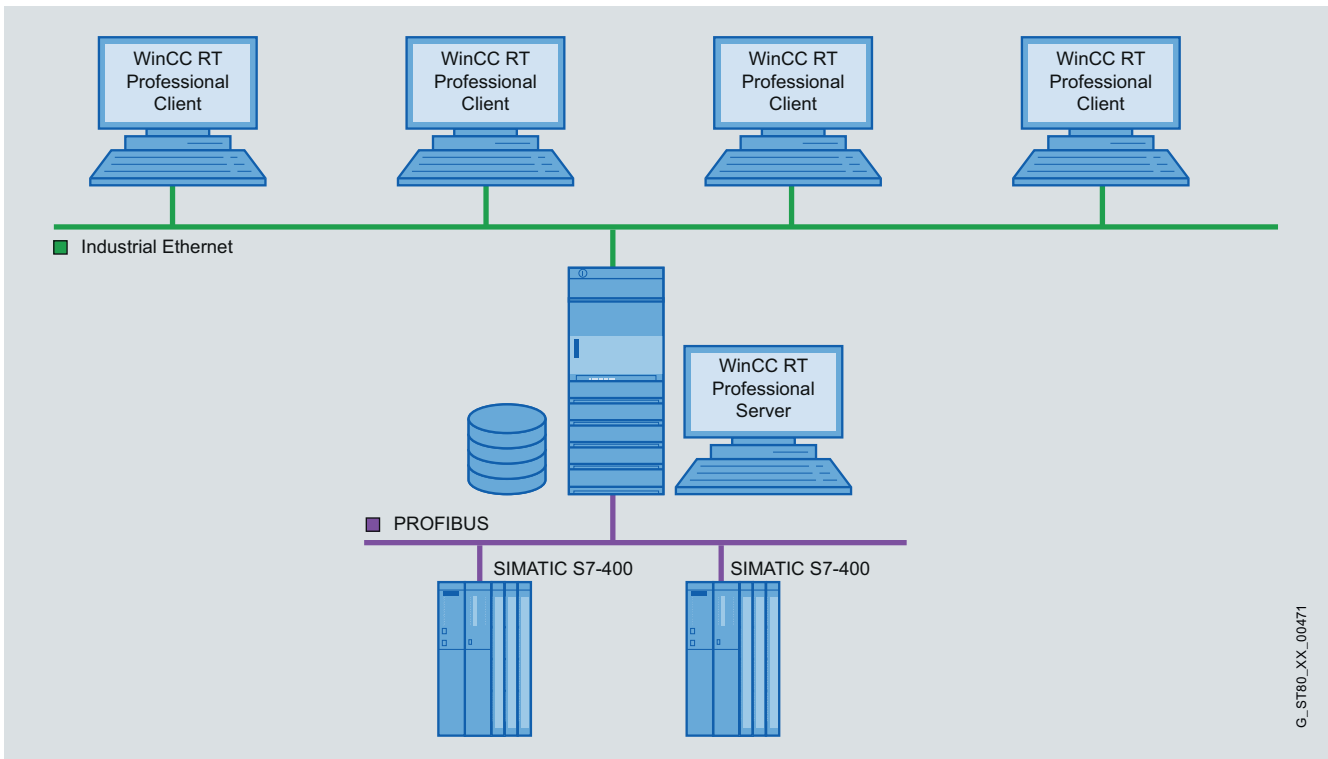
WinCC Runtime Professional multi-user system with operable Server

HMI Software
SIMATIC WinCC (TIA Portal) Runtime

WinCC Runtime Communication

■ **Overview** (continued)

OPC coupling

4

Ordering data	Order No.		Order No.
Communication via Industrial Ethernet TCP/IP		**Version 8.0 SP1**	
CP 1612 A2	6GK1161-2AA01	For (32-bit) Windows 7 Ultimate, Professional; for CP 1612; CP 1612 A2 German/English (included in scope of supply: Edition 2008 SP2 (V7.1))	
PCI card (32-bit) for connection of a programming device or PC to Industrial Ethernet (10/100/1000 Mbit/s) with RJ45 connection via SOFTNET S7 and SOFTNET PG.		**Edition 2008 SP2 (V7.1)**	
Software requirement: WinCC Runtime Advanced: No further installation is required (SOFTNET-S7)		For (32-bit) Windows XP Professional, Windows 2003 Server, VISTA Ultimate/Business; for CP 1612; CP 1612 A2 German/English	
WinCC Runtime Professional: SOFTNET-S7 Lean (maximum of 8 connections) or SOFTNET-S7 (maximum of 64 connections) must be installed (SOFTNET-S7 Lean is included in the scope of delivery of WinCC Runtime Professional)		• Single license for 1 installation	6GK1704-1LW80-3AA0
		• Upgrade package for SIMATIC NET from Edition 2006	6GK1704-1LW00-3AE0
		• Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005	6GK1704-1LW00-3AE1
SOFTNET-S7 Version 8.0 SP1 / Edition 2008 SP2 (V7.1)		**CP 1613-A2**	6GK1161-3AA01
Software for S7 and S5-compatible communication, incl. OPC server, PG/OP communication and NCM PC; up to 64 connections, single license for 1 installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A		PCI card (32 bit) for connecting a PG/PC to Industrial Ethernet (communications software must be ordered separately)	
Version 8.0 SP1		**S7-1613 Version 8.0 SP1 / Edition 2008 SP2 (V7.1)**	
For (32-bit) Windows 7 Ultimate, Professional; for CP 1612; CP 1612 A2 German/English (included in the scope of delivery: Edition 2008 SP2 (V7.1))		Software for S7 and S5-compatible communication, incl. PG/OP communication, OPC server and NCM PC; up to 120 connections, single license for 1 installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	
Edition 2008 SP2 (V7.1)		**Version 8.0 SP1**	
For (32-bit) Windows XP Professional, Windows 2003 Server, VISTA Ultimate/Business; for CP 1612; CP 1612 A2 German/English		For (32-bit) Windows 7 Ultimate, Professional; for CP 1613; CP 1613 A2, CP 1623 German/English (included in the scope of delivery: Edition 2008 SP2 (V7.1))	
• Single license for 1 installation	6GK1704-1CW80-3AA0	**Edition 2008 SP2 (V7.1)**	
• Upgrade package for SIMATIC NET from Edition 2006	6GK1704-1CW00-3AE0	For (32-bit) Windows XP Professional, Windows 2003 Server, VISTA Ultimate/Business; for CP 1613; CP 1613 A2, CP 1623 German/English	
• Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005	6GK1704-1CW00-3AE1	• Single license for 1 installation	6GK1716-1CB80-3AA0
SOFTNET-S7 Lean Version 8.0 SP1 / Edition 2008 SP2 (V7.1)		• Upgrade package for SIMATIC NET from Edition 2006	6GK1716-1CB00-3AE0
(included in the scope of delivery of WinCC V11)		• Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005	6GK1716-1CB00-3AE1
Software for S7-compatible and S5-compatible communication incl. OPC server, PG/OP communication and NCM PC; up to 8 connections; single license for one installation of runtime software, software and electronic manual on CD-ROM; license key on USB stick; Class A		**CP 1623**	6GK1162-3AA00
		PCI Express X1 card (32-bit) for connection of PG/PC to Industrial Ethernet (communications software to be ordered separately)	

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HMI Software
SIMATIC WinCC (TIA Portal) Runtime

WinCC Runtime Communication

Ordering data	Order No.		Order No.
Communication via PROFIBUS		**CP 5613 A2**	**6GK1561-3AA01**
PC adapter USB	**6ES7972-0CB20-0XA0**	PCI card (32-bit) for connecting a PC to PROFIBUS (communications software must be ordered separately).	
Can be used under Windows XP			
CP 5611 A2	**6GK1561-1AA01**	**CP 5623**	**6GK1562-3AA00**
PCI Card (32-bit) for connecting a PG/PC to PROFIBUS (Communication software included in the WinCC basic package)		PCI Express X1 card (32-bit) for connection of PG/PC to Industrial Ethernet (communications software to be ordered separately)	
CP 5621	**6GK1562-1AA00**	**S7-5613 Version 8.0 SP1 / Edition 2008 SP2 (V7.1)**	
PCI Express X1 card (32-bit) for connection of PG/PC to PROFIBUS (communications software included in WinCC basic package)		Software for S7 Communication incl. PG/OP protocol, FDL, OPC server; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	
CP 5621 MPI	**6GK1562-1AM00**	**Version 8.0 SP1**	
Comprising CP 5621 (32-bit) and MPI cable, 5 m		For (32-bit) Windows 7 Ultimate, Professional; for CP 5613 A2, CP 5623 German/English	
CP 5512	**6GK1551-2AA00**	For (32-bit) Windows XP Professional, Windows 2003 Server, VISTA Ultimate/Business; for CP 5613 A2, CP 5623 German/English	
PCMCIA card (CARDBUS 32-bit) for the connection of a PG/notebook to PROFIBUS or MPI (communications software included in WinCC basic package)		• Single license for 1 installation • Upgrade package for SIMATIC NET from Edition 2006	**6GK1713-5CB80-3AA0** **6GK1713-5CB00-3AE0**
CP 5711	**6GK1571-1AM00**	• Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005	**6GK1713-5CB00-3AE1**
USB adapter for connecting a PG/PC to PROFIBUS or MPI (communications software included in the WinCC basic package)			

4

■ Overview

Options for SIMATIC Panels, SIMATIC WinCC Runtime Advanced and SIMATIC WinCC Runtime Professional

SIMATIC WinCC Recipes
for SIMATIC WinCC Runtime Advanced and
SIMATIC WinCC Runtime Professional

- Generation and management of data records for machine or production data
- Display or entry of data records via a configurable screen object or via process screens distributed within the project
- Transmission of data records from or to the controller
- Import/export of data records for further processing with other tools (e.g. MS Excel)

SIMATIC WinCC Logging
for SIMATIC WinCC Runtime Advanced
and SIMATIC WinCC Runtime Professional

- Logging of alarms and process values
- Online evaluation of process value logs and alarm logs
- Evaluation of process value and alarm logs using standard MS tools such as Excel

SIMATIC WinCC Audit
for SIMATIC Panels and SIMATIC WinCC Runtime Advanced

- Recording of operator actions in an Audit Trail
- Electronic signature for important operator actions relevant to production
- Audit supports users in meeting special quality requirements, e.g.
  - Production plant requiring validation according to 21 CFR Part 11 (Food Drug Administration law)
  - In respect of traceability according to EU 175/2002 (EU directive)

SIMATIC Logon
for SIMATIC Panels and SIMATIC WinCC Runtime Advanced
and SIMATIC WinCC Runtime Professional

- Creates user administration on a central computer to which one or more WinCC stations can be connected over Ethernet.
- With each logging-on/off of a user on one of the connected stations, SIMATIC Logon checks whether a user password has been created and that the required privileges exist.
- SIMATIC Logon supports the user in combination with the Audit option in meeting requirements in accordance with FDA 21 CFR Part 11 and EU178.

SIMATIC WinCC Sm@rtServer
for SIMATIC Panels and SIMATIC WinCC Runtime Advanced

- Flexible solution for remote access to HMI systems
- Remote maintenance of machines and plants via the Internet/Intranet
- Reduced downtimes for machines and plants due to direct remote access
- Flexible solution for remote access to machines and plants

SIMATIC WinCC Server and SIMATIC WinCC Client
for SIMATIC WinCC Runtime Professional

For setting up a high-performance client-server system

- A number of coordinated HMI stations can be operated in a single group with networked automation systems
- Client/server solution:
  - One server can supply up to 32 connected clients with process and archive data, alarms, screens and reports
  - Depending on the size of the plant, up to 12 servers and 32 clients can be employed.

SIMATIC WinCC WebNavigator
for SIMATIC WinCC Runtime Professional

- Operator control and monitoring of plants via the Internet or the in-house intranet or LAN
- Web Client permits the operator control and monitoring of a current WinCC Runtime Professional project via an Internet browser with ActiveX support.

SIMATIC WinCC DataMonitor
for SIMATIC WinCC Runtime Professional

- Display and analysis of current process states and historical data on office PCs with standard tools.
- Information can be compiled online individually during runtime via the Internet/Intranet.

SIMATIC WinCC ControlDevelopment
for SIMATIC WinCC Runtime Advanced and
SIMATIC WinCC Runtime Professional

- Expansion of the basic functionality with proprietary controls.
- Development of proprietary VB.net or C# Controls for integration in WinCC Runtime Advanced and WinCC Runtime Professional

4

HMI Software
SIMATIC WinCC (TIA Portal) options

WinCC Recipes

■ **Overview**
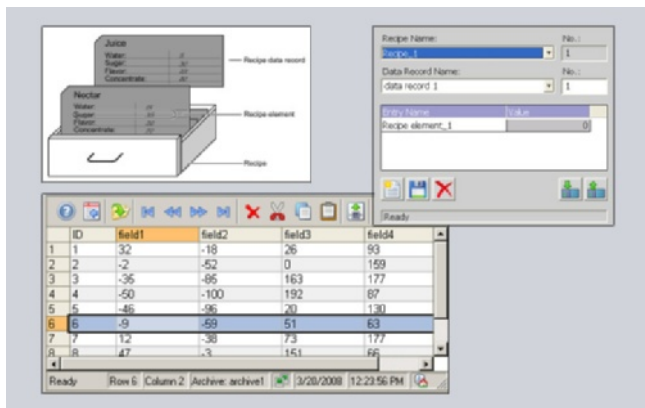
- Option for SIMATIC WinCC Runtime Advanced and WinCC Runtime Professional for managing data records in recipes that contain related machine or production data
- The data in a data set can be transferred, for example, from the control unit to the PLC to switch production to a different product variant
- Licensing:
  - SIMATIC Panels / Multi Panels / Comfort Panels:
    No license is required.
  - WinCC Runtime Advanced:
    One license is required per operator station
  - WinCC Runtime Professional:
    A license is only required on the server
    (or single-user system).

■ **Benefits**

- Generation and management of machine parameters and production data on the basis of data records, and exchange with the automation device, e.g. with the machine.
- Clear tabular representation of the data elements with the aid of a configurable screen object, or depiction in technological relationships across several process screens.
- Simple operator guidance through standard functions.
- Export/import of data records for further processing with other tools (e.g. MS Excel)

■ **Function**

- Input of data records (e.g. operating parameters of a machine, production data for a plastics machine) on the HMI device as well as their storage and transfer to the control
- Display or entry of data records via a configurable screen object or via several process screens distributed within the project
- The data record elements are coupled with the process via a direct tag connection
- Transmission of data records from or to the controller
- Powerful interfaces enable a synchronized data exchange with the controller
- Storage of data records on local data carriers or on remote data servers via networks
- Logging of data records, e.g. as batch report/shift report
- User-friendly and flexible management of data records by powerful standard functions

The recipes and the associated data records are created using a separate, user-friendly WinCC Engineering editor and data is pre-assigned to them. A configurable table object is used for displaying the data at runtime. Furthermore, the individual data record elements can also be displayed directly based on standard input/output fields across several process screens. In this way, the data in technological views can be presented clearly to the operator.

Import and export functions support the importing and exporting of data via external applications (e.g. MS Excel).

4

■ **Technical specifications**

	WinCC Recipes for Runtime Advanced
	The values specified are maximum values
Number of recipes	999
Number of elements per recipe [1]	2 000
User data length in KB per data record	256
Number of data records per recipe	5 000

[1] When using arrays, each array element represents a recipe element

	WinCC Recipes for Runtime Professional
	The values specified are maximum values
Number of recipes	Unlimited [2]
Number of elements per recipe [2]	500 [3]
User data length in KB per data record	3 000 [3]
Number of data records per recipe	5 000 [2]

[2] Limited by system resources.

[3] The sum of the number of recipe elements and number of data records must not exceed a value of 320,000.

■ **Ordering data** — Order No.

SIMATIC WinCC Recipes for Runtime Advanced [1] Single license, license key only on USB stick	**6AV2107-0JA00-0BB0**
SIMATIC WinCC Recipes + Logging for Runtime Advanced [1] Single license, license key only on USB stick	**6AV2107-0HA00-0BB0**
SIMATIC WinCC Recipes for Runtime Professional [1] Single license, license key only on USB stick	**6AV2107-0JB00-0BB0**
Online software delivery (OSD) [2]	
WinCC Recipes for Runtime Advanced [1] Single license, license key download only; E-mail address required for the delivery	**6AV2107-0JA00-0BH0**
WinCC Recipes for Runtime Professional [1] Single license, license key download only; E-mail address required for the delivery	**6AV2107-0JB00-0BH0**

[1] One license is required for each operator console. A license is not required for the engineering system for configuring the runtime option.

[2] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

4

HMI Software
SIMATIC WinCC (TIA Portal) options

WinCC Logging

■ Overview

- Option for SIMATIC WinCC Runtime Advanced and WinCC Runtime Professional for logging process values and alarms
- Logging of process values and alarms supports the acquisition and processing of process data from an industrial plant or machine. Evaluation of the logged process data provides information about the operating states of the plant or machine
- Licensing:
  - SIMATIC Panels / Multi Panels / Comfort Panels: No license is required.
  - WinCC Runtime Advanced: One license is required per operator station
  - WinCC Runtime Professional: 500 Logging Tags are already included in the basic package The number of Logging Tags can be increased by means of additional licenses

■ Benefits

- Alarm and process value logs enable predictive diagnostics, which avoids downtimes
- Early detection of danger and fault conditions
- Increase of the product quality and the productivity thanks to regular analysis of the alarm and process value logs

■ Application

- Transfer of the logs for evaluation and long-term archiving
- Detection of recurring error states
- Optimization of maintenance cycles
- Ensuring the quality standard
- Quality assurance and checking the utilization of production sequences
- Documentation of process sequences

■ Function

- Time-controlled as well as manual or process-controlled swapping out of process data and alarms for long-term archiving
- During runtime, swapped out data are read in and selectively analyzed using WinCC Runtime Professional
  - Presentation and evaluation of archived process data based on a configurable trend display. Reading of the values is facilitated by a read line.
  - Presentation and evaluation of archived alarms based on a configurable alarm view.
  - User-friendly navigation in the logs
- External evaluation of the logs using MS standard tools
- Various log types are supported: sequence and circular logs
- Logging of process values and alarms on external, Windows-supported storage media
  - SIMATIC Panels and WinCC Runtime Advanced: CSV files, RDB files, Microsoft SQL Server via ODBC
  - WinCC Runtime Professional: Microsoft SQL Server 2005
- Powerful standard functions permit user-friendly and flexible utilization of the logs

■ Technical specifications

	WinCC Logging for Runtime Advanced
	The values specified are maximum values
Number of logs	100
Archivable data	Process values, alarms
Cyclical trigger for archiving process values (variables)	1 s
Max. number of entries per log (incl. sequence log)	500 000 [1]
Log types	Circular logs, sequence logs (max. 400 per log)
Data storage format	CSV (**C**omma **S**eparated **V**ariable), RDB (**R**untime **D**ata **B**ase), Microsoft SQL database (database not included in scope of delivery)

[1] Dependent on memory medium used

	WinCC Logging for Runtime Professional
	The values specified are maximum values
Number of logs per single-user station/server	100
Archivable data	Process values, alarms
Measured values per second, max.	Server/single-user station: 5 000 per sec.
Log tags per single-user station/server	80 000 [2]
Log types	Circular log with and without long-term logging
Data storage format	Microsoft SQL 2005 database

[2] Dependent on the Logging Powerpack used for the log tags. 500 log tags are contained in the basis version.

■ Ordering data

	Order No.
SIMATIC WinCC Logging for Runtime Advanced [1]	**6AV2107-0GA00-0BB0**
Single license, license key only on USB stick	
SIMATIC WinCC Recipes + Logging for Runtime Advanced [1]	**6AV2107-0HA00-0BB0**
Single license per option, license key only on USB stick	
SIMATIC WinCC Logging for Runtime Professional 1500 Logging Tags	**6AV2107-0GB00-0BB0**
Single license, license key only on USB stick	
SIMATIC WinCC Logging for Runtime Professional 5000 Logging Tags	**6AV2107-0GD00-0BB0**
Single license, license key only on USB stick	
WinCC Logging for Runtime Professional Powerpack 1500 -> 5000 Logging Tags	**6AV2107-2GD00-0BD0**
Single license, license key only on USB stick	
WinCC Logging Upgrade for SIMATIC WinCC Archives V7.0 (10 licenses)	**6AV2107-4GX00-0BF0**
Single license per option, license key only on USB stick	
Online software delivery (OSD) [2]	
WinCC Logging for Runtime Advanced [1]	**6AV2107-0GA00-0BH0**
Single license, license key download only e-mail address required for the delivery	
WinCC Logging for Runtime Professional - 1500 Logging Tags	**6AV2107-0GB00-0BH0**
Single license, license key download only e-mail address required for the delivery	
WinCC Logging for Runtime Professional - 5000 Logging Tags	**6AV2107-0GD00-0BH0**
Single license, license key download only e-mail address required for the delivery	
WinCC Logging for Runtime Professional Powerpack 1500 -> 5000 Logging Tags	**6AV2107-2GD00-0BJ0**
Single license, license key download only e-mail address required for the delivery	

[1] One license is required for each operator console. A license is not required for the engineering system for configuring the runtime option.

[2] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

4

HMI Software
SIMATIC WinCC (TIA Portal) options

WinCC Audit

■ Overview
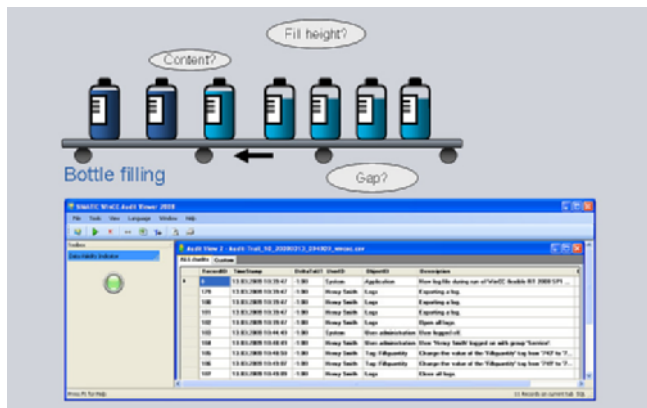
- Option for SIMATIC WinCC Runtime Advanced as well as SIMATIC Panels for recording operations in an audit trail, and electronic signature
- The audit trail is furnished with a security mechanism that displays subsequent manipulations.
- A user-friendly configuration function, which is included as standard in WinCC, is used to define the following:
  - Which user actions should be recorded in the audit trail during runtime
  - Which important operator actions during execution time require electronic signature/comments
- Available for the following SIMATIC HMI systems:
  - Comfort Panels
  - Mobile Panels
  - TP/OP 277
  - MP 277
  - MP 377
  - WinCC Runtime Advanced
- Licensing:
  - A license is required for every operator control unit (panel or PC).

■ Benefits

- Audit supports the user in meeting special quality require-ments, e.g.
  - Production plant requiring validation according to 21 CFR Part 11 FDA [1]
  - In respect of traceability according to EU 175/2002 [2]
- The entries in the audit trail are uniquely assigned to users. This means that responsibilities are clearly identifiable.
- The audit trail, stored as a CSV file [3], can be checked via a security mechanism to find out if subsequent changes have been made.
- For particularly important user actions, e.g., starting production or loading new recipes, electronic signatures and comments can be configured and then called up and logged during runtime.

[1] The FDA (Food and Drug Administration) is the American public health body

[2] 21 CFR Part 11- law on plant validation

[3] CSV Comma Separated Values

■ Technical specifications

	WinCC Audit
Storage location for Audit Trail when used on the Panel	Plug-in Flash memory card or via Ethernet in the higher-level PC
Storage location for Audit Trail when using WinCC Runtime Advanced	Local hard disk or via Ethernet in the higher-level PC
Execution platform	
SIMATIC Panels	Mobile Panel 277, TP/OP 277
SIMATIC Multi Panels	MP 277, MP 377
SIMATIC Comfort Panels	all
PC systems	SIMATIC WinCC Runtime Advanced

■ Ordering data | Order No.

SIMATIC WinCC Audit for SIMATIC Panels	**6AV2107-0RP00-0BB0**
Single license, license key only on USB stick	
SIMATIC WinCC Audit for Runtime Advanced	**6AV2107-0RA00-0BB0**
Single license, license key only on USB stick	
Online software delivery (OSD) [1]	
WinCC Audit for SIMATIC Panels	**6AV2107-0RP00-0BH0**
Single license, license key download only E-mail address required for the delivery	
WinCC Audit for Runtime Advanced	**6AV2107-0RA00-0BH0**
Single license, license key download only E-mail address required for the delivery	

[1] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

■ Overview
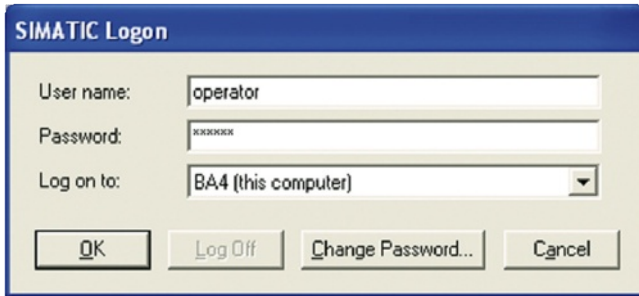
- Option for connecting SIMATIC Panels and PCs with SIMATIC WinCC Runtime Advanced as well as WinCC Runtime Professional to a central user administration.
- Creates user administration on a central computer to which one or more panels or WinCC stations can be connected over Ethernet.
- With each logging-on/off of a user on one of the connected stations, SIMATIC Logon checks whether a user password has been created and that the required privileges exist.

SIMATIC Logon for Panels and WinCC Runtime Advanced

- All users of the SIMATIC Panels or WinCC Runtime Advanced stations can be managed plant-wide from a central location
- Supports the user in combination with the Audit option in meeting requirements in accordance with FDA 21 CFR Part 11 and EU178.
- Licensing:
  SIMATIC Logon (basic license) and SIMATIC Logon Remote Access (3-pack license) for the connection of 3 panels or WinCC Runtime Advanced stations to a central user administration. Additional stations can be connected by using further SIMATIC Logon Remote Access licenses (3-pack/10-pack).

SIMATIC Logon for WinCC Runtime Professional

- All users of WinCC Runtime Professional can be managed plant-wide from a central location.
- The central user management with SL utilizes Windows mechanisms and must be installed on all participating WinCC Runtime Professional stations.
- Licensing:
  SIMATIC Logon (basic license) is included in the basic package of WinCC Runtime Professional

■ Benefits

- Centralized configuration of all access authorizations of a distributed system avoids unnecessary travel times. Time-consuming multiple configurations for each individual local station become unnecessary. Accordingly, users can be easily configured from a central location.
- All access data apply throughout the plant on every connected station. Additional access data on local subsystems is no longer necessary.

■ Design

SIMATIC Logon for Panels and WinCC Runtime Advanced

SIMATIC Logon and SIMATIC Logon Remote Access are installed on a central station.

The following Runtime stations are connected to the central station via the Ethernet network:

- PCs with WinCC Runtime Advanced
- SIMATIC Panels from the 177 series or higher (with Ethernet interface)
- SIMATIC Mobile Panels from the 177 series or higher (with Ethernet interface)
- SIMATIC Multi Panels
- SIMATIC Comfort Panels

SIMATIC Logon for WinCC Runtime Professional

The SIMATIC Logon can be used for the central user management of several WinCC Runtime Professional stations. Operation in a Windows Workgroup or even in a domain is possible.

■ Function

Users receive a unique user ID, user name and password.

This information is encrypted and stored at a central point (for SIMATIC Logon in the Windows user management). Functions such as changing the password, automatic log-off after a predefined time and lockout after several incorrect entries of a password ensure maximum security of operation.

In addition, SIMATIC Logon allows setting up new users online, plant-wide and across applications, or blocking of existing users. SIMATIC Logon also supports electronic signature.

■ Ordering data

	Order No.
SIMATIC Logon V1.5 Basic license [1] For panels or WinCC Runtime Advanced stations, the corresponding number of additional SIMATIC Logon Remote Access licenses is required. No SIMATIC Logon Remote Access licenses are required for WinCC Runtime Professional	**6ES7658-7BX51-0YA0**
SIMATIC Logon Upgrade to V1.5	**6ES7658-7BX51-0YE0**
SIMATIC Logon Remote Access (3 clients) Remote Access for 3 clients; Single License for 3 SIMATIC Logon Remote Access clients; the number of licensed clients is determined from the sum of the installed SIMATIC Logon Remote Access licenses.	**6ES7658-7BA00-2YB0**
SIMATIC Logon Remote Access (10 clients) Remote Access for 10 clients; Single License for 10 SIMATIC Logon Remote Access clients; the number of licensed clients is determined from the sum of the installed SIMATIC Logon Remote Access licenses.	**6ES7658-7BB00-2YB0**

[1] SIMATIC Logon V1.5 included in scope of supply of WinCC Runtime Professional.

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HMI Software
SIMATIC WinCC (TIA Portal) options

WinCC Sm@rtServer

■ Overview
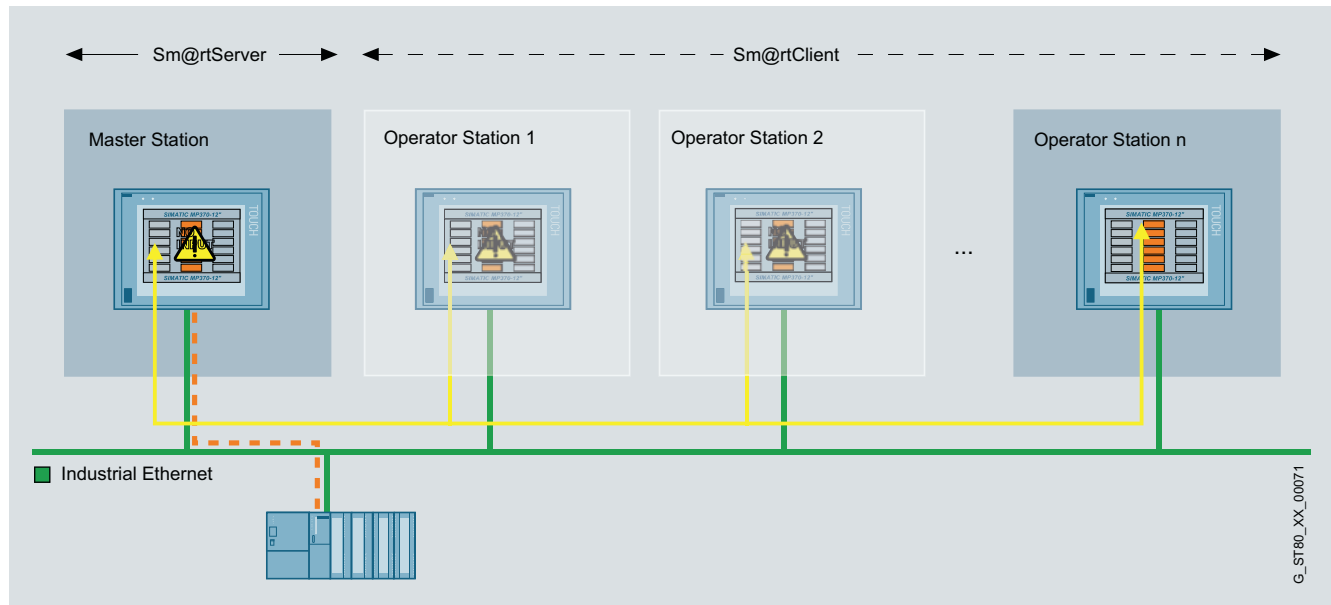
- Option for SIMATIC WinCC Runtime Advanced plus SIMATIC Panels for communication between various SIMATIC HMI systems.
- Available for the following SIMATIC HMI systems:
  - Comfort Panels
  - Mobile Panel 177 PN, Mobile Panel 277
  - TP 177B PN/DP, OP 177B PN/DP
  - TP 277, OP 277
  - MP 177, MP 277, MP 377
  - WinCC Runtime Advanced
- A SIMATIC HMI system can be used to control or monitor another system remotely; entry level for client/server configurations for distributed operator stations or for solutions with head end or control room
- Local operation, visualization and data processing are as possible as plant-wide access to information. Integrated information flows ensure an overview of the status of all processes.

- Licensing:
  The "SIMATIC WinCC Sm@rtServer for Panel" or "SIMATIC WinCC Sm@rtServer for WinCC Runtime Advanced" license must be installed on the server HMI device. A license is not required for the engineering system for configuring the runtime option.

Note:

When accessing the operator stations via the Sm@rtServer option, suitable protective measures (including IT security such as network segmentation) should be taken in order to ensure safe operation of the system.

You will find more information on the topic of Industrial Security on the Internet at:

http://www.siemens.com/industrialsecurity

■ Benefits

- Flexible solution for remote access to HMI systems
- Quick elimination of malfunctions or downtimes – thus increasing the productivity – through global access to machines/plants by the service and maintenance personnel.

- Avoidance of on-site service calls.

Application

- Operator control and monitoring of machines covering large areas with several operator stations by one operator.
- Operator control and monitoring of machine-level HMI systems from one central station (e.g. head-end station of a production line or from a control room)
- Remote maintenance and servicing of machines/plants over the Internet/Intranet
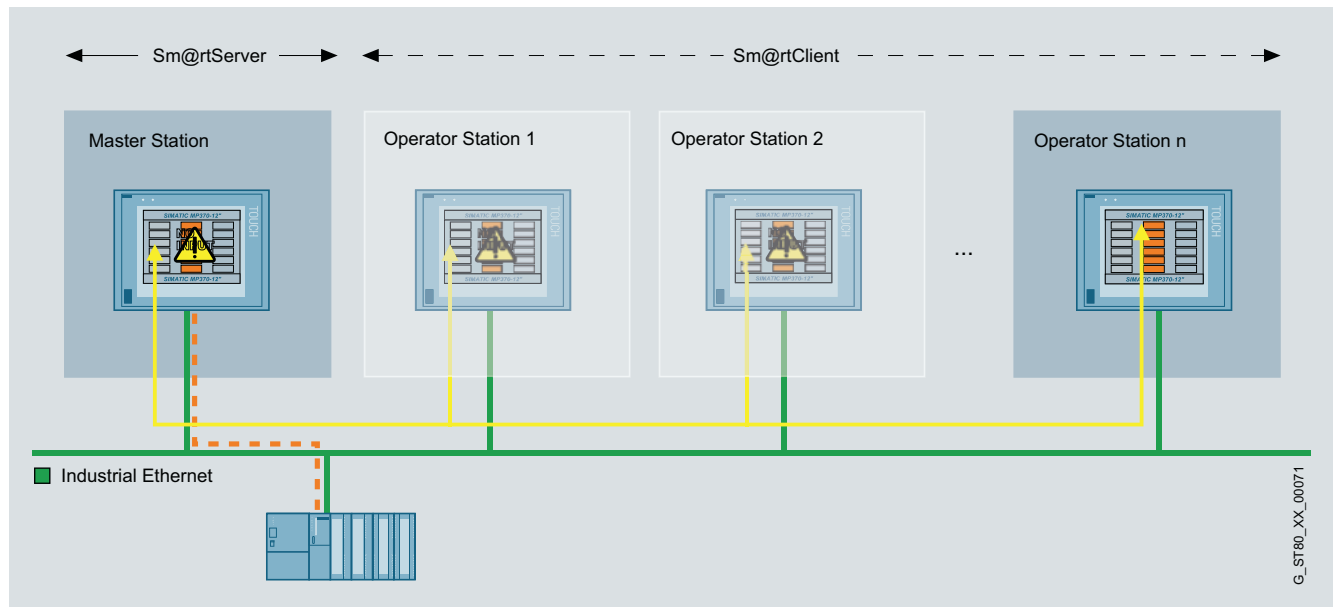
Application of the Sm@rtClient concept: Coordinated operation of several operator stations
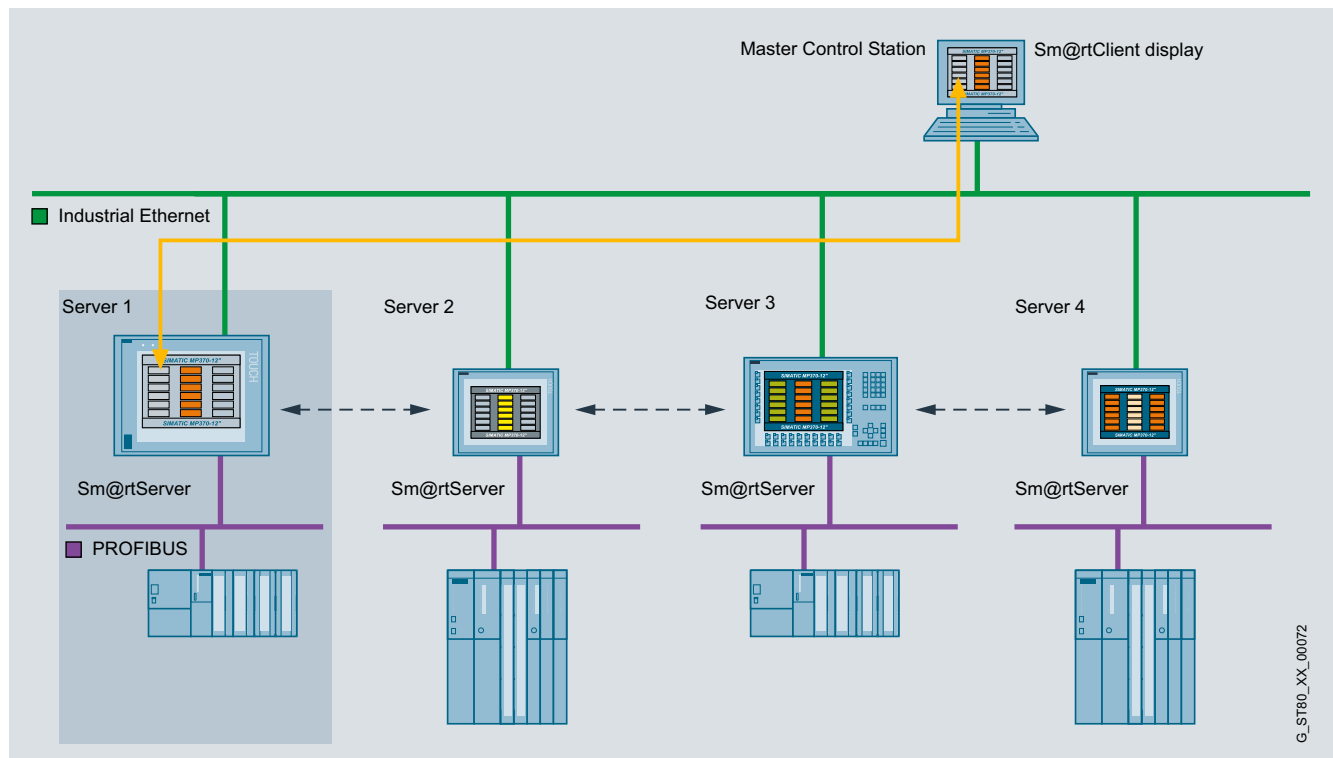
Use of the Sm@rtClient display: Operator control and monitoring of machine-level HMI systems from one central station

HMI Software
SIMATIC WinCC (TIA Portal) options

WinCC Sm@rtServer

■ **Application** (continued)
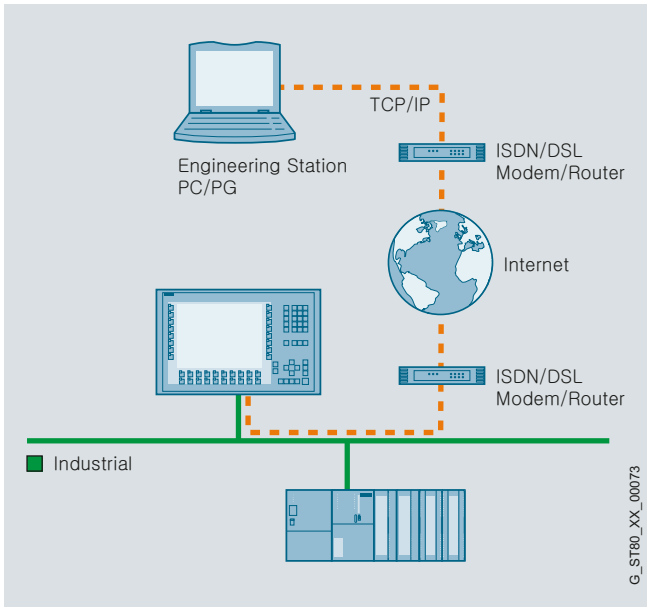
Remote operator control and monitoring of SIMATIC HMI systems using Industrial Ethernet and/or via the Intranet/Internet
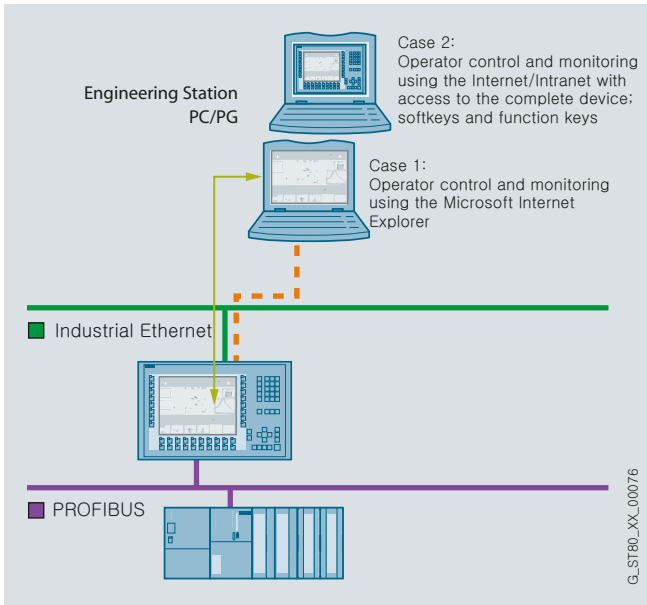
Remote operator control and monitoring of SIMATIC HMI systems using Industrial Ethernet and/or via the Intranet/Internet

■ **Function**

Coordinated operation of several operator stations:

- The HMI application and communication with the controller takes place via the master station. "Sm@rtClients" can be activated from here in the case of machines/plants with larger dimensions which require a larger number of HMI devices. The Sm@rtClients are then provided with access to the master station and thus to the process. Access procedures guarantee that only one operator system can actively access the process at any given time.

- Embedded in process screens, a configurable screen object (Sm@rtClient display) represents the screen of the relevant HMI system (Sm@rtServer)

- Powerful standard functions permit user-friendly and flexible operation of the display

Remote control of an operating station:

- The HMI application and communication with the controller takes place via the HMI system. Using the Sm@rtServer, the HMI systems in the machines/systems can be serviced remotely. An access process ensures that only one operator (either locally at the machine or remotely via Internet Explorer) can actively access the process at one time.

- Microsoft Internet Explorer V6.0 SP1 or higher is sufficient for accessing an HMI system.

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Technical specifications

	WinCC Sm@rtServer
	The values specified are maximum values
Execution platform	
SIMATIC Comfort Panels	all
SIMATIC Panels	Mobile Panel 177 PN, Mobile Panel 277, TP/OP 177B PN/DP, TP/OP 277
SIMATIC Multi Panels	MP 177, MP 277, MP 377
PC systems	SIMATIC WinCC Runtime Advanced
Number of Sm@rtClients that can simultaneously connect to a Sm@rtServer	
Comfort Panel as Sm@rtServer	2 clients for 4" devices 3 clients for 7", 9", 12" and 15" devices 2 clients for 19" devices 1 client for 22" devices
Mobile Panel 177 PN, TP/OP 177B PN/DP, MP 177 as Sm@rtServer	2 clients
Mobile Panel 277, TP/OP 277, MP 277 as Sm@rtServer	3 clients for 6" devices 2 clients for 8" and 10" devices
MP 377 as Sm@rtServer	3 clients for 12" devices 2 clients for 15" devices 1 client for 19" devices
WinCC Runtime Advanced as Sm@rtServer	5 clients

Ordering data

	Order No.
WinCC Sm@rtServer for SIMATIC Panels [1] Single license, license key only on USB stick	**6AV2107-0CP00-0BB0**
WinCC Sm@rtServer for Runtime Advanced [1] Single license, license key only on USB stick	**6AV2107-0CA00-0BB0**
Online software delivery (OSD) [2]	
WinCC Sm@rtServer for SIMATIC Panels [1] Single license, license key download only E-mail address required for the delivery	**6AV2107-0CP00-0BH0**
WinCC Sm@rtServer for Runtime Advanced [1] Single license, license key download only E-mail address required for the delivery	**6AV2107-0CA00-0BH0**

[1] The license must be installed on the Sm@rtServer HMI device. A license is not required for the engineering system for configuring the runtime option.

[2] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

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HMI Software
SIMATIC WinCC (TIA Portal) options

WinCC Server / WinCC Client

■ **Overview**

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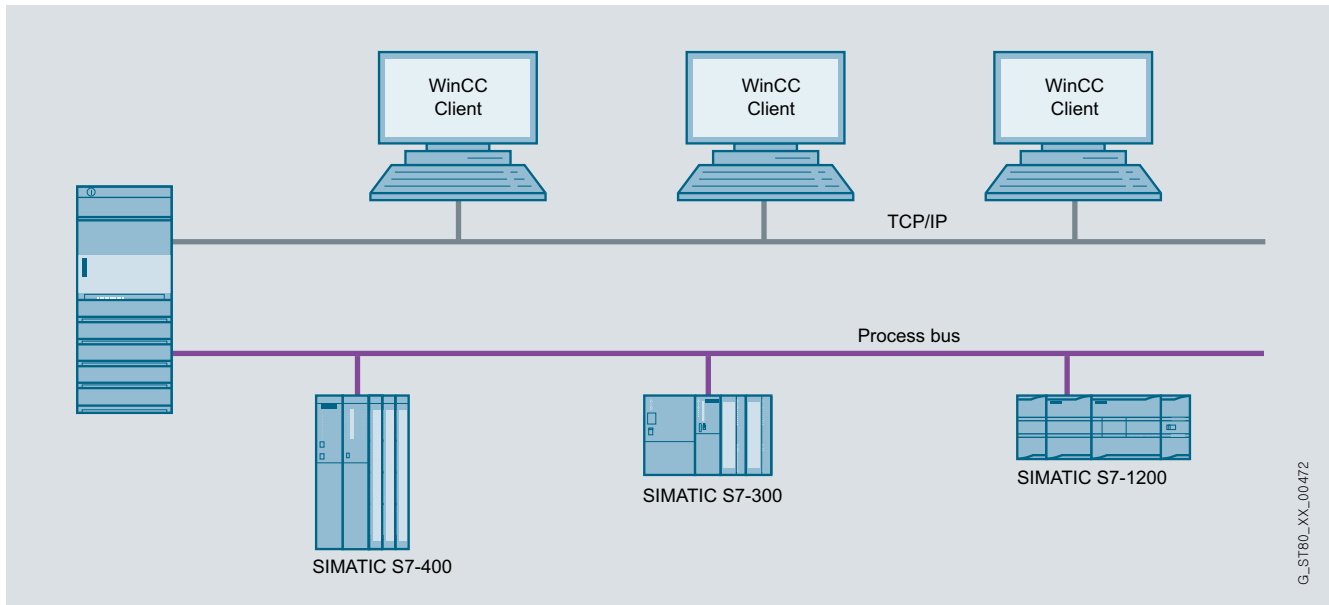
- Option for SIMATIC WinCC Runtime Professional, which permits the configuration of a powerful client/server system
- One of the following operating systems must be available to install the option on the server: Windows Server 2003, Windows Server 2003 R2, Windows Server 2008 or Windows XP Professional. When using Windows XP Professional, max. 3 clients can be connected.
- A number of coordinated HMI stations can be operated in a single group with networked automation systems

- Client/server solution: One server can supply up to 32 connected clients with process and archive data, alarms, screens and reports
  - Requirement: Network connection (TCP/IP) between the server PC and the connected clients
- Licensing:
  - A WinCC Runtime Professional license on the server with the appropriate number of PowerTags and the "WinCC Server for RT Professional" license.
  - The "WinCC Client for RT Professional" license on the clients.

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HMI Software
SIMATIC WinCC (TIA Portal) options

WinCC WebNavigator

■ **Overview**

- Option for SIMATIC WinCC Runtime Professional for operating and monitoring plants over the Internet, company Intranet or LAN.
- Configuration from:
  - A web server with SIMATIC WinCC Runtime Professional as single-user or server version and a web client that permits operator control and monitoring of a current WinCC Runtime Professional project using the Internet Explorer.
- Licensing:
  - A license is required for using the Web server.
  - Server-based licenses are available for access to the web server by 3, 10, 25 or 50 clients.
  - Client-based licenses are available for guaranteed access to the web server (Diagnostics Client)

Note:

When accessing the operator stations via the WinCC WebNavigator option, suitable protective measures (including IT security such as network segmentation) should be taken in order to ensure safe operation of the system.

You will find more information on the topic of Industrial Security on the Internet at:
http://www.siemens.com/industrialsecurity

Benefits

- Operator control and monitoring across long distances and on different platforms (PC, local panel, mobile PDA)
- Large configurations with up to 50 operator stations
- Fast update rates due to event-driven communication
- Optimally tailored clients for operating and monitoring, analysis, service and diagnostics
- Acceptance of configuration data for the web, generally without changes
- Minimum maintenance costs due to central software administration
- High security standards and availability
  - Support for commonly used security mechanisms (routers, firewalls, proxy servers)
  - WinCC access authorizations and user administration
- Support of Microsoft Internet Explorer, including "tabbed browsing". A new license is not required for separate tabs.
- With the WinCC Web Viewer (WinCC Viewer RT), the process screens can be displayed on the web client independently of the Internet Explorer. Settings for the client are made on the client itself. The WinCC Web Viewer can also be used in conjunction with the MS Terminal Service.
- The SIMATIC WinCC WebNavigator can also be operated in "view only" mode and is thus used as tool for monitoring and navigating using Internet Explorer or WinCC Web Viewer (WinCC Viewer RT).
- Web server logins and logouts are recorded in the alarm and audit log.
- There is a gadget available for the Windows 7 operating system in which selected WinCC process screens can be displayed. No additional WebNavigator license is required for the gadget. The WebNavigator server can be selected directly via the gadget.
- Security is increased by adjustable automatic logout. If an automatic logout is to take place, an absolute or inactive time period can be set.

Highlights:

- Multiple Web servers can be accessed from a single Web client
- User-friendly services and tools for distributing customized objects (controls, files) to web clients can be supplied for use as an integration platform. These components can then also be integrated into cross-web/server navigation.
- Both Internet Explorer and the supplied, browser-independent WinCC Web Viewer (WinCC Viewer RT) can be used as a front end
- Access to WebNavigator Server of the WinCC V7.x series.

Application

In addition to the typical use of the WebNavigator in WANs (Wide Area Networks), the WebNavigator can also be used to implement especially low-cost applications. This especially includes applications that have a pronounced distributed structure (water/wastewater, oil and gas), or in which access to process information is only sporadic (building management).

The WebNavigator also permits vertical integration, i.e. a networked IT landscape with integrated data flow between the planning and operating level of a company. Only a standard browser is required for direct access to current process information.

In addition to the standard WebNavigator licensing, there is the "Diagnostics Client" with identical functionality but different licensing. It is especially suitable for the following applications:

- Remote diagnostics/operation of several unmanned WinCC Runtime Professional stations
- Central control rooms that monitor several web servers via one user interface
- Maintenance personnel who require guaranteed access to the server at any time, regardless of the number of users already logged on to the server. On the server side, only one WebNavigator Diagnostics Server license or, alternatively, one Standard WebNavigator license is required.

Design

Licenses for the WebNavigator

The WebNavigator Client software can be installed as many times as required without the need for a license.

- Server-based licensing
  - A license is required for using the WebNavigator Server.
  - Licenses are available for simultaneous access to the Web server by 3, 10, 25 or 50 clients.
- Diagnostics client licensing
  - For cost-optimized access by one or a small number of WebNavigator clients to numerous Web servers (e.g. for diagnostic purposes). This client license provides guaranteed access to Web servers at any time. In respect of function there is no difference compared with regular WebNavigator clients and the two can be mixed.

WebNavigator Clients are capable of accessing several different Web Servers.

Thin client solutions

The WebNavigator can also run under Windows Server 2003 or Windows Server 2008 terminal services. A Windows Server 2003 or Windows Server 2008 (or higher) operating system is required. This makes it possible to connect SIMATIC Thin Clients as visualization stations to WinCC Runtime Professional, for example.

For this purpose, the Windows terminal services must be installed on the PC on which the Web Client is installed. A Windows Server 2003 or Windows Server 2008 (or higher) operating system is required. Up to 25 thin clients can be connected to one terminal server.

Applications:

- Mobile devices
- Handhelds
- Rugged on-site visualizations

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HMI Software
SIMATIC WinCC (TIA Portal) options

WinCC WebNavigator

■ **Design** (continued)

Hybrid configuration

System requirements: WinCC WebNavigator – Server V12
- Windows 7 SP1 (32- and 64-bit) Business, Enterprise and Ultimate (max. 3 Clients)
- Windows XP Professional Service Pack 3 (max. 3 clients)
- Windows Server 2003 SP2
- Windows Server 2008 SP2 32-bit
- Windows Server 2008 R2 SP1 64-bit
- Internet Explorer V7.0, V8.0, V9.0
- Microsoft SQL Server 2008 R2 SP1 32-bit (included in the WinCC product delivery)
- WinCC Basic System V12

System requirements: WinCC WebNavigator – Client V12
- Internet Explorer 7, IE 8, IE9

System requirements: WinCC WebNavigator – Server V11
- Windows 7 (32-bit) Business, Enterprise and Ultimate (max. 3 clients)
- Windows XP Professional Service Pack 2 (max. 3 clients)
- Windows Server 2003 SP2 and Windows Server R2 SP2
- Windows Server 2008
- Internet Explorer 7 as well as Internet Explorer 8
- Microsoft SQL Server 2005 SP2 (scope of supply of WinCC)
- WinCC Runtime Professional V11

System requirements: WinCC WebNavigator – Client V11
- Internet Explorer 7 as well as Internet Explorer 8

■ **Function**

WinCC Professional makes setting up and configuring a WebNavigator server very easy. WinCC process screens to be visualized via the Internet are created as usual in WinCC Professional and the web access is activated via a process screen option. To display WinCC process screens on the web client, the Microsoft Internet Explorer or browser is used independent of the supplied WinCC Web Viewer (WinCC Viewer RT).

The operator on the Web Client is integrated in the central WinCC user administration and can operate and monitor the system according to the configured access rights.
The WebNavigator supports all standard security mechanisms that can be used for applications on the Internet, e.g. routers, firewalls and proxy servers.

■ **Ordering data** — Order No.

	Order No.
SIMATIC WinCC WebNavigator for Runtime Professional Single license, license key only on USB stick	
• 3 clients, runtime software	6AV2107-0KD00-0BB0
• 10 clients	6AV2107-0KF00-0BB0
• 25 clients	6AV2107-0KH00-0BB0
• 50 clients	6AV2107-0KK00-0BB0
• 100 clients	6AV2107-0KM00-0BB0
• 150 clients	6AV2107-0KP00-0BB0
SIMATIC WinCC WebNavigator for Runtime Professional Powerpacks Single license, license key only on USB stick	
• From 3 to 10 clients	6AV2107-2KF00-0BD0
• From 10 to 25 clients	6AV2107-2KH00-0BD0
• From 25 to 50 clients	6AV2107-2KK00-0BD0
• From 50 to 100 clients	6AV2107-2KM00-0BD0
• From 100 to 150 clients	6AV2107-2KP00-0BD0
SIMATIC WinCC WebNavigator Diagnostics Server/Client Single license, license key only on USB stick	
• WinCC WebDiagnostics Server for Runtime Professional, Runtime software	6AV2107-0KR00-0BB0
• WinCC WebDiagnostics Client for Runtime Professional, Runtime software	6AV2107-0KT00-0BB0
New type of delivery	
Online software delivery (OSD) [1]	
WinCC WebNavigator for Runtime Professional Single license, license key download only, e-mail address required for the delivery	
• 3 clients	6AV2107-0KD00-0BH0
• 10 clients	6AV2107-0KF00-0BH0
• 25 clients	6AV2107-0KH00-0BH0
• 50 clients	6AV2107-0KK00-0BH0
• 100 clients	6AV2107-0KM00-0BH0
• 150 clients	6AV2107-0KP00-0BH0
WinCC WebNavigator for Runtime Professional Powerpacks Single license, license key download only, e-mail address required for the delivery	
• 3 to 10 clients	6AV2107-2KF00-0BJ0
• 10 to 25 clients	6AV2107-2KH00-0BJ0
• 25 to 50 clients	6AV2107-2KK00-0BJ0
• 50 to 100 clients	6AV2107-2KM00-0BJ0
• 100 to 150 clients	6AV2107-2KP00-0BJ0
WinCC WebNavigator Diagnostics Server/Client Single license, license key download only, e-mail address required for the delivery	
• WinCC Web Diagnostics Server for Runtime Professional	6AV2107-0KR00-0BH0
• WinCC Web Diagnostics Client for Runtime Professional	6AV2107-0KT00-0BH0

A license is not required for the engineering system for configuring the runtime option.

[1] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

Overview
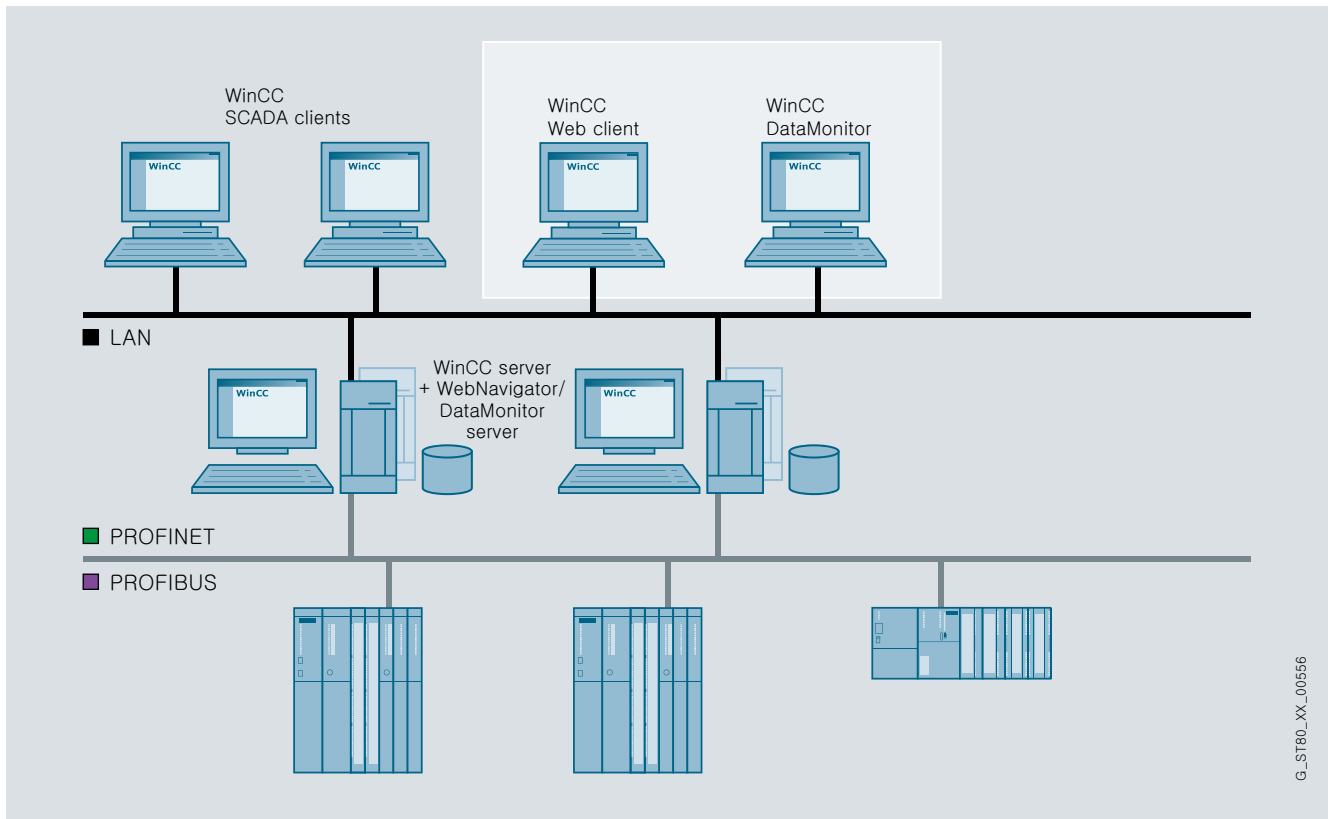
- The WinCC DataMonitor is used for displaying and evaluating current process states and historical data on office PCs using standard tools such as Microsoft Internet Explorer or Microsoft Excel. In doing so, the DataMonitor client is supplied by a Web server with current and historic process data and alarms. All staff ranging from machine operators to corporate managers can use the DataMonitor to obtain information.
- DataMonitor is a suite of Internet-capable tools:
  - Process Builder
    Tool exclusively for monitoring and navigating via WinCC Runtime Professional screens using Internet Explorer (view only) or the WinCC Web Viewer (WinCCViewerRT)
  - Excel Workbooks
    Logging tool that integrates WinCC Runtime Professional Archive and online values into Microsoft Excel and supports online analysis
  - Published Reports
    Event or time-driven implementation of Excel or PDF reports for the output of process data and analysis results
  - Webcenter
    Individual configuration of Internet pages and summary of information within a portal with reference to WinCC Runtime Professional applications
  - Trends and Alarms
    (tables and graphs) are preconfigured Webcenter pages

- DataMonitor does not require manual client installation because it loads the required components from the web server.
- There is no installation required on the client for the Webcenter and Trends and Alarms functions.
- Licensing:
  - Licenses for access by 1, 3, 10, 25, or 50 DataMonitor clients are available.
  - Any combination of DataMonitor and WebNavigator licenses can be used in an application.

Note:

When accessing the operator stations via the WinCC DataMonitor option, suitable protective measures (including IT security such as network segmentation) should be taken in order to ensure safe operation of the system.

You will find more information on the topic of Industrial Security on the Internet at:

http://www.siemens.com/industrialsecurity

HMI Software
SIMATIC WinCC (TIA Portal) options

WinCC DataMonitor

■ Benefits

- Information can be compiled online individually during runtime via the Internet/Intranet.
- Efficiently monitor and analyze production lines.
  - Display and evaluation of current process states and historical data on remote office PCs with standard tools such as Microsoft Internet Explorer or Excel.
  - Easy access to production data via the Intranet or Internet
  - Quick ascertainment of the production situation
- Easily collect and distribute information.
  - Automated report creation
  - No additional configuration effort through direct use of screens from the WinCC project
  - No training required for standard products
  - Easy exchange of configuration data
- Substantiate decisions with reports.
  - Evaluation via ready-made templates for special analyses of the business processes (e.g. reports, statistics)
  - Display bottlenecks transparently
  - Individual views for user and situation
  - Relative and absolute timeframe for information generation
- View production status anywhere and anytime.
  - Individual views of information in production
  - View the process and system operation
  - Historical data can be compiled online individually

Highlights:

- With the Webcenter function, WinCC Runtime Professional archive tags can be accessed without changing the configuration system.
- Dedicated Internet pages can be created for displaying data with the Webcenter. For this purpose, the following tools, which can be integrated in the Internet sites, are available.
  - Bar chart, pie chart, trend curve display
  - Process value table and statistics functions for the process values
  - Alarms, hit list for alarms
  - Message text display for individual message texts, message display, selection list of created reports,
  - Links to internal and external pages
  - Display of graphics in jpg format
  - Representation of the WinCC Runtime Professional process screens
- The analyses can be made with relative or absolute time specification. This enables comparisons of identical time periods on different days.
- Reports generated with Excel or with WinCC Professional can be made available on the DataMonitor server or e-mailed automatically to the relevant group of people based on time intervals or triggered by events.
- Connections to WinCC Runtime Professional and to swapped out archives can be established
- Support of Microsoft Internet Explorer version, including "tabbed browsing".

■ Function

- All tools are fully Internet-compatible and, therefore, support access via any type of connection (LAN, GSM, radio, modem, Internet, etc.).
- All popular security mechanisms such as login/password, firewalls, encryption, etc. are supported.
- Users can combine the available tools at will. Licensing only takes into account simultaneous access to one Web server.
- For display purposes, screens from the WinCC project can be used or special overview displays configured. Animations, scripts, navigation and access rights remain valid.
- The WinCC DataMonitor supports a display function only.
- Company-wide Excel reports, which contain historical and current process values, can be stored centrally for general access (reports, statistics). However, local queries to meet individual requirements can be compiled and executed online. Plot and tabular representation are supported for archive data already swapped out.
- Data can be automatically entered into created report templates and distributed by e-mail.
- Pre-made elements make the assembly of individual web pages easier for evaluating information.
- Individual information compilation on one or more Internet pages with the option of branching to other detail pages.
- Pre-made Internet pages for trend and alarm display enable an ad-hoc entry to Internet data evaluation.
- An higher-level navigation feature provides a common framework for the various tools.
- Enhanced user management for the web center in order to assign individual Internet pages and created reports to specific user groups.
- A search function facilitates the management of connections to the WinCC server.
- Swapped out archives can be connected and evaluated in the DataMonitor WebCenter.
- Excel reports created offline can be loaded onto the DataMonitor server and are thus made available to selected user groups or for automatic distribution.

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■ **Ordering data**	Order No.		Order No.
SIMATIC WinCC DataMonitor for Runtime Professional Single license, license key only on USB stick		**SIMATIC WinCC DataMonitor for Runtime Professional** Single license, license key download only, e-mail address required for the delivery	
• 1 client	6AV2107-0LB00-0BB0	• 1 client	6AV2107-0LB00-0BH0
• 3 clients	6AV2107-0LD00-0BB0	• 3 clients	6AV2107-0LD00-0BH0
• 10 clients	6AV2107-0LF00-0BB0	• 10 clients	6AV2107-0LF00-0BH0
• 25 clients	6AV2107-0LH00-0BB0	• 25 clients	6AV2107-0LH00-0BH0
• 50 clients	6AV2107-0LK00-0BB0	• 50 clients	6AV2107-0LK00-0BH0
SIMATIC WinCC DataMonitor for Runtime Professional Powerpacks Single license, license key only on USB stick		**SIMATIC WinCC DataMonitor for Runtime Professional Powerpacks** Single license, license key download only, e-mail address required for the delivery	
• From 1 to 3 Clients	6AV2107-2LD00-0BD0	• From 1 to 3 clients	6AV2107-2LD00-0BJ0
• From 3 to 10 Clients	6AV2107-2LF00-0BD0	• From 3 to 10 clients	6AV2107-2LF00-0BJ0
• From 10 to 25 Clients	6AV2107-2LH00-0BD0	• From 10 to 25 clients	6AV2107-2LH00-0BJ0
• From 25 to 50 Clients	6AV2107-2LK00-0BD0	• From 25 to 50 clients	6AV2107-2LK00-0BJ0

A license is not required for the engineering system for configuring the runtime option.

[1] Current information and availability regarding the new delivery package can be found at: http://www.siemens.com/tia-online-software-delivery

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HMI Software
SIMATIC WinCC (TIA Portal) options

WinCC ControlDevelopment

Overview

You use the ControlDevelopment option to create your own .net controls for controlling and monitoring processes. You can use the controls in screens for WinCC Runtime Advanced and WinCC Runtime Professional. You create the controls based on the standard controls from Visual Studio 2005/2008 Professional .net.

Application examples:

- Special trend views
- Own recipe managements
- Complex display objects

Benefits

The ControlDevelopment option enables user-specific software solutions based on a proven building block principle:

- Lower development overhead by using standards (Visual Studio 2005/2008 Professional .net)
- Very short "Time-to-Market" resulting in a competitive advantage
- Utilization of tried components and proven industrial functionality

The development of proprietary controls for WinCC Runtime Advanced and WinCC Runtime Professional does not require expensive, special hardware.

Ordering data

	Order No.
WinCC ControlDevelopment V12	
• Runtime license, single license, software and documentation on CD	**6AV2107-0TA02-0DA8**
• Runtime software, single license, software download (e-mail address required for the delivery) [1]	**6AV2107-0TA02-0DG8**

[1] Current information and availability regarding the new delivery package can be found at:
http://www.siemens.com/tia-online-software-delivery

More information

Further information can be found in the Internet at:
http://www.siemens.com/tia-portal

Overview

SIMATIC offers numerous reasons for corporate energy management in industrial plants.

However, there is one in particular:
It makes an important contribution towards improving plant productivity. This results in enhanced competitiveness. Energy management with SIMATIC makes energy flows transparent in production plants. This supports the analysis and derivation of energy saving potential.

The result:
Permanently increased efficiency, higher productivity and an improved cost situation.

4

HMI Software
Software for energy management

SIMATIC B.Data

■ **Overview**

SIMATIC B.Data V5.3 SP2 Energy Management System

SIMATIC B.Data is a modular, cross-sector energy management system for industrial firms.

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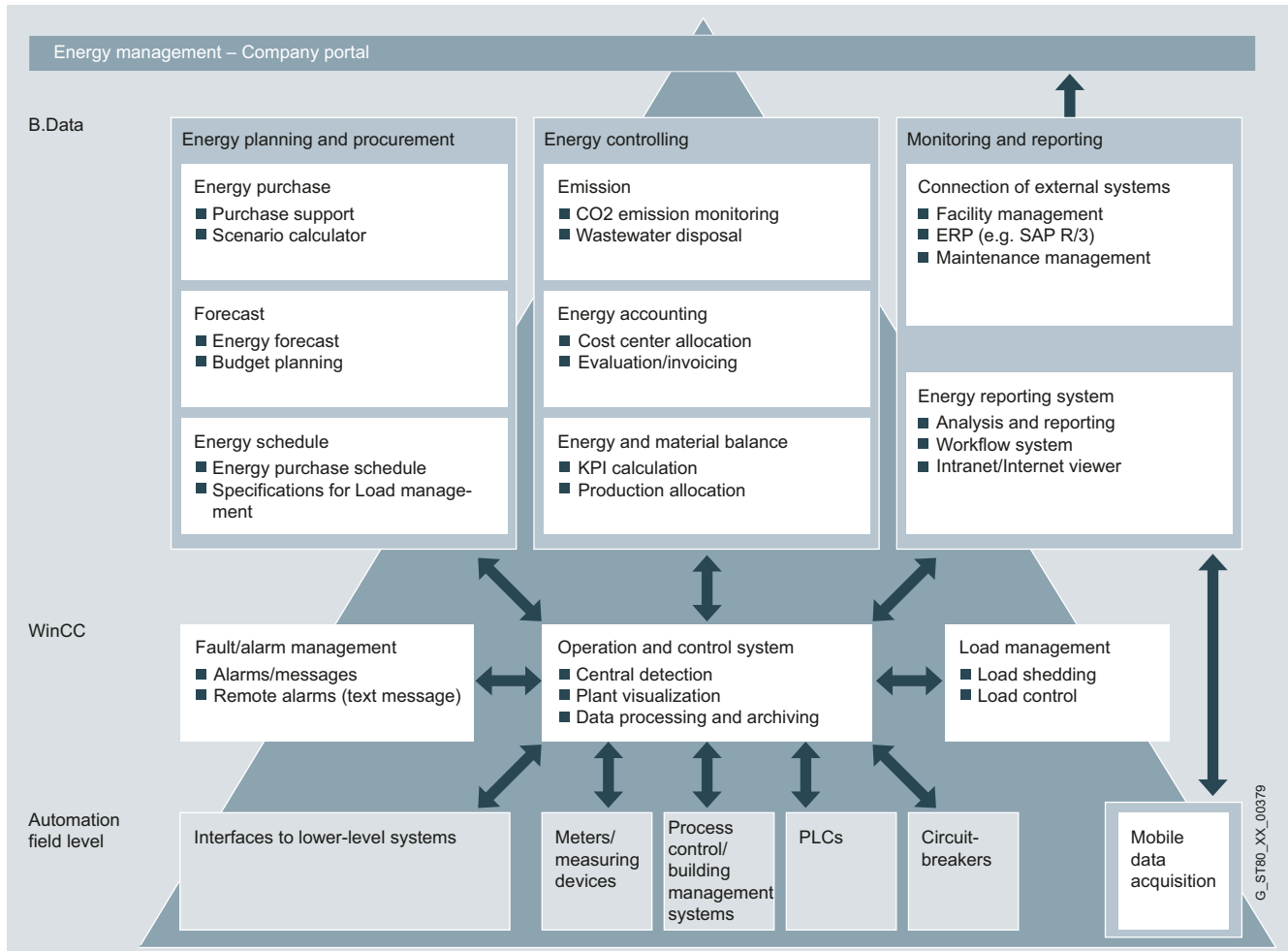
■ **Benefits**

The option SIMATIC B.Data forms the basis of a cost-effective energy management system for reducing energy costs and increasing energy efficiency, and it confers the following immediate benefits:

- It creates company-wide transparency, thanks to continuous energy balancing and materials balancing for the power generation systems and loads
- It allows energy costs to be allocated according to the costs-by-cause principle and permits transfer to the billing system (e.g. SAP R/3 CO)
- It generates characteristic values for well-informed suggestions for increasing the efficiency of power generation systems and loads

- It provides planning reliability thanks to production-related load and demand forecasts
- It supports purchasing with cost-optimized energy procurement
- It fulfills the legal obligations for monitoring and reporting on greenhouse gas emissions (CO_2 emissions)
- It relieves personnel of extra work through automatically updating internal and external energy reports
- It supports customers in the continuous improvement of energy efficiency (e.g. ISO 50001) by integrated project management for energy efficiency measures

Design

SIMATIC B.Data V5.3 SP2 Basic System

The B.Data Basic System is available in variants for 100, 500, 1 000 and 30 000 tags and comprises the following components:

- A B.Data acquisition component (WinCC, OPC, etc.)
- A B.Data Client
- B.Data Mobile
- ERP interface
- Reporting, Trender, Visu, document management, Matrix, KPI, Profile

SIMATIC B.Data Software Update Service (SUS)

For each B.Data Basic System there is a corresponding SUS (Software Update Service), which is dependent on the number of tags. The SUS is valid for 1 year. The contract is automatically extended by 1 more year unless canceled 3 months prior to expiration.

SIMATIC B.Data V5 Expansions

The scope of B.Data can be extended by purchasing add-on packages:

- B.Data Web Server
- B.Data Client
- B.Data Energy Forecasting and Planning
- B.Data Acquisition Component

Function

Acquisition and pre-processing of energy and operating data from WinCC

- In addition to an interface to WinCC, SIMATIC B.Data also offers the latest interface standards such as OPC, ODBC, ASCII, or XML
- Preprocessing of energy data in a real-time calculation core that can be freely modeled including a formula editor for defining and configuring new calculation functions (heat calculations for boilers, quality for cogeneration plants, etc.)
- B.Data Mobile for mobile recording of energy data including route planning for meter reading operations
- Management and analysis of energy data
- Automatic plausibility check and generation of simulated values
- Long-term archive with versioning, compression and consolidation functions
- Measured value editor for entering and processing energy and operating values
- Trender for presenting up-to-date (online) and historical load curves (trends), also for setpoint/actual value analyses
- Energy management dashboards for creating cross-company transparency through visualization of parameters and display of Sankey diagrams.
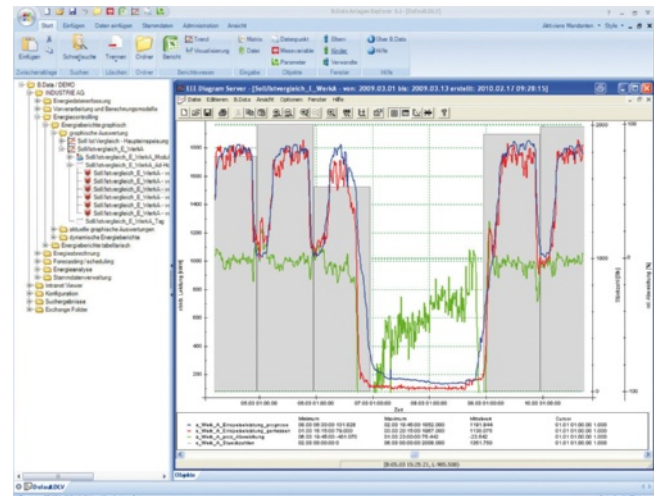
HMI Software
Software for energy management

SIMATIC B.Data

■ **Function** (continued)

Energy and material balance

Freely parameterizable balancing of the energy flows of various media such as electricity, heat, gas, steam, and emissions (CO_2) in the B.Data Plant Explorer

- Calculation of characteristic values (KPIs, efficiency coefficients, etc.) with direct reference to production (batches, quantities, etc.).

Energy accounting (costs and revenue accounting)

Calculation and allocation/assignment of energy costs to plants and/or customers/cost units in accordance with the costs-by-cause principle. The bottom up (measurement) and top down (allocation) procedures are supported here

- Flexible modeling of the hierarchic accounting structures in the Plant Explorer
- Tariff allocation of quantities, flexible price assessment with tariff and price time series
- Transfer of costs/revenues to the ERP system (e.g. SAP R/3 CO)

Energy planning

- Generation of requirement forecasts based on production-dependent factors (production planning) and basic load profiles (typical days)
- Generation of energy schedules for registering with the energy suppliers. Energy reporting
- Freely parameterizable report generator for creating balances, protocols, shift logs, bills
- Fully automated reporting with task management, e-mail dispatch and document management
- B.Data Intranet/Internet viewer (web client) for company-wide viewing of reports and results
- Information about discrepancies from specified parameters through KPI warning system

Technical specifications

	SIMATIC B.Data V5.3 SP2 [2]
Operating system	• Windows Server 2003 SP2 32 bit Eng./Ger. • Windows Server 2008 Std. Edition 32 bit Eng./Ger. • Windows Server 2008 R2 Eng./Ger. • Windows XP Professional SP3 32 bit Eng./Ger. • Windows 7 Professional/Ultimate 32 bit/64 bit Eng./Ger. • Minimum of 2 GB RAM
Interface	In addition to an interface to WinCC, B.Data also offers the latest interface standards, such as OPC, ODBC, ASCII and XML.
WinCC versions [1]	• SIMATIC WinCC V7.0 SP3, V7.2 • SIMATIC WinCC RT Professional V11 SP2, V12
PCS 7 versions [3]	• SIMATIC PCS 7 V8.0 SP1

[1] If an acquisition computer is installed on a WinCC system, these requirements must also be complied with.

[2] The SIMATIC B.Data V5.3 Basic System is delivered with an Oracle Database Standard Edition Embedded. For larger quantity frameworks (as of 250 million stored measured values), you need Oracle Database Enterprise Edition with Partitioning Option, which must be ordered separately from Oracle.

[3] The SIMATIC B.Data system for connection to the PCS 7 must always be installed on a separate PC.

More information

Further information can be found on the Internet at:
www.siemens.com/simatic-bdata

Ordering data — Order No.

SIMATIC B.Data V5.3 SP2 Basic System

In the basic system of B.Data, the following components are already included:

One B.Data acquisition component (WinCC, OPC, etc.), 1 B.Data client, B.Data Data Mobile, ERP interface, Reporting, Trender, Visu, document management, Matrix, KPI, Profile

• Basic system, 100 tags [1]	6AV6372-1DF05-3AX0
• SUS for 100 tags [2]	6AV6372-1DF00-0AL1
• Basic system, 500 tags [1]	6AV6372-1DF05-3BX0
• SUS for 500 tags [2]	6AV6372-1DF00-0BL1
• Basic system, 1 000 tags [1]	6AV6372-1DF05-3CX0
• SUS for 1 000 tags [2]	6AV6372-1DF00-0CL1
• Basic system, 30 000 tags [1]	6AV6372-1DF05-3DX0
• SUS for 30 000 tags [2]	6AV6372-1DF00-0DL1

SIMATIC B.Data V5 Powerpack

• Basic system, Powerpack [1] Tag upgrade by 1 level	6AV6372-1DF05-3XX0
• SUS and support contract for Powerpack [2]	6AV6372-1DF00-0XL1

SIMATIC B.Data V5.3 Trial License — 6AV6372-1DF15-3AX0

Basic System, 90 days [5]

SIMATIC B.Data V5 Expansions [3]

The functional scope of B.Data can be expanded with the following packages.

SIMATIC B.Data Web Server	
• incl. 3 web clients	6AV6372-1DF25-2AX0
• incl. 20 web clients	6AV6372-1DF25-2BX0
SIMATIC B.Data Client	6AV6372-1DF35-2AX0
SIMATIC B.Data Prognosis & Planning	6AV6372-1DF45-2AX0
SIMATIC B.Data Acquisition Component	6AV6372-1DF55-2AX0

SIMATIC B.Data upgrades

• SIMATIC B.Data 100 tags, upgrade V5.2 -> V5.3 SP2 [4]	6AV6372-1DF05-3AX4
• SIMATIC B.Data 500 tags, upgrade V5.2 -> V5.3 SP2 [4]	6AV6372-1DF05-3BX4
• SIMATIC B.Data 1 000 tags, upgrade V5.2 -> V5.3 SP2 [4]	6AV6372-1DF05-3CX4
• SIMATIC B.Data 30 000 tags, upgrade V5.2 -> V5.3 SP2 [4]	6AV6372-1DF05-3DX4

[1] The SIMATIC B.Data V5.3 Basic System is delivered with an Oracle Database Standard Edition Embedded. For larger quantity frameworks (as of approx. 250 million stored measured values), you need Oracle Database Enterprise Edition with Partitioning Option, which must be ordered separately from Oracle.

[2] The SUS contract runs for 1 year. The contract is automatically extended by a further year unless canceled 3 months prior to expiration.

[3] B.Data expansions can also be used with B.Data V5.2 (SP1).

[4] The upgrades are delivered without Oracle Database Standard Edition Embedded.

[5] The trial DVD can also be used to upgrade V5.3 SP1 -> V5.3 SP2.

4

HMI Software
Software for energy management

Overview
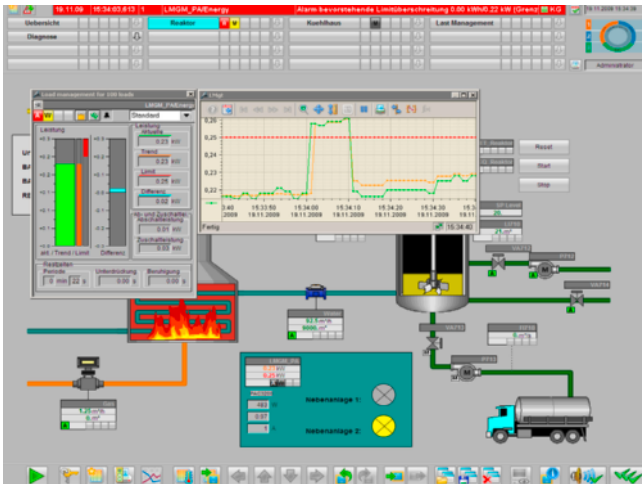
SIMATIC powerrate, as an option for WinCC / PCS 7, ensures transparency in energy consumption from the infeed to the load.

SIMATIC powerrate is used in all sectors in which WinCC or PCS 7 are deployed and energy efficiency considerations play a major role.

Total integration into WinCC or PCS 7 means that there is no need for a special system environment. Predefined modules and symbols give you the assurance of building on tested product components, with interfaces that support customized expansion.

SIMATIC powerrate therefore provides a solution that you can use to obtain an overview of the energy consumption of a plant easily and cost-effectively through integration in an existing SIMATIC SCADA system.

Benefits

- Identification of energy-intensive equipment and processes to develop measures for improving energy efficiency.
- Comparison of consumption profiles for more efficient processes.
- Optimization of the company according to energy parameters, based on an evaluation of consumption and costs.
- Compliance with the contractually agreed power limits, thus preventing higher power supply costs or penalty payments.
- Integration of the 7KM PAC3200/4200 measuring devices for a clear overview of selected measured values and alarms.
- Integration of switches with an overview of the switch status and the switching possibilities.
- Accurate assignment and comparison of the consumption data of specific work processes or batches

Design

SIMATIC powerrate comprises the following components:
- Blocks for acquiring and conditioning energy data
- Faceplates for displaying and editing energy data
- Blocks for implementing load management (calculating the trend, monitoring the limit, releasing/inhibiting loads), batch-related consumption recording and for integrating measuring instruments and switches
- Additional blocks – for example, for time synchronization, data backup, data exchange with archives
- Faceplates for displaying results and entering values (e.g. for configuration, or manually measured values)
- Excel-based reports for allocating energy data to cost centers, for batch-related evaluation and for determining and displaying the load duration curve
- Exporting data to Excel

■ Function

Acquiring and conditioning energy data

Using ready-to-use function blocks, energy data can be acquired by any PROFIBUS-capable devices. The data can be input to the function blocks in the form of counter pulses, count values or power values. Count values can also be entered manually.

From this data, the function block calculates the power averages and the work values for a predefined period. This calculated data is subsequently saved in the WinCC archive. In addition, a final value forecast is extrapolated for the power values for each period.

A sample function (heat calculation) that can be adapted to the needs of the customer at any time by means of open interfaces has been implemented for the purpose of visualizing customized calculations.

Data from manually read counters can be entered directly into the system and used for further analysis. Absolute numerical values (entry of an absolute value instead of the difference from the previous value) can also be recorded and used in further processing.

The up-to-date, acquired energy data is displayed as power averages/work values for each time interval (total value for the previous interval, current value of the current interval, extrapolated value for the end of the current interval). A load trend display enables analysis of archived energy data as well as its representation in tables.

The archived data can be exported to Excel directly from WinCC using the export functions. The exported energy data can also be included in further customized processing. WinCC tools can be used to access the data from the WinCC archive.

For this purpose, selected energy data is read from archives (Tag Logging archive, user archives) from the WinCC Runtime database; using Microsoft Excel the following reports can then be generated:

- Cost center report
  Here the consumption can be allocated to different cost centers and the costs can be calculated on the basis of predefined tariffs. The results can be output by means of 2 reports in the form of tables or diagrams.

- Load duration curve
  An analysis is carried out on the basis of the archived power averages to establish how often a certain power average has occurred in a given period. It can be quickly detected from this characteristic curve whether temporary power peaks exist which can represent a possible starting point for cost savings by means of load management.

- Batch report
  This is used to allocate consumption to batches, whereby the data can be presented in chronological order or in order of batch name.

The generation of exports or reports can be activated manually or automatically time-controlled (daily, weekly or monthly). Data access and report generation can also take place via a separate "office" PC; which enables the WinCC installation and the "office" applications to be distributed across different PCs.

Contractually agreed power limits (in the case of electricity, normally the 15-minute average power value) must be observed, otherwise significantly higher supply prices or even penalty payments may become due to the energy supply company. The load management feature of SIMATIC powerrate carries out cyclic trend calculations in order to issue warnings/alarms if violation of the limit is likely and to switch off loads in accordance with the given configuration should this be required. If a limit is exceeded despite this, the latest load management data is archived to enable future evaluation or analysis.

To prevent unnecessary switching operations, numerous parameters are available for adapting the load management to the current process conditions - and all this can be done easily and conveniently via the faceplate.

For loads that are distributed over different PLCs, SIMATIC powerrate contains appropriate PLC-to-PLC communication blocks which can be used to integrate these loads into the load management system. Load management is scalable, according to the maximum number of loads to be integrated or monitored, for up to 10, 25, 50, 75 or 100 loads. Load management can be performed for different media (e.g. electricity, gas) simultaneously.

A batch comprises all the units of a product that have been produced in one production cycle, i.e. under identical conditions. Batch-related consumption recording allows accurate recording of energy consumption for each batch. Batch-related consumption recording is possible for five types of energy each with up to 10 loads. Appropriate reports can be generated for analysis of the data (see also the batch report).

If the 7KM PAC3200/PAC4200 measuring devices are integrated, selected measured values can be displayed and alarms (current, voltage, pulse frequency too high) can be generated from the digital status information and displayed.

Switch integration via digital inputs/outputs (DI/DO) supports display of the switch status (On, Off, tripped, unplugged).

With the appropriate authorization, switching is also possible via the faceplate. Switching takes place in a 2-step operation (switch command is issued, followed by a prompt for repeated confirmation; the switch command is not forwarded to the switch until confirmation has been received).

Support for the WinCC Web Navigator option also makes the powerrate functionality possible via the web.

To avoid data loss in the event of a communication fault, the data is stored temporarily in a circulating buffer on the S7.

4

HMI Software
Software for energy management

SIMATIC powerrate

Technical specifications

	SIMATIC powerrate V4.0 SP1
Hardware requirements	
SIMATIC powerrate can be used in the PCS 7 or WinCC SCADA environments. For installation, the respective hardware requirements of the following products apply:	• PCS 7 • STEP 7 and WinCC SCADA
Released CPUs - SIMATIC powerrate is released in the PCS 7 environment for	• S7-400 CPUs supported by PCS 7 • WinAC RTX 2010

Released CPUs - SIMATIC powerrate is released in the WinCC SCADA environment for	• S7-400
	• S7-300
	  - SIMATIC S7 CPU 319-3 PN/DP V2.5 and higher
	  - SIMATIC S7 CPU 317-2 PN/DP V2.6 and higher
	  - SIMATIC S7 CPU 315-2 PN/DP V3.1 and higher
	• SIMATIC ET 200S IM151-8 PN/DP CPU V3.2 and higher
	• WinAC RTX 2010

Software requirements	
You can use SIMATIC powerrate in the PCS 7 or WinCC SCADA environments. For installation, the respective software requirements of the following products apply:	• PCS 7 • STEP 7 and WinCC SCADA
The library is released for the following PCS 7 versions	• SIMATIC PCS 7 V8.0 with Update 1 (Europe & ASIA) • SIMATIC PCS 7 V7.1 SP3
The library is released for the following WinCC version with the corresponding versions of STEP 7	• SIMATIC WinCC V7. 0 SP3, SP3 with Update 1 (Europe & ASIA)

For use with WinCC V7.0 SP3, the following installations are required	• WinCC minimum installation
	  - Basic Process Control
	  - User archives for load management and batch-oriented energy acquisition
	• WinCC add-on "AS-OS Engineering"
	For the use of SIMATIC powerrate V4.0, WinCC must execute in integrated mode with STEP 7.
	• SIMATIC NET
	• STEP 7

powerrate Reports has been released for the following versions	• Microsoft Excel 2003 • Microsoft Excel 2007 • Microsoft Excel 2010

Ordering data

	Order No.
SIMATIC powerrate V4.0 SP1 ES + OS Runtime [1] Also included are • License for user/archive • PAC3200 function block library for WinCC • Block library PAC3200, 3WL/3VL for PCS 7	**6AV6372-1DE04-0AX0**
SIMATIC powerrate V4.0 SP1 upgrade Upgrade V3.0 SP1 to V 4.0 SP1, ES + OS-RT [1]	**6AV6372-1DE04-0AX4**
SIMATIC powerrate V4.0 SP1 update Update V4.0 to V 4.0 SP1	**6AV6372-1DE04-0AX3**
SIMATIC powerrate V4.0 SP1 trial license Limited 30-day ES + OS Runtime license	**6AV6372-1DE04-0AX7**

[1] For operation on a WinCC/PCS 7 OS single-user workstation or server and any number of automation systems. When using additional WinCC/PCS 7 OS single-user stations/servers, one license is required per WinCC/PCS 7 OS single-user station/server.

More information

Further information can be found on the Internet at:
http://www.siemens.com/simatic-powerrate

Important information on the use of SIMATIC powerrate is available on the Internet at:
http://support.automation.siemens.com/WW/view/en/48204134/133200

■ Overview

SIMATIC WinCC flexible ES engineering software

- Family of configuration systems with WinCC flexible Micro/Compact/Standard/Advanced for SIMATIC operator panels, the HMI part of SIMATIC C7 as well as for the PC-based visualization software WinCC flexible Runtime

- Runs under Windows XP Professional / Windows 7 Professional, Ultimate, Enterprise

- Can be expanded by the option "WinCC flexible /ChangeControl" for version management and change logging

SIMATIC WinCC flexible Runtime visualization software

- Modular PC-based HMI solution for single-user systems directly at the machine (further development of ProTool/Pro RT)

- Runs under Windows XP Professional / Windows 7 Professional, Ultimate, Enterprise

- Basic package for visualization, reporting and logging; can be expanded by implementing option packages

- Flexible expansion possible with VB scripts and customized ActiveX controls created with OPP (Open Platform Program)

- Can be integrated into automation solutions based on TCP/IP networks

- Expanded service concepts with remote operation, diagnostics and administration over the intranet and Internet in combination with email communication

4

HMI Software
SIMATIC WinCC flexible HMI system

SIMATIC WinCC flexible ES

Overview
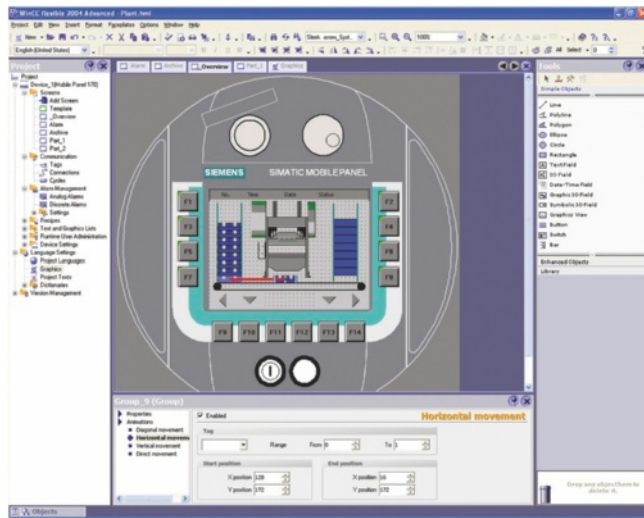
- Uniform family of engineering tools for configuration SIMATIC HMI Operator Panels, the operator control part of SIMATIC C7 units, SIMOTION/SINUMERIK Panel PCs as well as the PC-based visualization software WinCC flexible Runtime.
- Runs under Windows XP Professional / Windows 7 Professional, Ultimate, Enterprise
- Current version:
  - SIMATIC WinCC flexible 2008 SP3 Micro
  - SIMATIC WinCC flexible 2008 SP3 Compact
  - SIMATIC WinCC flexible 2008 SP3 Standard
  - SIMATIC WinCC flexible 2008 SP3 Advanced

Benefits

- The integrated configuration software reduces training, maintenance and service overhead and protects the customer's investments
- Minimized configuration overhead due to reuse of scalable and dynamizable objects
- Tools for efficient and simple configuration:
  - Wizard for defining the basic structure of the HMI project
  - Table-based editors simplify the generation and processing of similar types of object, e.g. for tags, texts, or alarms.
  - Complex configuration tasks such as the definition of paths of motion or the creation of the fundamental operator prompting are simplified by means of graphical configuration.
- Comprehensive support of multi-language configurations for worldwide use
  - Selectable views for entering configuration data in several languages
  - System and user-specific text lexicons
  - Export/import of language-dependent texts

Application

SIMATIC WinCC flexible Micro/Compact/Standard/Advanced are engineering tools for configuring SIMATIC HMI devices, the operating component of SIMATIC C7 devices, the SIMOTION/ SINUMERIK Panel PCs as well as the PC-based visualization system WinCC flexible Runtime.

Depending on the selected product, various target systems can be configured:

WinCC flexible Micro

- Micro Panels: OP 73micro, TP 170micro, TP 177micro

WinCC flexible Compact

In addition to the target systems that are configured using WinCC flexible Micro:

- Basic Panels: KTP400 Basic, KTP600 Basic, KTP1000 Basic, TP1500 Basic
- Mobile Panels: Mobile Panel 170, Mobile Panel 177
- 70 series Panels: OP 73, OP 77A, OP 77B
- 170 series Panels: TP 170A, TP 177A, TP 170B, TP 177B, OP 170B, OP 177B
- 170 series Multi Panels: MP 177
- C7 devices: C7-635 (Touch/Key)

WinCC flexible Standard

In addition to the target systems that are configured using WinCC flexible Compact:

- Mobile Panels: Mobile Panel 277
- 270 series Panels: TP 270, TP 277, OP 270, OP 277
- 270 series Multi Panels: MP 270B, MP 277
- 370 series Multi Panels: MP 370, MP 377
- C7 devices: C7-636 (Touch/Key)

WinCC flexible Advanced

In addition to the target systems that are configured using WinCC flexible Standard:

- Standard PC
- SIMATIC Panel PC: Panel PC IL 70, Panel PC IL 77, Panel PC 477/477B, Panel PC 577/577B, Panel PC 670, Panel PC 677/677B, Panel PC 870, Panel PC 877
- SIMOTION Panel PC: P012K, P012T, P015K, P015T, PCR, PCR-Touch
- SINUMERIK Panel PC: HT8, OP08T, OP010, OP012, TP012, OP015, TP015, OP015A

For configuring panels released after the start of delivery of WinCC flexible 2008, an HSP (Hardware Support Package) is required that can be downloaded free of charge via the following link:
http://www.siemens.com/wincc-flexible-hsp

4

◼ Design

The engineering tools of the SIMATIC WinCC flexible range are based on one another. The available editors largely depend on the respectively configured target systems and their functions. A more comprehensive engineering tool such as WinCC flexible Standard also offers the facilities of the smaller engineering tools, e.g. WinCC flexible Compact or Micro.

Upgrading of a smaller engineering tool to a larger one is possible using a Powerpack. An exception is WinCC flexible Micro.

The scope of functions of the WinCC flexible engineering tools already includes project support for the Runtime options available for SIMATIC Panels or WinCC flexible Runtime, independent of the RT licenses purchased. Separate licensing is required for the target system in order to use the configured Runtime options.

◼ Function

Integration into automation systems

- Integration into SIMATIC STEP 7 V5.x and Simotion
  - Management of HMI projects within the SIMATIC Manager
  - Shared use of communication settings and process point definitions, i.e., symbols and messages
  - Display of the HMI configuring objects in the SIMATIC Manager
  - Transfer of configuring data via MPI/PROFIBUS/Ethernet using routing

Configuration interface

- Comprehensive and fast access to editors and project data via Workbench applications
- Adaptive user interface of engineering tools depending on configured target system
- User-definable user interface settings, e.g., layout, toolbars, object defaults

Project handling

- Device-independent configuration data can be used on a variety of target systems without the need for conversion; the interface adapts to the functional possibilities of the device currently configured.
- Cross-device utilization of common configuration data (e.g., text library) in multi-device projects
- Wizard-assisted definition of basic structure of HMI projects (e.g., display layout, operator prompting)

Screen editor with extensive options for efficient and fast screen configuration

- Generation of interconnected screen objects via Drag&Drop, e.g., tags for the creation of input/output fields with process interfacing or buttons with screen selection function
- Template for the definition of global screen objects and functions (comparable with the Slide Master in MS PowerPoint)
- User-friendly editor for the creation of image blocks with defined external interface from screen objects
- Graphics-based configuration of motion paths
- Layer technology with up to 32 layers
- Tools for the Align, Rotate and Mirror functions

Import/export

- of texts for translation
- of tags, links, text lists, and messages
- Generation of variable lists for importing from controller programming tools

Object-based data management with user-friendly search and edit options

- Cross-reference list with direct access to all objects, e.g. for editing or selection
- Search for objects in entire project
- Central reassignment of variables
- Text search and replace functions

Libraries for predefined/user-defined configuration objects

- Large number of scalable and dynamizable screen objects included in scope of delivery
- Size-scalable WMF-format graphics for industrial applications included in scope of delivery
- Preview function for library objects
- Storage of all engineering objects in library, e.g., blocks and even entire displays or variables; picture blocks can be created on a customer- or project-specific basis by combining simple screen objects. Changes to these picture blocks can be made centrally (block definition).

Language support

- Multilingual project creation (max. 32 languages) in editors thanks to selectable views
- Automatic translation on basis of system- and user-specific dictionaries in central text library
- Central management of language-specific texts and graphics in libraries
- Edit, export and import of texts for translation
- Language-specific graphics

Visual Basic Script support

- IntelliSense function for fast programming of access to runtime objects
- Simple creation of control sequences in script code;
- Script debugging in Simulator and WinCC flexible Runtime

Test and startup support

- Simulation of HMI projects on engineering PC
- Jump to error cause based on alarm messages in the Compiler
- Advanced ProSave service tool for all operating systems supported by WinCC flexible

ChangeControl (option)

- Version management of project versions with rollback
- Logging of configuration changes, e.g., for regulated industries

Note:
For further information, refer to "WinCC flexible options".

Default runtime data in engineering tools

- Users and passwords
- Recipe data records

4

HMI Software
SIMATIC WinCC flexible HMI system

SIMATIC WinCC flexible ES

■ **Technical specifications**

System requirements (minimum requirements)	WinCC flexible Engineering Software
Operating system	Windows XP Professional SP3 (32 bit), Windows 7 Professional, Ultimate, Enterprise (32 and 64 bit)
	Additionally for SIMATIC WinCC flexible Micro: Windows XP Home SP3
Processor	Pentium 4 (or comparable) processor running at 1.6 GHz or faster
Resolution	1024 x 768 or higher
Main memory (RAM)	≥ 1 GB, ≥ 512 MB for WinCC flexible Micro
Hard disk (free memory space) [1]	≥ 2 GB [2] ≥ 1.2 GB for WinCC flexible Micro [3]
DVD drive	for software installation

[1] In addition to the space needed by WinCC flexible, Windows also requires space on the hard disk; e.g. for the swap file. The following formula has proven itself in the past: The size of the swap file = 3 x the size of available RAM. For further information, refer to your Windows documentation

[2] When installing one language. An additional 200 MB are required for each further language. In the case of different partitions for system and configuration: System partition approx. 700 MB, project partition approx. 1.3 GB.

[3] When installing one language. An additional 80 MB are required for each further language. In the case of different partitions for system and configuration: System partition approx. 600 MB, project partition approx. 600 MB.

■ **Ordering data**

	Order No.		Order No.
WinCC flexible 2008 Micro incl. SP3 Single license, without license key software and documentation on DVD, without license key, contains: • Engineering software for configuration of Micro Panels • Electronic documentation (.pdf)	6AV6610-0AA01-3CA8	**WinCC flexible 2008 Advanced incl. SP3** Floating license, license key on USB stick, software and documentation on DVD, contains: • Engineering software for configuring WinCC flexible Runtime on basic PCs/Panel PCs as well as Micro Panels, Basic Panels and 70/170/270/370 series Panels incl. C7-635/636 • Software for WinCC flexible /ChangeControl engineering option [1] • Simulation software for WinCC flexible Runtime as well as Micro Panels, Basic Panels, and 70/170/270/370 series Panels incl. C7-635/636 • Native drivers • Electronic documentation (.pdf)	6AV6613-0AA51-3CA5
WinCC flexible 2008 Compact incl. SP3 Floating license, license key on USB stick, software and documentation on DVD, contains: • Engineering software for configuring Micro Panels, Basic Panels and 70/170 series Panels incl. C7-635 • Software for WinCC flexible /ChangeControl engineering option [1] • Simulation software for Micro Panels, Basic Panels, and 70/170 series Panels incl. C7-635 • Native drivers • Electronic documentation (.pdf)	6AV6611-0AA51-3CA5		
		WinCC flexible /ChangeControl for WinCC flexible 2008 Compact/Standard/Advanced [1] [2] Floating license, option, license key only	6AV6613-6AA01-3AB5
		Powerpacks	
		SIMATIC WinCC flexible Powerpacks Single license, license key only	
WinCC flexible 2008 Standard incl. SP3 Floating license, license key on USB stick, software and documentation on DVD, contains: • Engineering software for configuring Micro Panels, Basic Panels and 70/170/270/370 series Panels incl. C7-635/636 • Software for WinCC flexible /ChangeControl engineering option [1] • Simulation software for Micro Panels, Basic Panels, and 70/170/270/370 series Panels incl. C7-635/636 • Native drivers • Electronic documentation (.pdf)	6AV6612-0AA51-3CA5	• WinCC flexible 2008 Standard to 2008 Advanced	6AV6613-2CD01-3AD5
		• WinCC flexible 2008 Compact to 2008 Advanced	6AV6613-2BD01-3AD5
		• WinCC flexible 2008 Compact to 2008 Standard	6AV6612-2BC01-3AD5
		Updates	
		WinCC flexible 2008 Micro Update 2008, 2008 SP1, 2008 SP2 -> 2008 SP3	6AV6610-0AA51-3CU8
		WinCC flexible 2008 Compact/Standard/Advanced Update 2008, 2008 SP1, 2008 SP2 -> 2008 SP3	6AV6613-0AA51-3CU8

[1] A separate license for WinCC flexible /ChangeControl must be purchased for each engineering station

[2] The ChangeControl option has not been released for integrated operation with STEP 7

▪ Ordering data

	Order No.		Order No.
Upgrades		**WinCC flexible 2008 ASIA Advanced incl. SP3**	**6AV6613-0AA11-3CA5**
SIMATIC WinCC flexible 2004/2005/2007 to SIMATIC WinCC flexible 2008 incl. SP3		Floating license, license key on USB stick, software and documentation on DVD, contains:	
• Upgrade to WinCC flexible 2008 Micro [2]	**6AV6610-0AA01-3CE8**	• Engineering software for configuring WinCC flexible Runtime as well as Micro Panels, Basic Panels and 70/170/270/370 series Panels incl. C7-635/636	
• Upgrade to WinCC flexible 2008 Compact, incl. ChangeControl option [1]	**6AV6611-0AA51-3CE5**	• Software for WinCC flexible /ChangeControl engineering option [1]	
• Upgrade to WinCC flexible 2008 Standard, incl. ChangeControl option [1]	**6AV6612-0AA51-3CE5**	• Simulation software for WinCC flexible Runtime as well as Micro Panels, Basic Panels, and 70/170/270/370 series Panels incl. C7-635/636	
• Upgrade to WinCC flexible 2008 Advanced, incl. ChangeControl option [1]	**6AV6613-0AA51-3CE5**	• Native drivers	
		• Electronic documentation (.pdf)	
SIMATIC WinCC flexible ASIA 2004/2005/2007 to SIMATIC WinCC flexible ASIA 2008 incl. SP3		**Documentation (must be ordered separately)**	
• Upgrade to WinCC flexible 2008 ASIA Standard, incl. ChangeControl option [1]	**6AV6612-0AA11-3CE5**	**User Manual WinCC flexible Communication**	
• Upgrade to WinCC flexible 2008 ASIA Advanced, incl. ChangeControl option [1]	**6AV6613-0AA11-3CE5**	• German	**6AV6691-1CA01-3AA0**
		• English	**6AV6691-1CA01-3AB0**
		• French	**6AV6691-1CA01-3AC0**
Versions for China/Taiwan/Korea/Japan		• Italian	**6AV6691-1CA01-3AD0**
		• Spanish	**6AV6691-1CA01-3AE0**
WinCC flexible 2008 ASIA Standard incl. SP3	**6AV6612-0AA11-3CA5**	**WinCC flexible Micro User Manual**	
Floating license, license key on USB stick, software and documentation on DVD, contains:		• German	**6AV6691-1AA01-3AA0**
• Engineering software for configuring Micro Panels, Basic Panels and 70/170/270/370 series Panels incl. C7-635/636		• English	**6AV6691-1AA01-3AB0**
		• French	**6AV6691-1AA01-3AC0**
• Simulation software for Micro Panels, Basic Panels and 70/170/270/370 series Panels incl. C7-635/636		• Italian	**6AV6691-1AA01-3AD0**
		• Spanish	**6AV6691-1AA01-3AE0**
• Native drivers		**User Manual WinCC flexible Compact/Standard/Advanced**	
• Electronic documentation (.pdf)		• German	**6AV6691-1AB01-3AA0**
		• English	**6AV6691-1AB01-3AB0**
		• French	**6AV6691-1AB01-3AC0**
		• Italian	**6AV6691-1AB01-3AD0**
		• Spanish	**6AV6691-1AB01-3AE0**

[1] A separate license for WinCC flexible /ChangeControl must be purchased for each engineering station

[2] Original delivery note or Certificate of License (CoL) from previous WinCC flexible Micro is required

4

▪ More information

Additional information is available in the Internet under:
http://www.siemens.com/wincc-flexible

Note

Do you require a specific modification or extension to the products described here? You will find information about the Open Platform Program for the creation of user-specific functions and controls for WinCC flexible under "Customized Products".

HMI Software
SIMATIC WinCC flexible HMI system

SIMATIC WinCC flexible RT

Overview
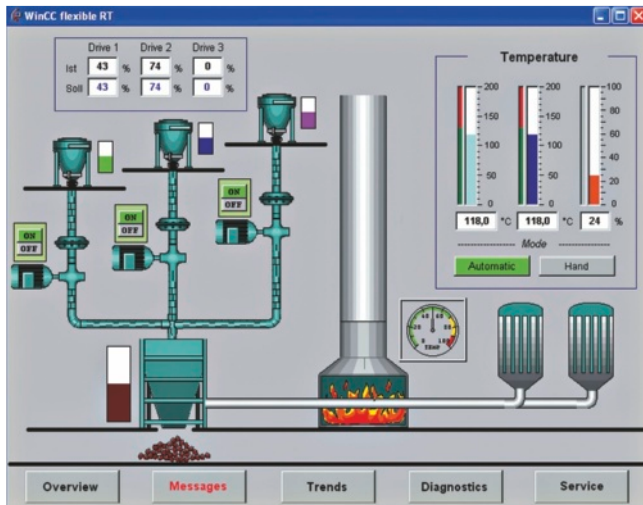
PC-based visualization software for single-user systems directly at the machine.

- Runs under Windows XP Professional and Windows 7 Professional, Ultimate, Enterprise
- Current version: SIMATIC WinCC flexible 2008 SP3 Runtime

SIMATIC WinCC flexible Runtime is configured with the SIMATIC WinCC flexible Advanced configuration software.

Benefits

- Optimum price/performance ratio thanks to individually scalable system functionality
- Functions for all visualization tasks: Operator functions, graphical and trend displays, signaling system, log system, archiving (option), recipe management (option), Audit Trail (option), process fault diagnostics (option)
- Flexible runtime functionality thanks to Visual Basic scripts
- Innovative service concepts with remote operation, diagnostics and administration via intranet and Internet as well as e-mail communication to increase availability (option)
- Support for simple distributed automation solutions based on TCP/IP networks at the machine level (option)

Application

SIMATIC WinCC flexible Runtime is the high-performance visualization software for simple visualization tasks at machine level. It can be used as a single-user solution for all automation applications in factory automation, process automation and building services automation.

SIMATIC WinCC flexible Runtime can be used in combination with the following operator panels:

- SIMATIC Panel PCs
  - PC IL 70/77
  - Microbox 420
  - Panel PC 477
  - Panel PC 577
  - Panel PC 670/677
  - Panel PC 870/877
- SIMOTION Panel PCs
  - P012, P015
  - PCR, PCR-Touch
- SINUMERIK Panel PCs
  - HT8; OP08T
  - OP010, OP012, OP015
  - TP012, TP015, OP015A
- Standard PCs with resolutions (W x H in pixels) of:
  - 4:3 format: 640 x 480, 800 x 600, 1024 x 768, 1280 x 1024, 1600 x 1200
  - Widescreen format: 800 x 480, 1280 x 800, 1366 x 768, 1440 x 900, 1680 x 1050, 1920 x 1080, 1920 x 1200, 1980 x 1080

Design

SIMATIC WinCC flexible Runtime is available as a software package with 128, 512, 2048 or 4096 PowerTags. The term PowerTags is used exclusively to identify process variables and range pointers that have a process link to the controller. Variables without process link, constant limit values of variables, and messages (up to 4000 bit-triggered messages) are also available for additional system performance.

The range of functions of WinCC flexible Runtime includes the centralized HMI components for visualizing and reporting, and it can be expanded to suit requirements and costs by using optional packages.

SIMATIC WinCC flexible Runtime is configured with the SIMATIC WinCC flexible Advanced configuration software.

■ Function

Visualization via Windows-compliant operator interface

made up of parameterizable screen objects and image blocks created on a project-specific basis:

- Numeric and alphanumeric input/output fields
- Static text and graphic display plus vector graphics
- Dynamizable graphics from HMI symbol library
- Bar graph, trend curve graph with scroll and zoom function as well as read line
- Signal-specific text and graphic lists
- Buttons and switches for operator-process communication
- Editing fields for process values (signals)
- Analog display, slider as example for further screen objects
- Project-specific image blocks created from system basic objects
- Graphic displays for various standard graphic formats, e.g., bitmaps, .jpg, .wmf

Alarms and messages

- Discrete alarms and analog alarms as well as event-driven Alarm-S/Alarm-D message procedure with SIMATIC S7 and SIMOTION
- Freely-definable message classes for definition of acknowledgment response and display of message events

Logging of alarms and process values [1]

- Archiving in files (e.g. CSV or TXT file) and Microsoft SQL databases
- Online evaluation of process value archives and alarm logs
- Evaluation of process value archives and alarm logs using standard Microsoft tools such as Excel

Recipes [1]

- Generation of data records for machine or production data
- Display or entry of data records via a configurable screen object or via process images when distributed within the project
- Transmission of data records from or to the PLC
- Import/export for data records from/to CSV files

Documentation of process data, alarm events and recipes

- Time- or event-driven report output
- User-definable layout

Flexible expansion of system function

- thanks to Visual Basic Script

Language support for multilingual projects

- Up to 16 online languages (incl. Asian and Cyrillic)
- Language-dependent texts and graphics
- Language selection during runtime

User-oriented access protection according to requirements of regulated sectors

- Authentication with user ID and password
- User-group-specific rights
- Central system-wide user administration based on SIMATIC Logon [1]
- Monitoring of changes by operators in runtime operation [1]
- Recording of operator actions in an Audit Trail [1]

PLC link for a wide variety of PLCs on-board

- Simultaneous connection using several protocols: OPC Client or SIMATIC HMI HTTP protocol are additive, i.e. can be used in conjunction with other PLC links
- Communication via native drivers and standard OPC channel

Open communication between HMI systems and with higher-level systems [1]

- OPC server
- Sm@rtAccess for communication between HMI systems based on Ethernet networks, or via the intranet/Internet:
- Read and write access to variables; WinCC flexible Runtime or SIMATIC Panels make data (variables) available to other SIMATIC HMI systems or Office applications.
- A SIMATIC HMI system can be used to control or monitor another system remotely; entry level for client/server configurations for distributed operator stations or for solutions with headend or control room.

Sm@rtService for remote control, diagnostics and administration via intranet and Internet [1]

- Display and control of process images on remote PC or Panel
- Sending of e-mails on demand or event-driven
- System diagnostics visualized via device-specific HTML pages

[1] Option for SIMATIC WinCC flexible Runtime; runtime licenses must be purchased separately. For further information, refer to "WinCC flexible options".

System requirements	WinCC flexible Runtime
Operating system	Windows XP Professional SP3 (32 bit) Windows XP Embedded [1] Windows 7 Professional / Ultimate / Enterprise (32 bit and 64 bit)
Processor [4]	
• Minimum	Windows XP: 300 MHz Windows 7: 1 GHz
• Recommended	Windows XP: ≥ Pentium III, 500 MHz Windows 7: ≥ 1 GHz
Graphics	
• Minimum	SVGA
• Resolution	640 x 480 to 1600 x 1200 or 800 x 480 to 1980 x 1080
RAM [2]	
• Minimum	Windows XP: 128 MB Windows 7: 1 GB
• Recommended	Windows XP: ≥ 512 MB Windows 7: ≥ 1 GB
Hard disk (free memory space) [3]	≥ 250 MB

[1] Only for enabled platforms (e.g. Panel PC 477). You can get information from your Siemens contact.

[2] RAM requirements are determined primarily by the size of the graphics used.

[3] Without taking archives into account. In addition to the space needed by WinCC flexible, Windows also requires space on the hard disk; e.g., for the swap file. The following formula has proven itself in the past: The size of the swap file = 3 x the size of the RAM. For further information, refer to your Windows documentation

[4] More powerful systems (Pentium 4 and higher) may be required in order to use options

4

HMI Software
SIMATIC WinCC flexible HMI system

SIMATIC WinCC flexible RT

■ Integration

SIMATIC WinCC flexible Runtime supports linking to:

Protocol	PC interfaces
SIMATIC S5 via AS511 (TTY)	
S5-90U	COM1/COM2 [13]
S5-90U	
S5-100U (CPU 100, 102, 103)	
S5-115U (CPU 941, 942, 943, 944, 945)	
S5-135U (CPU 928A, 928B)	
S5-155U (CPU 946/947, 948)	
SIMATIC S5 via PROFIBUS DP [1]	
S5-95U/L2-DP master	CP 5512 [2]
S5-115U (CPU 941, 942, 943, 944, 945)	CP 5611 A2 [2]
S5-135U (CPU 928A, 928B)	
S5-155U (CPU 946/947, 948)	
SIMATIC S7 via PPI	
S7-200	CP 5512 [2]
	CP 5611 A2 [2]
	CP 5621 [1]
	CP 5613 A2
	CP 5614 A2
	PC/PPI adapter [3]
SIMATIC S7 via MPI	
S7-200 (except CPU 212) [4]	CP 5512 [2]
S7-300	CP 5611 A2 [2]
S7-400	CP 5621 [1]
WinAC Basis (V3.0 and higher)	CP 5711 [2]
WinAC RTX	CP 5613 A2
	CP 5614 A2
	PC adapter USB [6]
	Teleservice V6.1
SIMATIC S7 via PROFIBUS DP [5]	
S7-215 [4]	CP 5512 [2]
S7-300 CPUs with integr. PROFIBUS interface	CP 5611 A2 [2]
	CP 5621 [1]
S7-300 with CP 342-5	CP 5711 [2]
S7-400 CPUs with integr. PROFIBUS interface	CP 5613 A2
	CP 5614 A2
S7-400 with CP 443-5 or IM 467	
WinAC Basis (V3.0 and higher)	
WinAC RTX	
SIMATIC S7 via Ethernet (TCP/IP)	
S7-200 with CP 243-1	CP 1612 [7]
S7-300 CPUs with integral Ethernet interface	CP 1613 A2
S7-300 with CP 343-1	
S7-400 CPUs with integral Ethernet interface	
S7-400 with CP 443-1	
WinAC Basis (V3.0 and higher)	
WinAC RTX	
SIMATIC S7 via integrated interface	
WinAC Basis (V2.0 and higher)	Internal system interface
WinAC RTX	

Protocol	PC interfaces
SIMATIC 505 NITP	
SIMATIC 500/505 RS 232/RS 422	COM1/COM2
SIMATIC 505 via PROFIBUS DP	
SIMATIC 545/555 with CP 5434	CP 5512 [2]
	CP 5611 A2 [2]
SIMOTION [8]	
SINUMERIK [9]	
Third-party controllers	
Allen Bradley (DF1/DH485)	COM1/COM2
Allen Bradley (Ethernet)	CP 1612 [7]
GE Fanuc (SNP/SNPX)	COM1/COM2
LG GLOFA GM	COM1/COM2
Mitsubishi (FX/MP4)	COM1/COM2
Modicon (Modbus)	COM1/COM2
Modicon (Modbus TCP/IP)	CP 1612 [7]
OMRON (Link/Multilink)	COM1/COM2
OPC [10] [12]	
Data Access V2.05a (client + server)	CP 1612 [7]
Data Access XML V1.00 (client)	
HTTP communication for data exchange between SIMATIC HMI (client + server) [11] [12]	CP 1612 [7]

[1] WinCC flexible Runtime is passive (DP slave); the function block required for the link is included in the scope of delivery of WinCC flexible

[2] For Microbox 427 and Panel PC 477/577/677 via internal MPI/DP interface

[3] Only point-to-point to S7-200; no configuration download, operating systems: Windows 2000/XP; Order number: 6ES7 901-3CB30-0AX0

[4] Constraint with regard to baud rate for S7-200; see Catalog ST 70

[5] WinCC flexible RT is active; communication with S7 functions

[6] Only point-to-point to S7-300/-400; No configuration download, operating systems: Windows 2000/XP; order number: 6ES7 972-0CB20-0XA0 (USB)

[7] For Microbox 427 and Panel PC 477/577/677/877 via internal Ethernet interface

[8] For further information, see Catalog PM 10

[9] "SINUMERIK HMI copy license OA" option required; for further information, see Catalog NC 60

[10] OPC Client is included in scope of delivery, the "WinCC flexible /OPC Server for WinCC flexible Runtime" license is required for the OPC Server option

[11] "WinCC flexible /Sm@rtAccess for WinCC flexible Runtime" license required

[12] OPC and HTTP communication are additive, i.e. can be used in conjunction with the PLC links listed above

[13] Via PC cable with integrated level converter RS 232/TTY; Order number: 6ES5 734-1BD20

For information about SIMATIC Panels that support OPC/http communication, see the overview under "System interfaces".

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■ **Integration** (continued)

Application note

In parallel with each and every PLC link, WinCC flexible Runtime supports the use of the OPC Client channel; this enables, for example, connection to an SNMP OPC Server for the purpose of visualizing the data stored there.

The SNMP OPC Server provides a means of monitoring network components of any type (e.g. switches) which support the SNMP protocol. For further information, see Catalog IK PI.

Note:

For further information, see "HMI devices/System interfaces"
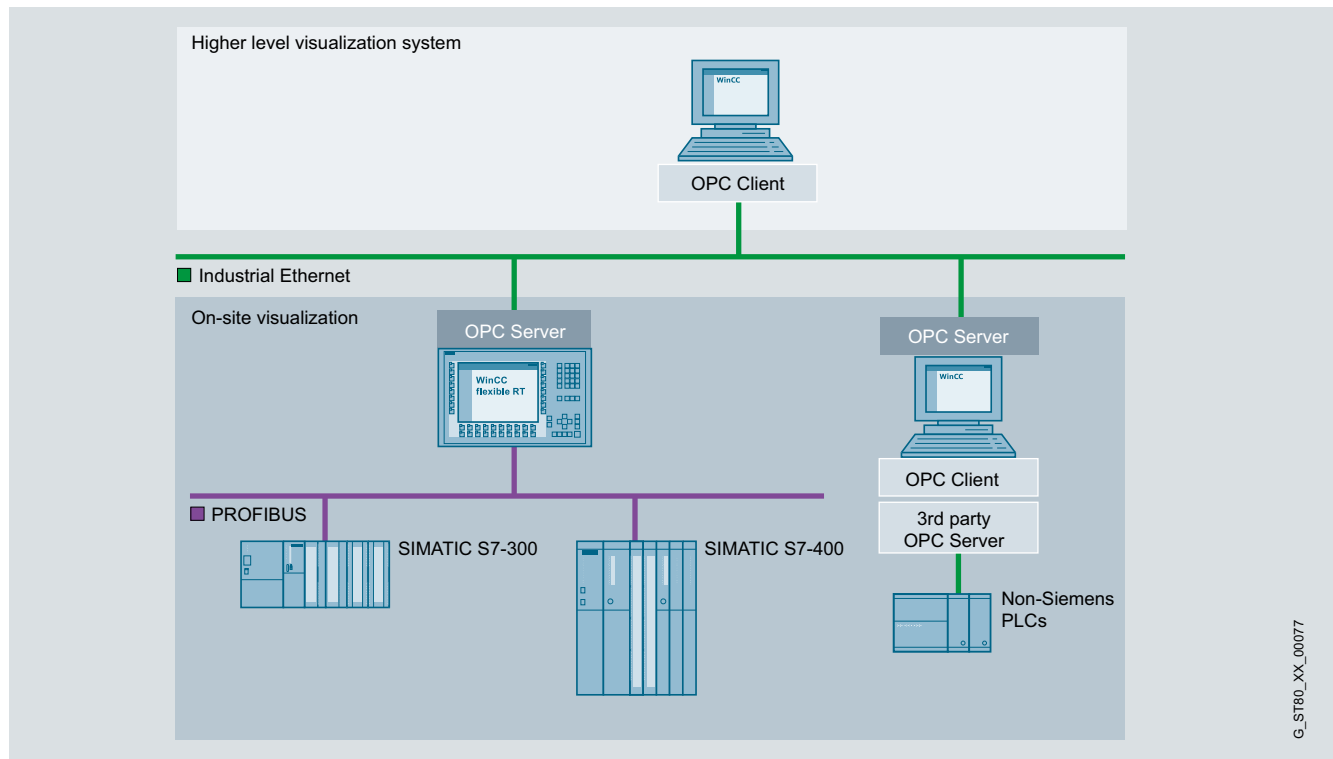
SIMATIC WinCC flexible Runtime application example

HMI Software
SIMATIC WinCC flexible HMI system

SIMATIC WinCC flexible RT

▪ Technical specifications

Type	SIMATIC WinCC flexible Runtime
	The specifications are maximum values
Displays	500
• Fields per screen	400
• Variables per screen	400
• Static text	30,000
• Graphics objects	2,000
• Complex objects per display (e.g. bars)	40
• Trends	800
• Graphics lists [1]	500
• Text lists [1]	500
• Number of entries in symbol tables	3,500
Variables	4,096 [3]
Messages bit-triggered / analog	4,000 / 500
• Message text (number of characters)	80
• Number of process values per message	8
• Size of message buffer	1,024
• Pending message events	500
Archives [4]	100
• Archivable data	Process data, messages
• Max. number of entries per archive (incl. all archive segments)	500,000
• Archive types	Short-term archive, sequence archive (max. 400 per archive)
• Data storage format	CSV (**C**omma **S**eparated **V**ariable), RDB (**R**untime **D**ata **B**ase), interface to MS SQL database
Recipes [4]	1,000
• Elements per recipe	2,000 [3]
• Data records per recipe	5,000 [2]

Type	SIMATIC WinCC flexible Runtime
Password protection	
• User rights	32
• Number of user groups	50
Visual Basic scripts	200
Online languages, max.	16
Communication	
SIMATIC S7 MPI interface/ PROFIBUS DP interface	
• Number of connectable stations, max.	Depending on the scope of the configuration (communication) from the point of view of WinCC flexible Runtime, as many as 8 connections are possible
SIMATIC S7 PPI interface	
• Number of connectable stations, max.	1 from viewpoint of WinCC flexible Runtime
SIMATIC S5 PROFIBUS DP interface	
• Number of connectable stations, max.	1 from viewpoint of WinCC flexible Runtime
Multi-protocol operation	Yes, OPC Client or SIMATIC HMI HTTP protocol are additive, i.e. can be used in conjunction with other PLC links

[1] Together only 500 text and graphics lists

[2] Dependent on memory medium used

[3] Dependent on number of licensed PowerTags

[4] Option for SIMATIC WinCC flexible Runtime.
For further information, refer to "WinCC flexible options".

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Ordering data	Order No.
SIMATIC WinCC flexible 2008 Runtime	
for PC systems; incl. SW for PC systems options [1] Single license, on CD-ROM incl. licensing, for:	
• 128 PowerTags (RT 128)	6AV6613-1BA51-3CA0
• 512 PowerTags (RT 512)	6AV6613-1DA51-3CA0
• 2048 PowerTags (RT 2048)	6AV6613-1FA51-3CA0
• 4096 PowerTags (RT 4096)	6AV6613-1GA51-3CA0
Powerpacks	
SIMATIC WinCC flexible 2008 Runtime	
Single license, only license key for PowerTags, from	
• 128 to 512 PowerTags	6AV6613-4BD01-3AD0
• 128 to 2048 PowerTags	6AV6613-4BF01-3AD0
• 512 to 2048 PowerTags	6AV6613-4DF01-3AD0
• 128 to 4096 PowerTags	6AV6613-4BG01-3AD0
• 512 to 4096 PowerTags	6AV6613-4DG01-3AD0
• 2048 to 4096 PowerTags	6AV6613-4FG01-3AD0
Updates	
SIMATIC WinCC flexible 2008 Runtime Update 2008, 2008 SP1, 2008 SP2 -> 2008 SP3	6AV6613-1XA51-3CU8
Upgrades	
SIMATIC WinCC flexible 2004/2005/2007 Runtime to SIMATIC WinCC flexible 2008 Runtime	
• Upgrade to SIMATIC WinCC flexible Runtime 2008 PowerTags incl. Runtime Options for:	6AV6613-1XA51-3CE0
- WinCC flexible /Archives	
- WinCC flexible /Recipes	
- WinCC flexible /Audit	
- WinCC flexible /Sm@rtAccess	
- WinCC flexible /Sm@rtService	
- WinCC flexible /OPC server	
- WinCC flexible /ProAgent	
• Upgrade of the SIMATIC WinCC flexible Panel options:	6AV6618-7XX01-3AF0
- WinCC flexible /Audit for SIMATIC Panel	
- WinCC flexible /Sm@rtAccess for SIMATIC Panel	
- WinCC flexible /Sm@rtService for SIMATIC Panel	
- WinCC flexible /OPC server for SIMATIC Multi Panel	
- WinCC flexible /ProAgent for SIMATIC Multi Panel	

	Order No.
Documentation (must be ordered separately)	
User Manual WinCC flexible Runtime	
• German	6AV6691-1BA01-3AA0
• English	6AV6691-1BA01-3AB0
• French	6AV6691-1BA01-3AC0
• Italian	6AV6691-1BA01-3AD0
• Spanish	6AV6691-1BA01-3AE0
User Manual WinCC flexible Communication	
• German	6AV6691-1CA01-3AA0
• English	6AV6691-1CA01-3AB0
• French	6AV6691-1CA01-3AC0
• Italian	6AV6691-1CA01-3AD0
• Spanish	6AV6691-1CA01-3AE0
SIMATIC HMI Manual Collection Electronic documentation, on DVD	6AV6691-1SA01-0AX0
5 languages (English, French, German, Italian and Spanish); contains: all currently available user manuals, device manuals and communication manuals for SIMATIC HMI	

[1] Runtime licenses for WinCC flexible Runtime options must be purchased separately for each target system.

4

HMI Software
SIMATIC WinCC flexible HMI system

SIMATIC WinCC flexible RT

Ordering data	Order No.		Order No.
Communication via Industrial Ethernet		**SIMATIC NET PB S7-5613 V8.0 SP1**	
CP 1613-A2 PCI card (32-bit) for connecting a PG/PC to Industrial Ethernet (communications software must be ordered separately)	**6GK1161-3AA01**	Software for S7 communication, incl. PG and FDL protocol, OPC server and NCM PC; Runtime software, software and electronic manual on USB flash drive, license key on diskette, Class A, for 32-bit Windows 7 Professional/Ultimate for up to 4 CP 5613 A2, CP5614 A2, CP 5603 / CP 5623 / CP 5624;	
SIMATIC NET IE S7-1613 V8.0 SP1 Software for S7 and open communication, incl. PG/OP communication, OPC server and NCM PC; up to 120 connections, Runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for 32-bit Windows 7 Professional/Ultimate for up to 4 CP 1613/CP 1613 A2 / CP 1623; English/German		• Single license for 1 installation	**6GK1713-5CB80-3AA0**
		• Software Update Service for one year, with automatic extension; requirement: Current software version	**6GK1713-5CB00-3AL0**
• Single license for 1 installation	**6GK1716-1CB80-3AA0**	• Upgrade S7-5613 from V6.4 to S7-5613 V8.0 SP1	**6GK1713-5CB00-3AE0**
• Software Update Service for one year, with automatic extension; requirement: Current software version	**6GK1716-1CB00-3AL0**	• Upgrade S7-5613 from V6.0, V6.1, V6.2 or V6.3 to S7-5613 V8.0 SP1	**6GK1713-5CB00-3AE1**
• Upgrade S7-1613 from V6.4 to S7-1613 V8.0 SP1	**6GK1716-1CB00-3AE0**	**CP 5512** PCMCIA card (32-bit CARDBUS) for connecting a PG/Notebook to PROFIBUS or MPI (communications software included in WinCC flexible).	**6GK1551-2AA00**
• Upgrade S7-1613 from V6.0, V6.1, V6.2 or V6.3 to S7-1613 V8.0 SP1	**6GK1716-1CB00-3AE1**	**CP 5611-A2** PCI card (32-bit) for connecting a PG/PC to PROFIBUS (communications software included in WinCC flexible basic package)	**6GK1561-1AA01**
Communication via PROFIBUS		**CP 5611 MPI** Comprising CP 5611 A2 (32-bit) and MPI cable, 5 m	**6GK1561-1AM01**
CP 5613-A2 PCI card (32-bit) for connecting a PC to PROFIBUS (communications software must be ordered separately)	**6GK1561-3AA01**	**CP 5621** PCI Express X1 card (32-bit) for connection of PG/PC to PROFIBUS or MPI (communications software included in WinCC flexible basic package)	**6GK1562-1AA00**
CP 5614-A2 PCI card (32-bit) for connecting a PC to PROFIBUS (communications software must be ordered separately)	**6GK1561-4AA01**	**CP 5711** USB adapter (USB V2.0) for connecting a PG or Notebook to PROFIBUS or MPI (2 m USB cable and 5 m MPI cable included)	**6GK1571-1AM00**
		PC/PPI adapter RS 232, 9-pin; male with RS 232/PPI converter, max. 19.2 kbps	**6ES7901-3CB30-0XA0**
		PC adapter USB For use with Windows 2000/XP	**6ES7972-0CB20-0XA0**

More information

Additional information is available in the Internet under:
http://www.siemens.com/wincc-flexible

Note

Do you need a specific modification or option for the products described here? You will find information about the Open Platform Program for the creation of user-specific functions and controls for WinCC flexible under "Customized Products".

■ **Overview**

Option for SIMATIC WinCC flexible Engineering

SIMATIC WinCC flexible /ChangeControl

WinCC flexible/ChangeControl enables consistent backup of configuration data. The history of changes can be verified down to the last detail for applications requiring interruption-free proof for the complete life cycle of a product.

- Delivered customer projects, approved reference states or development stages are managed in a database.
- Changes to project data can be integrated without problem into the version management using new versions.
- A rollback is possible at any time.

SIMATIC WinCC flexible /Archives

Archiving of alarms and process values

- Archiving in files (e.g. CSV file) and Microsoft SQL databases
- Online evaluation of process value archives and alarm logs
- Evaluation of process value archives and alarm logs using standard MS tools such as Excel

SIMATIC WinCC flexible /Recipes

Generation and management of data records for machine or production data

- Display or entry of data records via a configurable screen object or via process images when distributed within the project
- Transmission of data records from or to the controller
- Import/export of data sets as CSV files

SIMATIC WinCC flexible /Audit

Recording of operator actions in an Audit Trail

- Electronic signature for important operator actions relevant to production
- The ChangeControl option supports users in respect of tracking modifications to projects.
- Audit supports users in meeting special quality requirements, e.g.
  - Production plant requiring validation according to 21 CFR Part 11 (Food Drug Administration law)
  - In respect of traceability according to EU 175/2002 (EU directive)

SIMATIC Logon for WinCC flexible

Option for connecting PCs with SIMATIC WinCC flexible Runtime and SIMATIC Panels to central user administration.

- Creates user administration on a central computer to which one or more WinCC flexible stations can be connected over Ethernet.
- With each logging-on/off of a user on one of the connected stations, SIMATIC Logon checks whether a user password has been created and that the required privileges exist.
- SIMATIC Logon for WinCC flexible supports the user in combination with the /Audit and /ChangeControl options in meeting requirements in accordance with FDA 21 CFR Part 11 and EU178.

SIMATIC WinCC flexible /Sm@rtAccess

- Flexible solution for access to HMI systems and process data from any location
- Communication between different SIMATIC HMI systems

SIMATIC WinCC flexible /Sm@rtService

- Remote maintenance and servicing of machines and plant via Internet/intranet
- Reduced downtimes for machines and plant with direct remote access
- Flexible solution for remote access to machines and plant

SIMATIC WinCC flexible /OPC Server

- Incorporation of automation components from different vendors into a single automation concept
- Communication for data exchange between HMI systems and/or higher-level control system
- Communication with applications from different vendors, e.g. MES, ERP or applications in the office sector

SIMATIC WinCC flexible /ProAgent

- Precise and rapid process fault diagnostics in plant and machines for SIMATIC S7 and SIMATIC HMI
- Standardized diagnostics concept for various SIMATIC components
- No further configuration overhead for diagnostics functionality
- Frees up PLC capacity with regard to memory and program execution time

4

HMI Software
SIMATIC WinCC flexible options

WinCC flexible /ChangeControl

Overview
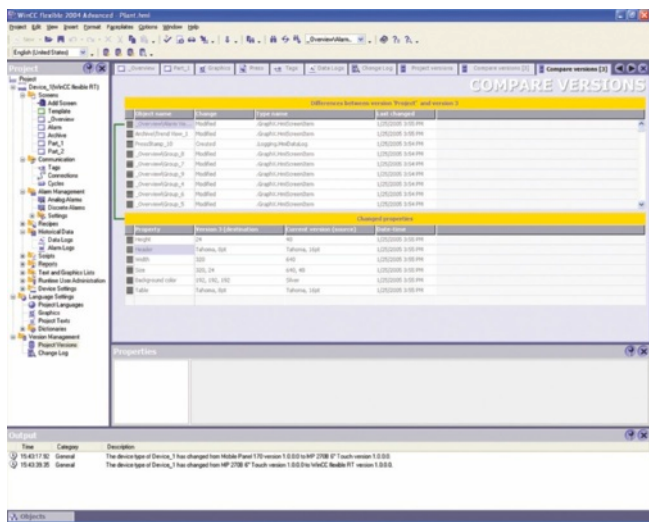
- Options for the versioning of configuration data and for tracing configuration changes (e.g. as verification in regulated sectors)
- For the engineering tool SIMATIC WinCC flexible Compact/Standard/Advanced
- One license is required for each configuration computer

Benefits

- Consistent backup of configuration data
  - Delivered versions, approved reference states or development stages are managed in a database.
  - Changes to project data can be integrated without problem into the version management using new versions. A rollback is possible at any time.
- Tracing of configuration changes
  - The history of changes can be verified down to the last detail for applications requiring interruption-free proof for the complete life cycle of a product.

Application

- In machine/special machine construction for project management, e.g. delivered customer versions and their modifications
- For saving of intermediate states during complex new developments or expansions, with rollback facility
- During work for specific orders as basis for calculating costs for modifications
- In regulated sectors as proof of state of plants or machines and any modifications made to them

Function

- Integral GUI for management of project versions (version tree with main line and secondary lines for modified project versions)
- Modification log can be activated/deactivated and shows who carried out modifications, and when/which. Modification reasons can be entered as comments

Ordering data

	Order No.
WinCC flexible /ChangeControl for WinCC flexible 2008 Compact/Standard/Advanced [1] Floating License, option, license key only	**6AV6613-6AA01-3AB5**

[1] The ChangeControl option has not been released for integrated operation with STEP 7.
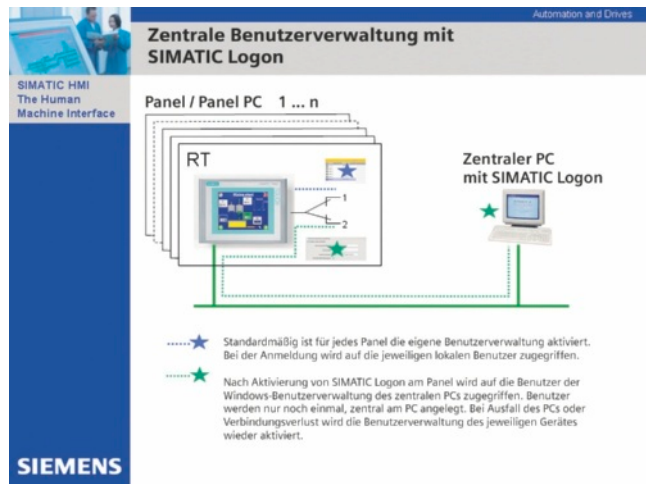
More information

Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about the Open Platform Program for the creation of user-specific functions and controls for WinCC flexible.

Overview
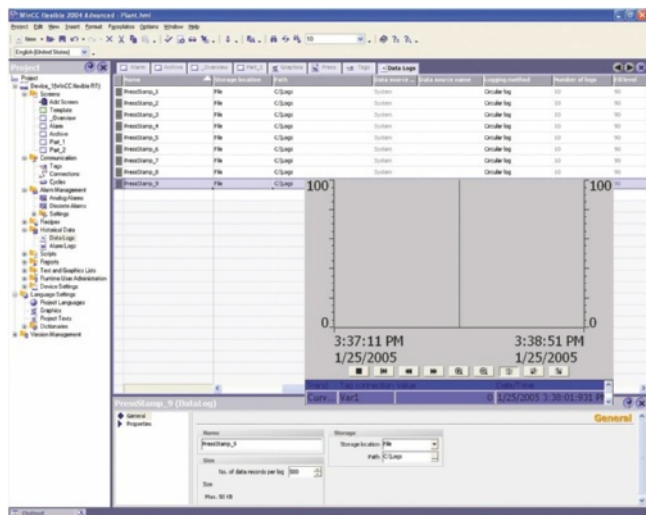
- Option for SIMATIC WinCC flexible Runtime for archiving process values and messages
- Archiving of process values and messages supports the acquisition and processing of process data from an industrial plant or machine. Evaluation of the archived process data provides information about the operating states of the plant or machine
- One license is required per operator station (no license is required for SIMATIC Panels/Multi Panels)

Benefits

- Message and process value archives permit foresighted diagnostics which prevents downtimes
- Early detection of danger or fault states
- Increase in product quality and productivity thanks to regular evaluation of process value and message archives

Application

- Further use of archives for evaluation and long-term archiving
- Record of repeated fault states
- Optimization of maintenance cycles
- Ensured quality standards
- Control of quality as well as production capacity utilization
- Documentation of process sequence

Function

- Time-controlled as well as manual or process-controlled swapping out of process data and messages for long-term archiving
- During runtime, swapped out data are read in and selectively analyzed using WinCC flexible Runtime
  - Presentation and evaluation of archived process data based on a configurable trend display. Reading of the values is facilitated by a read line.
  - Presentation and evaluation of archived alarms based on a configurable alarm view.
  - User-friendly navigation in the archives
- External evaluation of the archives using MS standard tools
- Various archive types are supported: sequence and short-term archives
- Archiving of process values and messages on external, Windows-supported storage media
  - CSV files
  - RDB files
  - Microsoft SQL server via ODBC
- Power standard functions permit user-friendly and flexible utilization of the archives

Technical specifications

Type	WinCC flexible /Archives
	The specifications are maximum values
Execution platform	SIMATIC WinCC flexible Runtime
Archives	100
• Archivable data	Process values, messages
• Cyclical trigger for archiving process values (variables)	1 s
• Max. number of entries per archive (incl. sequence archive)	500,000 [1]
• Archive types	• Circulating archive
	• Sequence archive (max. 400 per archive)
• Data storage format	CSV (**C**omma **S**eparated **V**ariable), RDB (**R**untime **D**ata **B**ase) and interface to Microsoft SQL database (database not included in scope of delivery)

[1] Dependent on memory medium used

Ordering data

	Order No.
WinCC flexible /Archives for WinCC flexible 2008 Runtime [1] Single License, license key only	**6AV6618-7ED01-3AB0**
WinCC flexible /Archives+ Recipes for WinCC flexible 2008 Runtime [1] Single License for each option, license key only	**6AV6618-7GD01-3AB0**

[1] One license is required for each operator station. A license is not required for the engineering system for configuring the runtime option.

More information

Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about the Open Platform Program for the creation of user-specific functions and controls for WinCC flexible.

HMI Software
SIMATIC WinCC flexible options

WinCC flexible /Recipes

Overview
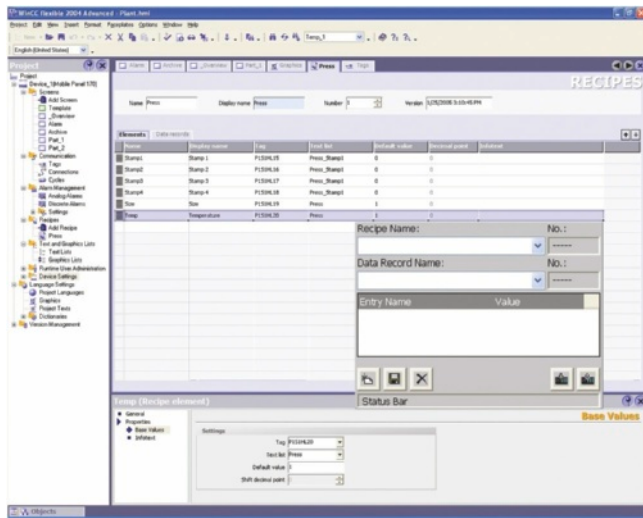
- Option for SIMATIC WinCC flexible Runtime for managing data records in recipes that contain related machine or production data
- The data in a data set can be transferred, for example, from the control unit to the PLC to switch production to a different product variant
- One license is required per operator station (no license is required for SIMATIC Panels/Multi Panels)

Benefits

- Generation and management of machine parameters and production data on the basis of data sets, and exchange with the automation equipment, e.g. with the machine
- Clear tabular representation of data elements with support of a configurable graphic object, or representation in technical relationships for several process graphics
- Simple operator prompting using standard functions
- Export/import of data sets for further processing with other tools (e.g. MS Excel)

Application

- Assignment of plant/machine parameters in the production industry
- Batch-oriented production, e.g. in the food or plastics industry

Function

- Input of data sets (e.g. operating parameters for a machine, production data for a plastics processing machine) in WinCC flexible Runtime, their storage, and passing on to the PLC
- Display and input of data sets using a configurable graphics object, or distributed among several process displays within the project
- Data set elements are coupled to the process using direct linking of the variables
- Transmission of data records from or to the PLC
- Powerful interfaces permit synchronized exchange of data with the PLC
- Saving of data sets on local media or on remote data servers via networks
- Import/export of data sets as CSV files
- Logging of data sets, e.g. as batch report/shift report
- Convenient and flexible management of data sets using powerful standard functions

WinCC flexible recipes and the associated data sets are conveniently created using a separate editor in the WinCC flexible Advanced engineering tool, and assigned default data.
A configurable table object is used to display the data during runtime. Furthermore, the individual data set elements can also be directly output for several process displays on the basis of standard input/output boxes. The data can therefore be clearly presented for the operator in technological layers.

Technical specifications

Type	WinCC flexible /Recipes
	The specifications are maximum values
Execution platform	SIMATIC WinCC flexible Runtime
Recipes	1000
• Entries per recipe	2000 [1]
• Data records per recipe	5000 [2]
• User data length in bytes per data record	8000 KB [2]

[1] Dependent on number of licensed PowerTags
[2] Dependent on memory medium used

Ordering data

	Order No.
WinCC flexible /Recipes for WinCC flexible 2008 Runtime [1] Single License, license key only	**6AV6618-7FD01-3AB0**
WinCC flexible /Archives+Recipes for WinCC flexible 2008 Runtime [1] Single License for each option, license key only	**6AV6618-7GD01-3AB0**

[1] One license is required for each operator station.
A license is not required for the engineering system for configuring the Runtime option.

More information

Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about the Open Platform Program for the creation of user-specific functions and controls for WinCC flexible.

Overview

- Option for SIMATIC WinCC flexible Runtime as well as SIMATIC Panels for recording operations in an audit trail, and electronic signature
- The audit trail features a safety mechanism that indicates subsequent manipulation.
- An easy-to-use configuration option included as standard in WinCC flexible enables you to set:
  - The operator actions to be recorded in the audit trail during runtime
  - The important operator actions requiring electronic signature/comments during runtime
- The audit option combined with the WinCC flexible ES ChangeControl option supports the user with plant validation
- Available for the following SIMATIC HMI systems: TP/OP 270, TP/OP 277, MP 270B, MP 277, MP 370, MP 377, WinCC flexible Runtime
- A license is required for every operator control unit (panel or PC)

Benefits

- Audit supports the user in meeting special quality requirements, e.g.,
  - production plant requiring validation according to 21 CFR Part 11 FDA [2]
  - in respect of traceability according to EU 175/2002 [3]
- Entries in the audit trail are allocated to individual users. This ensures that responsibilities can be clearly identified.
- The audit trail, stored as a CSV file [1], can be checked via a security mechanism to find out if subsequent changes have been made.
- For particularly important user actions, e.g., starting production or loading new recipes, electronic signatures and comments can be configured and then called up and logged during runtime.

[1] CSV Comma Separated Values

[2] The FDA (Food and Drug Administration) is the American public health authority

[3] 21 CFR Part 11- law on plant validation

Technical specifications

	WinCC flexible /Audit
Archive for Audit Trail use on the Panel	• Plug-in flash memory card on the panel • In the higher-level PC (memory medium) connected to the panel via Ethernet
Archive for Audit Trail use of WinCC flexible Runtime	On the PC (storage medium)
Execution platform	
SIMATIC Panels	Mobile Panel 277, TP/OP 270, TP/OP 277
SIMATIC Multi Panels	MP 270B, MP 277, MP 370, MP 377
PCs	SIMATIC WinCC flexible Runtime

Ordering data

	Order No.
WinCC flexible /Audit for SIMATIC Panels Single license, license key only	**6AV6618-7HB01-3AB0**
WinCC flexible /Audit for WinCC flexible Runtime 2008 Single license, license key only	**6AV6618-7HD01-3AB0**

More information

Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about the Open Platform Program for the creation of user-specific functions and controls for WinCC flexible.

4

HMI Software
SIMATIC WinCC flexible options

SIMATIC Logon for WinCC flexible

Overview

- Option for connecting PCs with SIMATIC WinCC flexible Runtime and SIMATIC Panels to central user administration.
- Creates user administration on a central computer to which one or more WinCC flexible stations can be connected over Ethernet.
- With each logging-on/off of a user on one of the connected stations, SIMATIC Logon checks whether a user password has been created and that the required privileges exist.
- SIMATIC Logon for WinCC flexible supports the user in combination with the /Audit and /ChangeControl options in meeting requirements in accordance with FDA 21 CFR Part 11 and EU178.
- Licensing:
  SIMATIC Logon (basic license) and SIMATIC Logon Remote Access (3-pack license) for connection of 3 WinCC flexible stations to a central user administration. Additional stations can be connected by using further SIMATIC Logon Remote Access licenses (3-pack/10-pack).

Benefits

- Centralized configuration of all access authorizations of a distributed system avoids unnecessary travel times. Time-consuming multiple configurations for each individual local station become unnecessary. Accordingly, users can be easily configured from a central location.
- All access data apply throughout the plant on every connected station. Additional access data on local subsystems is no longer necessary.

Design

SIMATIC Logon and SIMATIC Logon Remote Access are installed on a central station.

The following WinCC flexible stations are connected to the central station via Ethernet network:
- PCs with WinCC flexible Runtime
- SIMATIC Panels from the 177 series or higher (panels with Ethernet interface)

Licensing

The following licenses are required:
- SIMATIC Logon basic license
- SIMATIC Logon Remote Access license (3-pack license 10-pack license); more than one SIMATIC Logon Remote Access license can be installed.

The number of connectable stations depends on the SIMATIC Logon Remote Access licenses used. This number is the total of the connections provided by the individual licenses. As an example: Two installed licenses for 10 enable the connection of 20 stations to the central station.

Function

Configuration

In the first step, the following data must be saved in the user administration of WinCC flexible on every WinCC flexible station in the plant:
- Required user groups with associated user privileges
- IP address, port number, Windows domain of the central station on which the central user administration is stored.

All user groups are configured with the same names in the central user administration. All users are created here, and have automatic access to the connected WinCC flexible stations in accordance with the relevant user group.

If the connection fails between the central station with SIMATIC Logon and a WinCC flexible station, the operation is handled through an "emergency user" which must first be preconfigured locally.

Intervals for password aging and regulations for the structure of a password are defined according to the configuration on the central station and then also apply to all decentrally connected WinCC flexible stations or the respective users.

Technical specifications

	SIMATIC Logon for WinCC flexible
Execution platform	
SIMATIC Panels	Mobile Panel 177 PN; Mobile Panel 277, TP/OP 177B PN/DP, TP/OP 277
SIMATIC Multi Panels	MP 177, MP 277, MP 377
PCs	WinCC flexible Runtime

Ordering data	Order No.
SIMATIC Logon V1.5 Basic license; for panels or WinCC flexible Runtime stations, the corresponding number of additional SIMATIC Logon Remote Access licenses is required.	**6ES7658-7BX51-0YA0**
SIMATIC Logon Upgrade to V1.5	**6ES7658-7BX51-0YE0**
SIMATIC Logon Remote Access for WinCC flexible (3 clients) Remote access for 3 WinCC flexible 2008 clients; single license for 3 remote access clients; type of delivery: CD, license key disk, Certificate of License, Terms and Conditions The number of licensed clients is determined based on the amount of installed SIMATIC logon remote access licenses.	**6ES7658-7BA00-2YB0**
SIMATIC Logon Remote Access for WinCC flexible (10 clients) Remote access for 10 WinCC flexible 2008 clients; single license for 10 remote access clients; type of delivery: CD, license key disk, Certificate of License, Terms and Conditions The number of licensed clients is determined based on the amount of installed SIMATIC logon remote access licenses.	**6ES7658-7BB00-2YB0**

More information

Note

Do you need a specific modification or addition to the products described here? Then take a look under "Customer-specific products". There, we provide information on the Open Platform Program for creating your own functions or Controls for WinCC flexible.

4

HMI Software
SIMATIC WinCC flexible options

WinCC flexible /Sm@rtAccess

■ Overview

- Option for SIMATIC WinCC flexible Runtime plus SIMATIC Panels for communication between various SIMATIC HMI systems.
- Available for the following SIMATIC HMI systems:
  - Mobile Panel 177 PN, Mobile Panel 277
  - TP 177B PN/DP, OP 177B PN/DP
  - TP 270, TP 277, OP 270, OP 277
  - MP 177, MP 270B, MP 277, MP 370, MP 377
  - WinCC flexible Runtime
- Communication between HMI systems is established on the basis of Ethernet networks, or via the intranet/Internet:
  - Read and write access to variables;
    WinCC flexible Runtime or SIMATIC Panels make data (variables) available to other SIMATIC HMI systems or Office applications.
  - A SIMATIC HMI system can be used to control or monitor another system remotely;
    entry level for client/server configurations for distributed operator stations or for solutions with headend or control room.
- Local operation, visualization and data processing is as possible as plant-wide access to information or central archiving of process data. Integrated information flows ensure an overview of the status of all processes.
- Licensing:
  The license "WinCC flexible /Sm@rtAccess for Panel" or "WinCC flexible/Sm@rtAccess for WinCC flexible Runtime" must be installed on both the server and client HMI device. Server applications are the options Sm@rtServer, HTTP-Server and SOAP-Server. Client applications are the screen object Sm@rtClient display, and the utilization of the communication driver SIMATIC HTTP protocol.
  No license is required on the client system for access to a Sm@rtServer using the application Sm@rtClient.EXE or the Microsoft Internet Explorer. A license is also not required for the engineering system for configuring the runtime option.

Note:

If the operator stations are accessed using the Sm@rtAccess option, suitable protective measures (including IT security such as network segmentation) should be taken in order to ensure safe operation of the system.

You will find more information on the topic of Industrial Security on the Internet at:
http://www.siemens.com/industrialsecurity

■ Benefits

- Flexible solution for location-independent access to HMI systems and process data
- Reduction in load on fieldbuses:
  WinCC flexible Runtime as well as SIMATIC Panels permit a control system, for example, to access the process data. The sensitive field level is not loaded by the control level as far as the communications requirements are concerned. The requirements are processed by WinCC flexible Runtime and the SIMATIC Panels.
- Simple, fast configuration of communications relationships using the WinCC flexible engineering software

■ Application

- Use of machine-level HMI systems as data servers for higher-level automation components such as control systems or office systems. Process values from different machines, for example, are displayed on a process screen.
- Operator control and monitoring of machines covering large areas with several operator stations by one operator
- Operator control and monitoring of machine-level HMI systems from one central station (e.g. head-end station of a production line or from a control room)

4

■ **Application** (continued)
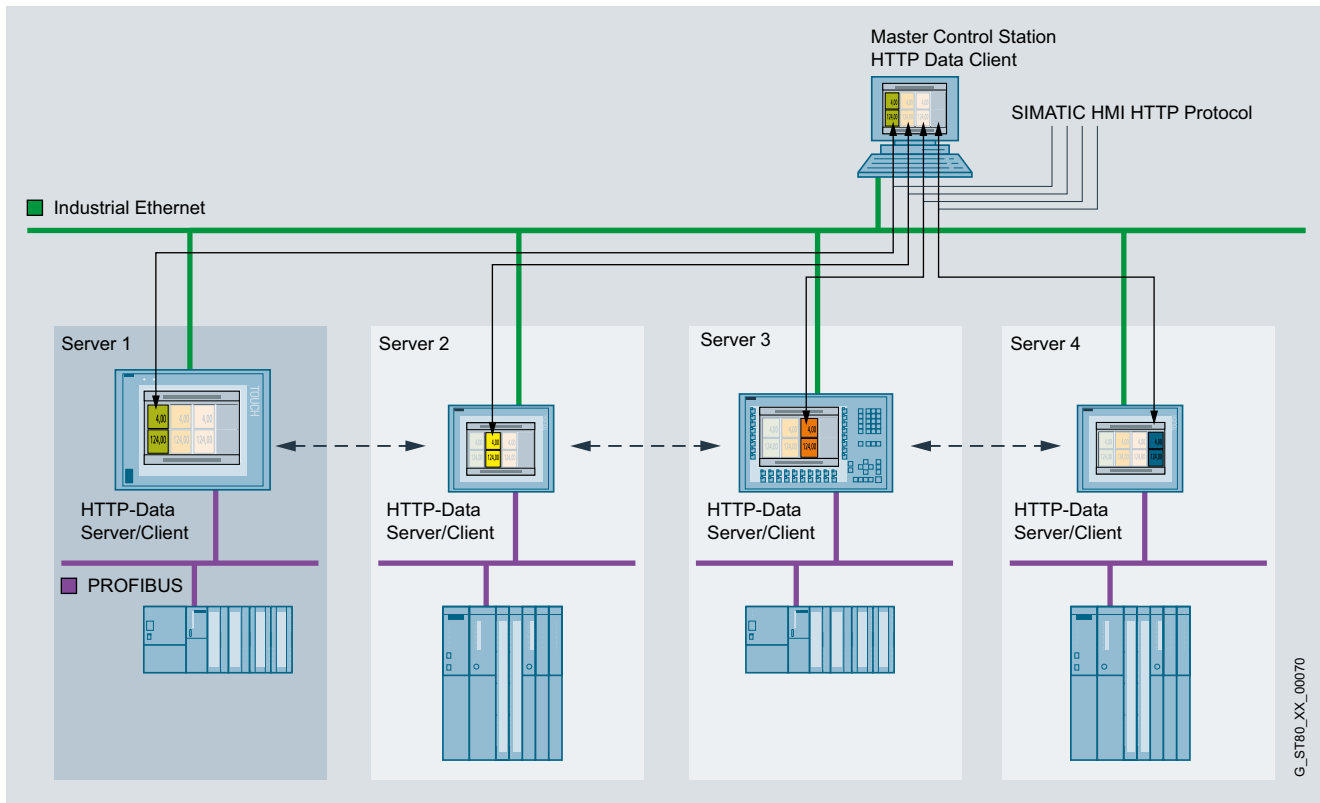
Communication between HMI systems via Industrial Ethernet: Use of machine-level HMI systems as data servers for higher-level automation components
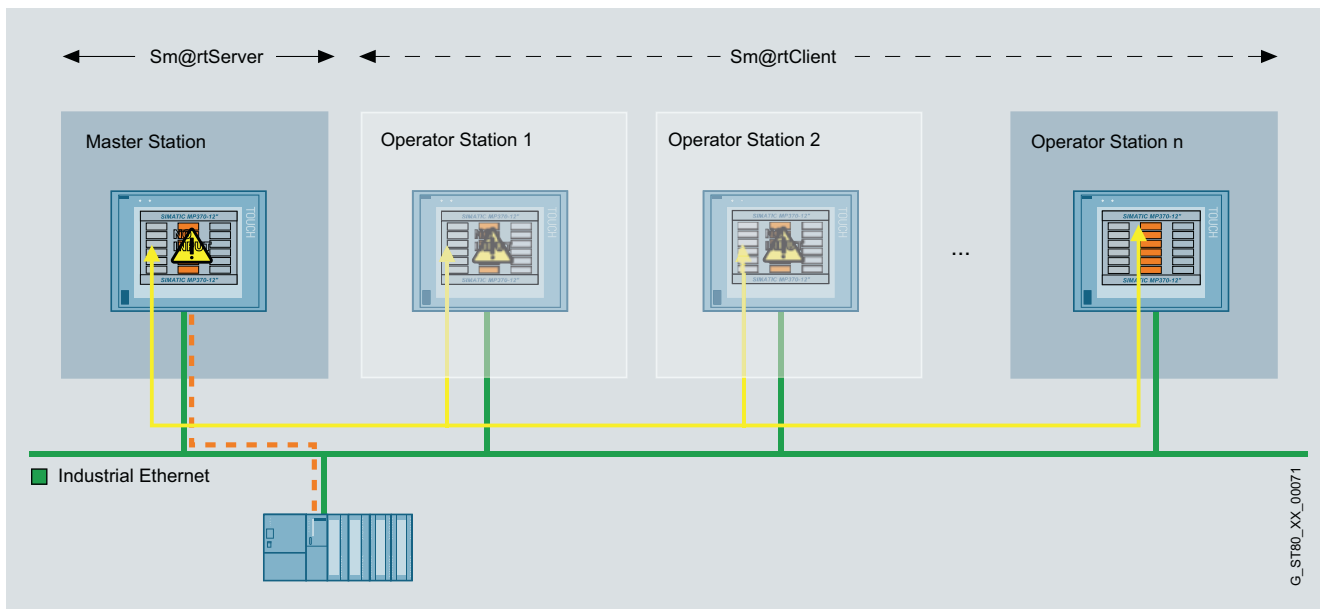
Application of the Sm@rtClient concept: Coordinated operation of several operator stations

HMI Software
SIMATIC WinCC flexible options

WinCC flexible /Sm@rtAccess

■ **Application** (continued)
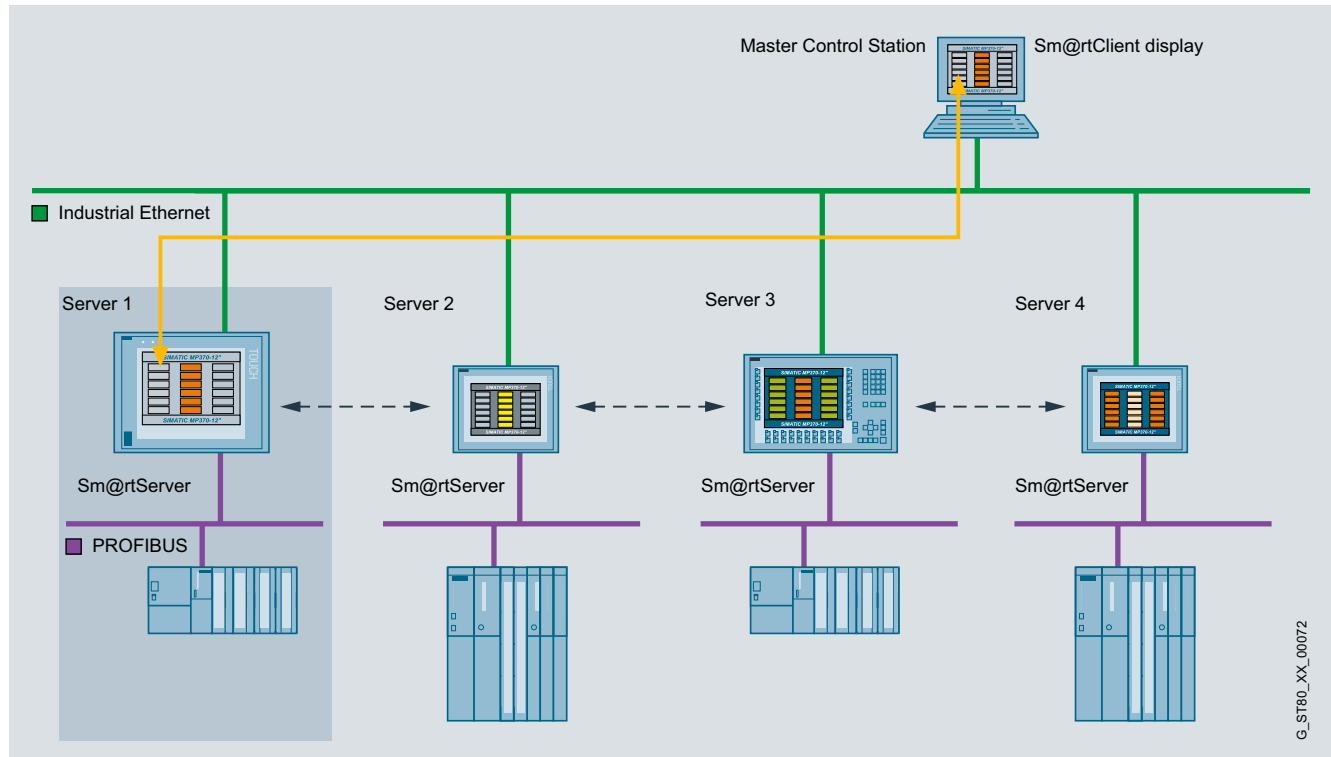
Use of the Sm@rtClient display: Operator control and monitoring of machine-level HMI systems from one central station

■ **Function**

Communication between **different SIMATIC HMI systems** or between **the units of a machine or plant** is carried out via Industrial Ethernet or intranet/Internet on the basis of Sm@rtAccess

Possible communication relationships:

- Reading and writing the variables of a SIMATIC HMI system on the basis of an HTTP protocol
  - Reading and writing the variables of different HMI systems
  - Simple configuring of variables in the HMI client configuration using browsers in the WinCC flexible engineering tool
  - Reading and writing the variables of an HMI system using standard applications such as MS Excel. Communication is made possible by embedding a script in the application, on the basis of the SOAP protocol (Simple Object Access Protocol) superimposed by HTTP

- Remote control of an operator station;
  the HMI application and communication with the PLC are via the master station. In the case of spatially distributed machines/plants (which require a larger number of operator panels), so-called Sm@rtClients can be activated from here which are then assigned access to the master station and thus to the process. Access procedures guarantee that only one operator system can actively access the process at a time.
  - A configurable graphic object (Sm@rtClient display) embedded in process displays represents the screen of the associated HMI system (Sm@rtServers)
  - Powerful standard functions permit convenient and flexible operation of the display

Password protection can be optionally activated for access to variables or for remote operation of an HMI system.

Technical specifications

Type	WinCC flexible /Sm@rtAccess
	The specifications are maximum values
Execution platform	
• SIMATIC Panels	Mobile Panel 177 PN, Mobile Panel 277, TP/OP 177B PN/DP, TP/OP 270, TP/OP 277
• SIMATIC Multi Panels	MP 177, MP 270B, MP 277, MP 370, MP 377
• PCs	WinCC flexible Runtime
Sm@rtAccess SIMATIC HMI HTTP protocol	
Number of connections for one client	
• Mobile Panel 177 PN, TP/OP 177 B PN/DP, MP 177 as HTTP server	4
• Mobile Panel 277, TP/OP 270, TP/OP 277, MP 270B, MP 277, MP 370, MP 377 as HTTP server	8
• for WinCC flexible Runtime	16
Sm@rtAccess Sm@rtClient concept	
Number of Sm@rtClients that can connect to a Sm@rtServer at the same time [1] [2]	
• Mobile Panel 177 PN, TP/OP 177B PN/DP, MP 177 as Sm@rtServer	2 clients
• Mobile Panel 277, TP/OP 270, TP/OP 277, MP 270B, MP 277 as Sm@rtServer	3 clients for 6" devices 2 clients for 8" and 10" devices
• MP 370, MP 377 as Sm@rtServer	3 clients for 12" devices 2 clients for 15" devices 1 client for 19" devices
• for WinCC flexible Runtime as Sm@rtServer	5 clients
Number of Sm@rtClient displays per screen	
• for Panels/Multi Panels	1
• for WinCC flexible Runtime	2

[1] Including 1 Service Client

[2] The Sm@rtServer and the WinCC flexible /Pro Agent option cannot be used simultaneously on OP/TP/MP 270/370. Parallel operation of the runtime options ProAgent, Sm@rtAccess and Sm@rtService is possible in the context of the MP 277 8" and 10" devices, Mobile Panel 277 as well as the MP 377. Limitation: a maximum of 2 clients can be connected simultaneously to a Sm@rtServer.

Ordering data

	Order No.
WinCC flexible /Sm@rtAccess for SIMATIC Panel [1] Single license, license key only	**6AV6618-7AB01-3AB0**
WinCC flexible /Sm@rtAccess for WinCC flexible 2008 Runtime [1] Single license, license key only	**6AV6618-7AD01-3AB0**

[1] The license must be installed on the server and on the client HMI device. Server applications are the options Sm@rtServer, HTTP-Server and SOAP-Server.
Client applications are the screen object Sm@rtClient display, and the utilization of the communication driver HTTP protocol.
A license is not required for the engineering system for configuring the runtime option.

More information

Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about the Open Platform Program for the creation of user-specific functions and controls for WinCC flexible.

4

HMI Software
SIMATIC WinCC flexible options

WinCC flexible /Sm@rtService

■ **Overview**

- Option for SIMATIC WinCC flexible Runtime and SIMATIC Panels for remote maintenance and servicing of machines/plant via the Internet/intranet
- Available for the following SIMATIC HMI systems:
  - Mobile Panel 177 PN, Mobile Panel 277
  - TP 177B PN/DP, OP 177B PN/DP
  - TP 270, TP 277, OP 270, OP 277
  - MP 177, MP 270B, MP 277, MP 370, MP 377
  - WinCC flexible Runtime
- Licensing
  The "WinCC flexible /Sm@rtService for Panel" license or "WinCC flexible /Sm@rtService for WinCC flexible Runtime" license must be installed on the operator panels that use one of the following options/functions: Sm@rtServer, HTML pages (mini-Web server), e-mail.
  The remote service PC and engineering system do not require a license for configuration the runtime option.

Note

If the operator stations are accessed using the Sm@rtService option, suitable protective measures (including IT security such as network segmentation) should be taken in order to ensure safe operation of the system.

You will find more information on the topic of Industrial Security on the Internet at:
http://www.siemens.com/industrialsecurity

■ **Benefits**

- Fast elimination of faults or downtimes and thus increased productivity by means of global access to machines/systems by the service and maintenance personnel
- Avoids the need for site visits

■ **Application**

- Remote maintenance and servicing of machines and plants via Internet/Intranet
- Calling of system information, control of target systems, and updating of data sets via Internet/Intranet
- Automatic sending of emails to experts for fast elimination of faults

■ **Function**

Remote operator control and monitoring of SIMATIC HMI systems using Industrial Ethernet and/or via the Intranet/Internet

Microsoft Internet Explorer V6.0 SP1 or higher is sufficient for accessing an HMI system.

Remote control of an operating station

the HMI application and communication with the controller takes place via the HMI system. Using Sm@rtService, the HMI systems in the machines/systems can be serviced remotely. An access process ensures that only one operator (either locally at the machine or remotely via Internet Explorer) can actively access the process at one time.

Integrated Web Server to process standard HTML pages
The following functions can be accessed from the homepage:

- Starting and stopping the HMI runtime for maintenance
- Remote access to recipe data sets, passwords and information specific to the HMI system
- Access the HMI system files via a file explorer
- Download configuration data via the Intranet/Internet
- Supplement with own HTML pages

Sending e-mails to maintenance personnel via SMTP server (Simple Mail Transfer Protocol)

- Events that trigger an e-mail:
  - Reporting of a message class
  - Configurable standard functions: Changing the value of a variable, pressing a function key, scripts, etc.
- Possible e-mail content
  - Subject
  - Message text with process variables
  - Date/Time
- The optional use of e-mail/SMS gateways enables access to standard networks (external service provider required)

Standard functions make maintenance and service functionality easier. WinCC flexible allows you to quickly and easily configure maintenance and service functions.

Password protection can be activated as an option for accessing the HMI system. Different passwords may be configured for different functions.
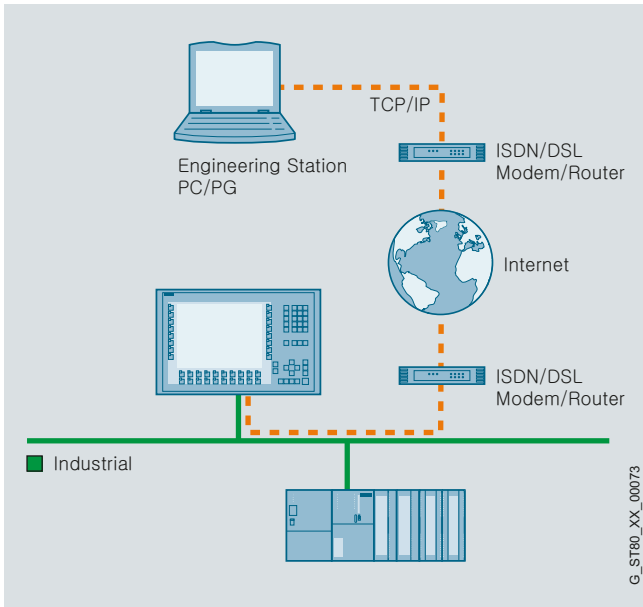
4

Function (continued)

Remote operator control and monitoring of SIMATIC HMI systems using Industrial Ethernet and/or via the Intranet/Internet
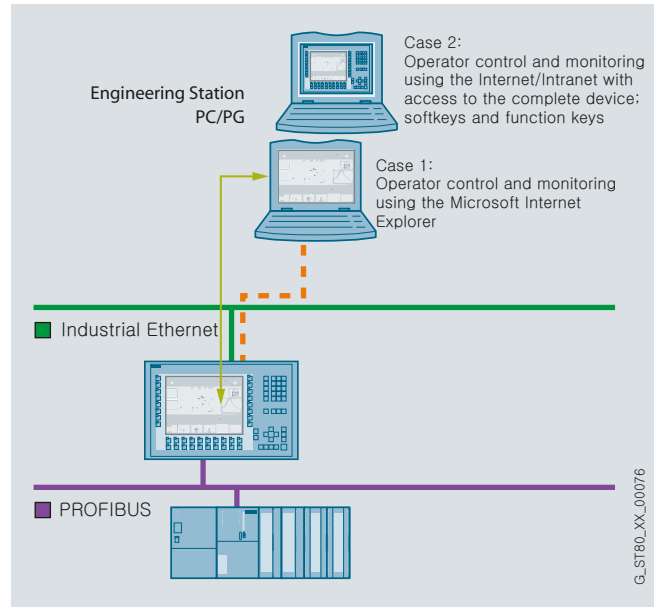
Remote operator control and monitoring of SIMATIC HMI systems using Industrial Ethernet and/or via the Intranet/Internet
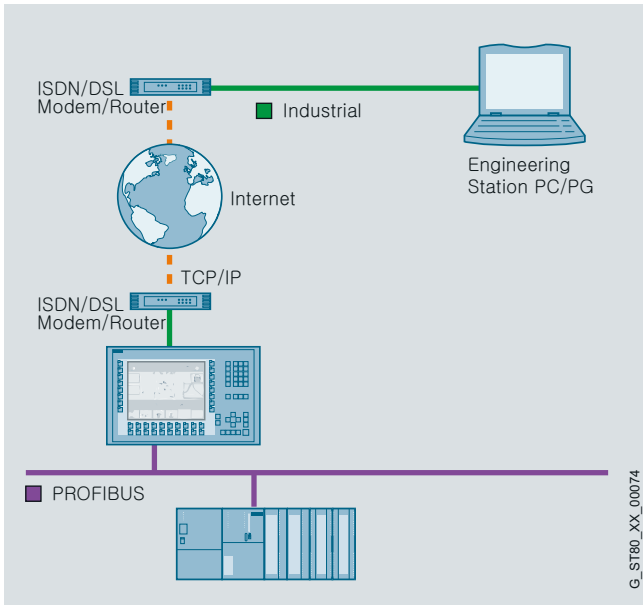
Remote operator control and monitoring of SIMATIC HMI systems using Industrial Ethernet and/or via the Intranet/Internet

Sending e-mails to maintenance personnel via SMTP server (Simple Mail Transfer Protocol)

4

HMI Software
SIMATIC WinCC flexible options

WinCC flexible /Sm@rtService

Technical specifications

Type	WinCC flexible /Sm@rtService
Execution platform	
• SIMATIC Panels	Mobile Panel 177 PN, Mobile Panel 277, TP 177B PN/DP, OP 177B PN/DP, TP/OP 270, TP/OP 277
• SIMATIC Multi Panels	MP 177, MP 270B, MP 277, MP 370, MP 377
• PCs	SIMATIC WinCC flexible Runtime
Sm@rtService [1]	
Remote access via	Internet Explorer V6.0 SP1 and higher
HTML pages	
• for Panels/Multi Panels	HTML V1.1 (no support for ActiveX, Java, ASP)
• for WinCC flexible Runtime	HTML V1.1
Sending emails	• via SMTP server
	• Subject, message texts with 250 characters of text per email; date/time of message, message No.

[1] The Sm@rtServer and the WinCC flexible /ProAgent option cannot be used simultaneously on OP/TP/MP 270/370. Parallel operation of the runtime options ProAgent, Sm@rtAccess and Sm@rtService is possible in the context of the MP 277 8" and 10" devices, Mobile Panel 277 as well as the MP 377. Limitation: a maximum of 2 clients can be connected with a Sm@rtServer.

Ordering data — Order No.

	Order No.
WinCC flexible /Sm@rtService for SIMATIC Panels [1] Single license, license key only	**6AV6618-7BB01-3AB0**
WinCC flexible /Sm@rtService for WinCC flexible Runtime 2008 [1] Single license, license key only	**6AV6618-7BD01-3AB0**

[1] The "WinCC flexible /Sm@rtService for Panel" license or "WinCC flexible /Sm@rtService for WinCC flexible Runtime" license must be installed on the operator panels that use one of the following options: Sm@rtServer, HTML pages, e-mail. The remote service PC and engineering system do not require a license for configuration of the Runtime option.

More information

Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about the Open Platform Program for the creation of user-specific functions and controls for WinCC flexible.

4

Overview

Higher level visualization system

WinCC

OPC Client

■ Industrial Ethernet

On-site visualization

OPC Server

WinCC flexible RT

OPC Server

WinCC

OPC Server

WinCC flexible RT

Multi Panel

■ PROFIBUS

SIMATIC S7-300

SIMATIC S7-400

OPC Client

3rd party OPC Server

3rd party PLCs

G_ST80_XX_00078
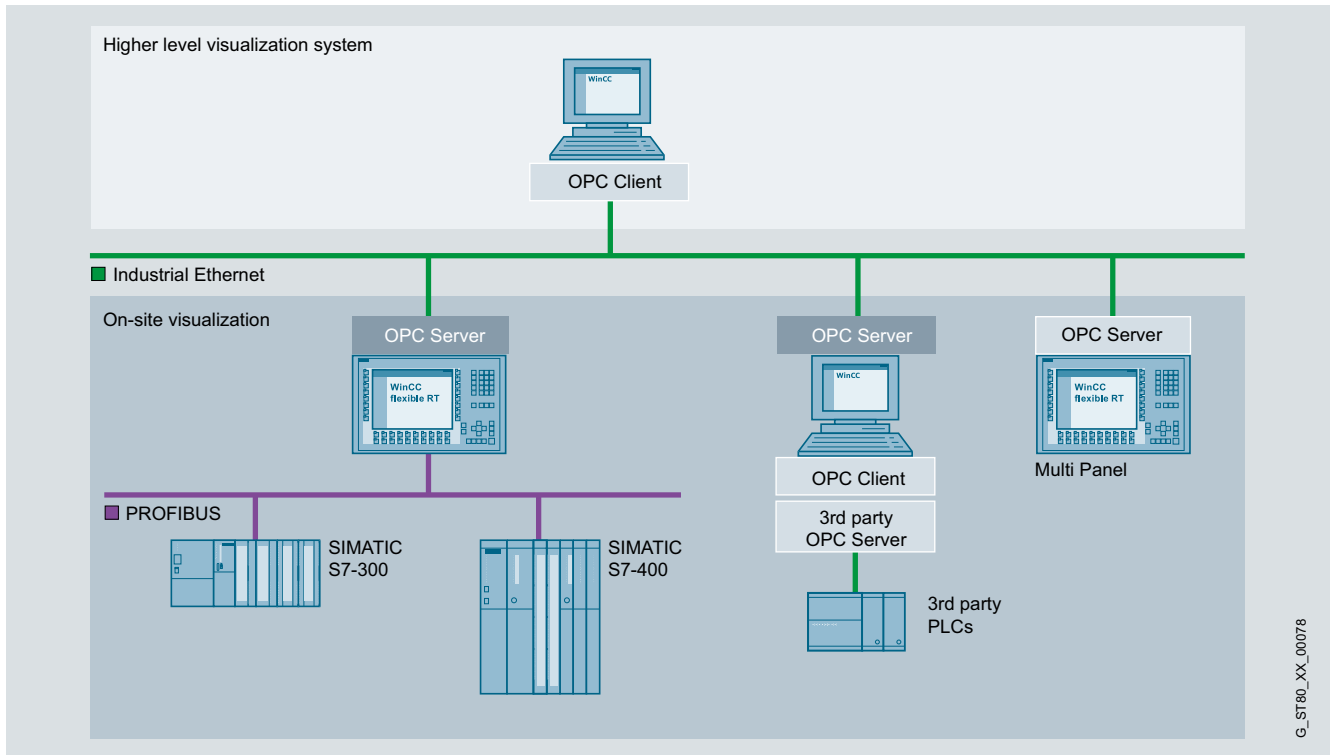
- Option for SIMATIC WinCC flexible Runtime as well as Multi Panels for communication with applications from different vendors (e.g. MES, ERP, or applications in the office sector)

- Available for the following SIMATIC HMI systems:
  - Mobile Panel 277, MP 270B, MP 277, MP 370, MP 377 (use of OPC on XML basis)
  - WinCC flexible Runtime (use of OPC based on DCOM)
- One license is required for each operator station.

Benefits

- Incorporation of automation components from different vendors into an automation concept
- Saving of development costs through communication between automation systems based on a homogeneous, uniform protocol

- Reduction in load on fieldbuses:
  WinCC flexible Runtime as well as SIMATIC Panels permit a control system, for example, to access the process data. The sensitive field level is not loaded by the control level as far as the communications requirements are concerned. The requirements are processed by WinCC flexible Runtime and the SIMATIC Panels.

Application

OPC (OLE for Process Control) is a standardized, open, uniform and multi-vendor software interface. OPC is based on the Windows technology of COM (Component Object Model), DCOM (Distributed COM) or on XML.

Windows-based systems such as SIMATIC Panel PC or SIMATIC Multi Panels are used for tasks at the machine and process levels, and can communicate with all OPC-compatible applications via Ethernet using TCP/IP and OPC. WinCC flexible Runtime or the SIMATIC Multi Panel (OPC server) provide data for one or more OPC clients. As a result, local visualization and data processing are possible to the same extent as plant-wide calling of information or archiving of process data. Uniform flows of information guarantee an overview of the status of all processes.

Communication with OPC-compatible applications from different vendors (e.g. MES, ERP, or applications in the office sector) is possible.

OPC Foundation

http://www.opcfoundation.org

4

HMI Software
SIMATIC WinCC flexible options

WinCC flexible /OPC server

Function

- Use of a visualization system as a data server (OPC server) for higher-level automation components such as control systems or office systems
  - OPC-XML server for multi panels
  - OPC server (DCOM) for WinCC flexible Runtime
- The WinCC flexible engineering system can conveniently select a desired OPC item from the variables function of the OPC server using an OPC browser (component of the OPC server). To do this, the OPC server must be started and must be accessible for the engineering system.

Technical specifications

Type	WinCC flexible /OPC Server
	The specifications are maximum values
Execution platform	
• SIMATIC Panels	Mobile Panel 277
• SIMATIC Multi Panels	MP 270B, MP 277, MP 370, MP 377
• PCs	SIMATIC WinCC flexible Runtime
OPC server	
• XML server for Multi Panels	Supports the OPC XML Data Access specification V1.0 [1]
• DCOM server for WinCC flexible Runtime	Supports the OPC Data Access specification V1.0a and V2.0
• Number of connections that an OPC server can accommodate	8

[1] Data access via XML has a functional scope that is similar to OPC Data Access. A software adapter is required that must be installed on the OPC client PC to enable DCOM-based OPC clients to access the OPC XML server without any modification. The software adapter is supplied with WinCC flexible Engineering and Runtime.

Ordering data

	Order No.
WinCC flexible /OPC Server for SIMATIC Multi Panels [1] Single license, license key only	**6AV6618-7CC01-3AB0**
WinCC flexible /OPC server for WinCC flexible Runtime 2008 [1] Single license, license key only	**6AV6618-7CD01-3AB0**

[1] One license is required for each operator station. A license is not required for the engineering system for configuring the Runtime option.

More information

Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about the Open Platform Program for the creation of user-specific functions and controls for WinCC flexible.

4

Overview
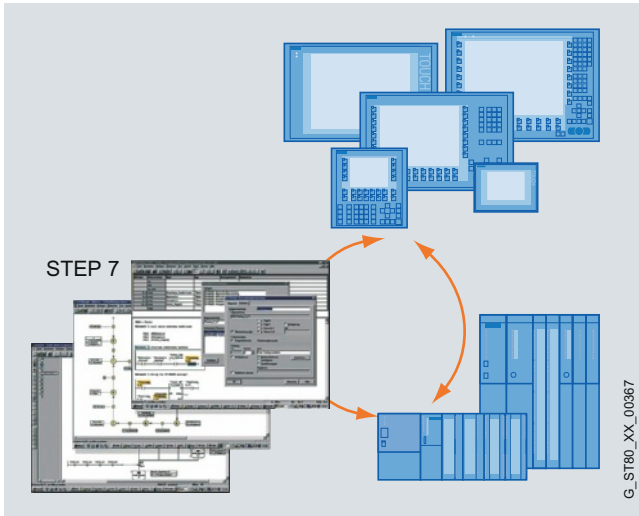
- Targeted and rapid process diagnostics in plants and machines for SIMATIC S7 and SIMATIC HMI
- Standardized diagnostics concept for various SIMATIC components
- No further configuration overhead for diagnostics functionality
- Frees up PLC capacity with regard to memory and program execution time

Note

For further information, refer to "SIMATIC ProAgent Process Diagnostics Software".

Ordering data

	Order No.
WinCC flexible /ProAgent	
Software option package for process diagnostics based on Functional enhancement for SIMATIC WinCC flexible; electronic documentation in English, French, German, Italian, and Spanish	
• **WinCC flexible /ProAgent for SIMATIC Panels** [1] Runtime license (Single License) executable on Mobile Panel 277, TP/OP/MP 270/277 and MP 370/377	**6AV6618-7DB01-3AB0**
• **WinCC flexible/ProAgent for WinCC flexible Runtime 2008** [1] Runtime license (single license)	**6AV6618-7DD01-3AB0**

[1] One license is required for each operator station. A license is not required for the engineering system for configuring the Runtime option.

More information

Note

Do you need a specific modification or option for the products described here? Then look up "Customized products", where you will find information about the Open Platform Program for the creation of user-specific functions and controls for WinCC flexible.

4

HMI Software
SCADA system SIMATIC WinCC

SIMATIC WinCC

■ Overview
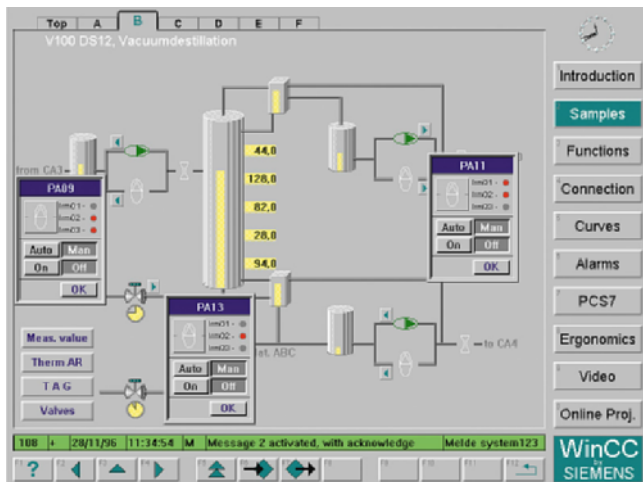
- PC-based operator control and monitoring system for visualizing and operating processes, production flows, machines and plants in all sectors – from the simple single-user station through to distributed multi-user systems with redundant servers and cross-location solutions with Web clients. WinCC is the information hub for corporation-wide vertical integration.
- The basic system configuration (WinCC basic software) includes industry-standard functions for signaling and acknowledging events, archiving of messages and measured values, logging of all process and configuration data, user administration and visualization.
- The WinCC basic software forms the core of a wide range of different applications. Based on the open programming interfaces, a wide range of WinCC options (from Siemens Industry Automation) and WinCC add-ons have been developed (by Siemens-internal and external partners).
- WinCC can be operated with every PC that meets the given HW requirements. The SIMATIC Box / Panel PC and SIMATIC Rack PC product range in particular is available for the industrial use of WinCC systems. SIMATIC PCs impress with their powerful PC technology, are designed for round-the-clock operation, and can be operated in both office areas and harsh industrial environments.
- SIMATIC WinCC can be ordered in combination with a SIMATIC IPC (Box/Rack/Panel PC) as SIMATIC HMI Package at a price advantage
- Together with the SIMATIC IPC427C and IPC477C there are turnkey solutions available as WinCC standard client or single station (see also Packages and IPC427C/IPC477C)

Current versions:

SIMATIC WinCC V7.2

Executable with:
- Windows 7 SP1 (32 / 64 bit) Professional, Enterprise, Ultimate
- Windows XP Professional SP3
- Windows Server 2003 SP2, Standard
- Windows Server 2008 SP2 (32 bit) Standard
- Windows Server 2008 R2 SP1 (64 bit) Standard
- contains the Microsoft SQL Server 2008 R2 SP1 (32 bit)

SIMATIC WinCC V7.0 SP3

Executable with:
- Windows 7 SP1 (32 / 64 bit) Professional, Enterprise, Ultimate
- Windows XP Professional SP3
- Windows Server 2003 SP2 and Windows Server 2003 R2 SP2 Standard
- Windows Server 2008 SP2 (32 bit) Standard
- Windows Server 2008 R2 SP1 (64 bit) Standard includes the Microsoft SQL Server 2005 SP4
- Use in virtual environments – for additional information, see http://support.automation.siemens.com/WW/view/en/49370459

SIMATIC WinCC V6.2 SP3

Executable with:
- Windows XP Professional SP3
- Windows 2000 Professional SP4
- Windows Server 2003 SP2 and Windows Server 2003 R2 SP2 include Microsoft SQL Server 2005 SP2

■ **Benefits**

- All-purpose
  - Solutions for all sectors
  - Multilingual for worldwide usage
  - Can be integrated into all automation solutions
- All HMI functions on board
  - User administration
  - Operator control and monitoring
  - Reporting, acknowledging, and archiving of events
  - Acquisition, compression and archiving of measured values (incl. long-term backup)
  - Logging and documenting of process and configuration data
- Can be configured simply and efficiently
  - Configuration wizards let the user focus on the essentials
  - In the picture by means of cross-reference lists and screen property displays
  - Configuration of multilingual applications
  - Configuring tool for configuring bulk data
- Universally scalable
  - Expandable from single station to client-server configurations
  - Increased availability by means of redundant servers
  - Process visualization via the web with the WinCC WebNavigator
- Open standards for simple integration
  - Powerful real-time database Microsoft SQL Server 2008 R2 SP1 (32 bit)
  - Open for application modules with ActiveX controls
  - Visual Basic for Applications for individual expansions
  - OPC for cross-vendor communication
- Process visualization with Plant Intelligence
  - Integrated high-performance Historian on the basis of the Microsoft SQL Server 2008 R2 SP1 (32 bit)
  - Integrated evaluation functions for the online analysis (statistical process control)
  - Production optimization with the help of diverse options
- Expandable using options and add-ons
  - Options for scalable configurations
  - Options for increasing the availability
  - Options for IT & business integration
  - Options for SCADA expansions
  - Options for validation in accordance with FDA 21 CFR Part 11
  - Options for the use of telecontrol protocols
- Part of Totally Integrated Automation
  - Direct access to the tag and message configuration of the SIMATIC control system
  - Integrated diagnostic functions for increasing productivity
  - Options for the use of telecontrol protocols

New in V7.2

- Expansion into Graphic Designer
  - Know-how protection by means of password protection for PDL images and image blocks
- Unicode support
  - WinCC SETUP in 5 languages / up to 9 installed languages
  - Individual language selection for engineering and runtime, regardless of the language settings in the operating system
- Simplified configuration of the Tag Management by means of the innovative WinCC Configuration Studio
  - Configuration options similar to those in Excel
  - Simplified tags / structure tag management
- New communication channels
  - Communication channel to new CPU (S7-1200 / S7-1500) (absolute address only, no CPU alarming support)
  - Introduction of the OPC UA server (DA, HDA)
- Expansion into archive system
  - New archive recording (day, weak, year)
  - New archiving methods (difference)

and more ...

4

HMI Software
SCADA system SIMATIC WinCC

SIMATIC WinCC

Application

SIMATIC WinCC is designed for visualization and operation of processes, manufacturing cycles, machines and plants. With its powerful process interface, especially to the SIMATIC family, and the secure data archiving, WinCC enables highly available solutions for the process control.

The sector-neutral basic system enables universal usage in all automation applications. Sector-specific solutions can, for example, be implemented using WinCC options (e.g. FDA options for the pharmaceutical industry) and sector-specific add-ons (e.g. for the water industry).

Design

SIMATIC WinCC is available as a complete package and as a runtime package with 128, 512, 2048, 8192, 65536, 102400, 153600, 262144 PowerTags [1].

PowerTags are data points that are connected to controllers or other data sources over a WinCC channel. Up to 32 alarms can be obtained from one data point. Moreover, internal tags without coupling are available for additional system performance. In addition WinCC also contains 512 archive tags. Individual archive licenses can be obtained for greater quantity structures.

Licenses for a multi-user configuration

The system software with the required number of PowerTags and additionally the option WinCC/Server must be installed on the WinCC server.

In the basic configuration, an RT128 or RT client license is sufficient for the WinCC clients. In order to configure on clients, an RC128 or RC client license is required. Remote configuration is possible if WinCC clients without their own project (UniClient) on the server project are configured.

[1] V6: 128, 256, 1024, 8192, 65536 PowerTags

Function

The powerful configuration functions of SIMATIC WinCC contribute to a reduced engineering and training overhead and lead to a more flexible use of personnel and greater operational reliability. Whoever is familiar with Microsoft Windows can also operate the WinCC Explorer, the central switching point of WinCC.

In combination with other SIMATIC components, the system is also equipped with auxiliary functions such as process diagnostics and maintenance. All SIMATIC engineering tools work together in the configuration of the functions.

SIMATIC WinCC offers a complete basic functionality for process visualization and operation. To this end WinCC has a number of editors and interfaces that can be used to individually configure this functionality according to the respective application. Expansions of a WinCC station for control tasks are also possible with minimal engineering effort.

WinCC editors	Task or configurable runtime functionality
WinCC Explorer	Central project management for the quick access to all project data and central settings
WinCC Graphics Designer	Graphics system for user-defined visualization and operation via pixel-graphic objects
WinCC Alarm Logging	Signaling system for detecting and archiving events with display and control options according to DIN 19235; freely selectable message classes, message display and logging
WinCC Tag Logging	Process archiving for the acquisition, compression and storage of measured values, e.g., presentation in trend and table format as well as further processing
WinCC Report Designer	Reporting and logging system for time and event-controlled documentation of messages, operator inputs and current process data in the form of user reports or project documentation in an arbitrary layout
WinCC User Administrator	Tool for user-friendly administration of users and authorizations
WinCC Global Script	Processing functions with limitless functionality by means of the use of VBScript and ANSI-C

4

Function (continued)

Interfaces

	Task or configurable runtime functionality
Communication channels	For communication with subordinate controls (SIMATIC protocols, PROFIBUS DP, PROFIBUS FMS, DDE and OPC server included in the scope of delivery)
Standard interfaces	For the open integration of other Windows applications via WinCC, WinCC-OLE-DB, ActiveX, OLE, DDE, OPC, etc.)
Programming ports	For the individual access to data and functions of WinCC and for the integration in user programs with VBA, VB Script, C-API (ODK), C-Script (ANSI-C)

Integration

Integration in company-wide solutions (IT and business integration)

WinCC is strictly based on Microsoft technology, which provides the greatest possible compatibility and integration ability. ActiveX and .net [1] controls support technology-specific and industry-specific expansions. Cross-manufacturer communication is also a simple exercise. The reason: WinCC can be used as an OPC client and server, and in addition to access to current process values, it also supports standards such as OPC HDA (Historical Data Access), OPC Alarm & Events, and OPC XML Data Access.

Just as important: Visual Basic for Applications (VBA) for user-specific expansions of the WinCC Graphics Designer and Visual Basic Scripting (VBS) as an easy-to-learn, open runtime language. If desired, professional application developers can also use ANSI-C. And access to the API programming interfaces is really simple with the Open Development Kit ODK.

WinCC integrates a powerful and scalable historian function based on Microsoft SQL Server 2005 into the basic system. As a result, users have every possibility: from high-performance archiving of current process data, to long-term archiving with high data compression, through to a central information hub in the form of a company-wide process historian. With the help of the Central Archive Server option, this can be set up within the framework of a WinCC solution. Versatile clients and tools for evaluation, the open interfaces, and special options (Connectivity Pack, Connectivity Station, IndustrialDataBridge) provide the basis for effective IT and business integration.

If external networks are accessed, suitable protective measures (incl. IT security measures, such as network segmentation) should be taken in order to ensure safe operation of the system.

You can find more information on the topic of Industrial Security on the Internet at:

http://www.siemens.com/industrialsecurity

[1] Only supported in WinCC V7.0 or higher

Integration in automation solutions

WinCC is an open process visualization system and provides the option to connect the most diverse control systems.

Approved communication software

Only communication software with the listed product versions (or higher) should be used. Corresponding SIMATIC NET upgrades are available for upgrading older versions.

Number of connectable controls

For the number of controls connectable via Industrial Ethernet CP 1613, the following applies to a message frame length of 512 bytes:

Type of connection	Number of nodes
SIMATIC S5 Ethernet Layer 4 + TCP/IP	Up to 60
SIMATIC S7 Protocol Suite	Up to 64
SIMATIC 505 Ethernet Layer 4 + TCP/IP	Up to 60

Via PROFIBUS, a maximum of 8 controls can be connected with CP 5611, and a maximum of 44 controls with CP 5613. With approx. 10 or more controls, the usage of Industrial Ethernet is recommended.

Mixed operation with different controls

With their multi-protocol stack, the CP 1613 and CP 5613 communication processors allow parallel operation of two protocols, such as for the mixed operation of different controls, via a bus cable. WinCC supports the operation of two similar interface boards only in connection with the channels SIMATIC S5 Ethernet Layer 4 (2 x CP 1613), SIMATIC S7 Protocol Suite (2 x CP 1613, 2 x CP 5613) as well as PROFIBUS DP (4 x CP 5613; each CP 5613 max. 122 slaves). In addition to communication over industrial Ethernet CP 1613 or PROFIBUS CP 5613, one CP 5611 can be used in each case for communication with SIMATIC S7 via MPI.

Client-server communication

Communication between the clients and the server is via TCP/IP protocol. Setting up a separate PC LAN is recommended. For small projects with a correspondingly low incidence of message frames, SIMATIC NET Industrial Ethernet communication can be used for both process communication (WinCC/Server ↔ PLC) and PC-PC communication (WinCC/client ↔ WinCC/server).

Channel DLL PROFIBUS DP

In accordance with the PROFIBUS standard, DP/slaves are always permanently assigned to a DP master; i.e. a second WinCC station (DP/master) cannot access the same controls (DP/slave). This means that redundant operation of two WinCC stations is not possible using the PROFIBUS DP connection.

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HMI Software
SCADA system SIMATIC WinCC

SIMATIC WinCC

■ **Integration** (continued)

Connection to controls from other manufacturers:

OPC (OLE for Process Control) is recommended for the connection of controls from other manufacturers.

Current notes and information about OPC servers from various suppliers can be found at: http://www.opcfoundation.org

WinCC supports the standards:

- OPC Data Access 2.05a
- OPC Data Access 3.00
- OPC XML Data Access 1.00 (Connectivity Pack / Connectivity Station)
- OPC HDA 1.20 (Connectivity Pack / Connectivity Station)
- OPC A&E 1.10 (Connectivity Pack / Connectivity Station)
- OPC UA Client Data Access
- OPC UA Server Data Access, HDA (Connectivity Pack / Connectivity Station)

Connection overview

Protocol	Description
SIMATIC S7	
SIMATIC S7 Protocol Suite	Channel DLL for S7 functions via MPI, PROFIBUS or Ethernet Layer 4 + TCP/IP
SIMATIC S5	
SIMATIC S5 Ethernet Layer 4	Channel DLL for S5 Layer 4 communication + TCP/IP
SIMATIC S5 Programmer Port AS511	Channel DLL and driver for serial communication with S5 using AS511 protocol to programmers port
SIMATIC S5 Serial 3964R	Channel DLL and driver for serial communication with S5 using RK512 protocol
SIMATIC S5 PROFIBUS-FDL	Channel DLL for S5-FDL
SIMATIC 505	
SIMATIC 505 Serial	Channel DLL and driver for serial communication with 505 using NITP/TBP protocol to SIMATIC 535/545/555/565/575
SIMATIC 505 Ethernet Layer 4	Channel DLL for 505 Layer 4 communication
SIMATIC 505 TCP/IP	Channel DLL for 505 TCP/IP communication
SIMATIC S7-1200, S7-1500 (WinCC 7.2 or higher)	
SIMATIC S7-1200, S7-1500 Channel [1]	Channel DLL for S7-1200 and S7-1500 communication
Controllers from other manufacturers (from WinCC V7.0 SP3)	
Allen Bradley Ethernet IP	Channel DLL and drivers for communication with Allen Bradley controllers via Ethernet TCP/IP using Ethernet IP protocol
Modbus TCP/IP	Channel DLL and drivers for communication with Modicon controllers via Ethernet TCP/IP using Modbus TCP/IP protocol
Mitsubishi MC TCP/IP	Channel DLL and drivers for communication with Mitsubishi controllers via Ethernet TCP/IP using Mitsubishi MC TCP/IP protocol
Cross-manufacturer	
OPC client [1] [2] for DA, XML DA	Channel DLL for OPC communication, WinCC can acquire data from OPC server applications.
OPC server for DA, XML DA, A&E, HDA	Server applications for OPC communication; WinCC provides process data to OPC clients
OPC UA server for DA, HDA	Server applications for OPC UA communication
PROFIBUS FMS	Channel DLL for PROFIBUS FMS
PROFIBUS DP	Channel DLL for PROFIBUS DP
SIMOTION	Channel DLL for SIMOTION

[1] WinCC version V7.2 or higher supports communication with S7-1200 / S7-1500 CPU.
Restrictions: No symbolic address, type safe structure support (absolute address only) No CPU alarming support

[2] Application note:
Parallel usage of the OPC client channel allows, for example, connection to an SNMP-OPC server for visualization of the data contained there. The SNMP OPC server enables monitoring of any network components (such as switches) that support the SNMP protocol. You can find more information under SIMATIC NET Communications Systems/SNMP OPC Server.

[3] WinCC V7.0 SP3 and later supports OPC UA (United Architecture) Client for DA.

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Integration (continued)

Communications components for PG/PC for SIMATIC (for WinCC V7.2)

Industrial Ethernet	SIMATIC S5 Ethernet Layer 4	SIMATIC S5 TCP/IP	SIMATIC S7 Protocol Suite	SIMATIC 505 Ethernet Layer 4	SIMATIC 505 TCP/IP [1]	Order No.
WinCC – channel DLL						
SIMATIC S5 Ethernet Layer 4 Channel DLL for S5 Layer 4 communication + TCP/IP	•	•				Included in the basic package
SIMATIC S7 Protocol Suite Channel DLL for S7 functions			•			Included in the basic package
SIMATIC 505 Ethernet Layer 4 Channel DLL for 505 Layer 4 communication				•		Included in the basic package
SIMATIC 505 TCP/IP [1] Channel DLL for 505 TCP/IP communication					•	Included in the basic package
Communication components for extension of the OS/OP						
CP 1612 PCI card for connecting a PG/PC to Industrial Ethernet (SOFTNET-S7 or SOFTNET-S7 Lean communication software must be ordered separately)		•	•		•	6GK1161-2AA00
SOFTNET-S7 Communication software for S7 functions (max. 64 connections)		•	•			
• Version 8.1 [2][3] for Windows 7 (32/64-bit) and Server 2008 R2 (64-bit)						6GK1704-1CW81-3AA0
• Edition 2008 SP2 (V7.1) [2] for Windows XP/2003 Server/(32-bit) 2008 Server						6GK1704-1CW71-3AA0
SOFTNET-S7 Lean Communication software for S7 functions (max. 8 connections)		•	•			
• Version 8.2 SP1 [2][4] for Windows 7 (32/64-bit) and Server 2008 R2 (64-bit)						6GK1704-1LW08-2AA0
• Edition 2008 SP2 (V7.1) [2][4] for Windows XP/2003 Server / (32-bit) 2008 Server						6GK1704-1LW71-3AA0
CP 1613 PCI card for connecting a PG/PC to Industrial Ethernet (S7-1613 communication software must be ordered separately)	•	•	•	•	•	6GK1161-3AA00
CP 1613 A2 PCI card (32-bit) for connecting a PG/PC to Industrial Ethernet (S7-1613 communication software required)	•	•	•	•	•	6GK1161-3AA01
CP 1623 PCI Express X1 card (32-bit) for connecting a PG/PC to Industrial Ethernet (S7-1613 communication software required)	•	•	•	•	•	6GK1162-3AA00
S7-1613 Communication software for S7 functions and S5/505 Layer 4 communication with TCP/IP	•	•	•	•		
• Version 8.2 SP1 [2][3] for Windows 7 (32/64-bit) and Server 2008 R2 (64-bit)						6GK1716-1CB08-2AA0
• Edition 2008 SP2 (V7.1) [2] for Windows XP/2003 Server / (32-bit) 2008 Server						6GK1 716-1CB71-3AA0

• System interface possible

[1] Via any interface board with NDIS 3.0 interface; no separate communication software required

[2] See ordering data for SIMATIC NET upgrade packages

[3] SIMATIC NET Version 8.2 SP1

[4] SOFTNET-S7 Lean included in scope of supply of WinCC V7.2

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HMI Software
SCADA system SIMATIC WinCC

SIMATIC WinCC

■ **Integration** (continued)

Communication components for PG/PC for SIMATIC (for WinCC V7.0)

PROFIBUS	SIMATIC S5 PROFIBUS FDL	SIMATIC S7 Protocol Suite	PROFIBUS DP	PROFIBUS FMS	Order No.
WinCC – channel DLL					
SIMATIC S5 PROFIBUS FDL Channel DLL for S5-FDL	•				Included in the basic package
SIMATIC S7 Protocol Suite Channel DLL for S7 functions		•			Included in the basic package
PROFIBUS DP Channel DLL for PROFIBUS DP			•		Included in the basic package
PROFIBUS FMS Channel DLL for PROFIBUS FMS				•	Included in the basic package
Communication components for extension of the OS/OP					
CP 5611 A2 PCI card (32-bit) for connecting a PG/PC to PROFIBUS or MPI (communication software included in WinCC basic package)		•			**6GK1561-1AA01**
CP 5612 [2)] PCI card (32-bit) for connecting a PG/PC to PROFIBUS (communication software included in WinCC basic package)		•			**6GK1561-2AA00**
CP 5621 PCI Express X1 card (32-bit) for connecting a PG/PC to PROFIBUS or MPI (communication software included in WinCC basic package)		•			**6GK1562-1AA00**
CP 5622 [2)] PCI Express X1 card (32-bit) for connecting a PG/PC to PROFIBUS (communication software included in WinCC basic package)		•			**6GK1562-2AA00**
CP 5711 [2)] USB adapter for connecting a PG/PC to PROFIBUS or MPI (communication software included in the WinCC basic package)		•			**6GK1571-1AA00**
CP 5512 PCMCIA card (Cardbus 32-bit) for connecting a PG/PC to PROFIBUS or MPI (communication software included in WinCC basic package)		•			**6GK1551-2AA00**

• System interface possible

[1)] See ordering data for SIMATIC NET upgrade package

[2)] SIMATIC NET Version 8.2 SP1

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■ **Integration** (continued)

Communication components for PG/PC for SIMATIC (for WinCC V7.0)

PROFIBUS	SIMATIC S5 PROFIBUS FDL	SIMATIC S7 Protocol Suite	PROFIBUS DP	PROFIBUS FMS	Order No.
Communication components for extension of the OS/OP (continued)					
CP 5613 A2 PCI card (32-bit) for connecting a PC to PROFIBUS (S7-5613, DP-5613 or FMS-5613 communication software required)	•	•	•	•	**6GK1561-3AA01**
CP 5614 A2 PCI card (32-bit) for connecting a PC to PROFIBUS (communication software must be ordered separately)	•	•	•	•	**6GK1561-4AA01**
CP 5623 PCI Express X1 card (32-bit) for connecting a PG/PC to PROFIBUS or MPI (S7-5613 communication software or DP-5613 or FMS-5613 required)	•	•	•	•	**6GK1562-3AA00**
S7-5613 communication software for S7 functions + FDL	•	•			
• Version 8.1 [1] [2] for Windows 7 (32/64-bit) and Server 2008 R2 (64-bit)					**6GK1713-5CB81-3AA0**
• Edition 2008 SP2 (V7.1) [1] [2] for Windows XP/2003 Server / (32-bit) 2008 Server					**6GK1713-5CB71-3AA0**
DP-5613 Communication software for DP master + FDL	•		•		
• Version 8.1 [1] [2] for Windows 7 (32/64-bit) and Server 2008 R2 (64-bit)					**6GK1713-5DB81-3AA0**
• Edition 2008 SP2 (V7.1) [1] [2] for Windows XP/2003 Server / (32-bit) 2008 Server					**6GK1713-5DB71-3AA0**
FMS-5613 Communication software for PROFIBUS-FMS + FDL	•			•	
• Edition 2008 SP2 (V7.1) [1] [2] for Windows XP/2003 Server / (32-bit) 2008 Server					**6GK1713-5FB71-3AA0**

• System interface possible

[1] See ordering data for SIMATIC NET upgrade package

[2] SIMATIC NET Version 8.2 SP1

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HMI Software
SCADA system SIMATIC WinCC

SIMATIC WinCC

■ **Integration** (continued)

Communication examples

SIMATIC NET PROFIBUS (S7 functions)

- CP 5613 A2
- CP 5623
- S7-5613
(communication software)

Standard PC
with WinCC
e.g. RC 64 k or RT 64 k

PROFIBUS

SIMATIC S7-400

- CP 443-5 Extended
(DP/M, S7, S/R)
- CP 443-5 Basis (FMS, S7, S/R)
- NCM S7 PROFIBUS manual
(SIMATIC NET CD or
Internet Download)

SIMATIC S7-300

- CP 342-5 (DP, S7, S/R)
- CP 343-5 (FMS, S7, S/R)
- NCM S7 PROFIBUS manual
(SIMATIC NET CD or
Internet Download)
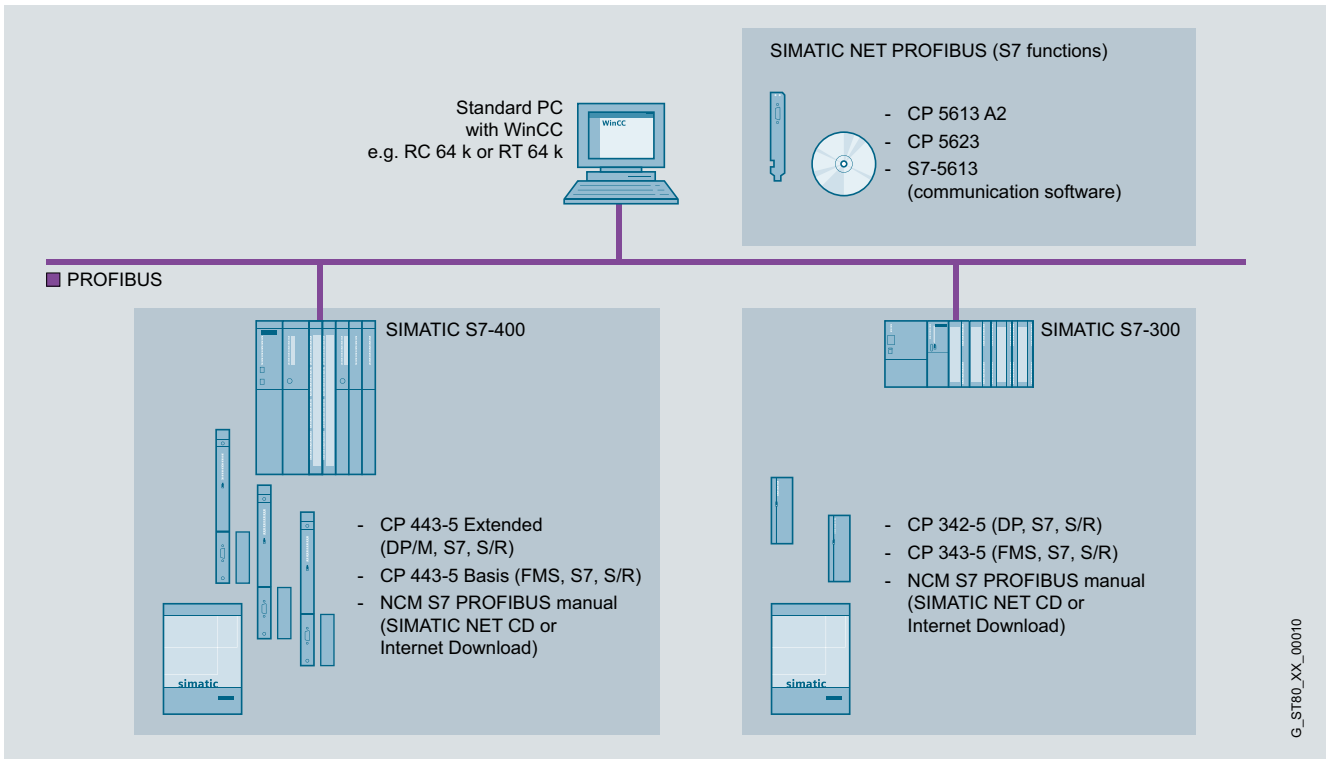
WinCC single-user system: PROFIBUS with S7 communication

SIMATIC NET Industrial Ethernet (S7 functions)

- CP 1613 A2
6GK1 161-3AA01
- CP 1623
6GK1 162-3AA00
- S7-1613
(communication software)
6GK1 716-1CB80-3AA0

Standard PC
with WinCC
e.g. RC 64 k or RT 64 k

Industrial Ethernet

SIMATIC S7-400

- CP 443-1 (S7, S/R) ISO + TCP
6GK7 443-1EX20-0XE0
- CP 443-1 Advanced
(S7, S/R, HTTP)
6GK7 443-1GX20-0XE0
- NCM S7 PROFIBUS manual
(SIMATIC NET CD or
Internet Download)

SIMATIC S7-300

- CP 343-1 (S7, S/R) ISO + TCP
6GK7 343-1EX30-0XE0
- CP 343-1 Advanced
(S7, S/R, HTTP)
6GK7 343-1GX30-0XE0
- NCM S7 PROFIBUS manual
(SIMATIC NET CD or
Internet Download)

WinCC single-user system: Industrial Ethernet with S7 communication

G_ST80_XX_00010

G_ST80_XX_00011

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Integration (continued)

SIMATIC NET PROFIBUS-FMS
- CP 5613 A2
  6GK1 561-3AA00
- CP 5623
  6GK1 562-3AA00
- FMS-5613
  (communication software)
  6GK1 713-5FB80-3AA0

Standard PC
with WinCC
e.g. RC 64 k or RT 64 k
+ FMS channel DLL

PROFIBUS FMS

SIMATIC S7-300
- CP 343-5
  (FMS, S7, S/R)
  6GK7 343-5FA01-0XE0

SIMATIC S7-400
- CP 443-5 Basic
  (FMS, S7, S/R)
  6GK7 443-5FX02-0XE0

SIMATIC S5-115/135/155U

- CP 5431 FMS/DP
  6GK1 543-1AA01
- COM 5431 FMS/DP
  6GK1 745-1AD00-0EA0

G_ST80_XX_00012

WinCC single-user system: PROFIBUS FMS

without
operator controls:
32 clients
+ 3 web clients
or
50 web clients
+ 1 client

Standard PC
with WinCC
e.g. RC 64 k or RT 64 k

+ TCP/IP
interface module

up to 4 clients
with operator
controls

Client

Client

Server

TERMINAL BUS TCP/IP

PROCESS BUS (Industrial Ethernet/PROFIBUS)

SIMATIC S7-400

SIMATIC S7-300

This allows you to set up the following application examples
- WinCC single-user system: SIMATIC NET PROFIBUS with S7 functions
- WinCC single-user system: SIMATIC NET Industrial Ethernet with S7 functions
- WinCC single-user system: SIMATIC NET PROFIBUS-FMS

G_ST80_XX_00013

WinCC multi-user system with operable server

4

■ **Integration** (continued)

Higher-level visualisation system

WinCC

OPC Client

- OPC server functionality
  (included in WinCC basic package)
- TCP-IP interface board required

■ Industrial Ethernet

On-site visualization

OPC Server

WinCC flexible RT

OPC Server

WinCC

OPC Client

OPC Server

- OPC Server functionality (OPC Server option for WinCC flexible required)

- integrated PROFIBUS interface

■ PROFIBUS

SIMATIC S7-300

SIMATIC S7-400

third-party PLCs

- OPC Server functionality (included in WinCC basic package)
- TCP-IP Interface board required

- OPC Client functionality (included in WinCC basic package)
- OPC Server required for interfacing with third-party PLCs

G_ST80_XX_00015

OPC link

▮ Technical specifications

Type	SIMATIC WinCC V7.2 and V7.0 SP3	SIMATIC WinCC V6.2 SP3
Operating system	• Windows 7 (32 bit / 64 bit) Ultimate, Professional and Enterprise • Windows XP Professional SP3 • Windows 2003 Server SP2 and Windows 2003 Server R2 SP2 • Windows Server 2008 SP2 (32 bit) Standard • Windows Server 2008 R2 SP1 (64 bit) Standard	• Windows XP Professional SP3, • Windows 2000 Professional SP4, • Windows Server 2003 SP2, • Windows Server 2003 R2 SP2
PC hardware requirements		
Processor type [1]		
• Minimum	Single-user station/server: Pentium 4, 2.5 GHz [2]	Single-user station/server: Pentium III, 1 GHz
	Central Archive Server (V7.0 SP3): Pentium 4, 2.5 GHz	Central Archive Server: Pentium 4, 2 GHz
	Client: Pentium 3, 1 GHz [2]	Client: Pentium III, 600 MHz
	WebClient/DataMonitor Client: Pentium III, 600 MHz [2]	
• Recommended	Single-user station/server: Pentium 4 or Dual Core, 3 GHz [2]	Single-user station/server: Pentium 4, 2 GHz
	Central Archive Server (V7.0 SP3): Pentium 4 or Dual Core, 3 GHz	Central Archive Server: Pentium 4, 2.5 GHz
	Client: Pentium 4, 2 GHz [2]	Client: Pentium III, 1 GHz
	WebClient/DataMonitor Client: Pentium III, 1 GHz	WebClient/DataMonitor Client: Pentium III, 1 GHz
RAM		
• Minimum	Single-user station/server: 4 GB [2]	Single-user station: 512 MB, server: 1 GB
	Central Archive Server: 4 GB	Central Archive Server: 1 GB
	Client: 1 GB [2]	Client: 512 MB
	WebClient/DataMonitor Client: 512 MB [2]	WebClient/DataMonitor Client: 256 MB
• Recommended	Single-user station/server: 8 GB [2]	Single-user station: >= 1 GB, server: >1 GB
	Central Archive Server: ≥ 4 GB	Central Archive Server: ≥ 2 GB
	Client: 2 GB [2]	Client: 512 MB
	WebClient/DataMonitor Client: 1 GB [2]	WebClient/DataMonitor Client: 512 MB
Graphics card		
• Minimum	16 MB, 800 x 600 [2]	16 MB, 800 x 600
• Recommended	32 MB, 1280 x 1024 [2]	32 MB, 1280 x 1024
Hard disk		
• Minimum	Single-user station/server: 80 GB	Single-user station/server: 20 GB
	Client: 20 GB	Client: 5 GB
	Central Archive Server: 40 GB	Central Archive Server: 40 GB
	WebClient/DataMonitor Client: 5 GB	WebClient/DataMonitor Client: 5 GB
• Recommended	Single-user station/server: 160 GB	Single-user station/server: 80 GB
	Client: 40 GB	Client: 20 GB
	Central Archive Server: 2 x 80 GB	Central Archive Server: 2 x 80 GB
	WebClient/DataMonitor Client: 10 GB	WebClient/DataMonitor Client: 10 GB
• Hard disk (available memory for installation)		
- Minimum	Server: >1.5 GB	Server: 1.5 GB
	Client: 1.5 GB	Client: 1 GB
- Recommended	Server: >10 GB	Server: >10 GB
	Client: >1.5 GB	Client: >1.5 GB
CD-ROM/DVD-ROM/disk drive/ USB port	for software installation	for software installation

[1] An AMD system with comparable performance can also be used

[2] Hardware requirements when using Microsoft XP Professional

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HMI Software
SCADA system SIMATIC WinCC

SIMATIC WinCC

Technical specifications (continued)

Type	SIMATIC WinCC
Functionality/ quantity structure	
Number of messages	150,000
• Message text (number of characters)	10 x 256
• Message archive	> 500,000 messages [1]
• Process values per message	10
• Constant load of messages, max.	Central Archive Server: 100/sec Server/single-user station: 10/s
• Message burst, max.	Server/single-user station: 2,000/10 s every 5 min
Archives	
• Archive data points	Max. 120,000 per server [2]
• Archive types	Short-term archive with and without long-term archiving
• Data storage format	Microsoft SQL Server 2005
• Measured values per second, max.	Server/single-user station: 5,000/s
User archive	
• Archives and views	500 each
• Product consisting of data record and column per user archive	320,000
• Fields per user archive	500
Graphics system	
• Number of screens	System-limited [1]
• Number of objects per screen	System-limited [1]
• Number of controllable fields per screen	System-limited [1]

Type	SIMATIC WinCC
PowerTags	256 K [3]
Trends	
• Trend views per image	25
• Trends per trend view	80
User administration	
• User groups	128
• Number of users	128
• Authorization groups	999
Configuration languages	5 European (Eng., Fr., Ger., It., Sp.), 4 Asian (simpl.+trad. Chi/Kor/Jpn) [4]
Protocols	
• Message sequence reports (simultaneously)	1 per server/single-user station
• Message archive reports (simultaneously)	3
• User reports	System-limited [1]
• Report lines per group	66
• Variables per report	300 [5]
Multi-user system	
• Server	18
• Clients for server with operator station	4
• Clients for server without operator station	32 clients + 3 WebClients or 50 WebClients + 1 client

[1] Dependent on the available storage space

[2] Dependent on the number of licensed archive variables

[3] Dependent on number of licensed PowerTags

[4] Asian versions for Version 7 SP1 or higher

[5] The number of variables per report is dependent on process communication performance

4

Ordering data

	Order No.		Order No.

SIMATIC WinCC system software V7.2

Runtime packages on DVD

Language/script versions: De, En, Fr, It, Es; with license for

	Order No.
• WinCC RT Client	6AV6381-2CA07-2AX0
• 128 PowerTags (RT 128)	6AV6381-2BC07-2AX0
• 512 PowerTags (RT 512)	6AV6381-2BD07-2AX0
• 2048 PowerTags (RT 2048)	6AV6381-2BE07-2AX0
• 8192 PowerTags (RT 8192)	6AV6381-2BH07-2AX0
• 65536 PowerTags (RT 65536)	6AV6381-2BF07-2AX0
• 102400 PowerTags (RT 102400)	6AV6381-2BJ07-2AX0
• 153600 PowerTags (RT 153600)	6AV6381-2BK07-2AX0
• 262144 PowerTags (RT 262144)	6AV6381-2BL07-2AX0

Including 512 archive tags each

Complete packages on DVD

Language versions: De, En, Fr, It, Es; with license for

	Order No.
• WinCC RC Client	6AV6381-2CB07-2AX0
• 128 PowerTags (RC 128)	6AV6381-2BM07-2AX0
• 512 PowerTags (RC 512)	6AV6381-2BN07-2AX0
• 2048 PowerTags (RC 2048)	6AV6381-2BP07-2AX0
• 8192 PowerTags (RC 8192)	6AV6381-2BS07-2AX0
• 65536 PowerTags (RC 65536)	6AV6381-2BQ07-2AX0
• 102400 PowerTags (RC 102400)	6AV6381-2BT07-2AX0
• 153600 PowerTags (RC 153600)	6AV6381-2BU07-2AX0
• 262144 PowerTags (RC 262144)	6AV6381-2BV07-2AX0

SIMATIC WinCC system software V7.2 ASIA

Runtime packages on DVD

Language/script versions: En, Chs, Cht, Kor, Jpn; with license for

	Order No.
• WinCC RT Client	6AV6381-2CA07-2AV0
• 128 PowerTags (RT 128)	6AV6381-2BC07-2AV0
• 512 PowerTags (RT 512)	6AV6381-2BD07-2AV0
• 2048 PowerTags (RT 2048)	6AV6381-2BE07-2AV0
• 8192 PowerTags (RT 8192)	6AV6381-2BH07-2AV0
• 65536 PowerTags (RT 65536)	6AV6381-2BF07-2AV0
• 102400 PowerTags (RT 102400)	6AV6381-2BJ07-2AV0
• 153600 PowerTags (RT 153600)	6AV6381-2BK07-2AV0
• 262144 PowerTags (RT 262144)	6AV6381-2BL07-2AV0

Including 512 archive tags each

Complete packages on DVD

Language versions: EN, CHS, CHT, KOR, JPN; with license for

	Order No.
• WinCC RC Client	6AV6381-2CB07-2AV0
• 128 PowerTags (RC 128)	6AV6381-2BM07-2AV0
• 512 PowerTags (RC 512)	6AV6381-2BN07-2AV0
• 2048 PowerTags (RC 2048)	6AV6381-2BP07-2AV0
• 8192 PowerTags (RC 8192)	6AV6381-2BS07-2AV0
• 65536 PowerTags (RC 65536)	6AV6381-2BQ07-2AV0
• 102400 PowerTags (RC 102400)	6AV6381-2BT07-2AV0
• 153600 PowerTags (RC 153600)	6AV6381-2BU07-2AV0
• 262144 PowerTags (RC 262144)	6AV6381-2BV07-2AV0

Clients

	Order No.
• RT Client ASIA	6AV6381-2CA07-2AV0
• RT Client	6AV6381-2CA07-2AX0
• RC Client ASIA	6AV6381-2CB07-2AV0
• RC Client	6AV6381-2CB07-2AX0

SIMATIC WinCC V7.2 Powerpacks

For upgrading from:

Runtime packages

	Order No.
• 128 to 512 PowerTags	6AV6371-2BD07-2AX0
• 512 to 2048 PowerTags	6AV6371-2BG07-2AX0
• 2048 to 8192 PowerTags	6AV6371-2BM07-2AX0
• 8192 to 65536 PowerTags	6AV6371-2BN07-2AX0
• 65536 to 102400 PowerTags	6AV6371-2BP07-2AX0
• 102400 to 153600 PowerTags	6AV6371-2BQ07-2AX0
• 153600 to 262144 PowerTags	6AV6371-2BR07-2AX0

Complete packages

	Order No.
• 128 to 512 PowerTags	6AV6371-2BD17-2AX0
• 512 to 2048 PowerTags	6AV6371-2BG17-2AX0
• 2048 to 8192 PowerTags	6AV6371-2BM17-2AX0
• 8192 to 65536 PowerTags	6AV6371-2BN17-2AX0
• 65536 to 102400 PowerTags	6AV6371-2BP17-2AX0
• 102400 to 153600 PowerTags	6AV6371-2BQ17-2AX0
• 153600 to 262144 PowerTags	6AV6371-2BR17-2AX0

SIMATIC WinCC V7.2 archives

	Order No.
• 1500 archives	6AV6371-1DQ17-2AX0
• 5000 archives	6AV6371-1DQ17-2BX0
• 10000 archives	6AV6371-1DQ17-2CX0
• 30000 archives	6AV6371-1DQ17-2EX0
• 80000 archives	6AV6371-1DQ17-2GX0

SIMATIC WinCC V7.2 archive powerpacks

For upgrading archiving from

	Order No.
• 1500 to 5000 archive tags	6AV6371-1DQ17-2AB0
• 5000 to 10000 archive tags	6AV6371-1DQ17-2BC0
• 10000 to 30000 archive tags	6AV6371-1DQ17-2CE0
• 30000 to 80000 archive tags	6AV6371-1DQ17-2EG0

SIMATIC WinCC Upgrade/ Software Update Service

SIMATIC WinCC V7.2 upgrade [1]

For upgrading the RT version

	Order No.
• from V6.2 to V7.2	6AV6381-2AA07-2AX4
• from V7.0 to V7.2	6AV6381-2AA07-2AX3
• from V6.2 ASIA to V7.2 ASIA	6AV6381-2AA07-2AV4
• from V7.0 ASIA to V7.2 ASIA	6AV6381-2AA07-2AV3

For upgrading the Client RT version

	Order No.
• from V6.2 to V7.2	6AV6381-2BC07-2AX4
• from V7.0 to V7.2	6AV6381-2BC07-2AX3
• from V6.2 ASIA to V7.2 ASIA	6AV6381-2BC07-2AV4
• from V7.0 ASIA to V7.2 ASIA	6AV6381-2BC07-2AV3

For upgrading the RC version

	Order No.
• from V6.2 to V7.2	6AV6381-2AB07-2AX4
• from V7.0 to V7.2	6AV6381-2AB07-2AX3
• from V6.2 ASIA to V7.2 ASIA	6AV6381-2AB07-2AV4
• from V7.0 ASIA to V7.2 ASIA	6AV6381-2AB07-2AV3

SIMATIC WinCC Software Update Service (SUS) [2] [3]

SIMATIC WinCC V7 Update

Software Update Service for WinCC basic software and options:

	Order No.
• 1 license	6AV6381-1AA00-0AX5
• 3 licenses	6AV6381-1AA00-0BX5
• 10 licenses	6AV6381-1AA00-0CX5

[1] According to licensing provisions, 1 upgrade package must be ordered for each WinCC station

[2] The Software Update Service is valid for 1 year. The contract is automatically extended by 1 more year unless canceled 3 months prior to expiration. According to licensing provisions, 1 Software Update Service must be ordered for each WinCC station.

[3] Requires the current software version

HMI Software
SCADA system SIMATIC WinCC

SIMATIC WinCC

Ordering data	Order No.
SIMATIC WinCC system software V6.2 SP3	
Runtime packages on CD-ROM	
Language/script versions: DE/EN/FR/IT/ES; with license for	
• 128 PowerTags (RT 128)	**6AV6381-1BC06-2AX0**
• 256 PowerTags (RT 256)	**6AV6381-1BD06-2AX0**
• 1024 PowerTags (RT 1024)	**6AV6381-1BE06-2AX0**
• 8192 PowerTags (RT 8192)	**6AV6381-1BH06-2AX0**
• 65536 PowerTags (RT 65536)	**6AV6381-1BF06-2AX0**
• 102400 PowerTags (RT 102400)	**6AV6381-1BJ06-2AX0**
• 153600 PowerTags (RT 153600)	**6AV6381-1BK06-2AX0**
• 262144 PowerTags (RT 262144)	**6AV6381-1BL06-2AX0**
Including 512 archive tags each	
Complete packages on CD-ROM	
Language versions: DE/EN/FR/IT/ES; with license for	
• 128 PowerTags (RC 128)	**6AV6381-1BM06-2AX0**
• 256 PowerTags (RC 256)	**6AV6381-1BN06-2AX0**
• 1024 PowerTags (RC 1024)	**6AV6381-1BP06-2AX0**
• 8192 PowerTags (RC 8192)	**6AV6381-1BS06-2AX0**
• 65536 PowerTags (RC 65536)	**6AV6381-1BQ06-2AX0**
• 102400 PowerTags (RC 102400)	**6AV6381-1BT06-2AX0**
• 153600 PowerTags (RC 153600)	**6AV6381-1BU06-2AX0**
• 262144 PowerTags (RC 262144)	**6AV6381-1BV06-2AX0**
Including 512 archive tags each	
SIMATIC WinCC system software V6.2 SP3 ASIA	
Runtime packages on CD-ROM	
Language versions: English/simplified and traditional Chinese/Korean/Taiwanese/Japanese; with license for	
• 128 PowerTags (RT 128)	**6AV6381-1BC06-2AV0**
• 256 PowerTags (RT 256)	**6AV6381-1BD06-2AV0**
• 1024 PowerTags (RT 1024)	**6AV6381-1BE06-2AV0**
• 8192 PowerTags (RT 8192)	**6AV6381-1BH06-2AV0**
• 65536 PowerTags (RT 65536)	**6AV6381-1BF06-2AV0**
Including 512 archive tags each	
Complete packages on CD-ROM	
Language versions: English/simplified and traditional Chinese/Korean/Taiwanese, Japanese; with license for	
• 128 PowerTags (RC 128)	**6AV6381-1BM06-2AV0**
• 256 PowerTags (RC 256)	**6AV6381-1BN06-2AV0**
• 1024 PowerTags (RC 1024)	**6AV6381-1BP06-2AV0**
• 8192 PowerTags (RC 8192)	**6AV6381-1BS06-2AV0**
• 65536 PowerTags (RC 65536)	**6AV6381-1BQ06-2AV0**
Including 512 archive tags each	

	Order No.
SIMATIC WinCC V6.2 Powerpacks	
For upgrading from:	
Runtime packages	
• 128 to 256 PowerTags	**6AV6371-1BD06-2AX0**
• 128 to 1024 PowerTags	**6AV6371-1BE06-2AX0**
• 128 to 8192 PowerTags	**6AV6371-1BK06-2AX0**
• 128 to 65536 PowerTags	**6AV6371-1BF06-2AX0**
• 256 to 1024 PowerTags	**6AV6371-1BG06-2AX0**
• 256 to 8192 PowerTags	**6AV6371-1BL06-2AX0**
• 256 to 65536 PowerTags	**6AV6371-1BH06-2AX0**
• 1024 to 8192 PowerTags	**6AV6371-1BM06-2AX0**
• 1024 to 65536 PowerTags	**6AV6371-1BJ06-2AX0**
• 8192 to 65536 PowerTags	**6AV6371-1BN06-2AX0**
Complete packages	
• 128 to 256 PowerTags	**6AV6371-1BD16-2AX0**
• 128 to 1024 PowerTags	**6AV6371-1BE16-2AX0**
• 128 to 8192 PowerTags	**6AV6371-1BK16-2AX0**
• 128 to 65536 PowerTags	**6AV6371-1BF16-2AX0**
• 256 to 1024 PowerTags	**6AV6371-1BG16-2AX0**
• 256 to 8192 PowerTags	**6AV6371-1BL16-2AX0**
• 256 to 65536 PowerTags	**6AV6371-1BH16-2AX0**
• 1024 to 8192 PowerTags	**6AV6371-1BM16-2AX0**
• 1024 to 65536 PowerTags	**6AV6371-1BJ16-2AX0**
• 8192 to 65536 PowerTags	**6AV6371-1BN16-2AX0**
SIMATIC WinCC V6.2 Archive	
• 1500 archives	**6AV6371-1DQ16-2AX0**
• 5000 archives	**6AV6371-1DQ16-2BX0**
• 10000 archives	**6AV6371-1DQ16-2CX0**
• 30000 archives	**6AV6371-1DQ16-2EX0**
• 80000 archives	**6AV6371-1DQ16-2GX0**
• 120000 archives	**6AV6371-1DQ16-2JX0**
SIMATIC WinCC V6.2 Archive Powerpacks	
For upgrading archiving from	
• 1500 to 5000 archive tags	**6AV6371-1DQ16-2AB0**
• 5000 to 10000 archive tags	**6AV6371-1DQ16-2BC0**
• 10000 to 30000 archive tags	**6AV6371-1DQ16-2CE0**
• 30000 to 80000 archive tags	**6AV6371-1DQ16-2EG0**
• 80000 to 120000 archive tags	**6AV6371-1DQ16-2GJ0**
SIMATIC WinCC V6.2 upgrade [1]	
For upgrading the RT version	
• from V5.x to V6.2 SP3	**6AV6381-1AA06-2AX4**
• from V6.x to V6.2 SP3	**6AV6381-1AA06-2AX3**
• from V5.x ASIA to V6.2 SP3 ASIA	**6AV6381-1AA06-2AV4**
• from V6.x ASIA to V6.2 SP3 ASIA	**6AV6381-1AA06-2AV3**
For upgrading the RC version	
• from V5.x to V6.2 SP3	**6AV6381-1AB06-2AX4**
• from V6.x to V6.2 SP3	**6AV6381-1AB06-2AX3**
• from V5.x ASIA to V6.2 SP3 ASIA	**6AV6381-1AB06-2AV4**
• from V6.x ASIA to V6.2 SP3 ASIA	**6AV6381-1AB06-2AV3**

[1] According to licensing provisions, 1 upgrade package must be ordered for each WinCC station.

4

Ordering data

	Order No.			Order No.

SIMATIC WinCC V7.2 communication
Communication via Industrial Ethernet

CP 1612 A2 — 6GK1161-2AA01
PCI card (32-bit) for connection of a programming device or PC to Industrial Ethernet (10/100/1000 Mbps) with RJ45 connection via SOFTNET S7 and SOFTNET PG

SOFTNET-IE S7 Version 8.2 SP1 [1]
Software for S7-compatible and S5-compatible communication incl. OPC server, PG/OP communication and NCM PC; up to 64 connections; single license for one installation of Runtime software, software and electronic manual on CD-ROM; license key on USB stick; Class A for CP 1612-A2 English/German
- Single license for 1 installation — 6GK1704-1CW08-2AA0
- Upgrade package for SIMATIC NET Edition 2006 or higher — 6GK1704-1CW00-3AE0
- Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005 — 6GK1704-1CW00-3AE1

SOFTNET-IE S7 Lean Version 8.2 SP1 (license included in scope of delivery of WinCC V7.2)
Software for S7-compatible and S5-compatible communication incl. OPC server, PG/OP communication and NCM PC; up to 8 connections; single license for one installation of Runtime software, software and electronic manual on CD-ROM; license key on USB stick; Class A for CP 1612-A2 English/German
- Single license for 1 installation — 6GK1704-1LW81-3AA0
- Upgrade package for SIMATIC NET Edition 2006 or higher — 6GK1704-1LW00-3AE0
- Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005 — 6GK1704-1LW00-3AE1

CP 1613 A2 — 6GK1161-3AA01
PCI card (32-bit) for connecting a PG/PC to Industrial Ethernet (communications software must be ordered separately)

CP 1623 — 6GK1162-3AA00
PCI Express X1 card (32-bit) for connection of PG/PC to Industrial Ethernet (communications software must be ordered separately)

CP 1628 — 6GK1162-8AA00
PCI Express X1 card (32-bit) for connection of PG/PC to Industrial Ethernet (communications software must be ordered separately)

HARDNET-IE S7 V8.2 SP1 [1]
Software for S7-compatible and S5-compatible communication incl. OPC server, PG/OP communication and NCM PC, single license for one installation of Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A for CP 1613-A2, CP 1623, CP 1628; English/German
- Single license for 1 installation — 6GK1716-1CB08-2AA0
- Upgrade package for SIMATIC NET Edition 2006 or higher — 6GK1716-1CB00-3AE0
- Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005 — 6GK1716-1CB00-3AE1

Communication via PROFIBUS

CP 5611 A2 — 6GK1561-1AA01
PCI card (32-bit) for connecting a PG/PC to PROFIBUS (communications software included in the WinCC basic package)

CP 5612 [2] — 6GK1561-2AA00
PCI card (32-bit) for connecting a PG/PC to PROFIBUS (communications software included in the WinCC basic package)

CP 5621 — 6GK1562-1AA00
PCI Express X1 card (32-bit) for connection of PG/PC to PROFIBUS (communications software included in WinCC basic package)

CP 5622 [2] — 6GK1562-2AA00
PCI Express X1 card (32-bit) for connecting a PG/PC to PROFIBUS (communications software included in WinCC basic package)

CP 5711 — 6GK1571-1AA00
USB adapter for connecting a PG/PC to PROFIBUS or MPI (communications software included in WinCC basic package)

CP 5512 — 6GK1551-2AA00
PCMCIA card (CARDBUS 32-bit) for the connection of a PG/notebook to PROFIBUS or MPI (communications software included in WinCC basic package)

CP 5613 A2 — 6GK1561-3AA01
PCI card (32-bit) for connecting a PC to PROFIBUS (communications software must be ordered separately)

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[1] According to licensing provisions, 1 upgrade package must be ordered for each WinCC station

[2] The Software Update Service is valid for 1 year. The contract is automatically extended by 1 more year unless canceled 3 months prior to expiration. According to licensing provisions, 1 Software Update Service must be ordered for each WinCC station.

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HMI Software
SCADA system SIMATIC WinCC

SIMATIC WinCC

Ordering data	Order No.
Communication via PROFIBUS (continued)	
CP 5614 A2 PCI card (32-bit) for connecting a PC to PROFIBUS (communications software must be ordered separately)	**6GK1561-4AA01**
CP 5623 PCI Express X1 card (32-bit) for connection of PG/PC to Industrial Ethernet (communications software must be ordered separately)	**6GK1562-3AA00**
HARDNET-PB S7 V8.2 SP1 [1] Software for S7 communication incl. PG/OP communication, FDL, OPC server, Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A for CP 5613-A2, CP 5614-A2, CP 5623 English/German	
• Single license for 1 installation	**6GK1713-5CB08-2AA0**
• Upgrade package for SIMATIC NET Edition 2006 or higher	**6GK1713-5CB00-3AE0**
• Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005	**6GK1713-5CB00-3AE1**
HARDNET-PB DP V8.2 SP1 [1] Software for DP protocol incl. PG/OP communication, FDL, DP OPC server, Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A, for CP 5613-A2, CP 5614-A2, CP 5623; English/German	
• Single license for 1 installation	**6GK1713-5DB08-2AA0**
• Upgrade package for SIMATIC NET Edition 2006 or higher	**6GK1713-5DB00-3AE0**
• Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005	**6GK1713-5DB00-3AE1**
FMS-5613 V7.1 SP6 **(Edition 2008+SP6)** [1] Software for FMS protocol incl. PG/OP communication, FDL, OPC server, Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A; for CP 5613-A2, CP 5614-A2, CP 5623; English/German	
• Single license for 1 installation	**6GK1713-5FB71-3AA0**
• Upgrade package for SIMATIC NET Edition 2006 or higher	**6GK1713-5FB00-3AE0**
• Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005	**6GK1713-5FB00-3AE1**

Ordering data	Order No.
SIMATIC WinCC V6.2 communication **Communication via Industrial Ethernet**	
CP 1612 A2 PCI card (32-bit) for connecting a PG/PC to Industrial Ethernet (SOFTNET-S7 must be ordered separately)	**6GK1161-2AA01**
SOFTNET-S7 V7.1 SP6 **(Edition 2008+SP6)** [1] Software for S7-compatible and S5-compatible communication incl. OPC server, PG/OP communication and NCM PC; up to 64 connections; single license for one installation of Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A, for CP 1612-A2, English/German	
• Single license for 1 installation	**6GK1704-1CW71-3AA0**
• Upgrade package for SIMATIC NET Edition 2007 Upgrade package for SIMATIC NET V6.0, V6.1, V6.2, and Edition 2005 [1]	**6GK1704-1CW00-3AE1**
SOFTNET-S7 Lean V7.1 SP6 **(Edition 2008+SP6)** [1] **(license included in scope of delivery of WinCC V6.2)** Software for S7-compatible and S5-compatible communication incl. OPC server, PG/OP communication and NCM PC; up to 8 connections; single license for one installation of Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A, for CP 1612-A2, English/German	
• Single license for 1 installation	**6GK1704-1LW71-3AA0**
• Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005 [1]	**6GK1704-1LW00-3AE1**
CP 1613 A2 PCI card (32-bit) for connecting a PG/PC to Industrial Ethernet (communications software must be ordered separately)	**6GK1161-3AA01**
S7-1613 V7.1 SP6 **(Edition 2008+SP6)** [1] Software for S7-compatible and S5-compatible communication incl. PG/OP communication, OPC server and NCM PC; single license for one installation of Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A for CP 1613-A2; English/German	
• Single license for 1 installation	**6GK1716-1CB71-3AA0**
• Upgrade package for SIMATIC NET V6.0, V6.1, V6.2 and Edition 2005 [1]	**6GK1716-1CB00-3AE1**

[1] According to licensing provisions, 1 upgrade package must be ordered for each WinCC station

4

Ordering data

Order No.		Order No.	

Communication via Industrial Ethernet

T7-1613 V7.1 SP6 (Edition 2008+SP6) [1]

Software for TF protocol, S5-compatible communication incl. OPC, PG/OP communication (S5/505 layer 4 communication with TCP/IP) single license for one installation of Runtime software, software and electronic manual on CD-ROM, license key on USB stick; Class A for CP 1613-A2 English/German

- Single license   **6GK1716-1TB71-3AA0**
- Upgrade package for SIMATIC NET Edition 2007 Upgrade package for SIMATIC NET V6.0, V6.1, V6.2, and Edition 2005 [1]   **6GK1716-1CB00-3AE1**

Communication via PROFIBUS

CP 5611 A2   **6GK1561-1AA01**

PCI card (32-bit) for connecting a PG/PC to PROFIBUS (communications software included in the WinCC basic package)

CP 5621   **6GK1562-1AA00**

PCI Express X1 card (32-bit) for connection of PG/PC to PROFIBUS (communications software included in WinCC basic package)

CP 5611 MPI   **6GK1561-1AM01**

Comprising CP 5611 A2 and MPI cable, 5 m

CP 5621 MPI   **6GK1562-1AM00**

Comprising CP 5621 (32-bit) and MPI cable, 5 m

CP 5512   **6GK1551-2AA00**

PCMCIA card (CARDBUS 32-bit) for the connection of a PG/notebook to PROFIBUS or MPI (communications software included in WinCC basic package)

CP 5613 A2   **6GK1561-3AA01**

PCI card (32-bit) for connecting a PC to PROFIBUS (communications software must be ordered separately)

CP 5614-A2   **6GK1561-4AA01**

PCI Card (32-Bit) for connecting a PC to PROFIBUS (communications software must be ordered separately)

S7-5613 V7.1 SP6 (Edition 2008 SP6)

Software for S7 communication incl. PG/OP communication, FDL, OPC server; for Windows XP Professional/2003 Server/2000 Professional/Server for CP 5613/CP 5614; English/German

- Single license for 1 installation   **6GK1713-5CB71-3AA0**
- Upgrade package for SIMATIC NET Edition 2007 Upgrade package for SIMATIC NET V6.0, V6.1, V6.2, and Edition 2005 [1]   **6GK1713-5CB00-3AE1**

DP-5613 V7.1 SP6 (Edition 2008 + SP6)

Software for DP protocol incl. PG/OP communication, FDL, OPC server, Runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for 32-bit: Windows XP Professional, Windows 2003 Server, Windows VISTA Ultimate/Business; for CP 5613 A2; English/German

- Single license for 1 installation   **6GK1713-5DB71-3AA0**
- Upgrade package for SIMATIC NET Edition 2007 Upgrade package for SIMATIC NET V6.0, V6.1, V6.2, and Edition 2005 [1]   **6GK1713-5DB00-3AE1**

FMS-5613 V7.1 SP6 (Edition 2008 + SP6)

Software for FMS protocol incl. PG/OP communication, FDL, FMS-OPC server, for Windows XP Professional/2003 Server/2000 Professional/Server for CP 5613/CP 5614; English/German

- Single license for 1 installation   **6GK1713-5FB71-3AA0**
- Upgrade package for SIMATIC NET Edition 2007 Upgrade package for SIMATIC NET V6.0, V6.1, V6.2, and Edition 2005 [1]   **6GK1713-5FB00-3AE1**

[1] The SIMATIC NET PC software delivered with SIMATIC WinCC V7.2 must always be used. The scope of supply for WinCC V7.2 includes the SIMATIC NET PC software V8.2 SP1 / supported operating systems: 32/64-bit Windows 7 Professional, Ultimate, 64-bit Windows Server 2008 R2 and SIMATIC NET PC Software V7.1 SP6 (Edition 2008+SP6) / supported operating systems: 32-bit Windows XP Professional, Windows Vista Professional, Ultimate, Windows Server 2003, Windows Server 2008 Standard.
Only the license is to be used from the scope of supply of the above-listed SIMATIC NET PC software products. The licenses supplied with SIMATIC NET V8.2 SP1 are valid for all older versions up to and including Edition 2006.

Hardware for process control functions

DCF-77 receiver
for time synchronization

- DCF77 (Europe)   **2XV9450-1AR14**

Note

For further information on control technology options see Catalog ST PCS7.

4

HMI Software
SCADA system SIMATIC WinCC

SIMATIC WinCC

■ **More information**

WinCC language versions

SIMATIC WinCC is also offered in simplified Chinese, traditional Chinese, Korean and Japanese especially for Asian markets. These WinCC versions are intended for machine manufacturers, plant constructors and exporters who supply the regions of China, Taiwan, Korea and Japan.

WinCC ASIA includes all familiar WinCC functions and offers in addition the configuration user interface in the respective national language and English. The online help is available in simplified Chinese, traditional Chinese, Korean, Japanese and English. A Chinese, Korean, Japanese or multilingual Windows operating system is required for operation.

WinCC ASIA is delivered on a separate DVD which contains all of the above mentioned language versions. The corresponding documentation can be obtained from the national subsidiaries in China, Korea, Taiwan and Japan.

The runtime licenses are language-neutral. The English handling program (Automation License Manager – ALM) is executable under the Chinese, Korean and Japanese Windows versions. In order to use the Asian languages in WinCC, an Asia hardware dongle is required.

Additional information is available on the Internet at:
http://www.siemens.com/wincc

Separate configurators are available for PC hardware:
- SIMATIC IPC547C, SIMATIC Rack PC 547B
- SIMATIC IPC647C, SIMATIC Rack PC 647B
- SIMATIC IPC847C, SIMATIC Rack PC 847B
- SIMATIC IPC427C
- SIMATIC IPC627C, SIMATIC Box PC 627B
- SIMATIC Box PC 827B
- SIMATIC HMI IPC577C, SIMATIC Panel PC 577B
- SIMATIC HMI IPC677C, SIMATIC Panel PC 677B

4

SIMATIC WinCC options

■ **Overview**
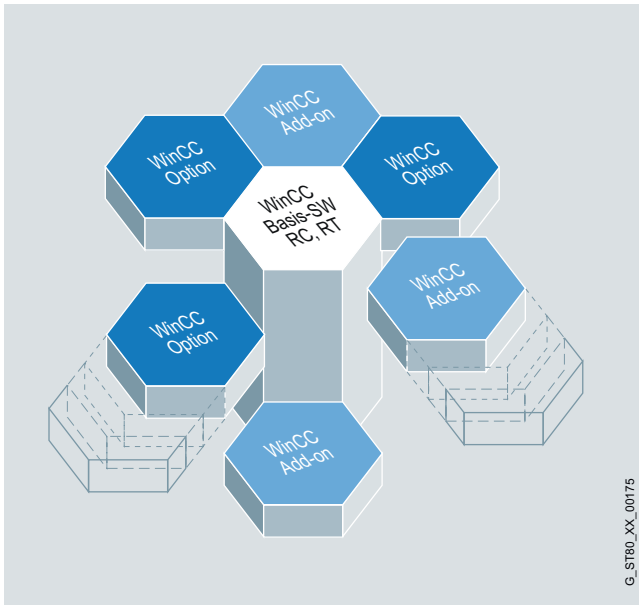
The universal WinCC basic software is the basis for modular expansions. These functional expansions can be obtained in the form of WinCC options and as WinCC Premium add-ons.

WinCC options are created by WinCC Development and are Siemens Industry Automation products. You can obtain support from our Advisory Services and via the central hotline.

Options for scalable plant configurations

- WinCC/Server
  For configuring a powerful client/server system
- WinCC/Web Navigator
  For controlling and monitoring plants via the Internet, in-house intranet or LAN
- WinCC/TeleControl
  For connecting to outlying stations (remote terminal units = RTUs) via telecontrol protocols in a WinCC SCADA system.
- SIMATIC ProcessHistorian
  Central scalable long-term archive for the whole plant

Options for increasing the availability

- WinCC/Redundancy
  For increasing system availability through redundancy
- SIMATIC Maintenance Station
  For system-integrated diagnostics and plant asset management
- WinCC/ProAgent
  For reliable process diagnostics

Options for IT and Business Integration – Plant Intelligence

- SIMATIC InformationServer
  Web-based, integrated reporting from production to management, based on archived data
- WinCC/DataMonitor
  For displaying and evaluating current process states and historical data on office PCs with standard tools
- WinCC/DowntimeMonitor
  For detecting and analyzing downtimes for machines and plants
- WinCC/Connectivity Pack
  Access to WinCC archives via OPC HDA, OPC A&E, OPC XML Server and WinCC OLE-DB /OLE-DB
- WinCC/Connectivity Station
  Gateway to WinCC server data over OPC HDA, OPC A&E, OPC XML server and WinCC OLE-DB /OLE-DB from independent computers
- WinCC/IndustrialDataBridge
  Configurable connection to databases and IT systems

Options for SCADA expansions

- WinCC/User Archives
  For managing data records in user archives
- WinCC/Calendar Scheduler
  Calendar-based planning of events
- WinCC/Event Notifier
  For sending of notifications depending on specific events in the WinCC message system

Options for sector-specific expansions

- WinCC/ChangeControl
  - Change and version management
  - Generation of audit trails for engineering
- WinCC/Audit
  - Change management
  - Generation of audit trails for engineering and runtime
- SIMATIC Logon
  - Central management of WinCC users, plant-wide (to CFR 21 Part 11)

Options for individual system expansions

- WinCC/IndustrialX [1]
  For creating customized WinCC ActiveX objects in a VB development environment
- WinCC/ODK (Open Development Kit)
  For the use of open programming interfaces

[1] For WinCC V7.2, the option WinCC/IndustrialX is part of the option WinCC/ODK.

■ **More information**

WinCC options

http://www.siemens.com/wincc/options

HMI Software
SIMATIC WinCC options

SIMATIC BATCH for WinCC

■ Overview

- WinCC in connection with the SIMATIC BATCH product range offers a solution for the implementation of batch processes in accordance with ISA S88.
- SIMATIC BATCH for WinCC is of particular interest where different PLCs such as S7-400/300, S5 or non-Siemens PLCs are to be used in a BATCH system.
- SIMATIC BATCH for WinCC is offered as a bundle that includes the SIMATIC BATCH components as well as the WinCC components.
- SIMATIC BATCH for WinCC contains the software for SIMATIC BATCH including options, as well as for SIMATIC WinCC including options. These products are released for any combinations.
  - SIMATIC BATCH for WinCC includes the licenses SIMATIC BATCH Server (10 units [1]), SIMATIC BATCH CC, and SIMATIC BATCH Recipe.
  - All other SIMATIC BATCH and SIMATIC WinCC products require the purchase of the relevant license or licenses.

[1] Units are the number of subsystems that can be operated with this license.

Current versions:

- SIMATIC BATCH for WinCC V7.1 SP1 (only runs on Windows XP und Windows 2003 Server operating systems)
  - WinCC V7.0 SP3
  - SIMATIC BATCH V7.1 SP1

Configuration
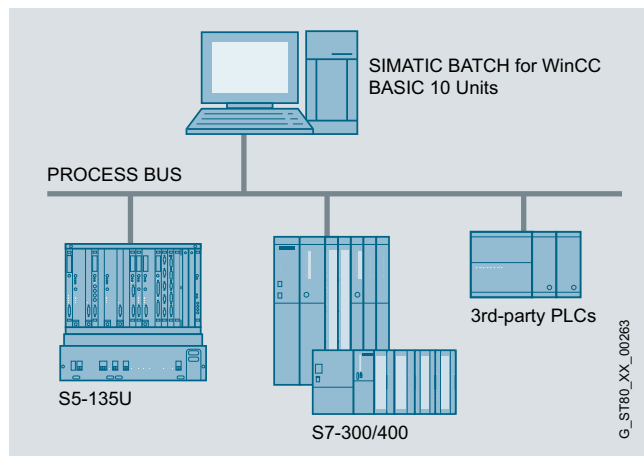
SIMATIC BATCH for WinCC

■ Benefits

- SIMATIC BATCH for WinCC supports the user in the implementation of batch processes in accordance with ISA S88
- Modular architecture with flexible scalability and optimal adaptation to plant size and individual requirements, especially with regard to the use of PLCs such as SIMATIC S7-400/300, SIMATIC S5 and non-Siemens devices
- High availability via redundant system configurations provides protection against loss of batch data
- Cross-subsystem recipes with significant simplification of recipe management
- Hierarchical recipes in accordance with ISA S88.01 for the creation of recipes oriented toward process engineering
- Saving, archiving and comprehensive reporting of batch data
- Formula support
- Validation in accordance with 21 CFR Part 11 is significantly simplified by functions such as Audit Trail (change log), versioning of recipes, recipe operations and formulas, electronic signature and access protection.

■ Application

SIMATIC BATCH for WinCC has been designed for:
- Batch processes in the WinCC environment in accordance with ISA S88
- Users of S7-300, S7-400, S5 or non-Siemens controllers
- Users of STEP5/STEP7

■ Design

SIMATIC BATCH for WinCC ships with the following 3 software components and licenses:
- SIMATIC BATCH Server for 10 units
- SIMATIC BATCH Recipe system (Floating License)
- SIMATIC BATCH CC (Floating License)

The following SIMATIC BATCH options can be used to expand or configure a plant or the relevant licenses can be purchased:
- SIMATIC BATCH Recipe system (Floating License)
- SIMATIC BATCH Planning (Floating License)
- SIMATIC BATCH CC (Floating License)
- SIMATIC BATCH Library
- SIMATIC BATCH Hierarchical Recipe
- SIMATIC BATCH Formula
- SIMATIC BATCH Powerpacks (20, 40, 100, unlimited)

Design (continued)

The following basic products and SIMATIC WinCC options can be used to expand or configure a plant or the relevant licenses can be purchased.

- SIMATIC WinCC RT/RC (incl. Powerpacks)
- SIMATIC WinCC/Server
- SIMATIC WinCC/Redundancy
- SIMATIC WinCC/Archives (incl. Powerpacks)
- SIMATIC Logon

All previously listed software components including options of SIMATIC BATCH and SIMATIC WinCC are supplied with the product SIMATIC BATCH for WinCC. In addition, supplementary components for configuring the interfaces between WinCC and SIMATIC BATCH are included in the basic package.

The use and compatibility of WinCC and SIMATIC BATCH is only guaranteed for the software versions that come with SIMATIC BATCH for WinCC.

Function

The functions of SIMATIC BATCH for WinCC are based on the SIMATIC BATCH range of products. SIMATIC BATCH for WinCC includes the following licenses or functions:

- SIMATIC BATCH Server for 10 units
- SIMATIC BATCH CC (BATCH Control Center)
- SIMATIC BATCH Recipe System (recipe editor)

It can be used to run a SIMATIC BATCH project with 10 subsystems on a single-user station or a client/server combination (Batch Client and Batch Server).

The capacity of the Server Basic Packages with 10 units can be expanded to 20, 40, 100 or unlimited units using SIMATIC BATCH Powerpacks.

SIMATIC BATCH CC offers powerful functions for the following tasks:

- Reading in and updating the plant data of the basic automation
- Defining user privileges for all functions, for clients or subsystems
- Definition of material names and codes
- Managing master recipes and starting the recipe editor
- Management of libraries with recipe elements (library operations)
- Editing of formula categories and management of associated formulas (parameter sets)
- Creation of batches with master recipes
- Starting of batch processing and controlling of batches
- Monitoring and diagnostics of batch processing
- Recording and archiving of recipes and batch data

Use of the "SIMATIC BATCH Hierarchical Recipe" license permits the creation of hierarchical recipes in accordance with ISA-88

The hierarchical recipe structure is mapped on the plant module as follows:

- Recipe procedure for controlling the process or the production in a plant
- Partial recipe procedure for controlling a process step in a plant unit
- Recipe operation/function to implement the process engineering task/function in a technical facility

SIMATIC BATCH **Separation, Procedures and Formulas** offers powerful functions for the following tasks:
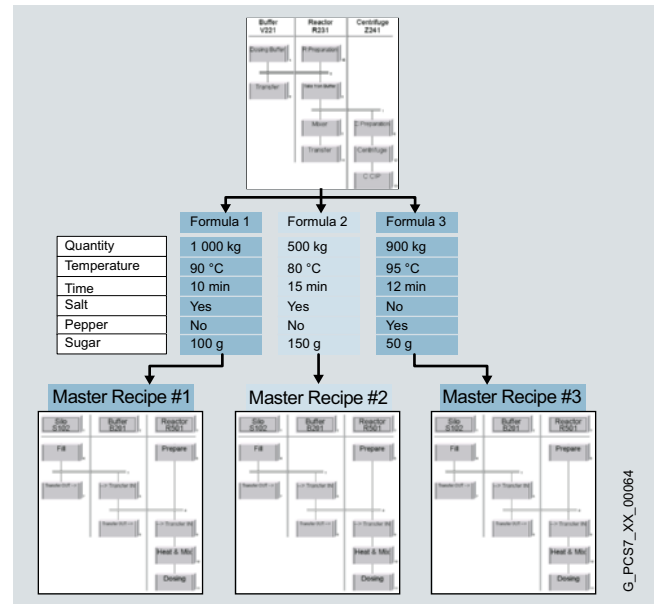
The flexibility achieved by recipes which are independent of plant units can be increased even further if the procedure and parameter sets (formulas) are separated from one another.

Various master recipes can be created by linking several formulas using a recipe procedure. This enables central modification of procedures. The formula structure is determined by the formula category defined by the user.

Compatibility

In respect of compatibility, please note that only the SIMATIC WinCC and SIMATIC BATCH versions included in the product package are compatible with each other. Only predecessor products of the product bundle SIMATIC BATCH for WinCC are upward compatible, not single components of the product range SIMATIC WinCC and SIMATIC BATCH.

Integration

A detailed description of how to integrate SIMATIC Batch in WinCC appears in the interface description "SIMATIC BATCH Configuration Guide".

Ordering data

	Order No.
SIMATIC BATCH for WinCC	**6ES7657-1SA17-0YA0**
Software bundle for the creation of recipes and control of batch processes in accordance with ISA S88 based on SIMATIC BATCH.	
• SIMATIC BATCH Server 10 units	
• SIMATIC BATCH Recipe system (Floating License)	
• SIMATIC BATCH CC (Floating License)	

4

HMI Software
SIMATIC WinCC options

SIMATIC Information Server

■ **Overview**
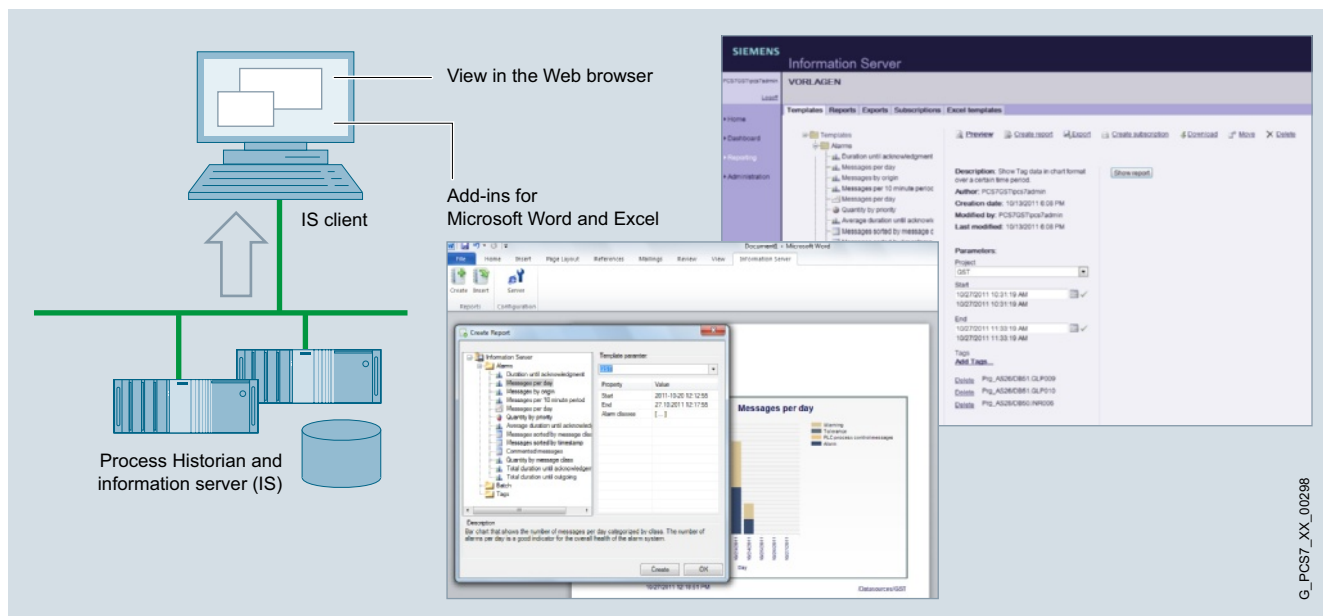
The Information Server is the reporting system for WinCC and the Process Historian. Based on Microsoft Reporting Services, the historical data (tags and alarms) are made available via a web client.

The Information Server Client does not need a client installation. Using a pure web client, it offers functionality for administration, configuration, and visualization of reports. Add-ins for Microsoft Office applications such as Word and Excel offer additional ways to access the WinCC and Process Historian database.

Reports can be created automatically cyclically and sent by email. The Information Server can be used on a WinCC station, on a Process Historian, or independently.

The basic package contains licenses for three clients and one data source. The available licenses are additive and refer to simultaneous access to the client computer. Pre-created report, such as for trends and alarms, are contained in the standard package.

■ **Benefits**

- Central, web-based report system as interface for all corporate areas up to the management level.
- Simple handling through use of standard tools such as Microsoft Word and Excel
- Provision of freely configurable reports via the web
- Automatic sending of reports via email
- Import of data from any number of WinCC applications
- Transparent access to WinCC tag and alarm logs as well as SIMATIC Process Historian data

Highlights:

- Frequently used report templates for process values, messages, and batches
- Open reporting system for creating any number of new report templates
- Storage of configured (parameterized) report templates for faster access
- Report export in common document formats
- Support of subscriptions for cyclic report generation including email service
- Creation and storage of role-based dashboards
- Role management for Windows users; supports workgroups and Active Directory; user rights can be assigned for specific projects
- Generation of reports and inserting as graphics in Microsoft Office Word documents
- Creation of Microsoft Excel reports for historical process values and messages as well as storage of the Excel report templates on the Information
- Server Support for subscriptions to Excel report templates

■ **Ordering data**

	Order No.
SIMATIC Information Server 2013 "Basic Package" • Information server • Information Server - Client access (3) • Information Server - Datasource access (1)	**6AV6361-2AA01-3AA0**
SIMATIC Information Server	
• 1 Client access	**6AV6361-2BD01-3BB0**
• 3 Client access	**6AV6361-2BE01-3BB0**
• 5 Client access	**6AV6361-2BF01-3BB0**
• 10 Client access	**6AV6361-2BG01-3BB0**
• 1 Datasource access	**6AV6361-2CD01-3BB0**
• 3 Datasource access	**6AV6361-2CE01-3BB0**

4

G_PCS7_XX_00298

Overview
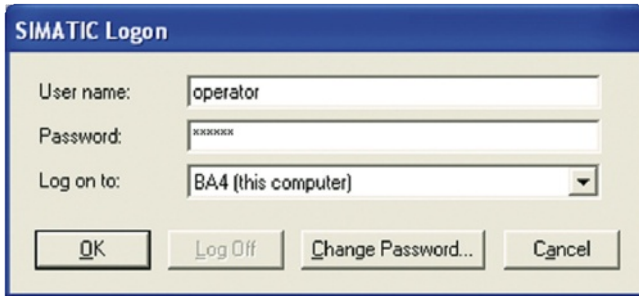
- **SIMATIC Logon (SL)** for WinCC is a software option package supporting the central administration of all WinCC users on a plant-wide basis. The central user management with SL uses the Windows mechanisms and is to be installed on all partici-pating WinCC stations. The user management actions such as logging in and out are automatically supplied in the audit trail of WinCC/Audit and WinCC/ChangeControl by SL.
- The WinCC/Audit or WinCC/ChangeControl and SIMATIC Logon options support users in respect of plant validation and meet the requirements of FDA CFR 21 Part 11. A declaration of conformity (White Paper) offers proof of this.

Benefits

- Central, system-wide user management
- Conforms with the requirements of the Food and Drug Admin-istration (FDA) for the pharmaceuticals and food processing industry

Design

The SIMATIC Logon Service can be used for the central user management of a number of WinCC stations. Operation in a Windows Workgroup or even in a domain is possible.

Function

SIMATIC Logon

Users receive a unique user ID, user name and password. This information is stored encrypted at a central point (for SIMATIC Logon in the Windows user management). Functions such as changing the password, automatic logoff after a predefined time and lockout after several incorrect entries of a password ensure maximum security of operation.

In the case of the SIMATIC Logon, user administration is integrated into the security system and user administration of MS Windows.

To meet in particular the Food and Drug Administration (FDA) requirements for the pharmaceuticals and food processing industry, all user and administrator actions, such as log in, log out, password changes, incorrect password inputs, and creating and deleting users, are recorded with timestamp in a secure database or are available in the audit trail of WinCC/Change Control or WinCC/Audit.

In addition, SIMATIC Logon allows setting up new users online, plant-wide and across applications, or blocking existing users. SIMATIC Logon also supports electronic signature.

Ordering data	Order No.
SIMATIC Logon V1.4 SP1	**6ES7658-7BX41-2YA0**
Central user management for WinCC V6.2 and WinCC V7.0 Runtime license for an operator station [1]	
SIMATIC Logon V1.5 upgrade	**6ES7658-7BX51-0YA0**
Single License, 7 languages (De, En, Fr, Es, Jap, Chin)	

[1] SIMATIC Logon included in scope of supply of WinCC

More information

Information on FDA can be found in a White Paper: Declaration of conformity of SIMATIC WinCC for FDA21 CFR Part 11.

http://www.siemens.com/automation/hmi/html_76/products/ software/wincc/fda01.htm

4

HMI Software
SIMATIC WinCC options

SIMATIC Maintenance Station

■ Overview
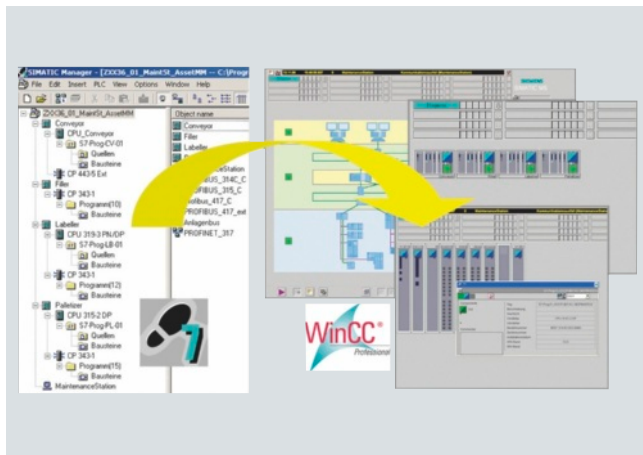
System-integrated plant asset management system

- Automatic generation of a maintenance view in WinCC from the STEP 7 hardware configuration
- Plant-wide visualization of all automation components from the management level to the field level in ready linked, hierarchically arranged WinCC displays
- Mapping of central and distributed SIMATIC S7 components, PROFIBUS and PROFINET networks as well as associated bus nodes
- Ethernet network components and industrial PCs can be integrated through SIMATIC NET SNMP OPC Server
- Display of device status with group status generation in overview and detail displays
- The device statuses "Maintenance required" and "Maintenance request" are supported for status-based maintenance
- Provision of uniform faceplates showing detailed information for all components displayed
- Display of the device identification data (electronic rating plate)
- Integrated display of the status of the request

■ Benefits

- Reducing down times:
  - Problems in the plant are detected sooner due to the uniform presentation and clear overview of all information that is important for maintenance.
- Avoiding downtimes:
  - Support of condition-based maintenance.
- Reduced maintenance costs:
  - Optimization of the flow of information between production and maintenance by submitting maintenance requests and presenting the status of requests.
- Transparency and traceability:
  - All procedures are based on messages and can therefore be archived and traced.
  - A comprehensive database is generated that can be analyzed with WinCC functions or external tools.

- Scalability:
  - Support of WinCC single-user stations and client/server configurations.
  - The SIMATIC Maintenance Station can be added to an existing WinCC project.
- Consistency:
  - The maintenance view is generated from the control project and is consistent with it.
- Flexibility in selection of devices:
  - Use of the PROFIBUS and PROFINET standards for device interfacing.
  - An additional proxy concept allows devices to be displayed that are not included in the STEP 7 hardware configuration or that do not support the standard diagnostics of PROFIBUS/PROFINET.

■ Application

The SIMATIC Maintenance Station is a tool for the diagnosis and maintenance of machines and plants. This is an option package for STEP 7 V5.4 and WinCC V6.2 or V7.0 that generates a WinCC maintenance view for a STEP 7 project/multiproject.

■ Design

The SIMATIC Maintenance Station is available in various different packages:

- Basic package:
  Contains all the tools needed to configure a Maintenance Station and a license for the display of 100 devices.
- Powerpacks:
  For larger quantities, powerpacks are available with licenses for 100, 500 or 1000 devices. These can be added to the existing licenses and can be combined as required.

In this context, devices can be:

- AS systems
- Distributed devices (PROFIBUS / PROFINET)
- PCs
- Network components
- Asset proxies

Requirements for configuring a SIMATIC Maintenance Station

- STEP 7 license (V5.4 upwards)
- WinCC RC license (V7.0 upwards)
- The SIMATIC NET licenses required for the plant configuration

Requirements for operation of a SIMATIC Maintenance Station

- The WinCC licenses (V7.0 upwards) complying with the plant configuration

Function

Hierarchic visualization of plant components in WinCC

- Generation of a WinCC picture tree for hierarchic display of the plant components.
- Automatic creation and linking of displays, equipment symbols, status indicators, faceplates and the required variables.
- Presentation of the detailed data in faceplates with selectable views.
- Easy navigation in the plant using the WinCC Picture Tree Manager.
- Generated pictures can be enhanced using the WinCC Graphic Designer.
- Switchover between a WinCC SCADA project and the picture tree of the SIMATIC Maintenance Station can be configured using standard WinCC functions.

Display of the current status of the plant and its components

- Clearly understandable status displays through the use of uniform symbols.
- Display of no-fault status, fault, maintenance requirement and maintenance request.
- Display of status of request for submitted repair requests.
- Display of order status.
- Display of the alarm status of the components.

Display of the identification data of the plant components

- Display of the identification data available for a device in the faceplate for the device.
- Automatic loading of the data available in the configuration into the maintenance station.
- Reading of the "Identification & Maintenance functions (I&M[1])" in accordance with the PROFIBUS International specification.
- Export[2] of I&M data for all devices in the form of an XML file.

Displaying alarms

- Loading of system error messages from STEP 7. STEP 7 provides the messages in 5 languages[3], translation into additional languages is possible in STEP 7.
- Display of the most recent message in a message line.
- Presentation of the active/archived messages of the selected device in the faceplate.

Calling the STEP 7 hardware configuration

- The STEP 7 hardware configuration can be opened for a selected device using a button in the faceplate. STEP 7 and the project must be installed on the maintenance station for this purpose.

[1] The Maintenance Station 2007 supports reading of I&M data for PROFIBUS devices with C1 channel access.

[2] The I&M data loaded from the configuration are exported.

[3] For Siemens components that are included in the STEP 7 hardware catalog.
In the case of components that are integrated in STEP 7 using GSD files, the GSD files must support the relevant languages.

Technical specifications

Hardware requirements

System	Clock frequency	Main memory	Free hard disk space
Engineering station	2.8 GHz	1 GB	15 GB
Maintenance Station Stand-alone / WinCC-Station "Single-user Workstation"	2.8 GHz	1 GB	15 GB
Maintenance Station Server / WinCC Server	2.8 GHz	1 GB	15 GB
Maintenance Station Client / WinCC Client	2.8 GHz	512 MB	3 GB

Software requirements

System	Operating system
Engineering station "ES"	Windows XP Professional SP3 Windows Server 2003 (R2) SP2 Windows Server 2008 R2 SP1 MS Windows 7 SP1. Supported versions: Ultimate and Professional
Maintenance Station Stand-alone / WinCC-Station "Single-user Workstation"	Windows XP Professional SP3 Windows Server 2003 (R2) SP2 Windows Server 2008 R2 SP1 MS Windows 7 SP1. Supported versions: Ultimate and Professional
ES with Maintenance Station Stand-alone	Windows XP Professional SP3 Windows Server 2003 (R2) SP2 Windows Server 2008 R2 SP1 Windows 7 SP1. Supported versions: Ultimate and Professional
Maintenance Station Server / WinCC Server	Windows Server 2003 (R2) SP2 Windows Server 2008 SP2 Windows Server 2008 R2 SP1
Maintenance Station Client / WinCC Client	Windows XP Professional SP3 Windows Server 2003 (R2) SP2 Windows Server 2008 SP2 Windows Server 2008 R2 SP1 Windows 7 SP1. Supported versions: Ultimate and Professional

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HMI Software
SIMATIC WinCC options

SIMATIC Maintenance Station

■ Technical specifications (continued)

Requirements for the integration of devices

Type	Integration	Comment
SIMATIC S7 controllers / I/O		
• S7-300 [1]	Yes	
• S7-400	Yes	
• WinAC	Yes	
Distributed devices		
• ET 200	Yes	PROFIBUS DP and PROFINET IO according to STEP 7 hardware catalog
• PROFIBUS standard slaves	Yes	Integration using a GSD file
• PROFINET standard devices	Yes	Integration using a GSD file
Network components		
Ethernet network components	Yes	SIMATIC NET SNMP OPC Server and MIB also required
PROFINET network components	Yes	
PROFIBUS diagnostic repeater	Yes	
Personal Computer		
PC/Industrial PC	Yes	SIMATIC NET SNMP OPC Server also required
Drives		
Drives with PROFIBUS connection	Yes	For integrating devices designed to the PROFIDRIVE profile, Drive ES SIMATIC (V5.4 SP1 or higher) is required
Drives with PROFINET connection	Yes	For integrating devices designed to the PROFIDRIVE profile, Drive ES SIMATIC (V5.4 SP1 or higher) is required
Accessory devices		
Devices not configured in STEP 7 Hardware Config	Yes	Integrated via function block (asset proxy)

[1] With S7-300, PROFIBUS/PROFINET systems are supported if they are connected to the internal CPU interfaces

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■ Ordering data | Order No.

SIMATIC Maintenance Station 2009

Can be used with STEP 7 V5.4 or higher and WinCC V7
- Basic package with engineering software (Floating License) and Runtime License for 100 devices

  6ES7840-0WD01-0YA0
- Powerpack 100 Runtime License for 100 additional devices

  6ES7840-0WD11-0YD0
- Powerpack 500 Runtime License for 500 additional devices

  6ES7840-0WD21-0YD0
- Powerpack 1000 Runtime License for 1000 additional devices

  6ES7840-0WD31-0YD0
- Basic demo package 2009

  6ES7840-0WD01-0YA7
- Upgrade from SIMATIC Maintenance Station 2007 to SIMATIC Maintenance Station 2009

  6ES7840-0WD01-0YE0

4

■ Overview
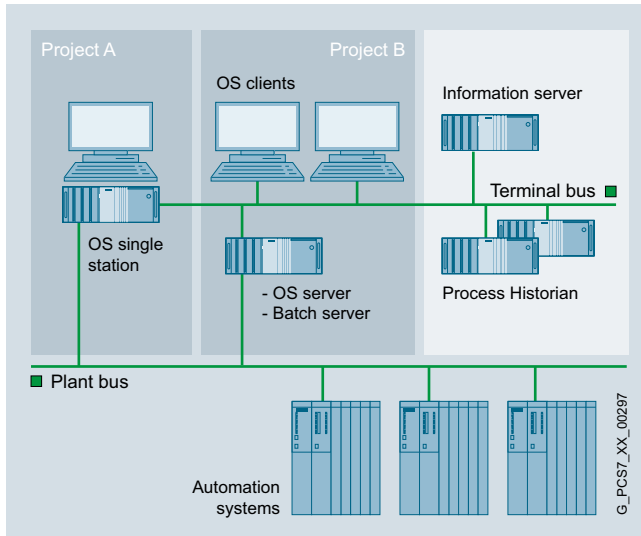
The Process Historian is a high-performance tong-term archiving server solution that stores WinCC process values and messages in a central database. The system offers full scalability for performance and scope: It records and saves data from one or several WinCC and PCS 7 projects. The number of connected single stations, servers, or redundant server pairs is unrestricted. SIMATIC Process Historian is designed for use throughout your plant, below the corporate management level (ERP, MES).

Process Historian is the basis for the Information Server reporting system, which accesses the central Process Historian database and ensures clear, user-friendly data visualization on WinCC stations and office PCs.

The central Process Historian database provides access to real-time data throughout the plant. This data is the key to sustainable plant optimization.

Because this is a completely integratable archive system, the engineering can also be performed without additional effort. SIMATIC Process Historian uses the integrated relational database Microsoft® SQL Server.

No complex reconfiguration is needed because the archive system is integrated in WinCC. Time or event-driven archiving of selected process values or messages in the WinCC long-term archive is possible.

■ Benefits

- Fully integrated long-term archive solution for large volumes of data
- Central, plant-wide long-term archive as company-wide information hub
- Process data and messages can be archived from any number of lower-level WinCC systems
- Plant expansions without interrupting the production process
- High availability in redundant mode
- High degree of security due to integrated backup system
- Database for analyses with the goal of optimizing the plant and thus the productivity

■ Function

- Real-time data storage of the WinCC archive data (process values and messages) from any number of WinCC stations
- Visualization of the archive data on WinCC clients or WinCC single stations either directly or using the SIMATIC Information Server. Process Historian configuration tool for fast, simple engineering
- The redundant Process Historian is based on Microsoft SQL Server Mirroring (third system for monitoring the availability of redundancy).
- The database and segmenting are set up in the initial configuration.
- For archiving to the PH, the PH Ready component is installed on the WinCC server
- The PH automatically detects all connected WinCC server projects (via the PH Ready component)
- The "Process Historian Management" dashboard for diagnostics, displaying data sources, changing the database segmentation

Ordering data	Order No.
SIMATIC Process Historian Server 2013 Single License	**6AV6361-1AA01-3AA0**
SIMATIC Process Historian Server 2013 Single License (Redundancy Complete) • 2x Process Historian Server • 2x Process Historian Server - Redundancy	**6AV6361-1BA01-3AA0**
SIMATIC Process Historian 2013 Single License Redundancy	**6AV6361-1CA01-3AA0**
Upgrades	
Upgrade from CAS (Central Archive Server) V7.0 SP3 to Process Historian 2013	**6AV6361-1AA01-3AE0**

4

HMI Software
SIMATIC WinCC options

WinCC/Calendar Scheduler

Overview
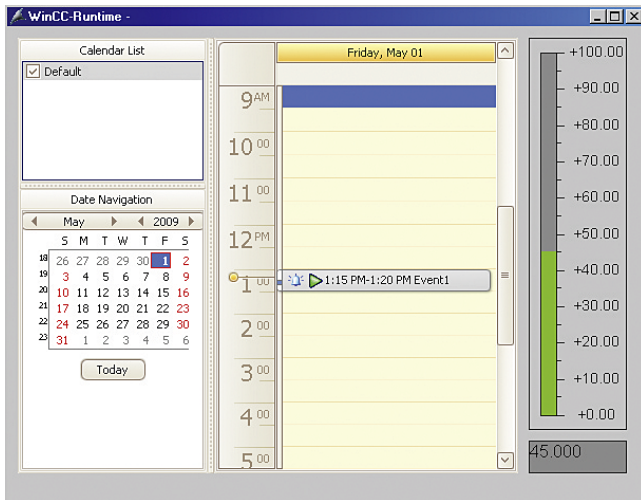
- Option for SIMATIC WinCC for managing events in a calendar.
- Setting WinCC variables or starting global scripts at defined times.
- A license is only necessary on the server (or single user system).

Benefits

- Simple operation, configuration and planning of events thanks to handling in the style of Microsoft Office Calendar
- Simple configuration of the actions by parameterization (execution of WinCC scripts or writing of WinCC tags at certain times)
- Configuration of recurring events taking account of configurable public holidays, vacation periods, and maintenance periods
- Secure operation of the plant taking account of different authentication levels
- Clear representation of events at runtime by means of Calendar Runtime Control
- Flexible use in all typical WinCC plant configurations, client/server, redundant systems, WebNavigator

Function

With the WinCC Calendar Scheduler, events and their associated actions can be configured in a user-friendly and clear way in an editor in WinCC Explorer.

The events are represented in a calendar. The period represented can be freely selected. Recurring events can be defined as serial events with any desired exceptions.

The events are displayed in a .Net control. The Calendar Scheduler is easy and intuitive to operate and supports drag & drop during configuration and runtime.

Ordering data

	Order No.
WinCC/Calendar Scheduler	
• for WinCC V7.2	**6AV6372-1DC07-2AX0**
• for WinCC V7.0 SP3	**6AV6372-1DC07-0AX0**

4

WinCC/Central Archive Server (CAS)

Overview

Central data management, reliable, high-performance archiving and central backup mechanisms form the basis of a Process Historian solution: Integration in the SCADA world, data interfaces for access to archived data and analysis functions are the component parts.

The option CAS was designed for this purpose and is used to export the archived data of all servers in the system to a computer and manage it. Integration of CAS in the WinCC world means that the data remains available for the WinCC clients as well as for the WinCC standard interfaces.

WinCC/CAS contains all licenses for the central archive server including 1500 archive tags. The number of archive tags can be increased to 120000 using Powerpacks or further WinCC archives.

Benefits

- Central data management of all archived alarms and process values
- Integrated back-up system for the archive data
- Transparent access to the data from all WinCC clients and over the open interfaces
- Integrated Web viewer for analyzing data

Function

Both the process value archive and alarm log are created on the separate WinCC servers and transferred to CAS when individual database segments have been closed.

With "Store&Forward", when the network is interrupted between the WinCC server and CAS, data will be reliably transferred as soon as the network is operating again.

Data access is transparent for display and analysis and is still possible through the standard WinCC clients. For the clients, it is of no consequence whether the data are on the WinCC server or already on CAS. Data saved in CAS can also be viewed using the Web viewer included in the package.

The data of the distributed WinCC system can also be accessed through the familiar interfaces (OPC DA, OPC A&E, OPC HDA and Ole-DB) with the help of the Connectivity Pack or the Connectivity Station. In this manner, the data saved in CAS can be efficiently transferred to higher-level systems or used for the purposes of analysis.

Ordering data

	Order No.
WinCC/CAS V7.0 SP3 basic packages	
• WinCC/CAS V7.0 SP3	**6AV6371-1DQ17-0XX0**
• WinCC/CAS V7.0 SP3 ASIA	**6AV6371-1DQ17-0XV0**
WinCC/CAS upgrade	
• V6.2 to V7.0 SP3	**6AV6371-1DQ17-0XX3**
• V6.2 ASIA to V7.0 SP3 ASIA	**6AV6371-1DQ17-0XV3**
WinCC/CAS V6.2 SP3 basic packages	
• WinCC/CAS V6.2 SP3	**6AV6371-1DQ16-2XX0**
• WinCC/CAS V6.2 SP3 ASIA	**6AV6371-1DQ16-2XV0**

Note:

Standard Archive Powerpacks (see WinCC ordering data) can also be used for WinCC/Central Archive Server (CAS)

WinCC V7.2 is not supported. The successor product is the option Process Historian for V7.2.

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HMI Software
SIMATIC WinCC options

WinCC/ChangeControl & WinCC/Audit

Overview
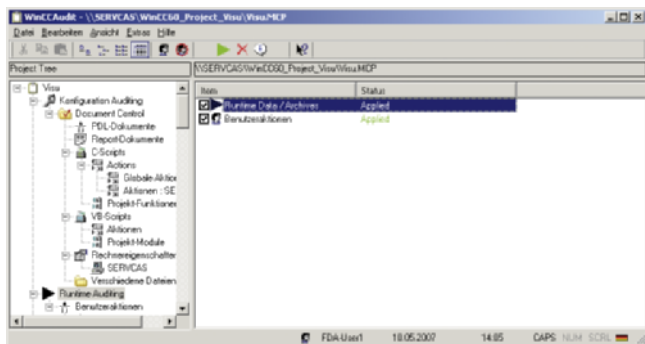
- **WinCC/ChangeControl** is used to **trace engineering changes** in a tamper-proof long-term audit trail database, called the audit trail for short. All changes are automatically entered in the engineering system in the audit trail. This enables all the changes to be traced that have been made, to deduce the causes and minimize downtimes on the system. To begin tracing at a defined project status, a project version definition is provided that contains all data and files of a WinCC project version. The project version definition naturally provides the ability to reactivate earlier project versions. Document management is also provided, which manages and archives intermediate status for system graphics, reports or user files and stores change information of the user. An audit viewer with helpful filter functions can be used for quickly and simply evaluating the audit trail, exporting it to an Excel sheet or printing it out.
- **WinCC/Audit** Includes the full functionality of **WinCC/ChangeControl** and is also used for **tracing all operations**. All operations are automatically recorded in the audit trail at RT.
- **Licensing** : To configure which change information from the project should be recorded in the audit trail, the WinCC/ChangeControl RC or WinCC/Audit RC package is required. "RC" stands for Runtime and Configuration. It is required on the station that is to be configured and also includes an RT license. For recording an audit trail, one WinCC/Audit RT license is required per WinCC station (Client/Server).
- The WinCC/Audit or WinCC/ChangeControl and SIMATIC Logon options support users in respect of plant validation and meet the requirements of FDA CFR 21 Part 11. A declaration of conformity (White Paper) offers proof of this.

Benefits

- Quick and easy traceability configuration
- Gap-free and automated recording of engineering changes and operator actions in an audit trail
- Reduction in plant downtimes thanks to fast analysis of the gap-free recorded audit trail information
- Logging of defined WinCC project status with all database information and files of the application
- Gap-free documentation of the project version definition procedures with version number, user and comments
- Complete tracing support by WinCC single and multi-station systems, single and multi-project solutions, Client/Server architecture
- Extensive reduction in engineering outlay in order to meet the requirements of FDA 21 CFR Part11 & EU 178/2002
- Compliance with the requirements of the Food and Drug Administration (FDA) for the pharmaceutical and food industries.

Design

WinCC/ChangeControl and WinCC/Audit consist of five components:

- The audit editor for configuration the audit trail content
- The project version definition for logging WinCC projects
- Document management for automatic archiving and versioning of WinCC plant mimics, scripts, reports, and project-specific documents, and the recording of the associated change information
- The audit viewer for visualizing, exporting and printing WinCC and WinCC flexible audit trails. The viewer is available as an executable program under Windows, as well as OCX with WinCC Runtime.
- The audit trail, which tracks all changes in respect of both engineering and plant operation in a separate SQL database. The audit trail can be set up as a central audit trail for a number of projects or even just for a single project.

WinCC/ChangeControl and WinCC/Audit support both single-user and multi-user systems, client/server architectures and even the WinCC redundancy system. No redundant audit trail is created however.

HMI Software
SIMATIC WinCC options

WinCC/ChangeControl & WinCC/Audit

■ Function

WinCC/ChangeControl

WinCC/ChangeControl is a functional subset of WinCC/Audit. WinCC/ChangeControl is for tracing engineering changes in the engineering phase or in online operation. All change data is recorded in an audit trail.

There are two types of engineering changes:

• those that change the WinCC database or are executed through the WinCC Explorer, such as e.g. changes to tag management or creating a user group,

and those

• limited to changing files, the so-called document administration.

The document management manages system images, scripts and log layouts and customer-specific documents and stores respective intermediate versions as backups. All of these documents or files are subject to a change process, i.e. documents can be booked out for processing, booked in for finalization and intermediate versions can be retrieved from backup storage with a rollback function.

The project version definition as a component of WinCC/ChangeControl archives WinCC projects and creates reproducible project status or defined start-time points for starting tracing. An audit trail is also provided with information on who has created which project version or which version has been reproduced or deleted.

Configuring the audit trail, the project version definition and the document management is simple, quick and comfortable.

The audit trail data is visualized from WinCC, as well as from WinCC flexible via the audit viewer, an executable program under Windows. The data can also be evaluated with the audit viewer OCX in Runtime by WinCC however. Users select the desired view of the audit trail information via filters or selection criteria and can export the data to an Excel file or print it on a printer. Audit trail information is tamper-proof and can thus not be modified or deleted. An export function can be used to swap out the audit trail to an XML file or to archive it.

WinCC/Audit

WinCC/Audit has all of the functionality of WinCC/ChangeControl and is also used for tracing user operations in RT operation. Tracing can be used for determining who, when and what conditions the machine has undergone. In addition to recording operator activities, the audit trail also records the starting and modifying of recipes or user logs. At specific objects or events, such as function buttons or sliders, the user can also record activities of an individual nature such as e.g., pressing a function button, moving sliders and other actions with a so-called audit entry function in the audit trail.

A WinCC/ChangeControl RC license or a WinCC/Audit RC license is required for configuring the audit trail. One RT license is required for each station (client/server) to be monitored. One RC license always includes one RT license.

■ Ordering data

	Order No.
WinCC/ChangeControl	
For the configuration of the audit trail incl. RT	
• WinCC V7.0 SP3	**6AV6371-1DV27-0AX0**
• V6.2, for WinCC V6.2 and WinCC V6.2 SP2/SP3	**6AV6371-1DV26-2AX0**
WinCC/Audit RC	
For the configuration of the audit trail incl. RT	
• WinCC V7.0 SP3	**6AV6371-1DV17-0AX0**
• V6.2, for WinCC V6.2 and WinCC V6.2 SP2/SP3	**6AV6371-1DV16-2AX0**
WinCC/Audit RT	
Creation of audit trails in RT	
• WinCC V7.0 SP3	**6AV6371-1DV07-0AX0**
• V6.2, for WinCC V6.2 and WinCC V6.2 SP2/SP3	**6AV6371-1DV06-2AX0**
Upgrades	
V6.x to V7.0	
• for WinCC/Audit RT	**6AV6371-1DV07-0BX4**
• for WinCC/Audit RC or WinCC/ChangeControl	**6AV6371-1DV17-0BX4**
V6.x to V6.2	
• for WinCC/Audit RC and WinCC/Audit RT	**6AV6371-1DV06-2AX3**

■ More information

Information about FDA can be found in a White Paper: Declaration of conformity of SIMATIC WinCC to FDA21 CFR Part 11.

http://www.siemens.com/automation/hmi/html_76/products/software/wincc/fda01.htm

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HMI Software
SIMATIC WinCC options

**WinCC/Connectivity Pack &
WinCC/Connectivity Station**

Overview
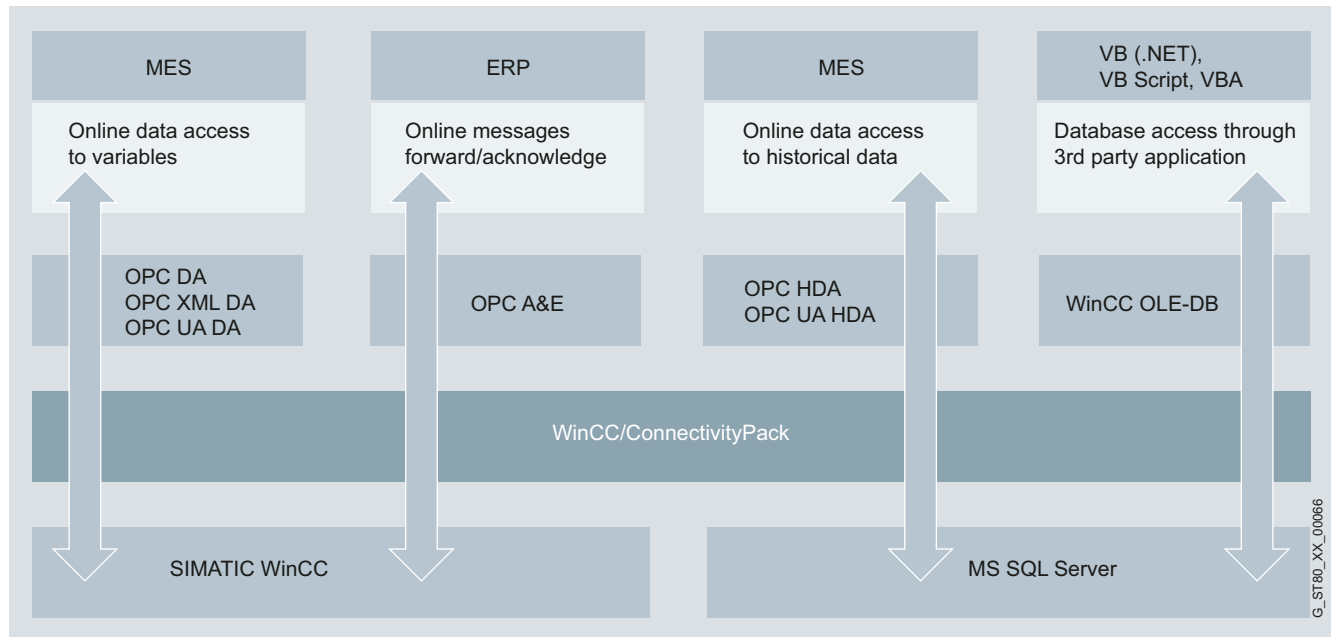
Cross-vendor communication in the automation sector has always been of primary importance for WinCC. This is even more true for the release of preprocessed production data for higher-level information systems (e.g., MES = Management Execution System, ERP = Enterprise Resource Planning or Office packages = MS Excel, MS Access etc.). WinCC features integrated OPC Data Access and OPC XML DA servers for access to all online values in the system and makes open interfaces available for access to historical WinCC data.

- The Connectivity Pack includes OPC XML DA 1.00, OPC HDA 1.20 (Historical Data Access), OPC A&E 1.10 (Alarm & Events) and a WinCC OLE-DB interface which even allows remote computers without WinCC to access WinCC archive and alarm data.
- The function of the OPC servers (XML DA, HDA and A&E) is assured by the WinCC/Connectivity Pack. In order to access data in the database via WinCC OLE-DB/OLE-DB, you will also need a license for the WinCC/Connectivity Pack.

- A Connectivity Pack license is required for every WinCC system to be accessed.
- If the Connectivity Station is used, an additional Connectivity Pack license does not have to be installed on the WinCC systems that are accessed. The Connectivity Station functions autonomously and does not require a WinCC installation on the computer.
- For versions below V7.0
  Access to WinCC archive and alarm data from a computer without installed WinCC basic system license or WinCC option via the interfaces of the Connectivity Pack or Connectivity Station requires a WinCC/Client Access license on the client side (see also "WinCC/Client Access License").
- Connectivity Station Option for WinCC V6.2 and higher

Benefits

- Access to variables, historical WinCC data, alarm data and user archives from any computer
- Options for analyzing and evaluating process data with specialist tools or user-defined applications
  (e.g., via VisualBasic)

■ **Function**

As an OPC HDA server, WinCC makes historical data from the WinCC archive system available to other applications. An OPC HDA client (e.g. a reporting tool) can define the time interval for the required data by entering a start and end time. OPC HDA servers also support the generation of a variety of aggregate functions on the server itself (e.g. standard deviation, variance, mean values, integral values, etc.), thereby helping to relieve the load on the network, as only preprocessed data are transmitted.

OPC A&E servers are used to forward WinCC messages (along with all associated process values) to any client at production or enterprise control level. Filter mechanisms and subscriptions ensure that only selected modified data are transmitted. Acknowledgement is of course also supported.

The WinCC OPC XML DA server makes cross-platform communication between Windows and non-Windows systems possible, even via the Internet. This enables read and write WinCC online values (external and internal WinCC variables) to be exchanged with non-Siemens systems.

WinCC OLE-DB makes standardized and user-friendly access to WinCC archive data possible (MS SQL Server 2005). In exactly the same way as access via the OPC HDA and OPC A&E interfaces, access via the WinCC OLE DB provider makes all WinCC archive data available along with the associated process values and message/user texts. The WinCC OLE-DB provider also supports analysis functions such as minimum, maximum, message hit list, etc.

The WinCC Connectivity Station was designed as a stand-alone gateway to WinCC server data. It supports access to WinCC server data over the OPC channels described as well as those for process values (not alarms) over OLE DB . Access to WinCC data is transparent, i.e. independent of which server of a redundant pair is active or whether data have already been transferred to the central archive server.

Connectivity Station

If no visualization is required at a station, any Windows computer with access to WinCC via OPC and OLE-DB can be configured via the Connectivity Station. This permits access to WinCC stations with server packages from a central computer without WinCC installation. The WinCC stations can be accessed via the following interfaces:

• OPC interfaces of the Connectivity Station
• OLE DB interface of the Connectivity Pack

The two access variants are autonomous access options with different ranges of functions.

OPC interfaces of the Connectivity Station

The Connectivity Station provides interfaces via which you can access the following using an OPC-Client.

• OPC-DA-Server: tags, e.g. process values
• OPC-HDA-Server: archived process values
• OPC-A&E-Server: alarms

Licensing

You require the "WinCC Connectivity Station" license in order to utilize the OPC interfaces of the Connectivity Station on a computer without WinCC installed.

If you only use the OPC interfaces of a WinCC installation, you only need the "Connectivity Pack" license.

The following table shows the combinations:

	New: WinCC-independent installation with Connectivity Station	**Standard installation: OPC with WinCC**
OPC DA	"WinCC Connectivity Station" license	No license required
OPC HDA	"WinCC Connectivity Station" license	"WinCC Connectivity Pack" license
OPC A&E	"WinCC Connectivity Station" license	"WinCC Connectivity Pack" license
OPC UA DA		"WinCC OPC UA HDA Connectivity Pack" license

The Connectivity Station is planned over NCM PC Manager or SIMATIC Manager. In Version 7, the Connectivity Station does not run as service.

■ **Ordering data**   **Order No.**

WinCC/Connectivity Pack & WinCC/Connectivity Station	
V7.2; for WinCC V7.2	
Basic packages	
• WinCC/Connectivity Pack V7.2 [1]	**6AV6371-1DR07-2AX0**
• WinCC/Connectivity Station V7.2 [1]	**6AV6371-1DR17-2AX0**
V7.0; for WinCC V7.0, WinCC V7.0 SP1/SP2/SP3 and WinCC V7.0 SP1/SP2/SP3 ASIA	
Basic packages	
• WinCC/Connectivity Pack V7.0 [1]	**6AV6371-1DR07-0AX0**
• WinCC/Connectivity Station V7.0 [1]	**6AV6371-1DR17-0AX0**
V6.2 SP3; for WinCC V6.2 SP3 and WinCC V6.2 SP3 ASIA	
Basic packages	
• WinCC/Connectivity Pack V6.2 SP3	**6AV6371-1DR06-2AX0**
• WinCC/Connectivity Station V6.2 SP3	**6AV6371-1DR16-2AX0**
• WinCC/Connectivity Pack V6.2 SP3 ASIA	**6AV6371-1DR06-2AV0**
• WinCC/Connectivity Station V6.2 SP3 ASIA	**6AV6371-1DR16-2AV0**
Upgrade[1]	
• WinCC/Connectivity Pack V6.x -> V6.2 SP3	**6AV6371-1DR06-2AX3**

[1] Upgrades from V6.x to V7.x are included in the WinCC V7.x upgrades

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HMI Software
SIMATIC WinCC options

WinCC/DataMonitor

■ Overview
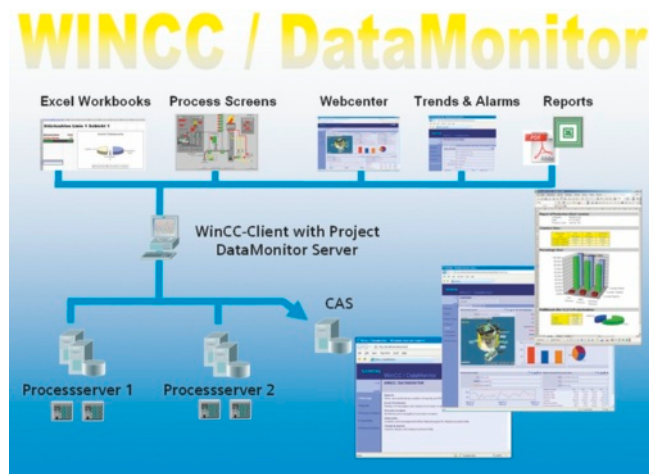
- The WinCC/DataMonitor is a component of WinCC Plant Intelligence and is used for displaying and evaluating current process statuses and historical data on office PCs with standard tools such as Microsoft Internet Explorer or Microsoft Excel. The DataMonitor client is provided with current and historic process data and alarms by a DataMonitor server. All staff ranging from machine operators to corporate managers can use the DataMonitor to obtain information.

- DataMonitor is a suite of Internet-capable tools:
  - Process Builder - Tool for simple visualization and navigation with WinCC screens using WinCC Web Viewer (WinC Viewer RT) in "view only" mode
  - Excel Workbooks - Protocol tool that integrates WinCC archives and online values into MS Excel and supports online analysis
  - Published Reports - Event- or time-driven execution of Excel or PDF reports for the output of process data and analysis results
  - Web center - Individual configuration of Internet pages and summary of information within a portal in terms of WinCC applications
  - Trends and alarms are preconfigured Web Center pages

- DataMonitor does not require manual client installation because it loads the required components from the DataMonitor server

- There is no installation required on the client for the Webcenter, Trends and Alarms functions.

- Licenses for simultaneous access by 1, 3, 10, 25 or 50 DataMonitor clients. Any combination of DataMonitor and Web Navigator licenses can be used for an application.

- Preconfigured Web Center pages permit ad hoc entry

■ Benefits

- Information can be compiled online individually during runtime via the Internet/intranet.
- Efficiently monitor and analyze production lines.
  - Display and evaluation of current process states and historical data on remote office PCs with standard tools such as Microsoft Internet Explorer or Excel.
  - Easy access to production data via the intranet or Internet
  - Quick ascertainment of the production situation
  - Use of standard products
- Easily collect and distribute information.
  - Automated report creation
  - No additional configuration effort through direct use of images from the WinCC project
  - No training required for standard products
  - Easy exchange of configuration data
- Substantiate decisions with reports.
  - Evaluation via ready-made templates for special analyses of the business processes (e.g. reports, statistics)
  - Make bottlenecks transparent
  - Individual views for user and situation
  - Relative and absolute timeframe for information generation
- View production status anywhere and anytime.
  - Individual views of information in production
  - View the process and system operation
  - Historical data can be compiled online individually

Highlights

- Access to the lower-level servers when installing the DataMonitor server on a WinCC Client with separate project (RT128 license)
- Tag logging archive tags can be accessed by means of the web center function without changing the WinCC configuration system.
- Installation of the DataMonitor web center function on a WinCC file server
- Dedicated Internet pages can be created for displaying data with the Webcenter. For this purpose, the following tools which can be integrated in the Internet sites are available.
  - Bar diagram, pie chart, trend curve display
  - Process value table and statistics functions for the process values
  - Alarms, hit list for alarms
  - Message text display for individual message texts, message display, selection list of created reports
  - Links to internal and external pages
  - Display of graphics in converted jpg format
  - Display of the WinCC process images
- The analyses can be made with relative or absolute time specification. This enables comparisons of identical time periods on different days.
- Reports generated with Excel or the WinCC Report Designer can be made available on the DataMonitor server or e-mailed automatically to the relevant group of people based on time intervals or triggered by events.
- Connections can be established to WinCC Runtime, the central archive server, and the swapped-out archives

4

Benefits (continued)

New in V7.2

- DataMonitor
  - In V7.2 or higher, the upgrade license is contained in the corresponding WinCC version
  - Supports Internet Explorer V 7.0, V8.0 and V9.0, including tabbed browsing.
  - Excel reports can be generated with Microsoft Excel version 2003 / 2007 / 2010

Function

- All tools are fully Internet-compatible and, therefore, support access via any type of connection (LAN, GSM, radio, modem, Internet, etc.).
- All popular security mechanisms such as login/password, firewalls, encryption, etc. are supported.
- Users can combine the available tools at will. Licensing only takes into account simultaneous access to one Web server.
- For display purposes, screens from the WinCC project can be used or special overview displays configured. Animations, scripts, navigation and access rights remain valid.
- The WinCC/DataMonitor has purely a display function.
- Company-wide Excel reports, which contain historical and current process values, can be stored centrally for general access (reports, statistics). However, local queries to meet individual requirements can be compiled and executed online. Plot and tabular representation are supported for archive data already swapped out.
- Data can be automatically entered into created report templates and distributed by e-mail or saved on the server.
- The screens are displayed in the WinCC Web Viewer or in the Internet Explorer in the view only mode of the Web Navigator.
- Enhanced user management for the web center in order to assign individual Internet pages and created reports to specific user groups.
- Integrating WinCC process screens on Internet pages without installation download
- A search function facilitates the management of connections to the WinCC Server.
- Swapped out archives can be connected and evaluated in the DataMonitor Web center. Expansion of the display area in the Web center (Menu Hide function)
- Excel reports created offline can be loaded onto the DataMonitor server and are thus made available to selected user groups or for automatic distribution.
- Pre-made elements make the assembly of individual web pages easier for evaluating information.
- Individual information compilation on one or more Internet pages with the option of branching to other detail pages.
- Pre-made Internet pages for trend and alarm display enable an ad-hoc entry to Internet data evaluation.
- An higher-level navigation feature provides a common framework for the various tools.

Ordering data

	Order No.
WinCC/DataMonitor V7.2 for WinCC V7.2 and WinCC V7.2 ASIA	
• 1 client license	6AV6371-1DN07-2LX0
• 3 client licenses	6AV6371-1DN07-2AX0
• 10 client licenses	6AV6371-1DN07-2BX0
• 25 client licenses	6AV6371-1DN07-2CX0
• 50 client licenses	6AV6371-1DN07-2DX0
WinCC/DataMonitor Powerpacks V7.0	
• From 1 to 3 clients	6AV6371-1DN07-2LA0
• From 3 to 10 clients	6AV6371-1DN07-2AB0
• From 10 to 25 clients	6AV6371-1DN07-2BC0
• From 25 to 50 clients	6AV6371-1DN07-2CD0
WinCC/DataMonitor V7.0 for WinCC V7.0, WinCC V7.0 SP3 and WinCC V7.0 SP3 ASIA	
• 1 client license	6AV6371-1DN07-0LX0
• 3 client licenses	6AV6371-1DN07-0AX0
• 10 client licenses	6AV6371-1DN07-0BX0
• 25 client licenses	6AV6371-1DN07-0CX0
• 50 client licenses	6AV6371-1DN07-0DX0
WinCC/DataMonitor Powerpacks V7.0	
• From 1 to 3 clients	6AV6371-1DN07-0LA0
• From 3 to 10 clients	6AV6371-1DN07-0AB0
• From 10 to 25 clients	6AV6371-1DN07-0BC0
• From 25 to 50 clients	6AV6371-1DN07-0CD0
WinCC/DataMonitor, Upgrade	
• from V6.0 to V7.0	6AV6371-1DN07-0XX4
• from V6.2 to V7.0	6AV6371-1DN07-0XX3
• from V6.x to V6.2 SP3	6AV6371-1DN06-2XX3
• from V6.x ASIA to V6.2 SP3 ASIA	6AV6371-1DN06-2XV3
WinCC/DataMonitor V6.2 SP3 for WinCC V6.2 SP3	
• 1 client license	6AV6371-1DN06-2LX0
• 3 client licenses	6AV6371-1DN06-2AX0
• 10 client licenses	6AV6371-1DN06-2BX0
• 25 client licenses	6AV6371-1DN06-2CX0
• 50 client licenses	6AV6371-1DN06-2DX0
WinCC/DataMonitor V6.2 SP3 ASIA for WinCC V6.2 SP3 ASIA	
• 1 client license	6AV6371-1DN06-2LV0
• 3 client licenses	6AV6371-1DN06-2AV0
• 10 client licenses	6AV6371-1DN06-2BV0
• 25 client licenses	6AV6371-1DN06-2CV0
• 50 client licenses	6AV6371-1DN06-2DV0
WinCC/DataMonitor, Powerpacks V6.2	
• From 1 to 3 clients	6AV6371-1DN06-2LA0
• From 3 to 10 clients	6AV6371-1DN06-2AB0
• From 10 to 25 clients	6AV6371-1DN06-2BC0
• From 25 to 50 clients	6AV6371-1DN06-2CD0

4

WinCC/DowntimeMonitor

Overview
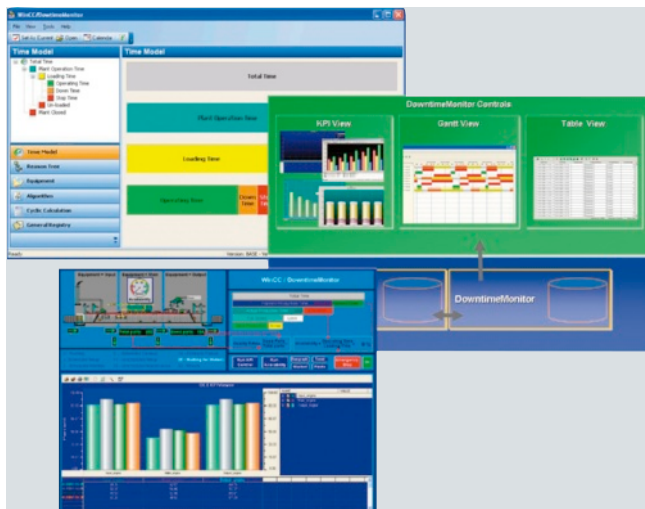
The entry point to SIMATIC Plant Intelligence can be through options for the SIMATIC WinCC process visualization system. The WinCC/DowntimeMonitor is a component of WinCC Plant Intelligence and is used for monitoring the efficiency and performance of individual machine modules, subsystems and production lines. The combined elements to be monitored are designated as equipment. Using the WinCC/DowntimeMonitor, the machine data management software, standstill time can be recorded and analyzed centrally in production. For individual devices, machines or entire production lines, the specific parameters can be determined this way. Integration into WinCC ensures complete transparency of all machine and plant data as a basis for optimizing the plant's productivity.

The process values are read directly from WinCC and are connected with the respective analysis function.

- The SIMATIC WinCC DowntimeMonitor can be installed on a WinCC single station, WinCC Server or WinCC Client with project (RT128 license), and consists of an Engineering Client as well as a Runtime User interface.
- All engineering operations are performed using a graphic Engineering Client. The Engineering Client is called up from the WinCC Explorer.
- SIMATIC WinCC DowntimeMonitor provides ActiveX control elements. These are used for displaying the determined parameters and the progress of the various status over a certain time period. These controls are integrated in WinCC process images for presenting results.
- The recorded data is stored in an online database set and can be moved to an offline database set.
- The basic package consists of the Engineering and Runtime software and 5 licensed equipment units. Other licenses are available for up to 25, up to 50, 100 and up to 200 equipment units.

Benefits

- Recording failure times, localizing causes and reasons for failure times, and monitoring of equipment efficiency.
- Weak-point analysis in production processes and recording of undesirable process activities.
- Basis for decision making based on performance indicators.
- Identification of the events that lead to cost-intensive failures.
- Entry point for an extended downtime analysis with upgrade options in the MES software SIMATIC IT.
- Identification of speed and quality losses.
- Complete transparency for all machines as basis for optimizing the plant's productivity. Faults and bottlenecks are prevented to increase availability.
- Derivation of specific parameters (KPI - Key Performance Indicators).
- Integration of respective display instruments (controls) in WinCC process images.
- Can be utilized for individual machines or even complete production plants.
- Distribution of evaluations to various people over the web.

Function

- Creation of a time model by defining various time categories as a basis for the KPI calculation for elements (equipment) to be evaluated.
- Creation of equipment, as central components for the evaluation by dividing the system into individual groups.
- Creation of a Reason Tree for detailed display of reasons for downtimes.
- Allocation of the system status in the controller to the time categories and Reason Trees defined in the DowntimeMonitor.
- Storing the system status for calculating and presenting Key Performance Indicators.
- The following pre-defined Key Performance Indicators are available: Availability, change-over, cycle time, failure time loss, duration, effective performance, maintenance, Mean Time Between Assist (MTBA), Mean Time Between Failures (MTBF), Mean Time To Assists (MTTA), Mean Time To Repair (MTTR), failure time frequency, Overall Equipment Effectiveness (OEE), performance rate, production duration, quality rate, speed loss, Total Efficient Equipment Performance (TEEP), utilization.
- Integration of three new controls Gant View, KPI View, and Table View in WinCC for the display of results for one or more equipment units.
- The WinCC DowntimeMonitor Gant View presents the equipment status development within a certain time period.
- The WinCC DowntimeMonitor KPI View shows the distribution of failure times and the Key Performance Indicators in a trend, bar, segmented bar charts or Pareto chart using historical data.
- The WinCC DowntimeMonitor Table View shows raw data for failure times and analyzes it in the selected time period. The user can utilize these control elements to enter, change, distribute or combine and comment on failure times manually.
- The controls can be displayed on intranet or Internet using the option WinCC/Web Navigator.

■ **Ordering data**

	Order No.		Order No.
WinCC/DowntimeMonitor **V7.0 SP3** **for WinCC V7.0 SP3 and** **WinCC V7.0 SP3 ASIA**		**WinCC/DowntimeMonitor** **V1.0 SP1** **for WinCC V6.2 SP2 and** **WinCC V6.2 SP2 ASIA**	
• 5 equipment units	**6AV6372-1DB07-0BX0**	• 5 equipment units	**6AV6372-1DB06-2BX0**
• 25 equipment units	**6AV6372-1DB07-0DX0**	• 25 equipment units	**6AV6372-1DB06-2DX0**
• 50 equipment units	**6AV6372-1DB07-0FX0**	• 50 equipment units	**6AV6372-1DB06-2FX0**
• 100 equipment units	**6AV6372-1DB07-0HX0**	• 100 equipment units	**6AV6372-1DB06-2HX0**
• 200 equipment units	**6AV6372-1DB07-0KX0**	• 200 equipment units	**6AV6372-1DB06-2KX0**
WinCC/DowntimeMonitor **Powerpacks V7.0**		**WinCC/DowntimeMonitor** **Powerpacks V1.0**	
• From 5 to 25 equipment units	**6AV6372-1DB07-0BD0**	• From 5 to 25 equipment units	**6AV6372-1DB06-2BD0**
• From 25 to 50 equipment units	**6AV6372-1DB07-0DF0**	• From 25 to 50 equipment units	**6AV6372-1DB06-2DF0**
• From 50 to 100 equipment units	**6AV6372-1DB07-0FH0**	• From 50 to 100 equipment units	**6AV6372-1DB06-2FH0**
• From 100 to 200 equipment units	**6AV6372-1DB06-2HK0**	• From 100 to 200 equipment units	**6AV6372-1DB06-2HX0**
WinCC/DowntimeMonitor upgrade			
• V1.x to V7.0 SP3	**6AV6372-1DB07-0XX4**		

Note

WinCC V7.2 is not supported.

4

HMI Software
SIMATIC WinCC options

WinCC/Event Notifier

Overview
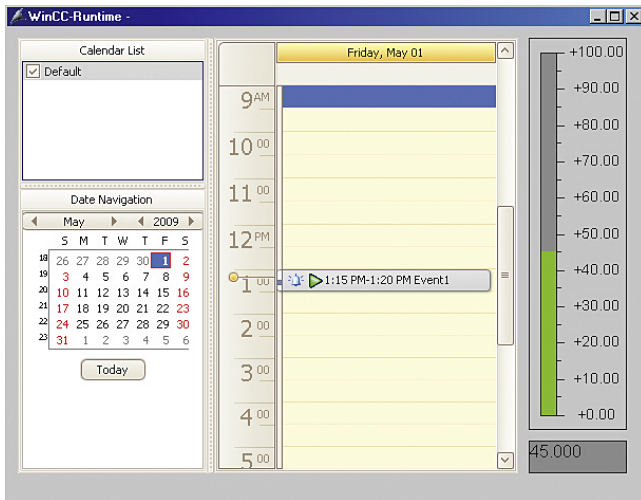
- Option for SIMATIC WinCC for notifying selected persons by e-mail in specified time slots
- Notification depends on events occurring in the WinCC Alarm System.
- Escalation levels, i.e. Group 2 is only notified when nobody "on site" or from Group 1 has reacted within a specified time.
- Final notification of all persons previously notified in connection with the specific event about the reaction that has taken place

A license is only necessary on the server (or single user system).

Benefits

- Simple operation, configuration and planning of notifications thanks to handling like the Microsoft Office Calendar
- Easy configuration of the notifications including support of the WinCC Runtime languages by connecting to the WinCC alarm system
- Configuration of recurring events taking account of configurable public holidays, vacation periods, and maintenance periods
- Secure operation of the plant taking account of different authentication levels
- Clear display and intuitive operation at runtime by means of Calendar Control
- Flexible use in all typical WinCC plant configurations, single station, client/server, redundant systems, WebNavigator

Function

The WinCC Event Notifier enables the following to be configured in a clear and user-friendly manner via the Calendar Options Editor in the WinCC Explorer:

- The e-mail service for sending and receiving messages
- The messages by selecting configured messages in the WinCC Alarm System as well the setup and contents of the message by selecting the message blocks
- Contacts by selecting predefined persons from the WinCC user administration.

In a calendar it is then possible to select the persons to be notified within in the opened time slot from the existing contacts. If several persons or groups of persons are set up for the same time slot, escalation levels can be implemented by assigning different escalation times (= dead time before notification). The period represented by the calendar can be freely selected. Recurring events can be defined as serial events with any desired exceptions.

The calendar can also be integrated as .Net Control in WinCC screens; the appearance of the calendar controls at runtime is configurable. Via the calendar control, you can create time slots during runtime with contacts who should be notified upon occurrence of the configured events in the WinCC Alarm System. In addition, the calendar control allows the creation of new contacts by means of selection from the WinCC user management.

The Event Notifier is easy and intuitive to operate and supports drag & drop during configuration and runtime.

Ordering data

	Order No.
WinCC/Event Notifier	
• for WinCC V7.2	**6AV6372-1DD07-2AX0**
• for WinCC V7.0 SP3	**6AV6372-1DD07-0AX0**

Overview

WinCC V7 WinCC Professional SIMATIC NET OPC Server OPC DA & OPC XML DA	Microsoft Office MS Excel File (csv)	Microsoft Office MS Access	Microsoft SQL Server	My Oracle My SQL
Online Data Exchange	Online Data Storage	Online Data Exchange	Online Data Reading	Data Export

WinCC/IndustrialDataBridge

SIMATIC WinCC OPC DA WinCC User Archive	MS SQL Server OLE-DB (Alarm-, Tag logging)

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- The WinCC/IndustrialDataBridge option uses standard interfaces in order to connect the automation world with the world of IT and ensure two-way information flow. Typical examples of such interfaces are OPC in the field of automation and SQL database interfaces in the world of IT.

- With the SIMATIC WinCC/IndustrialDataBridge, simple configuration/parameterization of communication connections between various data sources and data destinations can be created. The IndustrialDataBridge can be integrated into WinCC and can also be used in stand-alone mode (not in conjunction with WinCC).

- For example, SIMATIC WinCC with its OPC DA server interface is the data source and an external database is the data destination.
  - Highly flexible, thanks to support for various database formats and standard interfaces
  - Fast and secure thanks to configuration instead of programming

- In addition to access to WinCC variables, access to messages, process values and user archive data (in the WinCC database) is also supported.

- WinCC/IndustrialDataBridge can be used as stand-alone application with its standard interfaces.

- Option from WinCC V6

- For versions below V7.0
  On a computer without a license for the WinCC basic system or a WinCC option, which is to be accessed in read/write mode by the option WinCC/IndustrialDataBridge, a WinCC Client Access License is required (see also "WinCC/Client Access License").

4

Benefits

- Connecting the automation level with the IT world
- Integration of systems from different manufacturers via a host of standard interfaces (including OPC, OLE-DB, Office formats)

- Simple configuration with standard software without programming and thus at low cost
- High-performance data transfer between several systems simultaneously

Design

The software comprises a configuration environment and a runtime environment. The different data interfaces are integrated via software modules. In each case, one module is required as the data source and one module as the data destination. The different modules can be combined in any way.

The connections between data source and data destination are created in the configuration environment.

In the runtime environment, the IndustrialDataBridge establishes the connection autonomously and transfers the data of the linked variables.

HMI Software
SIMATIC WinCC options

WinCC/IndustrialDataBridge

Function

- IndustrialDataBridge establishes a link between the source and destination interfaces and transfers data on the basis of a change in value, once a configurable period of time has elapsed or when a specific event occurs.
- IndustrialDataBridge exchanges data between automation systems from different vendors, e.g., via OPC. The connection of OPC servers via IndustrialDataBridge enables communication between a variety of devices, data sources and data destinations. The OPC international interface standard is the key to open systems both now and in the future. Thanks to IndustrialDataBridge, OPC data exchange can already be supported.
- WinCC supports access to variables, tag logging, alarm logging and user archive data.
- Storage of process data in Office formats such as Excel or Access. Databases can also be integrated for the archiving of larger aggregates.
- One of the features of IndustrialDataBridge is a Send/Receive interface supporting data transfer to SIMATIC S5/S7 stations or other Send/Receive-compatible devices.
- IndustrialDataBridge enables SCADA and control systems from different vendors to be linked via the OPC interface. Communication via RFC1006 or Send/Receive is also supported.
- SQL databases are available as data destinations for production data acquisition. Data can be transferred from the data source on an event-driven basis with the OPC module or sent directly from the PLC with the Send/Receive module.
- Cyclic data archiving can be implemented via the OPC Data Access, WinAC ODK or Send/Receive data sources and the SQL database data destinations. On the database side, various transmission mechanisms are supported.
- Individual control during runtime for each IndustrialDataBridge connection (start, stop, connect, and disconnect).
- Integration of IndustrialDataBridge runtime control in WinCC screens if IDB is installed on a WinCC station.
- Independent CSV files are created if a configurable number of entries is reached or the value of a WinCC tag changes.
- Block transfer for databases through support for the operators "<" and ">" in the Select instruction.
- Available providers (data sources) can be connected to any consumers (data destinations) (see table, below)

New functions in Version 7.2:

- Faster configuration due to new configuration interface
- OPC XML DA Provider / Consumer (data exchange via the Internet using HTTP and SOAP)
- Support for Asian languages (Simplified Chinese, Japanese)
- Unicode support
- Getting Started for data exchange between User Archive and Microsoft Access
- For installation in combination with the WebNavigator Server, the IndustrialDataBridge can be controlled via the Internet

Interfaces:

The table below shows the possible data sources and destinations

Provider (data sources)	Consumer (data destinations)
• MS Access 2003, 2007, 2010	• CSV, TXT
• MS SQL server 2005, 2008, 2008 R2	• MS Access 2003, 2007, 2010
• MySQL ODBC 3, 5, 5.1, 5.5	• MS SQL server
• Oracle 8i, 10g, 11g	• MySQL ODBC 3, 5, 5.1, 5.5
• OPC Data Access 3.0, OPC XML 1.0	• Oracle 8i, 19g, 11g
• Send / Receive	• MS Excel
• WinCC OLE DB V7.2	• OPC Data Access Server (internal)
• WinCC User Archive V7.2	• OPC Data Access 3.0, OPC XML 1.0
	• Send / Receive
	• WinCC User Archive V7.2

Ordering data

	Order No.
WinCC/IndustrialDataBridge	
V7.2, option for WinCC V7.2	
For data exchange with databases and OPC servers; language versions: German, English, Chinese simplified, Japanese	
• with 128 tags	6AV6371-1DX07-2AX0
• with 512 tags	6AV6371-1DX07-2BX0
• with 2048 tags	6AV6371-1DX07-2CX0
• with 10000 tags	6AV6371-1DX07-2DX0
V7.0 SP1, option for WinCC V7.0 SP3	
For data exchange with databases and OPC servers; language versions: German/English	
• with 128 tags	6AV6371-1DX07-0AX0
• with 512 tags	6AV6371-1DX07-0BX0
• with 2048 tags	6AV6371-1DX07-0CX0
• with 10000 tags	6AV6371-1DX07-0DX0
WinCC/IndustrialDataBridge Powerpack V7.2	
• from 128 to 512 tags	6AV6371-1DX07-2AB0
• from 512 to 2048 tags	6AV6371-1DX07-2BC0
• from 2048 to 10000 tags	6AV6371-1DX07-2CD0
WinCC/IndustrialDataBridge Powerpack V7.0	
• from 128 to 512 tags	6AV6371-1DX07-0AB0
• from 512 to 2048 tags	6AV6371-1DX07-0BC0
• from 2048 to 10000 tags	6AV6371-1DX07-0CD0
WinCC/IndustrialDataBridge upgrade	
• from V7.0 to V7.2	6AV6371-1DX07-2XX3
• from V6.x to V7.2	6AV6371-1DX07-2XX4
• from V6.x to V7.0 SP3	6AV6371-1DX07-0XX4
WinCC/IndustrialDataBridge	
V6.1, option for WinCC V6. 2	
For data exchange with databases and OPC servers; language versions: English/German	
• with 128 tags	6AV6371-1DX06-1AX0
• with 512 tags	6AV6371-1DX06-1BX0
• with 2048 tags	6AV6371-1DX06-1CX0
• with 10000 tags	6AV6371-1DX06-1DX0
WinCC/IndustrialDataBridge Powerpack V6.1	
• from 128 to 512 tags	6AV6371-1DX06-1AB0
• from 128 to 2048 tags	6AV6371-1DX06-1AC0
• from 128 to 10000 tags	6AV6371-1DX06-1AD0
• from 512 to 2048 tags	6AV6371-1DX06-1BC0
• from 512 to 10000 tags	6AV6371-1DX06-1BD0
• from 2048 to 10000 tags	6AV6371-1DX06-1CD0

4

Overview
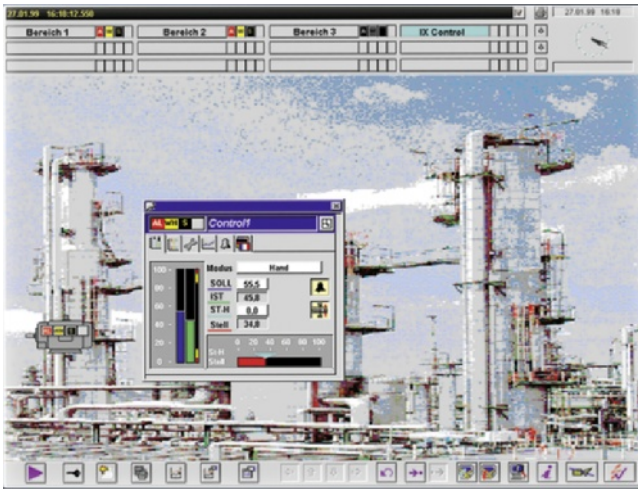
- WinCC/IndustrialX makes it easier to develop a solution for a visualization task by allowing customized objects to be standardized
- A license must be installed on each development computer (current version of Visual Basic must be installed on the development computer)

Benefits

- Easy creation using configuration wizards
- Quick entry due to the use of standards: ActiveX technology, creating with the aid of Visual Basic
- Central creating and changing of object displays of the same type (typing) saves time and money
- Configuring of intelligent, sector-specific objects (graphic illustration and logical processing) with know-how protection
- Can be used in versatile ways: in WinCC screens and other Windows applications (e.g. Internet Explorer, Excel)

Innovations of V7.0

Support of Visual Studio 2005 (.NET)

Application

IndustrialX controls create standardized presentations and allow flexible customization to the requirements of a wide range of applications, e.g. applications in the chemical, glass or paper manufacturing industries.

Function

- Configuring intelligent, industry-specific objects (graphic illustration and logical processing) with know-how protection
- Automatic object supply with WinCC data structures (templates)
- Creation of Web Navigator-compatible, customer-specific ActiveX components with active process data supply
- Integration into WinCC via structure names

Ordering data

	Order No.
WinCC/IndustrialX	
• V7.0; for WinCC V7.0 and V6.x	**6AV6371-1EL17-0AX0**

Note

For WinCC V7.2, the WinCC/IndustrialX option is part of the WinCC/ODK option.

4

HMI Software
SIMATIC WinCC options

WinCC/Open Development Kit (ODK)

Overview

WinCC/ODK (Open Development Kit)

- WinCC option for utilization of the exposed programming interfaces that can be used to access data and functions of the WinCC configuration and WinCC runtime system
- The interfaces are designed as "C-Application Programming Interface" (C-API)
- Scope of delivery:
  - CD-ROM with examples
  - Voucher for a one-day intensive workshop

Benefits

- Individual system expansions via an open standard programming language
- Access to data and functions of the WinCC configuration and runtime system
- Development of your own applications and add-ons for the WinCC basic system

New in V7.0

- Support for Visual Studio 2005 (.NET)

New in V7.2

- UNICODE support
- Support for Visual Studio 2008, 2012

Function

The API functions are configuration and runtime functions, and include:

- MSRTCreateMsg: Creates a message
- DMGetValue: Gets the value of a variable
- PDLRTSetProp: Sets the object properties in a display

They can be used in the following places:

- within WinCC, for example in global scripts or as part of C actions in the Graphics Designer,
- in Windows applications in the programming language C (the current version of Microsoft Visual C++ is necessary as a development environment for WinCC).

Ordering data	Order No.
WinCC/ODK	
• V7.2; for WinCC V7.x	**6AV6371-1CC07-2AX0**
• V7.0; for WinCC V7.0 and V6.x	**6AV6371-1CC07-0AX0**
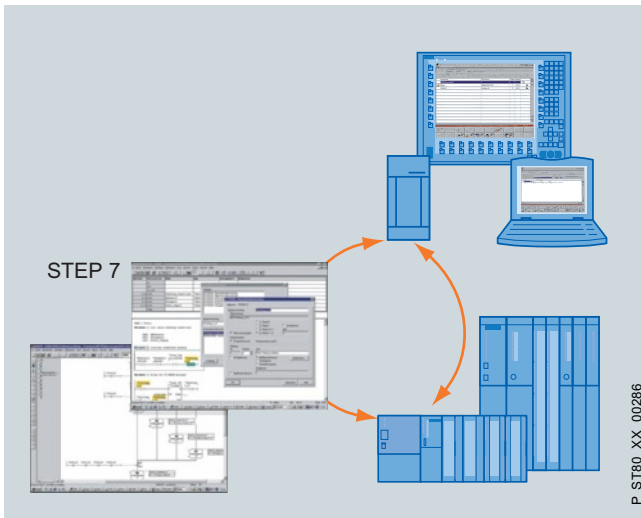
4

■ Overview

STEP 7

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- Precise and rapid process fault diagnostics in plants and machines for SIMATIC S7 and SIMATIC HMI
- Standardized diagnostics concept for various SIMATIC components
- No further configuration for diagnostics functionality
- Reduces PLC memory and processor usage

Note

For further details, see "SIMATIC ProAgent process diagnostics software"

■ Ordering data

	Order No.
SIMATIC WinCC/ProAgent	
• V7.2; for WinCC V7.2	**6AV6371-1DG07-2AX0**
• V7.0 SP3; for WinCC V7.0 SP3	**6AV6371-1DG07-0AX0**
SIMATIC WinCC/ProAgent Upgrade	
• to SIMATIC WinCC/ProAgent V7.2	**6AV6371-1DG07-2AX3**
• to SIMATIC WinCC/ProAgent V7.0 SP3	**6AV6371-1DG07-0AX4**

4

HMI Software
SIMATIC WinCC options

WinCC/Redundancy

■ **Overview**
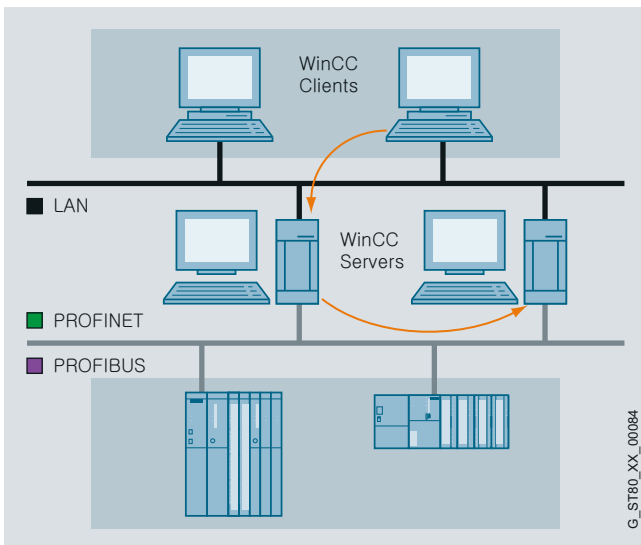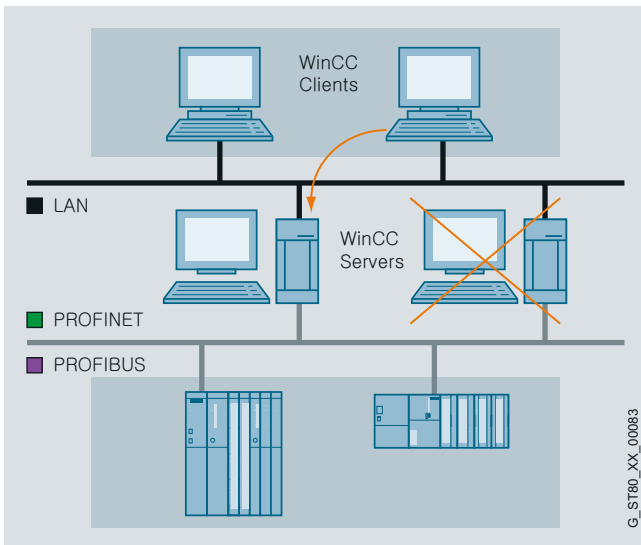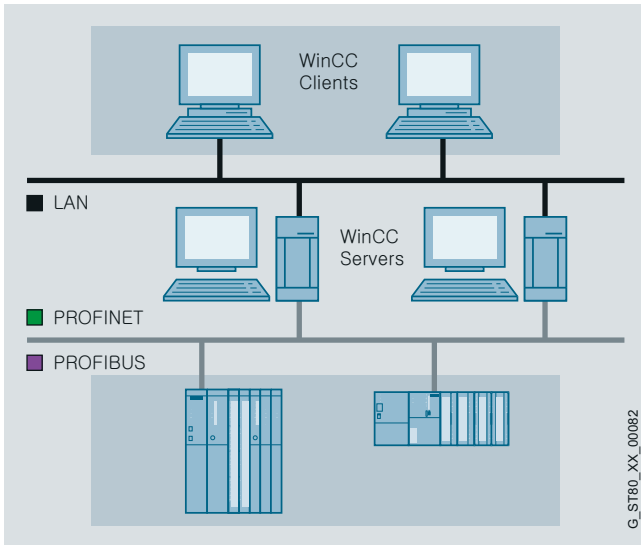
■ Option for SIMATIC WinCC, supporting the parallel operation of two interfaced WinCC single-user systems or process data servers for mutual monitoring

■ If one of the two server PCs or one of the two WinCC stations fails, the second one will take over control of the entire system. Once the failed server or station is restored to operation, the content of all the message and process value archives are copied to it.

■ One WinCC/Redundancy package is required for each redundant pair of servers.

■ **Benefits**

■ Increased system availability with continuous data integrity

■ Automatic changeover of client in the event of failure of a server or failure of the communication to a server

■ Continuous operator control and visualization thanks to automatic client changeover to the intact server

■ Automatic updating of all archives in the background after rectification of the fault

■ **Function**

Normally, two WinCC stations or process data servers run in parallel. Each station has its own process connection and its own data archives. WinCC/Redundancy ensures automatic matching of system and user archive data.

If one of the two server computers or WinCC stations fails, the second will take over the archiving of messages and process data, thereby ensuring seamless data integrity. In client/server mode, the clients are automatically switched from the failed server to the redundant partner. This ensures continuous plant visualization and operation on every operator station.

When the failed partner resumes operation, all process values, messages and data archived during the fail period are automatically matched with the partner. This process runs in the background and does not affect plant continuity. Once this is complete, two equivalent servers/stations will be available again.

Communication with the SIMATIC S7 can also be configured with redundancy (an H Series SIMATIC S7 is required) by plugging in two communication modules and configuring two communication paths (S7-REDCONNECT software package). The use of failsafe H Series SIMATIC S7 can, if required, further increase availability at control level.

■ **Ordering data**   **Order No.**

SIMATIC WinCC/Redundancy	
■ Option for SIMATIC WinCC V7.2, Runtime software, single license for 2 installations	**6AV6371-1CF07-2AX0**
■ Option for SIMATIC WinCC V7.0, Runtime software, single license for 2 installations	**6AV6371-1CF07-0AX0**
■ Option for SIMATIC WinCC V6.2, Single license for 2 installations	**6AV6371-1CF06-2AX0**

Overview
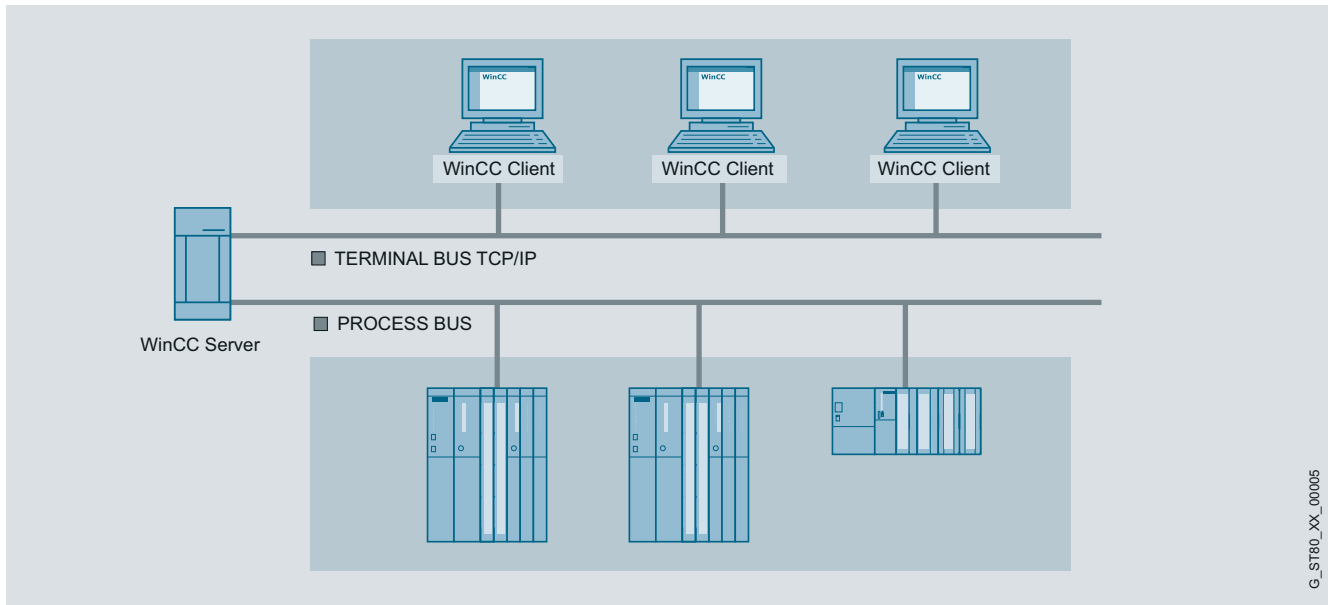
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- Option for SIMATIC WinCC, which permits the configuration of a powerful client/server system
- One of the following operating systems must be available to install the option on the server: Windows Server 2003 (for V6) or Windows Server 2003 R2 (for V6.2 / V7.0 / V7.2) or Windows Server 2008 (for V7.0 with SP2 and higher or V7.2). When using Windows XP Professional and Windows 7 SP1, no more than 3 clients can be connected.
- A number of coordinated HMI stations can be operated in a single group with networked automation systems
- Client/server solution:
  - One server can supply up to 32 connected clients with process and archive data, messages, images and reports
  - Depending on the size of the plant, up to 12 servers (or up to 18 in version 7.2 or higher) can be used.
  - 32 clients (max. 12 or 18 redundant WinCC servers) possible per system
- Requirement:
  Network connection (TCP/IP) between the server PC and the connected clients. [1]
- One license is required for each server.

[1] One of the following operating systems is installed on one WinCC server: Windows Server 2003, Windows Server 2003 R2 or Windows Server 2008. Max. 3 clients with Windows XP Professional and Windows 7 SP1.

Benefits

- Plant-wide scalability from the single-user system to the client/server solution
- Significantly higher quantity framework, relieving the individual servers and better performance due to distributing the complete application or tasks over several servers
- Low-cost configuration on the client is possible (the minimum RC license is sufficient)

Application

In a complex plant, WinCC can also be configured as a distributed system according to requirements:

- Functional distribution (e.g. message servers, archive servers, etc.) or
- Distribution according to the physical plant structure (e.g. body-in-white, paintshop, etc.)

Function

Each client can access more than one server at a time. Clients can also be used for configuration on the server.

A configuration of WinCC clients as a central Web server - as a distributed system if required - with an overview of all server projects in the system is also possible.

For WinCC clients, only the smallest runtime license RT128 is required. In order to also configure on WinCC clients, the smallest complete license RC128 is required. Remote configuration is possible if WinCC clients without their own project (Uniclients) on the server project are configured. This makes it possible to configure inexpensive operator and configuration stations in a network.

Ordering data

	Order No.
SIMATIC WinCC/Server	
• Option for SIMATIC WinCC V7.2, Runtime software, single license	**6AV6371-1CA07-2AX0**
• Option for SIMATIC WinCC V7.0, Runtime software, single license	**6AV6371-1CA07-0AX0**
• Option for SIMATIC WinCC V6.2, Single license	**6AV6371-1CA06-2AX0**

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HMI Software
SIMATIC WinCC options

WinCC/TeleControl

Overview

WinCC/TeleControl for WinCC V7.0 SP2 supports connection to outlying stations (Remote Terminal Units = RTUs) via telecontrol protocols.

Benefits

WinCC/TeleControl for WinCC V7.0 SP2 cannot only integrate newly configured RTUs, it can also integrate units which already exist in outlying areas by means of DNP3 or IEC 870-5-101/104 drivers.

For communication with the outstations, WinCC/TeleControl for WinCC V7.0 SP2 uses the SINAUT ST7 and DNP3 protocols (both via serial and TCP/IP communication connections) as well as IEC 870-5-101 (serial) and IEC 870-5-104 (Ethernet TCP/IP).

The serial RTU link is possible via the following components, which can be connected directly via WinCC (single station or server):

- SINAUT TIM communication modules
  (SINAUT ST7 telecontrol protocol)
- TCP/IP serial converter (telecontrol protocols DNP3, Modbus (not released for WinCC TC), IEC 870-5-101)

Equipment from MOXA or Lantronix, for example, can be used as TCP/IP serial converters.

By means of Ethernet TCP/IP, the RTUs can be connected directly or via TCP/IP WAN routers to the SIMATIC WinCC system bus (SINAUT ST7, DNP3, IEC 870-5-104 telecontrol protocols). When using the SINAUT ST7 telecontrol protocol, the SINAUT TIM communication module can be used in addition to the TCP/IP WAN router or as an alternative.

Application

Telecontrol communication over the wide area network is largely determined by the communication infrastructure which already exists. Various transmission media such as dedicated line, analog or digital telephone networks, wireless networks (GSM or private), DSL or GPRS can also be combined with each other.

SINAUT ST7 telecontrol protocol

Detailed information for implementing telecontrol applications with the SINAUT ST 7 telecontrol protocol via the Industry Mall.

IEC 870-5-101/-104 telecontrol protocols

Detailed information for implementing telecontrol applications with the IEC 870-5-101/-104 telecontrol protocols via the Industry Mall.

DNP3 telecontrol protocol

WinCC/TeleControl for WinCC V7.0 SP2 also supports the DNP3 telecontrol protocol. Widely distributed outstations (RTUs) can be controlled and monitored with the DNP3 telecontrol protocol via serial or Ethernet TCP/IP communication links by means of the telecontrol center in SIMATIC WinCC. The control center integrated with SIMATIC WinCC TeleControl into the SCADA system is the master during telecontrol communication. The slaves are represented by the outstations. SIMATIC S7-300/ S7-300F and S7-400/S7-400F/S7-400H/S7-400FH controllers as well as third-party RTUs can be used as outstations.

Further hardware and software components round off the range of products:

- TIM communication modules
- TCP/IP converters – serial and MD modem modules
- GSM/GPRS components
- TCP/IP routers and switches
- SCALANCE S612 and S613 security modules
- Dedicated-line accessories
- Connecting cables and cables
- Engineering package for configuration of DNP3 data objects, stations, networks and connections as well as for diagnostics

In order to implement telecontrol networks, basic topologies including point-to-point, multi-point, star and ring can be configured using classic or TCP/IP-based media. These can be combined flexibly independent from existing infrastructure.

Classic WAN media:

- Dedicated line via modem, e.g. SINAUT MD2
- Private wireless networks
- Analog telephone network
- Digital ISDN network
- Mobile radio network GSM

TCP/IP-based WAN media:

- Ethernet networks, e.g. SCALANCE X with fiber-optic cables
- Industrial Wireless LAN with SCALANCE W
- Public networks and the Internet using DSL and/or GPRS

Function

Special characteristics of DNP3 communication

- Change-driven data transmission
  - Change-driven transmission of process data between RTU and control center
  - Signaling of RTU, control center or connection failure
  - Automatic data updating for all communication partners involved following troubleshooting and following the startup of the RTU or control center
- Chronological processing of process data
  - Time tagging of all data frames at the place of origin allows process data to be archived by the process control system in the correct chronological order
  - The time of the DNP3 stations in the WAN can be synchronized via SIMATIC WinCC (including summertime/wintertime switchover)
- Local data storage
  - The TIM communication module can temporarily store (for several hours or even days) message frames should the connection or the communication partner fail
  - Intermediate storage of message frames of lower priority in the case of priority-controlled data transmission (with dial-up networks or quantity-dependent data transmission costs)

Operating modes

The DNP3 telecontrol protocol supports the following operating modes:

- Polling
- Polling with time slot procedure
- Multi-master polling with time slot procedure
- Spontaneous mode in dial-up networks
- Spontaneous mode in the TCP/IP-based WAN

4

■ **Integration**

Integration of WinCC/TeleControl for WinCC V7.0 SP2 into the WinCC SCADA system offers particular advantages for the water and waste water sectors, as well as oil and gas sectors, especially in the case of the following types of plant:

- Freshwater treatment and distribution
- Wastewater treatment plants
- Oil and gas pipelines and water pipes
- Oil and gas drilling fields and the associated treatment plants

In these types of plant, remote outstations such as pumping stations, valve stations or automated stations for wellheads must be integrated.

Through the support of communication protocols for RTUs such as SINAUT ST7, WinCC/TeleControl for WinCC V7.0 SP2 supports the following advanced communication concepts:

- Reduction in the transferred data volume by means of event-controlled communication mechanisms for alarm and measured value information.
- Time-synchronization of RTUs and correct time stamping of all data in the RTU.
- Tolerance of lower bandwidth, high latency or lack of reliability of communication lines
- Prevention of data loss due to communications failure through data backup in the RTU
- Support of communication media with serial interface (dedicated lines, dial-up connections over analog telephone lines and ISDN lines), various radio devices (standard, spread spectrum modulation), microwave and GSM
- Support for TCP/IP-based WANs (Wide Area Networks) such as DSL, GPRS or Ethernet radio networks
- Support for redundant communication connections
- Expanded communication diagnostics functions for RTU communication links
- Remote programming of RTUs
- Support for different communication topologies – point-to-point, multidrop (multistation mode) and hierarchic network structures
- High quality server redundancy scheme without data loss in the case of server failure

Through the support of communication protocols for RTUs such as IEC 60870-5 and DNP3, SIMATIC TeleControl for WinCC V7.0 SP2 supports the following advanced communication concepts:

- Reduction in the transferred data volume by means of event-controlled communication mechanisms for alarm and measured value information.
- Time synchronization of RTUs and correct time stamping of all data in the RTU.
- Tolerance of lower bandwidth, high latency or lack of reliability of communication lines
- Prevention of data loss due to communications failure through data backup in the RTU (not all non-Siemens RTUs support this)
- Support of communication media with serial interface (dedicated lines, dial-up connections over analog telephone lines and ISDN lines), various radio devices (standard, spread spectrum modulation), microwave and GSM
- Support for TCP/IP-based WANs (Wide Area Networks) such as DSL, GPRS or Ethernet radio networks
- Support for redundant communication connections
- Expanded communication diagnostics functions for RTU communication links
- Remote programming of RTUs
- Support for different communication topologies – Point-to-point, multidrop (multistation mode) and hierarchic network structures
- High quality server redundancy scheme without data loss in the case of server failure

Outstations/remote terminal units

WinCC/TeleControl for WinCC V7.0 SP2 supports the following preferred outstations for local distributed automation:

- Controller integrated into ET 200S (IEC 870-5-101/104 telecontrol protocols); for cost-sensitive applications, up to approx. 30 I/O signals or approx. 200 data points
- S7-300/S7-300F controller (SINAUT ST7, DNP3, IEC 870-5-101/104 telecontrol protocols); for extremely flexible configuration, up to 100 I/O signals or approx. 2000 data points
- S7-400/S7-400F controller (SINAUT ST7, DNP3, IEC 870-5-101/104 telecontrol protocols); up to 500 I/O signals or approx. 5000 data points
- S7-400/S7-400F redundant controller (IEC 870-5-101/104 and DNP3 telecontrol protocols); up to 500 I/O signals or approx. 5000 data points
- Third-party station with the IEC 870-5-101/104 and DNP3 telecontrol protocols (depending on type of station)

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HMI Software
SIMATIC WinCC options

WinCC/TeleControl

■ **Integration** (continued)

The following table provides an overview of the current options
for connecting to these outstations:

Spectrum of outstations and integration versions							
Telecontrol protocol		**SINAUT ST 7**		**DNP3**		**IEC 870-5-01**	**IEC 870-5-04**
Type of communication		Serial	Ethernet TCP/IP	Serial	Ethernet TCP/IP	Serial	Ethernet TCP/IP
Interface		TIM 4R-IE	TCP/IP WAN router or/and TIM 4R-IE	TCP/IP serial converter	TCP/IP WAN router	TCP/IP serial converter	TCP/IP WAN router
RTU/interface	ET 200S with integr. CPU (corresponding to S7-314)	-	-	-	-	IM 151-7 CPU or IM 151-8 PN/DP CPU as well as 1 SI module + SIPLUS RIC library	IM 151-8 PN/DP CPU + SIPLUS RIC library
	S7-300/S7-300F	TIM 3V-IE	TIM 3V-IE	TIM 3V-IE DNP3	TIM 3V-IE DNP3	CP 341 + SIPLUS RIC library	CP 343 + IEC on S7 or integr. PN interface + SIPLUS RIC library
	S7-400/S7-400F	TIM 4R-IE	TIM 4R-IE	TIM 4R-IE DNP3	TIM 4R-IE DNP3	CP 441 + SIPLUS RIC library	CP 443 + SIPLUS RIC library or integr. PN interface + SIPLUS RIC library
	S7-400H/ S7-400FH	-	-	TIM 4R-IE DNP3	TIM 4R-IE DNP3	ET 200M + 2 x CP 341 + SIPLUS RIC library	CP 443 + SIPLUS RIC library
	Third-party station	-	-	Depends on type of station		Depends on type of station	
Dial-up lines		●	-	●	-	-	-
Dedicated line and radio networks		●	●	●	●	●	●
Master/slave		●	●	●	●	●	●
Peer-to-peer		●	●	-	-	●	●
Mesh networks		●	●	●	●	●	●
Time tagging in RTU		●	●	●	●	●	●
RTU time synchronization		●	●	●	●	●	●
Data buffering in RTU		●	●	●	●	● [1]	● [1]
Routing with SIMATIC PDM		●	●	-	-	-	●
International standard		-	-	●	●	●	●

[1] Data buffering is limited to two SIMATIC S7 data blocks. Depending on the SIMATIC CPU, this corresponds to approx. 800 to 3200 buffered frames.

4

Ordering data

	Order No.		Order No.
SIMATIC TeleControl 7.0 SP2 for WinCC Basic Engineering Software package with SIMATIC TeleControl for WinCC 7.0 SP2 Engineering Software, 2 languages (English, German), executable with Windows XP Professional/Server 2003, Floating License for one user; electronic documentation on CD/DVD, 2 languages (English, German) Type of delivery: License key memory stick, Certificate of License incl. terms and conditions, SIMATIC WinCC Data Medium Package V7.0 + SP2 and CD "WinCC TeleControl Option V7.0 + SP2"	**6DL5000-7AA07-0XA5**	**SIMATIC TeleControl 7.0 SP2 for Server Runtime (unlimited stations)** Software package with SIMATIC TeleControl for WinCC 7.0 SP2 Runtime Software, 2 languages (English, German), executable with Windows Server 2003, Single License for one user; electronic documentation on CD/DVD, 2 languages (English, German) Type of delivery: License key memory stick, Certificate of License incl. Terms and Conditions, SIMATIC WinCC Data Medium Package V7.0 + SP2 and CD "WinCC TeleControl Option V7.0 + SP2"	**6DL5002-7AF07-0XA0**
SIMATIC TeleControl 7.0 SP2 for Server Runtime (6 stations) Software package with SIMATIC TeleControl for WinCC 7.0 SP2 Runtime Software, 2 languages (English, German), executable with Windows Server 2003, Single License for one user; electronic documentation on CD/DVD, 2 languages (English, German) Type of delivery: License key memory stick, Certificate of License incl. terms and conditions, SIMATIC WinCC Data Medium Package V7.0 + SP2 and CD "WinCC TeleControl Option V7.0 + SP2"	**6DL5002-7AA07-0XA0**	**Driver software for telecontrol protocols TeleControl SINAUT Driver** Runtime license for one WinCC Single Station or one WinCC server, Single License for 1 installation Requirement: Software SIMATIC TeleControl 7.0 SP2 for WinCC Server Runtime (6, 12, 256 stations) Type of delivery: License key memory stick, Certificate of License incl. terms and conditions	**6DL5101-8AX00-0XB0**
SIMATIC TeleControl 7.0 SP2 for Server Runtime (12 stations) Software package with SIMATIC TeleControl for WinCC 7.0 SP2 Runtime software, 2 languages (English, German), executable with Windows Server 2003, single license for one user; electronic documentation on CD/DVD, 2 languages (English, German) Type of delivery: License key memory stick, Certificate of License incl. terms and conditions, SIMATIC WinCC Data Medium Package V7.0 + SP2 and CD "WinCC TeleControl Option V7.0 + SP2"	**6DL5002-7AB07-0XA0**	**TeleControl DNP3 Driver** Runtime license for one WinCC Single Station or one WinCC server, single license for 1 installation Requirement: Software SIMATIC TeleControl 7.0 SP2 for WinCC Server Runtime (6, 12, 256 stations) Type of delivery: License key memory stick, Certificate of License incl. terms and conditions	**6DL5101-8EX00-0XB0**
SIMATIC TeleControl 7.0 SP2 for Server Runtime (256 stations) Software package with SIMATIC TeleControl for WinCC 7.0 SP2 Runtime software, 2 languages (English, German), executable with Windows Server 2003, single license for one user; electronic documentation on CD/DVD, 2 languages (English, German) Type of delivery: License key memory stick, Certificate of License incl. terms and conditions, SIMATIC WinCC Data Medium Package V7.0 + SP2 and CD "WinCC TeleControl Option V7.0 + SP2"	**6DL5002-7AE07-0XA0**	**TeleControl IEC 870-5-101/-104 Driver** Runtime license for one WinCC Single Station or one WinCC server, single license for 1 installation Requirement: Software SIMATIC TeleControl 7.0 SP2 for WinCC Server Runtime (6, 12, 256 stations) Type of delivery: License key memory stick, Certificate of License incl. terms and conditions	**6DL5101-8CX00-0XB0**

4

More information

For an overview of the complete performance spectrum on the Internet, visit:

Service & Support:

http://www.siemens.com/automation/csi_en_WW/service
(international)

Technical Support (hotline) for Automation & Drives:

http://www.siemens.com/automation/csi_en_WW/support_request
(international)

HMI Software
SIMATIC WinCC options

WinCC/User Archives

Overview
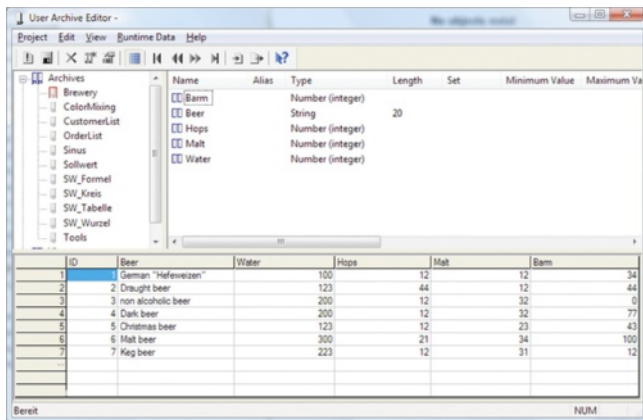
- Option for SIMATIC WinCC for managing data sets in user archives that contain related data.
- WinCC and its automation partners (e.g. a SIMATIC S7 controller) write these data sets and exchange them if required.
- A license is only required for the server (or single-user system).

The WinCC/User Archives option can also be used in the context of the WinCC/Web Navigator (see also WinCC/Web Navigator option).

Benefits

- Storing and managing of any user data in data sets
- Flexible display using ActiveX controls
- Simple linking of data set fields to the process via direct tag linking
- Import/export functions for further processing with other tools (e.g. MS Excel)

Function

- Input of parameter sets (e.g. operating parameters of a machine) in WinCC, storage of the sets in the user archive, and forwarding to the automation level
- Continuous acquisition of production parameters by the automation system and forwarding of the parameters to WinCC at the end of the shift
- Acquisition of batch data
- Specification of production parameters
- Management of warehousing data

WinCC user archives are created and assigned data in a user-friendly way using a dedicated editor. Special ActiveX controls are used for displaying data from the user archives at runtime.

Data sets and fields from user archives are linked to the process via direct tag linking.

Import and export functions support read-in/out of data via external applications (e.g. MS Excel). Freely selectable filter criteria allow clear representation of data sets.

WinCC provides functions for free organization of the data storage in the user archives that affect archives, data sets and fields. Archives can thus be generated, opened, closed, or reset, and data sets or field contents can be read, written or overwritten.

Sequence archives can accommodate batch data, shift production data, or also product quality data, and meet legal obligations for verification thanks to gap-free recording.

Ordering data

	Order No.
SIMATIC WinCC/User Archives	
• Option for SIMATIC WinCC V7.2, Runtime software, single license	**6AV6371-1CB07-2AX0**
• Option for SIMATIC WinCC V7.0, Runtime software, single license	**6AV6371-1CB07-0AX0**
• Option for SIMATIC WinCC V6.2, Single license	**6AV6371-1CB06-2AX0**

4

■ **Overview**

G_ST80_XX_00021
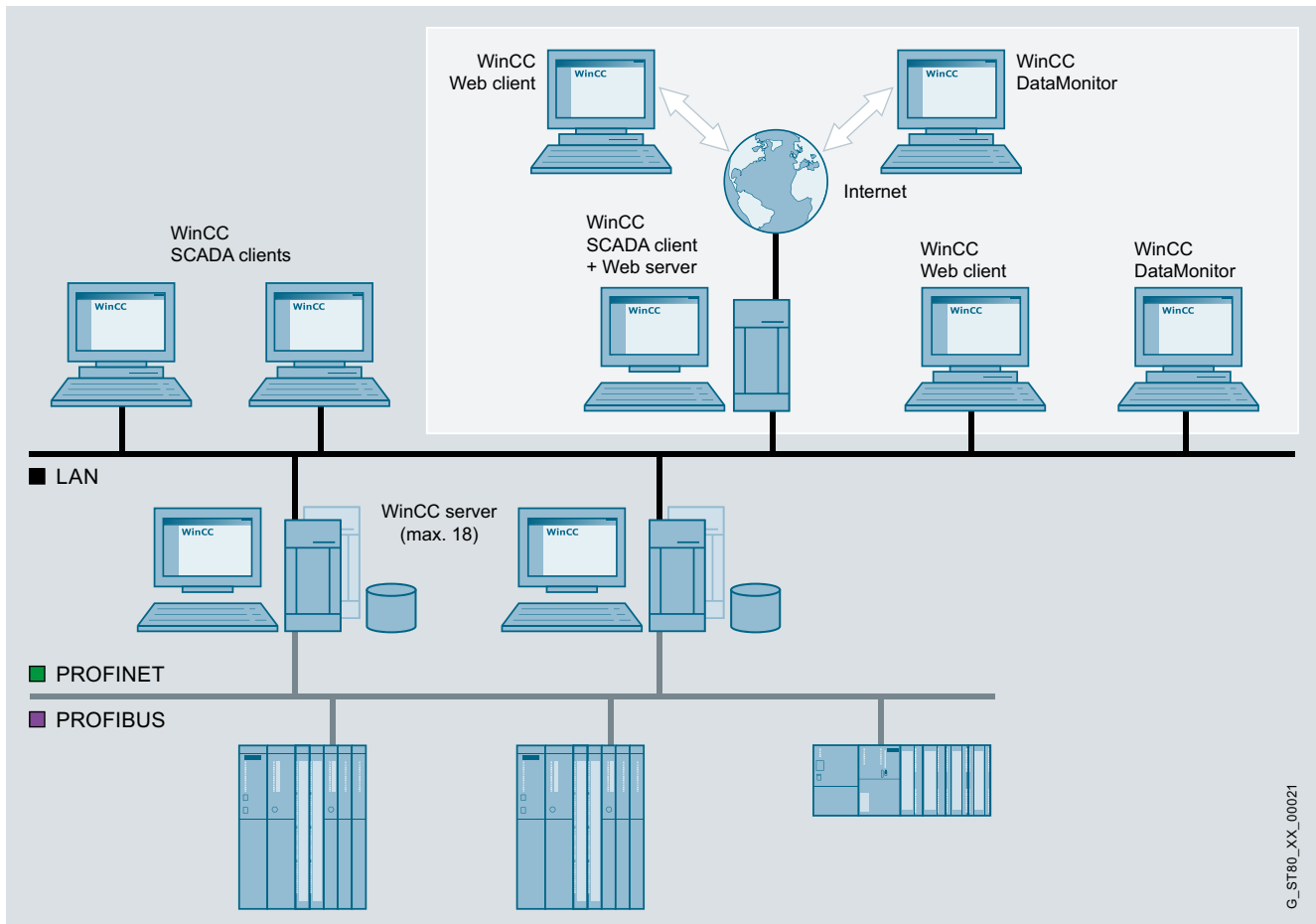
- Option for SIMATIC WinCC for operator control and monitoring of plants via the Internet, in-house intranet or LAN
- Configuration from:
  - a Web server with the SIMATIC WinCC software as a single-user, client or server version and a Web client that enables operator control and monitoring of a current WinCC project via an Internet browser with ActiveX support. The WinCC basic system does not have to be installed on the client computer. It is also possible to use the Web client without Microsoft Internet Explorer.

- Licensing:
  - A license is required in order to use the Web server.
  - Licenses are available for access to the Web server by 1, 3, 5, 10, 25, 50, 100 or 150 clients.
  - Low-priced WebNavigator diagnostics licenses are available for the remote diagnostics via multiple, distributed Web servers.

HMI Software
SIMATIC WinCC options

WinCC/Web Navigator

■ Overview (continued)

Highlights:

- Installation of the Web server - in distributed systems - also on a WinCC Client;
  - Access to as many as 18 subordinate WinCC stations (servers) possible
  - Web clients offer common views of data on various WinCC Servers
  - If you are using WinCC/Redundancy, the Web clients will also transfer via the subordinate WinCC servers (requires WebNavigator server to be installed on the WinCC Client (RT128))
  - Separating the Web functionality from the WinCC data servers makes the overall system safer and more scalable in respect of load. Integrated user management with WinCC: The configured WinCC operator authorizations are taken into account on the Web client.
- Access to WebNavigator server from the WebNavigator TIA Portal series of products.
- Access to user archives.
- VB scripts are supported in the same way as the new objects and RT functions in WinCC V7.x.
- User-friendly services and tools for distributing customized objects (controls, files) to Web clients can be supplied for use as an integration platform. These components can then also be integrated into cross-Web/Server navigation.
- Distribution of load across a number of Web servers in order to run several hundred Web clients in a single system; Web clients are distributed across Web servers automatically.
- Version 7.2 supports Microsoft Internet Explorer Version 8.0 and 9.0, including tabbed browsing. A new license is not required for separate tabs.
- With the WinCC Web Viewer, the process screens can be displayed on the Web client independently of the Internet Explorer. Settings for the client are made on the client itself.
- The WinCC Web Viewer can also be used in conjunction with the Microsoft Terminal Service.
- From version 7 on, the WebNavigator can also be operated in "view only" mode and is thus used as tool for operating and navigating only via WinCC screens by means of the Internet Explorer.
- The cursor for View only mode can be selected according to individual requirements.
- Web server logins and logouts are recorded in the alarm and audit archive.
- There is a gadget available for the Windows 7 operating system in which selected WinCC process screens can be displayed. The gadget does not require any additional WebNavigator license. The WebNavigator server can be selected direct using the gadget.
- Security is increased by adjustable automatic logout. If an automatic logout is to take place, an absolute or inactive time period can be set.
- Runtime in the Web client can be terminated by means of scripting.

■ Benefits

- Operator control and monitoring across long distances and on different platforms (PC, local panel, mobile PDA)
- Large configurations with up to 150 operator stations
- Fast updating rates thanks to event-driven communication
- Optimally tailored clients for operating and monitoring, analysis, service and diagnostics
- Acceptance of configuration data for the Web, generally without changes
- Minimum maintenance costs thanks to centralized software administration
- High security standards and availability
  - Increased security due to separation of WinCC server and Web server (Web server in secure environment)
  - Support for commonly used security mechanisms (routers, firewalls, proxy servers)
  - Access authorization and user administration

New in V7.2

- New license stages for 1, 5, 100, 150 clients and associated powerpacks 1/3, 3/5, 50/100, 100/150
- Unicode support
- PDL password protection with WebNavigator PDLPad
- Login / logout / register:
- Log user in/out on the WebNavigator client
- Manual logout in the Internet Explorer by means of ODK C-Script (PWRTLogout function)
- Configurable logout/login in the WinCC RT Viewer

■ Application

In addition to the typical use of the Web Navigator in WANs (**W**ide **A**rea **N**etwork), the Web Navigator is also suitable for solving especially low-cost applications. This especially includes applications that have a pronounced distributed structure (water/wastewater, oil & gas), or in which access to process information is only sporadic (building management).

The Web Navigator also permits vertical integration, i.e. a networked IT landscape with integrated data flow between the planning and operating levels within a company. Only a standard browser is required for direct access to current process information.

The Web Server can have its own dedicated direct process connection. An alternative is coupling via OPC or the use of a remote Web Server to a WinCC Client. This simultaneously increases security and reduces the communication load of the plant.

In addition to the Standard Web Navigator licensing there is the so-called Diagnostics Client, with identical functions in principle, but which is especially suitable for the following applications:

- Remote diagnostics/operation of several unmanned WinCC stations.
- Central control rooms which monitor multiple Web Servers on one user interface.
- Power Users that always require guaranteed access to the server regardless of the number of users already logged on to the server.

4

Design

Licenses for the Web Navigator

The Web Navigator Client software can be installed as many times as required without the need for a license.

- Server-based licensing;
  a license is required in order to use the Web Navigator Server. Licenses are available for simultaneous access to the Web server by 1, 3, 5, 10, 25, 50, 100 or 150 clients.
- Diagnostics client licensing;
  for optimum-cost access by one or a small number of Web Navigator Clients to numerous Web servers (e.g., for the purpose of diagnostics). This client license provides guaranteed access to Web servers at any time. In respect of function there is no difference compared with regular Web Navigator Clients and the two can be mixed.

Web Navigator Clients can:

- Access a number of different web servers or
- Access data on a number of higher-level WinCC stations simultaneously via a remote Web server

On the server side, only one Web Navigator Diagnostics Server license or, alternatively, one Standard Web Navigator license is required.

Alternatively, a number of Web Navigator Servers with the same WinCC project can be combined to create a "server farm". This means that it is possible for several hundred Web clients to have access to the same database. The service ensures that the clients accessing are distributed evenly across all servers. If a server fails the Web client is automatically forwarded to the next available server.

In order to use this functionality you will need to install a Web Load Balancing license on the Web servers involved. Each Load Balance package contains 2 licenses.

An inexpensive expansion option for Web Load Balancing is available for redundant WinCC stations on which the Web Navigator is also installed. For this purpose, you need to install a Web Load Balancing Step Up license on the web servers involved. Each Step Up package contains 2 licenses.

Thin Client solutions

The Web Navigator can also run under Windows Server 2003 or Windows Server 2008 terminal services. A Windows Server 2003 or Windows Server 2008 (or higher) operating system is required. This makes it possible to connect SIMATIC Thin Clients as visualization stations to WinCC, for example.

For this purpose, the Windows terminal services must be installed on the PC on which the Web client is installed. A Windows Server 2003 or Windows Server 2008 (or higher) operating system is required. Up to 25 ThinClients can be connected to one terminal server.

Applications:
- Mobile devices
- Handhelds
- Rugged on-site visualizations

Hybrid configuration

Web Navigator and DataMonitor clients can be mixed in a single system.

Function

The Web Configurator (Wizard) makes setting up and configuring a Web Navigator Server very easy. WinCC process screens to be visualized via the Internet are created as usual using WinCC Graphics Designer. Under normal circumstances the project can be worked on locally without modification. The Web Publishing Wizard optimizes the screens for transmission and display on the Internet. A standard browser is all that is required to display WinCC process screens on the Web Client. The MS Internet Explorer is used depending on the Web Navigator version used (tip: start the Internet Explorer in full-screen mode with the start parameter "-k").

The operator on the Web Client is integrated in the central WinCC user administration and can operate and monitor the system according to the configured access rights. The Web Navigator supports all standard security mechanisms that can be used for applications on the Internet, e.g. routers, firewalls and proxy servers.

4

HMI Software
SIMATIC WinCC options

WinCC/Web Navigator

Ordering data	Order No.		Order No.
WinCC/Web Navigator		**V7.0; for WinCC V7.0, WinCC V7.0 SP1/SP2/SP3 and WinCC V7.0 SP1/SP2/SP3 ASIA**	
V7.2; for WinCC V7.2		• Base Pack (3 client licenses)	6AV6371-1DH07-0AX0
• 1 client license	6AV6371-1DH07-2LX0	• 10 client licenses	6AV6371-1DH07-0BX0
• 3 client licenses	6AV6371-1DH07-2AX0	• 25 client licenses	6AV6371-1DH07-0CX0
• 5 client licenses	6AV6371-1DH07-2MX0	• 50 client licenses	6AV6371-1DH07-0DX0
• 10 client licenses	6AV6371-1DH07-2BX0	**WinCC/Web Navigator Powerpacks V7.0**	
• 25 client licenses	6AV6371-1DH07-2CX0	• From 3 to 10 clients	6AV6371-1DH07-0AB0
• 50 client licenses	6AV6371-1DH07-2DX0	• From 10 to 25 clients	6AV6371-1DH07-0BC0
• 100 client licenses	6AV6371-1DH07-2GX0	• From 25 to 50 clients	6AV6371-1DH07-0CD0
• 150 client licenses	6AV6371-1DH07-2HX0	**WinCC/Web Navigator Diagnostics Client**	
WinCC/Web Navigator Powerpacks V7.2		• for WinCC V7.0	6AV6371-1DH07-0EX0
• From 1 to 3 clients	6AV6371-1DH07-2LA0	**WinCC/Web Navigator Diagnostics Server**	
• From 3 to 5 clients	6AV6371-1DH07-2AM0	• for WinCC V7.0	6AV6371-1DH07-0FX0
• From 5 to 10 clients	6AV6371-1DH07-2MB0	**WinCC/Web Navigator upgrade**	
• From 10 to 25 clients	6AV6371-1DH07-2BC0	**V6.0 to V7.0**	
• From 25 to 50 clients	6AV6371-1DH07-2CD0	• For 3 clients	6AV6371-1DH07-0AX4
• From 50 to 100 clients	6AV9681-1DH07-2DG0	• For 10 clients	6AV6371-1DH07-0BX4
• From 100 to 150 clients	6AV9681-1DH07-2GH0	• For 25 clients	6AV6371-1DH07-0CX4
WinCC/Web Navigator Diagnostics Client		• For 50 clients	6AV6371-1DH07-0DX4
• for WinCC V7.2	6AV6371-1DH07-2EX0	**V6.2 to V7.0**	
WinCC/Web Navigator Diagnostics Server		• For 3 clients	6AV6371-1DH07-0AX3
• for WinCC V7.2	6AV6371-1DH07-2FX0	• For 10 clients	6AV6371-1DH07-0BX3
WinCC/Web Navigator upgrade		• For 25 clients	6AV6371-1DH07-0CX3
V6.0 to V7.0; V6.2 to V7.0; V6.2 to V7.2	Included in corresponding WinCC upgrade	• For 50 clients	6AV6371-1DH07-0DX3
• For 3, 10, 25, 50 clients		**V6.x to V7.0**	
• Diagnostics server and diagnostics client		• For Web Navigator Diagnostics Client	6AV6371-1DH07-0EX4
• Load Balancing		• For Web Navigator Diagnostics Server	6AV6371-1DH07-0FX4
WinCC/Web Load Balancing V7.2		**WinCC/Web Load Balancing V7.0**	
• Load Balancing	6AV6371-1DH07-2JX0	• Load Balancing	6AV6371-1DH07-0JX0
• Load Balancing Step Up	6AV6371-1DH07-2FJ0	• Load Balancing Step Up	6AV6371-1DH07-0FJ0

4

■ Ordering data	Order No.
WinCC/Web Navigator	
V6.2 SP3; for WinCC V6.2 SP3	
• Base Pack (3 client licenses)	**6AV6371-1DH06-2AX0**
• 10 client licenses	**6AV6371-1DH06-2BX0**
• 25 client licenses	**6AV6371-1DH06-2CX0**
• 50 client licenses	**6AV6371-1DH06-2DX0**
V6.2 SP3 ASIA; for WinCC V6.2 SP3 ASIA	
• Base Pack (3 client licenses)	**6AV6371-1DH06-2AV0**
• 10 client licenses	**6AV6371-1DH06-2BV0**
• 25 client licenses	**6AV6371-1DH06-2CV0**
• 50 client licenses	**6AV6371-1DH06-2DV0**
WinCC/Web Navigator Powerpacks	
• V6.2 (for ASIA variants as well)	
• From 3 to 10 clients	**6AV6371-1DH06-2AB0**
• From 10 to 25 clients	**6AV6371-1DH06-2BC0**
• From 25 to 50 clients	**6AV6371-1DH06-2CD0**
WinCC/Web Navigator Diagnostics Client	
• for WinCC V6.2 SP3	**6AV6371-1DH06-2EX0**
• for WinCC V6.2 SP3 ASIA	**6AV6371-1DH06-2EV0**
WinCC/Web Navigator Diagnostics Server	
• for WinCC V6.2 SP3	**6AV6371-1DH06-2FX0**
• for WinCC V6.2 SP3 ASIA	**6AV6371-1DH06-2FV0**
WinCC/Web Navigator upgrade	
V1.x to V6.2 SP3	
• For 3 clients	**6AV6371-1DH06-2AX4**
• For 10 clients	**6AV6371-1DH06-2BX4**
• For 25 clients	**6AV6371-1DH06-2CX4**
• For 50 clients	**6AV6371-1DH06-2DX4**
V6.x to V6.2 SP3	
• For 3, 10, 25, 50 clients [1]	**6AV6371-1DH06-2XX3**
• For Web Navigator Diagnostics Client	**6AV6371-1DH06-2EX3**
• For Web Navigator Diagnostics Server	**6AV6371-1DH06-2FX3**
V6.x ASIA to V6.2 SP3 ASIA	
• For 3, 10, 25, 50 clients [1]	**6AV6371-1DH06-2XV3**
WinCC/Web Load Balancing V6.2 SP3	
• Web Load Balancing (2 licenses)	**6AV6371-1DH06-2JX0**
• Web Load Balancing Step Up (2 licenses)	**6AV6371-1DH06-2FJ0**

[1] Including upgrade for diagnostics client, diagnostics server, Web Load Balancing and Web Load Balancing Step Up.

■ **More information**

System requirements – Web server

For WinCC/Web Navigator V7.2
• Windows 7 SP1 (32- and 64-bit) Business, Enterprise and Ultimate (max. 3 clients)
• Windows XP Professional Service Pack 3 (max. 3 clients)
• Windows Server 2003 SP2
• Windows Server 2008 SP2 32-bit
• Windows Server 2008 R2 SP1 64-bit
• Internet Explorer V7.0, V8.0 and V9.0
• Microsoft SQL Server 2008 R2 SP1, 32-bit (included in the WinCC product delivery)

For WinCC/Web Navigator V7.0
• Windows 7 (32-bit) Business, Enterprise and Ultimate (max. 3 clients)
• Windows XP Professional Service Pack 3 (max. 3 clients)
• Windows Server 2003 SP2 and Windows Server 2003 R2 SP2
• Windows Server 2008 SP2
• Internet Explorer V6.0 SP1 or SP2 as well as Internet Explorer V7.0.
• Microsoft SQL Server 2005 SP2 (scope of supply of WinCC)
• WinCC Basic System V7.0 SP2

For WinCC/Web Navigator V6.2 SP3
• Windows 2000 Professional Service Pack 4 (max. 3 clients)
• Windows XP Professional or Service Pack 3 (max. 3 clients)
• Windows Server 2003 SP2 or Windows Server 2003 R2 SP2
• Internet Explorer 6.0 SP1, SP2 or 7.0 (without multitabbing)
• Microsoft SQL Server 2005 SP1 (scope of supply of WinCC)
• WinCC basic system V6.2 SP3

System requirements – Web client

For WinCC/Web Navigator V7.0
• Internet Explorer V6.0 SP1 or SP2 as well as Internet Explorer V7.0

For WinCC/Web Navigator V6.2 SP3
• Internet Explorer 6.0 SP1, SP2 or 7.0 (without multitabbing)

WinCC Web Navigator V6.2 SP3 ASIA

(requires SIMATIC WinCC V6.2 SP3 ASIA)

The functions included in this version differ from the standard version of WinCC/Web Navigator V6.2 SP3 as follows:
• This version does not allow an Asian Web Navigator client to access a non-Asian server and vice versa.

4

HMI Software
WinCC add-ons und partner management

■ Overview

G_ST80_XX_00175
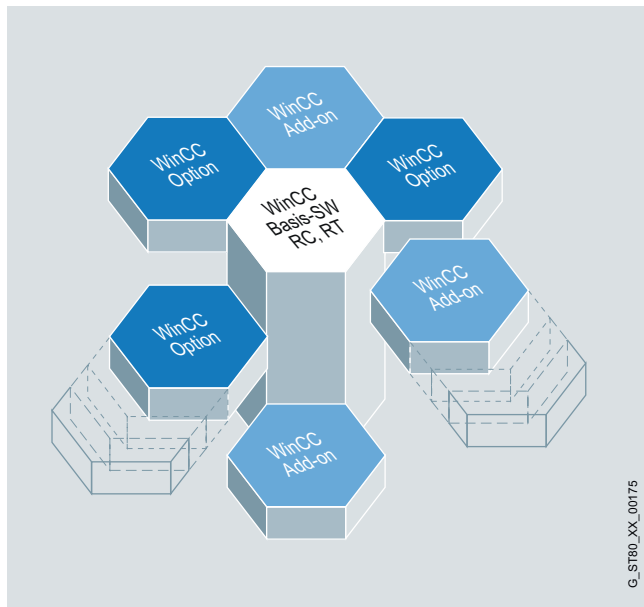
WinCC Premium Add-ons – Solutions for all sectors and technologies

The basic system is designed to be independent of any specific technology or industrial sector, to be modular and flexibly expandable and to permit not only simple single-user applications in machine construction, but also complex multi-user solutions or even distributed systems with several servers and clients in plant engineering. WinCC Premium Add-ons are supplementary products that have been created by competent partners working in the specifc sectors and technologies and represent interesting expansions for WinCC.

WinCC Premium Add-ons are not IA (Siemens Industry Automation) products, but the products of partners who are committed to complying with certain quality features and boundary conditions. The Premium Add-ons are checked, for example, in the Siemens Test Center for their compatibility with the basic WinCC system and supported in the first instance by the central Hotline. As they are important application- and sector-specific add-on products for SIMATIC WinCC, they are marketed jointly by Siemens and the respective add-on suppliers. The WinCC Premium Add-on products can be found on the Internet (see Further Information) and in the "Online WinCC Premium Add-on Catalog".

Premium Add-ons for Connectivity:
- **PM OPEN IMPORT system software**
  for importing WinCC flexible archives into the WinCC system.
- **PM OPEN EXPORT system software**
  for exporting WinCC data to local storage media or storage media released in the network.
- **PM OPEN TCP/IP system software**
  permits bidirectional exchange of WinCC data (tags, messages) with one or more computers that communicate using the TCP/IP protocol.
- **Historian CONNECT ALARM system software**
  permits importing of messages and alarms from WinCC and WinCC flexible into the SIMATIC IT Historian.
- **TOP Server/TOP Server UCON**
  expands OPC-based the connection capability for WinCC & WinCC flexible Advanced (PC based runtime)

Premium Add-on for process management:
- **PM CONTROL system software**
  is a recipe system for user-friendly generation and modification of recipes.
- **PM QUALITY system software**
  is an archive system for the administration of job and batch-related production and process data.

Premium Add-on for sector products:
- **Library SENTRON PAC3200 for SIMATIC WinCC**
  permits seamless integration of the SENTRON PAC3200 multi-functional measuring instrument in WinCC.
- **Sm@rtlib function library**
  provides function blocks for S7-300/400 as well as faceplates and icons for WinCC and WinCC flexible from the areas of process industry, HVAC, pharmaceuticals and energy.
- **ACRON for WinCC/PCS 7**
  is used for long-term archiving and logging of process data for small to medium-sized plants, specifically in the water supply and treatment industry.

Premium Add-on for configuration tools:
- **DCC TranslationEditor**
  for translating multilingual projects with in-built security, convenience and globalization features.

Premium Add-on for diagnostics and maintenance:
- **Management System Alarm Control Center**
  for transmitting fault messages via various communication paths, such as GSM, LAN, e-mail.
- **PM MAINT system software**
  is a tool for the maintenance of production plants.
- **PM ANALYZE system software**
  for analysis of fault and operating messages, as well as process values.

4

■ **Overview** (continued)

Competent partners

With SIMATIC WinCC, you not only get excellent products to suit your requirements, but we will also support you with selecting a partner for your automation solution. In our global network of Siemens Automation Solution Providers you will always find competent partners in your neighborhood. In addition, we implement and support the Siemens-internal WinCC Competence Centers and the WinCC Professionals external system integrators on the basis of WinCC customer- and industry-specific and economic solutions.

WinCC Competence Centers

Mannheim

Emphasis on process management

- Sector-independent solutions and products in the fields: Production, environmental protection, maintenance and diagnostics
- Connectivity tools, system integration, connection to SAP R/3
- Support of FDA validation and WinCC ODK
- Support for advanced users with application of ODK and VBA
- Customer-specific software development for panels, PCs/IPCs, and servers
- Consulting on web technologies, web servers/thin clients, DataMonitor
- Customer-specific workshops, e.g. VBS, VBA, and all WinCC options, e.g. Process Historian
- Information Server and other WinCC topics according to customer requirements

Stuttgart

Emphasis on production technology

- Solutions for maintenance management
- Web-based solutions with WinCC

Nuremberg

Solutions in the Oil & Gas, Metal & Mining, Pulp & Paper sectors

- Network and security
- Microsoft Certified
- Migration from COROS to WinCC
- Customized expansions also for WinCC flexible
- Web solutions
- Customer-specific workshops, e.g. training courses for VBS, VBA, web technologies à Web Server/Thin Client, DataMonitor à Webcenter Reports, Excell Workbook, and all WinCC topics as required by the customer (the latter with lead time)

Further information can be found in the Internet at:
http://www.siemens.com/wincc/competencecenter

■ **More information**

WinCC Competence Center

http://www.siemens.com/winCC/competencecenter

Siemens Solution Partner Automation

http://www.siemens.com/automation/solutionpartner

WinCC Premium Add-on

http://www.siemens.com/winCC/addons

4

HMI Software
SCADA System SIMATIC WinCC Open Architecture

SIMATIC WinCC Open Architecture

Overview

SIMATIC WinCC Open Architecture is a SCADA system for visualizing and operating processes, production flows, machines and plants in all industrial sectors.

SIMATIC WinCC OA relies throughout on object-oriented structures. Due to this consistent and well-considered use of object-oriented structures, from process pictures to the database, the engineering costs improve for SIMATIC WinCC OA customers.

Distributed systems enable the connection of up to 2048 autonomous SIMATIC WinCC Open Architecture systems via one network. Each subsystem can be configured either as single-user or multi-user system, each of which may be redundant or non-redundant.

- Current version: **SIMATIC WinCC Open Architecture V3.11**
  Runs on:
  - Windows 8 Enterprise (64-bit)
  - Windows 7 Ultimate/Enterprise/Professional SP1 (32/64-bit)
  - Windows XP SP2/SP3 (32-bit)
  - Windows Server 2008 R2 (64-bit)
  - Red Hat Linux 5 (32/64-bit)
  - OpenSuse 12.1 (32/64-bit)
  - Sun Solaris 10 SPARC (32-bit)
  - Sun Solaris 10 x86 (64-bit)
  - VMWare ESXi Version 4.0.0 & 5.0.0

Note

Native 64-bit support on 64-bit systems.

Benefits

- Efficient engineering and flexible plant expansion
  - Object orientation
  - Unlimited number of data points
  - Mass engineering
  - Multilingual with UTF-8 support

- Object-oriented data model
  - Mapping of setpoint values and measured values for a physical plant object onto a structured data point
  - Data point comprises a tree structure with data point elements
  - The individual process values are mapped onto the data point elements
  - Any number of data points can be instanced from one defined data point structure (data point type), e.g. 20 pumps of the same type
  - Data point types can be embedded in other data point types, which enables more complex plant objects to be generated (e.g. one pump station comprises 2 pumps).
  - Graphical plant symbols can be linked with a data point type, in which case they only need to be drawn once, but can be used for all instances of the linked type.
  - Savings in engineering outlay.
- Freely scalable
  - From a small single-user system up to a networked, redundant high-end system
  - Distributed systems of up to 2048 servers
- Platform-independent
  - Available for Windows, Linux and Solaris
- Native 64-bit support
  - More system memory is usable, due to native 64-bit support
  - This means that larger data quantity structures per server can be processed
- Maximum fail-safety and availability
  - Hot standby redundancy
  - Disaster recovery system
  - SIL3 certification according to IEC 61508
- Platform for customized solutions
  - Quick and easy implementation of new processes
  - Swift adaptation of the control and visualization of the plant to current market requirements
  - Company-internal programming and in-house developments enable independence and protection of intellectual property
  - Structure of standardized solutions permits continuous use
  - Support of brand-labeling
  - Individual brand names for OEM developments
- Openness thanks to comprehensive driver and interface options:
  - Modbus serial, Modbus Plus / RS485, RK512, TLS, Teleperm M, SSI driver, IEC 60870-5-101, -104, DNP3, SINAUT, PROFIBUS DP, PROFIBUS S7 + MPI, S7 TCP/IP, Modbus TCP/IP, Ethernet/IP, OPC DA Client & Server, OPC A&E Client & Server, OPC UA Client & Server (DA, AC), SNMP, BACnet, API, Kerberus
- Seamless traceability of system states by means of high-performance archiving:
  - Data archiving in value archives (internal database format)
  - Data archiving in an Oracle database
- Expandable by means of add-ons and solution frameworks:
  - Add-on for quick and easy engineering (Etool, AdvS7, etc.)
  - Add-on for increasing the availability (DRS, etc.)
  - Add-on for clarity in distributed systems (GIS Viewer, etc.)
  - Add-on for efficient maintenance management (AMS, Scheduler, etc.)
  - Add-on for mobile operability (Web Client, Ultralight Client, etc.)
  - Add-on for efficient building automation technology (BacNet, etc.)
  - Add-on for the integration of video management

4

SIMATIC WinCC Open Architecture

Application

The SCADA system SIMATIC WinCC Open Architecture addresses applications with high demand for customer-specific adaptations, large and/or complex applications, as well as projects that demand special system requirements and functions.

SIMATIC WinCC Open Architecture demonstrates its high performance in networked and redundant high-end control systems in particular. Integrated, high-performance communication is guaranteed from the field level to the control station, from the machine to the company headquarters. In every situation, high availability, reliable information, fast interaction, and user friendliness are guaranteed. Applications can also be changed without interrupting the process. Profitability, efficiency and safety are therefore always in equilibrium. SIMATIC WinCC Open Architecture displays its reliability in a wide range of business-critical applications.

With SIMATIC WinCC Open Architecture, ideas can be quickly and easily converted into new applications. SIMATIC WinCC Open Architecture is open for independent in-house developments and also enables own product branding.

Thanks to its special system properties, SIMATIC WinCC Open Architecture meets the highest demands especially in the case of traffic solutions, building management systems and supply systems (power, water, oil and gas, etc.).

Design

SIMATIC WinCC Open Architecture is available as a single-user runtime license, multi-user runtime license, Web Client license, and parameterization and development license. With SIMATIC WinCC Open Architecture the required license is determined, among other things, according to the number of inputs and outputs (I/O).

An "I/O" refers to a data point element (DPE) whose content is exchanged either by means of drivers (e.g. S7 driver communicates with a PLC), with other software systems. Internal data point elements, i.e. DPEs without communication to the outside, are not counted for licensing. The licenses are available either with an unlimited number of I/Os or with limitations of 500 to 250 000 I/Os.

The multi-user runtime license allows working simultaneously from different PCs, with the licensing taking place via the server. The active clients are then counted. The web client and the ultra-light client enable the visualization and operation of process pictures over an exclusively HTTP connection between the server and the respective web client. The parameterization and development licenses extend a runtime license with the option of configuration and parameterization. They each require a server license.

Function

SIMATIC WinCC Open Architecture is a very modular SCADA system. The required functionalities are realized by specific, functional entities created for various tasks. In SIMATIC WinCC Open Architecture these units are called "Managers" – they are also independent processes in software terms.

WinCC OA Manager	Task
Event Manager (EV)	The Event Manager (EV) is the processing center in WinCC OA. This unit provides a constantly updated image of all PowerTags in the memory. Each other functional unit (Manager) that wants to access the data receives it from the process image of the Event Manager and does not have to communicate directly with a controller. Conversely, a command from an operator station is initially set only as a value change in the process image of the Event Manager. The associated driver then forwards it to the corresponding target device (e.g. PLC) automatically. The Event Manager is a kind of central data distributor, in effect the communication center for WinCC OA. Furthermore, this Manager also carries out the alarm handling and can execute various arithmetic functions autonomously.
Driver Manager (D)	The lowest level in a WinCC OA System is represented by the process connections, referred to in WinCC OA as drivers (D). These are special programs that handle the communication with the control and field level. Since numerous different forms of communication are possible with the PLCs or telecontrol nodes, there are different drivers that can be selected. In very simple terms, the driver is a unit for converting a particular protocol into the internal communication form of WinCC OA. The driver reads the current states, measurement or counter values from the field and in the opposite direction it forwards commands and setpoints to the lower-level controllers (= the term "control" should be used here and below to represent all possible devices of the basic automation (PLC, DDC, telecontrol system, etc.)).
Data Manager (DB)	The Data Manager (DB) represents the link to database. On one hand, it involves the parameterization data of an application that is to be stored in such a database. On the other hand, it involves the historical recording of changes in values or alarms. If a user wishes to query historical data at a later date, then the Data Manager completes this request and not the database itself.

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HMI Software
SCADA System SIMATIC WinCC Open Architecture

SIMATIC WinCC Open Architecture

Function (continued)

WinCC OA Manager	Task
Control Manager (CTRL)	WinCC OA has numerous options for implementing your own algorithms and processing. The two most important are the internal language control (CTRL) and the general application programming interface (API). Control is an extremely powerful scripting language. The processing is interpretative, so that no compilation is required. The syntax is almost identical with ANSI-C, with some modifications for simplification. This is a fully developed, procedural high-level language with multi-threading (= quasi-parallel processing of individual programs; the system itself carries out the processing check). The language offers a comprehensive function library for tasks of the control and visualization technology. Control can be used as a stand-alone process (Control Manager), for animation and user interface design or for standardized, data object-oriented processing functions. The API (WinCC OA API) represents the most powerful form of functional expansion. It is configured as a C++ class library and allows the software developer to implement individual functions as an independent, additional manager (forecast system, simulation, tools, proprietary databases, etc.).
User Interface Manager (UI)	The interface to the user is created by the User Interface Manager (UI). This comprises a graphics editor (GEDI), a database editor (PARA) or the general user interface of the application (Vision module). The User Interface serves to display values, issue commands or track alarms in the alarm list. Trends and reports are also usually part of the UI. From a programming viewpoint, the user interaction in WinCC OA is completely isolated from the background processing – this is merely a view of the data of the current process image or the history.

For special tasks such as redundancy, management for distributed systems, web server, reporting, simulation, COM etc., further managers are available.

The powerful configuration functions contribute to a reduction of engineering and training overheads and lead to increased flexibility and operational reliability.

Special functions	Task
Access to external databases	The database interfaces offer the possibility of access to external databases. Under Windows, the link is established via the ADO Standard. ADO (ActiveX Data Objects) is an interface developed by Microsoft for vendor-independent access to data sources of all types, primarily databases. The data source for ADO is an OLE DB Provider, although ODBC-compatible databases can also be addressed via an internal wrapper. In Linux, the Qt library is used as an interface to relational databases. Access in this case is either direct via the native DB-API or via ODBC.
Application Programming Interface (API)	The API offers a series of functions that enable WinCC OA to be extended with special managers. A manager means a program that communicates with the system by via a protocol defined by WinCC OA.
COM (Component Object Model)	This is a specification for the development of modular software components that can be used by each COM-compatible application. COM components can easily be integrated into such applications and can even be removed from an application during runtime. COM components can be programmed in a host of different languages, even though C++ is usually used for this purpose. The specifications OLE, ActiveX and DirectX are based on the COM technology.
Control expansion	Expansion that allows C++ functions to be added to the programming language.
Panel topology/ summation signal	Generation of panel hierarchies/topologies in existing or new projects and automatic creation of summation signals of the alarm data points that are located in the panels of the topology.
Redundancy (see figure below)	The failure safety in a redundant system is implemented by means of hot standby. Hot standby is a hardware-independent solution for high availability. This is a safety concept that consists of two interconnected server systems. Both servers are constantly in operation and are subject to the same functional loading (but only one server is ever active; the second compares the data with the primary unit at runtime). On the failure of one unit, an "on-the-fly changeover" takes place and the previously passive server assumes the leading role. This guarantees access to data or functions at all times.
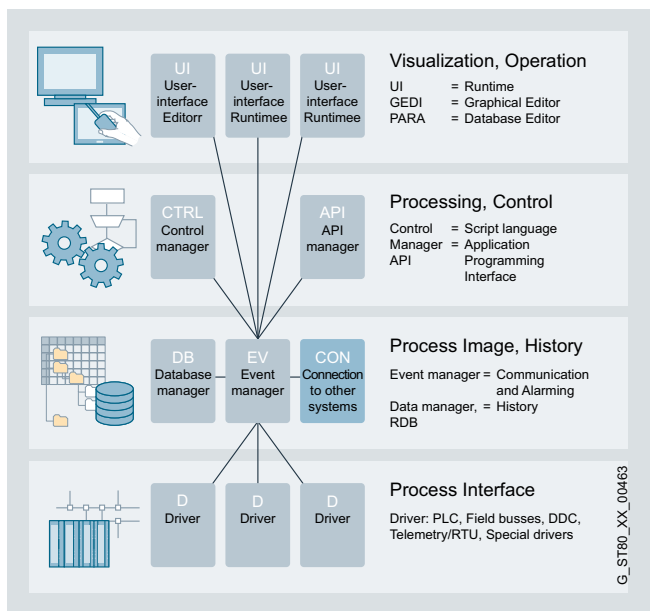
A WinCC OA System consists of function-specific units, the managers

Function (continued)

Special functions	Task
SMS	Allows the sending and receiving of text messages with WinCC OA.
Encryption of panels and CTRL scripts/ libraries	Allows your panels or scripts to be encrypted, thereby protecting your knowledge and work.
Script Wizard	Easy-to-use tool that simplifies the creation of animated, graphical plant symbols, which saves time during engineering.
Simple Symbols	Basic package of plant symbols that have been created using the script wizard. These can be adapted quickly and easily to the specific requirements of the customer.
Easy Faceplates	Simple parameter assignment of predefined pop-up windows that display details of the associated plant symbol. Without any additional drawing outlay, several standard functions per object can be activated for the detail view (alarm display, trend display, measured value table, setpoint value table, address table, notes).

Special functions	Task
Drag and Draw	Several representative graphical objects can be defined and configured for each plant object in the data model (data point type). These are pre-configured and need only be moved to the panel via drag-and-drop when the plant pictures are drawn. This saves valuable time during engineering.
Distributed systems (see the diagram below)	Permits the coupling of two or more autonomous WinCC OA systems via a network. Each subsystem of a distributed system can be configured either as a single-user or multi-user system, each of which may be redundant or non-redundant. A sub-system in this context means a server on which an Event Manager is running, whereby in case of redundancy both redundantly operating servers are considered as one system.
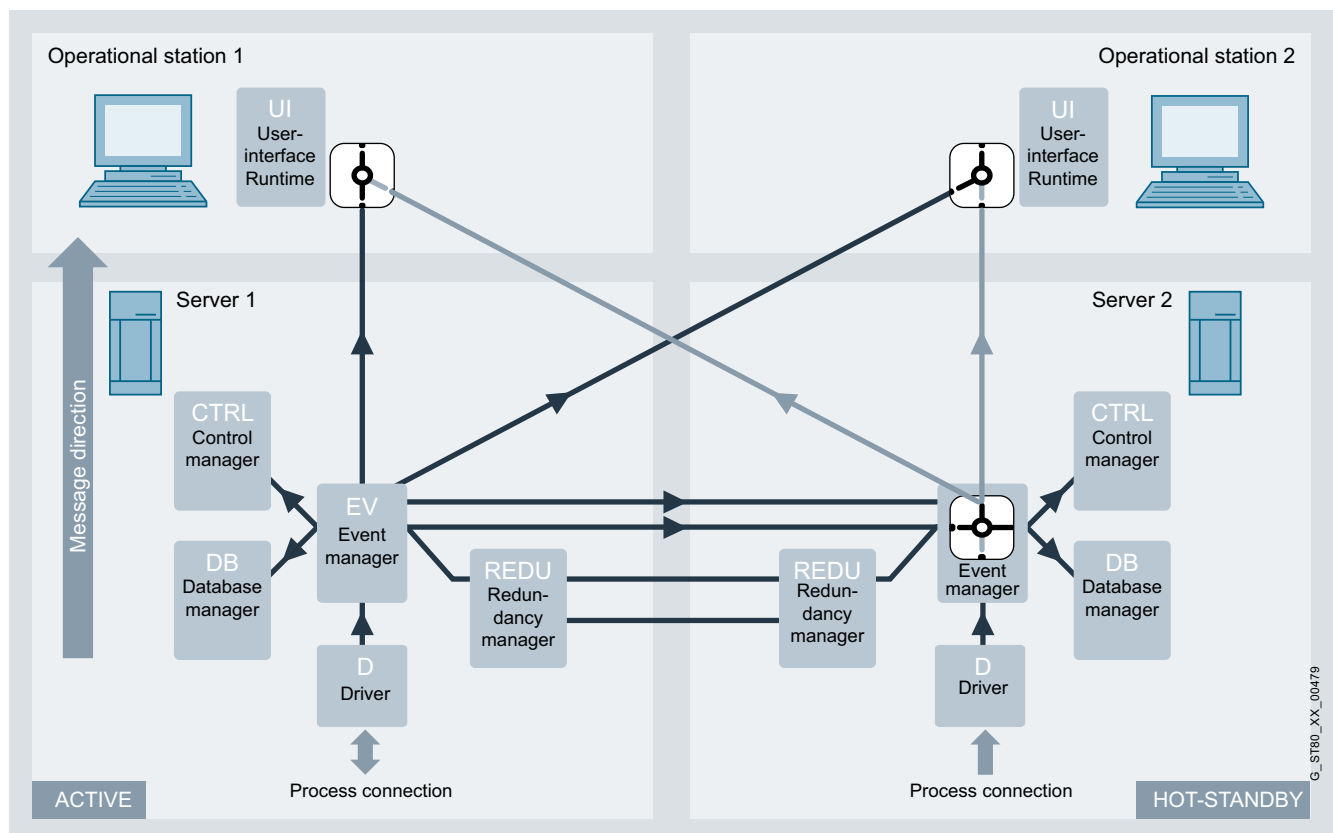
The diagram shows a detailed representation of the two computers Server 1 and Server 2. Server 1 is in the management mode (active) and Server 2 is in hot standby mode (passive). In the case of redundant operation, the UIs of both operator stations are connected to both Event Managers, however only the data of the active system is displayed on both UIs.

The Event Manager of the passive system is restricted exclusively to communication with the Event Manager of the active system for comparison of the process data (it sends no data to the connected UIs or it discards messages from the drivers – this can be seen in the figure with the switches on the UIs or on the passive Event Manager).

HMI Software
SCADA System SIMATIC WinCC Open Architecture

SIMATIC WinCC Open Architecture

■ Integration

Integration in automation solutions

SIMATIC WinCC Open Architecture is an open SCADA system with comprehensive drivers and flexible options for connection to other external systems.

Depending on the communications protocol and the bus physics used, specific drivers are used in each case:

- Serial protocols: RK512, 3964R, etc.
- Ethernet: Industrial Ethernet (S7), Modbus TCP (OpenModbus), Ethernet IP (AB), etc.

- Telecontrol systems: SINAUT, SSI (Ethernet), IEC 60870-5-101, IEC 60870-5-104, etc.
- Vendor-independent interfaces: OPC UA, etc.

In SIMATIC WinCC Open Architecture, several drivers can be operated in parallel. These can be of the same type or also of different types. It is possible in a SIMATIC WinCC Open Architecture system, for example, to establish connections via the S7 protocol to a SIMATIC controller, via IEC 60870-5-104 to a telecontrol system, and via OPC DA to any OPC server at the same time.

Coupling overview

Protocol	Description
SIMATIC S7	via TCP/IP and MPI
OPC Client (Data Access)	• Compatibility with the specifications DA 1.0 and 2.05a • Connection to inproc, local or remote server • Connection with up to 20 servers at the same time • Monitoring of the connection to the server and automatic reconnection if the connection is interrupted. • Address browsing if supported by the server. • Benefits of the CALL-R functionality for CALL-R servers (simplified parameter assignment)
OPC Server (Data Access)	• Corresponds to Data Access 2.05a specification (reading/writing of online values). • Is to be started as a manager just like other drivers. • The provided DPEs (server -> client) can be easily and quickly defined via data point groups. • DPEs can be declared as readable (read-only access is permitted; Group OPCRead) or as writable items (Group OPCWrite). • Clients can browse the WinCC OA OPC Server hierarchically.
OPC Alarms & Events	OPC Alarms & Events (abbreviated to OPC A&E) is, in addition to Data Access, a further standard for performing central alarm management on a cross-vendor basis. OPC A&E is used to ensure the link to other control systems and the display of alarms/events in a hierarchical system.
OPC UA (Unified Architecture)	• The OPC UA client supports the OPC UA standards Data Access and Alarms & Conditions. • The OPC UA Server supports the OPC UA standards Data Access and Alarms & Conditions.
Modbus TCP	Modbus/TCP is based on the serial Modbus protocol, which was adapted for TCP/IP. The Modbus/TCP driver can be used simultaneously for Modbus/TCP or UNICOS.
Serial: RK512/3964R	Is used for interfacing a PLC via the 3964R/RK512 protocol
Cerberus	Cerberus is a fire, intrusion and gas alarm system. The Cerberus driver guarantees communication to and from the central fire alarm systems and building security facilities in the event a fire, gas or intruder alarm.

Protocol	Description
SSI	Is used for the interfacing of SAT remote control systems. The data is exchanged via the LAN (Ethernet, IEEE 802.3); the frame formats used are the SSI formats defined by SAT. The SK 1703 telecontrol components with a suitable communication card (KE/ET) are supported.
IEC 60870-5-101, -104	IEC drivers are standardized telecontrol drivers that can process proprietary frames. IEC stands for International Electrotechnical Commission, the international standardization committee for electrical engineering. • IEC 60870-5-104 for data exchange via TCP/IP • IEC 60870-5-101 for serial connection
DNP3	The DNP3 (**D**istributed **N**etwork **P**rotocol **3**) driver is an open, rugged and modern protocol which exhibits characteristics and strengths similar to the IEC driver. The transfer of any number of frames with different data types takes place between the WinCC OA System (Master) and the remote stations (Slave).
SINAUT	SINAUT (**SI**emens **N**etwork **AUT**omation) is a communication protocol for automated monitoring and control of remote process stations on the basis of SIMATIC S7. Communication takes place via TCP/IP.
SNMP Manager & Agent	SNMP (**S**imple **N**etwork **M**anagement **P**rotocol) is a protocol for monitoring network elements (servers, workstations, routers, switches, hubs, etc.) and their functions. • SNMP Manager supports SNMP V1, V2, and V3 • SNMP Agent supports SNMP V1 and V2
BACnet over IP – driver	BACnet (**B**uilding **A**utomation and **C**ontrol **N**etworks) is a standardized protocol for building automation and has been set by the ASHRAE (American Society of Heating, Refrigerating and Air-conditioning Engineers) as a guideline to provide a uniform and cross-company standard for data communication within and between building automation systems. The BACnet Standard 2004 is supported in accordance with the PIC list (see product documentation)
Dynamic Logic – driver	The Dynamic Logic driver communicates with different Dynamic Logic devices via the "FSK outstation protocol".
Applicom General Interface	Applicom is, among other things, a manufacturer of I/O cards and software tools, with a wide range of applications in automation engineering. The Applicom products are compatible with many common fieldbus systems and communications components.

Further drivers on request or via C++ API

Technical specifications

Type	SIMATIC WinCC Open Architecture V3.11
Operating system	• Windows 8 Enterprise (64-bit) • Windows 7 Ultimate/Enterprise/Professional SP1 (32/64-bit) • Windows XP SP2/SP3 (32-bit) • Windows Server 2008 R2 (64-bit) • Red Hat Linux 5 (32/64-bit) • OpenSuse 12.1 (32/64-bit) • Sun Solaris 10 SPARC (32-bit) • Sun Solaris 10 x86 (64-bit) • VMWare ESXi Version 4.0.0 & 5.0.0 Note: Native 64-bit support on 64-bit systems
PC hardware requirements [1]	
Processor type	Intel Pentium or equivalent
Minimum	Intel Pentium IV 1.6 GHz (or better)[2][3]
Recommended	• Client: Intel Pentium IV/Core2/i3, 2 GHz[2][3] • Server: Intel Core i3 CPU Dual, 3 GHz[2] • Server large system[4]: Intel(R) Core(TM) i5/i7 CPU Dual / Quad, 3 GHz[2][3]
RAM	
Minimum	2 GB [2]
Recommended	• Client: 2 GB [2][3] • Server: 8 GB [2][3] • Server large system: 16 GB [2]
Hard disk (available memory for installation)	
Minimum	HD with 800 MB available [2]
Recommended	Server large system with local logging: SCSI LVD Controller, WIDE SCSI / LVD HDD or comparable storage system with at least 500 MB of available space [2]
Screen and graphics card (TrueColor)	
Minimum	1024 x 768 [2]
Recommended	1280 x 1024 [2]
Mouse and keyboard	Mouse, keyboard
DVD drive	for software installation
Local power user rights	• for installation • for operation

Type	SIMATIC WinCC Open Architecture
Functionality/quantity structure	
Number of messages	150,000 [2]
Message text (number of characters)	System-limited [1]
Message archive	System-limited [1]
Process values per message	1 process value + up to 32 alarm associated values per message
Constant load of messages, max.	500/s [2]
Message burst, max.	15,000/10 s every 5 min [2]
Archives	
Archive data points	Max. 250,000 per server [2]
Archive types	< 20 parallel logs, different retention period for each log
Data storage format	Oracle or file system
Measured values per second, max.	Server/single-user station: 7,000/s [2][3]
User archive	
Archives	System-limited [1]
Type	SIMATIC WinCC Open Architecture
Table size	System-limited by ORACLE database
Graphics system	
Number of screens	System-limited [1]
Number of objects per screen	System-limited [1]
Number of controllable fields per screen	System-limited [1]
PowerTags	< 750,000 per server [2]
User administration	
User accounts	< 4096
Configuration languages	2 (De, En)
Runtime languages	40 (of which 8 Asian)
Multi-user system	
Server	< 2048 [2][4]
Number of clients	< 244 per server [2][5]

[1] For actual use in plants, the hardware requirements are largely dependent on the project size and the dynamic response of the process variables. Whenever possible, use rugged, high-quality hardware with corresponding functionalities such as redundant power supply units or RAID hard disks. WinCC OA supports dual and multi-processor mode and benefits significantly from the fact that each WinCC OA Manager can be assigned to one processor core as a system process. At the same time, however, it is important that the individual cores offer the highest possible performance (high clocking), since load-critical core processes such as the event manager run on exactly one core (for this reason, multi-core machines with low-clocked cores are unsuitable for WinCC OA). As for RAM, CPU and HDD, the usual rule applies: more is better

[2] System requirements generally only refer to WinCC OA Version 3.11 under the supported versions of the Windows and Linux operating systems

[3] A precondition for the minimum requirement is that the operating system used does not have any greater requirements itself

[4] With a large system it is essential that the system permits not only the highest data point numbers but also a high dynamic response

[1] Dependent on the available storage space

[2] Dependent on the system configuration and the system load (due to the event-oriented architecture, the system load is essentially determined by the change rates of the values to be processed)

[3] By means of high-performance hardware configuration (one archiving cluster and approx. 120 distributed systems that archive parallel values in the cluster): 200,000 archived value changes per second

[4] Physical limit: <2048, in practice systems have already been implemented with up to 550 distributed systems

[5] Physical limit: < 244 clients per server, recommended: max. 100 clients per server

WinCC OA is ideally suited for use in very large distributed systems. The optimum design of such systems demands corresponding system knowledge of WinCC OA. Due to the event-oriented processing, individual design parameters can be increased or reduced as necessary in actual applications.

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HMI Software
SCADA System SIMATIC WinCC Open Architecture

SIMATIC WinCC Open Architecture

Ordering data	Order No.	Order No.
SIMATIC WinCC Open Architecture system software V3.11		
WinCC OA core components WinCC OA Server Language/script versions: De, En; with license for:		
WinCC OA single-user station 500 I/O V3.11 License for single-user station with up to 500 I/Os of any type (bit, integer), alerting, extended trend, historical recording, not expandable to more than one operator station, not expandable by means of add-ons, including S7 driver, OPC client, OPC server, and OPC UA client.	6AV6351-1HA31-1AA0	
WinCC OA Server I/O V3.11 License for server (without operator station licenses), alerting, extended trend, historical recording, including S7 driver, OPC client, OPC server, and OPC UA client.		
• **WinCC OA Server 1,000 I/O V3.11** with a max. of 1,000 I/Os of any type	6AV6351-1HB31-1AA0	
• **WinCC OA Server 3,000 I/O V3.11** with a maximum of 3,000 I/Os of any type	6AV6351-1HC31-1AA0	
• **WinCC OA Server 5,000 I/O V3.11** with a max. of 5,000 I/Os of any type	6AV6351-1HD31-1AA0	
• **WinCC OA Server 10,000 I/O V3.11** with a max. of 10,000 I/Os of any type	6AV6351-1HE31-1AA0	
• **WinCC OA Server 15,000 I/O V3.11** with a max. of 15,000 I/Os of any type	6AV6351-1HF31-1AA0	
• **WinCC OA Server 25,000 I/O V3.11** with a max. of 25,000 I/Os of any type	6AV6351-1HG31-1AA0	
• **WinCC OA Server 50,000 I/O V3.11** with a max. of 50,000 I/Os of any type	6AV6351-1HH31-1AA0	
• **WinCC OA Server 75,000 I/O V3.11** with a max. of 75,000 I/Os of any type	6AV6351-1HJ31-1AA0	
• **WinCC OA Server 100,000 I/O V3.11** with a max. of 100,000 I/Os of any type	6AV6351-1HK31-1AA0	
• **WinCC OA Server 150,000 I/O V3.11** with a max. of 150,000 I/Os of any type	6AV6351-1HL31-1AA0	
• **WinCC OA Server 200,000 I/O V3.11** with a maximum of 200,000 I/Os of any type	6AV6351-1HM31-1AA0	
• **WinCC OA Server 250,000 I/O V3.11** with a maximum of 250,000 I/Os of any type	6AV6351-1HN31-1AA0	
WinCC OA Server unlimited V3.11 License for server and one single-user station (expandable to several operator stations by means of clients) with unlimited number of I/O, alerting, extended trend, historical recording, including S7 driver, OPC client, OPC server, and OPC UA client.		6AV6351-1HP31-1AA0
WinCC OA Dongle V3.11 Hardware dongle on the USB port for operation with a hardware-independent license attached to the dongle, which can also extend the hardware-linked license of the operator station or server on a temporary basis.		6AV6351-1AH31-1AA0
WinCC OA on data medium WinCC OA Software DVD – current version on disk		6AV6351-1AX31-1AA0
WinCC OA Client floating Language/script versions: De, En; with license for:		
WinCC OA Client V3.11 Additional operator station license with all server operator station functionalities. The client license can be installed on more than one PC – only the number of simultaneously active clients is counted.		6AV6351-1CP31-1AA0
WinCC OA Web User Interface Language versions: De, En; with license for:		
WinCC OA Web Client V3.11 Web client license for WinCC OA Server. Only the number of simultaneously active web clients is counted.		6AV6351-1DP31-1AA0

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Ordering data	Order No.		Order No.

WinCC OA Ultralight Client

WinCC OA Ultralight PC Client
Licenses for one or several ultralight clients running on a laptop or PC. Only the number of simultaneously active ultralight clients is counted. Please note restrictions of the ultralight client according to the online help.
- **WinCC OA 1 Ultralight PC Client** 6AV6351-1JA31-1AA0
  License for one ultralight client
- **WinCC OA 3 Ultralight PC Clients** 6AV6351-1JB31-1AA0
  License for 3 ultralight clients
- **WinCC OA 10 Ultralight PC Clients** 6AV6351-1JC31-1AA0
  License for 10 ultralight clients

WinCC OA Ultralight Mobile Client 6AV6351-1JG31-1AA0
Licenses for one or several ultralight clients running on a smartphone or tablet PC. Only the number of simultaneously active ultralight clients is counted. Please note restrictions of the ultralight client according to the online help.
- **WinCC OA 1 Ultralight Mobile Client** 6AV6351-1JG31-1AA0
  License for one ultralight client
- **WinCC OA 3 Ultralight Mobile Clients** 6AV6351-1JH31-1AA0
  License for 3 ultralight clients
- **WinCC OA 10 Ultralight Mobile Clients** 6AV6351-1JJ31-1AA0
  License for 10 ultralight clients

WinCC OA parameter assignment and development license

WinCC OA Para for single-user station V3.11 6AV6351-1EA31-1AA0
Parameterization and development license for single-user station, graphic editor with symbol catalog and ActiveX Controls, user-friendly script development language, alerting, extended trend, historical recording. Requires a corresponding single-user station license.

WinCC OA Para V3.11 6AV6351-1EP31-1AA0
Parameterization and development license for server, graphic editor with symbol catalog and ActiveX Controls, user-friendly script development language, alerting, extended trend, historical recording. Requires corresponding server license.

WinCC OA ETool V3.11 6AV6351-1EJ31-1AA0
License for the use of the integrated WinCC OA ETool engineering environment, including the object library S7-BaseLib.
Intellectual property right owner: Siemens AG.

WinCC OA API interface gen. V3.11 6AV6351-1EK31-1AA0
Application programming interface for the integration of customer-specific managers or drivers. One license is required for each development workstation. We strongly recommend the participation in a Certified WinCC OA Developer Workshop when ordering this product for the first time.

WinCC OA Custom Driver V3.11 6AV6351-1EL31-1AA0
Extends a WinCC OA server license with the option of communication with a customer-specific driver. One license is required for each customer-specific driver.

WinCC OA Custom Manager V3.11 6AV6351-1EM31-1AA0
Extends a WinCC OA server license with the option of communicating with a customer-specific manager. One license is required for each customer-specific manager

WinCC OA redundancy

WinCC OA Redundancy V3.11 6AV6351-1FP31-1AA0
Extends a WinCC OA Server with the option of bumpless switchover to a hot standby partner.

WinCC OA distributed systems

WinCC OA distributed systems V3.11 6AV6351-1GP31-1AA0
Extends a WinCC OA Server to include the Multiserver option.

WinCC OA Disaster Recovery System

WinCC OA Disaster Recovery Center V3.11 6AV6352-1AA31-1AA0
Allows the configuration of a remote backup control center. A disaster recovery center comprises two distributed systems. Each system can be redundant or non-redundant. Requires Oracle databases and RDB. Refer to the online help for example configurations. Each server in the Disaster Recovery System requires one WinCC OA Disaster Recovery Center option.

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HMI Software
SCADA System SIMATIC WinCC Open Architecture

SIMATIC WinCC Open Architecture

Ordering data

	Order No.		Order No.
SIMATIC WinCC Open Architecture V3.11 communication		**WinCC OA SINAUT 25 devices** SINAUT driver for connecting up to 25 controllers	6AV6352-1BR31-1AA0
WinCC OA TLS driver Driver in accordance with TLS regulations in connection with Siemens Commbox (see separate data sheet).	6AV6352-1BA31-1AA0	**WinCC OA SINAUT 50 devices** SINAUT driver for connecting up to 50 controllers	6AV6352-1BS31-1AA0
WinCC OA Teleperm M Driver for Teleperm M Bus C275 (requires an Acotex Comm Box)	6AV6352-1BB31-1AA0	**WinCC OA SINAUT 250 devices** SINAUT driver for connecting up to 250 controllers	6AV6352-1BT31-1AA0
WinCC OA S7 TCP/IP driver TCP/IP for Siemens Industrial Ethernet	6AV6352-1BC31-1AA0	**WinCC OA SINAUT unlimited** SINAUT driver – unlimited license	6AV6352-1BU31-1AA0
WinCC OA Modbus TCP/IP driver TCP/IP for Schneider Modbus	6AV6352-1BD31-1AA0	**WinCC OA RK512** Driver for connection via 3964R / RK512 protocol	6AV6352-1CA31-1AA0
WinCC OA Modbus serial Serial driver for Schneider Modbus	6AV6352-1BE31-1AA0	**WinCC OA PROFIBUS DP** Driver PROFIBUS DP, an Applicom card is required	6AV6352-1CB31-1AA0
WinCC OA SSI driver Driver for SAT telecontrol components	6AV6352-1BF31-1AA0	**WinCC OA PROFIBUS S7** Driver PROFIBUS S7 + MPI, an Applicom card is required	6AV6352-1CC31-1AA0
WinCC OA SNMP Driver SNMP – network monitoring (V2&V3)	6AV6352-1BG31-1AA0	**WinCC OA Omron FINS TCP-IP** Driver Omron FINSTCP-IP, an Applicom card is required	6AV6352-1CE31-1AA0
WinCC OA IEC 104 Driver IEC 60870-5-104	6AV6352-1BH31-1AA0	**WinCC OA GE Fanuc SRTP** Driver GE Fanuc SRTP, an Applicom card is required	6AV6352-1CF31-1AA0
WinCC OA IEC 101 Driver IEC 60870-5-101	6AV6352-1BJ31-1AA0	**WinCC OA Allen Bradley Ethernet/IP** Driver Allen Bradley Ethernet/IP, an Applicom card is required.	6AV6352-1CG31-1AA0
WinCC OA DNP3 10 devices Driver DNP3 for connecting up to 10 DNP3 devices	6AV6352-1BK31-1AA0	**WinCC OA Cerberus** Driver for connection with the Siemens DMS7000 / Cerberus fire alarm system. Communication is implemented via the C-Bus (Cer-Ban) using the serial interface RS 232 (MK 7022).	6AV6352-1CH31-1AA0
WinCC OA DNP3 25 devices Driver DNP3 for connecting up to 25 DNP3 devices	6AV6352-1BL31-1AA0	**WinCC OA OPC UA Server** Driver for OPC UA DA and OPC UA AC Server	6AV6352-1CJ31-1AA0
WinCC OA DNP3 50 devices Driver DNP3 for connecting up to 50 DNP3 devices	6AV6352-1BM31-1AA0		
WinCC OA DNP3 250 devices Driver DNP3 for connecting up to 250 DNP3 devices	6AV6352-1BN31-1AA0		
WinCC OA DNP3 unlimited Driver DNP3 – unlimited license	6AV6352-1BP31-1AA0		
WinCC OA SINAUT 10 devices SINAUT driver for connecting up to 10 controllers	6AV6352-1BQ31-1AA0		

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More information

Further information can be found in the Internet at:
http://www.siemens.com/wincc-open-architecture

Overview

SIMATIC WinCC Open Architecture is a SCADA system for visualizing and operating processes, production flows, machines and plants in all industrial sectors.

SIMATIC WinCC OA is built consistently on object-oriented structures. The rigorous and well-considered use of object-oriented structures, from process images to the database, help to improve engineering costs for SIMATIC WinCC OA customers.

Distributed systems enable the connection of up to 2048 autonomous SIMATIC WinCC Open Architecture systems via one network. Each subsystem can be configured either as single-user or multi-user system, each of which may be redundant or non-redundant.

- Current version: **SIMATIC WinCC Open Architecture V3.11**
  Runs on:
  - Windows 8 Enterprise (64-bit)
  - Windows 7 Ultimate/Enterprise/Professional SP1 (32/64-bit)
  - Windows XP SP2/SP3 (32-bit)
  - Windows Server 2008 R2 (64-bit)
  - Red Hat Linux 5 (32/64-bit)
  - OpenSuse 12.1 (32/64-bit)
  - Sun Solaris 10 SPARC (32-bit)
  - Sun Solaris 10 x86 (64-bit)
  - VMWare ESXi Version 4.0.0 & 5.0.0

Note:

Native 64-bit support on 64-bit systems.

Function

SIMATIC WinCC Open Architecture add-ons

The universal WinCC Open Architecture basic software is the basis for modular expansions. These functional expansions are available in the form of WinCC Open Architecture add-ons.
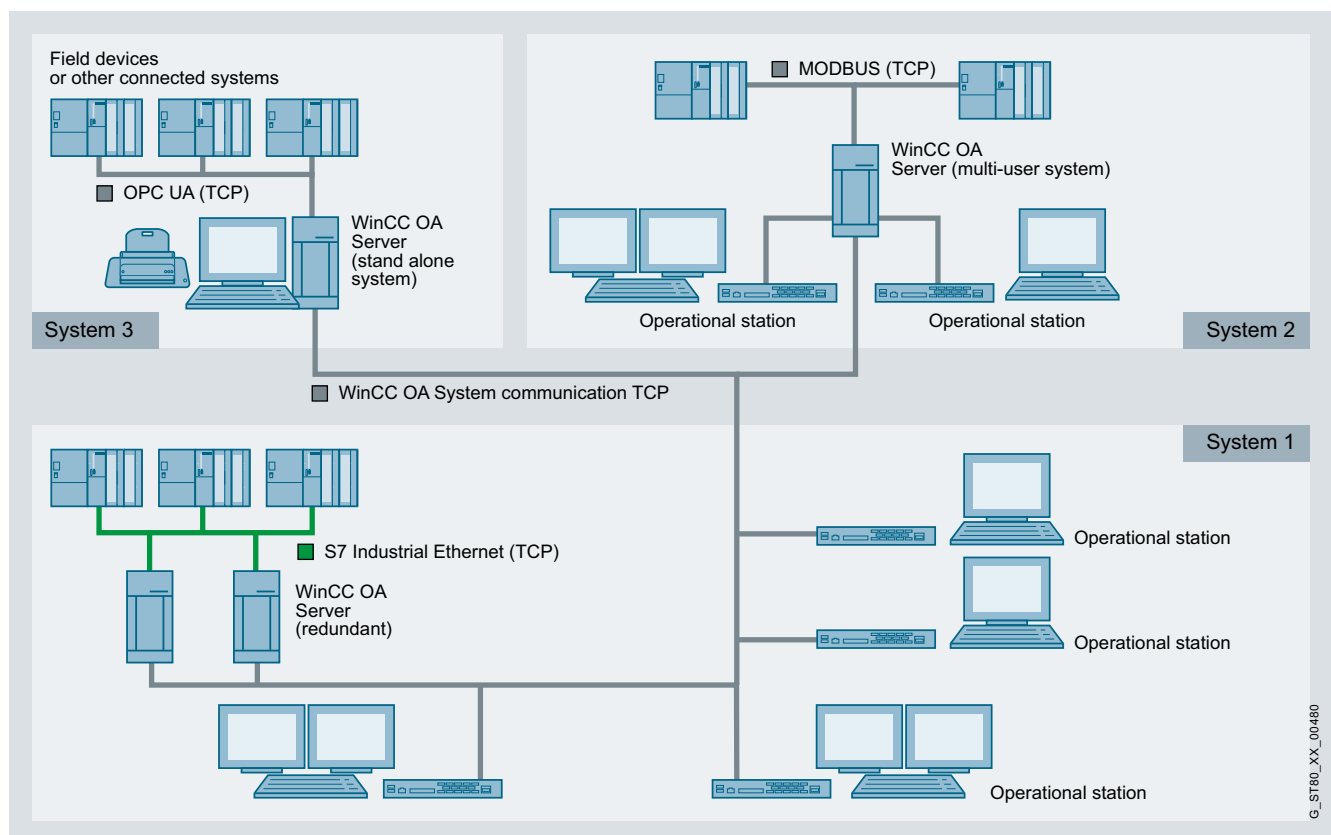
Distributed systems with WinCC OA

HMI Software
SCADA System SIMATIC WinCC Open Architecture

SIMATIC WinCC Open Architecture Add-ons

Function (continued)

Add-ons	Task
ETool	The engineering tool ETool offers significant benefits in engineering in the case of combined WinCC OA and SIMATIC STEP7/PCS7 projects. It provides a user-friendly engineering environment that permits easy, integrated and fast configuration on the basis of the WinCC OA mass parameterization.
BACnet	BACnet provides an integrated BACnet-compliant online/offline engineering solution for building automation technology, including object library. Designed for heating, ventilation and air-conditioning, lighting control and safety systems.
S7 AdvancedLib object library	The S7 AdvancedLib (AdvS7) is an industry-independent object library that permits the use and visualization of objects from the process control system (e.g.: drives, valves, regulators, motors, etc.) in a project with WinCC OA and S7. In addition to the WinCC OA and AdvS7 license, the use of S7 AdvancedLib requires the use of the relevant library on the SIMATIC side.
Maintenance package	Includes the following functions: Operating hours counter, operating cycle counter and maintenance log.
Scheduler	Permits the creation, parameterization and management of time programs that allow the time and event-driven triggering of specific actions.
Recipes	WinCC OA recipes allow setpoints or commands for certain data point elements to be sent simultaneously. Based on "recipe types", which define the quantity of the assigned data point elements, recipes are created that send their values to the data point elements upon activation.
GIS Viewer	With the help of this viewer, standardized cards of a geo-information system (GIS) can be fully integrated in WinCC OA. Furthermore, it is possible to display all WinCC OA objects in the cards.
Excel report	Powerful report generator directly in Microsoft Excel. Templates can be created easily and directly in Excel. If a report has to be created over a defined period of time, the system accesses the template and automatically completes it with data from the WinCC OA process database. Reports can also be created, printed and saved on a time-controlled basis, without any need for user access. The Excel Report fully supports compression structures (AC - archive compression) of WinCC OA.
Communication Center	Stands for modern alarm management/remote alerting and communication using the latest standards and various media. The Communication Center creates synergies by using the various interfaces for remote alerting via the control system. Text message and email media are covered with the Communication Center.

Add-ons	Task
Video (see figure below)	Enables the integration of a video management system in WinCC OA. Through the combination of SCADA and video monitoring in one system, the costs for separate video interfaces and the additional expense of maintenance and operation can be saved, and the period of training for operating personnel can also be reduced.
HTTP server	For displaying WinCC OA data via Intranet and Web.
Authentication via Kerberos	A WinCC OA system can be exposed to a variety of attacks. An unauthorized WinCC OA System could set up a connection to the distribution manager or hackers could try to manipulate WinCC OA messages. Secure authentication has been developed to prevent such attacks. The authentication based on Kerberos enables each WinCC OA component to verify the identity of another component. WinCC OA servers can verify the identity of the clients and clients can verify the identity of the servers. In addition, Kerberos ensures that messages are not modified during their transmission (capture-replay attacks are prevented). Furthermore, it is also possible to send messages in encrypted form.
AMS (Advanced Maintenance Suite)	For the effective planning, administration, implementation and monitoring of maintenance work and faults. The processes are evaluated by means of statistics and reports are communicated.
Web client	From a technical standpoint, the WinCC OA Web Client is a plug-in that is downloaded via the web browser (which is used on the client computer) and a WinCC OA UI Manager is then displayed embedded in the HTML page. No WinCC OA installation on the client computer is required, except for the required web client plug-ins.
Ultralight client	A "thin client" that supports access to the plant via a mobile device (such as a cell phone or tablet) in addition to a PC workstation. Access is possible via a standard Web browser using native Web technologies (Javascript, SVG) without the need for any additional installations. It provides a user interface even at those locations with Internet connections offering very low bandwidth, as only the most essential data is transferred.
Disaster Recovery System (see figure below)	This system expands the simple redundancy to include a second redundant system, to which the system can switch over in the event of a fault (e.g. fire or explosion in the building of the primary system). By means of this additional local redundancy, the highest level of system stability is obtained.

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■ **Function** (continued)

Video workstation

Operator keyboard
mouse
joystick

Control monitor
(optional)

Monitor 1

Video monitor 1

Video monitor 2
(optional)

Encoder

Decoder

TCP/IP
connection

Network
video recorder

Control commands

Cameras or
crossbars

WinCC OA
Server

Control of monitor wall via POSA protocol

Monitor wall
(monitors 2 ... n)

Network topology Video

Primary Server System (PSS)

Secondary Server System (SSS)

Database in
Oracle Cluster

Database in
Oracle Cluster

WinCC OA
Hot-Standby
System

WinCC OA
active
Server (A)

WinCC OA
passive
Server (B)

WinCC OA
Hot-Standby
System

WinCC OA
active
Server (C)

WinCC OA
passive
Server (D)

Operating Interface
with one or two
interfaces

Field device or other
connected systems like
for example OPC UA

Disaster Recovery System architecture with WinCC OA

HMI Software
SCADA System SIMATIC WinCC Open Architecture

SIMATIC WinCC Open Architecture Add-ons

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Ordering data	Order No.		Order No.
SIMATIC WinCC Open Architecture add-ons		**Solution Frameworks**	
WinCC OA BACnet driver + diagnostics Extends a WinCC OA Server to include a license for using the WinCC OA BACnet online engineering environment consisting of WinCC OA BACnet driver, WinCC OA BACnet object library including faceplates, and WinCC OA BACnet browser (max. 5,000 objects per server).	6AV6352-1DA31-1AA0	**WinCC OA PMS** Application framework for the implementation of production management systems. The framework offers functions for recording and evaluating production and batch-related quality data. This item is not available as a product but only in combination with consulting and additional testing overhead.	6AV6352-1EA31-1AA0
WinCC OA BACnet Engineering Extends a WinCC OA Server to include a license for using the WinCC OA BACnet engineering environment consisting of WinCC OA BACnet browser, WinCC OA EDE-Tool + EDE file interface (requires the WinCC OA engineering license) (max. 5,000 objects per server).	6AV6352-1DB31-1AA0	**WinCC OA topology package** The topology package is an application framework enabling the topological coloring of network views. A qualitative statement is made regarding which parts of a network are directly connected to which infeed units in a connection established by switching elements. Only available in combination with consulting and additional testing overhead.	6AV6352-1EB31-1AA0
WinCC OA GIS GIS viewer for displaying ESRI Shapes Files. One license is required for each UI. Can be used in WinCC OA Client and Web Client. Maps are not included. Dynamization performed using Ctrl scripting.	6AV6352-1DC31-1AA0	**WinCC OA ACAS** WinCC OA Advanced Command Authority Suite framework for managing and visualizing authority settings. The license includes the management panel and panel expansions for alarm, horn and acknowledgement functions. This item is not available as a product but only in combination with consulting and additional testing overhead.	6AV6352-1EC31-1AA0
WinCC OA S7 AdvancedLib Runtime license for using the object library WinCC OA S7 AdvancedLib, coordinated with the SIMATIC object library also supplied, which is free of charge until revoked. License required for each server.	6AV6352-1DD31-1AA0		
		Excel report	
WinCC OA Maintenance Maintenance management for recording operating hours, switching cycles, alarm handling and notepad function. License required for each server.	6AV6352-1DE31-1AA0	**WinCC OA Report 1 UI** Expands a WinCC OA Server by 1 active Excel report process; Microsoft Excel is not included.	6AV6352-1FA31-1AA0
WinCC OA Scheduler Daily, weekly and monthly program, as well as individual non-periodic events with consideration of public holidays, assignment of priority and override function. License required for each server.	6AV6352-1DF31-1AA0	**WinCC OA Report 2 UI** Expands a WinCC OA Server by 2 parallel active Excel report processes; Microsoft Excel is not included.	6AV6352-1FB31-1AA0
		WinCC OA Report 5 UI Expands a WinCC OA Server by 5 parallel active Excel report processes; Microsoft Excel is not included.	6AV6352-1FC31-1AA0
WinCC OA Recipe Creation of any recipe types and recipes, acceptance of current process values as recipe, activation/download to data points, import and export (Microsoft Excel). License required for each server.	6AV6352-1DG31-1AA0	**WinCC OA Report 10 UI** Expands a WinCC OA Server by 10 parallel active Excel report processes; Microsoft Excel is not included.	6AV6352-1FD31-1AA0
WinCC OA RDB RDB Oracle connection for WinCC OA Server S-UL. Oracle licenses are not included. License required for each server.	6AV6352-1DH31-1AA0		

Ordering data	Order No.		Order No.
Communication Center		**WinCC OA video driver RS 485TVI** Driver for controlling TVI pan-tilt cameras. One license is required for each WinCC OA Server.	6AV6352-1HK31-1AA0
WinCC OA CommCenter 1 Basic package for 25 alarms. Output as text message or e-mail is possible. Price per WinCC OA Server.	6AV6352-1GA31-1AA0		
WinCC OA CommCenter 2 Basic package for 250 alarms. Output as text message or e-mail is possible. Price per WinCC OA Server.	6AV6352-1GB31-1AA0	**WinCC OA video driver SNK RS485 Funkwerk** Driver for controlling Funkwerk pan-tilt cameras. One license is required for each WinCC OA Server.	6AV6352-1HL31-1AA0
WinCC OA CommCenter 3 Basic package for 2,500 alarms. Output as text message or e-mail is possible. Price per WinCC OA Server.	6AV6352-1GC31-1AA0	**WinCC OA video driver SNK RS485 Globe** Driver for controlling Globe pan-tilt cameras. One license is required for each WinCC OA Server.	6AV6352-1HM31-1AA0
WinCC OA CommCenter 4 Basic package for unlimited alarms. Output as text message or e-mail is possible. Price per WinCC OA Server.	6AV6352-1GD31-1AA0	**WinCC OA video driver SNK development** Driver development for controlling pan-tilt cameras	6AV6352-1HN31-1AA0
Video management		**WinCC OA video driver for cameras with RCP+ and H264** Drivers for controlling cameras with RCP+ and H264. One license is required for each WinCC OA Server.	6AV6352-1HP31-1AA0
WinCC OA Video Light Including 4 streams. Possible video operator station configuration: 1 x quad image or 2 dual images or 4 single images. Not expandable with further streams, redundancy not possible.	6AV6352-1HA31-1AA0		
		WinCC OA video driver dev. Driver development for controlling decoder/encoder/host protocols	6AV6352-1HQ31-1AA0
WinCC OA Video Basic Including 7 streams. Possible video operator station configuration: Display in quad, dual or single images. Expandable by additional streams, redundancy is possible. One license is required for each WinCC OA Server.	6AV6352-1HB31-1AA0	**WinCC OA video driver Bosch IntKey** Driver for controlling Bosch IntKey console controller. One license is required per server	6AV6352-1HR31-1AA0
WinCC OA Video Extension 5 Streams Extends WinCC OA Video Basic by 5 streams	6AV6352-1HC31-1AA0	**WinCC OA Video driver development for console controllers** Driver development for controlling console controllers	6AV6352-1HS31-1AA0
WinCC OA Video Extension 7 Streams Extends WinCC OA Video Basic by 7 streams	6AV6352-1HD31-1AA0	**WinCC OA video driver Bosch VRM (NVR)** Drivers for controlling Bosch video recording equipment / NVR. One license is required per server	6AV6352-1HT31-1AA0
WinCC OA Video Extension 32 Streams Extends WinCC OA Video Basic by 32 streams	6AV6352-1HE31-1AA0	**WinCC OA video driver development for recording equipment / NVR** Driver development for video recorder equipment / NVR	6AV6352-1HU31-1AA0
WinCC OA Video Extension 128 Streams Extends WinCC OA Video Basic by 128 streams	6AV6352-1HF31-1AA0	**HTTP server**	
WinCC OA Video Extension 256 Streams Extends WinCC OA Video Basic by 256 streams	6AV6352-1HG31-1AA0	**WinCC OA HTTP Server** Forwarding of alarms, events and WinCC OA information to the Internet in HTML format including 1 HTTP connection.	6AV6352-1KA31-1AA0
WinCC OA Video Extension 512 Streams Extends WinCC OA Video Basic by 512 streams	6AV6352-1HH31-1AA0	**WinCC OA HTTP Server Extension5** Extends the WinCC OA HTTP server by 5 HTTP connections.	6AV6352-1KB31-1AA0
WinCC OA video driver SNK RS485 eneo Driver for controlling eneo pan-tilt cameras. One license is required for each WinCC OA Server.	6AV6352-1HJ31-1AA0	**WinCC OA HTTP Server Extension10** Extends the WinCC OA HTTP server by 10 HTTP connections.	6AV6352-1KC31-1AA0
		WinCC OA HTTP Server Extension25 Extends the WinCC OA HTTP server by 25 HTTP connections.	6AV6352-1KD31-1AA0

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HMI Software
SCADA System SIMATIC WinCC Open Architecture

SIMATIC WinCC Open Architecture Add-ons

Ordering data	Order No.		Order No.
Kerberos		**AMS Upgrade Large** The license contains an upgrade of the AMS Large 5,000 A/E license with 1,000 A/E = 1,000 checklists assigned to alarm/event DP.	**6AV6352-1MF31-1AA0**
WinCC OA Secure Extends a WinCC OA Server to include protection by Kerberos. Each WinCC OA Server requires a separate WinCC OA Secure license.	**6AV6352-1LA31-1AA0**		
AMS (Advanced Maintenance Suite)		**AMS UL A/E** The license includes the AMS application as well as an unlimited number of alarm/event DP checklist assignments. [1][2][3]	**6AV6352-1MG31-1AA0**
AMS Starter Package 20A/E This fully functional trial license valid for 90 days includes the AMS application as well as up to 20 A/E = 20 checklists assigned to alarm/event DP. [1][2][3]	**6AV6352-1MA31-1AA0**		
		AMS Client 2 UI Operating station license for simultaneous use of no more than 2 parallel client sessions. The client license can be installed on more than one PC – only the number of simultaneously active clients is counted.	**6AV6352-1MH31-1AA0**
AMS Entry 20 A/E The license includes the AMS application as well as up to 20 A/E = 20 checklists assigned to alarm/event DP. [1][2][3]	**6AV6352-1MB31-1AA0**		
AMS Small 100 A/E The license includes the AMS application as well as up to 100 A/E = 100 checklists assigned to alarm/event DP. [1][2][3]	**6AV6352-1MC31-1AA0**	**AMS Client 5 UI** Operating station license for simultaneous use of no more than 5 parallel client sessions. The client license can be installed on more than one PC – only the number of simultaneously active clients is counted.	**6AV6352-1MJ31-1AA0**
AMS Medium 1,000 A/E The license includes the AMS application as well as up to 1,000 A/E = 1,000 checklists assigned to alarm/event DP. [1][2][3]	**6AV6352-1MD31-1AA0**	**AMS Client 10 UI** Operating station license for simultaneous use of no more than 10 parallel client sessions. The client license can be installed on more than one PC – only the number of simultaneously active clients is counted.	**6AV6352-1MK31-1AA0**
AMS Large 5,000 A/E The license includes the AMS application as well as up to 5,000 A/E = 5,000 checklists assigned to alarm/event DP. [1][2][3]	**6AV6352-1ME31-1AA0**		

[1] The basic price also includes the AMS Reports packages.

[2] AMS importer as well as 1 day of consulting for initial design by ETM Consultants (excluding travel expenses) and 5 hours of telephone support within 3 months after delivery.

[3] AMS Reports and AMS Importer, and 1 day of consulting for initial conceptualization by ETM consultants (not incl. travel costs). This license does not include any support and cannot be expanded or extended.

More information

Additional information is available on the Internet at:
http://www.siemens.com/wincc-open-architecture

■ Overview

- Process error diagnostics software for quick and precise diagnosis of faults/errors in plants and machines for SIMATIC S7 and SIMATIC HMI
- Standardized diagnostics concept for various SIMATIC components:
  optimum interaction of STEP 7 engineering tools and SIMATIC HMI
- Standardized user interface

STEP 7

G_ST80_XX_00367
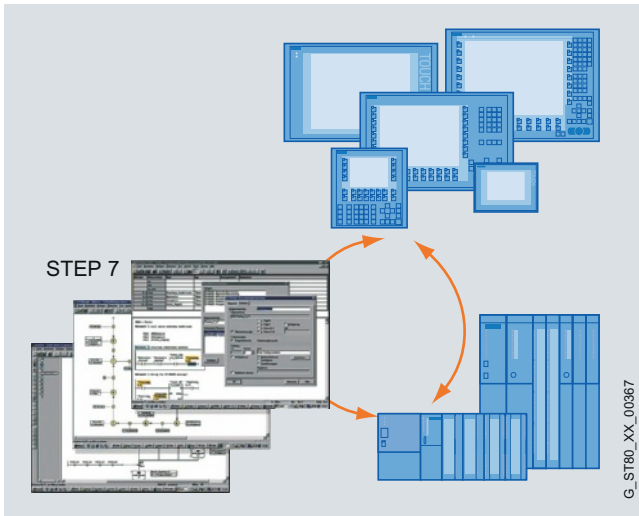
Process error diagnostics with ProAgent for WinCC flexible /ProAgent and with the STEP 7 engineering tools

STEP 7

P_ST80_XX_00286
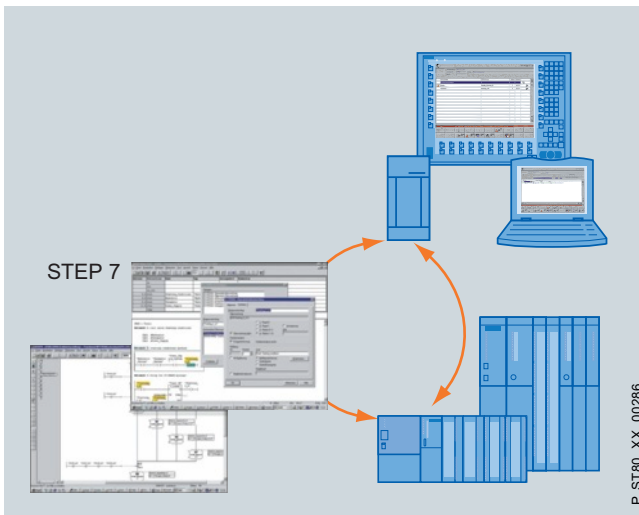
Process error diagnostics with WinCC/ProAgent and the STEP 7 engineering tools

■ Benefits

- Integral component of Totally Integrated Automation (TIA): increases productivity, minimizes the engineering outlay, reduces the lifecycle costs
- ProAgent:
  - Provides optimum support for plant and machine personnel in respect of troubleshooting and fault rectification
  - Increases plant availability
  - Reduces downtimes
- No further configuration overhead for diagnostics functionality
- Frees up PLC capacity with regard to memory and program execution time
- No special operator know-how is required thanks to clearly comprehensible indication of the cause of error

■ Application

Increased productivity is being achieved more and more by cutting costs.
In this context, the focus is increasingly on maintenance.
The emphasis here is on rectifying faults as quickly and efficiently as possible.

Ideally, the operating personnel should also perform part of the maintenance tasks. The operating personnel are on-site, they are familiar with the procedures and can intervene quickly. This saves time and reduces costs. It is precisely here that ProAgent can assist operating personnel in identifying faults quickly, in particular in the automotive and machine tool industries.

In the event of a process fault, process fault diagnostics with SIMATIC ProAgent will provide information about the location and cause of that fault and support personnel with trouble-shooting.

The ProAgent solution has been optimized specifically for use with SIMATIC S7-300/S7-400 and SIMATIC WinAC.

It can be used in combination with the S7-PDIAG, S7-GRAPH and S7-HiGraph[1] STEP 7 engineering tools. The ProAgent option package features standard displays that are updated with process-specific data during runtime.

[1] Process diagnostics with S7-HiGraph in combination with TP/OP/MP 270/277, MP 370/377, and C7636 and PC RT systems.

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HMI Software
SIMATIC ProAgent process diagnostics software

SIMATIC ProAgent

▪ Function

- Context-sensitive diagnostics initiation due to process error message
- Output of operands with symbols and comment
- Switching is possible between LAD, STL and signal list
- Supporting fault rectification with direct process access when using the motion display
- Output of the faulty operands directly in the message including address, symbol and comment [1]
- Consistency test in RT:
  Inconsistent diagnostic units are marked with icons. This permits quick locating of faults regarding configured data in the commissioning phase.
- Direct, unit-related entry point in the diagnostic display from user displays by using ProAgent functions
- Unit or message-related entry to STEP 7 (LAD/STL/FD editor, S7-GRAPH, HW CONFIG (upon system error messages)), supported fully automatically [2]
- Unit or message-related entry to STEP 7), supported fully automatically [3]
- Graphic display of step sequences (overview display) [4]

[1] In combination with TP/OP/MP 270/277, MP 370/377, C7 636, WinCC/ProAgent as of V6.0, and WinCC flexible /ProAgent

[2] WinCC/ProAgent as of V5.5 and as of WinCC flexible 2007 /ProAgent on PC RT

[3] Only WinCC/ProAgent as of V5.5

[4] As of WinCC flexible 2007 /ProAgent, WinCC/ProAgent as of V5.6 in combination with S7-GRAPH as of V5.1 (OCX is delivered as of S7-GRAPH 5.1)

Standardized user interface with standard displays

- Message display
- Unit overview
- Diagnostics detail display
- Motion display
- Sequencer operating display

The displayed image contents are related to the previously selected units or messages. This means that the proper. context-sensitive diagnostics display can be called up based on a message or a selected technological unit.

Message display

All of the existing process messages are shown in the message display. Context-sensitive branching to other diagnostic displays is also possible with a selected message. The operating personnel can also take the message directly from the erroneous operands and react immediately without having to perform any other operations on the HMI device. WinCC flexible permits this function on the Windows CE-based devices TP/OP/MP 270/277, MP 370/377, and on PC Runtime systems.

The function is available as of version 6.0 for WinCC/ProAgent.
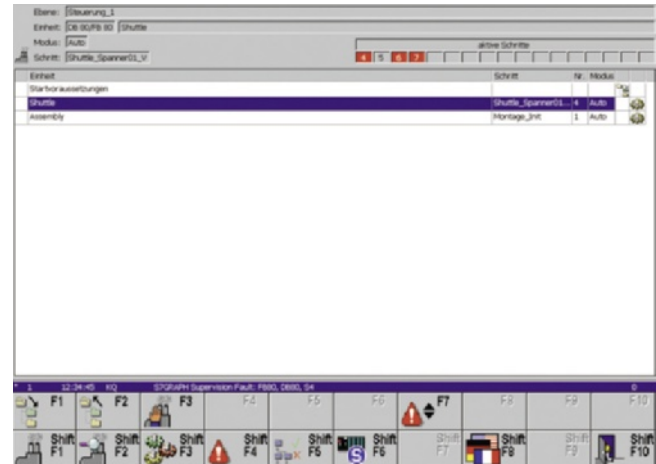
Unit overview

The units overview displays all technological units and the respective sub-units (system/machine components) in table form. In this display, the user is able to recognize, for example, which operating mode or which status the respective unit is in. The operating mode can be changed by the user if required.

Faulty units are marked with attributes.
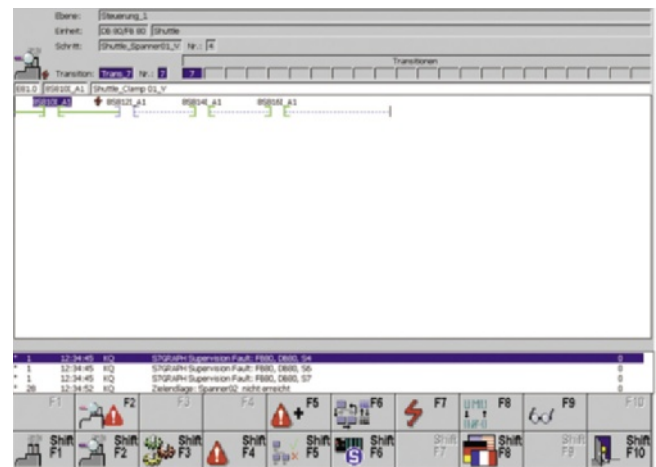
▋ **Function** (continued)

Diagnostics detail display

The diagnostic detail display shows the faulty operands at the time of origination of a process error. As an option, current status information can also be displayed. The diagnostics results are either displayed in a ladder diagram (LAD), statement list (STL), or in a clearly arranged signal list overview. The output of the operands depends on the display format with symbols and comments from the S7 symbol table. Only the operands that cause the fault are displayed and marked with a highlighted attribute. Switching to a display that calls up the current status of all operands in the controller is also possible.
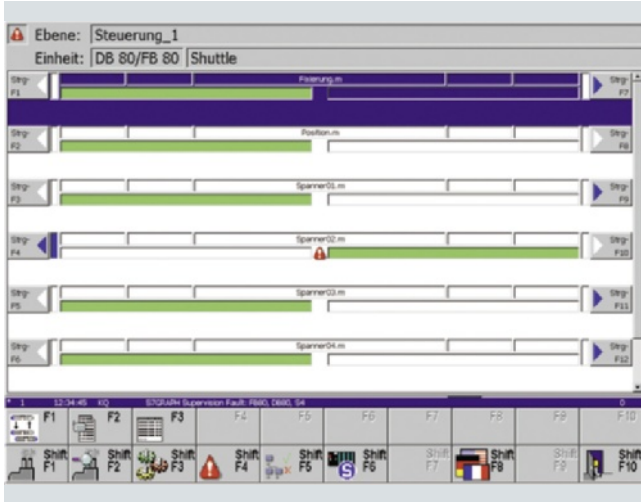
Motion display

The motion display is used for supported fault rectification. Every motion line contains a comment line that describes the motion (e.g. x-axis), two actions for implementing the motion, response concerning the actuation of a motion and information on the respectively achieved end positions (max. 16).

The motion itself is controlled with softkeys on the side of SIMATIC Panels and Multi Panels. For time-critical motions, the actuation can be done directly through inputs of the controller (depending on the capabilities of the target hardware: 24 V direct keys, DP direct keys via PROFIBUS).
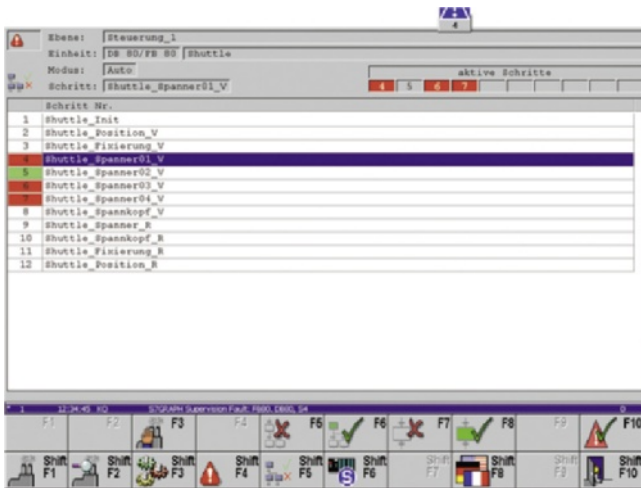
Sequencer operating display

The sequencer operating display supports sequencer control. This makes functions such as initializing and acknowledging sequencers, activating/deactivating individual steps and operating mode settings possible analog to the status/control in S7-GRAPH.

The steps are output to a list with step number/name. Attributes for identifying an active/faulty step give the operating personnel an overview of the current status of the step sequence.
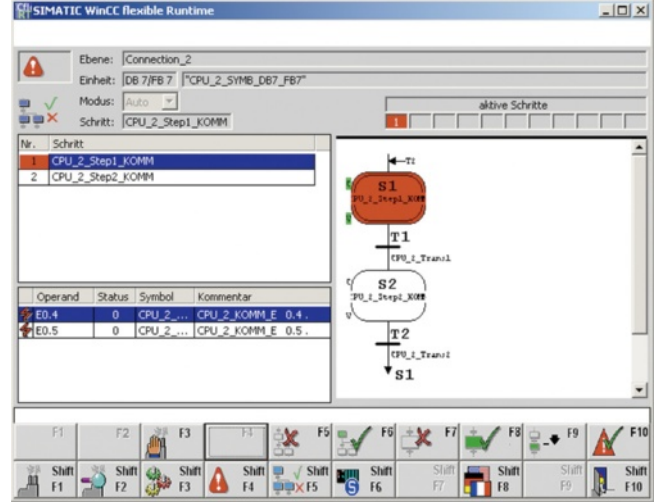
Sequencer diagnostic display

WinCC flexible/ProAgent and WinCC/ProAgent[1] also offer capabilities for graphic monitoring and sequencer diagnostics. This gives the user the ability to monitor active/faulty steps as well as the fault cause, e.g. faulty transition conditions, simultaneously on the HMI device.

[1] WinCC/ProAgent as of V5.6 in combination with S7-GRAPH as of V5.1 (OCX is delivered as of S7-GRAPH 5.1)

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HMI Software
SIMATIC ProAgent process diagnostics software

SIMATIC ProAgent

Technical specifications

	WinCC/ProAgent	WinCC flexible /ProAgent
Interfaces • Can be used in conjunction with programmable controllers: • Types of connection	SIMATIC S7: S7-300/S7-400; WinAC SIMATIC S7 Protocol Suite: MPI, PROFIBUS DP, Industrial Ethernet, TCP/IP	SIMATIC S7: S7-300/S7-400; WinAC SIMATIC S7 Protocol Suite: MPI, PROFIBUS DP, PROFINET IO, Industrial Ethernet, TCP/IP
Display units		
Standard images for:		Standard displays for easy embedding in user displays, example project for MP 377
Number of languages for online language selection	3 (de/en/fr)	5 (de/en/fr/it/es)
Functionality		
Modification of HMI diagnostics data management in RT	WinCC/ProAgent V6.0 and higher	No
Unit overview	Yes	Yes
Message display	Yes	Yes
Sequencer operating display	Yes	Yes
Diagnostics detail display • Display STL/LAD/signal list • Display of operands with symbol and comment	Yes Yes/Yes/Yes Yes	Yes Yes/Yes/Yes Yes
Criteria analysis	When fault occurs/current status/can be archived	When fault occurs/current status
Motion display • Number of viewable movements • Directions of motion • Number of viewable end positions per movement	 6 2 16	 6 2 16
Documentation		
In electronic format	de/en/fr; included in scope of delivery	de/en/fr/it/es; included in scope of delivery
Requirements		
HMI software	WinCC V7.0 SP3 (ProAgent V7.0 SP3)	WinCC flexible 2008
Operating system: Configuration	WinCC/ProAgent V7.0 + SP2: Windows Professional SP3, Windows 7 (32 bit) Ultimate, Business, and Enterprise	WinCC flexible /ProAgent 2008 + SP2: Windows XP SP3, Windows 7 Professional, Ultimate, Enterprise
Operating system Runtime	WinCC/ProAgent V7.0 + SP2: Windows XP Professional SP3, Windows 7 (32 bit) Ultimate, Business and Enterprise, Windows 2003 Server SP2, Windows 2008 Server SP2	WinCC flexible /ProAgent for SIMATIC Panels: WinCC flexible /ProAgent for WinCC flexible Runtime: Windows XP SP3, Windows 7 Professional, Ultimate, Enterprise
STEP 7 • S7-GRAPH • S7-PDIAG • S7-HiGraph	V5.4 SP4 and higher V5.3 SP6 and higher V5.3 SP3 and higher No	V5.3 and higher V5.2 + SP3 and higher V5.1 and higher V5.3 and higher
Type of delivery (one license is required for each target hardware)	CD-ROM / Runtime license	Runtime license

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■ **Ordering data**	**Order No.**		**Order No.**

SIMATIC WinCC/ProAgent

Software option package for process error diagnostics based on S7 GRAPH V5 and higher and S7 PDIAG V5 and higher; functional enhancement for SIMATIC WinCC; electronic documentation in English, French and German; functions and standard screens for use on a PC (resolution 1024 x 768 pixel) and Panel PC 577/677/877 15" (resolution 1024 x 768 pixel) in English, French and German, Runtime license (single license)
WinCC version:

• V7.0 SP3; for WinCC V7.0 SP3 [1]   **6AV6371-1DG07-0AX0**

Upgrade
• to V7.0 SP3 [1]   **6AV6371-1DG07-0AX4**

SIMATIC WinCC flexible /ProAgent

Software option package for process error diagnostics based on S7 PDIAG V5.1 and higher, S7 GRAPH V5.2 + SP3 and higher; S7 HiGRAPH V5.3 and higher. Functional enhancement for SIMATIC WinCC flexible; electronic documentation in English, French, German, Italian and Spanish

• **WinCC flexible /ProAgent for SIMATIC Panels**   **6AV6618-7DB01-3AB0**
Runtime license (Single License) executable on TP/OP/MP 270/277, Mobile Panel 277 and MP 370/377
• **WinCC flexible /ProAgent for WinCC flexible Runtime**   **6AV6618-7DD01-3AB0**
Runtime license (single license)

Documentation
(must be ordered separately)

SIMATIC HMI Manual Collection   **6AV6691-1SA01-0AX0**

Electronic documentation on CD-ROM

5 languages (English, German, French, Italian and Spanish); contains: all currently available user manuals, device manuals and communication manuals for SIMATIC HMI

[1] Not multi-station-capable

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HMI Software

Notes

4

PC-based Automation
SIMATIC Industrial PC

Industrial PC

■ **Overview**

Industrial PC

Our reliable and innovative industrial PCs are the optimal PC hardware platform for PC-based Automation from Siemens.

Rack PC

Rack PCs are flexible, high-availability industrial PC systems for powerful yet compact applications using 19" technology.

Box PC

SIMATIC Box PCs provide mechanical engineers, plant engineers and control cabinet makers with particularly rugged industrial PC systems for use in powerful yet compact applications.

Panel PC

SIMATIC Panel PCs are suitable thanks to their high industrial compatibility for use in control cabinets, consoles and control panels, as well as directly on the machine. Typical areas of application can be found in both factory and process automation.

Industrial monitors and thin clients

Flexible operator input concepts can be implemented via Flat Panel monitors or thin clients. These are industry-standard LCD monitors with high-contrast displays that can be located up to 30 m away from the PC, or low-cost, rugged thin clients that offer HMI functionality over the network in larger plants spread over wide areas.

Ruggedness and industrial compatibility for 24-hour continuous use in an industrial environment

- Compact, space-saving enclosure (Box PC and Panel PC)
- Suitable for installing in space-saving control cabinets, only 500 mm deep (Rack PC)
- All-metal enclosure with a high degree of electromagnetic compatibility for use in industrial areas and in domestic, business and commercial environments and for a degree of protection up to IP65/NEMA 4
- The mounting position of the devices can be varied by means of wall, portrait or control cabinet mounting (Box PC), rail mounting (SIMATIC IPC427D or IPC227D only) and horizontal or vertical mounting position in the 19" cabinet or with the appropriate kit as an industrial tower PC (Rack PC).
- High resistance to shock/vibration thanks to special hard disk mountings, locked connectors, and card retainers
- Maintenance-free, due to design without hard disk and fans using SIMATIC CompactFlash cards or solid-state drive (SIMATIC IPC427D/IPC477D and SIMATIC IPC227D/IPC277D)
- Service-friendly, modular device design for replacement of defective components
- Integral industrial power supplies (according to NAMUR) for safe power supplies protected against system disturbances
- Attractive product design with dirt-repelling fronts and coated surfaces
- Dust protection thanks to a pressurized cooling concept, front-mounted fans and dust filters (Rack PC)

■ **More information**

Notes on the scope of delivery

Microsoft operating systems are pre-installed in an OEM version.

The scope of supply also includes:

- Recovery CD for simple reinstallation of the operating system (not for Windows Embedded)
- Restore DVD (hard disk image) for fast and very easy restoration of the PC delivery status
- SIMATIC IPC Documentation and Drivers DVD
- Compact Operating Instructions (German/English/French/Spanish/Italian/Chinese)
- Electronic manual on IPC Documentation and Drivers DVD (German/English)

Further information can be found in the Internet at:
http://www.siemens.com/simatic-ipc

Information material for ordering and for downloading is available on the Internet:
http://www.siemens.com/simatic/printmaterial

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■ Overview

Rack PCs are flexible, high-availability industrial PC systems for powerful yet compact applications using 19" technology.

Three device classes are available for various requirements:

SIMATIC IPC547 – maximum performance at an attractive price

SIMATIC IPC647 – maximum compactness combined with maximum industrial functionality

SIMATIC IPC847 – maximum expandability and industrial functionality

Shared industrial functionality

- Maximum system performance for complex automation tasks and computationally intensive PC tasks in the industrial environment through use of Intel Core processors
- Designed for 24-hour continuous operation
- Monitoring and diagnostics functions (e.g. temperature, fan, watchdog)
- RAID1 configuration (mirrored drives), optionally in "hot swap" frames
- Hard disks with capacities up to 1 TB for large volumes of data
- Solid-state drive (SSD) with SLC technology, optional
- Compact dimensions for installation in control cabinets only 500 mm deep
- Dust protection thanks to overpressure ventilation concept with fan on the front and dust filter
- Lockable front panel or front door
- Service-friendly equipment design due to prepared telescopic rail mounting
- Universal implementation as an industrial workstation or server
- Operating system preinstalled and activated for fast startup
- Fast restoration of the delivery status of the HDD thanks to restore DVD
- High flexibility and expandability of components
- PCI and PCI Express expansion slots
- Independent industrial product design

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PC-based Automation
Rack PC

Rack PC

■ **Overview** (continued)

SIMATIC IPC547D – maximum performance at an attractive price

- Intel Core i processors 2nd generation
- Maximum processor performance in maximum configuration without loss of power (throttling) at ambient temperatures of up to 40 °C
- Optional RAID5 configuration (striping with parity) in "hot swap" frames
- Redundant AC power supply, optional
- Low noise output thanks to controlled fans
- Status and alarm LEDs at the front for signaling critical system states
- Availability for at least 1.5 years
- Guaranteed spare parts availability for at least 3 years

SIMATIC IPC647C – maximum compactness combined with maximum industrial functionality

- Maximum compactness due to 3 free PCI/PCI Express slots for installing long expansion cards and integrated interfaces for communication, e.g. integrated PROFIBUS/MPI or PROFINET interface
- High thermal stability up to 50°C even at maximum processor performance
- High vibration/shock resistance thanks to special hard disk holders
- Intel Core i processors
- Enhanced server functionality:
  Hardware RAID PCIe x8 controller with zero-maintenance cache protection module, SAS hard disks in hot-swap frame with capacities up to 1 TB for large volumes of data
- Redundant AC power supply, optional
- ECC memory, optional
- Service-friendly device design due, for example, to the replacement of filters/fans from the front without the need for tools, or opening of the enclosure with just one screw.
- Front LED concept for efficient self-diagnostics, e.g. monitoring of the hard disks in RAID1 configurators, fans or the status display for Ethernet, PROFINET and PROFIBUS.
- Integrated PROFIBUS DP/MPI or PROFINET interface (optional)
- High continuity of the components/design
- Motherboard developed and manufactured by Siemens
- Availability for up to 6 years
- Guaranteed spare parts availability for at least 5 years

SIMATIC IPC847C – maximum expandability and industrial functionality

- Maximum expandability due to 11 free PCI/PCI Express slots for installing long expansion cards and integrated interfaces for communication, e.g. integrated PROFIBUS/MPI or PROFINET interface
- High thermal stability up to 50°C even at maximum processor performance
- High vibration/shock resistance thanks to special hard disk holders
- Intel Core i processors
- Optional RAID5 configuration (striping with parity) in "hot swap" frames
- Extended server functionality:
  Hardware RAID PCIe x8 controller, SAS hard disks in hot-swap frame with capacities up to 1 TB for large volumes of data
- Redundant AC power supply, optional
- SATA hard disks with capacities up to 500 GB for large volumes of data
- ECC memory, optional
- Service-friendly device design due, for example, to the replacement of filters/fans from the front without the need for tools, or opening of the enclosure with just one screw.
- Front LED concept for efficient self-diagnostics, e.g. monitoring of the hard disks in RAID1 configurators, fans or the status display for Ethernet, PROFINET and PROFIBUS.
- Integrated PROFIBUS DP/MPI or PROFINET interface (optional)
- High continuity of the components/design
- Motherboard developed and manufactured by Siemens
- Availability for up to 6 years
- Guaranteed spare parts availability for at least 5 years

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■ **Overview** (continued)

	SIMATIC IPC547D	SIMATIC IPC647C	SIMATIC IPC847C
Design			
19" rack	4 HU	2 HU	4 HU
Prepared for telescopic rails	•	•	•
Horizontal/vertical installation	• / •	• / -	• / •
19" mounting bracket can be removed from outside	•	•	•
Tower Kit (optional)	•	-	•
General features			
Processor	• Intel Core i7-2600 (4C/8T, 3.40 GHz) • Intel Core i5-2400 4C/4T, 3.10 GHz) • Intel Pentium G850 (2C/2T, 2.90 GHz)	• Intel Core i7-610E (2C/4T, 2.53 GHz) • Intel Core i5-520E (2C/4T, 2.4 GHz) • Intel Core i3-330E (2C/4T, 2.13 GHz)	• Intel Core i7-610E (2C/4T, 2.53 GHz) • Intel Core i5-520E (2C/4T, 2.4 GHz) • Intel Core i3-330E (2C/4T, 2.13 GHz)
Main memory	• 1 GB, expandable up to 32 GB	• 1 GB, expandable up to 8 GB • ECC optional	• 1 GB, expandable up to 8 GB • ECC optional
Slots for expansions (all long, up to 312 mm)	• 4 x PCI • 1 x PCI Express x16 • 1 x PCI Express x16 (4 lanes) • 1 x PCI Express x8 (1 lane)	• 2 x PCI • 1 x PCI Express x16 or • 1 x PCI • 1 x PCI Express x8 (4-lane) • 1 x PCI Express x16	• 7 x PCI • 1 x PCI Express x16 • 3 x PCI Express x4 or • 7 x PCI • 1 x PCI Express x16
Onboard graphics	• 1 x DisplayPort • 1 x DVI-I • 1 x VGA (via adapter cable, optional)	• 1 x DVI-I • 1 x VGA (via adapter cable, optional)	• 1 x DVI-I • 1 x VGA (via adapter cable, optional)
Graphics card (optional)	• PCI Express x16 (2 x VGA or 2 x DVI-D)	• PCI Express x16 (2 x VGA or 2 x DVI-D)	• PCI Express x 16 (2 x VGA or 2 x DVI-D)
Operating system			
without	•	•	•
Preinstalled and activated, supplied on restore DVD	• Windows XP Professional Multi-Language (32-bit) • Windows 7 Ultimate Multi-Language (32/64-bit) • Windows Server 2008 incl. 5 Client Multi-Language (32-bit) • Windows Server 2008 R2 incl. 5 Clients Multi-Language (64-bit)	• Windows XP Professional Multi-Language (32-bit) • Windows 7 Ultimate Multi-Language (32/64-bit) • Windows Server 2003 R2 incl. 5 Clients Multi-Language (32-bit) • Windows Server 2008 incl. 5 Clients Multi-Language (32-bit) • Windows Server 2008 R2 incl. 5 Clients Multi-Language (64-bit)	• Windows XP Professional Multi-Language (32-bit) • Windows 7 Ultimate Multi-Language (32/64-bit) • Windows Server 2003 R2 incl. 5 Clients Multi-Language (32-bit) • Windows Server 2008 incl. 5 Clients Multi-Language (32-bit) • Windows Server 2008 R2 incl. 5 Clients Multi-Language (64-bit)
Order separately	-	RMOS3 V3.50	RMOS3 V3.50
Project-specific on request	• Linux [1] • Other	• Linux [1] • Other	• Linux [1] • Other
Interfaces			
PROFIBUS/MPI	-	12 Mbit/s (CP 5611-compatible), optional	12 Mbit/s (CP 5611-compatible), optional
PROFINET	-	3 x RJ45 (CP 1616-compatible), optional	3 x RJ45 (CP 1616-compatible), optional
Ethernet	2 x 10/100/1000 Mbit/s	2 x 10/100/1000 Mbit/s	2 x 10/100/1000 Mbit/s
USB 2.0 (high current)	11 x, 2 of which at front, 1 x internal	7 x , 2 of which at front, 1 x internal	7 x , 2 of which at front, 1 x internal
VGA	• optional	• optional	• optional
DVI	•	•	•
DisplayPort	•	-	-

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PC-based Automation
Rack PC

Rack PC

■ **Overview** (continued)

	SIMATIC IPC547D	SIMATIC IPC647C	SIMATIC IPC847C
Drives			
SATA hard disks			
• Internal installation	•	-	•
• Installation at the front in the swap frame	•	•	•
• Internal installation in drive holder (shock and vibration-damped)	-	•	•
RAID1/5 configuration with onboard RAID	• / •	• / -	• /•
Solid-state drive (SSD), SLC	•	•	•
Hard disks SAS			
Installation at the front in the swap frame	-	•	•
RAID1/5 configuration with HW RAID controller PCI x 8 incl. zero mainte-nance cache protection module	- / -	• / -	• /•
Optical drives			
DVD-ROM	•	-	•
DVD±R/RW	•	•	•
AC power supply	•	•	•
Redundant (optional)	•	•	•
Ambient conditions [2]			
Vibration/shock load during operation	0.2 g / 1 g	0.5 g / 5 g	0.5 g / 5 g
Ambient temperature during operation	With maximum configuration: 5 ... 40 °C	With maximum configuration: 5 ... 50 °C	With maximum configuration: 5 ... 50 °C

• Available

- Not available

[1] Suitable for specific Linux versions in accordance with the specifications of the Siemens manufacturer's declaration "Suitable for Linux", see
http://www.siemens.com/simatic-pc/suited-for-linux
(Linux is a trademark of Linus Torvald)

[2] Restrictions when using DVD±R/RW and hard disks in swap frame.

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■ **More information**

Further information can be found in the Internet under:
http://www.siemens.com/simatic-pc

Information material can be ordered or downloaded from the Internet:
http://www.siemens.com/simatic/printmaterial

SIMATIC IPC547D

Overview

The SIMATIC IPC547D is a rugged industrial PC in 19" rack design (4 HU).

It offers:

- Maximum performance
- Attractive price
- Intel Core i technology

Technical specifications

	SIMATIC IPC547D
General features	
Design	19" rack, 4 HU, externally painted
Processor	• Intel Core i7-2600 (4C/8T, 3.40 GHz, 8 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT) • Intel Core i5-2400 (4C/4T, 3.10 GHz, 6 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT) • Intel Pentium Dual Core G850 (2C/2T, 2.90 GHz, 3 MB Last Level Cache, EM64T, VT)
Chipset	• Intel Q67
Main memory	• From 1 GB DDR3 1333 SDRAM • Dual channel support • 4 DIMM base • Expandable up to 32 GB [1]
Spare slots for expansions (all long)	• 4 x PCI • 1 x PCI Express x16 • 1 x PCI-Express x16 (4 lanes) • 1 x PCI-Express x8 (1 Lane)
Graphics	• Onboard Intel HD 2000 graphics controller integrated into the processor; Shared Video Memory up to 1.7 GB; up to 2560 x 1600 pixels at 60 Hz image refresh rate and 32-bit colors • PCI Express graphics card (Dual Head: 2 x VGA or 2 x DVI-D) in the PCIe x16 slot; 512 MB; up to 2048 x 1536 pixels at 85 Hz image refresh rate and 32 bit colors (optional)
Operating system	• without Preinstalled and activated (supplied on restore DVD): • Windows XP Professional MUI (32-bit) • Windows 7 Ultimate MUI (32/64-bit) • Windows Server 2008 incl. 5 Client MUI (32 bit) • Windows Server 2008 R2 incl. 5 Client MUI (64 bit) MUI (Multilanguage User Interface, 5 languages): English, German, French, Italian, Spanish Project-specific on request: • Linux [2] • Other
Power supply	• 100 ... 240 V AC, 50 ... 60 Hz, with bridging of short-term power failures: max. 20 ms at 0.85% rated voltage • Redundant 100 ... 240 V AC, 50 ... 60 Hz

[1] Memory information:
In order to use a memory with more than 4 GB, a 64-bit operating system is required. In the case of configurations with 4 GB, the visible memory can be reduced to about 3.5 GB or less (with 32-bit operating systems). In configurations with 8 GB, the visible memory can be reduced to about 7.5 GB or less.

[2] Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suitable for LINUX", see http://www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

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Technical specifications (continued)

	SIMATIC IPC547D
Drives	
Hard disk, SATA 3.5" with NCQ technology	Installation in internal drive support
Solid State Drive, SATA 2.5" with SLC technology	• 500 GB • 1 TB • RAID1 [3] 1 TB (2 x 1 TB, mirror disks) • 50 GB solid-state drive Installation at the front in swap frame (low profile) • 500 GB • 2 x 500 GB • RAID1 [3] 1 TB (2 x 1 TB, mirror disks), "hot swap" • RAID5 [3] 2 TB (3 x 1 TB, striping with parity), "hot swap" • 50 GB solid-state drive • RAID1 [3] 1 TB (2 x 1 TB, mirror disks), "hot swap" + 50 GB solid-state drive (operating system installed on SSD if configured)
DVD-ROM, 5.25", SATA	• 16 x (DVD media) • 32 x (CD media)
DVD±R/RW, 5.25", SATA	• 16 x 24 x 8 x (DVD media) • 48 x 48 x 32 x (CD media)
Slots for drives	Front: • 3 x 5.25" • 1 x 3.5" Internal: • 2 x 3.5"
Interfaces	
Ethernet	2 x Intel Gbit Ethernet (RJ45, teaming-capable)
USB 2.0	• 2 x front (high current) • 8 x rear (high current) • 1 x internal (high current), e.g. for USB dongle with optional interlocking
Serial	9-pole COM1 (V.24); COM2 (V.24) (optional)
Parallel	LPT (optional)
VGA	Optionally via adapter cable
DVI-I	1 x
DisplayPort	1 x
Keyboard	PS/2
Mouse	PS/2
Audio	1 x Line In; 1 x Line Out; 1 x Micro

	SIMATIC IPC547D
Monitoring functions	
Basic functionality	Message locally via DiagBase software
Temperature	When permitted operating temperature range is exceeded
Fan	Speed monitoring • 1 x front fan • 1 x CPU fan • 1 x power supply fan
Watchdog	• Monitoring of program execution • Monitoring time can be parameterized in software
Monitoring functions via the network	SIMATIC IPC DiagMonitor Version V4.3.x.x or higher (optional) Remote monitoring capability for: • Watchdog • Temperature • Fan speed • Battery • Hard disks (SMART) • System/Ethernet Communication: • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Client server architecture • Structure of log files
Front LEDs	• POWER (PC switched on) • HDD (access to hard disk) • TEMP (temperature monitoring) • FAN (fan monitoring) Additional HDD alarm LEDs for RAID configurations behind the front flap
Ambient conditions	
Degree of protection	IP30 front, IP20 rear according to EN 60529
Dust protection	With the front door closed according to IEC 60529 filter class G2 EN 779, 99% of particles > 0.5 mm are filtered
Protection class	Protection class I according to IEC 61140
Vibration load during operation [4]	IEC 60068-2-6, 10 cycles • 20 ... 58 Hz: 0.015 mm • 58 ... 200 Hz: 2 m/s^2 (approx. 0.2 g)
Shock load in operation [4]	IEC 60068-2-27 • Half-sine: 9.8 m/s^2, 20 ms (approx. 1 g), 100 shocks per axis

[3] SATA RAID controller onboard in Intel Q67 chipset

[4] Restrictions in use of optical drives and HDD in swap frames.

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■ **Technical specifications** (continued)

	SIMATIC IPC547D
Electromagnetic compatibility (EMC)	
Emitted interference	EN 61000-6-3; EN 61000-6-4; CISPR 22 / EN 55022 Class B; FCC Class A; EN 61000-3-2 Class D; EN 61000-3-3
Immunity to conducted interference on the supply lines	• ± 2 kV (IEC 61000-4-4, burst) • ± 1 kV (IEC 61000-4-5, symm. surge) • ± 2 kV (IEC 61000-4-5, asymm. surge)
Immunity to interference on signal lines	• ±2 kV (IEC 61000-4-4, burst, length > 30 m) • ± 1 kV (IEC 61000-4-4, burst, length < 30 m) • ± 2 kV (IEC 61000-4-5, surge, length > 30 m)
Immunity to static discharge	• ± 4 kV, contact discharge (IEC 61000-4-2) • ±8 kV, air discharge (IEC 61000-4-2)
Immunity to high radio frequency interference	• 1 V/m 80% AM; 2 ... 2.7 GHz (IEC 61000-4-3) • 10 V/m 80% AM; 80 MHz ... 1 GHz and 1.4 GHz … 2 GHz (IEC 61000-4-3); • 10 V, 10 kHz ... 80 MHz (IEC 61000-4-6)
Immunity to magnetic fields	100 A/m, 50/60 Hz (IEC 61000-4-8)
Ambient temperature during operation	5 ... 40 °C Note: Limitations for operation of DVD±R/RW
Humidity during operation	5 ... 80% at 25 °C (no condensation)

	SIMATIC IPC547D
Approvals and safety regulations	
Safety regulations	IEC 60950-1; UL60950; CSA
Approvals	cULus 60950
CE mark	For use in industrial areas as well as domestic, business and commercial environments: • Emitted interference: EN 61000-6-3:2007 • Noise immunity: EN 61000-6-2:2005
Dimensions and weights	
Mounting dimensions (W x H x D) in mm	434 x 177 x 446
Weight, approx.	19 kg

Note regarding SIMATIC PC operating system licenses

The accompanying operating system license is only valid for installation on the respective supplied SIMATIC IPC. Installation can only be performed on these SIMATIC systems in accordance with Microsoft OEM licensing regulations.

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PC-based Automation
Rack PC

SIMATIC IPC547D

Ordering data	Order No.

SIMATIC IPC547D [1]

Interfaces:
2 x Gbit Ethernet (RJ45),
1 x DisplayPort, 1 x DVI-I,
8 x USB on the rear,
2 x USB on the front,
1 x USB internal,
1 x serial (COM1), 2 x PS/2,
audio; 7 slots (all long):
4 x PCI, 1 x PCIe x16,
1 x PCIe x16 (4 lanes),
1 x PCIe x8 (1 lane);
mounting locations:
6 (3 x 5.25", 1 x 3.5" externally
accessible; 2 x 3.5" internal);
temperature and fan monitoring;
watchdog; card retainer

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Processors
- Pentium Dual Core G850 (2C/2T, 2.90 GHz, 3 MB Last Level Cache, EM64T, VT) — **A**
- Core i5-2400 (4C/4T, 3.10 GHz, 6 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT) — **C**
- Core i7-2600 (4C/8T, 3.40 GHz, 8 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT) — **D**

Drives
- 500 GB HDD SATA; internal — **A**
- 1 TB HDD SATA; internal — **B**
- RAID1, 1 TB (2 x 1 TB HDD SATA, mirror disks); internal [2] — **D**
- 50 GB solid-state drive (SLC) SATA; internal — **E**
- 500 GB HDD SATA in swap frame; front — **G**
- 2 x 500 GB HDD SATA in swap frame; front — **H**
- RAID1, 1 TB (2 x 1 TB HDD SATA, mirror disks) in swap frame; for hot swapping; at the front — **P**
- RAID5, 2 TB (3 x 1 TB HDD SATA, striping with parity) in swap frame; for hot swapping; at the front — **R**
- 50 GB solid-state drive (SLC) SATA in swap frame; at the front — **S**
- RAID1, 1 TB (2 x 1 TB HDD SATA, mirror disks) in swap frame; hot swapping; at the front + 50 GB solid-state drive (SLC) SATA in swap frame; at the front (operating system installed on SSD, if configured) — **T**

Memory configuration
- 1 GB DDR3 SDRAM (1 x 1 GB), single channel — **0**
- 2 GB DDR3 SDRAM (2 x 1 GB), dual channel — **1**
- 4 GB DDR3 SDRAM (2 x 2 GB), dual channel — **2**
- 8 GB DDR3 SDRAM [3] (2 x 4 GB), dual channel — **3**
- 16 GB DDR3 SDRAM [3] (4 x 4 GB), dual channel — **4**
- 32 GB DDR3 SDRAM [3] (4 x 8 GB), dual channel — **5**

[1] For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

[2] Not in combination with redundant power supply

[3] Can only be used on 64-bit operating systems

SIMATIC IPC547D [1]
(continued)

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Removable media
- DVD-ROM — **1**
- DVD±RW — **2**

Expansions (hardware)
- Without expansions (HW); onboard graphics — **0**
- No expansions (HW); onboard graphics; DVI-I VGA-compliant adapter cable for onboard graphics — **1**
- Serial (COM2) & parallel (LPT); onboard graphics — **2**
- Serial (COM2) and parallel (LPT); onboard graphics; DVI-I VGA-compliant adapter cable for on-board graphics — **3**
- Serial (COM2) & parallel (LPT) + PCIe x16 graphics card (Dual Head: 2 x VGA or 2 x DVI-D), 512 MB — **4**

Operating systems
(preinstalled and activated)
- Windows XP Professional, MUI (Eng, Ger, Fr, It, Sp), 32-bit, SP3 — **B**
- Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp), 32 bit, SP1 enclosed — **E**
- Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp), 64 bit, SP1 enclosed — **F**
- Windows Server 2008 Standard Edition incl. 5 Client, MUI (Eng, Ger, Fr, It, Sp), 32 bit, SP2 — **P**
- Windows Server 2008 R2 Standard Edition incl. 5 clients, MUI (Eng, Ger, Fr, It, Sp), 64 bit, SP1 enclosed — **Q**
- Without operating system — **X**

Expansions (software)
- SIMATIC IPC DiagMonitor V4.3 software included — **A**
- SIMATIC IPC Image & Partition Creator V3.2 software included — **B**
- SIMATIC IPC DiagMonitor V4.3 + Image & Partition Creator V3.2 software included — **C**
- Without expansions (software) — **X**

Power supply, with country-specific cable:
- 100/240 V AC industrial power supply; power cable for Europe — **0**
- 100/240 V AC industrial power supply; USA power cable — **4**
- 100/240 V AC industrial power supply; power cable for China — **5**
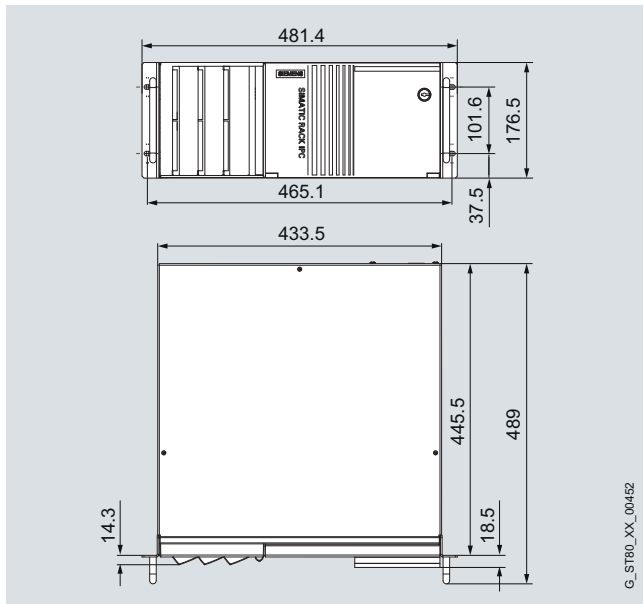- 2 x 100/240 V AC redundant industrial power supply; without power cable — **6**

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■ Ordering data

	Order No.		Order No.

Preferred variants (ex-stock)

SIMATIC IPC547D

- Pentium Dual Core G850 (2C/2T, 2.90 GHz, 3 MB Last Level Cache, EM64T, VT); 500 GB HDD SATA internal; 1 GB DDR3 SDRAM (1 x 1 GB), single channel; DVD-ROM; interfaces: 2 x Gbit Ethernet (RJ45), 1 x serial, 8 x USB rear, 2 x USB front, 1 x USB internal, 2 x PS/2, audio; 100/240 V industrial power supply, power cable for Europe; without operating system — **6AG4104-2AA01-0XX0**

- Core i5-2400 (4C/4T, 3.10 GHz, 6 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT); RAID1, 1 TB (2 x 1 TB HDD SATA, mirror disks) in swap frame, for hot swapping, at the front; 4 GB DDR3 SDRAM (2 x 2 GB) dual channel; DVD±RW; interfaces: 2 x Gbit Ethernet (RJ45), 2 x serial, 1 x parallel, 8 x USB rear, 2 x USB front, 1 x USB internal, 2 x PS/2, Audio; 100/240V industrial power supply, power cable for Europe; without operating system — **6AG4104-2CP22-2XX0**

- Core i7-2600 (4C/8T, 3.40 GHz, 8 MB Last Level Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT); RAID1, 1 TB (2 x 1 TB HDD SATA, mirror disks) in swap frame, for hot swapping, at the front; 8 GB DDR3 SDRAM (2 x 4 GB) dual channel; DVD±RW; interfaces: 2 x Gbit Ethernet (RJ45), 2 x serial, 1 x parallel, 8 x USB rear, 2 x USB front, 1 x USB internal, 2 x PS/2, audio; 100/240 V industrial power supply, power cable for Europe, Windows 7 Ultimate MUI (Eng, Ger, Fr, It, Sp), 64-bit, SP1 supplied — **6AG4104-2DP32-2FX0**

Accessories

Memory expansion

- 1 GB DDR3 1333 SDRAM, DIMM (1 x 1 GB) — **6ES7648-2AJ40-0LA0**
- 2 GB DDR3 1333 SDRAM, DIMM, kit for dual-channel technology (2 x 1 GB) — **6ES7648-2AJ50-0LB0**
- 4 GB DDR3 1333 SDRAM, DIMM, kit for dual-channel technology (2 x 2 GB) — **6ES7648-2AJ60-0LB0**
- 8 GB DDR3 1333 SDRAM, DIMM, kit for dual-channel technology (2 x 4 GB) — **6ES7648-2AJ70-0LB0**

Tower Kit
For converting the computer into an industrial tower PC — **6ES7648-1AA00-0XC0**

Retainer
for pin assignment of the internal USB port — **6ES7648-1AA00-0XK0**

Power cable, straight, 3 m long

- Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden — **6ES7900-0AA00-0XA0**
- United Kingdom — **6ES7900-0BA00-0XA0**
- Switzerland — **6ES7900-0CA00-0XA0**
- USA — **6ES7900-0DA00-0XA0**
- Italy — **6ES7900-0EA00-0XA0**
- China — **6ES7900-0FA00-0XA0**

Rack unit for low-profile HDD swap frame
for 3.5" hard disk, SATA (without hard disk) — **6ES7648-0EG00-1BA0**

Expansion components — From page 5/153

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC RT Advanced, SIMATIC WinCC, and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC at favorable prices.

More information under "Embedded Bundles / Packages for industrial PCs".

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PC-based Automation
Rack PC

SIMATIC IPC547D

■ Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.

Technical data of the telescopic rails	
Carrying capacity per pair, min.	30 kg
Full extension length, min.	470 mm
Rail thickness, max.	9.7 mm
Fixing screws	M5 x 6 mm

The fixing screws of the telescopic rails should not project more than 5 mm into the enclosure.

The enclosure is prepared for the following telescopic rails:
- Rittal: Type 3659.180 for 600 mm cabinet / Type RP 3659.190 for 800 mm cabinet
- Schroff: Type 20110-072

■ More information

Further information can be found on the Internet at:

http://www.siemens.com/simatic-pc

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SIMATIC IPC647C

Overview

The SIMATIC IPC647C is a very rugged, high-performance industrial PC in 19" rack design (2 HMs) with excellent industrial functionality.

It offers:

- Extreme compactness
- Extreme ruggedness
- Intel Core i technology

Technical specifications

	SIMATIC IPC647C
General features	
Design	19" rack, 2 HUs, external coating
Processor	• Intel Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, Turbo Boost, VT-d, iAMT, EM64T) • Intel Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, Turbo Boost, VT-d, iAMT, EM64T) • Intel Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache, EM64T)
Chipset	Intel QM57
Main memory	• from 1 GB DDR3 1066 SDRAM • Dual channel support • 2 DIMM slots • Expandable up to 8 GB, optional ECC [1]
Spare slots for expansions (all long)	• 2 x PCI • 1 x PCI Express x16 or • 1 x PCI • 1 x PCI Express x8 (4 lane) • 1 x PCI Express x16
Graphics	• Onboard Intel GMA HD graphics controller integrated into processor; dynamic video memory; up to 2048 x 1536 pixels with 75 Hz refresh rate and 16-bit colors • PCI Express graphics card (Dual Head: 2 x VGA or 2 x DVI-D via display port adapter) in the PCIe x16 slot; 256 MB; up to 2048 x 1536 pixels with 75 Hz refresh rate and 32-bit colors (optional)

[1] Memory information:
In order to use a memory with more than 4 GB, a 64-bit operating system is required. In the case of configurations with 4 GB, the visible memory can be reduced to about 3.5 GB or less (with 32-bit operating systems).
In configurations with 8 GB, the visible memory can be reduced to about 7.5 GB or less.

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PC-based Automation
Rack PC

SIMATIC IPC647C

■ **Technical specifications** (continued)

	SIMATIC IPC647C
Operating system	• without • Preinstalled, activated, and supplied on restore DVD • Windows XP Professional MUI, 32-bit • Windows 7 Ultimate MUI, 32/64-bit • Windows Server 2003 R2 incl. 5 client MUI, 32-bit • Windows Server 2008 incl. 5 client MUI, 32-bit • Windows Server 2008 R2 incl. 5 client MUI, 64-bit MUI: Multi-language User Interface; 5 languages (English, French, German, Italian, Spanish) • Project-specific on request [2] • Other
Power supply	• 100 ... 240 V AC, 50 ... 60 Hz; with bridging of temporary power failures in accordance with NAMUR: max. 20 ms at 0.85% rated voltage • Redundant 100 ... 240 V AC, 50 ... 60 Hz
Drives	
Hard disks: SATA 3.5" or SAS 3.5"	Mounted in internal shock/vibration-resistant drive cage • 250 GB • 500 GB • 2 x 500 GB • 500 GB RAID1 [3], (2 x 500 GB, mirror disks) Mounted in front drive cage in swap frame (low profile) • 250 GB • 500 GB • 2 x 500 GB • 500 GB RAID1 [3], (2 x 500 GB, mirror disks), "hot swap" • 1 TB RAID1, (2 x 1 TB HDD SAS, mirror disks), "hot swap"; RAID controller in PCIe x8 slot with zero-maintenance cache protection module
Solid-State Drive (SSD) (2.5" SATA)	Installed internally or front-mounted in removable frame • 50 GB (SLC), optional
DVD+/-R/RW, slimline	• 8 x 8 x 6 x (DVD media) • 24 x 24 x 24 x (CD media)
Slots for drives	Front: • 2 x low profile swap frames (for 3.5" HDD) • 1 x 12.7 mm slimline (for ODD or CF drive) Internal: • 2 x 3.5" as an alternative to swap frames (in the optional, shock and vibration-damped drive cage)

	SIMATIC IPC647C
Interfaces	
PROFINET	3 x RJ45 (CP 1616-compatible), optional
PROFIBUS/MPI	12 Mbit/s (isolated, compatible with CP 5611), optional
Ethernet	2 x 10/100/1000 Mbit/s (RJ45, teaming-capable)
USB 2.0	• 2 x front (high current) • 4 x rear (high current) • 1 x internal (high current), e.g. for USB dongle with optional lock
Serial	• 9-pin COM1 (V.24) • 9-pin COM2 (V.24)
Parallel	LPT1
VGA	1 x
Keyboard	PS/2
Mouse	PS/2
Audio	1 x Line Out; 1 x Micro

[2] Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suitable for LINUX", see (LINUX is a trademark of Linus Torvald).

[3] SATA RAID controller on board in Intel chipset

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Technical specifications (continued)

	SIMATIC IPC647C
Monitoring functions	
Basic functionality	Message locally via DiagBase software
Temperature	• Overshoot/undershoot of permissible operating temperature range • Messages can be evaluated by the application program
Fan	• Speed monitoring • 2 x enclosure fan (front) • 1 x power supply fan
Watchdog	• Monitoring of program execution • Monitoring time can be parameterized in software • Restart can be parameterized in the event of a fault • Messages can be evaluated by the application program
Monitoring functions via the network	SIMATIC IPC DiagMonitor (optional) Version 4.3 and higher Remote monitoring capability for: • Watchdog • Temperature • Fan speed • Hard disk monitoring (SMART) • Redundant power supply (module) • System/Ethernet monitoring (Heartbeat) Communication: • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Configuration of client/server architectures • Structure of log files
Front LEDs	• POWER (internal power supply unit, PC switched on) • HARDDISK (access to hard disk) • ETHERNET1 (Ethernet status, "Heartbeat") • ETHERNET2 (Ethernet status, "Heartbeat") • PROFIBUS/MPI (PROFIBUS status) • SF PROFINET (PROFINET status) • WATCHDOG (ready/fault indication) • TEMP (temperature status) • FAN (fan speed monitoring) • HDD1 ALARM (hard disk alarm in conjunction with RAID1 and monitoring software) • HDD2 ALARM (hard disk alarm in conjunction with RAID1 and monitoring software)

	SIMATIC IPC647C
Ambient conditions	
Degree of protection	IP41 at the front, IP20 at the rear acc. to EN 60529
Dust protection	with front door closed: G2 EN 779, 99% of particles > 0.5 mm are held back
Protection class	Protection class I in accordance with IEC 61140
Vibration load during operation	DIN EN 60068-2-6, 10 cycles Internal mounting of the hard disk drives in optional, internal drive cage: • 10 ... 58 Hz: 0.0375 mm; • 58 ... 500 Hz: 5 m/s2 (approx. 0.5 g) Note: There are limitations when DVD+/-RW and HDD are operated in a swap frame
Shock loading during operation	DIN EN 60068-2-27, IEC 60068-2-29 Internal mounting of the hard disk drives in optional, internal drive cage: • Half-sine: 50 m/s^2, 30 ms (ca. 5 g), 100 shocks per axis Note: There are limitations when DVD+/-RW and HDD are operated in a swap frame
Electromagnetic compatibility (EMC)	
Emitted interference (AC)	EN 61000-6-3, EN 61000-3-3, EN 61000-3-2 Class D; FCC Class A
Immunity to conducted interference on the supply lines	± 2 kV (IEC 61000-4-4, burst) ± 1 kV (IEC 61000-4-5, symm. surge) ± 2 kV (IEC 61000-4-5, asymm. surge)
Immunity to interference on signal lines	± 1 kV (IEC 61000-4-4, burst, length < 30 m) ± 2 kV (IEC 61000-4-4, symm. surge, length > 30 m) ± 2 kV (IEC 61000-4-5, asymm. surge, length > 30 m)

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PC-based Automation
Rack PC

SIMATIC IPC647C

■ **Technical specifications** (continued)

	SIMATIC IPC647C
Immunity to static discharge	±6 kV, contact discharge (IEC 61000-4-2)
	±8 kV, air discharge (IEC 61000-4-2)
Immunity to high radio frequency interference	• 1 V/m 80% AM 1 kHz; 2 ... 2.7 GHz (IEC 61000-4-3) • 10 V/m 80% AM 1 kHz; 80 MHz - 1 GHz and 1.4 GHz - 2 GHz (IEC 61000-4-3); • 10 V, 10 kHz to 80 MHz (IEC 61000-4-6)
Immunity to magnetic fields	100 A/m, 50/60 Hz (IEC 61000-4-8)
Ambient temperature during operation	5 ... 50 °C Note: There are limitations when DVD+/-RW and HDD are operated in a swap frame
Relative operating humidity	5 ... 85 % at 30 °C (no condensation)
Approvals and safety regulations	
Safety regulations	IEC 60950-1 Second Edition, EN 60950-1, UL 60950, CSA C22.2 No 60950
Approvals	cULus 60950, KCC
Marine approval (only for configurations with CompactFlash or SSD memory)	• GL –- Germanische Lloyd • BV – Bureau Veritas • LR – Lloyds Register of Shipping • ABS – American Bureau of Shipping • DNV – Det Norske Veritas • NKK – Nippon Kaiji Kyokai
CE mark	Use in industry: • Noise immunity: EN 61000-6-2:2005 Use in domestic environments: • Emitted interference: EN 61000-6-3:2007
Dimensions and weights	
Mounting dimensions (W x H x D, in mm)	430 x 88 x 445

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Note regarding SIMATIC PC operating system licenses

The accompanying operating system license is only valid for installation on the respective supplied SIMATIC IPC. Installation can only be performed on these SIMATIC systems in accordance with Microsoft OEM licensing regulations.

Ordering data

	Order No.

SIMATIC IPC647C [1] | **6AG4112- 1** ■ ■ ■ ■ **-** ■ ■ ■ ■

Interfaces:
2 x 10/100/1000 Mbps Ethernet (RJ45); 1 x graphic (DVI-I); 2 x COM; 1 x LPT; 2 x PS/2; 4 x USB 2.0 at rear, 2 x USB 2.0 at front; 1 x USB 2.0 internal; audio; temperature and fan monitoring, watchdog; card retainer

Processor/motherboard
- Core i3-330E
  (2C/4T, 2.13 GHz, 3 MB cache), motherboard without fieldbus **G**
- Core i3-330E
  (2C/4T, 2.13 GHz, 3 MB cache), motherboard with PROFIBUS/MPI **H**
- Core i3-330E
  (2C/4T, 2.13 GHz, 3 MB cache), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) [2] **J**
- Core i5-520E
  (2C/4T, 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard without fieldbus **K**
- Core i5-520E
  (2C/4T, 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard with PROFIBUS/MPI **L**
- Core i5-520E
  (2C/4T, 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) [2] **M**
- Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard without field bus **N**
- Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard with PROFIBUS/MPI **P**
- Core i7-610E
  (2C/4T; 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) [2] **R**

Hard disks:
- 250 GB HDD SATA; 0.5 g vibration, 5 g shock, internal **A**
- 500 GB HDD SATA; 0.5 g shock, 5 g shock, internal **B**
- 2 x 500 GB HDD SATA; 0.5 g vibration, 5 g shock, internal **C**
- RAID1 500 GB (2 x 250 GB HDD SATA, mirror disks); 0.5 g vibration, 5 g shock, internal **D**
- 250 GB HDD SATA in swap frame; front **H**
- 500 GB HDD SATA in swap frame; front **K**
- 2 x 500 GB HDD SATA in swap frame; front **M**
- RAID1 500 GB (2 x 250 GB HDD SATA) in swap frame, for hot swapping; front **P**
- 50 GB SSD (SLC) SATA, internal **S**
- 50 GB SSD (SLC) SATA in swap frame; front **T**
- RAID1 1 TB (2 x 1 TB HDD SAS) in swap frame, for hot-swapping, front; PCIe x8 RAID controller with zero-maintenance cache protection module in PCIe x16 slot [3] **U**

SIMATIC IPC647C [1] (continued) | **6AG4112- 1** ■ ■ ■ ■ **-** ■ ■ ■ ■

Memory configuration:
- 1 GB DDR3 SDRAM (1 x 1 GB), single channel **0**
- 2 GB DDR3 SDRAM (1 x 2 GB), single channel **1**
- 4 GB DDR3 SDRAM (2 x 2 GB), dual channel **2**
- 6 GB DDR3 SDRAM (1 x 2 GB, 1 x 4 GB), dual channel **3**
- 8 GB DDR3 SDRAM (2 x 4 GB), dual channel **4**
- 2 GB DDR3 SDRAM (2 x 1 GB), dual channel **5**
- 4 GB DDR3 SDRAM (2 x 2 GB), dual channel **6**
- 8 GB DDR3 SDRAM (2 x 4 GB), dual channel **7**

Swap media:
- CompactFlash drive, at front **0**
- DVD±RW **1**
- without swap medium **8**

Bus module / hardware expansion
- Bus modules 3 slots: 2 x PCI; 1 x PCIe x16; without hardware expansions **0**
- Bus modules 3 slots: 2 x PCI; 1 x PCIe x16; DVI-VGA adapter (1 x VGA) for onboard graphics **1**
- Bus modules 3 slots: 2 x PCI; 1 x PCIe x16 assigned; + graphics card PCIe x16, 2 x DP (2 x DVI-D via 2 x DP-DVI adapters) **2**
- Bus modules 3 slots: 2 x PCI; 1 x PCIe x16 assigned; + graphics card PCIe x16, 2 x DP (2 x VGA via 2 x DP-VGA adapters) **3**
- Bus modules 3 slots: 1 x PCI, 1 x PCIe x8 (4-lane); 1 x PCIe x16; without HW expansions **4**
- Bus modules 3 slots: 1 x PCI; 1 x PCIe x8 (4-lane); 1 x PCIe x16; DVI-VGA adapter (1 x VGA) for on-board graphics **5**
- Bus modules 3 slots: 1 x PCI; 1 x PCIe x8 (4-lane); 1 x PCIe x16 assigned; + graphics card PCIe x16, 2 x DP (2x DVI-D via 2x DP-DVI adapters) **6**
- Bus modules 3 slots: 1 x PCI; 1 x PCIe x8 (4-lane); 1 x PCIe x16 assigned; + graphics card PCIe x16, 2 x DP (2x VGA via 2x DP-VGA adapters) **7**

[1] For an up-to-date overview, see the SIMATIC PC online configurator at:
www.siemens.com/ipc-configurator

[2] Not in combination with Windows Server operating systems.

[3] Not in combination with graphics card, Windows XP, Windows 7 (32-bit), without removable media.

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PC-based Automation
Rack PC

SIMATIC IPC647C

Ordering data	Order No.
SIMATIC IPC647C [1] (continued)	**6AG4112- 1** ▪ ▪ ▪ ▪ **-** ▪ ▪ ▪ ▪
Operating system (preinstalled and activated)	
• Windows XP Professional, MUI (Eng, Ger, Fr, It, Sp), SP3, 32-bit	B
• Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp), 32-bit, SP1 included	E
• Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp), 64-bit, SP1 included	F
• Windows Server 2003 R2 Standard Edition incl. 5 clients, MUI (Eng, Fr, Ger, It, Sp), SP2, 32-bit, SP2	N
• Windows Server 2008 Standard Edition incl. 5 clients, MUI (Eng, Fr, Ger, It, Sp), SP2, 32-bit	P
• Windows Server 2008 R2 Standard Edition incl. 5 clients, MUI (Eng, Fr, Ger, It, Sp), SP2, 64-bit, SP1 included	Q
• Without operating system	X
Expansion (software)	
• SIMATIC IPC DiagMonitor 4.3 included	A
• SIMATIC IPC Image Creator software 3.2 included	B
• SIMATIC IPC DiagMonitor 4.3 and Image Creator Software 3.2 included	C
• Without software	X
Power supply, with country-specific cable:	
• 100/240°V°AC industrial power supply with Namur; power cable for Europe	0
• 100/240 V AC industrial power supply with Namur; power cable for United Kingdom	1
• 100/240 V AC industrial power supply with Namur; power cable for Switzerland	2
• 100/240 V AC industrial power supply with Namur; power cable for USA	3
• 100/240 V AC industrial power supply with Namur; power cable for Italy	4
• 100/240 V AC industrial power supply with Namur; power cable for China	5
• 100/240 V AC redundant power supply with Namur; without power cable	6

[1] For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

Accessories	Order No.
Memory expansion	
• 1 GB DDR3 1066 SDRAM, DIMM	**6ES7648-2AJ40-0KA0**
• 2 GB DDR3 1066 SDRAM, DIMM	**6ES7648-2AJ50-0KA0**
• 4 GB DDR3 1066 SDRAM, DIMM	**6ES7648-2AJ60-0KA0**
• 1 GB DDR3 1066 SDRAM, DIMM, ECC	**6ES7648-2AJ40-1KA0**
• 2 GB DDR3 1066 SDRAM, DIMM, ECC	**6ES7648-2AJ50-1KA0**
• 4 GB DDR3 1066 SDRAM, DIMM, ECC	**6ES7648-2AJ60-1KA0**
Hard disk slide-in unit for swap frame SIMATIC PC accessories, slide-in HDD swap frame, low-profile, for 3.5" hard disk, serial ATA / SAS (without hard disk)	**6ES7648-0EG00-1BA0**
Filter mats for SIMATIC IPC647C (packing unit: 10 units)	**A5E02396171**
Power cable, straight, 3 m long	
• Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden	**6ES7900-0AA00-0XA0**
• United Kingdom	**6ES7900-0BA00-0XA0**
• Switzerland	**6ES7900-0CA00-0XA0**
• USA	**6ES7900-0DA00-0XA0**
• Italy	**6ES7900-0EA00-0XA0**
• China	**6ES7900-0FA00-0XA0**
USB retainer for pin assignment of the internal USB port	**6ES7648-1AA00-0XK0**
Expansion components	From page 5/153
Communication products	From page 5/186
RMOS real-time operating system	From page 5/146

Note:

Software Packages with SIMATIC WinCC flexible, WinCC RT Advanced, SIMATIC WinCC, and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC at favorable prices. More information under "Embedded bundles / Packages for industrial PCs".

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Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.

Technical data of the telescopic rails

Carrying capacity per pair, min.	30 kg
Full extension length, min.	470 mm
Rail thickness, max.	9.7 mm
Fixing screws	M5 x 6 mm

The fixing screws of the telescopic rails should not project more than 5 mm into the enclosure.

The enclosure is prepared for the following telescopic rails:

• Rittal: Type 3659.180 for 600 mm cabinet /
  Type RP 3659.190 for 800 mm cabinet

More information

Further information can be found in the Internet under:

http://www.siemens.com/simatic-pc

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PC-based Automation
Rack PC

SIMATIC IPC847C

◼ Overview

The SIMATIC IPC847C is a very robust, high-performance industrial PC in 19" rack design (4 HU) with excellent industrial functionality.

It offers:

- Maximum expandability
- Extreme ruggedness
- Intel Core i technology

◼ Technical specifications

	SIMATIC IPC847C
General features	
Design	19" rack, 4 HU, externally painted
Processor	• Intel Core i7-610E (2C/4T, 2.53 GHz, 4 MB Cache, Turbo Boost, VT-d, iAMT, EM64T) • Intel Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, Turbo Boost, VT-d, iAMT, EM64T) • Intel Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache, EM64T)
Chipset	Intel QM57
Main memory	• from 1 GB DDR3 1066 SDRAM • Dual channel support • 2 DIMM slots • Expandable up to 8 GB [1]
Spare slots for expansions (all long)	• 7 x PCI • 1 x PCI Express x16 • 3 x PCI Express x4 or • 7 x PCI • 1 x PCI Express x16
Graphics	• Onboard Intel GMA HD graphics controller integrated into processor; dynamic video memory; up to 2048 x 1536 pixels with 75 Hz refresh rate and 16-bit colors • PCI Express graphics card (Dual Head: 2 x VGA or 2 x DVI-D via display port adapter) in the PCIe x16 slot; 256 MB; up to 2048 x 1536 pixels with 75 Hz refresh rate and 32-bit colors (optional)

[1] Memory information:
In order to use a memory with more than 4 GB, a 64-bit operating system is required. In the case of configurations with 4 GB, the visible memory can be reduced to about 3.5 GB or less (with 32-bit operating systems).
In configurations with 8 GB, the visible memory can be reduced to about 7.5 GB or less.

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Technical specifications (continued)

	SIMATIC IPC847C
Operating system	• without • Preinstalled and activated / supplied on restore DVD • Windows XP Professional MUI, 32-bit • Windows 7 Ultimate MUI, 32/64-bit • Windows Server 2003 R2 incl. 5 client MUI, 32-bit • Windows Server 2008 incl. 5 client MUI, 32-bit • Windows Server 2008 R2 incl. 5 client MUI, 64-bit MUI: Multi-language User Interface; 5 languages (English, French, German, Italian, Spanish) • Project-specific on request • Linux [2] • Other
Power supply	• 100 ... 240 V AC, 50 ... 60 Hz with bridging of temporary power failures in accordance with NAMUR: max. 20 ms at 0.85% rated voltage • Redundant 100 ... 240 V AC, 50 ... 60 Hz
Drives	
Hard disks SATA 3.5" or SAS 3.5"	Installation in internal drive cage • 250 GB Can be installed in internal shock and vibration-damped drive cage (optional) • 250 GB • 500 GB • 2 x 500 GB • 500 GB RAID1[3], (2 x 500 GB, mirror disks) Installation in front drive cage in swap frame • 250 GB • 2 x 500 GB • 500 GB RAID1[3], (2 x 500 GB, mirror disks), "hot swap" • 1 TB RAID5[3], (3 x 500 GB, striping with parity), "hot swap" • 1 TB RAID1, (2 x 1 TB, mirror disks), "hot swap"; PCIe x8 RAID controller in PCIe x16 slot • 1.8 TB RAID5, (3 x 1 TB, striping with parity), "hot swap"; controller with zero-maintenance cache protection module in PCIe x16 slot • 50 GB SATA solid-state drive (SLC)
Solid-State Drive (SSD) (2.5" SATA)	Installed internally or front-mounted in removable frame 50 GB (SLC), optional
DVD-ROM, 5.25", SATA	• 16 x (DVD media) • 48 x (CD media)
DVD+/-R/RW, 5.25", SATA	• 16 x 16 x 12 x (DVD media) • 48 x 32 x 48 x (CD media)
Floppy disk	-
Slots for drives	Front: • 3 x 5.25" and 2 x 3.5" Internal: • 2 x 3.5" (in the optional, vibration-damping drive cage)

	SIMATIC IPC847C
Interfaces	
PROFINET	3x RJ45 (CP 1616-compatible), optional
PROFIBUS/MPI	12 Mbit/s (isolated, compatible with CP 5611), optional
Ethernet	2 x 10/100/1000 Mbit/s (RJ45, teaming-capable)
USB 2.0	• 2 x front (high current) • 4 x rear (high current) • 1 x internal (high current), e.g. for USB dongle
Serial	• 9-pin COM1 (V.24) • 9-pin COM2 (V.24)
Parallel	LPT1
VGA	1 x
Keyboard	PS/2
Mouse	PS/2
Audio	1 x Line Out; 1 x Micro

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[2] Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suitable for LINUX", see http://www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

[3] SATA RAID controller on board in Intel chipset

■ **Technical specifications** (continued)

	SIMATIC IPC847C
Monitoring functions	
Basic functionality	Message locally via DiagBase software
Temperature	• Overshoot/undershoot of permissible operating temperature range • Messages can be evaluated by the application program
Fan	• Speed monitoring • 2 x enclosure fans • 1 x fan power supply
Watchdog	• Monitoring of program execution • Monitoring time can be parameterized in software • Restart can be parameterized in the event of a fault • Messages can be evaluated by the application program
Monitoring functions via the network	SIMATIC PC DiagMonitor (optional) Remote monitoring capability for: • Watchdog • Temperature • Fan speed • Hard disk monitoring (SMART) • System/Ethernet monitoring (Heart Beat) Communication: • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Configuration of client/server architectures • Structure of log files
Front LEDs	• POWER (internal power supply unit, PC switched on) • HARDDISK (access to hard disk) • ETHERNET1 (Ethernet status, "Heartbeat") • ETHERNET2 (Ethernet status, "Heartbeat") • PN / MPI/DP (PROFINET/PROFIBUS status) • WATCHDOG (ready/fault indication) • TEMP (temperature status) • FAN (fan speed monitoring) • HDD1 ALARM (hard disk alarm in conjunction with RAID and monitoring software) • HDD2 ALARM (hard disk alarm in conjunction with RAID and monitoring software) • HDD3 ALARM (hard disk alarm in conjunction with RAID and monitoring software)

	SIMATIC IPC847C
Ambient conditions	
Degree of protection	IP41 at the front, IP20 at the rear acc. to EN 60529
Dust protection	With front door closed: G2 EN 779, 99% of particles > 0.5 mm are held back
Protection class	Protection class I in accordance with IEC 61140
Vibration load during operation	DIN EN 60068-2-6, 10 cycles Internal mounting of the hard disk drives in optional, internal drive cage: • 10 ... 58 Hz: 0.0375 mm • 58 ... 500 Hz: 5 m/s^2 (approx. 0.5 g) Permanently installed internal hard disk drives: • 10 ... 58 Hz: 0.019 mm • 58 ... 500 Hz: 3 m/s^2 (approx. 0.3 g) Note: There are limitations when DVD+/-RW and HDD are operated in a swap frame
Shock loading during operation	DIN EN 60068-2-27, IEC 60068-2-29 Internal mounting of the hard disk drives in optional, internal drive cage: • Half-sine: 50 m/s^2, 30 ms (approx. 5 g), 100 shocks per axis • Permanently installed internal hard disk drives: 30 m/s^2, 30 ms (approx. 3 g) Note: There are limitations when DVD+/-RW and HDD are operated in a swap frame

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■ **Technical specifications** (continued)

	SIMATIC IPC847C
Electromagnetic compatibility (EMC)	
Emitted interference (AC)	EN 61000-6-3 FCC Class A EN 61000-3-2 Class D and EN 61000-3-3
Immunity to conducted interference on the supply lines	± 2 kV (IEC 61000-4-4, burst)
	± 1 kV (IEC 61000-4-5, symm. surge)
	± 2 kV (IEC 61000-4-5, asymm. surge)
Immunity to interference on signal lines	± 1 kV (IEC 61000-4-4, burst, length < 30 m)
	± 2 kV (IEC 61000-4-4, symm. surge, length > 30 m)
	± 2 kV (IEC 61000-4-5, asymm. surge, length > 30 m)
Immunity to static discharge	±6 kV, contact discharge (IEC 61000-4-2)
	±8 kV, air discharge (IEC 61000-4-2)

Immunity to high radio frequency interference	• 1 V/m 80% AM; 2-2.7 GHz
	  (IEC 61000-4-3)
	• 10 V/m 80% AM; 80 MHz to
	  1 GHz and 1.4 GHz and 2 GHz
	  (IEC 61000-4-3);
	• 10 V, 10 kHz to 80 MHz
	  (IEC 61000-4-6)

Immunity to magnetic fields	100 A/m, 50/60 Hz (IEC 61000-4-8)
Ambient temperature during operation	5 ... 50 °C
	Note: There are limitations when using DVD-ROM / DVD+/-RW and SAS HDD in swap frames
Relative operating humidity	5 ... 80% at 25 °C (no condensation)
Approvals and safety regulations	
Safety regulations	IEC 60950-1 Second Edition, EN 60950-1:2006, UL 60950-1 Second Edition CSA C22.2 No 60950-1-07 Second Edition
Approvals	cULus 60950-1 Second Edition, KCC

CE mark	• Emitted interference:
	  EN 61000-6-3:2007
	• Noise immunity:
	  EN 61000-6-2:2005

Dimensions and weights	
Mounting dimensions (W x H x D, in mm)	430 x 177 x 448

Note regarding SIMATIC PC operating system licenses

The accompanying operating system license is only valid for installation on the respective supplied SIMATIC IPC. Installation can only be performed on these SIMATIC systems in accordance with Microsoft OEM licensing regulations.

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PC-based Automation
Rack PC

SIMATIC IPC847C

Ordering data	Order No.		Order No.

SIMATIC IPC847C [1]

Interfaces: 2 x 10/100/1000 Mbps Ethernet (RJ45);
1 x graphic (DVI-I); 2 x COM;
1 x LPT; 2 x PS/2;
4 x USB 2.0 at rear,
2 x USB 2.0 at front,
1x USB 2.0 internal; audio;
temperature and fan monitoring,
watchdog;

Order No. 6AG4114- 1 ▦ ▦ ▦ ▦ - ▦ ▦ ▦ ▦

Processor, motherboard:
- Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache), motherboard without fieldbus — **G**
- Core i3-330E (2C/4T, 2.13 GHz, 3 MB cache), motherboard with PROFIBUS/MPI — **H**
- Core i3-330E (2C/4T; 2.13 GHz, 3 MB cache), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) [2] — **J**
- Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard without fieldbus — **K**
- Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard with PROFIBUS/MPI — **L**
- Core i5-520E (2C/4T, 2.4 GHz, 3 MB cache, TB, iAMT, VT), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) [2] — **M**
- Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard without field bus — **N**
- Core i7-610E (2C/4T, 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard with PROFIBUS/MPI — **P**
- Core i7-610E (2C/4T; 2.53 GHz, 4 MB cache, TB, iAMT, VT), motherboard with PROFINET (3 x RJ45, CP 1616-compatible) [2] — **R**

SIMATIC IPC847C [1] (continued)

Order No. 6AG4114- 1 ▦ ▦ ▦ ▦ - ▦ ▦ ▦ ▦

Hard disks:
- 250 GB HDD SATA; 0.5 g vibration, 5 g shock, internal — **A**
- 500 GB HDD SATA; 0.5 g vibration, 5 g shock, internal — **B**
- 2 x 500 GB HDD SATA; 0.5 g vibration, 5 g shock, internal — **C**
- RAID1 500 GB (2 x 500 GB HDD SATA, mirror disks); 0.5 g vibration, 5 g shock, internal — **D**
- 250 GB HDD SATA; 0.3 g vibration, 3 g shock, internal — **G**
- 250 GB HDD SATA in swap frame; front — **H**
- 500 GB HDD SATA in swap frame; front — **K**
- 2 x 500 GB HDD SATA in swap frame; front — **M**
- RAID1 500 GB (2 x 500 GB HDD SATA) in swap frame, for hot swapping; front — **P**
- RAID5 1 TB (3 x 500 GB HDD SATA) in swap frame, for hot swapping; front — **R**
- 50 GB SSD (SLC) SATA, internal — **S**
- 50 GB SSD (SLC) SATA in swap frame; front — **T**
- RAID1 1 TB (2 x 1 TB HDD SAS) in swap frame, for hot-swapping, front; PCIe x8 RAID controller with zero-maintenance cache protection module in PCIe x16 slot [3] — **U**
- RAID5 1.8 TB (3 x 1 TB HDD SAS) in swap frame, for hot-swapping, front; PCIe x8 RAID controller with zero-maintenance cache protection module in PCIe x16 slot [3] — **V**

Memory configuration:
- 1 GB DDR3 SDRAM (1 x 1 GB), single channel — **0**
- 2 GB DDR3 SDRAM (1 x 2 GB), single channel — **1**
- 4 GB DDR3 SDRAM (2 x 2 GB), dual channel — **2**
- 6 GB DDR3 SDRAM (1 x 2 GB, 1 x 4 GB), dual channel — **3**
- 8 GB DDR3 SDRAM (2 x 4 GB), dual channel — **4**
- 2 GB DDR3 SDRAM (2 x 1 GB), dual channel — **5**
- 4 GB DDR3 SDRAM (2 x 2 GB), dual channel — **6**
- 8 GB DDR3 SDRAM (2 x 4 GB), dual channel — **7**

[1] For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

[2] Not in combination with Windows Server 2008 R2, Windows Server 2008 and Windows Server 2003 R2

[3] Not in combination with graphics card, Windows XP, Windows 7 (32-bit), without removable media.

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Ordering data	Order No.
SIMATIC IPC847C [1] (continued)	6AG4114- 1 ▪ ▪ ▪ ▪ - ▪ ▪ ▪ ▪

SIMATIC IPC847C [1] (continued)

Swap media:

• DVD-ROM	1
• DVD+/-RW	2
• Without swap medium	8

Bus module / hardware expansion

• Bus module, 8 slots: 7 x PCI, 1 x PCIe x16; without hardware expansions	0
• Bus module, 8 slots: 7 x PCI; 1x PCIe x16; DVI-VGA adapter (1 x VGA) for onboard graphics	1
• Bus module, 8 slots: 7x PCI; 1x PCIe x16 assigned; + graphics card PCIe x16, 2 x DP (2x DVI-D via 2x DP-DVI adapters)	2
• Bus module, 8 slots: 7x PCI; 1x PCIe x16 assigned; + graphics card PCIe x16, 2 x DP (2x VGA via 2x DP-VGA adapters)	3
• Bus module, 11 slots: 7 x PCI, 1 x PCIe x16, 3 x PCIe x4; without hardware expansions	4
• Bus module, 11 slots: 7x PCI, 1x PCIe x16, 3x PCIe x4; + DVI-VGA adapter (VGA) for onboard graphics	5
• Bus module, 11 slots: 7x PCI; 1x PCIe x16 assigned, 3x PCIe x4; + graphics card PCIe x16, 2 x DP (2x DVI-D via 2x DP-DVI adapters)	6
• Bus module, 11 slots: 7x PCI; 1x PCIe x16 assigned; 3x PCIe x4; + graphics card PCIe x16, 2x DP (2x VGA via 2x DP-VGA adapters)	7

Ordering data	Order No.
SIMATIC IPC847C [1] (continued)	6AG4114- 1 ▪ ▪ ▪ ▪ - ▪ ▪ ▪ ▪

SIMATIC IPC847C [1] (continued)

Operating system (preinstalled and activated)

• Windows XP Professional, MUI (Eng, Ger, Fr, It, Sp), 32-bit, SP3	B
• Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp), 32-bit, SP1 included	E
• Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp), 64-bit, SP1 included	F
• Windows Server 2003 R2 Standard Edition incl. 5 clients, MUI (Eng, Fr, Ger, It, Sp), 32-bit, SP2	N
• Windows Server 2008 Standard Edition incl. 5 clients, MUI (Eng, Ger, Fr, It, Sp), 32-bit, SP2	P
• Windows Server 2008 R2 Standard Edition incl. 5 clients, MUI (Eng, Ger, Fr, It, Sp), 64-bit, SP1 enclosed	Q
• Without operating system	X

Software expansion

• SIMATIC IPC DiagMonitor 4.3 included	A
• SIMATIC IPC Image Creator software 3.2 included	B
• SIMATIC IPC DiagMonitor 4.3 & Image Creator software 3.2 included	C
• Without software	X

Power supply, country-specific cable

• 100/240 V AC industrial power supply with Namur; power cable for Europe	0
• 100/240 V AC industrial power supply with Namur; power cable for United Kingdom	1
• 100/240 V AC industrial power supply with Namur; power cable for Switzerland	2
• 100/240 V AC industrial power supply with Namur; power cable for USA	3
• 100/240 V AC industrial power supply with Namur; power cable for Italy	4
• 100/240 V AC industrial power supply with Namur; power cable for China	5
• 100/240 V AC industrial redundant power supply unit with Namur; without power cable	6

[1] For an up-to-date overview, see the SIMATIC PC online configurator at: http://www.siemens.com/ipc-configurator

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PC-based Automation
Rack PC

SIMATIC IPC847C

Ordering data	Order No.
Accessories	
Memory expansion	
• 1 GB DDR3 1066 SDRAM, DIMM	**6ES7648-2AJ40-0KA0**
• 2 GB DDR3 1066 SDRAM, DIMM	**6ES7648-2AJ50-0KA0**
• 4 GB DDR3 1066 SDRAM, DIMM	**6ES7648-2AJ60-0KA0**
• 1 GB DDR3 1066 SDRAM, DIMM, ECC	**6ES7648-2AJ40-1KA0**
• 2 GB DDR3 1066 SDRAM, DIMM, ECC	**6ES7648-2AJ50-1KA0**
• 4 GB DDR3 1066 SDRAM, DIMM, ECC	**6ES7648-2AJ60-1KA0**
Hard disk slide-in unit for swap frame SIMATIC PC accessories, slide-in unit for low-profile HDD swap frame, for 3.5" hard disk, SATA / SAS (without hard disk)	**6ES7648-0EG00-1BA0**
Filter mats For Rack PC 847B and IPC847C Packing unit 10 units	**A5E01064980**

	Order No.
Power cable, straight, 3 m long	
• Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden	**6ES7900-0AA00-0XA0**
• United Kingdom	**6ES7900-0BA00-0XA0**
• Switzerland	**6ES7900-0CA00-0XA0**
• USA	**6ES7900-0DA00-0XA0**
• Italy	**6ES7900-0EA00-0XA0**
• China	**6ES7900-0FA00-0XA0**
Tower Kit for converting the computer into an industrial tower PC	**6ES7648-1AA00-0XD0**
Retainer for pin assignment of the internal USB port	**6ES7648-1AA00-0XK0**
Expansion components	From page 5/153
Communication products	From page 5/186
RMOS real-time operating system	From page 5/146

Note:

Software Packages with SIMATIC WinCC flexible, WinCC RT Advanced, SIMATIC WinCC, and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC at favorable prices.

More information under "Embedded Bundles / Packages for industrial PCs".

Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.

Technical data of the telescopic rails	
Carrying capacity per pair, min.	30 kg
Full extension length, min.	470 mm
Rail thickness, max.	9.7 mm
Fixing screws	M5 x 6 mm

The fixing screws of the telescopic rails should not project more than 5 mm into the enclosure.

The enclosure is prepared for the following telescopic rails:

• Rittal: Type 3659.180 for 600 mm cabinet / Type RP 3659.190 for 800 mm cabinet
• Schroff: Type 20110-072

More information

Further information can be found in the Internet under:

http://www.siemens.com/simatic-pc

■ **Overview**

SIMATIC Box PCs provide mechanical engineers, plant engineers and control cabinet makers with particularly rugged industrial PC systems for use in powerful yet compact applications.

The following device classes are available for various requirements:

- SIMATIC IPC227 (Nanobox PC):
  The compact embedded IPC – maintenance-free and dust-proof with versatile mounting
- SIMATIC IPC427 (Microbox PC):
  The powerful embedded IPC – maintenance-free with versatile configuration
- SIMATIC IPC627/IPC827 (Box PC):
  The high-end IPC – with maximum performance, functional scope, and expansion capability

Shared industrial functionality:

- Extreme compactness
- Certification for global marketing
- System-tested with SIMATIC components
- High vibration/shock load during operation
- Wide operational temperature range
- Robust data storage with CompactFlash/CFast or Solid-State Drive (SSD)
- Integrated PROFIBUS or PROFIBUS/MPI interface (optional)
- Varied mounting possibilities for flexibility with installation
- Designed for 24-hour continuous operation
- Integrated parameterizable monitoring functions (temperature, fan, watchdog)
- High service friendliness
- Operating system preinstalled and activated for fast startup
- Motherboard developed and manufactured by Siemens
- Availability for 3 to 6 years
- Repairs and spare parts service for 5 years
- High continuity of the components/design
- Installation and software compatible with predecessor model
- Long-term availability of PC components from the Intel embedded line

SIMATIC IPC227 (Nanobox PC):
The compact embedded IPC – maintenance-free and dust-proof with versatile mounting

- Maximum compactness with approx. 1 liter enclosure volume with integrated industrial power supply for minimum space requirements in the control cabinet
- Maximum flexibility thanks four mounting options and interfaces on one side suitable for every installation situation
- Optimum variety of interfaces due to a large number of integrated interfaces such as selectable serial ports (RS 232/RS 485/CAN) and 2 x teaming-capable Gigabit LAN
- Maximum industrial functionality due to closed enclosure for optimum dust protection and non-volatile retentive memory
- Further device options for optimum adaptation to the application with additional PCIe slot or RS 232 interfaces or digital I/O

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PC-based Automation
Box PC

Box PC

■ **Overview** (continued)

SIMATIC IPC427 (Microbox PC):
The powerful embedded IPC – maintenance-free with versatile configuration

- Fan-free operation
- High performance with maximum compactness and ruggedness for direct installation in the machine
- Optimized for embedded applications
- Flexibility expandable using one or two PCIe I/O cards (optional)
- Flexible installation options due to DIN rail/wall/front upright mounting, even outside a control cabinet
- NVRAM for retentive data storage (optional)

SIMATIC IPC627/IPC827 (Box PC):
The high-end IPC – with maximum performance, functional scope, and expansion capability

- Maximum system performance for complex measuring, control and visualization tasks
- High flexibility with expansion slots and integral interfaces
- Flexible, space-saving installation with mounting brackets or portrait assembly kits
- Rugged design for direct installation in the machine
- RAID1 controller onboard
- Maximum processor performance up to ambient temperature of 55 °C
- High system availability
- Battery-backed SRAM as memory for WinAC data
- 2 x 7-segment display and 2 signal LEDs (freely programmable)

	SIMATIC IPC227D (Nanobox PC)	SIMATIC IPC427D (Microbox PC)	SIMATIC IPC427C (Microbox PC)	SIMATIC IPC627C (Box PC)	SIMATIC IPC827C (Box PC)
Design					
Rail or wall mounting	•	•	•	-	-
Wall or portrait mounting	• Also: Side mounting	•	•	•	•
General features					
Processor	• Intel Atom E620 600 MHz • Intel Atom E640 1.0 GHz • Intel Atom E660 1.3 GHz	• Intel Core i7-3517UE, 1.7 GHz, 4 MB SLC- • Intel Core i3-3217UE, 1.6 GHz, 3 MB SLC • Intel Celeron 827E 1.4 GHz, 1.5 MB SLC	• Intel Core2 Duo 1.2 GHz, 800 MHz FSB, 3 MB SLC • Intel Core2 Solo 1.2 GHz, 800 MHz FSB, 3 MB SLC • Intel Celeron M 1.2 GHz, 800 MHz FSB, 1 MB SLC	• Intel Core i7-620E, 2.53 GHz, 2 cores, 4 threads, 4 MB cache, TB, HT, VT-x, VT-d • Intel Core i3-330E, 2.13 GHz, 2 cores, 4 threads, 3 MB cache, HT, VT-x • Intel Celeron P4505, 1.86 GHz, 2 cores, 2 MB cache	• Intel Core i7-620E, 2.53 GHz, 2 cores, 4 threads, TB, HT, VT-x, VT-d, AMT 4 MB cache • Intel Core i3-330E, 2.13 GHz, 2 cores, 4 threads, HT, VT-x, 3 MB cache • Intel Celeron P4505, 1.86 GHz, 2 cores, 2 MB cache
Main memory	512 MB, 1 GB, 2 GB	1 GB, 2 GB, 4 GB, 8 GB	1 GB, 2 GB, 4 GB	1 GB, expandable up to 8 GB, optional ECC	1 GB, expandable up to 8 GB, optional ECC
Static RAM	512 KB	512 KB	2 MB	2 MB	2 MB
Free slots for expansions	1 x PCIe with PCIe enclosure option	Up to 2 x PCIe (enclosure option)	Up to 3 x PCI-104 (with expansion frame)	2 x PCI or 1 x PCI-Express x16 / 1 x PCI (175 mm / 265 mm)	3 x PCI (290/290/240 mm), 1 PCI-Express x (185 mm) 1 x PCI-Express x16 (240 mm)
Graphics	Onboard	Onboard	Onboard	Onboard	Onboard

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Overview (continued)

	SIMATIC IPC227D (Nanobox PC)	SIMATIC IPC427D (Microbox PC)	SIMATIC IPC427C (Microbox PC)	SIMATIC IPC627C (Box PC)	SIMATIC IPC827C (Box PC)
Operating system					
without	•	•	•	•	•
Preinstalled and activated / supplied on restore CD	• Windows Embedded Standard 2009 (CF card ≥ 2 GB, SSD, hard disk) • Windows XP Professional MUI (SSD, hard disk) • Windows Embedded Standard 7, 32 bit (CF card ≥ 4 GB, SSD, hard disk) • Windows 7 Ultimate MUI, 32 bit (SSD, hard disk)	• Windows 7 Ultimate MUI • Windows Embedded Standard 7 in combination with CF card ≥ 4 GB, solid-state drive, or hard drive	• Windows Embedded Standard 2009, in combination with CF card ≥ 2 GB, solid-state drive, or hard drive • Windows XP Professional Multi-Language; in combination with solid-state drive or hard drive • Windows 7 Ultimate MUI • Windows Embedded Standard 7	• Windows XP Professional MUI • Windows 7 Ultimate 32-bit MUI • Windows 7 Ultimate 64-bit MUI • Windows Embedded Standard 2009 English on 8 GB CompactFlash	• Windows XP Professional MUI • Windows 7 Ultimate 32-bit MUI • Windows 7 Ultimate 64-bit MUI • Windows Embedded Standard 2009 English on 8 GB CompactFlash
Order separately	RMOS3 V3.50	RMOS3 V3.50	RMOS3 V3.50	RMOS3 V3.50	RMOS3 V3.50
Project-specific on request	• Linux [1] • Other	• Linux [1] • Other	• Linux [1] • Other	• Linux [1] • Other	• Linux [1] • Other
Interfaces					
PROFINET onboard	-	3 x RJ45 (CP 1616 compatible) onboard, optional	3 x RJ45 (CP 1616 compatible) onboard, optional	3 x RJ45 (CP 1616 compatible) onboard, optional	3 x RJ45 (CP 1616 compatible) onboard, optional
PROFIBUS/MPI	-	12 Mbps (compatible with CP 5622), optional	12 Mbps (CP 5611-compatible), optional	12 Mbps (CP 5611-compatible) onboard, optional	12 Mbps (CP 5611-compatible) onboard, optional
Ethernet	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	1 x 10/100/1000 Mbps
USB 2.0 (high current)	4 x	4 x USB 3.0	4 x	4 x	4 x
VGA, LVDS, DVI, DPP	1 x DVI-D	• 1 x DVI-I (DVI and VGA) • 1 x DisplayPort	1 x DVI-I (DVI and VGA)	1 x DVI-I (DVI and VGA)	1 x DVI-I (DVI and VGA)
Drives					
Hard disks	1 x 2.5" (optional)	1 x 2.5" (optional)	1 x 2.5" (optional)	• 1 x 3.5" • 2 x 2.5" • RAID1/2 x 2.5"	• 1 x 3.5" • 2 x 2.5" • RAID1/2 x 2.5"
Solid-state drive	1 x 2.5" SATA (optional)	1 x 2.5" SATA (optional)	1 x 2.5" SATA (optional)	1 x 2.5" SATA (optional)	1 x 2.5" SATA (optional)
FlashDrive	1 x CF externally accessible	• 1 x CFast externally accessible • 1 x CFast internal, in place of HDD, SSD (optional)	• 1 x CF externally accessible • 1 x CF internal, in place of HDD, SSD (optional)	• 1 x CF at the front, externally accessible • 1 x CF internal, in place of HDD (optional)	1 x CF at the front, externally accessible
Optical drives	-	-	-	DVD R/W	DVD R/W
Ambient conditions					
Vibration/shock load during operation	1 g / 15 g (with FlashDrive)	1 g / 15 g (with FlashDrive)	1 g / 15 g (with FlashDrive)	1 g / 5 g	1 g / 5 g
Ambient temperature during operation	0 °C … 50 °C (with FlashDrive) 0 °C … 40 °C (with hard disk)	With maximum configuration: 0 ... 50/55 °C (with FlashDrive) 5 ... 40 °C (with hard disk)	With maximum configuration: 0 ... 50/55 °C (with FlashDrive) 5 ... 40 °C (with hard disk)	With maximum configuration: 5 ... 45 °C 5 ... 50/55 °C (with 20/10 W load on PCI/PCI-Express bus)	With maximum configuration: 5 ... 45 °C 5 ... 50/55 °C (with 20/10 W load on PCI/PCI-Express bus)

• Available

- Not available

[1] Suitable for specific Linux versions in accordance with the specifications of the Siemens manufacturer's declaration "Suitable for Linux", see http://www.siemens.com/simatic-pc/suited-for-linux (Linux is a trademark of Linus Torvald).

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More information

Further information can be found on the Internet at:
http://www.siemens.com/simatic-pc

Information material can be ordered or downloaded from the Internet:
http://www.siemens.com/simatic/printmaterial

PC-based Automation
Box PC

SIMATIC IPC227D

Overview

SIMATIC IPC227D (Nanobox PC):
The compact embedded IPC – maintenance-free and
dust-proof with versatile mounting

- Maximum compactness with approx. 1 liter enclosure volume or more with integrated industrial power supply for minimum space requirements in the control cabinet
- Maximum flexibility thanks four mounting options and interfaces on one side suitable for every installation situation
- Optimum variety of interfaces due to a large number of integrated interfaces such as a selectable serial port (RS 232/RS 485/CAN) and 2 x teaming-capable Gigabit LAN
- Maximum industrial functionality due to closed enclosure for optimum dust protection and non-volatile retentive memory
- Further device options for optimum adaptation to the application with additional PCIe slot or R S232 interfaces or digital I/O

Technical specifications

	SIMATIC IPC227D
General features	
Design	Rail, wall, portrait or side mounting
Processor	• Intel Atom E620 600 MHz, 512 MB RAM • Intel Atom E640 1.0 GHz, 1 GB RAM • Intel Atom E660 1.3 GHz, 2 GB RAM
Chipset	Intel Controller Hub EG20T
Buffered MRAM	optional, 512 KB, of which 128 KB can be written within the buffer time
Free slots for expansions	Optional PCIe expansion slot
Graphics	• Integrated into Intel Atom CPU E6xx • 8 to 256 MB (shared memory), 1920 x 1200, 60 Hz, 32-bit colors
Operating system	• Without • Windows Embedded Standard 2009 preinstalled, in combination with CF card or solid-state drive or hard drive (optional) • Windows XP Professional MUI preinstalled (in combination with solid-state drive or hard drive; MUI: Multi Language User Interface) (optional) • Windows Embedded Standard 7, 32-bit, preinstalled, in combination with CF card or solid-state drive or hard drive (optional) • Windows 7 Ultimate MUI 32 bit preinstalled (in combination with solid-state drive or hard drive; MUI: Multi Language User Interface) (optional) • Linux [1] (project-specific, on request) • RMOS (project-specific on request) • Others on request project-specifically
Design	Rail, wall, portrait or side mounting
Power supply	• 24 V DC (20.4 V ... 28.8 V) • Isolated • With buffering of temporary power failures: max. 10 ms • Line side switch • With power failure indication by means of Power Fail signal

[1] Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suitable for LINUX", see http://www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

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■ Technical specifications (continued)

	SIMATIC IPC227D
Drives	
Flash drive	Optional; replaceable, accessible, diagnosable • 2 GB • 4 GB • 8 GB • 16 GB
Solid-state drive (SSD)	Optional • 50 GB SATA, High Endurance, 2.5" • 80 GB SATA, Standard, 2.5"
Hard disk	Optional • 250 GB SATA
CD-ROM	Via USB (not included in scope of delivery)
DVD-RW	Via USB (not included in scope of delivery)
Floppy disk	Via USB (not included in scope of delivery)
Interfaces	
PROFINET	PROFINET RT via Standard Ethernet controller
PROFIBUS/MPI	-
Ethernet	• 2 x 10/100/1000 Mbps (RJ 45) • Two independent Intel Controllers: Intel 82574L / Intel Controller Hub EG20T • With teaming function
USB	V2.0: 4 x
Serial	COM1 (V.24), optional COM2-4
DVI-I	1 x DVI-D
Keyboard	Via USB (not included in scope of delivery)
Mouse	Via USB (not included in scope of delivery)

	SIMATIC IPC227D
Monitoring functions	
Temperature	• Processor temperature • Motherboard Messages can be evaluated by the application program
Watchdog	• Monitoring of program execution • Monitoring time can be parameterized in software • Can be parameterized for a fault or restart Messages can be evaluated by the application program
Monitoring functions via the network	• DiagBase • SIMATIC IPC DiagMonitor Remote monitoring capability for: • Watchdog • Temperature • Mass memory monitoring (SMART) • System/Ethernet monitoring (Heart Beat) • Runtime meter Communication: • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Configuration of client/server architectures • Structure of log files
Ambient conditions	
Degree of protection to EN 60529 (front/rear)	IP40
Vibration load during operation	Devices without hard disk: • Requirements according to: IEC 61131-2 • Tested according to: IEC 60068-2-6, Test Fc • 10-58: 0.0375 mm • 58-200: 9.8 m/s^2 • 10 x /axis Devices with hard disk: • Requirements according to: IEC 61131-2 • Tested according to: IEC 60068-2-6, Test Fc • 10-58: 0.0375 mm • 58-200: 4.9 m/s^2 • 10 x /axis
Shock loading during operation	Devices without hard disk: • Requirements according to: IEC 61131-2 • Tested according to: IEC 60068-2-27, Test Ea • 150 m/s^2, 30 ms shock duration Devices with hard disk: • Requirements according to: IEC 61131-2 • Tested according to: IEC 60068-2-27, Test Ea 50 m/s^2, 30 ms shock duration
Moist heat	With CompactFlash card/SSD: 95 % With hard disk: 80 %
Ambient temperature during operation	0 °C up to 50 °C

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PC-based Automation
Box PC

■ **Technical specifications** (continued)

	SIMATIC IPC227D
Electromagnetic compatibility (EMC)	
Emitted interference	EN 55022 Class B
Interference immunity, burst	EN 61000-6-2 or IEC 61131-2: • 2 kV - tested acc. to IEC 61000-4-4 • 1 kV symmetrical / 2 kV asymmetrical - tested acc. to IEC 61000-4-5
Interference immunity, surge	• 1 kV to IEC 61000-4-5; symmetrical • 2 kV to IEC 61000-4-5; asymmetrical
ESD interference immunity	According to NAMUR Recommendation NE 21 and EN 61000-6-2: • 6 kV contact discharge - tested acc. to IEC 61000-4-2 • 8 kV air discharge - tested acc. to IEC 61000-4-2
Immunity to high radio frequency interference	According to EN 61000-6-2 or IEC 61131-2: • Interference immunity 80 ... 1000 MHz: 10 V/m with 80% AM (1 kHz); tested acc. to IEC 61000-4-3; • 1.4 GHz ... 2 Hz: 10 V/m with 50% pulse modulation; tested according to IEC 61000-4-3
Immunity to high-frequency current feed	Acc. to NAMUR Recommendation NE 21 and EN 61000-6-2 or IEC 61131-2: • 10 kHz ... 80 MHz: 10 V with 80% AM (1 kHz) tested acc. to IEC 61000-4-6
Immunity to magnetic fields	Acc. to NAMUR Recommendation NE 21 and EN 61000-6-2 or IEC 61131-2: • 50/60 Hz; 100 A/m rms value - tested acc. to IEC 61000-4-8

	SIMATIC IPC227D
Approvals	
Marine approval Only for configurations with CompactFlash or SSD memory	• GL – Germanische Lloyd • BV – Bureau Veritas • LR – Lloyds Register of Shipping • ABS – American Bureau of Shipping • DNV – Det Norske Veritas • NKK – Nippon Kaiji Kyokai
Device versions	
Basic version	Width x Height x Depth: approx. 191 x 100 x 60 mm
COM	• 3 additional, integrated serial interfaces (COM2-4); only sending/receiving of data • Width x Height x Depth: approx. 191 x 100 x 89 mm
IO	• 4 digital inputs/outputs each, 24 V, integrated • Width x Height x Depth: approx. 191 x 100 x 89 mm
PCIe	• 1 PCIe (x1) slot, integrated • Width x Height x Depth: approx. 191 x 187 x 89 mm

Release for individual order variants: See releases in the ordering procedure.

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Ordering data	Order No.
SIMATIC IPC227D	**6ES7647- 8 A ▪ ▪ ▪ - ▪ ▪ ▪ ▪**

Atom E620 (600 MHz),
512 MB RAM,
without drive, with CF slot,
COM1: RS232, without operating system,
device version: Base,
DIN rail,
1 x DVI-D graphics interface
2 x 10/100/1000 Mbps Ethernet RJ45
4 x USB V2.0 (high current)
CompactFlash slot
24 V DC industrial power supply

Processors / memory configuration / NVRAM

• Atom E620 (600 MHz), 512 MB RAM	A
• Atom E620 (600 MHz), 512 MB RAM, NVRAM	B
• Atom E640 (1.0 GHz), 1 GB RAM	E
• Atom E640 (1.0 GHz), 1 GB RAM, NVRAM	F
• Atom E660 (1.3 GHz), 2 GB RAM	G
• Atom E660 (1.3 GHz), 2 GB RAM, NVRAM	H

Drives

• Without drive, with CF slot	0
• 250 GB HDD SATA	1
• 50 GB Solid-State Drive SATA (High Endurance)	3
• 80 GB Solid-State Drive SATA (Standard)	4
• 2 GB SIMATIC IPC CompactFlash	5
• 4 GB SIMATIC IPC CompactFlash	6
• 8 GB SIMATIC IPC CompactFlash	7
• 16 GB SIMATIC IPC CompactFlash	8

COM interface

• COM1: RS232	0
• COM1: RS485	1
• COM1: CAN	2

Operating system

• Without operating system	0
• Windows Embedded Standard 2009 preinstalled (CF from 2 GB/SSD/HD)	1
• XP Prof. MUI preinstalled on SSD/HD	2
• Windows Embedded Standard 7 (32-bit) preinstalled (CF from 4 GB/SSD/HD)	3
• Windows 7 (32-bit) MUI preinstalled on SSD/HD	4

SIMATIC IPC227D	**6ES7647- 8 A ▪ ▪ ▪ - ▪ ▪ ▪ ▪**

Software bundles

• Without RTX/HMI software	A
• RTX: WinAC RTX 2010	B
• RTX-F: WinAC RTX F 2010	C
• HMI: WinCC RT Advanced 128 PT	F
• HMI: WinCC RT Advanced 512 PT	G
• HMI: WinCC RT Advanced 2048 PT	H
• HMI/RTX: RT 128 PT	M
• HMI/RTX: RT 512 PT	N
• HMI/RTX: RT 2048 PT	P
• HMI/RTX-F: RT 128 PT	R
• HMI/RTX-F: RT 512 PT	S
• HMI/RTX-F: RT 2048 PT	T

Device versions

• Device version: Base line	A
• Device version: PCIe (1 slot)	B
• Device version: COM (COM2-4: RS232)	D
• Device version: IO (4x dig. in/out each)	E

Mounting accessories

• Standard mounting rail	1
• Wall mounting	2
• Portrait mounting	3
• Side mounting	4

Release for individual order variants: See releases in the ordering procedure.

Accessories	
Cable strain relief set for IPC227D	**6ES7648-1AA50-0XL0**
Packing unit: 5 units	
Dust protection set for IPC227D	**6ES7648-1AA50-0XG0**

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PC-based Automation
Box PC

SIMATIC IPC227D

■ **Dimensional drawings**

All dimensions in mm. For mounting cut-out see technical specifications.
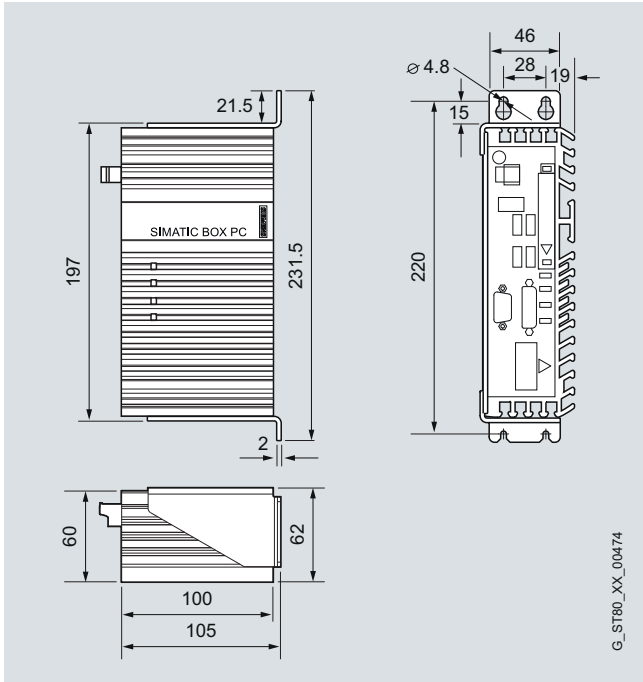
SIMATIC IPC227D basic unit, portrait mounting
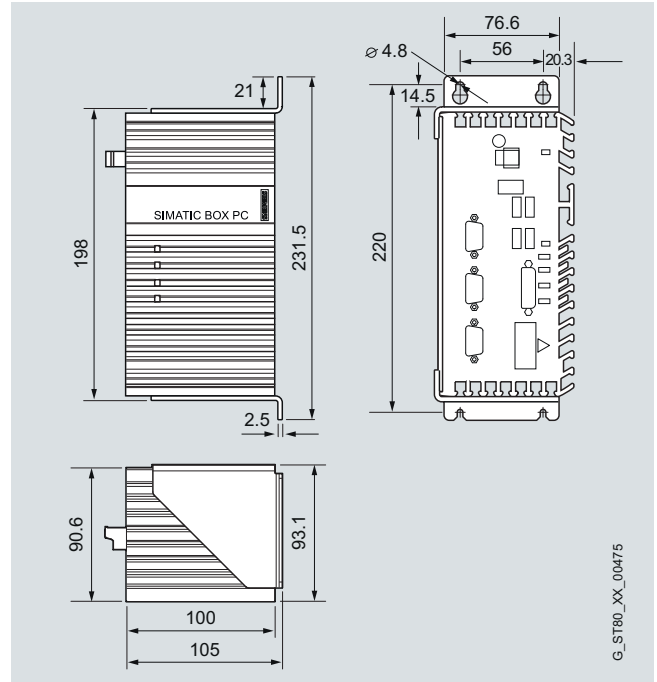
SIMATIC IPC227D COM version, portrait mounting
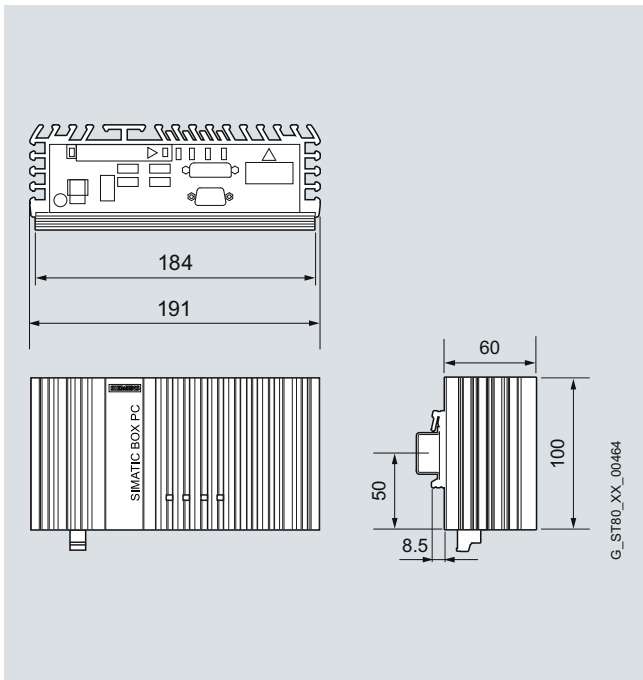
SIMATIC IPC227D basic unit, standard rail mounting
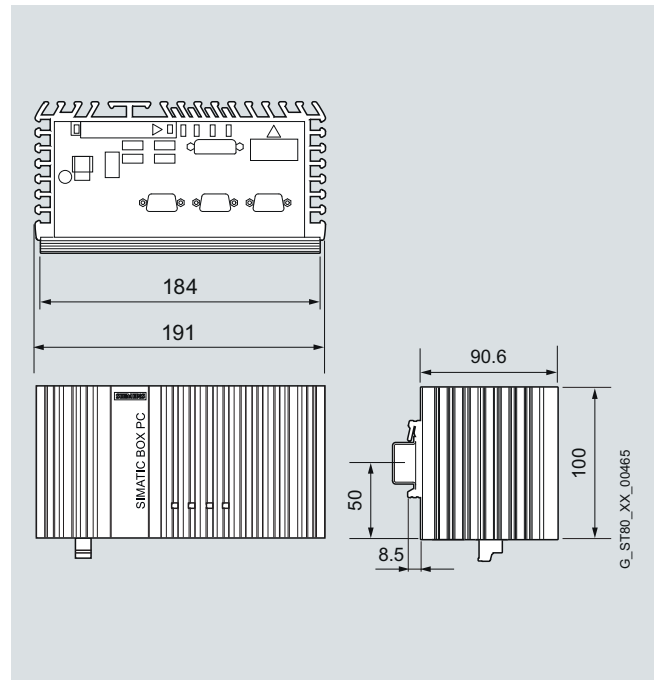
SIMATIC IPC227D COM version, standard rail mounting

Dimensional drawings (continued)
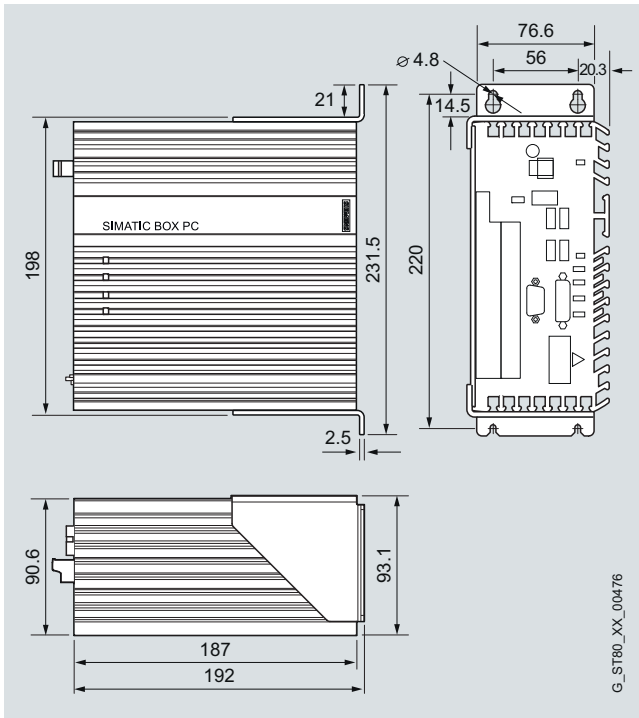
SIMATIC IPC227D PCIe version, portrait mounting
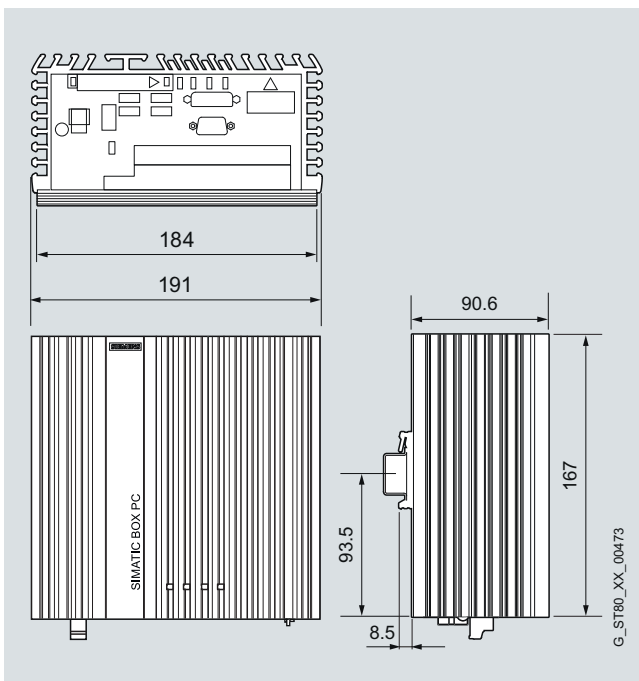
SIMATIC IPC227D PCIe version, standard rail mounting

More information

Further information can be found on the Internet at:

http://www.siemens.com/simatic-pc

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PC-based Automation
Box PC

SIMATIC IPC427D

Overview

SIMATIC IPC427D (Microbox PC):
The powerful embedded IPC – maintenance-free
with versatile configuration

Ready-to-run, complete solutions (software is already installed and preconfigured) for visualization and automation in connection with WinCC RT Advanced and/or WinAC RTX:

- Ultra-compact
- Maintenance-free
- Third generation Intel Core i technology

Technical specifications

	SIMATIC IPC427D
General features	
Design	• DIN rail mounting • Wall mounting • Portrait mounting
Processor	• Intel Celeron 827E 1.4 GHz, 1.5 MB SLC • Intel Core i3-3217UE 1.6 GHz, 3 MB SLC • Intel Core i7-3517UE 1.7 GHz, 4 MB SLC
Main memory	Memory module without ECC: • 1 GB DDR3-SDRAM SODIMM • 2 GB DDR3-SDRAM SODIMM • 4 GB DDR3-SDRAM SODIMM • 8 GB DDR3-SDRAM SODIMM Memory module with ECC: • 4 GB DDR3-ECC SODIMM • 8 GB DDR3-ECC SODIMM
Free slots for expansions	Up to 2 x PCIe cards, depending on enclosure design
Graphics	• Integrated Intel HD2000 or HD4000 • DVI resolution of 640 x 480 pixels up to 1920 x 1200 pixels • Maximum display port resolution 1920 x 1200 pixels • Graphics memory is occupied in the main memory (UMA dynamic)
Power supply	24 V DC (-20%/+20%) max. 4 A
Rated conditions	Fan-free operation
Operating systems	
Available	• without • Windows Embedded Standard 7 • Windows 7 Ultimate MUI
Project-specific	• Linux • QNX • VxWorks
Drives and storage media	
CFast card	• 2 GB optional or • 4 GB optional or • 8 GB optional or • 16 GB optional
Hard disk	• 2.5", 1 x ≥ 250 GB, SATA
Solid-state drive (SSD)	• 1 x ≥ 50 GB, 2.5" SATA-SSD, high endurance or • 1 x ≥ 80 GB, 2.5" SATA-SSD, standard or • 1 x ≥ 160 GB, 2.5" SATA-SSD, standard

	SIMATIC IPC427D
USB stick	External, can be connected via USB port
Interfaces	
Serial	• COM1 (RS 232) • COM2 (RS 232); optional
Graphics	• DVI-I: Can be used as DVI or VGA • DPP++: Display port, DVI via DPP-to-DVI adapter
USB	4 x USB 3.0, max. 2 high-current at the same time, downward-compatible with USB 2.0/1.1
Ethernet	• 2 x RJ45 (10/100/1000 Mbps) teaming-capable or • 1 x RJ45 (10/100/1000 Mbps) with PROFINET versions
PROFIBUS DP	12 Mbps (isolated, compatible with CP 5622), optional
PROFINET	3 x RJ45 (10/100 Mbps), CP 1616 onboard, optional
CAN interface	Optional
Keyboard, mouse	Connection via USB port
Advanced device functions	
Temperature	• When permitted operating temperature range is exceeded • Warnings can be analyzed by the application program (local, via LAN)
Watchdog	• Monitoring function for program execution • Restart can be parameterized in the event of a fault • Warnings can be analyzed by the application program (local, via LAN)
LED display	4 LEDs for displaying system status, 3 of these can be programmed by the user
Short-term voltage dip	Up to 15 ms buffer time at full load
Buffer memory	512 KB MRAM optional

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■ Ordering data

SIMATIC IPC427D (Box PC) [1] [2]	Order No. 6AG4140-■■■■■-■■■■
Processor and fieldbus:	
• Celeron U827E (1C/1T, 1.4 GHz, 1.5 MB cache); 2 x Gigabit Ethernet (IE/PN)	0
• Celeron U827E (1C/1T, 1.4 GHz, 1.5 MB cache); 2 x Gigabit Ethernet (IE/PN); PROFIBUS DP12	1
• Celeron U827E (1C/1T, 1.4 GHz, 1.5 MB cache); 2 x Gigabit Ethernet (IE/PN); CAN interface	2
• Core i3-3217UE (2C/4T, 1.6 GHz, 3 MB cache); 2 x Gigabit Ethernet (IE/PN)	3
• Core i3-3217UE (2C/4T, 1.6 GHz,3 MB cache); 2 x Gigabit Ethernet (IE/PN); PROFIBUS DP12	4
• Core i3-3217UE (2C/4T, 1.6 GHz, 3 MB cache); 1 x Gigabit Ethernet (IE/PN); 1 x PROFINET (IRT, 3 ports)	5
• Core i7-3517UE (2C/4T, 1.7 (2.8) GHz, 3 MB cache); 2 x Gigabit Ethernet (IE/PN) (optional ECC only here)	6
• Core i7-3517UE (2C/4T, 1.7 (2.8) GHz, 3 MB cache); 2 x Gigabit Ethernet (IE/PN); PROFIBUS DP12	7
• Core i7-3517UE (2C/4T, 1.7 (2.8) GHz, 3 MB cache); 1 x Gigabit Ethernet (IE/PN); 1 x PROFINET (IRT, 3 ports)	8
Mounting accessories:	
• DIN rail mounting	B
• Wall mounting	D
• Portrait mounting	E
Work memory/NVRAM/ECC:	
• 1 GB	A
• 2 GB	B
• 4 GB	C
• 8 GB	D
• 4 GB with ECC (only with Core i7, 2 x Gigabit Ethernet (IE/PN))	G
• 8 GB with ECC (only with Core i7, 2 x Gigabit Ethernet (IE/PN))	H
• 1 GB and NVRAM	J
• 2 GB and NVRAM	K
• 4 GB and NVRAM	L
• 8 GB and NVRAM	M
• 4 GB with ECC and NVRAM (only with Core i7, 2 x Gigabit Ethernet (IE/PN))	N
• 8 GB with ECC and NVRAM (only with Core i7, 2 x Gigabit Ethernet (IE/PN))	P
Expansions/interface:	
• One RS 232, without PCIe	0
• One RS 232 and one PCIe	1
• One RS 232 and two PCIe	2
• Second RS 232, without PCIe	3
• Second RS 232 and one PCIe	4
• Second RS 232 and second PCIe	5
Operating system:	
• Without operating system	0
• Windows Embedded Standard 7 SP1, English, 32-bit	4
• Windows 7 Ultimate SP1, 32-bit, MUI (Eng, Ger, Fr, It, Sp)	6
• Windows 7 Ultimate SP1, 64-bit, MUI (Eng, Ger, Fr, It, Sp)	7

SIMATIC IPC427D (Box PC) [1] [2] (continued)	Order No. 6AG4140-■■■■■-■■■■
Mass storage, externally accessible:	
• Without external mass storage	0
• CFast 2 GB Without operating system	1
• CFast 4 GB (only optionally with operating system if no internal mass storage)	2
• CFast 8 GB (only optionally with operating system if no internal mass storage)	3
• CFast 16 GB (only optionally with operating system if no internal mass storage)	4
Internal mass storage:	
• Without internal mass storage	A
• CFast 2 GB, without software	B
• CFast 4 GB, without software	C
• CFast 8 GB, without software	D
• CFast 16 GB, without software	E
• SSD 50 GB high endurance (SLC)	G
• SSD 80 GB Standard	H
• HDD 250 GB	K
• SSD 160 GB Standard	P
SIMATIC software preinstalled (bundles, only with Windows Embedded Standard 7):	
• Without SIMATIC software	A
• WinAC RTX 2010 [3]	B
• WinCC RT Advanced, 128 PT	C
• WinCC RT Advanced, 512 PT	D
• WinCC RT Advanced, 2048 PT	E
• WinCC RT Advanced, 4096 PT	F
• WinCC RT Advanced 128 PT, WinAC RTX 2010 [3]	J
• WinCC RT Advanced 512 PT, WinAC RTX 2010 [3]	K
• WinCC RT Advanced 2048 PT, WinAC RTX 2010 [3]	L
• WinCC RT Advanced 4096 PT, WinAC RTX 2010 [3]	M
• WinAC RTX F 2010 [3]	N
• WinCC RT Advanced 128 PT, WinAC RTX F 2010 [3]	P
• WinCC RT Advanced 512 PT, WinAC RTX F 2010 [3]	Q
• WinCC RT Advanced 2048 PT, WinAC RTX F 2010 [3]	R
• WinCC RT Advanced 4096 PT, WinAC RTX F 2010 [3]	S
Power supply:	
• 24 V DC industrial power supply	0
• 24 V DC and TPM (not for China and Russia)	8

[1] "Built to order" – versions with a delivery time of max. 15 working days and with identified repair, if not preferred type.

[2] For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

[3] Only with "main memory and NVRAM".

Note:

Bundles with SIMATIC software only with Windows Embedded Standard 7, main memory and NVRAM (with RTX and RTX F), and CFast mass storage of 4 GB or more / SSD.

PC-based Automation

Box PC

SIMATIC IPC427D

■ **Dimensional drawings**

All dimensions in mm. For mounting cut-out see technical specifications.
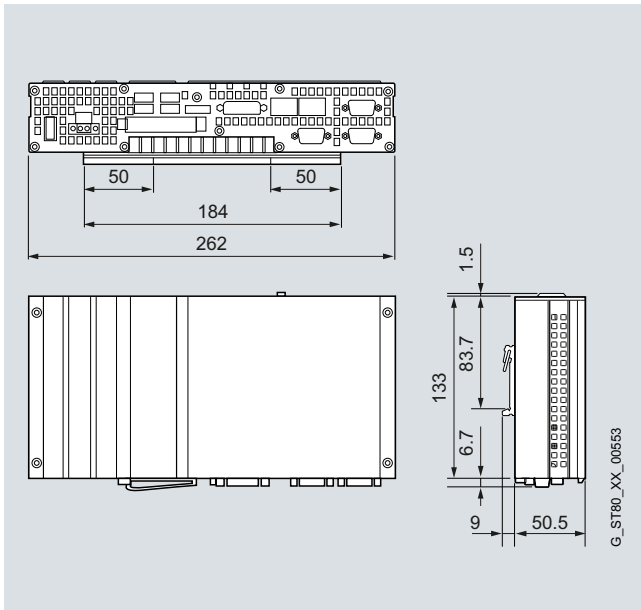
SIMATIC IPC427D, DIN rail mounting
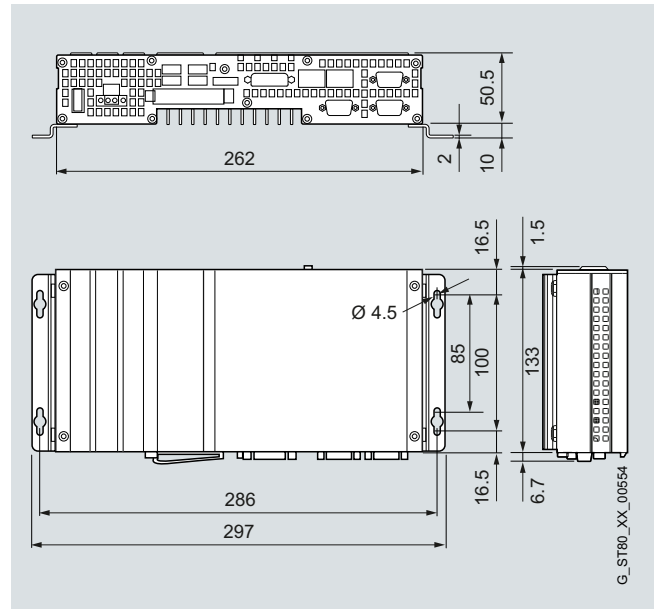
SIMATIC IPC427D, wall mounting
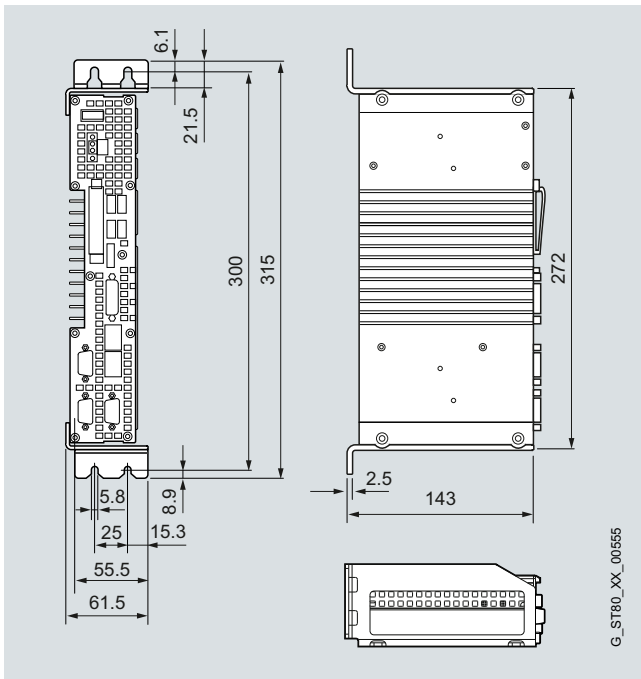
SIMATIC IPC427D, portrait mounting

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PC-based Automation
Box PC

SIMATIC IPC427C

▎Overview

SIMATIC IPC427C (Microbox PC): The powerful embedded IPC – maintenance-free with versatile configuration

- Ultra-compact
- Maintenance-free
- Intel Core2 Duo technology

▎Technical specifications

	SIMATIC IPC427C
General features	
Design	DIN rail or wall mounting, front upright mounting, mounting position preferably horizontal, vertical possible
Processor	• Intel Core2 Duo 1.2 GHz, 800 MHz FSB, 3 MB SLC • Intel Core2 Solo 1.2 GHz, 800 MHz FSB, 3 MB SLC • Intel Celeron M 1.2 GHz, 800 MHz FSB, 1 MB SLC
Chipset	Intel GM45 / ICH9M
Main memory	1 GB, (2/4 GB) DDR3 SDRAM
Buffered SRAM	2 MB, of which 128 KB can be written within the buffer time
Free slots for expansions	Up to 3 x PCI-104, 3 W per slot
Graphics	• Integrated Intel GMAX4500 graphics • 8 ... 512 MB shared graphics memory (managed dynamically) • CRT resolution: 640 x 480 pixels up to max. 1920 x 1200 pixels at 32 bit colors • DVI-D resolution: 640 x 480 pixels up to max. 1920 x 1200 pixels at 32 bit colors
Operating system	• Without • Windows XP Embedded Standard 2009 preinstalled, in combination with CF card of 2 GB or more, solid-state drive, or hard drive • Windows XP Professional MUI (in combination with solid-state drive or hard drive; MUI: Multi Language User Interface) • Windows 7 Ultimate MUI (in combination with solid-state drive or hard drive; MUI: Multi Language User Interface) • Windows Embedded Standard 7 preinstalled, in combination with CF card of 4 GB or more, or solid-sate drive, or hard drive RMOS3 (can be ordered separately) • Linux[1] (project-specific, on request) • Others on request project-specifically
Power supply	• 24 V DC (19.2 V ... 28.8 V) • Isolated • With buffering of temporary power failures: Max. 10 ms at 0.85% rated voltage • Line side switch • With power failure indication by means of Power Fail signal

[1] Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suitable for LINUX", see http://www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

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PC-based Automation
Box PC

SIMATIC IPC427C

■ **Technical specifications** (continued)

	SIMATIC IPC427C
Drives	
Flash drive	Optional; replaceable, accessible, diagnosable • 2 GB • 4 GB • 8 GB • 16 GB Optional; internal, not accessible, diagnosable • 2 GB • 4 GB • 8 GB • 16 GB
Solid-State Drive (SSD)	Optional • 50 GB SATA, 2.5" in single-level cell (SLC) architecture (High Endurance), especially suitable for industrial applications • 80 GB SATA, 2.5" Standard
Hard disk	Optional • > 250 GB SATA
CD-ROM	Via USB (not included in scope of delivery)
DVD-RW	Via USB (not included in scope of delivery)
Diskette	Via USB (not included in scope of delivery)
Interfaces	
PROFINET	3 x RJ45 (CP 1616-compatible, optional)
PROFIBUS/MPI	12 Mbit/s (isolated, compatible to CP 5611) optional
Ethernet	• 2 x 10/100/1000 Mbit/s (RJ 45) • Two independent Intel 82574L controllers (via PCI-Express) • One controller with none-shared interrupt • With teaming function
USB	V2.0/High Speed: 4 x
Serial	COM1 (V.24) COM2 (V.24) optional (in expansion frame)
DVI-I	1 x DVI-I (includes DVI-D and VGA)
Keyboard	Via USB (not included in scope of delivery)
Mouse	Via USB (not included in scope of delivery)

	SIMATIC IPC427C
Monitoring functions	
Temperature	• Processor temperature • Motherboard • Messages can be evaluated by the application program
Watchdog	• Monitoring of program execution • Monitoring time can be parameterized in software • Can be parameterized for a fault or restart • Messages can be evaluated by the application program.
Monitoring functions via the network	• DiagBase • SIMATIC IPC DiagMonitor Remote monitoring capability for: • Watchdog • Temperature • Mass memory monitoring (SMART) • System/Ethernet monitoring (Heart Beat) • Runtime meter Communication: • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Configuration of client/server architectures • Layout of log files
Ambient conditions	
Degree of protection to EN 60529 (front/rear)	IP20

Vibration load during operation	Devices without hard disk:
	• Requirements according to: IEC 61131-2
	• Tested according to: IEC 60068-2-6, Test Fc
	• Devices without drive:
	  - 5-9 Hz, 3.5 mm deviation, 10x /axis, 1 octave/min
	  - 9-150 Hz, 9.8 m/s^2, 10x /axis, 1 octave/min
	
	Devices with hard disk:
	Wall mounting
	• Requirements according to: IEC 61131-2
	• Tested according to: IEC 60068-2-6, Test Fc
	• 10 ... 58 Hz, 0.0375 mm deviation, 10x /axis, 1 octave/min
	• 58 ... 200 Hz, 4.9 m/s^2, 10x /axis, 1 octave/min

Shock loading during operation	Devices without hard disk: • Requirements according to: IEC 61131-2 • Tested according to: IEC 60068-2-27, Test Ea • Module/rack: 150 m/s^2, power-up, 11 ms shock duration Devices with hard disk: Wall mounting • Requirements according to: IEC 61131-2 • Tested according to: IEC 60068-2-27, Test Ea • Devices with drive: 50 m/s^2, power-up, 30 ms shock duration

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■ **Technical specifications** (continued)

	SIMATIC IPC427C
Electromagnetic compatibility (EMC)	
• Emitted interference	EN 55022 Class B
• Interference immunity, burst	EN 61000-6-2 or IEC 61131-2: • 2 kV - Tested acc. to IEC 61000-4-4 • 1 kV symmetrical / 2 kV asymmetrical - Tested acc. to IEC 61000-4-5
• Interference immunity, surge	1 kV to IEC 61000-4-5; symmetrical
	2 kV to IEC 61000-4-5; asymmetrical
• ESD interference immunity	According to NAMUR Recommendation NE 21 and EN 61000-6-2: • 6 kV contact discharge - Tested acc. to IEC 61000-4-2 • 8 kV air discharge - Tested acc. to IEC 61000-4-2
• Immunity to high radio frequency interference	According to EN 61000-6-2 or IEC 61131-2: • Interference immunity 80 ... 1000 MHz: 10 V/m with 80% AM (1 kHz); tested acc. to IEC 61000-4-3; • 1.4 GHz ... 2 Hz: 10 V/m with 50% pulse modulation; tested according to IEC 61000-4-3
• Immunity to high-frequency current feed	Acc. to NAMUR Recommendation NE 21 and EN 61000-6-2 or IEC 61131-2: • 10 kHz ... 80 MHz: 10 V with 80% AM (1 kHz) tested acc. to IEC 61000-4-6
• Immunity to magnetic fields	Acc. to NAMUR Recommendation NE 21 and EN 61000-6-2 or IEC 61131-2: 50/60 Hz; 100 A/m rms value - tested acc. to IEC 61000-4-8
Ambient temperature during operation	• 0 ... 55 ℃ with flash drive/SSD (horizontal; preferred mounting position; with derating) • 0 ... 50 ℃ with flash drive/SSD (horizontal; preferred mounting position; maximum configuration) • 0 ... 50 ℃ with flash drive/SSD (vertical) • 5 ... 40 ℃ with hard disk (horizontal and vertical)
Moist heat	• With CompactFlash card/SSD: 95 % • With hard drive 80%

	SIMATIC IPC427C
System-tested SIMATIC Industrial Software	WinAC RTX (F), WinCC flexible, WinCC (SCADA as of V7.0), WinCC RT Advanced and Professional
Approvals	UL508, UL60950, cULus
Marine approval Only for configurations with CompactFlash or SSD memory	• GL - Germanische Lloyd • BV - Bureau Veritas • LR - Lloyds Register of Shipping • ABS - American Bureau of Shipping • DNV - Det Norske Veritas • NKK - Nippon Kaiji Kyokai
Safety regulations	• IEC 61131-2 • IEC 61010-1 • EN 60950-1
CE mark	• EC Directive 89/336/EEC (EMC Directive) • Use in industry: • Applications in residential areas, business and trade environments as well as in workshops: - Emitted interference: EN 61000-6-4 - Noise immunity: EN 61000-6-2 • Applications in residential areas, business and trade environments as well as in workshops: - Emitted interference: EN 61000-6-3 - Noise immunity: EN 61000-6-1
Dimensions and weights	
Equipment dimensions (in mm)	• Width x height: 262 x 134 • Depth of basic unit: 47 • Depth of basic unit above rail: 50 • Additional depth per expansion (1-3): 17 each
Weight, approx.	2 kg

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PC-based Automation
Box PC

SIMATIC IPC427C

Ordering data	Order No.
SIMATIC IPC427C [1]	**6ES7647- 7 B ■ ■ ■ - ■ ■ ■ 0**

Intel Celeron M 1.2 GHz, 800 MHz FSB, SLC 0 KB; 512 MB DDR3 RAM; without HD; without flash drive; without operating system; 24 V DC industrial power supply

Processor:	
• Intel Celeron M 1.2 GHz, 800 MHz FSB	**A**
• Intel Celeron M 1.2 GHz, 800 MHz FSB, PROFIBUS	**B**
• Intel Celeron M 1.2 GHz, 800 MHz FSB, CAN	**D**
• Core2 Solo 1.2 GHz, 800 MHz FSB SLC, 3 MB	**E**
• Core2 Solo 1.2 GHz, 800 MHz FSB SLC, 3 MB, PROFIBUS	**F**
• Core2 Solo 1.2 GHz, 800 MHz FSB SLC, 3 MB, PROFINET	**G**
• Core2 Duo 1.2 GHz, 800 MHz FSB SLC, 3 MB	**J**
• Core2 Duo 1.2 GHz, 800 MHz FSB SLC, 3 MB, PROFIBUS	**K**
• Core2 Duo 1.2 GHz, 800 MHz FSB SLC, 3 MB, PROFINET	**L**

Memory configuration:	
• 1 GB DDR3 1066, SODIMM	**2**
• 2 GB DDR3 1066, SODIMM	**3**
• 4 GB DDR3 1066, SODIMM	**4**

Expansion (HW):	
• No expansion (HW)	**0**
• Second RS232 interface in expansion rack	**1**

Drives exchangeable (accessible)	
• Without drive	**0**
• 2 GB CompactFlash	**2**
• 4 GB CompactFlash	**3**
• 8 GB CompactFlash	**4**
• 16 GB CompactFlash	**5**

Drives internal (not accessible)	
• Without internal drive	**X**
• 250 GB HDD SATA	**A**
• 50 GB SSD High Endurance SATA	**D**
• 80 GB Standard SATA	**E**
• 2 GB CompactFlash internal	**N**
• 4 GB CompactFlash internal	**P**
• 8 GB CompactFlash internal	**Q**
• 16 GB CompactFlash internal	**R**

Operating system (preinstalled and activated) [2]		
• Without operating system	**0**	**X**
• Windows Embedded Standard 2009 English preinstalled on internal drive	**0**	**A**
• Windows XP Professional MUI, SP3 (Eng, Ger, Fr, It, Sp) preinstalled on internal drive	**0**	**B**
• Windows Embedded Standard 7 preinstalled on internal drive	**0**	**C**
• Windows 7 Ultimate, 32-bit, MUI (Eng, Ger, Fr, It, Sp) preinstalled on internal drive	**0**	**D**

[1] For an up-to-date overview, see the SIMATIC PC online configurator at: www.siemens.com/ipc-configurator

[2] XP Embedded on 2 GB CompactFlash or hard disk. XP Professional or Windows 7 only with hard disk/SSD.

	Order No.
Accessories	
Memory expansion	
• 1 GB DDR3 1066 SDRAM, SODIMM	**6ES7648-2AH40-0KA0**
• 2 GB DDR3 1066 SDRAM, SODIMM	**6ES7648-2AH50-0KA0**
• 4 GB DDR3 1066 SDRAM, SODIMM	**6ES7648-2AH60-0KA0**
Expansion kit PC/104 For integration of PC/104 modules in the SIMATIC Microbox PC; packing unit contains 6 expansion frames	**6AG4070-0BA00-0XA0**
SIMATIC PC adapter cable DVI-I acc. to VGA, 250 mm	**6ES7648-3AB00-0XA0**
SIMATIC PC DVI-I Y graphics adapter cable DVI-I to VGA and DVI-D	**6ES7648-3AE00-0XA0**
Portrait assembly kit Interfaces to the front	**6ES7648-1AA20-0YB0**
Expansion components	From page 5/153
Communication products	From page 5/186
For power supplies and uninterruptible power supplies	From page 5/170
RMOS3 real-time operating system	From page 5/146

Note:

Ready-to-use SIMATIC IPC427C as bundles can be found under "Embedded Bundles".
Software packages with SIMATIC WinCC flexible, SIMATIC WinCC RT Advanced, SIMATIC WinCC, SIMATIC WinCC RT Professional and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

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■ **Dimensional drawings**

All dimensions in mm. For mounting cut-out see technical specifications.
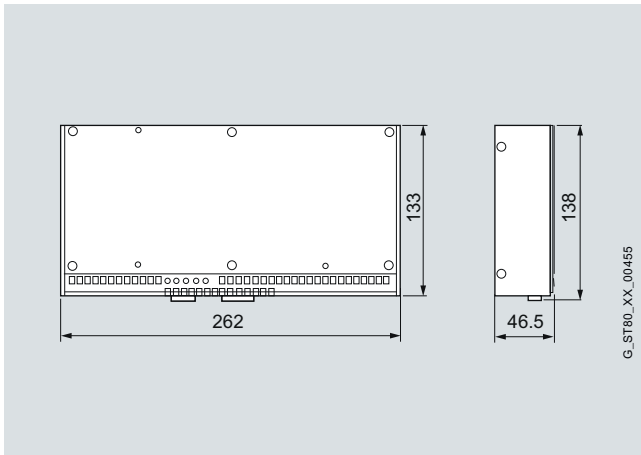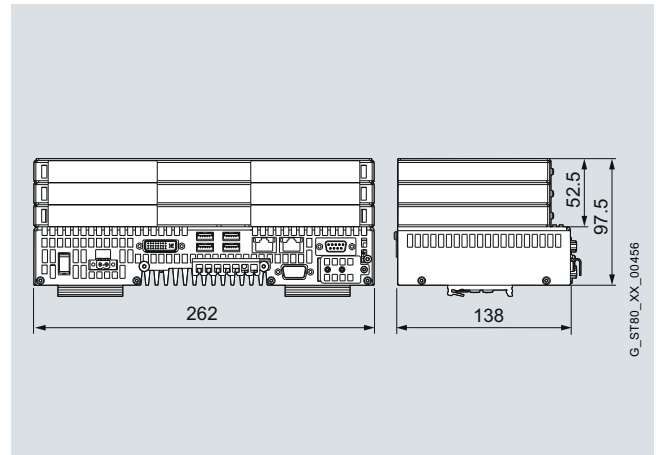
SIMATIC IPC427Cb

SIMATIC IPC427C, interfaces

■ **More information**

Further information can be found in the Internet under:

http://www.siemens.com/simatic-pc

PC-based Automation
Box PC

SIMATIC IPC627C

Overview

SIMATIC IPC627C (Box PC):
The high-end IPC – with maximum performance,
functional scope and expansion capability

It offers:

• Maximum performance in the smallest space
• Intel Core i7 technology

Technical specifications

	SIMATIC IPC627C
Supply voltage	
Supply voltage	100 - 240 V AC, optional 24 V
Processor	
Processor	Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4MB cache); Core i3-330E (2C/4T, 2.13 GHz, HT, VT, 3MB cache); Celeron P4505 (2C/2T, 1.86 GHz, VT, 2MB cache);
Interfaces	
PROFIBUS/MPI	Onboard, isolated, max. 12 Mbit/s, CP5611-compatible
USB port	4x USB 2.0 high speed/high current
Free slots	2 X PCI or 1xPCI & 1 x PCIe X16 (265 mm/185mm long) , 1xslot for CompactFlash Card
Connection for keyboard/mouse	USB / USB
serial interface	COM1: 1 x V.24 (RS232)
Video interfaces • Graphics interface	DVI-I: VGA / DVI combined
Industrial Ethernet • Industrial Ethernet interface	2 x Fast Ethernet
Monitoring functions	
Temperature	Yes
Watchdog	Yes
Status LEDs	Yes
Standards, approvals, certificates	
Approval	CE, cULus (508), C-Tick
EMC	CE, EN 55022A, EN 61000-6-4, EN 61000-6-2
Ambient conditions	
Relative humidity • Relative humidity	Tested to DIN IEC 68-2-3, DIN IEC 68-2-30, DIN IEC 68-2-56: 5% to 80% at 25 °C (no condensation)
Vibrations • Vibration load in operation	Tested to DIN IEC 68-2-6: 10 to 58 Hz: 0.075 mm, 58 to 200 Hz: 9.8 m/s^2 (1 g)
Shock testing • Shock loading in operation	Tested to DIN IEC 68-2-29: 50 m/s^2 (5g), 30 ms, 100 shocks
Operating systems	
Operating system	Windows XP Prof. SP3, MUI; Windows 7 Ultimate 32/64Bit, MUI; Windows Embedded Standard 2009 English on 8 GB CompactFlash; without operating system;
Software	
SIMATIC Software	Optionally in package with SIMATIC WinCC or WinCC flexible
Dimensions	
Width	312 mm
Height	80 mm; with DVD drive: 100 mm
Depth	301 mm; incl. mounting rail

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Ordering data	Order No.
SIMATIC IPC627C [1]	**6ES7647- 6 C ■ ■ ■ - ■ ■ ■ ■**

HD graphics on-board,
128 MB dyn. shared memory;
2 x 10/100/1000 Mbps Ethernet
RJ45; 4 x USB V2.0 (high current);
1 x serial (COM1), RAID controller
on-board;
CompactFlash drive no. 1 at front
(without CF);
watchdog, temp./fan monitoring;

Processor:

• Celeron P4505 (2C/2T, 1.86 GHz, VT, 2 MB cache)	A
• Celeron P4505 (2C/2T, 1.86 GHz, VT, 2 MB cache), PROFIBUS/MPI (CP5611-compatible), 2 MB battery-backed SRAM	B
• Celeron P4505 (2C/2T, 1.86 GHz, VT, 2 MB cache), PROFINET (3 x RJ45, CP1616-compatible), 2 MB battery-backed SRAM	C
• Core i3-330E (2C/4T, 2.13 GHz, HT, VT, 3 MB cache)	D
• Core i3-330E (2C/4T, 2.13 GHz, HT, VT, 3 MB cache), PROFIBUS/MPI, 2 MB battery-backed SRAM	E
• Core i3-330E (2C/4T, 2.13 GHz, HT, VT, 3 MB cache), PROFINET (3 x RJ45, CP1616-compatible), 2 MB battery-backed SRAM	F
• Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache)	G
• Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache), PROFIBUS/MPI, 2 MB battery-backed SRAM	H
• Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache), PROFINET (3 x RJ45, CP1616-compatible), 2 MB battery-backed SRAM	J

Memory configuration

• 1 GB DDR3 1066 DIMM	0
• 2 GB DDR3 1066 DIMM	1
• 3 GB DDR3 1066 DIMM	2
• 4 GB DDR3 1066 DIMM	3
• 8 GB DDR3 1066 DIMM	4
• 2 GB DDR3 1066 DIMM, ECC	5
• 4 GB DDR3 1066 DIMM, ECC	6
• 8 GB DDR3 1066 DIMM, ECC	7

Country-specific version/
power supply

• 100/240 V AC industrial power supply with Namur; European cable	0
• 100/240 V AC industrial power supply with Namur; UK cable	1
• 100/240 V AC industrial power supply with Namur; Swiss cable	2
• 100/240 V AC industrial power supply with Namur; USA cable	3
• 100/240 V AC industrial power supply with Namur; Italian cable	4
• 100/240 V AC industrial power supply with Namur; Chinese cable	5
• 24 V DC industrial power supply	6
Device Certification UL Class I Div. 2; 24 V DC industrial power supply	7
• Device Certification UL Class I Div. 2; 110 / 230 V AC Industrial Power Supply with Namur	8

SIMATIC IPC627C [1] (continued)	Order No. 6ES7647- 6 C ■ ■ ■ - ■ ■ ■ ■

PC slots

• 2 x PCI free	0
• 1 x PCI, 1x PCIe (x16) free	1

Drives

• 250 GB HDD SATA	A
• 250 GB HDD SATA; DVD+/-RW	B
• 500 GB HDD SATA	C
• 500 GB HDD SATA; DVD+/-RW	D
• 2 x 250 GB SATA (2.5")	E
• 2 x 250 GB SATA (2.5") + DVD+/-RW	F
• RAID1 2 x 250 GB SATA (2.5")	G
• RAID1 2 x 250 GB SATA (2.5"); DVD+/-RW	H
• 50 GB SATA solid-state drive (SLC)	J
• 50 GB SATA solid-state drive (SLC); DVD+/-RW	K
• CompactFlash drive No. 2 installed, DVD+/-RW	U
• CompactFlash drive No. 2 installed	V
• DVD+/-RW	W
• Without drives	X

Operating system
(preinstalled and activated)

• Windows XP Professional MUI, SP3 (Eng, Ger, Fr, It, Sp)	A
• Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp), 32-bit, SP1 included	B
• Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp), 64-bit, SP1 included	C
• Windows Embedded Standard 2009 English on 8 GB CompactFlash	F
• Without operating system	X

Expansion

• No expansion (software)	0
• SIMATIC IPC DiagMonitor software included	1
• SIMATIC IPC Image&Partition Creator software included	2
• SIMATIC IPC DiagMonitor, Image & Partition Creator software included	3

[1] For an up-to-date overview, see the SIMATIC PC online configurator at:
www.siemens.com/ipc-configurator

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PC-based Automation
Box PC

SIMATIC IPC627C

Ordering data	Order No.
Accessories	
Memory expansions	
• 1 GB DDR3 1066, DIMM	**6ES7648-2AJ40-0KA0**
• 1 GB DDR3 1066, DIMM; ECC	**6ES7648-2AJ40-1KA0**
• 2 GB DDR3 1066, DIMM	**6ES7648-2AJ50-0KA0**
• 2 GB DDR3 1066, DIMM; ECC	**6ES7648-2AJ50-1KA0**
• 4 GB DDR3 1066, DIMM	**6ES7648-2AJ60-0KA0**
• 4 GB DDR3 1066, DIMM; ECC	**6ES7648-2AJ60-1KA0**
PCI expansion card with COM1 and LPT	**6ES7648-2CA01-0AA0**
Graphics adapter cable	
• DVI-I acc. to VGA, 250 mm long	**6ES7648-3AB00-0XA0**
• DVI-I acc. to VGA and DVI-D, 250 mm long (Y cable)	**6ES7648-3AE00-0XA0**
Portrait assembly kit	
• Interfaces upward/downward	**6ES7648-1AA10-0YA0**
• Interfaces to the front	**6ES7648-1AA10-0YB0**
SIMATIC PC, 230 V AC power cable angled, 3 m for Box PC and Panel PC for	
• Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden	**6ES7900-1AA00-0XA0**
• United Kingdom	**6ES7900-1BA00-0XA0**
• Switzerland	**6ES7900-1CA00-0XA0**
• USA	**6ES7900-1DA00-0XA0**
• Italy	**6ES7900-1EA00-0XA0**
• China	**6ES7900-1FA00-0XA0**
Expansion components	From page 5/153
Communication products	From page 5/186
For power supplies and uninterruptible power supplies	From page 5/170
RMOS3 real-time operating system	From page 5/146

Note:

Software Packages with SIMATIC WinCC flexible, WinCC RT Advanced, SIMATIC WinCC, and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC at favorable prices.

More information under "Embedded Bundles / Packages for industrial PCs".

Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.

More information

Further information can be found in the Internet under:

http://www.siemens.com/simatic-pc

SIMATIC IPC827C

Overview

SIMATIC IPC827C (Box PC):
The high-end IPC – with maximum performance,
functional scope and expansion capability

It offers:

- Maximum performance and high expandability
- with Intel Core i technology

Technical specifications

	SIMATIC IPC827C
Supply voltage	
Supply voltage	100 - 240 V AC, optional 24 V
Processor	
Processor	Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4MB cache); Core i3-330E (2C/4T, 2.13 GHz, HT, VT, 3MB cache); Celeron P4505 (2C/2T, 1.86 GHz, VT, 2MB cache);
Interfaces	
PROFIBUS/MPI	Onboard, isolated, max. 12 Mbit/s, CP5611-compatible
USB port	4x USB 2.0 high speed/high current
Free slots	3xPCI, 1 x PCIe (x4), 1 x PCIe (x16), 1xslot for CompactFlash Card
Connection for keyboard/mouse	USB / USB
serial interface	COM1: 1 x V.24 (RS232)
Video interfaces • Graphics interface	DVI-I: VGA / DVI combined
Industrial Ethernet • Industrial Ethernet interface	2 x Fast Ethernet
Monitoring functions	
Temperature	Yes
Watchdog	Yes
Status LEDs	Yes
Standards, approvals, certificates	
Approval	CE, cULus (508), C-Tick
EMC	CE, EN 55022A, EN 61000-6-4, EN 61000-6-2
Ambient conditions	
Relative humidity • Relative humidity	Tested to DIN IEC 68-2-3, DIN IEC 68-2-30, DIN IEC 68-2-56: 5% to 80% at 25 °C (no condensation)
Vibrations • Vibration load in operation	Tested to DIN IEC 68-2-6: 10 to 58 Hz: 0.075 mm, 58 to 200 Hz: 9.8 m/s^2 (1 g)
Shock testing • Shock loading in operation	Tested to DIN IEC 68-2-29: 50 m/s^2 (5g), 30 ms, 100 shocks
Operating systems	
Operating system	Windows XP Prof. SP3, MUI; Windows 7 Ultimate 32/64Bit, MUI; Windows Embedded Standard 2009 English on 8 GB CompactFlash; without operating system;
Software	
SIMATIC Software	Optionally in package with SIMATIC WinCC or WinCC flexible
Dimensions	
Width	312 mm
Height	150 mm; with DVD drive: 170 mm
Depth	301 mm; incl. mounting rail

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PC-based Automation
Box PC

SIMATIC IPC827C

Ordering data

SIMATIC IPC827C	Order No. 6ES7647- 6 P ■ ■ ■ - ■ ■ ■ ■	
Processor		
• Celeron P 4505 (2C/2T, 1.86 GHz, VT, 2 MB cache)		A
• Celeron P 4505 (2C/2T, 1.86 GHz, VT, 2 MB cache); PROFIBUS/MPI; 2 MB battery-backed SRAM		B
• Celeron P 4505 (2C/2T, 1.86 GHz, VT, 2 MB cache); PROFINET (3 x RJ45, CP1616-compatible); 2 MB battery-backed SRAM		C
• Core i3-330E (2C/4T, 2.13 GHz, HT, VT, 3 MB cache)		D
• Core i3-330E (2.13 GHz, HT, VT, 3 MB cache); PROFIBUS/MPI; 2 MB battery-backed SRAM		E
• Core i3-330 (2C/4T, 2.13 GHz, HT, VT, 3 MB cache); PROFINET (3 x RJ45, CP1616-compatible); 2 MB battery-backed SRAM		F
• Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache)		G
• Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache); PROFIBUS/MPI; 2 MB battery-backed SRAM		H
• Core i7-610E (2C/4T, 2.53 GHz, TB, HT, VT, AMT, 4 MB cache); PROFINET (3 x RJ45, CP1616-compatible); 2 MB battery-backed SRAM		J
Memory configuration		
• 1 GB DDR3 1066 DIMM	0	
• 2 GB DDR3 1066 DIMM	1	
• 3 GB DDR3 1066 DIMM	2	
• 4 GB DDR3 1066 DIMM	3	
• 8 GB DDR3 1066 DIMM	4	
• 2 GB DDR3 1066 DIMM, ECC	5	
• 4 GB DDR3 1066 DIMM, ECC	6	
• 8 GB DDR3 1066 DIMM, ECC	7	
Power supply		
• 100/240 V AC industrial power supply with Namur; European cable	0	
• 100/240 V AC industrial power supply with Namur; UK cable	1	
• 100/240 V AC industrial power supply with Namur; Swiss cable	2	
• 100/240 V AC industrial power supply with Namur; USA cable	3	
• 100/240 V AC industrial power supply with Namur; Italian cable	4	
• 100/240 V AC industrial power supply with Namur; Chinese cable	5	
• 24 V DC industrial power supply	6	

SIMATIC IPC827C (continued)	Order No. 6ES7647- 6 P ■ ■ ■ - ■ ■ ■ ■	
Expansions (HW)		
• 3 x PCI, 2 x PCIe (x4), 1 x PCIe (x16) available	0	
Mass storage		
• 250 GB HDD SATA		A
• 250 GB HDD SATA; DVD+/-RW		B
• 500 GB HDD SATA		C
• 500 GB HDD SATA; DVD+/-RW		D
• 2 x 250 GB SATA (2.5")		E
• 2 x 250 GB SATA (2.5") + DVD+/-RW		F
• RAID1 2 x 250 GB SATA (2.5")		G
• RAID1 2 x 250 GB SATA (2.5"); DVD+/-RW		H
• Solid-state drive 50 GB (SLC)		J
• Solid-state drive 50 GB (SLC); DVD+/-RW		K
• DVD+/-RW		W
• Without drives		X
Operating system (preinstalled and activated)		
• Windows XP Professional MUI, SP3 (Eng, Ger, Fr, It, Sp)		A
• Windows 7 Ultimate, 32-bit, MUI (Eng, Ger, Fr, It, Sp)		B
• Windows 7 Ultimate, 64-bit, MUI (Eng, Ger, Fr, It, Sp)		C
• Windows XP Embedded Standard 2009 English on 8 GB CompactFlash		F
• Without operating system		X
Expansion software		
• No expansion (software)		0
• SIMATIC IPC DiagMonitor software included		1
• SIMATIC IPC Image&Partition Creator included		4
• SIMATIC IPC DiagMonitor & Image & Partition Creator included		5

Note:
Windows Embedded only without RAID option

Note:

Software Packages with SIMATIC WinCC flexible, WinCC RT Advanced, SIMATIC WinCC, and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC at favorable prices.

More information under "Embedded Bundles / Packages for industrial PCs".

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Ordering data

Ordering data	Order No.
Accessories	
Memory expansions	
• 1 GB DDR3 1066, DIMM	**6ES7648-2AJ40-0KA0**
• 1 GB DDR3 1066, DIMM; ECC	**6ES7648-2AJ40-1KA0**
• 2 GB DDR3 1066, DIMM	**6ES7648-2AJ50-0KA0**
• 2 GB DDR3 1066, DIMM; ECC	**6ES7648-2AJ50-1KA0**
• 4 GB DDR3 1066, DIMM	**6ES7648-2AJ60-0KA0**
• 4 GB DDR3 1066, DIMM; ECC	**6ES7648-2AJ60-1KA0**
PCI expansion card with COM1 and LPT	**6ES7648-2CA01-0AA0**
Graphics adapter cable	
• DVI-I acc. to VGA, 250 mm long	**6ES7648-3AB00-0XA0**
• DVI-I acc. to VGA and DVI-D, 250 mm long (Y cable)	**6ES7648-3AE00-0XA0**
Portrait assembly kit	
• Interfaces upward/downward	**6ES7648-1AA30-0YA0**
• Interfaces to the front	**6ES7648-1AA30-0YB0**
Power supply cable	
SIMATIC PC, power cable for 230 V AC, angled, 3 m for Box PC and Panel PC for	
• Austria, Belgium, Finland, France, Germany, Netherlands, Spain, Sweden	**6ES7900-1AA00-0XA0**
• United Kingdom	**6ES7900-1BA00-0XA0**
• Switzerland	**6ES7900-1CA00-0XA0**
• USA	**6ES7900-1DA00-0XA0**
• Italy	**6ES7900-1EA00-0XA0**
• China	**6ES7900-1FA00-0XA0**
Expansion components	From page 5/153
Communication products	From page 5/186
For power supplies and uninterruptible power supplies	From page 5/170
RMOS3 real-time operating system	From page 5/146

Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.
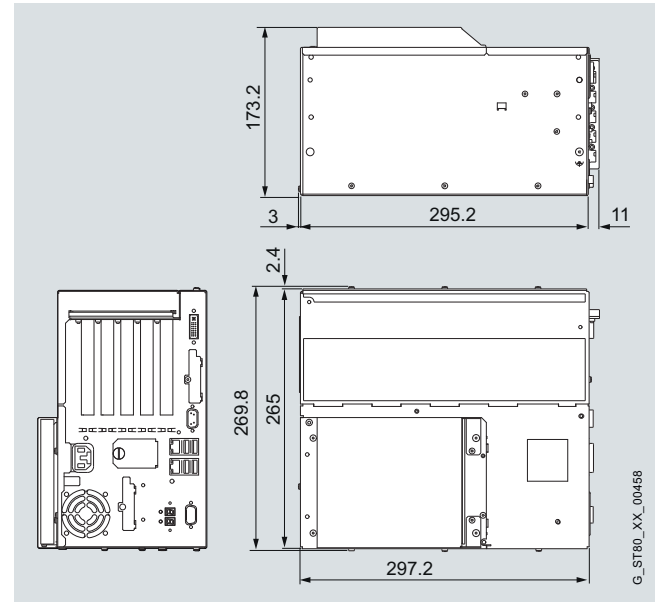
More information

Weitere Informationen finden Sie im Internet unter:
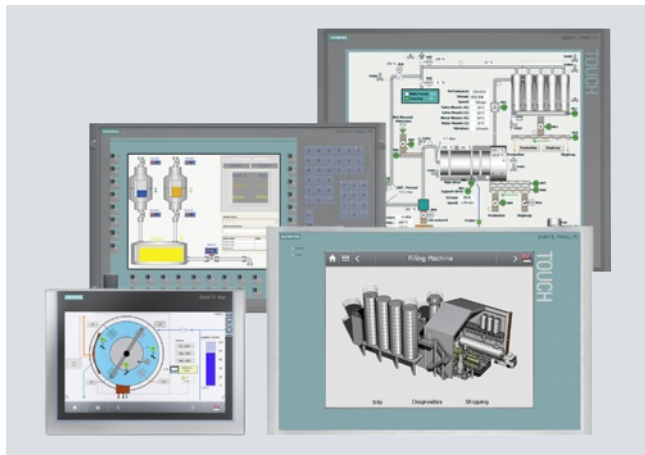
http://www.siemens.com/simatic-pc

PC-based Automation
SIMATIC Panel PC

Panel PC

Overview

SIMATIC Panel PCs are suitable thanks to their high industrial compatibility for use in control cabinets, consoles and control panels, as well as directly on the machine. Typical areas of application can be found in both factory and process automation.

There is a broad range of robust, high-performance SIMATIC Panel PCs available for different requirements.

Shared industrial functionality

- High-quality components and modules with a high MTBF (mean time between failure), which also ensure 24-hour operation in the extended temperature range.
- High swing/shock capacity of the devices through special hard-disk suspensions, locked connectors and card retainers
- Rugged housing model with high electromagnetic compatibility (EMC) and integrated industrial power supplies (also as per NAMUR)
- Service-friendly device design
- Bright, brilliant displays in different sizes up to 19"
- Same front panel mounting dimensions and uniform front design across all device families
- Rugged fronts protected from dust, humidity and chemical substances (front-side IP65 / NEMA 4 degrees of protection)

SIMATIC IPC277:
The embedded Nanopanel PC – maintenance-free and compact with displays starting from 7"

- High degree of flexibility for selecting rugged widescreen fronts from 7" to 19" for a more freely configurable display area
- High resolution, large viewing angle, and up to 100% dimmable backlighting for a brilliant display with optimized power consumption
- Absolutely maintenance-free due to the use of CompactFlash or SSD as mass storage and fanless operation up to 50 °C ambient temperature
- Maximum industrial functionality due to non-volatile retentive memory (option)
- Ready-to-use embedded bundles with visualization and/or control software

SIMATIC IPC477D:
The powerful embedded Panel PC – maintenance-free with versatile configuration

- Compact design
- High performance with highly compact design and ruggedness
- Flexible expansion using a PCIe I/O card (optional)
- No rotating parts (without fan and hard disk)
- High security due to Windows Embedded Standard 7 operating system
- Ready-to-use devices with optionally preinstalled software
  - HMI: Innovative HMI software WinCC RT Advanced (incl. archives and recipes)
  - RTX: with real-time capable software PLC WinAC RTX
- Retentive memory on board (NV-RAM, usable with WinAC RTX)

SIMATIC HMI IPC477C:
The powerful embedded Panel PC – maintenance-free with versatile configuration

- Compact design
- High performance with highly compact design and ruggedness
- Also available as PRO version (all-round IP65 degree of protection) with 15" and 19" Touch displays
- No rotating parts (without fan and hard disk)
- High security due to Microsoft Windows Embedded Standard 2009 or Windows Embedded Standard 7 operating systems
- Ready-to-use devices with optionally preinstalled software
  - HMI: Innovative HMI software WinCC flexible (incl. archives and recipes)
  - RTX: with real-time capable software PLC WinAC RTX
- Retentive memory on board (NV-RAM, usable with WinAC RTX)

SIMATIC HMI IPC677:
The high-end Panel PC – with maximum performance, functional scope and expansion capability

- Rugged, expandable industrial PC with different front panels
- Rugged design for industrial use
- Complete PC openness
- Optional PROFIBUS or PROFINET onboard
- All CPUs with dual core

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■ **Overview** (continued)

	SIMATIC IPC277D	SIMATIC IPC477D	SIMATIC HMI IPC477C	SIMATIC HMI IPC577C	SIMATIC HMI IPC677C [7)]
Design					
Centralized configuration	•	•	•	•	•
Distributed configuration (via remote kit)	-	-	-	-	-
Display					
Size	7"/9"/12"/15"/19" Widescreen TFT	12"/15"/19"/22" Widescreen TFT	12"/15"/19" TFT	12"/15"/19" TFT	12"/15"/19" TFT
Resolution	800 x 480 / 800 x 480 / 1280 x 800 / 1280 x 800 / 1366 x 768	1280 x 800 / 1280 x 800 / 1366 x 768/ 1920 x 1080	800 x 600/ 1024 x 768 / 1280 x 1024	800 x 600/ 1024 x 768 / 1280 x 1024	800 x 600/ 1024 x 768 / 1280 x 1024
Operator controls					
Membrane keyboard	-	• [8)]	• [1)]	• [1)]	• [1)]
Touch screen	•	•	•	•	•
General features					
Power supply 24 V DC / 110/240 V AC	•/-	•/-	•/-	•/•	•/•
Processor	• Intel Atom E640, 1.0 GHz; • Intel Atom E660, 1.3 GHz	• Intel Core i7-3517UE, 1.7 GHz, 4 MB SLC • Intel Core i3-3217UE, 1.6 GHz, 3 MB SLC • Intel Celeron 827E 1.4 GHz, 1.5 MB SLC	• Intel Celeron M 1.2 GHz • Intel Core2 Solo 1.2 GHz • Intel Core2 Duo 1.2 GHz	• Intel Celeron M 1.2 GHz • Intel Core2 Solo 1.2 GHz • Intel Core2 Duo 1.86 GHz	• Intel Celeron P4505, 1.86 GHz, 2 cores, 2 MB cache • Intel Core i3-330E, 2.13 GHz, 2 cores, 4 threads, 3 MB cache, HT, VT-x • Intel Core i7-620E, 2.53 GHz, 2 cores, 4 threads, 4 MB cache, TB, HT, VT-x, VT-d
Main memory	1 GB, 2 GB	1 GB, 2 GB, 4 GB, 8 GB	1 GB, 2 GB, 4 GB	1 GB, 2 GB, 4 GB	1 GB, expandable up to 8 GB, optional ECC
Expansion slots	1 x CF slot for CompactFlash card (externally accessible)	• 1 x PCIe; • 2 x CFast slot (externally accessible)	2 x CF slot for CompactFlash Card (internally and externally accessible)	• 1 x PCI [2)] • 1 x CF slot for CompactFlash card (externally accessible)	• 2 x PCI or 1 x PCI and 1 x PCIe x16 • 1 x CF slot for CompactFlash card (externally accessible)
Operating system	• Windows Embedded Standard 2009 or XP Professional MUI • Windows Embedded Standard 7 (32-bit) or Windows 7 Ultimate MUI (32-bit)	• Without • Windows 7 Ultimate MUI (32-bit or 64-bit) • Windows Embedded Standard 7 (32-bit)	• Windows Embedded 2009 or XP Professional MUI • Windows 7 Ultimate MUI (32-bit) or Windows Embedded Standard 7 (32-bit)	• Without • Windows Embedded 2009 or XP Professional MUI	• Without • Windows XP Professional MUI • Windows 7 Ultimate 32-bit MUI • Windows 7 Ultimate 64-bit MUI • Windows Embedded Standard 2009 on CF
Interfaces					
PROFIBUS/MPI	-	•	•	•	•
PROFINET (RT/IRT)	• / -	• / •	• / •	• / •	• / •
Ethernet	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps	2 x 10/100/1000 Mbps
USB	•	•	•	•	•
Serial interface	•	•	•	•	•
Graphics interface	-	•	•	•	•

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PC-based Automation
SIMATIC Panel PC

Panel PC

■ **Overview** (continued)

	SIMATIC IPC277D	SIMATIC IPC477D	SIMATIC HMI IPC477C	SIMATIC HMI IPC577C	SIMATIC HMI IPC677C [7]
Ambient conditions					
Vibration load during operation	**1 g**	**1 g**	**1 g**	**1 g** [3]	**1 g** [3]
Shock loading during operation	**5 g**	**5 g**	**5 g**	**5 g** [3]	**5 g**
Permissible temperature during operation with maximum configuration	+0 °C … +50 °C [7]	+0 °C … +50 °C [7]	+0 °C … +50 °C [7]	+0 °C … +45 °C [7]	+5 °C … +50 °C [6] [8]
Power loss in maximum configuration					
7" display	27 W				
9" display	29 W				
12" display	34 W	55 W	40 W [4]	55 W [5]	140 W [5]
15" display	42 W	56 W	45 W [4]	57 W [5]	140 W [5]
19" display	45 W	65 W	60 W [4]	84 W [5]	163 W [5]
22" display		74 W			

• Available

- Not available

[1] 12"/15" displays

[2] All slots with card retainer

[3] Valid with CF or SSD; with HDD: 5 g / 0.5 g;

[4] 3 W taken into account for each PCI/PCIe slot

[5] 15 W taken into account for each PCI/PCIe slot

[6] +0 °C to +50 °C; max. +50 °C in installation space; max. 40 °C if at the front

[7] +0 °C to +45 °C for 19"

[8] 15" display optionally as Touch/Key version

[9] With 12" and 15", vertical installation and use of CFast or SSD

■ **More information**

Additional information is available on the Internet at:
http://www.siemens.com/simatic-panel-pc

Note:

Do you need a specific modification or extension to the products described here? Then refer to "Customized Automation". There you will find information about additional and generally available sector-specific products as well as options for customer-specific modification and adaptation.

Examples are:

• Specific front panels for SIMATIC Panel PC, e.g. honing oil-resistant or with lateral function/movement keys

• SIMATIC HMI Net Panel with 46" large-scale display

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Overview

SIMATIC IPC277D: The embedded Nanopanel PC – mainte-nance-free and compact with displays starting from 7"

- Offers great flexibility in the selection of rugged widescreen fronts
- From 7" to 19" for more freely configurable display area
- High resolution, large viewing angle, and up to 100% dimmable backlighting for a brilliant display with optimized power consumption
- Absolutely maintenance-free due to the use of CompactFlash and SSD as mass storage and fanless operation up to 50 °C ambient temperature
- Maximum industrial functionality due to non-volatile retentive memory
- Ready-to-use embedded bundles with visualization or/and control software

The following front installation versions are available:
- 7" Touch
- 9" Touch
- 12" Touch
- 15" Touch with USB interface on the front
- 19" Touch with USB interface on the front
- All fronts as widescreen version

Technical specifications

	SIMATIC IPC277D
General features	
Processors	• Intel Atom E660 1.3 GHz, 2 GB RAM • Intel Atom E640 1.0 GHz, 1 GB RAM
Chipset	Intel Controller Hub EG20T
NVRAM optional	512 KB, of which 128 KB can be written within the buffer time
Operating system	• Windows Embedded Standard 2009 preinstalled, in combination with CF card of 2 GB or more, or solid-state drive, or hard drive (optional) • Windows XP Professional MUI (in combination with solid-state drive or hard drive; MUI: Multi Language User Interface) (optional) • Windows Embedded Standard 7 32 bit, preinstalled, in combination with CF card or solid-state drive (optional) • Windows 7 Ultimate MUI 32 bit (in combination with solid-state drive; MUI: Multi Language User Interface) (optional) • Linux [1] (project-specific, on request) Others on request project-specifically
Power supply	• 24 V DC (20.4 V ... 28.8 V) • Isolated • With buffering of temporary power failures: max. 10 ms • Line side switch • With power failure indication by means of Power Fail signal
Drives	
FlashDrive	Optional; replaceable, accessible, diagnosable • 2 GB • 4 GB • 8 GB • 16 GB
Solid-state drive (SSD)	Optional • 50 GB SATA, High Endurance, 2.5" • 80 GB SATA, Standard, 2.5"
CD/DVD/Floppy	Via USB (not included in scope of delivery)
Interfaces	
PROFINET	PROFINET RT via Standard Ethernet controller
Ethernet	• 2 x 10/100/1000 Mbps (RJ 45) • Two independent Intel Controllers: Intel 82574L / Intel Controller Hub EG20T With teaming function
USB	V2.0, 3 x
Serial	COM1 (V.24)
Keyboard	Via USB (not included in scope of delivery)
Mouse	Via USB (not included in scope of delivery)

[1] Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suitable for LINUX", see http://www.siemens.com/simatic-pc/suited-for-linux (LINUX is a trademark of Linus Torvald).

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PC-based Automation
SIMATIC Panel PC

SIMATIC IPC277D

Technical specifications (continued)

	SIMATIC IPC277D
Monitoring functions	
Temperature	• Processor temperature • Motherboard Messages can be evaluated by the application program
Watchdog	• Monitoring of program execution • Monitoring time can be parameter-ized in software • Can be parameterized for a fault or restart Messages can be evaluated by the application program
Monitoring functions via the network	• DiagBase • SIMATIC IPC DiagMonitor Remote monitoring capability for: • Watchdog • Temperature • Mass memory monitoring (SMART) • System/Ethernet monitoring (Heart Beat) • Runtime meter Communication: • Ethernet interface (SNMP protocol) • OPC for integration in SIMATIC software • Configuration of client/server architectures • Structure of log files
Supply voltage	
Supply voltage	24 V DC

	SIMATIC IPC277D
Monitoring functions	
Temperature	Yes
Watchdog	Yes
Mass storage	Yes
Ambient conditions	
Vibration load during operation	Requirements according to: IEC 61131-2, tested according to: IEC 60068-2-6, Test Fc 10-58: 0.0375 mm, 58-200: 9.8 m/s^2, 10x /axis
Shock loading during operation	Requirements according to: IEC 61131-2, tested according to: IEC 60068-2-27, test Ea, 50 m/s^2
Relative humidity	Tested in accordance with DIN IEC 68-78, DIN IEC 60068-2-30: 5% to 80% at 25 °C (no condensation)
Maximum permissible installation angle +/-	45° over vertical
Ambient temperature during operation	0 °C … +50° C in maximum configu-ration; no fan (19": 0 °C … +45 °C)
Certifications & standards	
Approvals	CE, cULus (508), marine approval available for 7" /9" /12", 15" /19" available soon: GL, LRS, BV, DNV, ABS, ClassNK
EMC	CE, FFC A, 55022A, EN 61000-6-4, EN 61000-6-2

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	SIMATIC IPC277D				
Front panel	7" TFT Touch, widescreen	9" TFT Touch, widescreen	12" TFT Touch, widescreen	15" TFT Touch, widescreen	19" TFT Touch, widescreen
Display					
Resolution (W x H in pixels)	800 x 480	800 x 480	1280 x 800	1280 x 800	1366 x 768
General features					
Accessories	Touch pen, touch protective films	Touch pen, touch protective films	Touch pen, touch protective films	Touch pen, touch protective films	Touch pen, touch protective films
Type of operation					
Function keys	No	No	No	No	No
Alphanumeric keyboard	No	No	No	No	No
Touch screen (analog/resistive)	Yes	Yes	Yes	Yes	Yes
USB port on the front	No	No	No	Yes	Yes
Design					
Centralized configuration	Yes	Yes	Yes	Yes	Yes
Distributed configuration	No	No	No	No	No
Dimensions					
Mounting dimensions in centralized configuration (W x H x D) in mm	197 x 141 x 71	251 x 166 x 71	310 x 221 x 66	396 x 291 x 73	465 x 319 x 73
Operator control unit (W x H) in mm	214 x 158	274 x 190	330 x 241	415 x 310	483 x 337
Weight	1500 g	1950 g	2750 g	4000 g	5700 g
Max. power loss in maximum configuration	27 W	29 W	37 W	42 W	45 W

■ **Ordering data**	Order No.						
Nanopanel PC SIMATIC IPC277D	6AV7881- ■ A ■ 0 0 - ■ ■ ■ 0						
Interfaces: 2 x Gbit LAN (RJ45), 1 x serial (COM1), 3 x USB							
Operating unit							
• Touch 7" TFT		**1**					
• Touch 9" TFT		**2**					
• Touch 12" TFT		**3**					
• Touch 15" TFT, front USB interface		**4**					
• Touch 19" TFT, front USB interface		**5**					
Processors / memory configuration / NVRAM							
• Atom E640 (1.0 GHz), 1 GB RAM			**A**				
• Atom E640 (1.0 GHz), 1 GB RAM, NVRAM			**B**				
• Atom E660 (1.3 GHz), 2 GB RAM			**E**				
• Atom E660 (1.3 GHz), 2 GB RAM, NVRAM			**F**				
Drives							
• Without drive, with CF slot				**0**			
• 2 GB SIMATIC PC CompactFlash				**1**			
• 4 GB SIMATIC PC CompactFlash				**2**			
• 8 GB SIMATIC PC CompactFlash				**3**			
• 16 GB SIMATIC PC CompactFlash				**4**			
• 50 GB Solid-State Drive SATA (High Endurance)				**7**			
• 80 GB Solid-State Drive SATA (Standard)				**8**			
Operating system							
• Without operating system					**A**		
• WES 2009 preinstalled (CF from 2 GB/SSD)					**B**		
• XP-Prof. MUI preinstalled on SSD					**C**		
• WES 7 32 bit preinstalled (CF from 4 GB/SSD)					**D**		
• Windows 7 MUI 32 bit preinstalled on SSD					**E**		
Software bundles							
• Without RTX/HMI software						**A**	
• RTX: WinAC RTX 2010						**B**	
• RTX-F: WinAC RTX F 2010						**C**	
• HMI: WinCC RT Advanced 128 PT						**F**	
• HMI: WinCC RT Advanced 512 PT						**G**	
• HMI: WinCC RT Advanced 2048 PT						**H**	
• HMI/RTX: RT 128 PT						**M**	
• HMI/RTX: RT 512 PT						**N**	
• HMI/RTX: RT 2048 PT						**P**	
• HMI/RTX-F: RT 128 PT						**R**	
• HMI/RTX-F: RT 512 PT						**S**	
• HMI/RTX-F: RT 2048 PT						**T**	

Accessories	Order No.
Touch protective films 7" [1]	**6AV2124-6GJ00-0AX0**
Touch protective films 9" [1]	**6AV2124-6JJ00-0AX0**
Touch protective films 12" [1]	**6AV2124-6MJ00-0AX0**
Touch protective films 15" [1]	**6AV2124-6QJ00-0AX0**
Touch protective films 19" [1]	**6AV2124-6UJ00-0AX0**
Bracket clamp, long for 15", 19" and 22" widescreen, Comfort Panels, IPC, Flat Panel monitors and Thin Client (except SCD1900 19" widescreen)	**6AV6671-8XK00-0AX4**
Touch pen Captive pen for operation of the touch devices, mounting of the support on the control cabinet or directly on the PRO unit	**6AV7672-1JB00-0AA0**

[1] 10 units per packing unit

Please be sure to note:

The IPC277D with bundled software is always supplied with inserted CF card.
The licenses are on the supplied USB flash drive.

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PC-based Automation
SIMATIC Panel PC

SIMATIC IPC277D

Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.
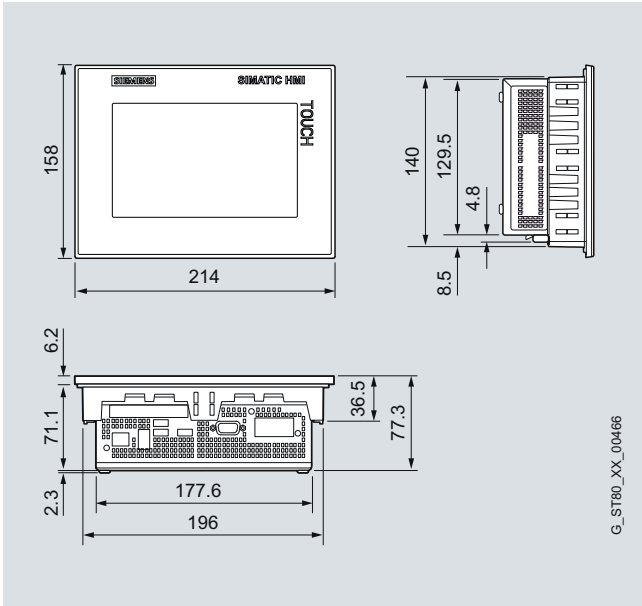
SIMATIC IPC277D 7" version
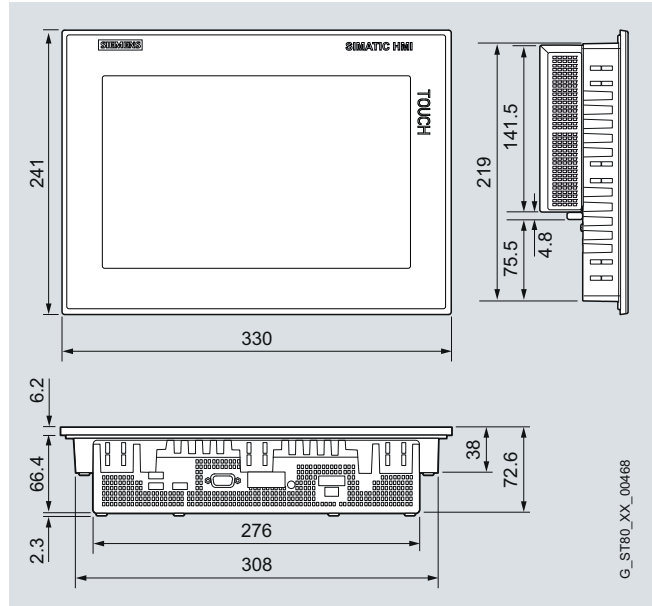
SIMATIC IPC277D 12" version
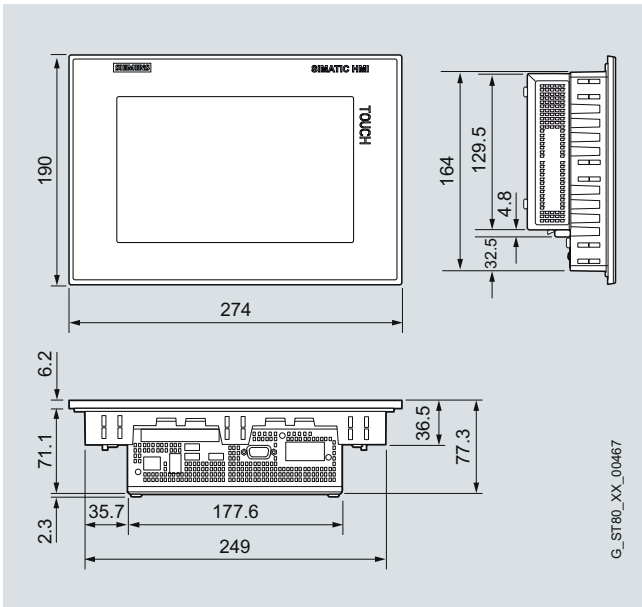
SIMATIC IPC277D 9" version
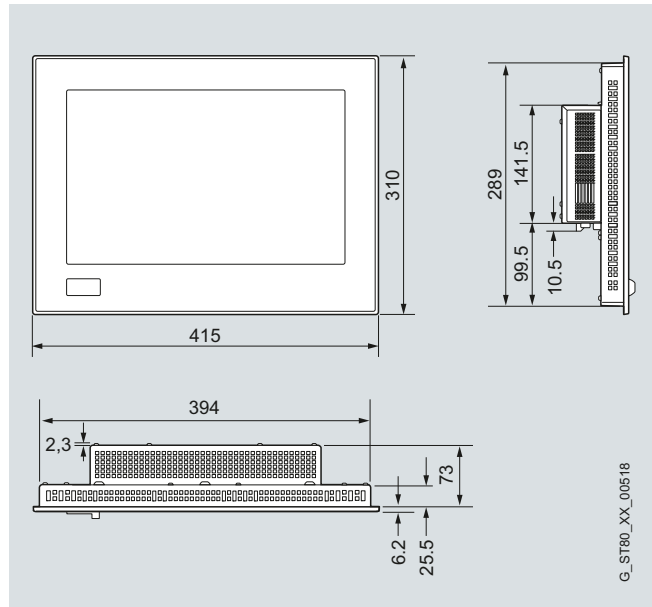
SIMATIC IPC277D 15" version

■ **Dimensional drawings** (continued)
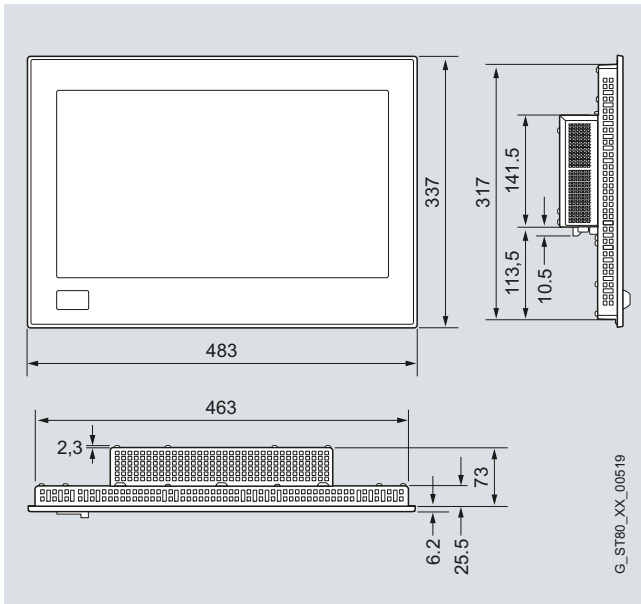
SIMATIC IPC277D 19" version

■ **More information**

Further information can be found on the Internet at:

http://www.siemens.com/simatic-panel-pc

PC-based Automation
SIMATIC Panel PC

SIMATIC IPC477D

■ **Overview**

***SIMATIC IPC477D: The powerful embedded Panel PC –
maintenance-free with versatile configuration***

- Embedded PC platform with extremely high industrial compat-ibility for demanding tasks in the field of PC-based automation
- Maintenance-free (no rotating components such as fan and hard disk)
- Rugged construction: The PC is resistant to even the harshest mechanical stress and is extremely reliable in operation
- Compact design
- Battery-independent retentive memory onboard
- High degree of investment security
- Fast integration capability

The following front versions are available:

- Built-in versions
  - 12" TFT Touch
  - 15" TFT Touch
  - 15" TFT Touch/Key
  - 19" TFT Touch
  - 22" TFT Touch

■ **Technical specifications**

	SIMATIC IPC477D
General features	
Supply voltage[1]	• 24 V DC (-20 % / +20 %) [1] • 100 - 240 V AC (-15 % / +20 %); 50 - 60 Hz
Brief voltage interruption in accordance with NAMUR	• Min. 20 ms (DC) • Min. 20 ms (AC); max. 10 events per hour; min. 1 s recovery time
Power consumption (DC) of devices (without expansions): • 12" display • 15" display • 19" display • 22" display	 55 W 56 W 65 W 74 W
Additional power consumption of devices with expansions: • DVD drive • PCIe card	 1 W 5 W
Processor	• Intel Celeron 827E 1.4 GHz; 1.5 MB SLC or • Intel Core i3-3217UE 1.6 GHz; 3 MB SLC or • Intel Core i7-3517UE 1.7 GHz; 4 MB SLC
Main memory	• SO-DIMM module; 1024 MB DDR3-SDRAM or • SO-DIMM module; 2048 MB DDR3-SDRAM or • SO-DIMM module; 4096 MB DDR3-SDRAM or • SO-DIMM module; 8192 MB DDR3-SDRAM
Buffer memory [2]	512 KB MRAM
Drive and storage media	
SATA drive	1 slot
Solid-state drive	• 1 x ≥ 50 GB; 2.5" SATA-SSD, high endurance or • 1 x ≥ 80 GB; 2.5" SATA-SSD, standard or • 1 x ≥ 160 GB; 2.5" SATA-SSD, standard
Hard disk drive (HDD)	• 1 x ≥ 250 GB, 2.5"-SATA-HD
CFast card	• 2 GB or • 4 GB or • 8 GB or • 16 GB
DVD drive, RW	1 slot for devices with expansion

[1] The generation of the supply voltage by the line-side power supply must be realized as safety extra-low voltage with safe electrical isolation, isolated according to IEC 60364 4 41, or as SELV according to IEC/UL/EN/DIN-EN 60950-1.

[2] For devices with retentivity.

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◼ Technical specifications (continued)

	SIMATIC IPC477D
Graphics	
Display, resolution	• 12" screen diagonal with LED backlighting, resolution 1280 × 800 pixels, WXGA (Wide XGA) • 15" screen diagonal with LED backlighting, resolution 1280 × 800 pixels, WXGA(Wide XGA) • 19" screen diagonal with LED backlighting, resolution 1366 x 768 pixels • 22" screen diagonal with LED backlighting, resolution 1920 x 1080 pixels
Touch controller	Resistive Tyco Elotouch controller ELO CTR-2216SU-AT-CHP-00, touch screen, analog resistive, touch force with test pen of 2 mm diameter: 5 N
Backlighting (MTBF)	LED
Half brightness life time, typical	Min. 50000 h at 50 °C, 50% brightness
Graphics controller	• Intel HD 2000 or • Intel HD 4000
Graphics memory	• 32 … 512 MB shared memory
Resolutions, frequency, colors	• DVI-I: 640 x 480 … 1920 x 1200, 60 Hz • DP display port: 1920 x 1200, 60 Hz
Interfaces	
COM 1 and COM 2	RS 232, max. 115 kbps, 9-pin, sub-D connector
DVI	Connection of VDUs with DVI connection
Display port (DPP)	Connection of VDUs with DPP connection
Keyboard	Connection via USB port
Mouse	Connection via USB port
USB	• Rear of device: 4 x USB 3.0, max. 2 high-current at the same time • Front of device (only with IPC477D with 15", 19" or 22" display): 1 x USB 2.0, high-current
PROFIBUS/MPI	9-pole, 2 rows, electrically isolated, Sub-D socket, compatible with CP 5622
• Transmission rate	9.6 Kbps … 12 Mbps
• Operating modes	DP master: DP-V0, DP-V1 with SOFTNET-DP DP slave: DP-V0, DP-V1 with SOFTNET-DP slave
PROFINET	3 x RJ45 interface, CP 1616 compatible onboard interface based on ERTEC 400 10/100 Mbps, electrically isolated

	SIMATIC IPC477D
Ethernet [3]	• 2 x RJ45 connection, Intel 82579LM and Intel 82574L 10/100/1000 Mbps, electrically isolated, teaming-capable [4] or • For PROFINET versions: 1 x Ethernet
Slot for PCIe expansion cards	Only for device with expansions: 1 x PCIe-x4 expansion card can be used, max. permissible power loss: 5 W
Degree of protection	
Degree of protection	• IP 20 to IEC 60529 (enclosure) • IP 65 (front)
Quality assurance	In accordance with ISO 9001
Electromagnetic compatibility	
Emitted interference S	EN 61000-6-4; CISPR 22 Class A; FCC Class A
Immunity with regard to conducted interference on the supply lines	• ± 2 kV to IEC 61000-4-4; burst • ± 1 kV to IEC 61000-4-5; surge symmetrical • ± 2 kV to IEC 61000-4-5; surge asymmetrical
Noise immunity on signal lines	• ± 2 kV to IEC 61000-4-4; burst, length > 3 m • ± 1 kV to IEC 61000-4-4; burst, length < 3 m • ± 2 kV to IEC 61000-4-5; symmetrical surge, length > 30 m
Immunity to static discharge	• ± 6 kV, contact discharge at the front to IEC 61000-4-2 • ± 4 kV contact discharge at the rear to IEC 61000-4-2 • ± 8 kV air discharge to IEC 61000-4-2
Immunity to high radio frequency interference	• 10 V/m, 80 … 1000 MHz 80 % AM to IEC 61000-4-3 • 1 V/m, 2 … 2.7 GHz • 3 V/m, 2 … 2.7 GHz • 10 V, 10 kHz … 80 MHz to IEC 61000-4-6
Immunity to magnetic fields	• 100 A/m, 50/60 Hz to IEC 61000-4-8
Weight	
• IPC477D, touch device, 12" display	Approx. 3200 g
• IPC477D, touch device, 15" display	Approx. 4920 g
• IPC477D, touch/key device (without expansions), 15" display	Approx. 5750 g
• IPC477D, touch device, 19" display	Approx. 6400 g
• IPC477D, touch device, 22" display	Approx. 7000 g

[3] For unambiguous labeling, the Ethernet ports are numbered on the enclosure. The numbering by the operating system can differ.

[4] Teaming can be set and initiated in the configuration interface. In teaming operation, jumbo frames, e.g. for the camera application, are not supported

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PC-based Automation
SIMATIC Panel PC

SIMATIC IPC477D

■ **Ordering data**   Order No.   Order No.

SIMATIC IPC477D [1]	6AV7240- ■ ■ ■ ■ - ■ ■ A 0
Processor and fieldbus:	
• Celeron U827E (1C/1T, 1.4 GHz, 1.5 MB cache); 2 x Gigabit Ethernet (IE/PN)	0
• Celeron U827E (1C/1T, 1.4 GHz, 1.5 MB cache); 2 x Gigabit Ethernet (IE/PN); PROFIBUS DP12	1
• Core i3-3217UE (2C/4T, 1.6 GHz, 3 MB cache); 2 x Gigabit Ethernet (IE/PN)	3
• Core i3-3217UE (2C/4T, 1.6 GHz, 3 MB cache); 2 x Gigabit Ethernet (IE/PN); PROFIBUS DP12	4
• Core i3-3217UE (2C/4T, 1.6 GHz, 3 MB cache); 1 x Gigabit Ethernet (IE/PN); 1 x PROFINET (IRT, 3 ports)	5
• Core i7-3517UE (2C/4T, 1.7 (2.8) GHz, 3 MB cache); 2 x Gigabit Ethernet (IE/PN)	6
• Core i7-3517UE (2C/4T, 1.7 (2.8) GHz, 3 MB cache); 2 x Gigabit Ethernet (IE/PN); PROFIBUS DP12	7
• Core i7-3517UE (2C/4T, 1.7 (2.8) GHz, 3 MB cache); 1 x Gigabit Ethernet (IE/PN); 1 x PROFINET (IRT, 3 ports)	8
Operator control unit:	
• 12" Touch (1280 x 800) (caution, restrictions regarding options: HDD, PCI, AC, DVD)	A
• 15" Touch (1280 x 800) with front USB	B
• 15" Touch/Key (1280 x 800) with front USB	C
• 19" Touch (1366 x 768) with front USB	D
• 22" Touch (1920 x 1080) with front USB	E
Main memory/NVRAM:	
• 1 GB	A
• 2 GB	B
• 4 GB	C
• 8 GB	D
• 1 GB and NVRAM	J
• 2 GB and NVRAM	K
• 4 GB and NVRAM	L
• 8 GB and NVRAM	M

[1] Built to order versions with a delivery time of max. 15 working days and with identified repair.

SIMATIC IPC477D [1] (continued)	6AV7240- ■ ■ ■ ■ - ■ ■ A 0
Expansions/interface:	
• 1 x RS 232, without PCIe	0
• 1 x RS 232 and 1 x PCIe	1
• Second RS 232, without PCIe	3
• Second RS 232 and 1 x PCIe	4
Operating system:	
• Without operating system	0
• Windows Embedded Standard 7 SP1, English, 32-bit	4
• Windows 7 Ultimate SP1, 32-bit, MUI (Eng, Ger, Fr, It, Sp)	6
• Windows 7 Ultimate SP1, 64-bit, MUI (Eng, Ger, Fr, It, Sp)	7
Externally accessible mass storage (without operating system):	
• Without external mass storage	0
• CFAST 2 GB, without software	1
• CFAST 4 GB	2
• CFAST 8 GB	3
• CFAST 16 GB	4
• DVD	6
Internal mass storage:	
• Without internal mass storage	A
• CFAST 2 GB	B
• CFAST 4 GB	C
• CFAST 8 GB	D
• CFAST 16 GB	E
• SSD 50 GB High Endurance	G
• SSD 80 GB Standard	H
• HDD 250 GB	K
• DVD	L
• SSD 50 GB high endurance with DVD	M
• SSD 80 GB standard with DVD	N
• SSD 160 GB standard with DVD	P
• HDD min. 250 GB with DVD	Q

■ Ordering data

SIMATIC IPC477D [1] (continued)	Order No. 6AV7240- ■ ■ ■ ■ ■ - ■ ■ A 0		SIMATIC IPC477D [1] (continued)	Order No. 6AV7240- ■ ■ ■ ■ ■ - ■ ■ A 0
SIMATIC software preinstalled (bundles):			Power supply:	
• Without SIMATIC software	A		• 24 V DC industrial power supply	0
• WinAC RTX 2010 [2]	B		• 110/230 V AC industrial power supply with Namur; no power cable	1
• WinCC RT Advanced 128 PT	C			
• WinCC RT Advanced 512 PT	D		• 110/230 V AC industrial power supply with Namur; European power cable	2
• WinCC RT Advanced 2048 PT	E			
• WinCC RT Advanced 4096 PT	F		• 110/230 V AC industrial power supply with Namur; US power cable	3
• WinCC RT Advanced 128 PT, WinAC RTX [2]	J			
• WinCC RT Advanced 512 PT, WinAC RTX [2]	K		• 110/230 V AC industrial power supply with Namur; Chinese power cable	4
• WinCC RT Advanced 2048 PT, WinAC RTX [2]	L		• 110/230 V AC industrial power supply with Namur; Italian power cable	5
• WinCC RT Advanced 4096 PT, WinAC RTX [2]	M			
• WinAC RTX 2010 F [2]	N		• 110/230 V AC industrial power supply with Namur; Swiss power cable	6
• WinCC RT Advanced 128 PT, WinAC RTX F [2]	P			
• WinCC RT Advanced 512 PT, WinAC RTX F [2]	Q		• 110/230 V AC industrial power supply with Namur; UK power cable	7
• WinCC RT Advanced 2048 PT, WinAC RTX F [2]	R			
• WinCC RT Advanced 4096 PT, WinAC RTX F [2]	S		• 24 V DC industrial power supply and TPM (not for China and Russia)	8

[1] Built to order versions with a delivery time of max. 15 working days and with identified repair.

[2] Only with main memory and NVRAM.

■ Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.

SIMATIC IPC477D 12" Touch device

SIMATIC IPC477D 15" Touch device

PC-based Automation
SIMATIC Panel PC

■ **Dimensional drawings** (continued)

SIMATIC IPC477D 19" Touch device
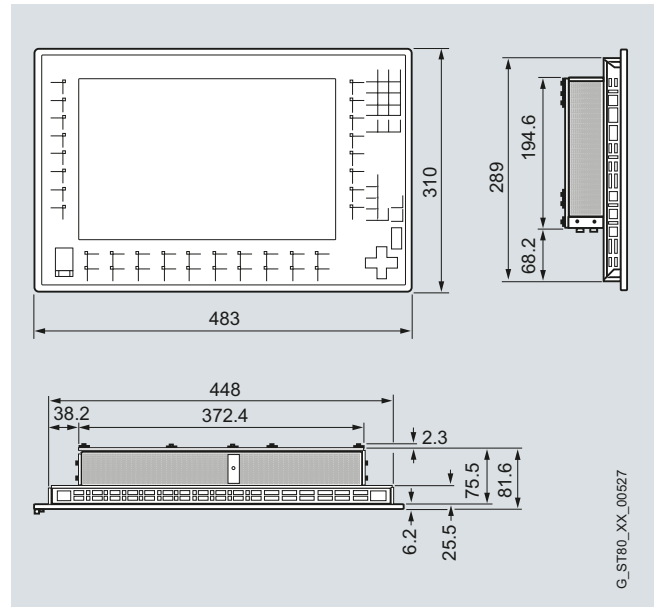
SIMATIC IPC477D 15" Touch/Key device
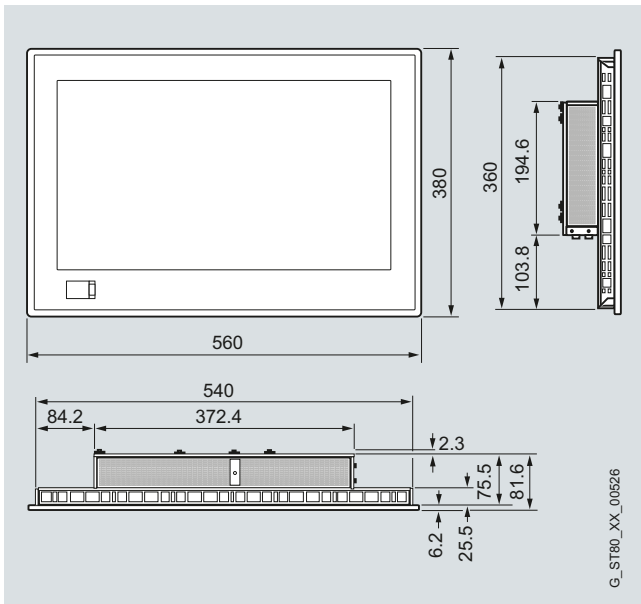
SIMATIC IPC477D 22" Touch device

■ **More information**
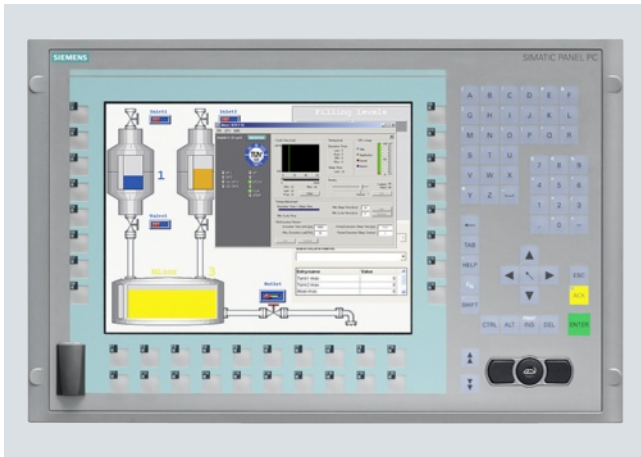
Additional information is available in the Internet under:

http://www.siemens.com/simatic-panel-pc

■ Overview

SIMATIC HMI IPC477C: The powerful embedded Panel PC – maintenance-free with versatile configuration

- Embedded PC platform with extremely high industrial compatibility for demanding tasks in the field of PC-based automation
- Maintenance-free (no rotating components such as fan and hard disk)
- Rugged construction: The PC is resistant to even the harshest mechanical stress and is extremely reliable in operation
- Compact design (only 61-69 mm installation depth for 12"-19")
- Battery-backed retentive memory onboard
- High degree of investment security
- Fast integration capability

The following front versions are available:
- Built-in versions
  - 12" and 15" TFT Touch
  - 12" and 15" TFT keypad
  - 19" Touch
- Support arm versions
  - PRO 15" and PRO 19" Touch
  - Fully enclosed device with degree of protection IP65 for mounting on a support arm/stand

■ Technical specifications

	6AV7 884-1....-...0	6AV7 884-2....-...0	6AV7 884-3....-...0
	SIMATIC HMI IPC477C	**SIMATIC HMI IPC477C**	**SIMATIC HMI IPC477C**
Operator control and monitoring			
Accessory components	Slide-in keyboard labels	Touch protective foil (not for Inox front)	Slide-in keyboard labels
Display			
Screen diagonal	12 in	15 in	15 in
Resolution (pixels)			
• Resolution (WxH in pixel)	800 x 600	1024 x 768	1024 x 768
General features			
• Front panel	12" TFT Key	15" TFT Touch	15" TFT Key
Backlighting			
• MTBF backlighting (at 25 °C)	about 50,000 hours	50000 h	about 50,000 hours
Control elements			
Function keys	36	No	36
Mouse, at front	Yes	No	Yes
Keyboard fonts			
• Alphanumeric keyboard	Yes	No	Yes
Touch operation			
• Design as touch screen	No	Yes	No
- Touch screen (analog/resistive)	No	Yes	No
Installation type/mounting			
central design	Yes	Yes	Yes
Distributed design	No	No	No
Power losses			
Power loss in full configuration	24 V DC: Max. 60 W (incl. USB interfaces)	140 W max. (15 W included per slot)	24 V DC: Max. 60 W (incl. USB interfaces)
Dimensions			
Mounting cutout (W x H x D)	450 mm x 290 mm/75 mm device depth	450x290 / 108 (incl. optical drive)	450 x 321 x 75
additional mounting depth (optical drive)	No drive planned.	No drive planned.	No drive planned.
Weight			
Panel PC in central design, approx.	6.6 kg	7 kg	7.2 kg

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PC-based Automation
SIMATIC Panel PC

SIMATIC HMI IPC477C

Ordering data	Order No.

SIMATIC HMI IPC477C and IPC477C PRO
(built to order versions with a delivery time of max. 15 working days and with original part repair, if not preferred type).

SIMATIC HMI IPC477C	6AV7884- ■ A ■ ■ ■ - ■ ■ ■ 0

Embedded and fan-free
5 x USB (500 mA),
of which 1 x on the front,
battery-backed retentive
memory onboard,
24 V DC power supply
with On/Off switch

Front Panels
• 12" TFT Touch [1]	0
• 12" TFT Key	1
• 15" TFT Touch [1]	2
• 15" TFT Key	3
• 19" TFT Touch [1]	5

SIMATIC HMI IPC477C PRO	6AV7883- ■ A ■ ■ ■ - ■ ■ ■ 0

Embedded and fan-free with IP65
enclosure protected all-round;
5 x USB (500 mA),
of which 1 x on the front,
battery-backed retentive
memory onboard,
24 V DC power supply
with On/Off switch

• 15" TFT Touch (IP65 enclosure)	6
• 19" TFT Touch (IP65 enclosure)	7

Processors and fieldbus
• Celeron M 1.2 GHz, 2 x PROFINET (IE) [1]	A
• Celeron M 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12 [1]	B
• Core2 Solo 1.2 GHz, 2 x PROFINET (IE) [1]	D
• Core2 Solo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS [1]	E
• Core2 Solo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (RT/IRT) (3 ports)	F
• Core2 Duo 1.2 GHz, 2 x PROFINET (IE) [1]	G
• Core2 Duo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS [1]	H
• Core2 Duo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (RT/IRT) (3 ports)	J

SIMATIC HMI IPC477C PRO (continued)	6AV7883- ■ A ■ ■ ■ - ■ ■ ■ 0

Main memory (DDR3 RAM), 1 bank
• 1 GB	1
• 2 GB [1]	2
• 4 GB	3

Second mass storage
(installed and formatted)
• Without [1]	0
• CompactFlash 2 GB [1]	2
• CompactFlash 4 GB [1]	3
• CompactFlash 8 GB [1]	4
• CompactFlash 16 GB [1]	5
• SSD High Endurance, min. 50 GB	6
• SSD Standard, min. 80 GB (not for PRO version)	7

Mass storage (built-in, operating
system pre-installed)
• CompactFlash 2 GB (only with Windows Embedded Standard 2009) [1]	2
• CompactFlash 4 GB [1]	3
• CompactFlash 8 GB [1]	4
• CompactFlash 16 GB [1]	5
• SSD High Endurance, min. 50 GB	6
• SSD Standard, min. 80 GB (not for PRO version)	7

Operating system
(preinstalled and activated)
• Windows Embedded Standard 2009 [1]	B A
• Windows XP Professional Multi-Language, only with SSD; without SIMATIC software	D A
• Windows Embedded Standard 7 (only with CF > 4 GB or SSD and from 2 GB RAM)	E A
• Windows 7 Ultimate, MUI (Eng, Ger, Fr, It, Sp) only with SSD; without SIMATIC software	G A

SIMATIC HMI IPC477C (PRO) with SIMATIC software	See Embedded bundles / Packages for industrial PCs

[1] Preferred types with replacement devices in exchange

Note:

Ready-to-use SIMATIC IPC477C (PRO) as bundles can be found under "Embedded bundles".

Software packages with SIMATIC WinCC flexible, SIMATIC WinCC RT Advanced, SIMATIC WinCC, SIMATIC WinCC RT Professional, and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded bundles / Packages for industrial PCs".

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■ Ordering data

	Order No.		Order No.
Accessories		**Touch pen**	**6AV7672-1JB00-0AA0**
Protective film **for Panel PCs 477/577/677** For protecting the touch screen against dirt/scratches		Captive pen for operation of the touch devices, mounting of the support on the control cabinet or directly on the PRO unit	
• for 12" Touch	**6AV7671-2BA00-0AA0**		
• for 15" Touch (not for PRO)	**6AV7671-4BA00-0AA0**	**Expansion components**	From page 5/153
• for 19" Touch	**6AV7672-1CE00-0AA0**		
Labeling membranes **for Panel PCs 477/577/677** For labeling soft keys and function keys, blank, supplied in sets of 10	**6AV7672-0DA00-0AA0**		

Please be sure to note:

The HMI IPC477C is delivered as standard with an inserted CF card. The licenses are on the supplied USB flash drive.

Note:

Further embedded versions based on IPC427C and Embedded Controller (mEC) are listed under SIMATIC PC-based Control.

■ Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.
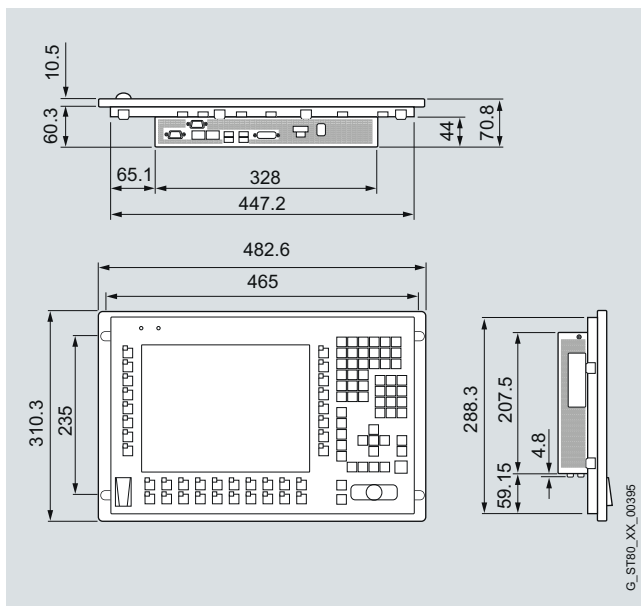
SIMATIC HMI IPC477C 12" Key version
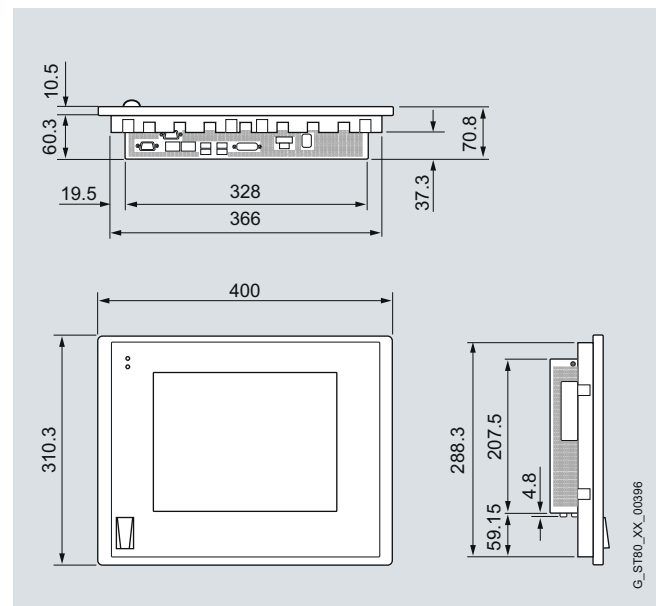
SIMATIC HMI IPC477C 12" Touch version

PC-based Automation
SIMATIC Panel PC

■ **Dimensional drawings** (continued)
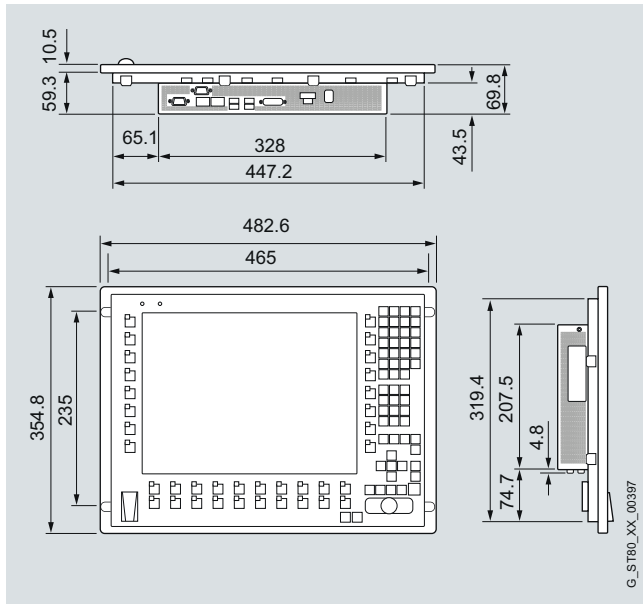
SIMATIC HMI IPC477C 15" Key version
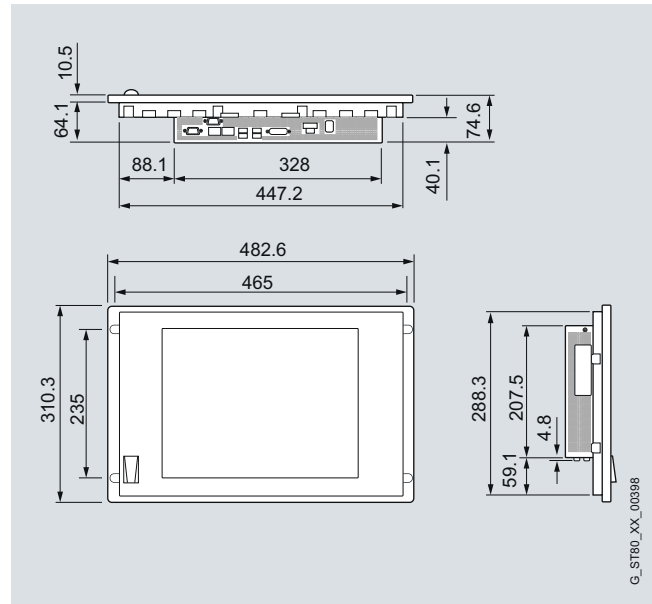
SIMATIC HMI IPC477C 15" Touch version
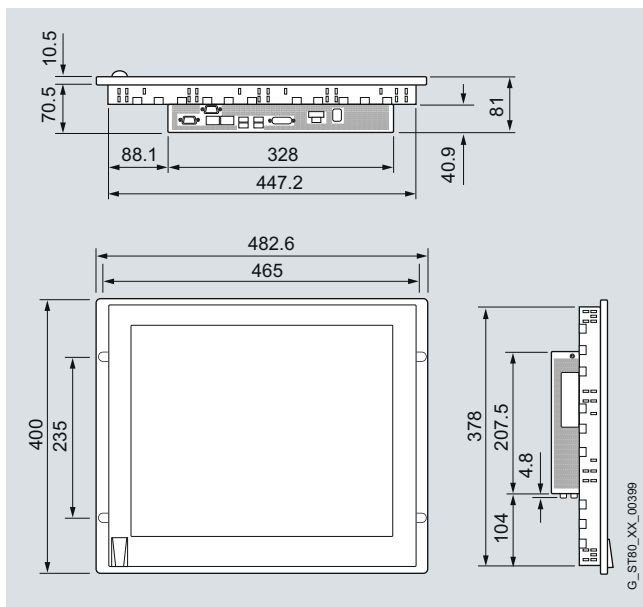
SIMATIC HMI IPC477C 19" Touch version

■ **More information**

Additional information is available in the Internet under:

http://www.siemens.com/simatic-panel-pc

Overview
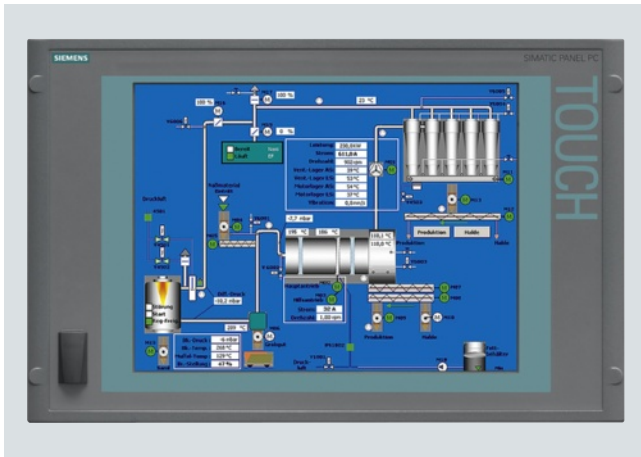
Rugged, expandable industry PC for demanding tasks in the area of PC-based automation with various control units (front panels):

- Rugged and compact design for industrial use
- Full PC openness
  - Windows Embedded Standard or Windows XP Professional, or without operating system
  - CF card, HDD, SSD
  - DVD drive
- Expandable using a PCI slot
- Optionally with PROFIBUS or PROFINET (RT/IRT) onboard
- Installation-compatible with Panel PC 577B
  - Touch screen control units with 12", 15" and 19" TFT display
  - 12" and 15" TFT Key
- High degree of investment protection

Technical specifications

	6AV7 885-0....-.... SIMATIC HMI IPC577C	6AV7 885-1....-.... SIMATIC HMI IPC577C	6AV7 885-2....-.... SIMATIC HMI IPC577C	6AV7 885-3....-.... SIMATIC HMI IPC577C	6AV7 885-5....-.... SIMATIC HMI IPC577C
Operator control and monitoring					
Accessory components	Touch protective foil	Slide-in keyboard labels	Touch protective foil	Slide-in keyboard labels	Touch protective foil
Display					
Screen diagonal	12 in	12 in	15 in	15 in	19 in
Resolution (pixels)					
• Resolution (WxH in pixel)	800 x 600	800 x 600	1024 x 768	1024 x 768	1280 x 1024
General features					
• Front panel	12" TFT touch display	12" TFT Key	15" TFT touch display	15" TFT Key	19" TFT Touch
Backlighting					
• MTBF backlighting (at 25 °C)	about 50,000 hours	about 50,000 hours	about 50,000 hours	about 50,000 hours	about 50,000 hours
Control elements					
Function keys	No	36	No	36	No
Mouse, at front	No	Yes	No	Yes	No
Keyboard fonts					
• Alphanumeric keyboard	No	Yes	No	Yes	No
Touch operation					
• Design as touch screen	Yes	No	Yes	No	Yes
- Touch screen (analog/resistive)	Yes	No	Yes	No	Yes
Installation type/mounting					
central design	Yes	Yes	Yes	Yes	Yes
Distributed design	No	No	No	No	No
Power losses					
Power loss in full configuration	24 V DC: Max. 80 W (incl. USB interfaces)	24 V DC: Max. 80 W (incl. USB interfaces)	24 V DC: Max. 80 W (incl. USB interfaces)	24 V DC: Max. 80 W (incl. USB interfaces)	24 V DC: Max. 80 W (incl. USB interfaces)
Dimensions					
Mounting cutout (W x H x D)	368 x 290 x 115	450 x 290 x 115	450 x 290 x 120	450 x 321 x 115	450 x 380 x 125
additional mounting depth (optical drive)	23 mm	23 mm	23 mm	23 mm	23 mm
Weight					
Panel PC in central design, approx.	8.1 kg	8.6 kg	9 kg	9.3 kg	11.6 kg

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PC-based Automation
SIMATIC Panel PC

SIMATIC HMI IPC577C

Ordering data

SIMATIC HMI IPC577C	Order No. 6AV7885-■ ■ ■ ■ ■ - ■ ■ ■ ■		
Front Panels			
• 12" TFT Touch	**0**		
• 12" TFT Key	**1**		
• 15" TFT Touch	**2**		
• 15" TFT Key	**3**		
• 19" TFT Touch	**5**		
Mainboards (processor with fieldbus interfaces)			
• Celeron M 1.2 GHz, 1 MB cache, 800 MHz FSB			

- with PROFINET
   (Industrial Ethernet);
   2x LAN 1 Gbps
		A	**A**

• Core2 Solo 1.2 GHz, 3 MB cache, 800 MHz FSB			

- with PROFINET
   (Industrial Ethernet),
   2x LAN 1 Gbps
		A	**D**

- with PROFIBUS DP12/MPI
   (CP5611-compatible),
   2x LAN 1 Gbps
		A	**E**

- with PROFINET (RT/IRT) 3 ports, 1x LAN 1 Gbps		**A**	**F**
• Core2 Duo 1.86 GHz, 6 MB cache, 1066 MHz FSB			

- with PROFINET
   (Industrial Ethernet),
   2x LAN 1 Gbps
		A	**K**

- with PROFIBUS DP12/MPI
   (CP5611-compatible),
   2x LAN 1 Gbps
		A	**L**

- with PROFINET (RT/IRT) 3 ports, 1x LAN 1 Gbps		**A**	**M**
RAM			
• 1 GB RAM, DDR3			**1**
• 2 GB RAM, DDR3			**2**
• 4 GB RAM, DDR3			**3**
Second mass storage and/or drive (formatted without operating system)			
• No second mass storage/drive			**0**
• DVD-RW drive			**1**
• HDD + DVD-RW drive			**2**
• SSD 50 GB High Endurance+ DVD-RW drive			**3**
• SSD 80 GB Standard+ DVD-RW drive			**4**
• SSD 50 GB High Endurance			**6**
• SSD 80 GB Standard			**7**
• HDD min. 250 GB			**8**

[1] Multi-Language means: D/E/F/I/SP/CHIN traditional/CHIN simplified/
Korean/Japanese

SIMATIC HMI IPC577C (continued)	Order No. 6AV7885-■ ■ ■ ■ ■ - ■ ■ ■ ■		
First mass storage (formatted, optionally with operating system):			
• Without	**0**		
• HDD min. 250 GB (not if 2nd mass storage HDD or SSD)	**1**		
• 2 GB CompactFlash	**2**		
• 4 GB CompactFlash	**3**		
• 8 GB CompactFlash	**4**		
• 16 GB CompactFlash	**5**		
• SSD 50 GB High Endurance (not if 2nd mass storage HDD or SSD)	**6**		
• SSD 80 GB Standard (not if 2nd mass storage HDD or SSD)	**7**		
Operating system (pre-installed on first mass storage)			
• Without operating system		**A**	
• Windows Embedded Standard		**B**	
• Windows XP Professional Multi-Language [1]		**D**	
• Windows Embedded Standard 7		**E**	
• Windows 7 Ultimate Multi-Language [1]		**G**	
Expansion (software)			
• Without expansion			**A**
• IPC DiagMonitor V4.3 enclosed			**B**
• IPC Image & Partition Creator			**C**
• IPC DiagMonitor V4.3 and Image & Partition Creator V3.2 enclosed			**D**
Power supply			
• 100/240 V AC industrial power supply with Namur			**1**
• 100/240 V AC industrial power supply with Namur; power cable for Europe			**2**
• 100/240 V AC industrial power supply with Namur; power cable for the USA			**3**
• 100/240 V AC industrial power supply with Namur; CN power cable			**4**
• 100/240 V AC industrial power supply with Namur; IT power cable			**5**
• 100/240 V AC industrial power supply with Namur; CH cable			**6**
• 100/240 V AC industrial power supply with Namur; UK cable			**7**
• 24 V DC industrial power supply			**8**

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

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Ordering data

	Order No.			Order No.
Accessories			**Touch pen**	**6AV7672-1JB00-0AA0**
Protective film for SIMATIC HMI IPC577C For protecting the touch screen against dirt/scratches, set of 10			Captive pen for operation of the touch devices, mounting of the support on the control cabinet	
• for 12" Touch	**6AV7671-2BA00-0AA0**		**Expansion components**	From page 5/153
• for 15" Touch	**6AV7671-4BA00-0AA0**		**Communication components**	From page 5/186
• for 19" Touch	**6AV7672-1CE00-0AA0**			
Labeling strips for Key devices For labeling soft keys and function keys, blank, supplied in sets of 10	**6AV7672-0DA00-0AA0**			

Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.
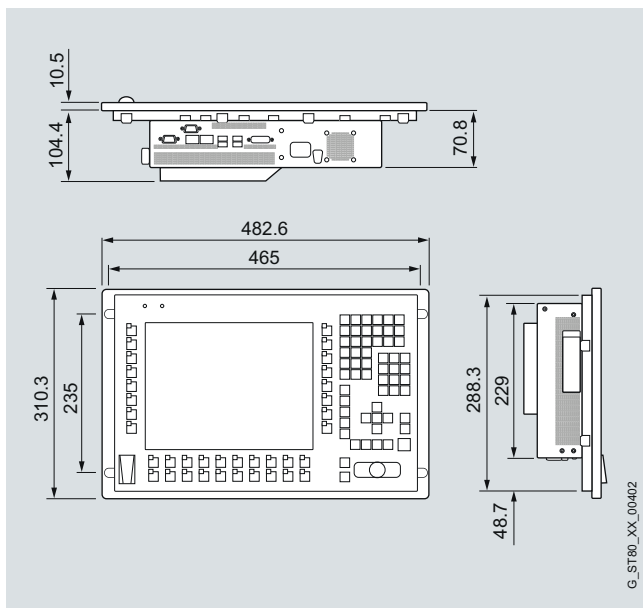
SIMATIC HMI IPC577C 12" Key version
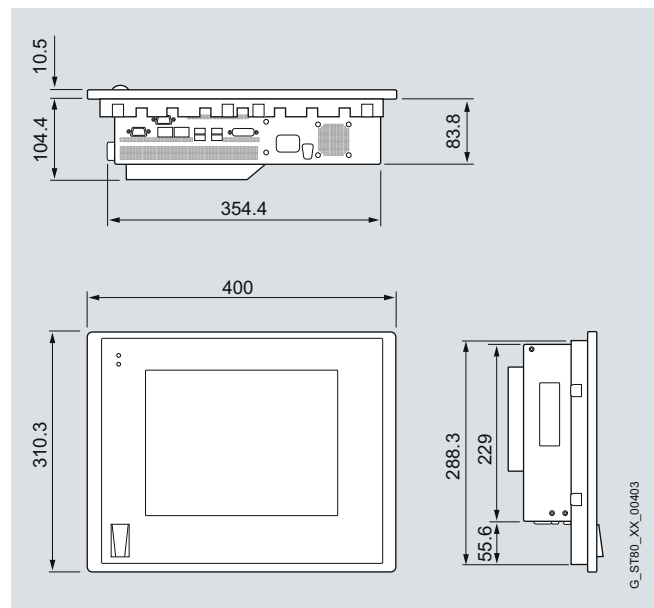
SIMATIC HMI IPC577C 12" Touch version

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PC-based Automation
SIMATIC Panel PC

SIMATIC HMI IPC577C

■ **Dimensional drawings** (continued)
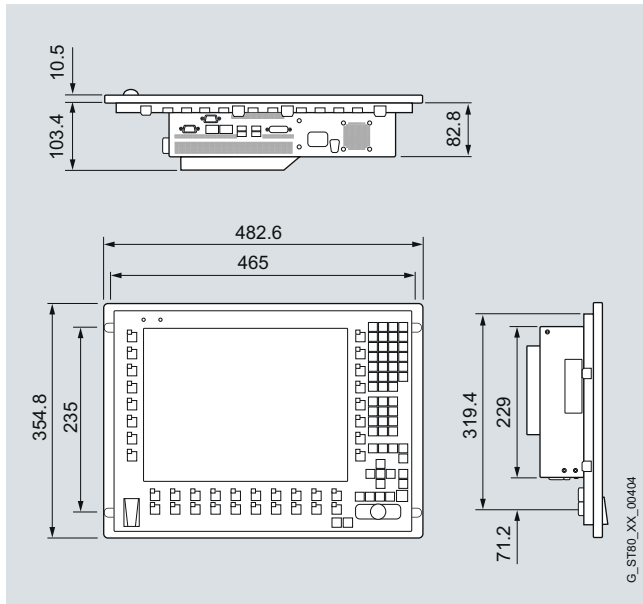
SIMATIC HMI IPC577C 15" Key version
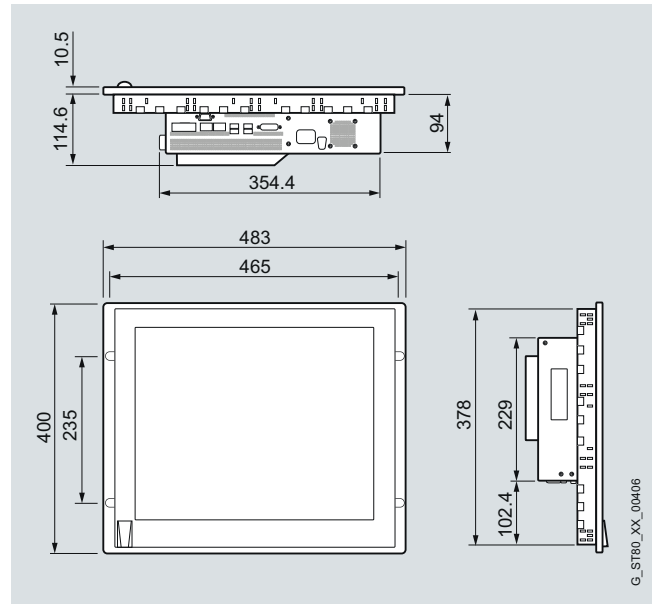
SIMATIC HMI IPC577C 19" Touch version
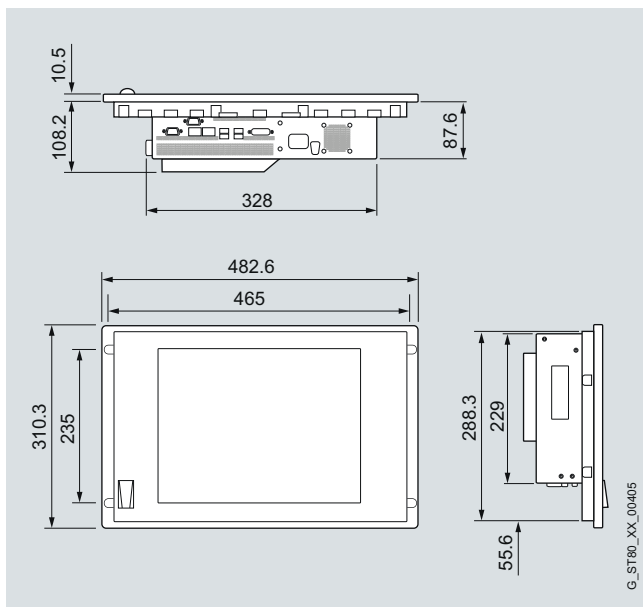
SIMATIC HMI IPC577C 15" Touch version

■ **More information**

Additional information is available in the Internet under:

http://www.siemens.com/simatic-panel-pc

■ Overview
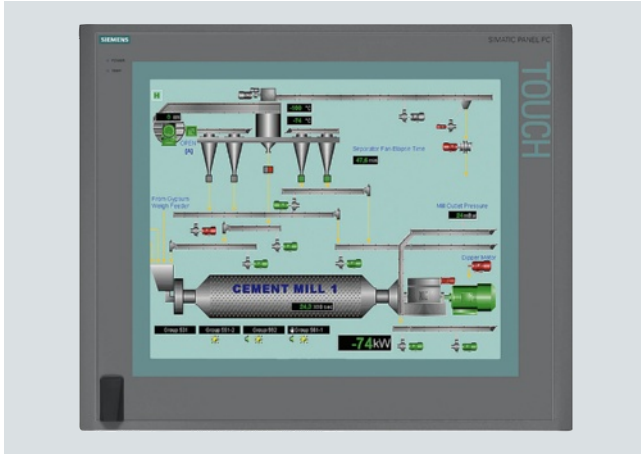
SIMATIC HMI IPC677C: The high-end Panel PC – with maximum performance, functional scope and expansion capability

- Compact design
- High degree of investment security
- Fast integration capability
- Front panel versions:
  - 12", 15" and 19" TFT Touch
  - 12" and 15" TFT Key
  - 15" TFT Touch INOX with stainless steel front for special requirements, e.g. in the food, beverages and tobacco industries

■ Technical specifications

	SIMATIC HMI IPC677C
General features	
Processor	• Intel Core i7-610E (2C/4T, 2.53 GHz, 4 MB L2, Turbo Boost, VT-d) • Intel Core i3-330E (2C/4T, 2.13 GHz, 3 MB L2) • Intel Celeron P4505 (2C/2T, 1.86 GHz, 2 MB L2)
Main memory	1 GB, optionally 2, 3, 4 or 8 GB or 2, 4 or 8 GB with ECC
Free slots for expansions	• 2 x PCI (slot with card retainer) or 1 x PCI and 1 x PCIe x16 • 1 x slot for CompactFlash Card (accessible from outside)
Operating system	Different Windows operating systems incl. Windows 7 Ultimate 64-bit
Power supply	24 V DC or 110/240 V AC (autorange), 50/60 Hz
MTBF backlighting	Typ. 50 000 h (at 24 h continuous operation, temperature-dependent)
Drives	
Optical drives	Optional DVD±RW±R combo drive, at the rear, operable from the side
Hard disk/mass storage	• 3.5" SATA hard disk ≥ 250 GB; • optional 3.5" SATA hard disk ≥ 500 GB, • Dual hard disk module 2 x ≥ 250 GB SATA as single disk configuration or RAID1 preconfigured, • 50 GB SSD (solid-state drive)

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PC-based Automation
SIMATIC Panel PC

SIMATIC HMI IPC677C

■ **Technical specifications** (continued)

	SIMATIC HMI IPC677C
Interfaces	
Graphics interface	DVI-I for additional display unit: Color depth 32 bits
Connection for keyboard/mouse	USB / USB
Serial interface	COM1: 1 x V.24 (RS232)
PROFIBUS DP/MPI	Onboard, isolated, max. 12 Mbit/s, compatible with CP 5611, not upgradeable
PROFINET (IRT)	Onboard, 3 x RJ 45, CP 1616-compatible, not upgradeable
PROFINET (IE), Ethernet	Onboard, 2 x 10/100/1000 Mbit
USB	1 x on front, 4 x on rear, USB 2.0 (500 mA)
Audio	Possible via USB (external)
Multimedia	No
Monitoring functions	
Temperature	Yes
Watchdog	Yes
Ambient conditions	
Degree of protection	IP65 (front) in accordance with EN 60529 and NEMA 4
Vibration load during operation	Tested according to DIN IEC 60068-2-6: 10 - 58 Hz: 0.075 mm, 58 to 500 Hz: 10 m/s² (1 g) [2]
Shock loading during operation	Tested according to DIN IEC 60068-2-27: 50 m/s² (5 g), 30 ms, 100 shocks
EMC	CE, FCC A, 55022A, EN 61000-6-4[1], EN 61000-6-2
Ambient temperature during operation	• 12"/15": 5 °C … +50 °C in maximum configuration • 19": 5 °C … +45 °C in maximum configuration
Relative humidity	Tested according to DIN IEC 60068-78, DIN IEC 60068-2-30: 5% to 80% at 25 °C (no condensation)
Maximum permissible installation angle +/-	20° over vertical

	SIMATIC HMI IPC677C
Certifications & standards	
Approvals	CE, cULus(508) ATEX 22, UL Class 1 Div 2 (see front options)
Shipbuilding approval (for configurations with CompactFlash or SSD memory and without optical drive)	• GL - Germanische Lloyd • BV - Bureau Veritas • LR - Lloyds Register of Shipping • ABS - American Bureau of Shipping • DNV - Det Norske Veritas • NKK - Nippon Kaiji Kyokai
Expansion components	Uninterruptible power supply (UPS), SIMATIC NET communication modules, SIMATIC IPC DiagMonitor, SIMATIC IPC Image & Partition Creator, SIMATIC IPC USB FlashDrive

[1] 61000-6-2 replaces 50082-2; 61000-6-4 replaces 50081-2

[2] Valid with CF or SSD; with HDD: 5 g/0.5 g

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Ordering data

SIMATIC HMI IPC677C	Order No. 6AV789 ☐ - ☐☐☐☐ - ☐☐☐☐
Front panels	
• 12" TFT Touch	0
• 12" TFT Key	1
• 15" TFT Touch	2
• 15" TFT Key	3
• 19" TFT Touch	4
Front options	
• With front USB interface	0
• Without front USB interface	1
• INOX front, without front USB, with 15" TFT Touch only	3 ... 2
• 19" TFT Touch with ATEX 22 and UL Class 1 Division 2 certification	4 ... 3
Power supply	
• 24 V DC	A
• 110/230 V AC, power cable for Europe	B
• 110/230 V AC, without power cable	C
• 110/230 V AC, power cable for UK	D
• 110/230 V AC, power cable for CH	E
• 110/230 V AC, power cable for the USA	F
• 110/230 V AC, power cable for Italy	G
• 110/230 V AC, power cable for China	H
Processor	
• Intel Celeron 1.86 GHz (2 Mbyte shared cache), 2 cores	A
• Intel Celeron 1.86 GHz (2 MB shared cache), 2 cores, PROFIBUS MPI, 2 MB buffered SRAM	B
• Intel Celeron 1.86 GHz (2 MB shared cache), 2 cores, PROFINET (3 x RJ45, CP1616-compatible), 2 MB buffered SRAM	C
• Intel Core i3; 2.13 GHz (3 MB shared cache), 2 cores, hyper-threading	D
• Intel Core i3; 2.13 GHz (3 MB shared cache), 2 cores, hyper-threading, PROFIBUS MPI, 2 MB buffered SRAM	E
• Intel Core i3; 2.13 GHz (3 MB shared cache), 2 cores, hyper-threading, PROFINET (3 x RJ45, CP1616-compatible), 2 MB buffered SRAM	F
• Intel Core i7; 2.53 GHz (4 MB shared cache), 2 cores, hyper-threading, turbo boost	G
• Intel Core i7; 2.53 GHz (4 MB shared cache), 2 cores, hyper-threading, turbo boost, PROFIBUS MPI, 2 MB buffered SRAM	H
• Intel Core i7; 2.53 GHz (4 MB shared cache), 2 cores, hyper-threading, turbo boost, PROFINET (3 x RJ45, CP 1616-compatible), 2 MB buffered SRAM	J

SIMATIC HMI IPC677C (continued)	Order No. 6AV789 ☐ - ☐☐☐☐ - ☐☐☐☐
Main memory	
• 1 GB DDR3	0
• 2 GB DDR3	1
• 3 GB DDR3	2
• 4 GB DDR3	3
• 8 GB DDR3	4
• 2 GB DDR3 with ECC	5
• 4 GB DDR3 with ECC	6
• 8 GB DDR3 with ECC	7
Mass storage	
• 250 GB SATA hard disk	0
• 500 GB SATA hard disk	1
• RAID1 dual hard disk module 2 x 250 GB SATA, preconfigured	2
• Dual hard disk module 2 x 250 GB SATA	3
• 50 GB SSD	4
• Second CF card slot, internal, empty (not with Windows XP or Windows 7) instead of hard disk or SSD	5
• Without mass memory	8
Optical drives	
• without	0
• DVD±RW±R combo drive	1
Communication interfaces	
• 2x PCI free	A
• 1x PCI, 1x PCIe (x16) free	B
Operating system (preinstalled and activated)	
• Without operating system	A
• Windows XP Professional Multi-Language [1]	B
• Windows 7 Ultimate 32 Bit Multi-Language [1]	C
• Windows Embedded Standard on 8 GB CF card [2]	D
• Windows 7 Ultimate 64 Bit Multi-Language [1]	E
Software expansion	
• Without	0
• SIMATIC IPC DiagMonitor V4.3 enclosed	1
• SIMATIC IPC Image & Partition Creator V3.2 enclosed	2
• SIMATIC IPC DiagMonitor V4.3, Image & Partition Creator V3.2 enclosed	3

[1] Multi-Language means: D/E/F/I/SP/CHIN

[2] Only without RAID 1 option

Note:

Software Packages with SIMATIC WinCC flexible, SIMATIC WinCC and SIMATIC WinAC RTX (F) can be ordered together with the SIMATIC IPC with a price advantage.

More information under "Embedded Bundles / Packages for industrial PCs".

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PC-based Automation
SIMATIC Panel PC

SIMATIC HMI IPC677C

Ordering data	Order No.		Order No.
Preferred versions		**Accessories**	
12" TFT Touch with Windows XP Prof. MUI, 110/230 V AC power supply, Core i3 2.13 GHz, 2 x PCI, 1 GB RAM, 250 GB HDD DVD±R/RW burner, PROFIBUS/MPI, NVRAM	**6AV7890-0BE00-1AB0**	**Protective film for** **Panel PCs 477/577/677/Flat Panel** Set of 10, for protecting the touch screen against dirt/scratches • for 12" Touch • for 15" Touch • for 19" Touch	 **6AV7671-2BA00-0AA0** **6AV7671-4BA00-0AA0** **6AV7672-1CE00-0AA0**
12" TFT Key with Windows XP Prof. MUI, 110/230 V AC power supply, Core i3 2.13 GHz, 2 x PCI, 1 GB RAM, 250 GB HDD DVD±R/RW burner, PROFIBUS/MPI, NVRAM	**6AV7891-0BE00-1AB0**	**Labeling strips for** **Panel PC 477/577/677 key devices** For labeling soft keys and function keys, blank, supplied in sets of 10	**6AV7672-0DA00-0AA0**

15" TFT Touch
with Windows XP Prof. MUI,
110/230 V AC power supply,
Core i3 2.13 GHz, 2 x PCI,
1 GB RAM, 250 GB HDD
DVD±R/RW burner, PROFIBUS/MPI,
NVRAM
	6AV7892-0BE00-1AB0	**Memory expansion**
		• 1 GB DDR3 1066 SDRAM, DIMM
		• 2 GB DDR3 1066 SDRAM, DIMM
		• 4 GB DDR3 1066 SDRAM, DIMM
		• 1 GB DDR3 1066 SDRAM, DIMM,
		  ECC
		• 2 GB DDR3 1066 SDRAM, DIMM,
		  ECC
		• 4 GB DDR3 1066 SDRAM, DIMM,
		  ECC
			
			6ES7648-2AJ40-0KA0
			6ES7648-2AJ50-0KA0
			6ES7648-2AJ60-0KA0
			6ES7648-2AJ40-1KA0
			
			6ES7648-2AJ50-1KA0
			
			6ES7648-2AJ60-1KA0

15" TFT Key with Windows XP Prof. MUI, 110/230 V AC power supply, Core i3 2.13 GHz, 2 x PCI, 1 GB RAM, 250 GB HDD DVD±R/RW burner, PROFIBUS/MPI, NVRAM	**6AV7893-0BE00-1AB0**	**Non-heating apparatus cable for** **SIMATIC Box and Panel PC** SIMATIC PC power cable, 230 V AC, angled, 3 m, for: • Germany • United Kingdom • Switzerland • USA • Italy • China	 **6ES7900-1AA00-0XA0** **6ES7900-1BA00-0XA0** **6ES7900-1CA00-0XA0** **6ES7900-1DA00-0XA0** **6ES7900-1EA00-0XA0** **6ES7900-1FA00-0XA0**
19" TFT Touch with Windows XP Prof. MUI, 110/230 V AC power supply, Core i3 2.13 GHz, 2 x PCI, 1 GB RAM, 250 GB HDD DVD±R/RW burner, PROFIBUS/MPI, NVRAM	**6AV7894-0BE00-1AB0**	**Touch pen** Captive pen for operation of the touch devices, mounting of the support on the control cabinet	**6AV7672-1JB00-0AA0**
		Expansion components	From page 5/153
		Communication components	From page 5/186

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Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.

Operating units IPC 677	G	H	J	K	L	M	N
Touch devices							
• 12"	289	271	141	11	53	369	71
• 15"	289	271	138	11	24	367	42
• 19"	378	271	147	11	18	376	36
Key devices							
• 12"	289	271	122	11	42	351	59
• 15"	324	271	141	11	31	370	48

Note:

All dimensions without screw clearances.
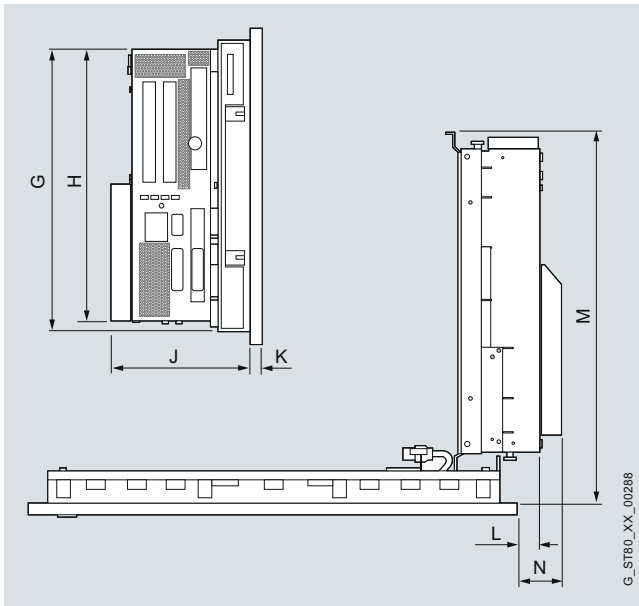
Operator control unit and overall device

	Front dimensions		Installation cutout		
	W	H	W+1	H+1	D
Touch devices					
• 12"	400	310	368	290	51
• 15"	483	310	450	290	55
• 19"	483	400	450	380	57
Key devices					
• 12"	483	310	450	290	
• 15"	483	355	450	321[1]	

[1] In addition: Two cutouts 25 x 5 mm on the top for keyboard slide-in label channels.

Installation cutout

More information

Additional information is available in the Internet under:
http://www.siemens.com/simatic-panel-pc

Note

Do you need a specific modification or option for the products described here? Under "Customized products", you will find information about additional sector-specific products that can be ordered as well as about options for customer-specific modification and adaptation.

PC-based Automation
SIMATIC PC-based controllers

SIMATIC PC-based controllers
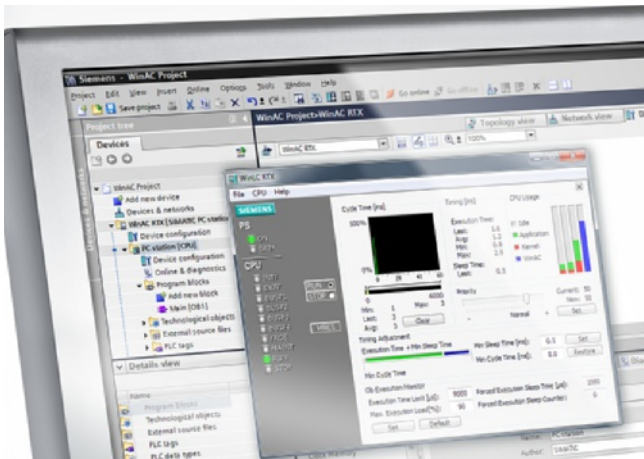
■ Overview

Siemens has developed a wide range of coordinated hardware and software components for PC-based Automation.

Focal point: **SIMATIC PC-based Control** with SIMATIC WinAC, the open, flexible and reliable controller for your PC-based automation solution.

All automation tasks can be implemented on one platform on the PC, such as open-loop control, closed-loop control, HMI and motion control. PC-based Automation is your first choice wherever PC applications have to be handled in addition to classic PLC tasks.

SIMATIC PC-based Control

- Adds PC-based controllers to the SIMATIC S7 controller family
- Especially suitable where a variety of tasks such as data processing, communication, visualization, technology and control have to be integrated in one PC.

Versions

- **SIMATIC WinAC Software PLC**
  for tasks requiring a high level of flexibility and integration capability.
- **SIMATIC WinAC ODK**
  allows PC solutions for technological tasks to be integrated flexibly and powerfully into the controller.

Properties:

- Runs on standard PCs under Windows XP Professional SP2.
- Code-compatible with SIMATIC S7:
  Programmed with SIMATIC industrial software, created programs can also be used for SIMATIC S7.
- Uses standard interfaces for integration into the office environment.
- Open interfaces for the integration of solution-specific techno-logical hardware and software.

■ More information

Brochures

Information material for downloading can be found in the Internet:

http://www.siemens.com/simatic/printmaterial

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PC-based Automation
SIMATIC PC-based controllers

■ Overview
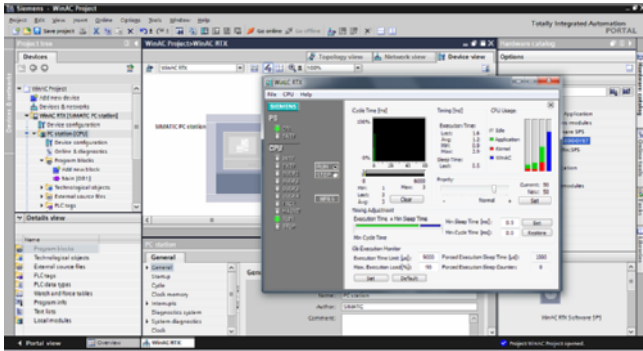
- SIMATIC WinAC RTX:
  Optimized for applications that require a high degree of flexibility and integration capability.
- The software solution for tasks that require hard deterministic behavior and high performance.
- With real-time expansion for assuring deterministic behavior for the control section.

New with WinAC RTX 2010:
- Operation under Windows 7
- Web server
- New PROFINET functions:
  - Isochronous mode
  - Shared Device
  - Media redundancy
  - IP configuration

■ Technical specifications

	6ES7671-0RC08-0YA0
	SIMATIC WinAC RTX 2010
General information	
Hardware product version	-
Firmware version	V4.6
Engineering with	
• Programming package	STEP7 as of V5.5 + HW update / iMap V3.0 SP1
Memory	
Work memory	
• integrated (for program)	4 Mbyte; Adjustable; depends on Non Paged Memory Pool
• integrated (for data)	4 Mbyte; Adjustable; depends on Non Paged Memory Pool
Load memory	
• integrated RAM, max.	8 Mbyte; Adjustable; depends on Non Paged Memory Pool
CPU processing times	
for bit operations, typ.	0.004 µs; typ.
for fixed point arithmetic, typ.	0.003 µs; typ.
for floating point arithmetic, typ.	0.004 µs; typ.
Reference platform	Pentium IV, 2.4 GHz
CPU-blocks	
DB	
• Number, max.	65 535; Limited only by RAM set for data
• Size, max.	64 kbyte
FB	
• Number, max.	65 536; Limited only by RAM set for code
• Size, max.	64 kbyte
FC	
• Number, max.	65 536; Limited only by RAM set for code
• Size, max.	64 kbyte
OB	
• Size, max.	64 kbyte
Nesting depth	
• per priority class	24
• additional within an error OB	24

	6ES7671-0RC08-0YA0
	SIMATIC WinAC RTX 2010
Counters, timers and their retentivity	
S7 counter	
• Number	2 048
• Retentivity	
- adjustable	Yes
- lower limit	0
- upper limit	2 047
- preset	8
• Counting range	
- adjustable	Yes
- lower limit	0
- upper limit	999
IEC counter	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	
• Number	2 048
• Retentivity	
- adjustable	Yes
- lower limit	0
- upper limit	2 047
- preset	0
• Time range	
- lower limit	10 ms
- upper limit	9 990 s
IEC timer	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentivity without UPS and PS Extension Board	128 kbyte with SIMATIC IPC427C and HMI IPC477C; further SIMATIC PCs on request
Retentivity with UPS	all data
Flag	
• Number, max.	16 kbyte
• Retentivity preset	MB 0 to MB 15
• Number of clock memories	8
Data blocks	
• Retentivity adjustable	Yes; via non-retain property on DB
• Retentivity preset	Yes

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PC-based Automation
SIMATIC PC-based controllers

SIMATIC WinAC RTX

■ **Technical specifications** (continued)

	6ES7671-0RC08-0YA0 SIMATIC WinAC RTX 2010		6ES7671-0RC08-0YA0 SIMATIC WinAC RTX 2010
Local data		Functionality	
• adjustable, max.	64 kbyte	• MPI	No
• preset	32 kbyte	• DP master	Yes
• per priority class, max.	61 440 byte	• DP slave	No
Address area		DP master	
I/O address area		• Number of connections, max.	8
• Inputs	16 kbyte	• Transmission rate, max.	12 Mbit/s
• Outputs	16 kbyte	• Number of DP slaves, max.	64
• of which, distributed		• Services	
- DP interface, inputs	16 kbyte	- PG/OP communication	Yes
- DP interface, outputs	16 kbyte	- Global data communication	No
- PN interface, inputs	16 kbyte	- S7 basic communication	No
- PN interface, outputs	16 kbyte	- S7 communication	Yes
Process image		- S7 communication, as client	Yes
• Inputs, adjustable	8 kbyte	- S7 communication, as server	Yes
• Outputs, adjustable	8 kbyte	- Equidistance mode support	Yes; Only in conjunction with isochronous mode
• Inputs, default	512 byte		
• Outputs, default	512 byte	- Isochronous mode	Yes
Subprocess images		- SYNC/FREEZE	Yes
• Number of subprocess images, max.	15	- Activation/deactivation of DP slaves	Yes
Digital channels		- Direct data exchange (slave-to-slave communication)	Yes
• Inputs	128 000	- DPV1	Yes
• Outputs	128 000	• Address area	
Analog channels		- Inputs, max.	16 kbyte
• Inputs	8 000	- Outputs, max.	16 kbyte
• Outputs	8 000	• User data per DP slave	
Hardware configuration		- Inputs, max.	244 byte
Submodules		- Outputs, max.	244 byte
• Number of submodules, max	4	**2nd interface**	
• of which PROFIBUS, max.	4; Supported interfaces: see 1st and 2nd interface	Type of interface	CP 5613, CP 5613-A2, CP 5603
• of which Industrial Ethernet, max.	1; Supported interfaces: see 3rd and 4th interface	Max. no. of simultaneously operable CPs	4
Number of operable FMs and CPs (recommended)		Physics	RS 485 / PROFIBUS
		Isolated	Yes
• FM	FM distributed: FM 350-1 / 350-2, FM 351, FM 352, FM 353, FM 355 / 355-2	Functionality	
		• MPI	No
		• DP master	Yes
• CP, point-to-point	2; CP 340, CP 341 distributed	• DP slave	No
• CP, LAN	Over PC CP	DP master	
Time of day		• Number of connections, max.	50
Clock		• Transmission rate, max.	12 Mbit/s
• Hardware clock (real-time clock)	Yes	• Number of DP slaves, max.	125
• battery-backed and synchronizable	Yes	• Services	
Operating hours counter		- PG/OP communication	Yes
• Number	8	- Global data communication	No
Clock synchronization		- S7 basic communication	No
• supported	Yes	- S7 communication	Yes
• to PC-CP, slave	Yes	- S7 communication, as client	Yes
• on Ethernet via NTP	Yes	- S7 communication, as server	Yes
Interfaces		- Equidistance mode support	Yes; Only in conjunction with isochronous mode
Number of USB interfaces	0		
1st interface		- Isochronous mode	Yes
Type of interface	CP 5611-A2, CP 5621, integrated PB interface of the SIMATIC PC	- SYNC/FREEZE	Yes
		- Activation/deactivation of DP slaves	Yes
Max. no. of simultaneously operable CPs	1	- Direct data exchange (slave-to-slave communication)	Yes
Physics	RS 485 / PROFIBUS	- DPV1	Yes
Isolated	Yes	• Address area	
Power supply to interface (15 to 30 V DC), max.	does not exist	- Inputs, max.	16 kbyte
		- Outputs, max.	16 kbyte
Number of connection resources	8	• User data per DP slave	
		- Inputs, max.	244 byte
		- Outputs, max.	244 byte

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Technical specifications (continued)

	6ES7671-0RC08-0YA0
	SIMATIC WinAC RTX 2010
3rd interface	
Type of interface	PROFINET
Max. no. of simultaneously operable CPs	1; Intel Pro/1000 (Intel 82571EB, 82573L, 82574L, 82541PI; non-shared IRQ required); integrated IE interface SIMATIC PC 4x7B, 6x7B, 8x7B, IPC4x7C, IPC6x7C, IPC8x7C
Physics	Ethernet
Isolated	Yes
Integrated switch	No
Number of ports	1
Automatic detection of transmission speed	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes
Media redundancy	
• supported	No
Functionality	
• PROFINET IO Controller	Yes
• PROFINET IO Device	No
• PROFINET CBA	Yes
PROFINET IO Controller	
• Transmission rate, min.	100 Mbit/s
• Transmission rate, max.	100 Mbit/s
• Max. number of connectable IO devices for RT	128
- of which in line, max.	128
• IRT, supported	No
• Prioritized startup supported	Yes
- Number of IO Devices, max.	32
• Activation/deactivation of IO Devices	Yes
- Maximum number of IO devices that can be activated/deactivated at the same time.	8
• IO Devices changing during operation (partner ports), supported	Yes
• Device replacement without swap medium	Yes
• Send cycles	1 ms
• Updating time	1 - 512 ms (minimum value depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the volume of configured user data)
• Services	
- PG/OP communication	Yes
- S7 communication	Yes
- Isochronous mode	No
- Open IE communication	Yes
• Address area	
- Inputs, max.	16 kbyte
- Outputs, max.	16 kbyte
- User data per address area, max.	2 kbyte
- User data consistency, max.	256 byte
Open IE communication	
• Open IE communication, supported	Yes
• Number of connections, max.	32
• Local port numbers used at the system end	0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535
• Keep-alive function, supported	Yes

	6ES7671-0RC08-0YA0
	SIMATIC WinAC RTX 2010
4th interface	
Type of interface	PROFINET
Max. no. of simultaneously operable CPs	1; CP 1616 (HW release 8 or above), CP 1604 (HW release 7 or higher), integrated PN interface of SIMATIC PC and S7-mEC
Physics	Ethernet
Isolated	Yes
Integrated switch	Yes
Number of ports	3
Automatic detection of transmission speed	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Number of connection resources	32
Media redundancy	
• supported	Yes
• Switchover time on line break, typically	200 ms
• Number of stations in the ring, max.	50
Functionality	
• PROFINET IO Controller	Yes
• PROFINET IO Device	No
• PROFINET CBA	Yes
PROFINET IO Controller	
• Transmission rate, max.	100 Mbit/s
• Max. number of connectable IO Devices for RT	256
- of which in line, max.	256
• Number of IO devices with IRT and the option "high flexibility"	64
- of which in line, max.	32
• Number of IO Devices with IRT and the option "high performance", max.	64
- of which in line, max.	32
• IRT, supported	Yes
• Prioritized startup supported	Yes
- Number of IO Devices, max.	32
• Activation/deactivation of IO Devices	Yes
- Maximum number of IO devices that can be activated/deactivated at the same time.	8
• IO Devices changing during operation (partner ports), supported	Yes
• Device replacement without swap medium	Yes
• Send cycles	250 µs, 500 µs, 1 ms
• Updating time	0.25...512 depending on the send cycle
• Services	
- PG/OP communication	Yes
- S7 communication	Yes
- Isochronous mode	Yes
- Open IE communication	Yes
• Address area	
- Inputs, max.	16 kbyte
- Outputs, max.	16 kbyte
- User data per address area, max.	2 kbyte
- User data consistency, max.	256 byte

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PC-based Automation
SIMATIC PC-based controllers

SIMATIC WinAC RTX

■ **Technical specifications** (continued)

	6ES7671-0RC08-0YA0 SIMATIC WinAC RTX 2010
Open IE communication	
• Open IE communication, supported	Yes
• Number of connections, max.	32
• Local port numbers used at the system end	0, 20, 21, 25, 80, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes
Number of DP masters with isochronous mode	2
User data per isochronous slave, max.	128 byte
equidistance	Yes
shortest clock pulse	2.2 ms; 2.2 ms without partial process image; 2.2 ms with partial process image
Communication functions	
PG/OP communication	Yes
Data record routing	Yes; Only with CP 5611 or integrated PROFIBUS interface of the SIMATIC PC
Global data communication	
• supported	No
S7 basic communication	
• supported	No
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	64 kbyte; When using BSEND/USEND
Open IE communication	
• TCP/IP	Yes
- Number of connections, max.	32
- Data length for connection type 01H, max.	Not supported
- Data length for connection type 11H, max.	65 534 byte
- Data length, max.	65 534 byte
• ISO-on-TCP (RFC1006)	Yes
- Number of connections, max.	32
- Data length, max.	65 534 byte
• UDP	Yes
- Number of connections, max.	32
- Data length, max.	1 472 byte
Web server	
• supported	Yes
• Number of HTTP clients	2
• User-defined websites	No

	6ES7671-0RC08-0YA0 SIMATIC WinAC RTX 2010
PROFINET CBA (at set setpoint communication load)	
• Setpoint for the CPU communication load	20 %
• Number of remote interconnection partners	64
• Number of functions, master/slave	30
• Total of all Master/Slave connections	1 000
• Data length of all incoming connections master/slave, max.	6 800 byte
• Data length of all outgoing connections master/slave, max.	6 800 byte
• Number of device-internal and PROFIBUS interconnections	500
• Data length of device-internal und PROFIBUS interconnections, max.	4 000 byte
• Data length per connection, max.	1 400 byte
• Remote interconnections with acyclic transmission	
- Sampling frequency: Sampling time, min.	500 ms
- Number of incoming interconnections	100
- Number of outgoing interconnections	100
- Data length of all incoming interconnections, max.	2 000 byte
- Data length of all outgoing interconnections, max.	2 000 byte
- Data length per connection, max.	1 400 byte
• Remote interconnections with cyclic transmission	
- Transmission frequency: Transmission interval, min.	10 ms
- Number of incoming interconnections	200
- Number of outgoing interconnections	200
- Data length of all incoming interconnections, max.	4 800 byte
- Data length of all outgoing interconnections, max.	4 800 byte
- Data length per connection, max.	250 byte
• HMI variables via PROFINET (acyclic)	
- Number of stations that can log on for HMI variables (PN OPC/iMap)	3
- HMI variable updating	500 ms
- Number of HMI variables	200
- Data length of all HMI variables, max.	2 000 byte
• PROFIBUS proxy functionality	
- supported	Yes
- Number of linked PROFIBUS devices	16
- Data length per connection, max.	240 byte; Slave-dependent
Number of connections	
• overall	96

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Technical specifications (continued)

	6ES7671-0RC08-0YA0
	SIMATIC WinAC RTX 2010
S7 message functions	
Number of login stations for message functions, max.	62
SCAN procedure	No
Process diagnostic messages	Yes; ALARM_S, ALARM_SQ, ALARM_D, ALARM_DQ
simultaneously active Alarm-S blocks, max.	20; of a total of 20 for all SFCs
Alarm 8-blocks	Yes
• Number of instances for alarm 8 and S7 communication blocks, max.	4 000
Process control messages	No
Test commissioning functions	
Status block	Yes
Single step	Yes
Number of breakpoints	20
Status/control	
• Status/control variable	Yes
Forcing	
• Forcing	No
Diagnostic buffer	
• present	Yes
• Number of entries, max.	3 200
- adjustable	Yes
- preset	120
Hardware requirements	
Hardware required	PC with color monitor, keyboard, mouse or pointing device for Windows
Required memory on hard disk, min.	100 Mbyte
Main memory, min.	1 Gbyte; WES7: 2 GB
Processor	Intel Celeron M, 900 MHz or compatible
• Multi-processor system	Yes; Dual Pentium, CoreDuo, Core2Duo or compatible
• Hyper-threading	Yes

	6ES7671-0RC08-0YA0
	SIMATIC WinAC RTX 2010
Operating systems	
Windows NT 4.0	No
Windows 2000	No
Windows XP	Yes; Professional, SP2 and SP3
Windows XP embedded	Yes; With the delivery image of the SIMATIC PC
• Supported HAL types under Windows XP	ACPI uniprocessor PC, ACPI multiprocessor PC, MPS multiprocessor PC
Windows Vista	No
Windows 7	Yes; Professional, Enterprise, Ultimate (only 32 bits)
Windows embedded Standard 7	Yes
Configuration	
programming	
• Nesting levels	8
• Programming language	
- LAD	Yes
- FBD	Yes
- STL	Yes
- SCL	Yes
- CFC	Yes
- GRAPH	Yes
- HiGraph®	Yes
• Software libraries	
- Easy Motion Control	Yes
Know-how protection	
• User program protection/password protection	Yes
Open Development interfaces	
• CCX (Custom Code Extension)	Yes; WinAC ODK V4.2 or higher
• CMI (Controller Management Interface)	Yes; WinAC ODK V4.2 or higher
• SMX (Shared Memory Extension)	Yes; WinAC ODK V4.2 or higher
- Inputs	4 kbyte
- Outputs	4 kbyte
Weight	
Weight, approx.	100 g; With packaging

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PC-based Automation
SIMATIC PC-based controllers

SIMATIC WinAC RTX

Ordering data

	Order No.		Order No.
SIMATIC WinAC RTX 2010 Software PLC for PC-based automation tasks with stringent deterministic requirements; PROFIBUS and PROFINET; CD-ROM with electronic documentation d, e, f; single license, executable under Windows XP SP2 and SP3 as well as Windows 7 (32 bit)	**6ES7671-0RC08-0YA0**	**CP 5623** **communications processor** PCI Express x1 card (32 bit) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master or DP slave, incl. PG and FDL protocols; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English	**6GK1562-3AA00**
SIMATIC WinAC RTX 2010 Upgrade For upgrading from basic/RTX V3.x, V4.0, V4.1 2005, 2008 and 2009; single license, executable under Windows XP SP2 and SP3 and Windows 7 (32 bit)	**6ES7671-0RC08-0YE0**	**CP 1616** **communications processor** PCI Card (32 bit; 3.3/5 V universal key) with ASIC ERTEC 400 for connecting PCs to PROFINET IO with 4-port real-time switch (RJ45); incl. IO-Base software for PROFINET IO controller (RT operation) and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows XP Professional; German/English	**6GK1161-6AA02**
CP 5611 A2 **communications processor** PCI card (32 bit) for connection of a programming device or PC to PROFIBUS	**6GK1561-1AA01**		
CP 5621 **communications processor** • PCI Express x1 card (32 bit) for connection of a programming device or PC to PROFIBUS • PCI Express x1 card (32 bit) CP 5621 and MPI cable, 5 m	**6GK1562-1AA00** **6GK1562-1AM00**	**CP 1604 Microbox Package** Package for implementing the CP 1604 in the SIMATIC Microbox PC; comprising the CP 1604, connection board, power supply and expansion rack for Microbox PC; for use with Development Kit DK-16xx PN IO; NCM PC	**6GK1160-4AU00**
CP 5603 Microbox Package Comprising CP 5603 module and Microbox expansion rack	**6GK1560-3AU00**		
CP 5613 A2 **communications processor** PCI card (32 bit; 3.3 V/5 V) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocol; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows 2000 Professional/Server, Windows XP Professional, German/English	**6GK1561-3AA01**		

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■ **More information**

Add-ons for SIMATIC WinAC

PC-based Competence Center Cologne

Our add-ons supplement the WinAC RTX soft PLC by useful functions which have arisen in the context of projects. You can thus fully utilize the advantages of PC-based automation.

The applications are available in the form of function blocks and are easy to use without special programming knowledge.

Detailed information and prices can be obtained from your Siemens contact or from:

Contact:

Siemens AG
Competence Center Cologne
E-mail: CCCologne@siemens.com

Application	Function
WinAC serial driver	Communication over serial interfaces
WinAC PC IO driver	Access to central I/O expansion PC IO including interrupt handling
WinAC SQL	Access to SQL databases
WinAC TCP/IP driver	Data exchange between WinAC and other communication partners over Windows interface using TCP/IP, UDP, or ISO-on-TCP
WinAC OPC Client	Access to various OPC servers
WinAC Shutdown	Controlled shutdown of WinAC and PC system
WinAC File-I/O	Reading and writing of DBs as file on the PC system
WinAC Command	Calling of batch commands from WinAC
WinAC Access-DB	High-performance access to DBs, bit memories or I/O image
WinAC SMX Cover	Provision of SMX functions, e.g. for Delphi or VB
WinAC CMI Wrapper	Simple program-based operation of WinAC

Brochures

Information material for downloading can be found in the Internet:

http://www.siemens.com/simatic/printmaterial

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PC-based Automation
SIMATIC PC-based controllers

SIMATIC WinAC RTX F

■ Overview

- SIMATIC WinAC RTX F:
  Optimized for applications that demand a high degree of flexibility and integration capability and that must also satisfy safety requirements up to SIL 3 (IEC 61508).
- The software solution for tasks that require hard deterministic behavior and high performance.
- With real-time expansion for assuring deterministic behavior for the control section.
- Distributed I/O can be connected over PROFIBUS and/or PROFINET, also safety-related over PROFIsafe.

■ Technical specifications

	6ES7671-1RC08-0YA0
	SIMATIC WinAC RTX F 2010
General information	
Hardware product version	-
Firmware version	V4.6
Engineering with	
• Programming package	STEP 7 V5.5 or higher + hardware update / iMap V3.0 SP1 / option package S7 Distributed Safety V5.4 + SP5 / S7 F Configuration Pack V5.5 + SP6 + HF1
Memory	
Work memory	
• integrated (for program)	4 Mbyte; Adjustable; depends on Non Paged Memory Pool
• integrated (for data)	4 Mbyte; Adjustable; depends on Non Paged Memory Pool
Load memory	
• integrated RAM, max.	Adjustable; depends on Non Paged Memory Pool
CPU processing times	
for bit operations, typ.	0.004 µs; typ.
for fixed point arithmetic, typ.	0.003 µs; typ.
for floating point arithmetic, typ.	0.004 µs; typ.
Reference platform	Pentium IV, 2.4 GHz
CPU-blocks	
DB	
• Number, max.	65 535; Limited only by RAM set for data
• Size, max.	64 kbyte
FB	
• Number, max.	65 536; Limited only by RAM set for code
• Size, max.	64 kbyte
FC	
• Number, max.	65 536; Limited only by RAM set for code
• Size, max.	64 kbyte
OB	
• Size, max.	64 kbyte
Nesting depth	
• per priority class	24
• additional within an error OB	24
Counters, timers and their retentivity	
S7 counter	
• Number	2 048
• Retentivity	
- adjustable	Yes
- lower limit	0
- upper limit	2 047
- preset	8
• Counting range	
- adjustable	Yes
- lower limit	0
- upper limit	999
IEC counter	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)

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Technical specifications (continued)

	6ES7671-1RC08-0YA0
	SIMATIC WinAC RTX F 2010
S7 times	
• Number	2 048
• Retentivity	
- adjustable	Yes
- lower limit	0
- upper limit	2 047
- preset	0
• Time range	
- lower limit	10 ms
- upper limit	9 990 s
IEC timer	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentivity without UPS and PS Extension Board	128 kbyte with SIMATIC IPC427C and HMI IPC477C; further SIMATIC PCs on request
Retentivity with UPS	all data
Flag	
• Number, max.	16 kbyte
• Retentivity preset	MB 0 to MB 15
• Number of clock memories	8
Data blocks	
• Retentivity adjustable	Yes; via non-retain property on DB
• Retentivity preset	Yes
Local data	
• adjustable, max.	64 kbyte
• preset	32 kbyte
• per priority class, max.	61 440 byte
Address area	
I/O address area	
• Inputs	16 kbyte
• Outputs	16 kbyte
• of which, distributed	
- DP interface, inputs	16 kbyte
- DP interface, outputs	16 kbyte
- PN interface, inputs	16 kbyte
- PN interface, outputs	16 kbyte
Process image	
• Inputs, adjustable	8 kbyte
• Outputs, adjustable	8 kbyte
• Inputs, default	512 byte
• Outputs, default	512 byte
Subprocess images	
• Number of subprocess images, max.	15
Digital channels	
• Inputs	128 000
• Outputs	128 000
Analog channels	
• Inputs	8 000
• Outputs	8 000

	6ES7671-1RC08-0YA0
	SIMATIC WinAC RTX F 2010
Hardware configuration	
Submodules	
• Number of submodules, max	4
• of which PROFIBUS, max.	4; Supported interfaces: see 1st and 2nd interface
• of which Industrial Ethernet, max.	1; Supported interfaces: see 3rd and 4th interface
Number of operable FMs and CPs (recommended)	
• FM	4; FM distributed: FM 350-1, FM 350-2, FM 351, FM 352 / FM 352-5, FM 353, FM 354, FM 355, FM 355-2
• CP, point-to-point	2; CP 340, CP 341 distributed
• CP, LAN	Over PC CP
Time of day	
Clock	
• Hardware clock (real-time clock)	Yes
• battery-backed and synchronizable	Yes
Operating hours counter	
• Number	8
Clock synchronization	
• supported	Yes
• to PC-CP, slave	Yes
• on Ethernet via NTP	Yes
1st interface	
Type of interface	CP 5611-A2, CP 5621, integrated PB interface of the SIMATIC PC
Max. no. of simultaneously operable CPs	1
Physics	RS 485 / PROFIBUS
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	does not exist
Number of connection resources	8
Functionality	
• MPI	No
• DP master	Yes
• DP slave	No
DP master	
• Number of connections, max.	8
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	64
• Services	
- PG/OP communication	Yes
- Global data communication	No
- S7 basic communication	No
- S7 communication	Yes
- S7 communication, as client	Yes
- S7 communication, as server	Yes
- Equidistance mode support	Yes; Only in conjunction with isochronous mode
- Isochronous mode	Yes
- SYNC/FREEZE	Yes
- Activation/deactivation of DP slaves	Yes
- Direct data exchange (slave-to-slave communication)	Yes
- DPV1	Yes
• Address area	
- Inputs, max.	16 kbyte
- Outputs, max.	16 kbyte
• User data per DP slave	
- Inputs, max.	244 byte
- Outputs, max.	244 byte

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PC-based Automation
SIMATIC PC-based controllers

SIMATIC WinAC RTX F

■ **Technical specifications** (continued)

	6ES7671-1RC08-0YA0 SIMATIC WinAC RTX F 2010
2nd interface	
Type of interface	CP 5613, CP 5613-A2, CP 5603, CP 5623
Max. no. of simultaneously operable CPs	4
Physics	RS 485 / PROFIBUS
Isolated	Yes
Functionality	
• MPI	No
• DP master	Yes
• DP slave	No
DP master	
• Number of connections, max.	50
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	125
• Services	
- PG/OP communication	Yes
- Global data communication	No
- S7 basic communication	No
- S7 communication	Yes
- S7 communication, as client	Yes
- S7 communication, as server	Yes
- Equidistance mode support	Yes; Only in conjunction with isochronous mode
- Isochronous mode	Yes
- SYNC/FREEZE	Yes
- Activation/deactivation of DP slaves	Yes
- Direct data exchange (slave-to-slave communication)	Yes
- DPV1	Yes
• Address area	
- Inputs, max.	16 kbyte
- Outputs, max.	16 kbyte
• User data per DP slave	
- Inputs, max.	244 byte
- Outputs, max.	244 byte
3rd interface	
Type of interface	PROFINET
Max. no. of simultaneously operable CPs	1; Intel Pro/1000 (Intel 82571EB, 82573L, 82574L, 82541PI; non-shared IRQ required); integrated IE interface SIMATIC PC 4x7B, 6x7B, 8x7B, IPC4x7C, IPC6x7C, IPC8x7C
Physics	Ethernet
Isolated	Yes
Integrated switch	No
Number of ports	1
Automatic detection of transmission speed	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes
Media redundancy	
• supported	No
Functionality	
• PROFINET IO Controller	Yes
• PROFINET IO Device	No
• PROFINET CBA	Yes

	6ES7671-1RC08-0YA0 SIMATIC WinAC RTX F 2010
PROFINET IO Controller	
• Transmission rate, min.	100 Mbit/s
• Transmission rate, max.	100 Mbit/s
• Number of connectable IO devices, max.	128
• Max. number of connectable IO devices for RT	128
- of which in line, max.	128
• IRT, supported	No
• Prioritized startup supported	Yes
- Number of IO Devices, max.	32
• Activation/deactivation of IO Devices	Yes
- Maximum number of IO devices that can be activated/deactivated at the same time.	8
• IO Devices changing during operation (partner ports), supported	Yes
• Device replacement without swap medium	Yes
• Send cycles	1 ms
• Updating time	1 - 512 ms (minimum value depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the volume of configured user data)
• Services	
- PG/OP communication	Yes
- S7 communication	Yes
- Isochronous mode	No
- Open IE communication	Yes
• Address area	
- Inputs, max.	16 kbyte
- Outputs, max.	16 kbyte
- User data per address area, max.	2 kbyte
- User data consistency, max.	256 byte
Open IE communication	
• Open IE communication, supported	Yes
• Number of connections, max.	32
• Local port numbers used at the system end	0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535
• Keep-alive function, supported	Yes
4th interface	
Type of interface	PROFINET
Max. no. of simultaneously operable CPs	1; CP 1616 (HW release 8 or above), CP 1604 (HW release 7 or higher), integrated PN interface of SIMATIC PC and S7-mEC
Physics	Ethernet
Isolated	Yes
Integrated switch	Yes
Number of ports	3
Automatic detection of transmission speed	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Number of connection resources	32

Technical specifications (continued)

	6ES7671-1RC08-0YA0
	SIMATIC WinAC RTX F 2010
Media redundancy	
• supported	Yes
• Switchover time on line break, typically	200 ms
• Number of stations in the ring, max.	50
Functionality	
• PROFINET IO Controller	Yes
• PROFINET IO Device	No
• PROFINET CBA	Yes
PROFINET IO Controller	
• Transmission rate, max.	100 Mbit/s
• Max. number of connectable IO Devices for RT	256
- of which in line, max.	256
• Number of IO devices with IRT and the option "high flexibility"	64
- of which in line, max.	32
• Number of IO Devices with IRT and the option "high performance", max.	64
- of which in line, max.	64
• IRT, supported	Yes
• Prioritized startup supported	Yes
- Number of IO Devices, max.	32
• Activation/deactivation of IO Devices	Yes
- Maximum number of IO devices that can be activated/deactivated at the same time.	8
• IO Devices changing during operation (partner ports), supported	Yes
• Device replacement without swap medium	Yes
• Send cycles	250 µs, 500 µs, 1 ms
• Updating time	0.25...512 depending on the send cycle
• Services	
- PG/OP communication	Yes
- S7 communication	Yes
- Isochronous mode	Yes
- Open IE communication	Yes
• Address area	
- Inputs, max.	16 kbyte
- Outputs, max.	16 kbyte
- User data per address area, max.	2 kbyte
- User data consistency, max.	256 byte
Open IE communication	
• Open IE communication, supported	Yes
• Number of connections, max.	32
• Local port numbers used at the system end	0, 20, 21, 25, 80, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes
Number of DP masters with isochronous mode	2
User data per isochronous slave, max.	128 byte
equidistance	Yes
shortest clock pulse	2.2 ms; 2.2 ms without partial process image; 2.2 ms with partial process image

	6ES7671-1RC08-0YA0
	SIMATIC WinAC RTX F 2010
Communication functions	
PG/OP communication	Yes
Data record routing	Yes; Only with CP 5611 or integrated PROFIBUS interface of the SIMATIC PC
Global data communication	
• supported	No
S7 basic communication	
• supported	No
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	64 kbyte; Depends on which block is used: BSEND/USEND or PUT/GET
Open IE communication	
• TCP/IP	Yes
- Number of connections, max.	32
- Data length for connection type 01H, max.	Not supported
- Data length for connection type 11H, max.	65 534 byte
- Data length, max.	65 534 byte
• ISO-on-TCP (RFC1006)	Yes
- Number of connections, max.	32
- Data length, max.	65 534 byte
• UDP	Yes
- Number of connections, max.	32
- Data length, max.	1 472 byte
Web server	
• supported	Yes
• Number of HTTP clients	2
• User-defined websites	No
PROFINET CBA (at set setpoint communication load)	
• Setpoint for the CPU communication load	20 %
• Number of remote interconnection partners	64
• Number of functions, master/slave	30
• Total of all Master/Slave connections	1 000
• Data length of all incoming connections master/slave, max.	6 800 byte
• Data length of all outgoing connections master/slave, max.	6 800 byte
• Number of device-internal and PROFIBUS interconnections	500
• Data length of device-internal und PROFIBUS interconnections, max.	4 000 byte
• Data length per connection, max.	1 400 byte
• Remote interconnections with acyclic transmission	
- Sampling frequency: Sampling time, min.	500 ms
- Number of incoming interconnections	100
- Number of outgoing interconnections	100
- Data length of all incoming interconnections, max.	2 000 byte
- Data length of all outgoing interconnections, max.	2 000 byte
- Data length per connection, max.	1 400 byte

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PC-based Automation
SIMATIC PC-based controllers

SIMATIC WinAC RTX F

■ **Technical specifications** (continued)

	6ES7671-1RC08-0YA0
	SIMATIC WinAC RTX F 2010
• Remote interconnections with cyclic transmission	
- Transmission frequency: Transmission interval, min.	10 ms
- Number of incoming interconnections	200
- Number of outgoing interconnections	200
- Data length of all incoming interconnections, max.	4 800 byte
- Data length of all outgoing interconnections, max.	4 800 byte
- Data length per connection, max.	250 byte
• HMI variables via PROFINET (acyclic)	
- Number of stations that can log on for HMI variables (PN OPC/iMap)	3
- HMI variable updating	500 ms
- Number of HMI variables	200
- Data length of all HMI variables, max.	2 000 byte
• PROFIBUS proxy functionality	
- supported	Yes
- Number of linked PROFIBUS devices	16
- Data length per connection, max.	240 byte; Slave-dependent
Number of connections	
• overall	96
S7 message functions	
Number of login stations for message functions, max.	62
SCAN procedure	No
Process diagnostic messages	Yes; ALARM_S, ALARM_SQ, ALARM_D, ALARM_DQ
simultaneously active Alarm-S blocks, max.	20; of a total of 20 for all SFCs
Alarm 8-blocks	Yes
• Number of instances for alarm 8 and S7 communication blocks, max.	4 000
Process control messages	No
Test commissioning functions	
Status block	Yes
Single step	Yes
Number of breakpoints	20
Status/control	
• Status/control variable	Yes
Forcing	
• Forcing	No
Diagnostic buffer	
• present	Yes
• Number of entries, max.	3 200
- adjustable	Yes
- preset	120

	6ES7671-1RC08-0YA0
	SIMATIC WinAC RTX F 2010
Hardware requirements	
Hardware required	PC with color monitor, keyboard, mouse or pointing device for Windows
Required memory on hard disk, min.	100 Mbyte
Main memory, min.	1 Gbyte
Processor	Intel Celeron M 900 MHz or compatible (older PC systems with Programmable Interrupt Controllers (PIC) are not suitable for WinAC RTX F 2010.)
• Multi-processor system	No
• Hyper-threading	Yes
Operating systems	
Windows NT 4.0	No
Windows 2000	No
Windows XP	Yes; Professional, SP2 and SP3
Windows XP embedded	Yes; With the delivery image of the SIMATIC PC
• Supported HAL types under Windows XP	ACPI uniprocessor PC, ACPI multiprocessor PC, MPS multiprocessor PC
Windows Vista	No
Windows 7	Yes; Professional, Enterprise, Ultimate (only 32 bits)
Windows embedded Standard 7	No
Configuration	
programming	
• Nesting levels	8
• Programming language	
- LAD	Yes
- FBD	Yes
- STL	Yes
- SCL	Yes
- CFC	Yes
- GRAPH	Yes
- HiGraph®	Yes
• Software libraries	
- Easy Motion Control	Yes
Know-how protection	
• User program protection/password protection	Yes
• Block encryption	No
Open Development interfaces	
• CCX (Custom Code Extension)	Yes; WinAC ODK V4.2 or higher
• CMI (Controller Management Interface)	Yes; WinAC ODK V4.2 or higher
• SMX (Shared Memory Extension)	Yes; WinAC ODK V4.2 or higher
- Inputs	4 kbyte
- Outputs	4 kbyte
Weight	
Weight, approx.	100 g; With packaging

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Ordering data	Order No.
SIMATIC WinAC RTX F 2010	**6ES7671-1RC08-0YA0**
SIMATIC WinAC RTX F 2010 upgrade	**6ES7671-1RC08-0YE0**
CP 5611 A2 communications processor	**6GK1561-1AA01**
PCI card (32 bit) for connection of a programming device or PC to PROFIBUS	
CP 5621 communications processor	
PCI Express x1 card (32 bit) for connection of a programming device or PC to PROFIBUS	**6GK1562-1AA00**
PCI Express x1 card (32 bit) CP 5621 and MPI cable, 5 m	**6GK1562-1AM00**
CP 5603 Microbox Package	**6GK1560-3AU00**
Comprising CP 5603 module and Microbox expansion rack	
CP 5613 A2 communications processor	**6GK1561-3AA01**
PCI card (32 bit; 3.3 V/5 V) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocol; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows 2000 Professional/ Server, Windows XP Professional, German/English	
CP 5623 communications processor	**6GK1562-3AA00**
PCI Express x1 card (32 bit) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master or DP slave, incl. PG and FDL protocols; single license for 1 installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English	
CP 1616 communications processor	**6GK1161-6AA02**
PCI Card (32 bit; 3.3/5 V universal key) with ASIC ERTEC 400 for connecting PCs to PROFINET IO with 4-port real-time switch (RJ45); incl. IO-Base software for PROFINET IO controller (RT operation) and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32 bit Windows XP Professional; German/English	
CP 1604 Microbox Package	**6GK1160-4AU00**
Package for implementing the CP 1604 in the SIMATIC Microbox PC; comprising the CP 1604, connection board, power supply and expansion rack for Microbox PC; for use with Development Kit DK-16xx PN IO; NCM PC	

More information

Add-ons for SIMATIC WinAC

PC-based Competence Center Cologne

Our add-ons supplement the WinAC RTX soft PLC by useful functions which have arisen in the context of projects. In this way, you can fully utilize the advantages of PC based Automation.

The applications are available in the form of function blocks and are easy to use without special programming knowledge.

Detailed information and prices can be obtained from your Siemens contact or from:

Contact:

Siemens AG
Competence Center Cologne
E-mail: CCCologne@siemens.com

Application	Function
WinAC serial driver	Communication over serial interfaces
WinAC PC IO driver	Access to central I/O expansion PC IO including interrupt handling
WinAC SQL	Access to SQL databases
WinAC TCP/IP driver	Data exchange between WinAC and other communication partners over Windows interface using TCP/IP, UDP, or ISO-on-TCP
WinAC OPC Client	Access to various OPC servers
WinAC Shutdown	Controlled shutdown of WinAC and the PC system
WinAC File I/O	Reading and writing of DBs as a file on the PC system
WinAC Command	Calling batch commands from WinAC
WinAC Access DB	High-performance accesses to DBs, bit memories or I/O image
WinAC SMX Cover	Provides SMX functions, e.g. for Delphi or VB
WinAC CMI Wrapper	Easy program-controlled operation of WinAC

Brochures

Information material is available for downloading in the Internet at:

http://www.siemens.com/simatic/printmaterial

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PC-based Automation
SIMATIC PC-based controllers

SIMATIC WinAC ODK

Overview

- SIMATIC WinAC software PLCs support powerful interfaces which permit close meshing of the control task with PC-based applications.
- WinAC ODK allows the user to develop applications or to integrate already existing applications into the control task.

New with WinAC ODK V4.2:

- CCX interface:
  - New SFB 65003 for asynchronous execution of ODK applications
  - Expansion of data access functions
  - Creation of Windows DLL with C# and VB
- SMX interface:
  - Access to the Shared Memory interface under IntervalZero RTX
  - Expansion of data access functions
  - Creation of Windows applications with C# and VB
- Supports MS Visual Studio 2005 and 2008 (under Windows)

Technical specifications

	6ES7806-1CC03-0BA0
	SIMATIC WinAC ODK V4.2
Hardware requirements	
Hardware required	PC with color monitor, keyboard, mouse or pointing device for Windows
Required memory on hard disk, min.	30 Mbyte
Main memory, min.	512 Mbyte
Processor	Intel Pentium 800 MHz
Operating systems	
Windows XP	Yes; Professional, SP2 and SP3
Configuration Open Development interfaces	
• CCX (Custom Code Extension)	Yes; WinAC RTX 2008 (V4.4) or higher; programming languages: Microsoft Visual C++ V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual Basic 2005, 2008; Microsoft Visual C# 2005, 2008
• CMI (Controller Management Interface)	Yes; WinAC RTX 2005 SP2 (V4.3) or higher; programming languages: Microsoft Visual C++ V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual Basic V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual C# .net 2003, 2005, 2008
• SMX (Shared Memory Extension)	Yes; WinAC RTX 2008 (V4.4) or higher; programming languages: Microsoft Visual C++ V6.0 SP5 or higher, .net 2003, 2005, 2008; Microsoft Visual Basic 2005, 2008; Microsoft Visual C# 2005, 2008
Weight Weight, approx.	200 g

Ordering data

	Order No.
SIMATIC WinAC ODK V4.2 for integration of C/C++ code in WinAC PLCs, executable under Windows XP SP2 or SP3; CD-ROM with electronic documentation Single license	**6ES7806-1CC03-0BA0**

More information

Brochures

Information material for downloading can be found in the Internet:

http://www.siemens.com/simatic/printmaterial

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■ Overview

An embedded PC or embedded device is combined with automation software (e.g. software PLC, HMI system, etc.) and is ready-for-use.

Windows Embedded Standard or Windows Embedded Compact is used as the operating system.

PC-based Automation comprises:

• Control
• Technology
• Visualization
• Data processing
• Communication
• Fail-safe

on a common embedded PC platform.

S7-mEC

SIMATIC S7-mEC is a modular controller in S7-300 design with powerful embedded PC technology. The embedded controller combines the advantages of the tried-and-tested modular S7 controller with PC technology in one new device.

SIMATIC S7-mEC RTX is characterized by:

• Maximum ruggedness without fan or hard disk
• Modular expansion options, e.g. central expansion with S7-300 I/O or PC interfaces
• Commissioning, as for S7-300, by automation specialists
• SIMATIC WinAC RTX or alternatively WinAC RTX F preinstalled as a software PLC.

SIMATIC IPC bundles

The SIMATIC IPC bundles are ready-to-use, combined embedded PCs with the following SIMATIC software options:

• SIMATIC WinAC RTX
• SIMATIC WinAC RTX F
• SIMATIC WinCC flexible or WinCC RT Advanced
• Combinations with WinAC and WinCC

SIMATIC IPC227D and IPC277D bundles

SIMATIC IPC227D and SIMATIC IPC277D are also available with ready-to-use, pre-installed SIMATIC software:

• SIMATIC WinCC RT Advanced
• SIMATIC WinAC RTX
• SIMATIC WinAC RTX F
• Combinations of SIMATIC WinAC (F) and WinCC

The panels are available in 7", 9", 12", 15" and 19" TFT touch operation. With their compact structure, these SIMATIC IPCs are the ideal solution for simple control and HMI tasks on a single platform and also offer the openness of a PC-based system.

SIMATIC IPC477C bundles

As in the case of SIMATIC IPC427C, the SIMATIC HMI IPC477C can also be ordered with ready-to-use, pre-installed SIMATIC software:

• SIMATIC WinCC flexible or WinCC RT Advanced
• SIMATIC WinAC RTX
• SIMATIC WinAC RTX F
• Combinations of SIMATIC WinAC RTX (F) and WinCC

The panels are available in 12", 15" and 19" front variants, optionally with touch or key functionality. With their compact structure, Panel PCs are the ideal solution for complex control and HMI tasks on a single platform and also offer the openness of a PC-based system.

SIMATIC IPC477D bundles

As in the case of SIMATIC IPC427D, the SIMATIC IPC477D can also be ordered with ready-to-use, pre-installed SIMATIC software:

• SIMATIC WinCC RT Advanced
• SIMATIC WinAC RTX
• SIMATIC WinAC RTX F
• Combinations of SIMATIC WinAC RTX (F) and WinCC

The panels are available in 12" TFT Touch, 15" TFT Touch, 15" TFT Touch/Key, 19" TFT Touch and 22" TFT Touch front variants. With their compact structure, Panel PCs are the ideal solution for complex control and HMI tasks on a single platform and also offer the openness of a PC-based system.

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PC-based Automation
Embedded Controller

Embedded Controller

■ **More information** (continued)

Decision aid for the use of embedded systems

Customer benefits	Modular Control	PC-based Automation			
	SIMATIC S7	S7 Modular Embedded Controller (S7-mEC)	IPC227D, IPC277D bundles	IPC427C/D bundles, HMI IPC477C/ IPC477D bundles	on SIMATIC PC
Design					
Ruggedness	• •	•	•	•	• (depends on hardware configuration)
Type of construction	Modular	Modular	Compact	Compact	Depending on the type of construction
Spare parts availability (beyond date of discontinuation)	10 years	5 years	5 years	5 years	5 years
Performance					
Fast restart after power failure	•	-	-	-	-
Hard real-time	• •	• •	• •	• •	• •
Fast program processing	•	• •	• • (depending on processor)	• • (depending on processor)	• • • (depending on processor)
Safety Integrated	•	• • (option)	• • (option)	• • (option)	• •
I/O interfacing					
Central/distributed	• • / • •	• / • •	- / • •	• / • • 4x7D: - / • •	- / • •
User know-how					
Preconfigured, turnkey	•	•	•	•	-
Previous knowledge					
PLC	• • •	• •	•	•	•
PC	-	•	• •	• •	• • •
HMI	-	o	o	o	• •
Openness Openness • Integration of C++ programs • Further processing of data using external programs via OPC on a hardware platform	-	•	•	•	•
Modularization with distributed intelligence (CBA)	•	•	•	•	•
Integration of PLC and HMI on one hardware platform	-	•	•	•	•

• Applies

o Applies under certain conditions

- Does not apply

■ **More information**

Brochures

Information material for downloading can be found in the Internet:

http://www.siemens.com/simatic/printmaterial

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Overview

- Get off to a fast start in automation solutions with embedded PC platforms.
  - Ready-to-use SIMATIC WinAC RTX or WinAC RTX F preinstalled on EC31
  - Prepared for use in a SIMATIC environment with PROFINET and Industrial Ethernet
  - Commissioning by specialist automation personnel as with the S7-300
  - Configuring and programming with SIMATIC STEP 7 over Industrial Ethernet
  - Optional visualization
- Modular expansion capability:
   Central expansion with
  - S7-300 I/O (SM modules of S7-300)
  - Expansion modules for additional PC interfaces, e.g. DVI-I, USB, Gigabit Ethernet networks and memory card slots, as well as PCI-104
- Rugged operation
  - Hard-disk-free operation based on flash disk and Windows Embedded Standard
  - Fan-free operation
- Flexibility of a PC-based automation environment
  - Free memory space on flash disk can be used for other PC applications
  - Use of WinAC ODK with SIMATIC WinAC RTX and WinAC RTX F (read-only in safety-related program part)
  - Connection option for USB devices
  - Memory capacity expandable using multimedia card
- Data retentivity for WinAC RTX and RTX F without uninterruptible power supply (UPS)

Technical specifications

	6ES7677-1DD10-0BA0	6ES7677-1DD10-0BB0	6ES7677-1FD10-0FB0	6ES7677-1DD10-0BF0	6ES7677-1DD10-0BG0	6ES7677-1DD10-0BH0
	SIMATIC S7-mEC, EC31	S7-mEC, EC31-RTX	S7-mEC, EC31-RTX F	S7-mEC, EC31-HMI/RTX 128PT	S7-mEC, EC31-HMI/RTX 512PT	S7-mEC, EC31-HMI/RTX 2048PT
General information						
Hardware product version	01	01	01	01	01	01
Firmware version	V2.0	V2.0	V2.0	V2.0	V2.0	V2.0
PC configuration						
Computer platform	SIMATIC S7 modular embedded controller	SIMATIC S7 modular embedded controller	SIMATIC S7 modular embedded controller	SIMATIC S7 modular embedded controller	SIMATIC S7 modular embedded controller	SIMATIC S7 modular embedded controller
Processor selection	Intel Core Duo 1.2 GHz	Intel Core Duo 1.2 GHz	Intel Core Duo 1.2 GHz	Intel Core Duo 1.2 GHz	Intel Core Duo 1.2 GHz	Intel Core Duo 1.2 GHz
Main memory	1 GB RAM	1 GB RAM	1 GB RAM	1 GB RAM	1 GB RAM	1 GB RAM
Operating systems	Windows Embedded Standard 2009	Windows Embedded Standard 2009	Windows Embedded Standard 2009	Windows Embedded Standard 2009	Windows Embedded Standard 2009	Windows Embedded Standard 2009
Installed software						
• Visualization				WinCC flexible RT 2008 SP2, incl. Sm@rtAccess, recipes, archives options	WinCC flexible RT 2008 SP2, incl. Sm@rtAccess, recipes, archives options	WinCC flexible RT 2008 SP2, incl. Sm@rtAccess, recipes, archives options
• Control		SIMATIC WinAC RTX 2010	SIMATIC WinAC RTX F 2010	SIMATIC WinAC RTX 2010	SIMATIC WinAC RTX 2010	SIMATIC WinAC RTX 2010
• Communication		Yes	Yes	Yes	Yes	Yes
Power losses						
Power loss, typ.	34 W	34 W	34 W	34 W	34 W	34 W

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PC-based Automation
Embedded Controller

EC31

Technical specifications (continued)

	6ES7677-1DD10-0BA0	6ES7677-1DD10-0BB0	6ES7677-1FD10-0FB0	6ES7677-1DD10-0BF0	6ES7677-1DD10-0BG0	6ES7677-1DD10-0BH0
	SIMATIC S7-mEC, EC31	S7-mEC, EC31-RTX	S7-mEC, EC31-RTX F	S7-mEC, EC31-HMI/RTX 128PT	S7-mEC, EC31-HMI/RTX 512PT	S7-mEC, EC31-HMI/RTX 2048PT
Memory						
Memory type	256 KB non-volatile memory for retentive data	512 KB non-volatile memory for retentive data	512 KB non-volatile memory for retentive data	512 KB non-volatile memory for retentive data	512 KB non-volatile memory for retentive data	512 KB non-volatile memory for retentive data
Work memory						
• integrated	1 Gbyte	1 Gbyte	1 Gbyte	1 Gbyte	1 Gbyte	1 Gbyte
CPU processing times						
for bit operations, typ.		0.004 µs; typ.	0.004 µs; typ.	0.004 µs; typ.	0.004 µs; typ.	0.004 µs; typ.
for fixed point arithmetic, typ.		0.003 µs; typ.	0.003 µs; typ.	0.003 µs; typ.	0.003 µs; typ.	0.003 µs; typ.
for floating point arithmetic, typ.		0.004 µs; typ.	0.004 µs; typ.	0.004 µs; typ.	0.004 µs; typ.	0.004 µs; typ.
CPU-blocks						
DB						
• Number, max.		Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each
• Size, max.		64 kbyte	64 kbyte	64 kbyte	64 kbyte	64 kbyte
FB						
• Number, max.		Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each
• Size, max.		64 kbyte	64 kbyte	64 kbyte	64 kbyte	64 kbyte
FC						
• Number, max.		Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each	Max. code size and max. data size: 4 MB each
• Size, max.		64 kbyte	64 kbyte	64 kbyte	64 kbyte	64 kbyte
OB						
• Size, max.		64 kbyte	64 kbyte	64 kbyte	64 kbyte	64 kbyte
• Number of startup OBs		2; OB 100, 102	2; OB 100, 102	2; OB 100, 102	2; OB 100, 102	2; OB 100, 102
• Number of asynchronous error OBs		7; OB 80, 82-85, 86, 88	7; OB 80, 82-85, 86, 88	7; OB 80, 82-85, 86, 88	7; OB 80, 82-85, 86, 88	7; OB 80, 82-85, 86, 88
• Number of synchronous error OBs		2; OB 121, 122	2; OB 121, 122	2; OB 121, 122	2; OB 121, 122	2; OB 121, 122
Nesting depth						
• per priority class		24	24	24	24	24
• additional within an error OB		24	24	24	24	24
Counters, timers and their retentivity						
S7 counter						
• Number		2 048	2 048	2 048	2 048	2 048
• Retentivity						
- adjustable		Yes	Yes	Yes	Yes	Yes
- lower limit		0	0	0	0	0
- upper limit		2 047	2 047	2 047	2 047	2 047
- preset		8	8	8	8	8
• Counting range						
- adjustable		Yes	Yes	Yes	Yes	Yes
- lower limit		0	0	0	0	0
- upper limit		999	999	999	999	999
IEC counter						
• present		Yes	Yes	Yes	Yes	Yes
• Type		SFB	SFB	SFB	SFB	SFB

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Technical specifications (continued)

	6ES7677-1DD10-0BA0	6ES7677-1DD10-0BB0	6ES7677-1FD10-0FB0	6ES7677-1DD10-0BF0	6ES7677-1DD10-0BG0	6ES7677-1DD10-0BH0
	SIMATIC S7-mEC, EC31	S7-mEC, EC31-RTX	S7-mEC, EC31-RTX F	S7-mEC, EC31-HMI/RTX 128PT	S7-mEC, EC31-HMI/RTX 512PT	S7-mEC, EC31-HMI/RTX 2048PT
S7 times						
• Number		2 048	2 048	2 048	2 048	2 048
• Retentivity						
- adjustable		Yes	Yes	Yes	Yes	Yes
- lower limit		0	0	0	0	0
- upper limit		2 047	2 047	2 047	2 047	2 047
• Time range						
- lower limit		10 ms	10 ms	10 ms	10 ms	10 ms
- upper limit		9 990 s	9 990 s	9 990 s	9 990 s	9 990 s
IEC timer						
• present		Yes	Yes	Yes	Yes	Yes
• Type		SFB	SFB	SFB	SFB	SFB
Data areas and their retentivity						
retentive data area, total		512 KB	512 KB	512 KB	512 KB	512 KB
Flag						
• Number, max.		16 kbyte	16 kbyte	16 kbyte	16 kbyte	16 kbyte
• Retentivity preset		MB 0 to MB 15	MB 0 to MB 15	MB 0 to MB 15	MB 0 to MB 15	MB 0 to MB 15
• Number of clock memories		8	8	8	8	8
Address area						
I/O address area						
• Inputs		16 kbyte	16 kbyte	16 kbyte	16 kbyte	16 kbyte
• Outputs		16 kbyte	16 kbyte	16 kbyte	16 kbyte	16 kbyte
• of which, distributed						
- Inputs		8 kbyte	8 kbyte	8 kbyte	8 kbyte	8 kbyte
- Outputs		8 kbyte	8 kbyte	8 kbyte	8 kbyte	8 kbyte
Process image						
• Inputs, adjustable		16 kbyte	16 kbyte	8 kbyte	8 kbyte	8 kbyte
• Outputs, adjustable		16 kbyte	16 kbyte	8 kbyte	8 kbyte	8 kbyte
• Inputs, default		512 byte	512 byte	512 byte	512 byte	512 byte
• Outputs, default		512 byte	512 byte	512 byte	512 byte	512 byte
Subprocess images						
• Number of subprocess images, max.		15	15	15	15	15
Digital channels						
• Inputs		128 000	128 000	128 000	128 000	128 000
• Outputs		128 000	128 000	128 000	128 000	128 000
Analog channels						
• Inputs		8 000	8 000	8 000	8 000	8 000
• Outputs		8 000	8 000	8 000	8 000	8 000
Time of day						
Clock						
• Hardware clock (real-time clock)		Yes	Yes; Resolution: 1 s	Yes	Yes	Yes
Clock synchronization						
• supported		Yes	Yes	Yes	Yes	Yes
• to PC-CP, slave		Yes	Yes	Yes	Yes	Yes
• on Ethernet via NTP		Yes	Yes	Yes	Yes	Yes
Interfaces						
Number of USB interfaces	2	2		2	2	2
serial interface	0	0		0	0	0
Industrial Ethernet						
• Industrial Ethernet interface	X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s	X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s	X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s	X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s	X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s	X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s

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PC-based Automation
Embedded Controller

EC31

Technical specifications (continued)

	6ES7677-1DD10-0BA0	6ES7677-1DD10-0BB0	6ES7677-1FD10-0FB0	6ES7677-1DD10-0BF0	6ES7677-1DD10-0BG0	6ES7677-1DD10-0BH0
	SIMATIC S7-mEC, EC31	S7-mEC, EC31-RTX	S7-mEC, EC31-RTX F	S7-mEC, EC31-HMI/RTX 128PT	S7-mEC, EC31-HMI/RTX 512PT	S7-mEC, EC31-HMI/RTX 2048PT
1st interface						
Type of interface		PROFINET	PROFINET	PROFINET	PROFINET	PROFINET
Physics		2x RJ45	2x RJ45	2x RJ45	2x RJ45	2x RJ45
Automatic detection of transmission speed		Yes	Yes	Yes	Yes	Yes
Autonegotiation		Yes	Yes	Yes	Yes	Yes
Autocrossing		Yes	Yes	Yes	Yes	Yes
Number of connection resources		32	32	32	32	32
Functionality						
• MPI			No			
• DP master			No			
• DP slave			No			
• PROFINET IO Device		No	No	No	No	No
• PROFINET IO Controller		Yes	Yes	Yes	Yes	Yes
• PROFINET CBA		Yes	Yes	Yes	Yes	Yes
• Point-to-point connection			No			
PROFINET IO Controller						
• Number of connectable IO devices, max.		256	256	256	256	256
• Max. number of connectable IO devices for RT		256	256	256	256	256
- of which in line, max.		256	256	256	256	256
• Number of IO devices with IRT and the option "high flexibility"		256	256	256	256	256
- of which in line, max.		61	61	61	61	61
• Number of IO Devices with IRT and the option "high performance", max.		256	256	256	256	256
- of which in line, max.		64	64	64	64	64
• IRT, supported		Yes	Yes	Yes	Yes	Yes
• Prioritized startup supported		Yes	Yes	Yes	Yes	Yes
- Number of IO Devices, max.		32	32	32	32	32
• Activation/deactivation of IO Devices		Yes	Yes	Yes	Yes	Yes
- Maximum number of IO devices that can be activated/deactivated at the same time.		8	8	8	8	8
• IO Devices changing during operation (partner ports), supported		Yes	Yes	Yes	Yes	Yes
- Max. number of IO devices per tool		8	8	8	8	8
• Device replacement without swap medium		Yes	Yes	Yes	Yes	Yes
• Send cycles		Adjustable: 250 µs, 500 µs and 1 ms	Adjustable: 250 µs, 500 µs and 1 ms	Adjustable: 250 µs, 500 µs and 1 ms	Adjustable: 250 µs, 500 µs and 1 ms	Adjustable: 250 µs, 500 µs and 1 ms
• Updating times		250 µs - 128 ms (with signal cycle 250 µs); 500 µs - 256 ms (with signal cycle 500 µs); 1 ms - 512 ms (with signal cycle 1 ms)	250 µs - 128 ms (with signal cycle 250 µs); 500 µs - 256 ms (with signal cycle 500 µs); 1 ms - 512 ms (with signal cycle 1 ms)	250 µs - 128 ms (with signal cycle 250 µs); 500 µs - 256 ms (with signal cycle 500 µs); 1 ms - 512 ms (with signal cycle 1 ms)	250 µs - 128 ms (with signal cycle 250 µs); 500 µs - 256 ms (with signal cycle 500 µs); 1 ms - 512 ms (with signal cycle 1 ms)	250 µs - 128 ms (with signal cycle 250 µs); 500 µs - 256 ms (with signal cycle 500 µs); 1 ms - 512 ms (with signal cycle 1 ms)
• Services						
- PG/OP communication		Yes	Yes	Yes	Yes	Yes
- S7 routing		Yes	Yes	Yes	Yes	Yes
- S7 communication		Yes	Yes	Yes	Yes	Yes
- Isochronous mode		Yes	Yes	Yes	Yes	Yes
• Address area						
- Inputs, max.		16 kbyte	16 kbyte	16 kbyte	16 kbyte	16 kbyte
- Outputs, max.		16 kbyte	16 kbyte	16 kbyte	16 kbyte	16 kbyte
- User data per address area, max.		2 kbyte	2 kbyte	2 kbyte	2 kbyte	2 kbyte
- User data consistency, max.		256 byte	256 byte	256 byte	256 byte	256 byte

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Technical specifications (continued)

	6ES7677-1DD10-0BA0	6ES7677-1DD10-0BB0	6ES7677-1FD10-0FB0	6ES7677-1DD10-0BF0	6ES7677-1DD10-0BG0	6ES7677-1DD10-0BH0
	SIMATIC S7-mEC, EC31	S7-mEC, EC31-RTX	S7-mEC, EC31-RTX F	S7-mEC, EC31-HMI/RTX 128PT	S7-mEC, EC31-HMI/RTX 512PT	S7-mEC, EC31-HMI/RTX 2048PT
Open IE communication						
• Open IE communication, supported		Yes	Yes	Yes	Yes	Yes
• Number of connections, max.		32	32	32	32	32
• Local port numbers used at the system end		0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535	0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535	0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535	0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535	0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535
PROFINET functions						
• Detection of accessible nodes, supported		Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP
• Assignment of the IP address, supported		Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP
• Assignment of the device name, supported		Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP
• Topology recognition, supported		Yes; LLDP, LLDP MIB, SNMP	Yes; LLDP, LLDP MIB, SNMP	Yes; LLDP, LLDP MIB, SNMP	Yes; LLDP, LLDP MIB, SNMP	Yes; LLDP, LLDP MIB, SNMP
• Extended network diagnostics with Standard MIB II, supported		Yes; Standard MIB II, SNMP	Yes; Standard MIB II, SNMP	Yes; Standard MIB II, SNMP	Yes; Standard MIB II, SNMP	Yes; Standard MIB II, SNMP
2nd interface						
Type of interface		Integrated Ethernet interface	Integrated Ethernet interface	Integrated Ethernet interface	Integrated Ethernet interface	Integrated Ethernet interface
Physics		Ethernet RJ45	Ethernet RJ45	Ethernet RJ45	Ethernet RJ45	Ethernet RJ45
Automatic detection of transmission speed		Yes	Yes	Yes	Yes	Yes
Autonegotiation		Yes	Yes	Yes	Yes	Yes
Autocrossing		No	No	No	No	No
Number of connection resources		32	32	32	32	32
Functionality						
• PROFINET IO Controller		No	No	No	No	No
• PROFINET IO Device		No	No	No	No	No
• PROFINET CBA		No	No	No	No	No
PROFINET functions						
• Detection of accessible nodes, supported		Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP
• Assignment of the IP address, supported		Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP
• Assignment of the device name, supported		Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP	Yes; DCP
• Topology recognition, supported		Yes; LLDP, LLDP MIB, SNMP	Yes; LLDP, LLDP MIB, SNMP	Yes; LLDP, LLDP MIB, SNMP	Yes; LLDP, LLDP MIB, SNMP	Yes; LLDP, LLDP MIB, SNMP
• Extended network diagnostics with Standard MIB II, supported		Yes; Standard MIB II, SNMP	Yes; Standard MIB II, SNMP	Yes; Standard MIB II, SNMP	Yes; Standard MIB II, SNMP	Yes; Standard MIB II, SNMP
Communication functions						
PG/OP communication		Yes	Yes	Yes	Yes	Yes
Global data communication						
• supported		No	No	No	No	No
S7 basic communication						
• supported		No	No	No	No	No
S7 communication						
• supported		Yes	Yes	Yes	Yes	Yes
• as server		Yes	Yes	Yes	Yes	Yes
• as client		Yes	Yes	Yes	Yes	Yes

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PC-based Automation
Embedded Controller

EC31

■ **Technical specifications** (continued)

	6ES7677-1DD10-0BA0	6ES7677-1DD10-0BB0	6ES7677-1FD10-0FB0	6ES7677-1FD10-0BF0	6ES7677-1DD10-0BG0	6ES7677-1DD10-0BH0
	SIMATIC S7-mEC, EC31	S7-mEC, EC31-RTX	S7-mEC, EC31-RTX F	S7-mEC, EC31-HMI/RTX 128PT	S7-mEC, EC31-HMI/RTX 512PT	S7-mEC, EC31-HMI/RTX 2048PT
Open IE communication						
• TCP/IP		Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs
- Number of connections, max.		32	32	32	32	32
- Data length, max.		32 kbyte	32 kbyte	32 kbyte	32 kbyte	32 kbyte
• ISO-on-TCP (RFC1006)		Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs
- Number of connections, max.		32	32	32	32	32
- Data length, max.		32 kbyte	32 kbyte	32 kbyte	32 kbyte	32 kbyte
• UDP		Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs	Yes; Via integrated PROFINET interface (X1) and loadable FBs
- Number of connections, max.		32	32	32	32	32
- Data length, max.		1 472 byte	1 472 byte	1 472 byte	1 472 byte	1 472 byte
S7 message functions						
Number of login stations for message functions, max.		62; The alarm functions cannot currently be used for central bus modules	62; The alarm functions cannot currently be used for central bus modules	62; The alarm functions cannot currently be used for central bus modules	62; The alarm functions cannot currently be used for central bus modules	62; The alarm functions cannot currently be used for central bus modules
Process diagnostic messages		Yes; Alarm_S	Yes; Alarm_S	Yes; Alarm_S	Yes; Alarm_S	Yes; Alarm_S
Test commissioning functions						
Status/control						
• Status/control variable		Yes	Yes	Yes	Yes	Yes
Forcing						
• Forcing		No	No	No	No	No
Diagnostic buffer						
• present		Yes	Yes	Yes	Yes	Yes
Ambient conditions						
Operating temperature						
• Min.	0 °C	0 °C	0 °C	0 °C	0 °C	0 °C
• max.	50 °C	50 °C	50 °C	50 °C	50 °C	50 °C
Configuration						
programming						
• Programming language						
- LAD		Yes	Yes	Yes	Yes	Yes
- FBD		Yes	Yes	Yes	Yes	Yes
- STL		Yes	Yes	Yes	Yes	Yes
- SCL		Yes	Yes	Yes	Yes	Yes
- CFC		Yes	Yes	Yes	Yes	Yes
- GRAPH		Yes	Yes	Yes	Yes	Yes
- HiGraph®		Yes	Yes	Yes	Yes	Yes
Dimensions						
Width	160 mm	160 mm	160 mm	160 mm	160 mm	160 mm
Height	125 mm	125 mm	125 mm	125 mm	125 mm	125 mm
Depth	115 mm	115 mm	115 mm	115 mm	115 mm	115 mm
Weight						
Weight, approx.	1.5 kg	1.5 kg	1.5 kg	1.5 kg	1.5 kg	1.5 kg

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Ordering data

Ordering data	Order No.
SIMATIC S7-modular Embedded Controller	
EC31	**6ES7677-1DD10-0BA0**
Intel CoreDuo 1.2 GHz processor Memory configuration: 1 GB RAM, 4 GB Flash Disk; interfaces: 1 Industrial Ethernet port, 2 PROFINET ports, 2 USB ports, 1 slot for multimedia card; Software: Windows Embedded Standard pre-installed, Software Development Kit (SDK) for creating C/C++ applications with accesses to central I/O modules	
EC31-RTX	**6ES7677-1DD10-0BB0**
Intel CoreDuo 1.2 GHz processor Memory configuration: 1 GB RAM, 4 GB Flash Disk; interfaces: 1 Industrial Ethernet port, 2 PROFINET ports, 2 USB ports, 1 slot for multimedia card; Software: Windows Embedded Standard and WinAC RTX 2010 preinstalled	
EC31-RTX F	**6ES7677-1FD10-0FB0**
Intel CoreDuo 1.2 GHz processor Memory configuration: 1 GB RAM, 4 GB Flash Disk; interfaces: 1 Industrial Ethernet port, 2 PROFINET ports, 2 USB ports, 1 slot for multimedia card; Software: Windows Embedded Standard and WinAC RTX F 2010 preinstalled	
EC31-HMI/RTX	
Intel CoreDuo 1.2 GHz processor Memory configuration: 1 GB RAM, 4 GB Flash Disk; interfaces: 1 Industrial Ethernet port, 2 PROFINET ports, 2 USB ports, 1 slot for multimedia card; Software: Windows Embedded Standard, WinAC RTX 2010, SIMATIC SOFTNET-S7/V7.0 Lean preinstalled	
• With WinCC flexible 2008 RT 128 PT	**6ES7677-1DD10-0BF0**
• With WinCC flexible 2008 RT 512 PT	**6ES7677-1DD10-0BG0**
• With WinCC flexible 2008 RT 2048 PT	**6ES7677-1DD10-0BH0**

	Order No.
Accessories	
EM PCI-104 expansion module	**6ES7677-1DD60-1AA0**
For fitting up to 3 additional PCI-104 cards	
EM PC expansion module	**6ES7677-1DD50-2AA0**
Additional connection options: 2 USB interfaces, 1 Gigabit Ethernet interface, 1 serial interface, 1 slot for CF card, 1 slot for SD card/Micro Memory Card	

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PC-based Automation
Embedded Controller

Expansion modules

Overview

- Expansion modules for SIMATIC S7-modular Embedded Controller EC31
  - EM PCI-104 for additionally accommodating up to 3 PCI-104 cards
  - EM PC with additional PC interfaces and slots for memory media

Technical specifications

	6ES7677-1DD60-1AA0	6ES7677-1DD50-2AA0
	EM PCI-104	EM PC
General information		
Hardware product version	01	01
Input current		
from expansion bus	100 mA	580 mA
Power losses		
Power loss, typ.	2.4 W; Without inserted PCI-104 cards	9 W
Power loss, max.		14 W
Interfaces		
Number of USB interfaces	0	2
serial interface	0	1x V.24 (RS232)
Industrial Ethernet		
• Industrial Ethernet interface		Onboard, 10/100/1000 Mbit, RJ45
Ambient conditions		
Operating temperature		
• Min.	0 °C	0 °C
• max.	50 °C	50 °C
Dimensions		
Width	120 mm; Without bus connector Extension-Bus	80 mm; Without bus connector Extension-Bus
Height	125 mm; Without external voltage connecting terminal	125 mm
Depth	115 mm	115 mm
Weight		
Weight, approx.	0.5 kg	0.4 kg

Ordering data	Order No.
EM PCI-104 expansion module	**6ES7677-1DD60-1AA0**
For fitting up to 3 additional PCI-104 cards	
EM PC expansion module	**6ES7677-1DD50-2AA0**
Additional connection options: 1 DVI-I interface, 2 USB interfaces, 1 Gigabit Ethernet interface, 1 serial interface, 1 slot for CF card, 1 slot for SD card/Micro Memory Card	

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Overview

The Embedded Bundles for PC-based Automation are based on rugged, fan-free SIMATIC IPCs. They are pre-installed, configured, and ready-to-use with the SIMATIC WinAC RTX (F) software controller and/or the SIMATIC WinCC/WinCC flexible visualization software.

Software packages with WinCC or WinAC together with the corresponding SIMATIC IPC.

The following are available:

- SIMATIC IPC packages with WinCC flexible
- SIMATIC IPC packages with WinCC RT Advanced (TIA Portal)
- SIMATIC IPC Packages with WinCC
- SIMATIC IPC packages with WinCC RT Professional (TIA Portal)
- SIMATIC IPC packages with WinAC RTX (F)

A Software Package can only be supplied if the same number of SIMATIC industrial PCs is ordered together with the software. It cannot be ordered subsequently.

More information

You can find more information on the Internet at:

http://www.automation.siemens.com/mcms/pc-based-automation/en/embedded-bundles

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PC-based Automation
Embedded bundles/Software packages

SIMATIC IPC227D bundles

■ Overview

- A quick start in automation solutions with embedded PC platforms
  - SIMATIC WinAC RTX or SIMATIC WinAC RTX F preinstalled on SIMATIC IPC227D and ready for use
  - PROFINET RT and Industrial Ethernet pre-configured for use in a SIMATIC environment
  - Optional WinCC RT Advanced for visualization tasks in parallel with SIMATIC WinAC RTX
  - Configuration and programming with SIMATIC STEP 7 via Industrial Ethernet or PROFINET
- Safety requirements up to SIL 3 in accordance with IEC 61508/62061 or EN ISO 13849-1 up to PL e can be implemented with WinAC RTX F.
- Rugged operation
  - Hard-disk-free operation with CompactFlash card (CF card) or solid-state drive and Windows Embedded Standard 2009 or Windows Embedded Standard 7, 32-bit
  - Fan-free operation
  - 128 KB of retentive data for WinAC RTX, also without uninterruptible power supply (UPS)
- Flexibility of a PC-based automation environment
  - Use of WinAC ODK with SIMATIC WinAC RTX or SIMATIC WinAC RTX F (read-only for fail-safe program section)
  - Connection option for USB devices, flat panel monitor or screen
  - PCIe cards can be plugged in

■ Technical specifications

See "PC-based Automation -> Box PC -> SIMATIC IPC227D".

■ Ordering data

For Selection and ordering data see
SIMATIC Box PC -> SIMATIC IPC227D

■ More information

Delivery

Production and delivery of the devices will typically be completed within 15 business days after receipt of order. The hardware and mass memory with the complete, pre-installed, ready-to-use software are supplied fully assembled.

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■ Overview

SIMATIC IPC427D (Microbox PC):
The powerful embedded IPC – maintenance-free
with versatile configuration

Ready-to-run, complete solutions (software is already installed and preconfigured) for visualization and automation in connection with WinCC RT Advanced and/or WinAC RTX.

• Ultra-compact

• Maintenance-free

• Third generation Intel Core i technology

• Current product versions of the pre-installed software:
  - SIMATIC WinCC RT Advanced V12
  - SIMATIC WinAC RTX 2010
  - SIMATIC Net V8.x

■ Technical specifications

See "PC-based Automation -> Box PC -> SIMATIC IPC427D"

■ Ordering data

For selection and ordering data, see "SIMATIC Box PC -> SIMATIC IPC427D"

■ More information

Delivery

Production and delivery of the devices will typically be completed within 13 business days after receipt of order. The hardware and mass memory with the complete, pre-installed, ready-to-use software are supplied fully assembled.

Commissioning

Before the control or visualization application is complete, simply perform the following steps:

• Optional: Installation and setup of additional software on the device

• Optional: Installation and setup of other software on the device

• Transfer of the engineering projects from STEP 7 or WinCC Advanced

• Transfer of the supplied license keys for SIMATIC software

• Backup of the installed software and protection of the flash-based mass memory by switching on the Enhance Write filter

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PC-based Automation
Embedded bundles/Software packages

SIMATIC IPC427C bundles

■ Overview

Embedded PC platform with extremely high industrial compatibility for demanding tasks in the field of PC-based automation

- Rugged operation
  - Operation without a hard disk, based on CompactFlash card (CF Card) or solid-state drive and Windows Embedded Standard
  - Fan-free operation
  - 128 KB of retentive data for WinAC RTX, also without uninterruptible power supply (UPS)
- Flexibility of a PC-based automation environment
  - Free memory space on CF Card can be used for other PC applications
  - Use of WinAC ODK with SIMATIC WinAC RTX or SIMATIC WinAC RTX F (read-only for fail-safe program section)
  - Connection option for USB devices, flat panel monitor or screen
  - PCI 104 cards can be plugged in
- High-performance service concept
  - Replacement parts for preferred types available ex stock
- Safety requirements up to SIL 3 in accordance with IEC 61508/62061 or EN ISO 13849-1 up to PL e can be implemented with WinAC RTX F.
- Cost-effective versions with PROFINET, based on the standard Ethernet interface
- Current product versions of the pre-installed software:
  - SIMATIC WinAC RTX 2010 or SIMATIC WinAC RTX F 2010
  - SIMATIC WinCC flexible 2008 or WinCC RT Advanced
  - and the combinations of the software packages above
  - SIMATIC NET Edition 2008 or V8.1 (depending on operating system), as well as
  - SIMATIC WInCC V7.0 SP2 or WinCC RT Professional as a client / single station

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Ordering data	Order No.

SIMATIC IPC427C bundles

RTX bundles with SIMATIC WinAC RTX (F) 2010

HMI bundles with WinCC flexible 2008 or WinCC RT Advanced V11 bundles

HMI/RTX bundles combining HMI and RTX

SIMATIC IPC427C with pre-installed software	6ES7675-1D ▪ ▪ ▪ - ▪ ▪ ▪ ▪

Processor
• Celeron M, 1.2 GHz, 2x PROFINET (IE) [1]	A
• Celeron M, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS [1]	B
• Core2 Solo, 1.2 GHz, 2x PROFINET (IE) [1]	E
• Core2 Solo, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS [1]	F
• Core2 Solo, 1.2 GHz, 1x PROFINET (IE), PROFINET (RT/IRT) 3 ports	G
• Core2 Duo, 1.2 GHz, 2x PROFINET (IE) [1]	J
• Core2 Duo, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS [1]	K
• Core2 Duo, 1.2 GHz, 1x PROFINET (IE), PROFINET (RT/IRT) 3 ports	L

Main memory
• 1 GB RAM	2
• 2 GB RAM [1]	3
• 4 GB RAM	4

Operating system
• Windows Embedded Standard 2009 (WES2009) [1]	0
• Windows Embedded Standard 7 (WES7) [2]	1

Mass storage, internal
• None (can only be ordered with externally accessible mass storage) [1]	0
• 250 GB HDD SATA, only additionally with externally accessible CF	1
• 50 GB solid-state drive (high-endurance), operating system and software pre-installed	2
• 80 GB solid-state drive (standard SATA), operating system and software pre-installed	3
• 4 GB internal CompactFlash, operating system and software pre-installed [1]	6
• 8 GB internal CompactFlash, operating system and software pre-installed [1]	7
• 16 GB internal CompactFlash, operating system and software pre-installed [1]	8

SIMATIC IPC427C with pre-installed software (continued)	6ES7675-1D ▪ ▪ ▪ - ▪ ▪ ▪ ▪

Externally accessible mass storage
• None (can only be ordered with internal mass storage) [1]	A
• 4 GB CompactFlash, operating system and software pre-installed [1]	D
• 8 GB CompactFlash, operating system and software pre-installed [1]	E
• 16 GB internal CompactFlash, operating system and software pre-installed [1]	F

Software configurations [1]
• WinAC RTX	B
• HMI RT 128 PT	C
• HMI RT 512 PT	D
• HMI RT 2048 PT	E
• HMI RT 4096 PT	F
• WinAC RTX, HMI RT 128 PT	K
• WinAC RTX, HMI RT 512 PT	L
• WinAC RTX, HMI RT 2048 PT	M
• WinAC RTX, HMI RT 4096 PT	N
• WinAC RTX F	P
• WinAC RTX F, HMI RT 128 PT	R
• WinAC RTX F, HMI RT 512 PT	S
• WinAC RTX F, HMI RT 2048 PT	T
• WinAC RTX F, HMI RT 4096 PT	U

• HMI RT: WinCC flexible 2008 [3] or w/o HMI software	0
• HMI RT: WinCC Advanced V11 SP2 (TIA Portal), only with WES7 and 2GB RAM	1

[1] Replacement hardware units available in exchange

[2] Only together from 2 GB main memory

[3] WinCC flexible 2008 SP2 with WES2009 and WinCC flexible 2008 SP3 with WES7

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PC-based Automation
Embedded bundles/Software packages

SIMATIC IPC427C bundles

Ordering data	Order No.		Order No.
In-stock models		**Bundles with WinCC RT Professional (TIA Portal)**	
Replacement hardware units available in exchange		("Built to order" with max. delivery time of 14 working days; only repairs are possible for hardware)	
SIMATIC IPC427C bundle with WinAC RTX 2010		**IPC427C with WinCC RT Professional, V11 SP2**	
• Core2 Solo processor, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS, 2 GB RAM, 4 GB CompactFlash	6ES7675-1DF30-0DB0	Fan-free, 4 x USB 2.0 (500 mA), 1 x COM (RS 232), 24 V DC power supply with On/Off switch, 2 x PROFINET (IE), Windows Embedded Standard 7 SP1 pre-installed, SIMATIC WinCC Runtime Professional V11 SP2 pre-installed	
• Core2 Duo processor, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS, 2 GB RAM, 4 GB CompactFlash	6ES7675-1DK30-0DB0		
• Core2 Duo processor, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS, 2 GB RAM, 8 GB CompactFlash	6ES7675-1DK30-0EP0		
SIMATIC IPC427C bundle with WinAC RTX 2010 and WinCC flexible 2008 512 PT		**Client configurations**	
• Core2 Duo processor, 1.2 GHz, 2x PROFINET (IE), 1x PROFIBUS, 2 GB RAM, 4 GB CompactFlash	6ES7675-1DK30-0DL0	• Celeron M processor 1.2 GHz, 2 GB SDRAM DDR3, 8 GB CF card, runtime license 128 PT [1]	6ES7675-1DA31-7AY0
Bundles with WinCC		**Client and stand-alone station configurations**	
("Built to order" with max. delivery time of 14 working days; only repairs are possible for hardware)		• Core2 Solo processor 1.2 GHz, 2 GB SDRAM DDR3, 8 GB CF card, runtime license 128 PT [1]	6ES7675-1DE31-7AY0
IPC427C with WinCC RT, V7.0 SP2, incl. Update 1		• Core2 Solo processor 1.2 GHz, PROFIBUS DP, 2 GB SDRAM DDR3, 8 GB CF card, runtime license 128 PT [1]	6ES7675-1DF31-7AY0
Fan-free, 4 x USB 2.0 (500 mA), 1 x COM (RS 232), 24 V DC power supply with On/Off switch, 2 x PROFINET (IE), Windows Embedded Standard 2009 pre-installed, SIMATIC WinCC V7.0 SP2 incl. Update1 Runtime pre-installed		**Stand-alone station configurations**	
		Core2 Duo processor 1.2 GHz, PROFIBUS DP, 4 GB SDRAM-DDR3	
Client configurations	6ES7675-1DA20-6AX0	• 8 GB CF card, runtime license 128 PT [1]	6ES7675-1DK41-7AY0
Processor Celeron M 1.2 GHz, 1 GB SDRAM-DDR3, 4 GB CF Card, runtime license 128 PT		• 50 GB SSD (High Endurance), runtime license 128 PT [1]	6ES7675-1DK41-2AY0
Client and stand-alone station configurations		• 8 GB CF card, runtime license 2048 PT [1]	6ES7675-1DK41-7AV0
• Core2 Solo processor 1.2 GHz, 8 GB CF card, runtime license 128 PT [1]	6ES7675-1DE30-7AX0	• 50 GB SSD (High Endurance), runtime license 2048 PT [1]	6ES7675-1DK41-2AV0
• Core2 Solo processor 1.2 GHz, PROFIBUS DP, 2 GB SDRAM-DDR3, 8 GB CF card, runtime license 128 PT [1]	6ES7675-1DF30-7AX0	**Accessories**	
		CP 5603 Microbox Package	6GK1560-3AU00
Stand-alone station configurations	6ES7675-1DK40-.A.0	Package for using the PROFIBUS CP 5603 in Microbox PCs; comprising a CP 5603 module and a Microbox expansion rack	
Core2 Duo processor 1.2 GHz, PROFIBUS DP, 4 GB SDRAM-DDR3			
• 8 GB CF card, runtime license 128 PT [1]	6ES7675-1DK40-7AX0	**CP 1604 Microbox Package**	6GK1160-4AU00
• 50 GB SSD (High Endurance), runtime license 128 PT [1]	6ES7675-1DK40-2AX0	Package for the use of the PROFINET CP 1604 in Microbox PCs; consisting of CP 1604 card, connection board, power supply and Microbox PC expansion frame; used via development kit DK-16xx PN IO; NCM P	
• 8 GB CF card, runtime license 2048 PT [1]	6ES7675-1DK40-7AW0		
• 50 GB SSD (High Endurance), runtime license 2048 PT [1]	6ES7675-1DK40-2AW0	**Portrait assembly kit**	6ES7648-1AA20-0YB0
		Interfaces to the front	
		Expansion components	From page 5/153

[1] Number of process tags (PT) can be increased by means of PowerPacks.

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■ **More information**

Delivery

Production and delivery of the devices will typically be completed within 13 business days after receipt of order. The hardware and mass memory with the complete, pre-installed, ready-to-use software are supplied fully assembled.

Commissioning

Before the control or visualization application is complete, simply perform the following steps:

- Optional: Install and setup additional hardware on the device (e.g. an additional SIMATIC CP 5603 PROFIBUS interface)
- Optional: Installation and setup of other software on the device
- Transfer of the engineering projects from STEP 7 and/or WinCC flexible
- Transfer of the supplied license keys for SIMATIC software
- Backup of the installed software and protection of the flash-based mass memory by switching on the Enhance Write filter

Replacement units

For the preferred versions, repaired replacement devices are available extremely quickly ex stock. Preferred versions offer the following options:

- All processor versions with PROFINET(IE) or PROFIBUS option
- 2 GB RAM
- Exclusively for replaceable CompactFlash memory (supplied without mass memory)
- All software configurations

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PC-based Automation
Embedded bundles/Software packages

SIMATIC IPC277D bundles

■ **Overview**

SIMATIC IPC277D for implementing simple visualization and control tasks

- High degree of flexibility when selecting rugged widescreen fronts from 7" to 19" for more freely configurable display area
- High resolution, large viewing angle and up to 100% dimmable backlighting for brilliant display with optimized power consumption
- Absolutely maintenance-free due to the use of CompactFlash and SSD as mass storage and fanless operation up to 50 °C ambient temperature
- Maximum industrial functionality due to non-volatile retentive memory for battery-free operation
- Ready-to-run embedded bundles with visualization or/and control software

The following front installation versions are available:
- 7" Touch
- 9" Touch
- 12" Touch
- 15" Touch with front USB interface
- 19" Touch with front USB interface
- All fronts in widescreen design

■ **Technical specifications**

See "PC-based Automation -> Panel PC -> SIMATIC IPC277D"

■ **Ordering data**

For selection and ordering data see
SIMATIC Panel PC -> SIMATIC IPC277D

■ **More information**

Delivery

Production and delivery of the devices will typically be completed within 13 business days after receipt of order. The hardware and mass memory with the complete, pre-installed, ready-to-use software are supplied fully assembled.

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Overview

SIMATIC IPC477D:
***The powerful embedded Panel PC –
maintenance-free with versatile configuration***

Ready-to-run, complete solutions (software is already installed and preconfigured) for visualization and automation in connection with WinCC RT Advanced and/or WinAC RTX.

- Embedded PC platform with extremely high industrial compatibility for demanding tasks in the field of PC-based automation
- Maintenance-free (no rotating components such as fan and hard disk)
- Rugged construction: the PC is resistant to even the harshest mechanical stress and is extremely reliable in operation
- Compact design
- Battery-independent retentive memory onboard
- High investment protection
- Fast integration capability
- Safety requirements up to SIL 3 in accordance with IEC 61508/62061 or EN ISO 13849-1 up to PL e can be implemented with WinAC RTX F

The following front versions are available:

- Built-in versions
  - 12" TFT Touch
  - 15" TFT Touch
  - 19" TFT Touch
  - 22" TFT Touch
  - 15" TFT Touch/Key
- Current product versions of the pre-installed SIMATIC software:
  - SIMATIC WinCC RT Advanced V12
  - SIMATIC WinAC RTX 2010 or SIMATIC WinAC RTX F 2010
  - SIMATIC NET V8.2 (including SIMATIC SOFTNET S7 Basis license)
  - and the combinations of the software packageslisted above

Integration

Integrated interfaces:

- Ethernet
  The integral PROFINET interfaces (10/100/1000 Mbit/s) can be used for IT communication and for data exchange with programmable controllers such as SIMATIC S7 (with software packages "SOFTNET S7 Basis").
- PROFIBUS onboard (option)
  The isolated PROFIBUS interface (12 Mbit/s) can be used for connecting distributed field devices or for coupling to SIMATIC S7 (with software packages "SOFTNET for PROFIBUS").
- Other interfaces
  5 USB (Universal Serial Bus) interfaces and up to two serial interfaces are available for connecting additional I/O devices.

Technical specifications

See "PC-based Automation -> Panel PC -> SIMATIC IPC477D"

Ordering data

For selection and ordering data,
see SIMATIC Panel PC -> SIMATIC IPC477D

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PC-based Automation
Embedded bundles/Software packages

SIMATIC HMI IPC477C bundles

Overview

Embedded PC platform with extremely high industrial compatibility for demanding tasks in the field of PC-based automation.

- Rugged operation
  - Operation without a hard disk, based on CompactFlash card (CF Card) or solid-state drive and Windows Embedded Standard
  - Fan-free operation
  - 128 KB of retentive data for WinAC RTX, also without uninterruptible power supply (UPS)
- Flexibility of a PC-based automation environment
  - Free memory space on CF Card can be used for other PC applications
  - Use of WinAC ODK with SIMATIC WinAC RTX or SIMATIC WinAC RTX F (read-only for fail-safe program section)
  - Connection option for USB devices, flat panel monitor or screen
- High-performance service concept
  - Replacement parts for preferred types available ex stock
- Safety requirements up to SIL 3 in accordance with IEC 61508/62061 or EN ISO 13849-1 up to PL e can be implemented with WinAC RTX F.
- Cost-effective versions with PROFINET, based on the standard Ethernet interface
- Product versions of the pre-installed software:
  - SIMATIC WinAC RTX 2010 or SIMATIC WinAC RTX F 2010
  - SIMATIC WinCC flexible 2008 or WinCC RT Advanced
  - and the combinations of the software packages above
  - SIMATIC NET Edition 2008 or V8.x (depending on operating system) as well as
  - SIMATIC WInCC V7.0 SP2 or WinCC RT Professional as a client / single station

The following display versions are available:

- Built-in versions
  - 12" and 15" TFT Touch
  - 12" and 15" TFT Key
  - 19" Touch
- Support arm versions
  - PRO 15" and 19" Touch
    Fully-enclosed device to IP65 degree of protection for mounting on a support arm/stand.

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■ Ordering data

	Order No.		Order No.

SIMATIC HMI IPC477C bundles

RTX bundles with SIMATIC WinAC RTX (F) 2010

HMI bundles with WinCC flexible 2008 or WinCC RT Advanced bundles

HMI/RTX bundles combining HMI and RTX

("Built to order" version, max. delivery time of 15 working days and with identified repair, if not preferred type)

SIMATIC HMI IPC477C PRO — 6AV7883- ■ A ■ ■ ■ - ■ ■ ■ ■

Embedded and fan-free
with fully enclosed IP65 enclosure
4 x USB (500 mA),
24 V DC power supply
with On/Off switch

SIMATIC HMI IPC477C — 6AV7884- ■ A ■ ■ ■ - ■ ■ ■ ■

Fan-free
5 x USB 2.0 (500 mA),
one of which on the front
1 x COM (RS232)
24 V DC power supply
with On/Off switch

Front panels
- 12" TFT Touch [1] — **0**
- 12" TFT Key — **1**
- 15" TFT Touch [1] — **2**
- 15" TFT Key — **3**
- 19" TFT Touch [1] — **5**
- 15" TFT Touch (IP65 enclosure; PRO) — **6**
- 19" TFT Touch (IP65 enclosure; PRO) — **7**

SIMATIC HMI IPC477C (continued) — 6AV7884- ■ A ■ ■ ■ - ■ ■ ■ ■

Processors and fieldbus
- Celeron M 1.2 GHz, 2 x PROFINET (IE) [1] — **A**
- Celeron M 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12 [1] — **B**
- Core2 Solo 1.2 GHz, 2 x PROFINET (IE) [1] — **D**
- Core2 Solo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12 [1] — **E**
- Core2 Solo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (3 ports) [1] — **F**
- Core2 Duo 1.2 GHz, 2 x PROFINET (IE) [1] — **G**
- Core2 Duo 1.2 GHz, 2 x PROFINET (IE), 1 x PROFIBUS DP 12 [1] — **H**
- Core2 Duo 1.2 GHz, 1 x PROFINET (IE), 1 x PROFINET (3 ports) [1] — **J**

Main memory (DDR3 RAM), 1 database
- 1 GB — **1**
- 2 GB [1] — **2**
- 4 GB — **3**

Second mass storage (installed, CF replaceable)
- None [1] — **0**
- CompactFlash 2 GB (only with Windows Embedded Standard 2009) [1] — **2**
- CompactFlash 4 GB [1] — **3**
- CompactFlash 8 GB [1] — **4**
- CompactFlash 16 GB [1] — **5**
- 50 GB SSD (High Endurance) — **6**
- 80 GB SSD (Standard) [3] — **7**

[1] Preferred versions with repaired replacement device from warehouse

[2] Only together from 2 GB main memory

[3] Only with IPC477C

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PC-based Automation
Embedded bundles/Software packages

SIMATIC HMI IPC477C bundles

Ordering data	Order No.		Order No.

SIMATIC HMI IPC477C (continued)

Order No.: 6AV7884- ■ A ■ ■ ■ - ■ ■ ■ ■

Mass storage
(installed, operating system pre-installed, optionally with SIMATIC software)

• CompactFlash 2 GB [1]	2
• CompactFlash 4 GB [1]	3
• CompactFlash 8 GB [1]	4
• CompactFlash 16 GB [1]	5
• 50 GB SSD (High Endurance)	6
• 80 GB SSD (Standard) [3]	7

Operating system

• Windows Embedded Standard 2009, pre-installed [1]	B A
• Windows Embedded Standard 7 SP1, pre-installed [2]	E A

Software packages, only with CF 4 GB or higher [1]

• with operating system and RTX pre-installed and configured	B
• with operating system and HMI (incl. archives/recipes) pre-installed and configured	
- Number of tags 128 PT	C
- Number of tags 512 PT	D
- Number of tags 2048 PT	E
- Number of tags 4096 PT	F
• with operating system and HMI/RTX (incl. archives/recipes) pre-installed and configured	
- Number of tags 128 PT	K
- Number of tags 512 PT	L
- Number of tags 2048 PT	M
- Number of tags 4096 PT	N
• with operating system and RTX F pre-installed and configured	P
• with operating system and HMI/RTX F (incl. archives/recipes) pre-installed and configured	
- Number of tags 128 PT	R
- Number of tags 512 PT	S
- Number of tags 2048 PT	T
- Number of tags 4096 PT	U
• HMI RT: WinCC flexible 2008 [4] or w/o HMI software	0
• HMI RT: WinCC Advanced V11 SP2 (TIA Portal), only with WES7 SP1 and 2 GB RAM	1

Bundles with WinCC RT Professional (TIA Portal)

("Built to order" with max. delivery time of 14 working days; only repairs are possible for hardware)

SIMATIC HMI IPC477C — Order No.: 6AV7884- ■ A ■ ■ 0 - ■ E ■ 0

Fanless
4 x USB 2.0 at rear,
1 x USB 2.0 at front,
1 x COM (RS232),
2 x 10/100/1000 Mbit/s Ethernet (RJ45);
software pre-installed on CF/SSD:
Windows Embedded Standard 7 SP1,
SIMATIC WinCC Professional V11 SP2

SIMATIC HMI IPC477C PRO — Order No.: 6AV7883- ■ A ■ ■ 0 - ■ E ■ 0

Fanless, 4 x USB 2.0 (500 mA),
1 x USB 2.0 on front (except PRO),
1 x COM (RS232), 24 VDC power supply with On/Off switch,
2 x PROFINET (IE), Windows Embedded Standard 7 SP1 pre-installed,
SIMATIC WinCC Professional V11 SP2

Front panel

• 15" TFT Touch	6AV7884- 2
• 19" TFT Touch	6AV7884- 5
• 15" TFT Touch PRO	6AV7883- 6
• 19" TFT Touch PRO	6AV7883- 7

Client configurations

Celeron M processor 1.2 GHz, 1 GB DDR3 RAM, 4 GB CF card, runtime license 128 PT	A 2 4 Y

Client and stand-alone station configurations

Core2 Solo processor 1.2 GHz, 2 GB SDRAM-DDR3, 8 GB CF card, runtime license 128 PT	D 2 4 Y
Core2 Solo processor 1.2 GHz, PROFIBUS DP, 2 GB SDRAM-DDR3, 8 GB CF card, runtime license 128 PT	E 2 4 Y

Stand-alone station configurations

SIMATIC HMI IPC477C — Order No.: 6AV7884- ■ A H 3 0 - ■ E ■ 0

SIMATIC HMI IPC477C PRO — Order No.: 6AV7883- ■ A H 3 0 - ■ E ■ 0

Core2 Duo processor 1.2 GHz, PROFIBUS DP, 4 GB SDRAM-DDR3

• 8 GB CF card	4
• 50 GB SSD (High Endurance)	6
• Runtime license 128 PT	Y
• Runtime license 2048 PT	V

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[1] Preferred versions with repaired replacement device from warehouse

[2] Only together from 2 GB main memory

[3] Only with IPC477C

[4] with WES 2009: SP2; with WES 7: SP3

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◼ Ordering data

	Order No.
Bundles with WinCC V7.0 SP2 incl. Update 1 ("Built to order" with max. delivery time of 14 working days; only repairs are possible for hardware)	
SIMATIC HMI IPC477C	6AV7884- ◼ A ◼◼ 0 - ◼ B ◼ 0
Fanless 4 x USB 2.0 at rear, 1 x USB 2.0 at front, 1 x COM (RS232), 2 x 10/100/1000 Mbit/s Ethernet (RJ45); software pre-installed on CF/SSD: Windows Embedded Standard, SIMATIC WinCC V7.0 SP1	
SIMATIC HMI IPC477C PRO	6AV7883- ◼ A ◼◼ 0 - ◼ B ◼ 0
Fanless, 5 x USB 2.0 (500 mA), 1 x USB 2.0 at front (not on PRO), 1 x COM (RS232), 24 V DC power supply with On/Off switch, 2 x PROFINET (IE), Windows Embedded 2009 pre-installed, SIMATIC WinCC V7.0 SP2 incl. Update 1 Runtime pre-installed	
Front panel	
• 15" TFT Touch	6AV7884- 2
• 19" TFT Touch	6AV7884- 5
• 15" TFT Touch PRO	6AV7883- 6
• 19" TFT Touch PRO	6AV7883- 7
Client configurations	
Celeron M processor 1.2 GHz, 1 GB DDR3 RAM, 4 GB CF card, runtime license 128 PT	A 1 3 X
Client and stand-alone station configurations	
• Core2 Solo processor 1.2 GHz, 2 GB SDRAM-DDR3, 8 GB CF card, runtime license 128 PT	D 2 4 X
• Core2 Solo processor 1.2 GHz, PROFIBUS DP, 2 GB SDRAM-DDR3, 8 GB CF card, runtime license 128 PT	E 2 4 X
Stand-alone station configurations	
SIMATIC HMI IPC477C	6AV7884- ◼ A H 3 0 - ◼ B ◼ 0
SIMATIC HMI IPC477C PRO	6AV7883- ◼ A H 3 0 - ◼ B ◼ 0
Core2 Duo processor 1.2 GHz, PROFIBUS DP, 4 GB SDRAM-DDR3	
• 8 GB CF card	4
• 50 GB SSD (High Endurance)	6
• Runtime license 128 PT	X
• Runtime license 2048 PT	W

	Order No.
Accessories	
Protective film for Panel PCs 477/577/677 For protecting the touch screen against dirt/scratches	
• for 12" Touch	**6AV7671-2BA00-0AA0**
• for 15" Touch (not for PRO)	**6AV7671-4BA00-0AA0**
• for 19" Touch	**6AV7672-1CE00-0AA0**
Labeling membranes for Panel PCs 477/577/677 For labeling soft keys and function keys, blank, supplied in sets of 10	**6AV7672-0DA00-0AA0**
Touch pen Captive pen for operation of the touch devices; holder can be mounted on the control cabinet or direct on the PRO unit	**6AV7672-1JB00-0AA0**
Expansion components	From page 5/153

Note:

Other ready-to-use SIMATIC HMI IPC477Cs can be found in the Panel PC chapter under HMI IPC477C.

Please be sure to note:

The HMI IPC477C is delivered as standard with an inserted CF card. The licenses are located on the supplied USB flash drive.

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PC-based Automation
Embedded bundles/Software packages

Software packages for SIMATIC IPC and S7-mEC

■ **Overview**

HMI complete systems

SIMATIC IPC and S7-mEC with SIMATIC WinCC flexible

- SIMATIC IPC packages with WinCC flexible are an innovative solution for simple visualization tasks directly at the machine in the field of HMI.
- This package can only be supplied if a SIMATIC IPC or S7-mEC (same quantity) is ordered together with the WinCC flexible Runtime software. It cannot be ordered subsequently.
- In combination with the embedded SIMATIC IPC (HMI IPC477C (PRO) and IPC427C) and the embedded controller S7-mEC, there are turn-key solutions (bundles), i.e. the runtime software is already preinstalled.

SIMATIC IPC with SIMATIC WinCC (TIA Portal)

- The SIMATIC IPC packages with WinCC make it easy to order all the components required for an HMI solution on the basis of a Panel PC.
- This package can only be supplied if a SIMATIC IPC (same quantity) is ordered together with the WinCC RT Advanced or WinCC RT Professional software. It cannot be ordered subsequently.
- In combination with the embedded SIMATIC IPC (IPC277D / HMI IPC477C (PRO) / IPC477D and IPC227D / IPC427C / IPC427D) there are turn-key solutions (bundles) available, i.e. the runtime software is already preinstalled.

SIMATIC IPC with SIMATIC WinAC RTX (F)

- The SIMATIC IPC packages with WinAC RTX (F) make it easy to order all the components required for a control solution on the basis of an industrial PC.
- This package can only be supplied if a SIMATIC Industrial PC (same quantity) is ordered together with the WinAC RTX Runtime software. It cannot be ordered subsequently.
- In combination with the embedded SIMATIC IPC (IPC277D / HMI IPC477C (PRO) / IPC477D and IPC227D / IPC427C / IPC427D) and the S7-mEC embedded controller, there are turn-key solutions (bundles) available, i.e. the runtime software is already preinstalled.

5

Ordering data

	Order No.
SIMATIC WinCC flexible package [1] [3] **(incl. archives and recipes)**	6AV6623- 2 ■ A 0 0 - 0 A A 0
WinCC flexible 2008 Runtime	
• 128 PowerTags	B
• 512 PowerTags	D
• 2048 PowerTags	F
• 4096 PowerTags	G
SIMATIC WinCC package [2]	6AV6382- 2 ■ A 0 7 - 2 A X 0
WinCC V7.2 Runtime [2]	
• 128 PowerTags	C
• 256 Power Tags	D
• 1 024 PowerTags	E
• 8 192 PowerTags	H
• 65 536 PowerTags	F
SIMATIC WinCC package [2]	6AV6382- 2 ■ A 0 7 - 0 A X 0
WinCC V7.0 SP3 Runtime [2]	
• 128 PowerTags	C
• 512 PowerTags	D
• 2 048 PowerTags	E
• 8 192 PowerTags	H
• 65 536 PowerTags	F

[1] Only if ordered together with a SIMATIC IPC, SIMATIC Panel PC Ex, or S7-mEC
[2] Only if ordered together with a SIMATIC IPC
[3] The current version will always be supplied

SIMATIC WinCC (TIA Portal)

	Order No.
WinCC Runtime Advanced Package [1][3]	6AV2114- 2 ■ A 0 0 - 0 A A 0
Incl. Recipes + Logging	
• 128 PowerTags	B
• 512 PowerTags	D
• 2048 PowerTags	F
• 4096 PowerTags	H
SIMATIC WinCC Runtime Professional Package [2][3]	6AV2115- 2 ■ A 0 0 - 0 A A 0
• 128 PowerTags	B
• 512 PowerTags	D
• 2048 PowerTags	F
• 4096 PowerTags	H
• 8192 PowerTags	K
• 65536 PowerTags	M

[1] Only if ordered together with a SIMATIC IPC, SIMATIC Panel PC Ex, or S7-mEC
[2] Only if ordered together with a SIMATIC IPC
[3] The current version will always be supplied

SIMATIC WinAC RTX (F) package	
• SIMATIC WinAC RTX [1][2]	6ES7671-0RC08-6YA0
• SIMATIC WinAC RTX F [1][2]	6ES7671-1RC08-6YA0

[1] Only if ordered together with a SIMATIC IPC
[2] The current version will always be supplied

Note:

For ordering data for Panel PCs and accessories, see configurators in "SIMATIC Panel PCs".

	Order No.
Ready-to-use SIMATIC HMI IPC477C with WinCC ("Built to order" with max. delivery time of 14 working days; only repairs are possible for hardware)	
SIMATIC HMI IPC477C with WinCC V7.0	6AV7884- ■ A ■ ■ 0 - ■ B ■ 0
Fanless, 5 x USB2.0 (500 mA), 1 of which at front, 1 x COM (RS232), power supply 24 V DC with On/Off switch, 2 x PROFINET (IE), 2 GB main memory (DDR3-SDRAM), CompactFlash Card 8 GB; Windows Embedded 2009 preinstalled; SIMATIC WinCC V7.0 SP2 Runtime preinstalled	
Client configurations	■ A A 1 0 - 4 B X 0
Celeron M processor, 1.2 GHz, 1 GB SDRAM-DDR3, 8 GB CF card, runtime license 128 PT	
• 15" Touch	3
• 19" Touch	5
Client and stand-alone station configurations	■ A E 2 0 - 4 B X 0
Core2 Solo processor 1.2 GHz, 2 GB SDRAM-DDR3, 8 GB CF card, runtime license 128 PT	
• 15" Touch	3
• 19" Touch	5
Stand-alone station configurations	■ A H 3 0 - ■ B ■ 0
Processor Core2 Duo 1.2 GHz, 4 GB SDRAM-DDR3	
• 15" Touch	3
• 19" Touch	5
• 8 GB CF card	■ A H 3 0 - 4
• 50 GB SSD	■ A H 3 0 - 6
• Runtime license 128 PT	■ A H 3 0 - ■ B X 0
• Runtime license 2048 PT	■ A H 3 0 - ■ B W 0

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PC-based Automation
Embedded bundles/Software packages

Software packages for SIMATIC IPC and S7-mEC

■ Ordering data	Order No.
HMI IPC477C / HMI IPC477C PRO with WinCC RT Professional (TIA Portal)	
("Built to order" version, max. delivery time of 15 working days and with identified repair, if not preferred type)	
SIMATIC HMI IPC477C with WinCC RT Professional (TIA Portal)	**6AV788 4 - ☐ A ☐ ☐ 0 - ☐ E ☐ 0**
SIMATIC HMI IPC477C PRO with WinCC RT Professional (TIA Portal)	**6AV788 3 - ☐ A ☐ ☐ 0 - ☐ E ☐ 0**
Fan-free 5 x USB 2.0 (500 mA), one of which on the front 1 x COM (RS232) 24 V DC power supply with On/Off switch, 2 x PROFINET (IE), 2 GB main memory (DDR3-SDRAM), CompactFlash Card 8 GB, Windows Embedded Standard 7 SP1 pre-installed, SIMATIC WinCC RT Professional V11 SP2 pre-installed	
Front panels	
• 15" Touch	4 ⋯ 3
• 15" Touch PRO	3 ⋯ 6
• 19" Touch	4 ⋯ 5
• 19" Touch PRO	3 ⋯ 7
Client configurations	☐ - ☐ A A 2 0 - 4 E Y 0
Core2 Solo processor 1.2 GHz, 2 GB SDRAM-DDR3, 8 GB CF card, runtime license 128 PT	
Client and stand-alone station configurations	4 - ☐ A A 2 0 - 4 E Y 0
Core2 Solo processor 1.2 GHz, 2 GB SDRAM-DDR3, 8 GB CF card, runtime license 128 PT	
Stand-alone station configurations	4 - ☐ A H 3 0 - ☐ E ☐ 0
Processor Core2 Duo 1.2 GHz, 4 GB SDRAM-DDR3	
• 8 GB CF card	☐ - ☐ A H 3 0 - 4 E ☐ 0
• 50 GByte SSDe	6
• Runtime license 128 PT	☐ - ☐ A H 3 0 - ☐ E Y 0
• Runtime license 2048 PT	V

Note:

Other ready-to-use SIMATIC HMI IPC477Cs can be found in the Panel PC chapter under HMI IPC477C.

■ More information

Further information can be found in the Internet at:

http://www.automation.siemens.com/simatic-hmi

5

◼ Overview

SIMATIC IFP1900 MT Flat Panel Monitor – industrial monitors with innovative multi-touch operation and brilliant display for the next generation of operating concepts.

- Installation:
  - Equally suited to installation in machines, control cabinets, consoles, and gantries or in 19" racks
- Operator input options:
  - Innovative projected capacitive touch technology (PCT)
  - Optimized touch technology for industrial requirements with multi-touch operation
  - High protection against incorrect operation thanks to detection and filtering out of ball of hand, drops of water, and cleaning operations

◼ Technical specifications

	6AV7466-7TB01-0AA0 IFP1900 MT
Display	
Screen diagonal	18.5 in
Screen diagonal (cm)	47 cm
Display width	409.8 mm
Display height	230.4 mm
Viewing angle	170° x 170°
Type	TFT widescreen display, LED backlighting
On Screen Display (OSD) configuration	No, can be set with the software
Number of colors (bit levels)	24 bit
Resolution (pixels)	
• Resolution (WxH in pixel)	1366 x 768
General features	
• Detachable from computer unit	30 m
Backlighting	
• Backlighting (type)	LED
• MTBF backlighting (up to 50%, at 25 °C)	50 000 h; At 25°C
• Dimmable backlight	Yes; 0-100 %

	6AV7466-7TB01-0AA0 IFP1900 MT
Control elements	
Function keys	No
Mouse/cursor control	
• external mouse	USB
Touch operation	
• Touch keyboard	Yes
Installation type/mounting	
Built-in unit	Yes
• Permissible angle to the vertical backward (console)	35°
• Permissible angle to the vertical forward (ceiling mounting)	35°
Supply voltage	
Type of actuation	AC, DC
• AC	Yes
• DC	Yes
Rated voltage (AC)	0 V
Rated voltage (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
permissible range, lower limit (AC)	85 V
permissible range, upper limit (AC)	265 V

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■ **Technical specifications** (continued)

	6AV7466-7TB01-0AA0 IFP1900 MT		6AV7466-7TB01-0AA0 IFP1900 MT
Power losses		**Ambient conditions**	
Power loss AC		Min. ambient temperature	0 °C
• Typical	40 W	Max. ambient temperature	45 °C
• Maximum	60 W	Storage/transport temperature	
Power loss DC		• Min.	-20 °C
• Typical	40 W	• max.	60 °C
• Maximum	65 W	Relative humidity	
Interfaces		• Relative humidity during operation	95 %
USB on the rear	2	**Connection method**	
Video interfaces		Connector for cooling devices	Yes
• DVI-D	Yes	**Mechanics/material**	
• Display port	Yes; Display port V1.1	Type of housing (front)	Aluminum
Touch interfaces		• Aluminum	Yes
• USB	Yes	**Dimensions**	
Degree and class of protection		Width of the housing front	483 mm
IP65 at front	Yes	Height of housing front	337 mm
Enclosure Type 4 at the front	Yes	Mounting cutout (W x H x D)	
NEMA4 at the front	No	• Mounting cutout, width	465 mm
NEMA4X at the front	No	• Mounting cutout, height	319 mm
IP20 rear	Yes	Depth/installation dimension	62.5 mm
Standards, approvals, certificates		**Weight**	
CE	Yes	Weight without packaging	6.34 kg
UL approval		Weight incl. packaging	9.52 kg
• UL 508	Yes		
cULus	Yes		
EN 50081-1	Yes		
EN 50081-2	Yes		
EN 50082-1	Yes		
EN 50082-2	Yes		

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■ **Ordering data**	**Order No.**
SIMATIC IFP1900 MT Flat Panel, 19" display (16:9), operation using multitouch gestures, extended version up to 30 m, 1366 x 768 pixels, for 24 V DC and 100-240 V AC, display port/DVI interface, incl. 1.8 m DVI/USB cable	**6AV7466-7TB01-0AA0**

■ **Dimensional drawings**

All dimensions in mm. For mounting cut-out see technical specifications.
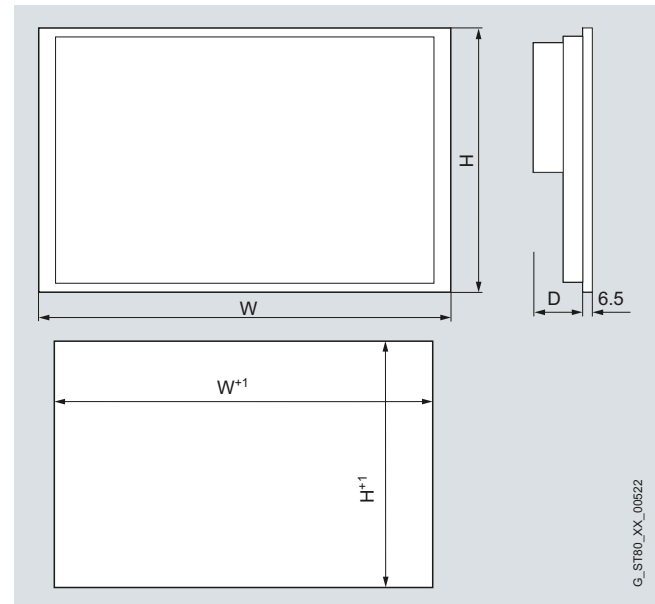

Mounting dimensions

Industrial Flat Panel MT	Front dimensions in mm		Mounting Cutout, in mm		
	W	**H**	**W+1**	**H+1**	**D**
IFP1900	483	337	465	319	93

PC-based Automation
Industrial monitors and thin clients

SIMATIC Industrial Flat Panel

■ Overview

The Industrial Flat Panels are rugged industry-standard LCD monitors in a wide screen design.

- Installation:
  - Equally suited for installation in the machine, in control cabinets, in consoles, to gantries, or in 19" racks.
- Type of operator control:
  - Simple display devices without operator functionality
  - Optional devices with touch control
  - Rear-mounted connection of I/O devices (optional).

■ Technical specifications

	6AV7863-2AA00-0AA0 IFP1500	6AV7863-2AB10-0AA0 IFP1500	6AV7863-2TA00-0AA0 IFP1500	6AV7863-2TB10-0AA0 IFP1500
General information				
Short designation	Flat Panel 15" display	Flat Panel 15" display ext.	Flat Panel 15" Touch	Flat Panel 15" Touch ext.
Display				
Screen diagonal	15.4 in	15.4 in	15.4 in	15.4 in
Screen diagonal (cm)	40 cm	40 cm	40 cm	40 cm
Display width	331.2 mm	331.2 mm	331.2 mm	331.2 mm
Display height	207 mm	207 mm	207 mm	207 mm
Viewing angle	170° x 170°	170° x 170°	170° x 170°	170° x 170°
Type	TFT widescreen display, LED backlighting	TFT widescreen display, LED backlighting	TFT widescreen display, LED backlighting	TFT widescreen display, LED backlighting
On Screen Display (OSD) configuration	No, can be set with the software	No, can be set with the software	No, can be set with the software	No, can be set with the software
Number of colors (bit levels)	24 bit	24 bit	24 bit	24 bit
Number of colors	16 777 200	16 777 200	16 777 200	16 777 200
Resolution (pixels) • Horizontal image resolution • Vertical image resolution • Pixel size, horizontal • Pixel size, vertical	1 280 800 0.259 mm 0.259 mm	1 280 800 0.259 mm 0.259 mm	1 280 800 0.259 mm 0.259 mm	1 280 800 0.259 mm 0.259 mm
General features • Non-reflective and tempered mineral glass screen • Detachable from computer unit • Brightness/contrast • Brightness, max.	Yes 5 m 400 cd/m² / 1000:1 400 cd/m²	Yes 30 m 400 cd/m² / 1000:1 400 cd/m²	 5 m 400 cd/m² / 1000:1 400 cd/m²	 5 m 400 cd/m² / 1000:1 400 cd/m²
Backlighting • Backlighting (type) • MTBF backlighting (up to 50%, at 25 °C) • Dimmable backlight	LED 50 000 h; At 25°C Yes; 0-100 %	LED 50 000 h; At 25°C Yes; 0-100 %	LED 50 000 h; At 25°C Yes; 0-100 %	LED 50 000 h; At 25°C Yes; 0-100 %

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■ **Technical specifications** (continued)

	6AV7863-2AA00-0AA0 IFP1500	6AV7863-2AB10-0AA0 IFP1500	6AV7863-2TA00-0AA0 IFP1500	6AV7863-2TB10-0AA0 IFP1500
Control elements				
Function keys	No	No	No	No
Mouse/cursor control				
• external mouse		USB		USB
Keyboard fonts				
• Alphanumeric and numeric block		Yes		
Touch operation				
• Touch keyboard			Yes	Yes
Installation type/mounting				
Built-in unit	Yes	Yes	Yes	Yes
• Permissible angle to the vertical backward (console)	35°	35°	35°	35°
• Permissible angle to the vertical forward (ceiling mounting)	35°	35°	35°	35°
Supply voltage				
Type of actuation	DC	DC	DC	DC
• AC		Yes		Yes
• DC	Yes	Yes	Yes	Yes
Rated voltage (AC)		100 V; Up to 240V 50/60Hz		
Rated voltage (DC)	24 V	24 V	24 V	24 V
permissible range, lower limit (DC)	19.2 V	19.2 V	19.2 V	19.2 V
permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V	28.8 V
permissible range, lower limit (AC)		90 V		90 V
permissible range, upper limit (AC)		264 V		264 V
Power losses				
Power loss AC				
• Typical		40 W		40 W
• Maximum		60 W		60 W
Power loss DC				
• Typical	40 W	40 W	40 W	40 W
• Maximum	65 W	65 W	65 W	65 W
Interfaces				
USB on the rear		2		2
Video interfaces				
• DVI-D	Yes	Yes	Yes	Yes
• Display port	Yes; Display port V1.1	Yes; Display port V1.1	Yes; Display port V1.1	Yes; Display port V1.1
Touch interfaces				
• USB	No	No	Yes	Yes
Degree and class of protection				
IP65 at front	Yes	Yes	Yes	Yes
Enclosure Type 4 at the front	Yes	Yes	Yes	Yes
NEMA4 at the front	No	No	No	No
NEMA4X at the front	No	No	No	No
IP20 rear	Yes	Yes	Yes	Yes

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PC-based Automation
Industrial monitors and thin clients

SIMATIC Industrial Flat Panel

■ **Technical specifications** (continued)

	6AV7863-2AA00-0AA0 IFP1500	6AV7863-2AB10-0AA0 IFP1500	6AV7863-2TA00-0AA0 IFP1500	6AV7863-2TB10-0AA0 IFP1500
Standards, approvals, certificates				
CE	Yes	Yes	Yes	Yes
KC approval	Yes	Yes	Yes	Yes
cULus	Yes; Corresponds to UL 508	Yes; Corresponds to UL 508	Yes; Corresponds to UL 508	Yes; Corresponds to UL 508
C-TICK	Yes	Yes	Yes	Yes
GL	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
ABS	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
BV	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
DNV	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
LRS	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
Class NK	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
Use in hazardous areas • ATEX Zone 22 • FM Class I Division 2	Yes; Available soon Yes; Available soon	Yes; Available soon Yes; Available soon	Yes; Available soon Yes; Available soon	Yes; Available soon Yes; Available soon
Ambient conditions Min. ambient temperature	0 °C	0 °C	0 °C	0 °C
Max. ambient temperature	50 °C; Vertical installation (horizontal)	50 °C; Vertical installation (horizontal)	50 °C; Vertical installation (horizontal)	50 °C; Vertical installation (horizontal)
Storage/transport temperature • Min. • max.	-20 °C 60 °C	-20 °C 60 °C	-20 °C 60 °C	-20 °C 60 °C
Relative humidity • Relative humidity during operation	95 %; Non-condensing	95 %; Non-condensing	95 %; Non-condensing	95 %; Non-condensing
Vibrations • Vibration load in operation • Vibration load during transport/storage	1 g 1 g	1 g 1 g	1 g 1 g	1 g 1 g
Shock testing • Shock loading in operation • Shock load during transport/storage	15 g 15 g	15 g 15 g	15 g 15 g	15 g 15 g
Connection method Connector for cooling devices		Yes		
Mechanics/material Type of housing (front) • Aluminum	Aluminum Yes	Aluminum Yes	Aluminum Yes	Aluminum Yes
Dimensions Width of the housing front	415 mm	415 mm	415 mm	415 mm
Height of housing front	310 mm	310 mm	310 mm	310 mm
Depth/installation dimension	62.5 mm	62.5 mm	62.5 mm	62.5 mm
Mounting cutout, width	396 mm; Tolerance: +1 mm	396 mm; Tolerance: +1 mm	396 mm; Tolerance: +1 mm	396 mm; Tolerance: +1 mm
Mounting cutout, height	291 mm; Tolerance: +1 mm	291 mm; Tolerance: +1 mm	291 mm; Tolerance: +1 mm	291 mm; Tolerance: +1 mm
Weight Weight without packaging	3.9 kg	3.9 kg	3.9 kg	3.9 kg
Weight incl. packaging	5 kg	5 kg	5 kg	5 kg

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■ Technical specifications (continued)

	6AV7 863-3AA00-0AA0 IFP1900	6AV7 863-3AB10-0AA0 IFP1900	6AV7 863-3TA00-0AA0 IFP1900	6AV7 863-3TB10-0AA0 IFP1900
General information				
Short designation	Flat Panel 19" display	Flat Panel 19" display ext.	Flat Panel 19" Touch	Flat Panel 19" Touch ext.
Display				
Screen diagonal	18.5 in	18.5 in	18.5 in	18.5 in
Screen diagonal (cm)	47 cm	47 cm	47 cm	47 cm
Display width	409.8 mm	409.8 mm	409.8 mm	409.8 mm
Display height	230.4 mm	230.4 mm	230.4 mm	230.4 mm
Type	TFT	TFT	TFT	TFT
On Screen Display (OSD) configuration	No, can be set with the software	No, can be set with the software	No, can be set with the software	No, can be set with the software
Number of colors (bit levels)	24 bit	24 bit	24 bit	24 bit
Resolution (pixels)				
• Resolution (WxH in pixel)	1366 x 768	1366 x 768	1366 x 768	1366 x 768
• Pixel size, horizontal	0.3 mm	0.3 mm	0.3 mm	0.3 mm
• Pixel size, vertical	0.3 mm	0.3 mm	0.3 mm	0.3 mm
General features				
• Non-reflective and tempered mineral glass screen	Yes	Yes		
• Detachable from computer unit	5 m	30 m	5 m	30 m
Backlighting				
• Backlighting (type)	LED	LED	LED	LED
• MTBF backlighting (up to 50%, at 25 °C)	50 000 h; At 25°C	50 000 h; At 25°C	50 000 h; At 25°C	50 000 h; At 25°C
• Dimmable backlight	Yes; 0-100 %	Yes; 0-100 %	Yes; 0-100 %	Yes; 0-100 %
Control elements				
Function keys	No	No	No	No
Mouse/cursor control				
• external mouse		USB		USB
Touch operation				
• Touch keyboard			Yes	Yes
Installation type/mounting				
Built-in unit	Yes	Yes	Yes	Yes
• Permissible angle to the vertical backward (console)	35°	35°	35°	35°
• Permissible angle to the vertical forward (ceiling mounting)	35°	35°	35°	35°

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PC-based Automation
Industrial monitors and thin clients

SIMATIC Industrial Flat Panel

■ **Technical specifications** (continued)

	6AV7 863-3AA00-0AA0 IFP1900	6AV7 863-3AB10-0AA0 IFP1900	6AV7 863-3TA00-0AA0 IFP1900	6AV7 863-3TB10-0AA0 IFP1900
Supply voltage				
Type of actuation	DC	DC	DC	DC
• AC		Yes		Yes
• DC	Yes	Yes	Yes	Yes
Rated voltage (AC)		100 V; Up to 240V 50/60Hz		100 V; Up to 240V 50/60Hz
Rated voltage (DC)	24 V	24 V	24 V	24 V
permissible range, lower limit (DC)	19.2 V	19.2 V	19.2 V	19.2 V
permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V	28.8 V
permissible range, lower limit (AC)		90 V		90 V
permissible range, upper limit (AC)		264 V		264 V
Power losses				
Power loss AC				
• Typical		40 W		40 W
• Maximum		60 W		60 W
Power loss DC				
• Typical	40 W	40 W	40 W	40 W
• Maximum	65 W	65 W	65 W	65 W
Interfaces				
USB on the rear		2		2
Video interfaces				
• DVI-D	Yes	Yes	Yes	Yes
• Display port	Yes; Display port V1.1	Yes; Display port V1.1	Yes; Display port V1.1	Yes; Display port V1.1
Touch interfaces				
• USB	No	No	Yes	Yes
Degree and class of protection				
IP65 at front	Yes	Yes	Yes	Yes
Enclosure Type 4 at the front	Yes	Yes	Yes	Yes
NEMA4 at the front	No	No	No	No
NEMA4X at the front	No	No	No	No
IP20 rear	Yes	Yes	Yes	Yes
Standards, approvals, certificates				
CE	Yes	Yes	Yes	Yes
KC approval	Yes	Yes	Yes	Yes
cULus	Yes; Corresponds to UL 508	Yes; Corresponds to UL 508	Yes; Corresponds to UL 508	Yes; Corresponds to UL 508
C-TICK	Yes	Yes	Yes	Yes
GL	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
ABS	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
BV	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
DNV	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
LRS	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
Class NK	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
Use in hazardous areas				
• ATEX Zone 22	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
• FM Class I Division 2	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon

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▉ Technical specifications (continued)

	6AV7 863-3AA00-0AA0 IFP1900	6AV7 863-3AB10-0AA0 IFP1900	6AV7 863-3TA00-0AA0 IFP1900	6AV7 863-3TB10-0AA0 IFP1900
Ambient conditions				
Min. ambient temperature	0 °C	0 °C	0 °C	0 °C
Max. ambient temperature	45 °C; Vertical installation (horizontal)	45 °C; Vertical installation (horizontal)	45 °C; Vertical installation (horizontal)	45 °C; Vertical installation (horizontal)
Storage/transport temperature				
• Min.	-20 °C	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C	60 °C
Relative humidity				
• Relative humidity during operation	95 %; Non-condensing	95 %; Non-condensing	95 %; Non-condensing	95 %; Non-condensing
Vibrations				
• Vibration load in operation	1 g	1 g	1 g	1 g
• Vibration load during transport/storage	1 g	1 g	1 g	1 g
Shock testing				
• Shock loading in operation	15 g	15 g	15 g	15 g
• Shock load during transport/storage	15 g	15 g	15 g	15 g
Connection method				
Connector for cooling devices		Yes		Yes
Mechanics/material				
Type of housing (front)	Aluminum	Aluminum	Aluminum	Aluminum
• Aluminum	Yes	Yes	Yes	Yes
Dimensions				
Width of the housing front	483 mm	483 mm	483 mm	483 mm
Height of housing front	337 mm	337 mm	337 mm	337 mm
Mounting cutout (W x H x D)				
• Mounting cutout, width	465 mm; Tolerance: +1 mm	465 mm; Tolerance: +1 mm	465 mm; Tolerance: +1 mm	465 mm; Tolerance: +1 mm
• Mounting cutout, height	319 mm; Tolerance: +1 mm	319 mm; Tolerance: +1 mm	319 mm; Tolerance: +1 mm	319 mm; Tolerance: +1 mm
Depth/installation dimension	62.5 mm	62.5 mm	62.5 mm	62.5 mm
Weight				
Weight without packaging	5.5 kg	5.5 kg	5.5 kg	5.5 kg
Weight incl. packaging	6.5 kg	6.5 kg	6.5 kg	6.5 kg

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PC-based Automation
Industrial monitors and thin clients

SIMATIC Industrial Flat Panel

■ **Technical specifications** (continued)

	6AV7 863-4AA00-0AA0 IFP2200	6AV7 863-4AB10-0AA0 IFP2200	6AV7 863-4TA00-0AA0 IFP2200	6AV7 863-4TB10-0AA0 IFP2200
General information				
Short designation	Flat Panel 22" display	Flat Panel 22" display ext.	Flat Panel 19" Touch	Flat Panel 22" Touch ext.
Display				
Screen diagonal	21.5 in	21.5 in	21.5 in	21.5 in
Screen diagonal (cm)	56 cm	56 cm	56 cm	56 cm
Display width	476 mm	476 mm	476 mm	476 mm
Display height	268 mm	268 mm	268 mm	268 mm
Viewing angle	170° x 170°	170° x 170°	170° x 170°	170° x 170°
Type	TFT	TFT	TFT	TFT
On Screen Display (OSD) configuration	No, can be set with the software	No, can be set with the software	No, can be set with the software	No, can be set with the software
Number of colors (bit levels)	24 bit	24 bit	24 bit	24 bit
Resolution (pixels) • Resolution (WxH in pixel) • Pixel size, horizontal • Pixel size, vertical	1920 x 1080 0.2475 mm 0.2475 mm	1920 x 1080 0.2475 mm 0.2475 mm	1920 x 1080 0.2475 mm 0.2475 mm	1920 x 1080 0.2475 mm 0.2475 mm
General features • Non-reflective and tempered mineral glass screen • Detachable from computer unit • Brightness/contrast	Yes 5 m 250 cd/m² / 1000:1	Yes 30 m 250 cd/m² / 1000:1	 5 m 250 cd/m² / 1000:1	 30 m 250 cd/m² / 1000:1
Backlighting • Backlighting (type) • MTBF backlighting (up to 50%, at 25 °C) • Dimmable backlight	LED 50 000 h; At 25°C Yes; 0-100 %	LED 50 000 h; At 25°C Yes; 0-100 %	LED 50 000 h; At 25°C Yes; 0-100 %	LED 50 000 h; At 25°C Yes; 0-100 %
Control elements				
Function keys	No	No	No	No
Mouse/cursor control • external mouse		USB		USB
Touch operation • Touch keyboard			Yes	Yes
Installation type/mounting				
Built-in unit • Permissible angle to the vertical backward (console)	Yes 35°	Yes 35°	Yes 35°	Yes 35°
• Permissible angle to the vertical forward (ceiling mounting)	35°	35°	35°	35°
Supply voltage				
Type of actuation • AC • DC	DC Yes	DC Yes Yes	DC Yes	DC Yes Yes
Rated voltage (AC)		100 V; Up to 240V 50/60Hz		100 V; Up to 240V 50/60Hz
Rated voltage (DC)	24 V	24 V	24 V	24 V
permissible range, lower limit (DC)	19.2 V	19.2 V	19.2 V	19.2 V
permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V	28.8 V
permissible range, lower limit (AC)		90 V		90 V
permissible range, upper limit (AC)		264 V		264 V

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■ **Technical specifications** (continued)

	6AV7 863-4AA00-0AA0 IFP2200	6AV7 863-4AB10-0AA0 IFP2200	6AV7 863-4TA00-0AA0 IFP2200	6AV7 863-4TB10-0AA0 IFP2200
Power losses				
Power loss AC				
• Typical		40 W		40 W
• Maximum		60 W		60 W
Power loss DC				
• Typical	40 W	40 W	40 W	40 W
• Maximum	65 W	65 W	65 W	65 W
Interfaces				
USB on the rear		2		2
Video interfaces				
• DVI-D	Yes	Yes	Yes	Yes
• Display port	Yes; Display port V1.1	Yes; Display port V1.1	Yes; Display port V1.1	Yes; Display port V1.1
Touch interfaces				
• USB	No	No	Yes	Yes
Degree and class of protection				
IP65 at front	Yes	Yes	Yes	Yes
Enclosure Type 4 at the front	Yes	Yes	Yes	Yes
NEMA4 at the front	No	No	No	No
NEMA4X at the front	No	No	No	No
IP20 rear	Yes	Yes	Yes	Yes
Standards, approvals, certificates				
CE	Yes	Yes	Yes	Yes
KC approval	Yes	Yes	Yes	Yes
cULus	Yes; Corresponds to UL 508	Yes; Corresponds to UL 508	Yes; Corresponds to UL 508	Yes; Corresponds to UL 508
C-TICK	Yes	Yes	Yes	Yes
GL	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
ABS	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
BV	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
DNV	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
LRS	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
Class NK	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
Use in hazardous areas				
• ATEX Zone 22	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
• FM Class I Division 2	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
Ambient conditions				
Min. ambient temperature	0 °C	0 °C	0 °C	0 °C
Max. ambient temperature	45 °C; Vertical installation (horizontal)	45 °C; Vertical installation (horizontal)	45 °C; Vertical installation (horizontal)	45 °C; Vertical installation (horizontal)
Storage/transport temperature				
• Min.	-20 °C	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C	60 °C
Relative humidity				
• Relative humidity during operation	95 %; Non-condensing	95 %; Non-condensing	95 %; Non-condensing	95 %; Non-condensing
Vibrations				
• Vibration load in operation	1 g	1 g	1 g	1 g
• Vibration load during transport/storage	1 g	1 g	1 g	1 g
Shock testing				
• Shock loading in operation	15 g	15 g	15 g	15 g
• Shock load during transport/storage	15 g	15 g	15 g	15 g

PC-based Automation
Industrial monitors and thin clients

SIMATIC Industrial Flat Panel

■ Technical specifications (continued)

	6AV7 863-4AA00-0AA0 IFP2200	6AV7 863-4AB10-0AA0 IFP2200	6AV7 863-4TA00-0AA0 IFP2200	6AV7 863-4TB10-0AA0 IFP2200
Connection method				
Connector for cooling devices		Yes		Yes
Mechanics/material				
Type of housing (front)	Aluminum	Aluminum	Aluminum	Aluminum
• Aluminum	Yes	Yes	Yes	Yes
Dimensions				
Width of the housing front	560 mm	560 mm	560 mm	560 mm
Height of housing front	380 mm	380 mm	380 mm	380 mm
Mounting cutout (W x H x D)				
• Mounting cutout, width	542 mm; Tolerance: +1 mm	542 mm; Tolerance: +1 mm	542 mm; Tolerance: +1 mm	542 mm; Tolerance: +1 mm
• Mounting cutout, height	362 mm; Tolerance: +1 mm	362 mm; Tolerance: +1 mm	362 mm; Tolerance: +1 mm	362 mm; Tolerance: +1 mm
Depth/installation dimension	62.5 mm	62.5 mm	62.5 mm	62.5 mm
Weight				
Weight without packaging	6.5 kg	6.5 kg	6.5 kg	6.5 kg
Weight incl. packaging	7.6 kg	7.6 kg	7.6 kg	7.6 kg

■ Ordering data

	Order No.		Order No.
Industrial Flat Panel Monitor	**6AV7863-■ ■ ■ ■ - 0 A A 0**	**Accessories**	
Display size		**Set of protective films** **for ITC/IFP/TP1500**	**6AV2124-6QJ00-0AX1**
• 15"	2		
• 19"	3	**Set of protective films** **for ITC/IFP/TP1900**	**6AV2124-6UJ00-0AX1**
• 22"	4		
Operator functionality		**Set of protective films** **for ITC/IFP/TP2200**	**6AV2124-6XJ00-0AX1**
• Display devices without operator functionality	A	**Touch pen**	**6AV7672-1JB00-0AA0**
• Touch screen (analog/resistive)	T	Undetachable pen for operation of the touch devices,	
• Touch screen + function keys, 15" only and extended special functions	B B 1	mounting of the support on the control cabinet or directly on the PRO unit	
Special functions		**Accessories for standard variants** **up to 5 m (6AV7863-..A0.-0AA0)**	
• Standard, can be located up to 5 m away	A 0	**DisplayPort cable** **(industrial quality)**	
• Extended, for positioning at a distance of up to 30 m, 100 ... 230 V AC (without supply cable) + special functions	B 1	• 3 m • 5 m	**6AV7860-0DH30-0AA0** **6AV7860-0DH50-0AA0**
		DVI-D cable (industrial quality)	
		• 3 m • 5 m	**6AV7860-0BH30-0AA0** **6AV7860-0BH50-0AA0**
		USB cable (industrial quality)	
		• 3 m • 5 m	**6AV7860-0CH30-0AA0** **6AV7860-0CH50-0AA0**
		Accessories for extended variants **up to 30 m (6AV7863-..B1.-0AA0)**	
		Cable set (USB/Cat5; **sender module, DVI)**	
		• 10 m • 15 m • 20 m • 30 m	**6AV7860-1EX21-0AA1** **6AV7860-1EX21-5AA1** **6AV7860-1EX22-0AA1** **6AV7860-1EX23-0AA1**
		Cable set 90° USB/Cat5; sender module, DVI 90° angle, 20 m	**6AV7860-1EX22-0BA1**
		USB host extender incl. 20 cm USB cable (USB to Cat5)	**6AV7671-1EX02-0AA0**

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■ **Dimensional drawings**

All dimensions in mm. For mounting cut-out see technical specifications.
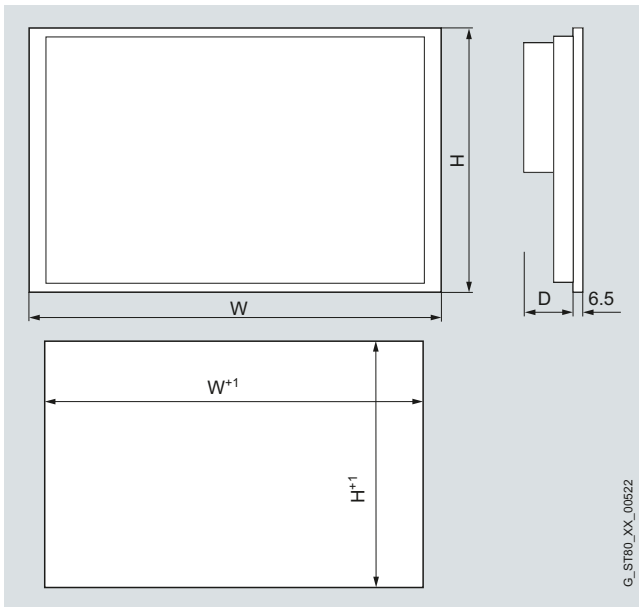
Mounting dimensions

Industrial Flat Panel	Faceplate Dimensions, in mm		Mounting Cutout, in mm		
	W	H	W+1	H+1	D
IF1500 Key/Touch	483	310	450	291	62.5
IFP1500	415	310	396	291	62.5
IFP1900	483	337	465	319	62.5
IFP2200	560	380	542	362	62.5

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PC-based Automation
Industrial monitors and thin clients

SIMATIC Flat Panels

■ **Overview**
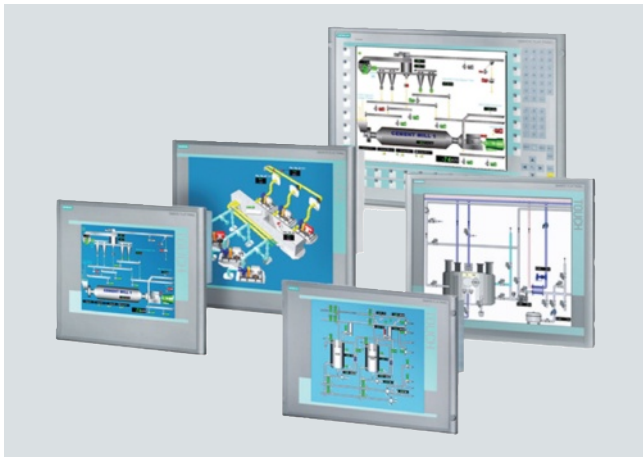
The Flat Panels are rugged industry-standard LCD monitors.

- Installation:
  - They are equally suited to installation in the machine, in control cabinets, consoles and gantries or in 19" racks.
  - As a device with all-round IP65 protection for mounting on a supporting arm/stand
- Type of operator control:
  - Simple display devices without operator functionality
  - Optional devices with touch control
  - Rear connection of I/O devices (optional)

■ **Technical specifications**

Flat Panel	12"	15"	19"
Supply voltage			
Supply voltage	24 V DC, additional option 100-240 V AC	24 V DC, additional option 100-240 V AC	24 V DC, additional option 100/240 V AC
Permissible frequency range	47 - 63 Hz	47 - 63 Hz	47 - 63 Hz
Power consumption, max.	25 VA	35 VA	55 VA
General features			
Anti-glare and hardened mineral glass screen	Yes	Yes	Yes
Line side switch	No	No	No
Can be separate from the computer	Optional up to 30 m	Optional up to 30 m	Optional up to 30 m
Display			
On-screen display (OSD) configuration	Yes	Yes	Yes
Display version	12" TFT	15" TFT	19" TFT
Visible area (HxV) in mm	246 x 184.5	304 x 228	376 x 301
Viewing angle	140° x 120°	140° x 120° (min)	170° x 170°
Pixel pitch	0.3075 mm x 0.3075 mm	0.297 mm x 0.297 mm	0.294 mm x 0.294 mm
Resolution (W x H in pixels)	800 x 600	1024 x 768	1280 x 1024
Refresh rate	60 - 75 Hz	60 - 75 Hz	60 - 75 Hz
Line frequency	25 - 48 kHz	46.7 - 62.5 kHz	30 - 80 KHz
Brightness/Contrast	> 350 cd/m² / 450:1	> 260cd/m² / 350:1	> 300cd/m² / 300:1
Number of colors	262k	16.7 million	16.7 million
MTBF backlit display (at 25 °C, 24 h continuous duty)	50.000 h	50.000 h	50.000 h
Type of operation			
Touch screen	analog-resistive, optional	analog-resistive, optional	analog-resistive, optional
Connection for mouse/keyboard/ barcode reader	Yes, at rear, optionally via USB	Yes, at rear, optionally via USB	Yes, at rear, optionally via USB
Degree of protection			
Front side according to EN 60529	IP65	IP65	IP65
Rear side according to EN 60529	IP20	IP20	IP20

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■ **Technical specifications** (continued)

Flat Panel	12"	15"	19"
Certifications & standards			
Certification	cULus (UL 508), NEMA4 tested	cULus (UL 508), NEMA4 tested	cULus (UL 508), NEMA4 tested
EMC	CE EN 55011 class A	CE EN 55011 class A	CE EN 55011 class A
Standards, approvals, certificates			
CE mark	Yes	Yes	Yes
UL approval	Yes	Yes	Yes
CCC marking	Yes	Yes	Yes
Ambient conditions			
Vibration load during operation	1 g (10 m/s^2)	1 g (10 m/s^2)	1 g (10 m/s^2)
Shock loading during operation	5 g (50 m/s^2)	5 g (50 m/s^2)	5 g (50 m/s^2)
Temperature			
Ambient temperature during operation	5 to +50°C	5 to +50°C	5 to +45°C
Mounting			
Rack mounting	No	No	No
Front mounting	Yes (IP65)	Yes (IP65)	Yes (IP65)
Angle of inclination for desk mounting	-20°/+70°	-20°/+70°	-20°/+70°
Interfaces			
Graphics interface	Standard VGA interface 15-pin Sub D / digital DVI-D interface	Standard VGA interface 15-pin Sub D / digital DVI-D interface	Standard VGA interface 15-pin Sub D / digital DVI-D interface
Interface for Touch	USB (V1.1)	USB (V1.1)	USB (V1.1)
USB interface for touch screen	Optional	Optional	Optional
Dimensions			
External dimensions (W x H x D) in mm	400 x 310 x 61.5	483 x 310 x 54	483 x 400 x 56
Installation cutout/device depth (W x H x D) in mm	368 x 290 x 51	450 x 290 x 54	449 x 380 x 56
Weight			
Weight, approx.	5 kg	6.4 kg	10.2 kg

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PC-based Automation
Industrial monitors and thin clients

SIMATIC Flat Panels

Ordering data

	Order No.
Flat Panel Monitor	**6AV7861-■ ■ ■ 0- 1 A A 0**

Display size
- 12" — **1**
- 15" — **2**
- 19" — **3**

Operator functionality:
- Display devices without operator functionality — **A**
- Touch screen (analog/resistive) — **T**

Power supply
- 24 VDC (not for Extended versions since these always have AC and DC) — **A**
- 100 to 230 V AC (incl. Euro power supply cable) and 24 V DC — **B**

Version
- Standard, can be located up to 5 m away — **0**
- Extended, can be located up to 30 m away, marine approvals Dimmable background illumination Ex22 — **1**

	Order No.
Special versions	
Flat Panel Monitor	
• 12" Key	**6AV7861-1KB10-1AA0**
• 15" Key	**6AV7861-2KB10-1AA0**
• PRO 15" Touch	**6AV7861-5TB10-1BA0**
• PRO 19" Touch	**6AV7861-6TB10-1BA0**
Accessories	
Protective films For protecting the touch screen against dirt and scratches Pack with 10 units	
• for 12" Touch	**6AV7671-2BA00-0AA0**
• for 15" Touch	**6AV7671-4BA00-0AA0**
• for 19" Touch	**6AV7672-1CE00-0AA0**
Touch pen Undetachable pen for operation of the touch devices, mounting of the support on the control cabinet or directly on the PRO unit	**6AV7672-1JB00-0AA0**
Connection cables for Standard, Extended and PRO versions	
• Video (VGA)	
- 3.0 m	**6AV7860-0AH30-0AA0**
- 5.0 m	**6AV7860-0AH50-0AA0**
• Video (DVI-D)	
- 3.0 m	**6AV7860-0BH30-0AA0**
- 5.0 m	**6AV7860-0BH50-0AA0**
• USB for optional touch screen	
- 3.0 m	**6AV7860-0CH30-0AA0**
- 5.0 m	**6AV7860-0CH50-0AA0**
Connection cables for Extended and PRO versions	
• Cable set 10 m (DVI-D, CAT5 cable (USB), USB transmitter module)	**6AV7860-1EX21-0AA1**
• Cable set 15 m (DVI-D, CAT5 cable (USB), USB transmitter module)	**6AV7860-1EX21-5AA1**
• Cable set 20 m (DVI-D, CAT5 cable (USB), USB transmitter module)	**6AV7860-1EX22-0AA1**
• Cable set 30 m (DVI-D, CAT5 cable (USB), USB transmitter module)	**6AV7860-1EX23-0AA1**

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■ Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.

Installation cutout for Flat Panel

Flat Panel PRO 15" Touch

Touch devices	Front dimensions		Installation cutout		
	W	H	W+1	H+1	D
12"	400	310	368	290	51
15"	483	310	450	290	55
19"	483	400	450	380	57
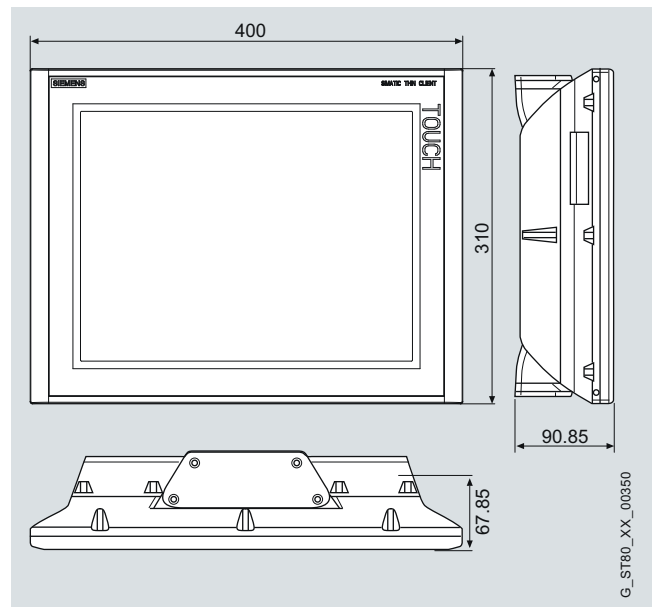
Flat Panel PRO 19" Touch
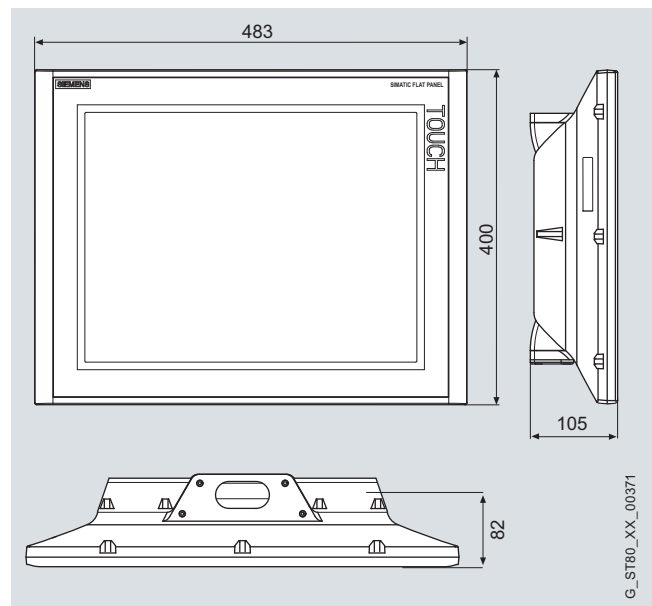
■ More information

Additional information is available on the Internet at:

http://www.siemens.com/industrial-lcd

Note:

Do you need a specific modification or extension to the products described here? Then refer to "Customized Automation". There you will find information about additional and generally available sector-specific products as well as options for customer-specific modification and adaptation.

Examples are:
- SIMATIC SCD monitor 1900 for portrait operation
- SIMATIC Flat Panels with 6" and 10" Touch

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PC-based Automation
Industrial monitors and thin clients

SCD desk monitors SCD 19101

Overview

The SCD 19101 D/DT monitors are LCD desktop monitors for use in industry.

Type of operator control:
- Simple display devices
- Panels with touch control

Technical specifications

19" monitors	SCD 19101-D/-DT
General features	
Supply voltage	
• Supply voltage	110/230 V AC
• Frequency/power consumption	47 - 63 Hz/30 VA
• Line side switch	No
• Representation	Full screen
Display	
• Display version	19" TFT
• Screen diagonals	19"
• visible area (HxV) in mm	359 x 287
• Viewing angle	170° x 170°
• Pixel pitch	0.28 x 0.28
• Optimum resolution (in pixels)	1280 x 1024
• Refresh rate	30 - 100 Hz
• Line frequency	50 - 97 KHz
• Brightness/contrast (typical)	270 cd/m^2/400:1
• Number of colors	16 million
• MTBF of backlit display (up to 50%, at 25 °C)	50,000 h
Type of operation	
• Function keys	No
• Membrane keyboard & piezo mouse	No
• Touch screen	Optional
Degree of protection	
• Degree of protection according to EN 60529	IP20
Ambient conditions	
• Temperature	
- Ambient temperature during operation	0 to +40°C
Interfaces	
• Interface design, analog video signal (VGA)	Yes
• PS/2 interfaces for keyboard & mouse	No
• Serial interface for touch screen	Optional/serial
Dimensions	
• External dimensions (W x H x D) in mm	465 x 444 x 91 (stand depth 240)
• Installation cutout/depth (W x H x D) in mm	465 x 444 x 91 (stand depth 240)
• Weight in kg	7

Ordering data

	Order No.
19" LCD monitors SCD 19101-D, desktop model	**6GF6220-1DA01**
19" Touch LCD monitors SCD 19101-DT, desktop model	**6GF6220-1DB01**

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■ **Dimensional drawings**

All dimensions in mm. For mounting cut-out see technical specifications.
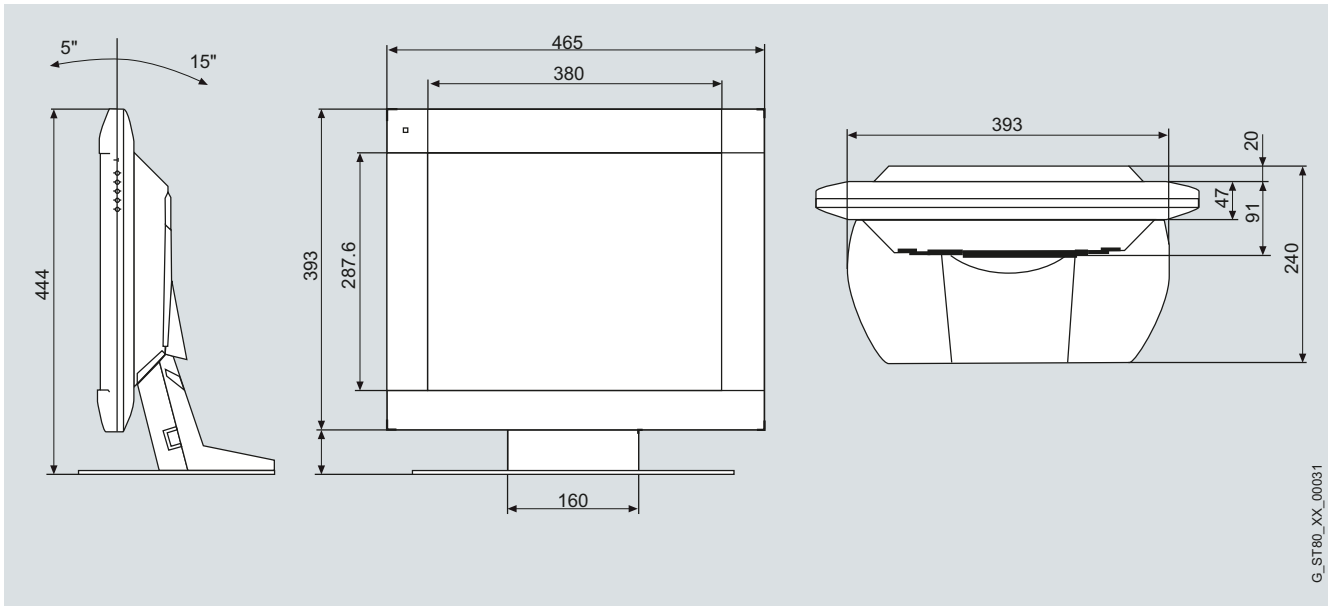
SCD 19101-D/DT

■ **More information**

Additional information is available in the Internet under:

http://www.siemens.com/industrial-lcd

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PC-based Automation
Industrial monitors and thin clients

SCD monitors 1900

▪ Overview
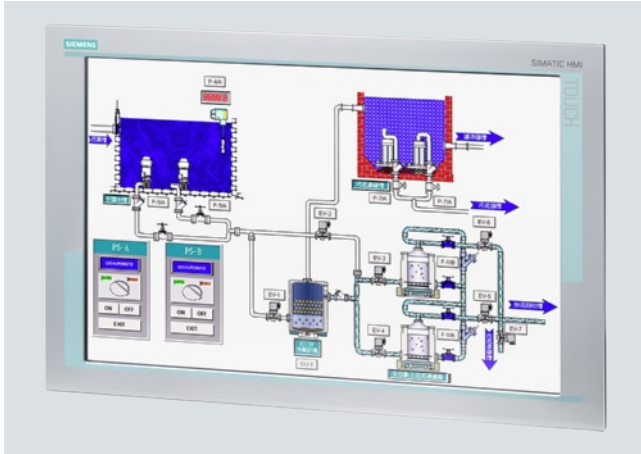
The SIMATIC HMI SCD 1900 is a rugged, industry-standard PC monitor.

It is used as an operator control unit in all types of industrial and standard PC, including for portrait mounting. Standard interfaces permit a wide range of possible applications.

Built-in versions:
- Built-in unit (for control cabinets, control desks, and gantries)
- Built-in portrait for portrait mounting
  (for control cabinets, control desks and gantries)
- 19" built-in units (for 19" racks)

Type of operator control:
- Panels with touch control

▪ Technical specifications

	6AV7862-2TA00-1AA0 SCD 1900
General information	
Short designation	Flat Panel 19" Touch
Display	
Screen diagonal	19 in
visible area (HxV) in mm	255 x 408
Viewing angle	160° x 170°
Type	TFT widescreen display, LED backlighting
On Screen Display (OSD) configuration	Yes
Number of colors (bit levels)	24 bit
Backlighting • MTBF backlighting (up to 50%, at 25 °C)	50 000 h
Installation type/mounting	
Rack mounting possible	Yes
Built-in unit	Yes
VESA mounting	No
Supply voltage Type of actuation • AC	DC Yes; With an external power supply unit
• DC	Yes
permissible range, lower limit (DC)	21.6 V
permissible range, upper limit (DC)	26.4 V

	6AV7862-2TA00-1AA0 SCD 1900
Interfaces Video interfaces	
• VGA	Yes
• DVI-D	Yes
Touch interfaces	
• USB	Yes
Degree and class of protection	
IP65 at front	Yes
IP20 rear	Yes
Standards, approvals, certificates	
CE	Yes; Industry
CSA	No
UL	Yes
cULus	Yes
Ambient conditions Storage/transport temperature	
• Min.	-20 °C
• max.	60 °C
Shock testing	
• Shock loading in operation	10 g
• Shock load during transport/storage	10 g
Mechanics/material Type of housing (front)	
• Aluminum	Yes
Weight	
Weight without packaging	6 kg

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Ordering data	Order No.
SCD monitor 1900	**6AV7862-2TA00-1AA0**
Portrait SCD monitor 1900	**6AV7466-2TA17-1AA0**
Accessories	
Cable for connecting to the graphics interface of the PC	
• VGA cable 3.0 m	**6AV7860-0AH30-0AA0**
• VGA cable 5.0 m	**6AV7860-0AH50-0AA0**
• DVI-D cable, 3.0 m	**6AV7860-0BH30-0AA0**
• DVI-D cable, 5.0 m	**6AV7860-0BH50-0AA0**
USB cable for connecting the touch screen	
• 3.0 m	**6AV7860-0CH30-0AA0**
• 5.0 m	**6AV7860-0CH50-0AA0**
External power supply for SCD 1900	**6AV7860-2AD06-0AA0**
100-230 V AC, 50-60 Hz; incl. mounting accessories for optional installation at the device.	

Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.

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SCD 1900

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PC-based Automation
Industrial monitors and thin clients

■ **Dimensional drawings** (continued)

① with installed optional DC power supply unit

All dimensions in mm. For mounting cut-out see technical specifications.

■ **More information**

Additional information is available in the Internet under:

http://www.siemens.com/industrial-lcd

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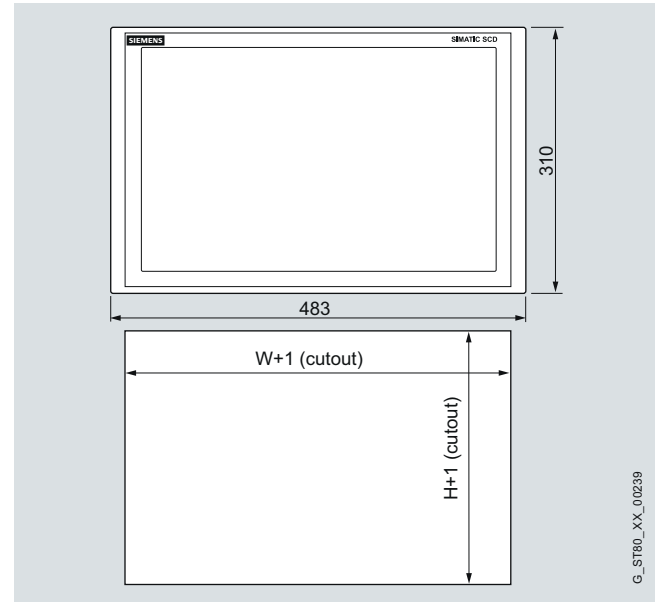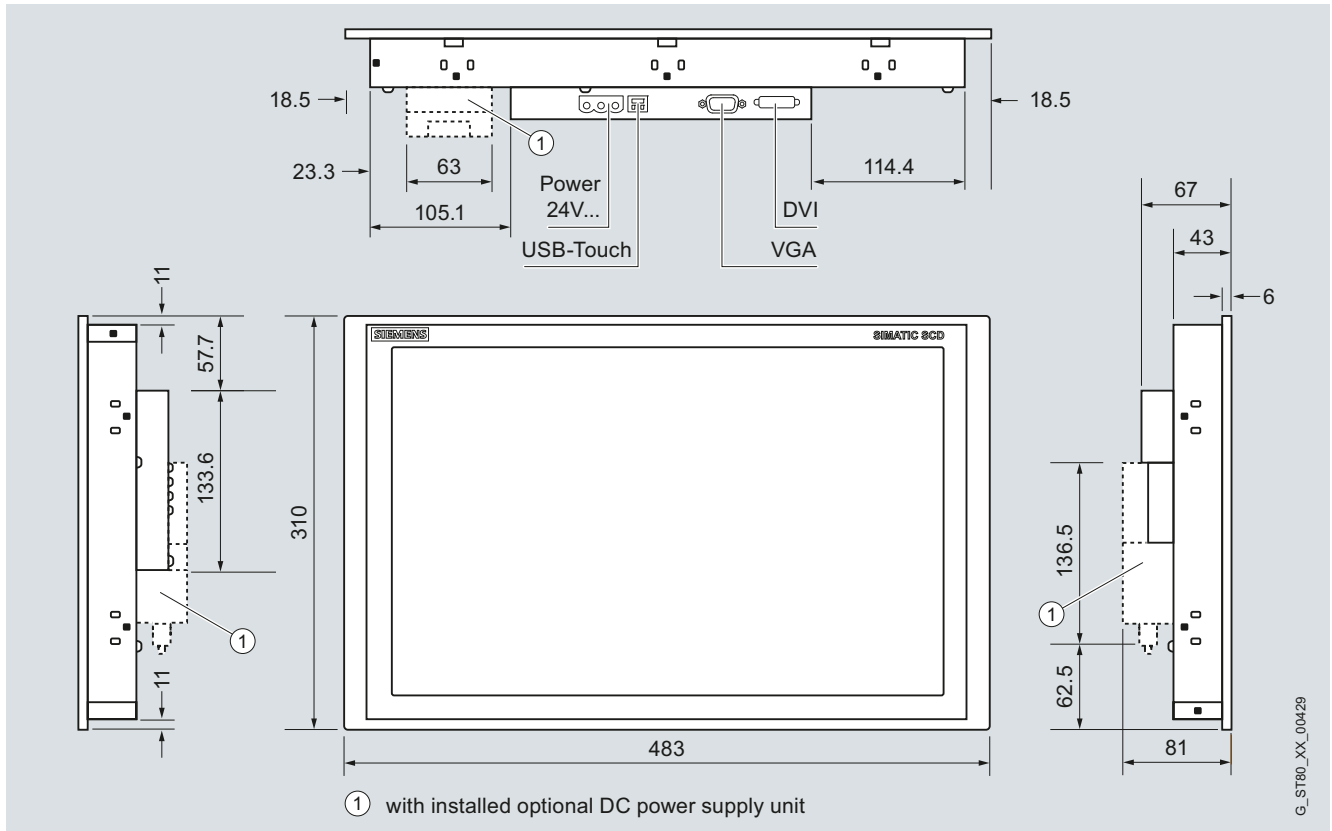
■ Overview

SIMATIC ITC Industrial Thin Clients are powerful operating units for flexible use in distributed visualization applications. All devices are equipped with high-resolution, brilliant widescreen displays, and due to the diverse communication protocols they can be used both for challenging machine-level operator control & monitoring and for the connection to control systems, e.g. in the SCADA environment. They can be used as (additional) operator stations on a SIMATIC Industrial PC, Panel PC, or server, and on a SIMATIC Panel.

The following installation versions are available:

- SIMATIC ITC1200 – 12" Touch
- SIMATIC ITC1500 – 15" Touch
- SIMATIC ITC1900 – 19" Touch
- SIMATIC ITC2200 – 22" Touch

In addition to these devices, we continue to offer the SIMATIC Thin Client 10", SIMATIC Thin Client 15", and SIMATIC Thin Client PRO 15" for solutions in 4:3 format. These differ technically from the SIMATIC ITC. For more details, refer to the SIMATIC Thin Client chapter.

The SIMATIC HMI Thin Client Ex is available for hazardous areas. This device differs technically from the devices mentioned above. For more details, refer to the SIMATIC Thin Client EX chapter.

■ Technical specifications

	6AV6 646-1AA22-0AX0	6AV6 646-1AB22-0AX0	6AV6 646-1AC22-0AX0	6AV6 646-1AD22-0AX0
Display				
Screen diagonal	12.1 in	15.4 in	18.5 in	21.5 in
Display width	261.1 mm	331.2 mm	409.8 mm	495.6 mm
Display height	163.2 mm	207 mm	230.4 mm	292.2 mm
Type	TFT widescreen display, LED backlighting	TFT widescreen display, LED backlighting	TFT widescreen display, LED backlighting	TFT widescreen display, LED backlighting
Number of colors	16 777 200	16 777 200	16 777 200	16 777 200
Resolution (pixels)				
• Horizontal image resolution	1 280	1 280	1 366	1 920
• Vertical image resolution	800	800	768	1 080
General features				
• PDF reader	Yes	Yes	Yes	Yes
Backlighting				
• Backlighting (type)	LED, dimmable	LED, dimmable	LED, dimmable	LED, dimmable
• Dimmable backlight	Yes; 5-100 %	Yes; 5-100 %	Yes; 5-100 %	Yes; 5-100 %
Control elements				
Mouse/cursor control				
• USB	Yes	Yes	Yes	Yes
Keyboard fonts				
• external keyboard				
- USB	Yes	Yes	Yes	Yes
Touch operation				
• Design as touch screen	Yes	Yes	Yes	Yes
- Analog, resistive	Yes	Yes	Yes	Yes
• Touch keyboard	Yes	Yes	Yes	Yes
Installation type/mounting				
Built-in unit	Yes	Yes	Yes	Yes

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PC-based Automation
Industrial monitors and thin clients

SIMATIC Industrial Thin Client

■ **Technical specifications** (continued)

	6AV6 646-1AA22-0AX0	6AV6 646-1AB22-0AX0	6AV6 646-1AC22-0AX0	6AV6 646-1AD22-0AX0
Supply voltage				
Type of actuation	24 V DC	24 V DC	24 V DC	24 V DC
permissible range, lower limit (DC)	19.2 V	19.2 V	19.2 V	19.2 V
permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V	28.8 V
Input current				
Current consumption	1.2 A	1.5 A	1.3 A	2.2 A
Inrush current A²s	0.5 A²·s	0.5 A²·s	0.5 A²·s	0.5 A²·s
Interfaces				
USB on the rear	2	2	2	2
USB at the front	0	0	0	0
Industrial Ethernet				
• Transmission rate, max.	1 000 Mbit/s	1 000 Mbit/s	1 000 Mbit/s	1 000 Mbit/s
• Number of industrial Ethernet interfaces	1	1	1	1
Protocols				
Protocols (Ethernet)				
• TCP/IP	Yes	Yes	Yes	Yes
• DHCP	Yes	Yes	Yes	Yes
• SNMP	Yes	Yes	Yes	Yes
• DCP	Yes	Yes	Yes	Yes
• LLDP	Yes	Yes	Yes	Yes
WEB characteristics				
• HTTP	Yes	Yes	Yes	Yes
• HTML	Yes; HTML5	Yes; HTML5	Yes; HTML5	Yes; HTML5
• XML	Yes	Yes	Yes	Yes
• CSS	Yes	Yes	Yes	Yes
• JavaScript	Yes	Yes	Yes	Yes
Protocols (terminal link)				
• Sm@rtServer	Yes	Yes	Yes	Yes
• RDP	Yes	Yes	Yes	Yes
• VNC viewer	Yes	Yes	Yes	Yes
• Citrix	No	No	No	No
• SINUMERIK	Yes	Yes	Yes	No
Protocols				
PROFINET IO Device				
• Services				
- PROFIenergy	No	No	No	No
Degree and class of protection				
IP65 at front	Yes	Yes	Yes	Yes
IP20 rear	Yes	Yes	Yes	Yes
Standards, approvals, certificates				
CE	Yes	Yes	Yes	Yes
KC approval	Yes	Yes	Yes	Yes
cULus	Yes	Yes	Yes	Yes
C-TICK	Yes	Yes	Yes	Yes
Use in hazardous areas				
• cULus Class I Zone 1	No	No	No	No
• cULus Class I Zone 2, Division 2	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon
• FM Class I Division 2	Yes; Available soon	Yes; Available soon	Yes; Available soon	Yes; Available soon

■ Technical specifications (continued)

	6AV6 646-1AA22-0AX0	6AV6 646-1AB22-0AX0	6AV6 646-1AC22-0AX0	6AV6 646-1AD22-0AX0
Ambient conditions				
Min. ambient temperature	0 °C	0 °C	0 °C	0 °C
Max. ambient temperature	50 °C	50 °C	45 °C	45 °C
Storage/transport temperature				
• Min.	-20 °C	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C	60 °C
Relative humidity				
• Relative humidity during operation	90 %	90 %	90 %	90 %
Software				
Web browser	Yes	Yes	Yes	Yes
Configuration				
• On-board	Yes	Yes	Yes	Yes
• Remote administration	Yes; With Remote Configuration Center (RCC) as of V2.0	Yes; With Remote Configuration Center (RCC) as of V2.0	Yes; With Remote Configuration Center (RCC) as of V2.0	Yes; With Remote Configuration Center (RCC) as of V2.0
Languages				
Online languages				
• German	Yes	Yes	Yes	Yes
• English	Yes	Yes	Yes	Yes
I/O				
I/O devices				
• USB memory	Yes; USB storage media can be connected	Yes; USB storage media can be connected	Yes; USB storage media can be connected	Yes; USB storage media can be connected
Mechanics/material				
Type of housing (front)				
• Aluminum	Yes	Yes	Yes	Yes
Dimensions				
External dimensions (W x H x D)				
• Width	330 mm	415 mm	483 mm	560 mm
• Height	241 mm	310 mm	337 mm	380 mm
Mounting cutout (W x H x D)				
• Width	310 mm	396 mm	465 mm	542 mm
• Height	221 mm	291 mm	319 mm	362 mm
• Depth	82 mm	75 mm	75 mm	75 mm
Weight				
Weight without packaging	3.4 kg	5.2 kg	6.5 kg	7.1 kg
Weight incl. packaging	4.1 kg	5.7 kg	7.1 kg	7.8 kg

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PC-based Automation
Industrial monitors and thin clients

SIMATIC Industrial Thin Client

Ordering data	Order No.
Industrial Thin Client	
• SIMATIC ITC1200 12" Touch device	**6AV6646-1AA22-0AX0**
• SIMATIC ITC1500 15" Touch device	**6AV6646-1AB22-0AX0**
• SIMATIC ITC1900 19" Touch device	**6AV6646-1AC22-0AX0**
• SIMATIC ITC2200 22" Touch device	**6AV6646-1AD22-0AX0**
Accessories	See HMI accessories, from page 2/96

Dimensional drawings

All dimensions in mm. For mounting cut-out see technical specifications.

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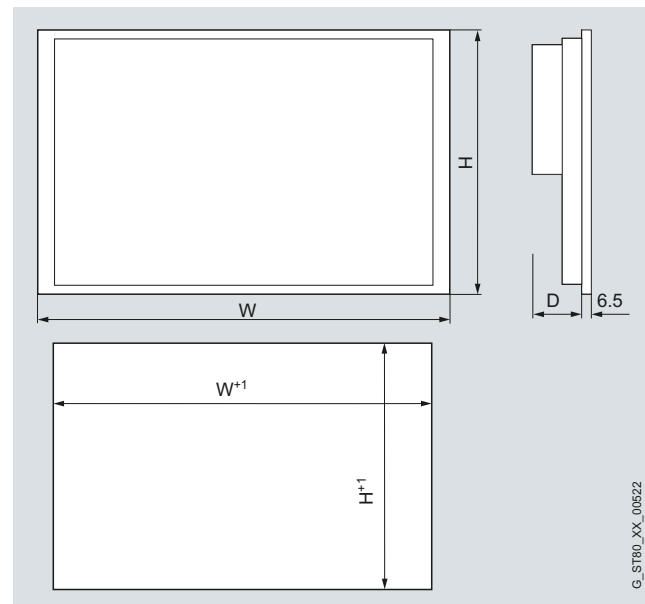
Mounting dimensions

Industrial Thin Client	Faceplate Dimensions, in mm		Mounting Cutout, in mm		
	W	H	W+1	H+1	D
ITC1200	330	241	310	221	82
ITC1500	415	310	396	291	75
ITC1900	483	337	465	319	75
ITC2200	560	380	542	362	75

More information

Additional information is available on the Internet at:

http://www.siemens.com/simatic-itc

Overview

SIMATIC Thin Clients are very economical operator panels which can be used flexibly in various distributed applications. They can be used as (additional) operator stations on a SIMATIC industrial PC or also on a SIMATIC Panel.

The following versions are available:

- The rack-mounting versions SIMATIC Thin Client 10" Touch and SIMATIC Thin Client 15" Touch
- The support arm version SIMATIC Thin Client PRO 15" Touch with a rugged and very compact aluminum enclosure which is completely IP65 protected

The new high-performance SIMATIC ITC Industrial Thin Clients with high-resolution touch displays in widescreen format from 12" to 22" are available for demanding terminal applications. There are technical differences to the SIMATIC Thin Client. For more information, see SIMATIC Industrial Thin Client.

The SIMATIC HMI Thin Client Ex is available for hazardous areas. This device differs technically from the devices mentioned above.

Technical specifications

	6AV6646-0AA21-2AX0 10" Touch	6AV6646-0AB21-2AX0 15" Touch
Display		
Size	10.4"	15.1"
Display type	TFT, 65536 colors	TFT, 65536 colors
Resolution (pixels)		
• Resolution (WxH in pixel)	640 x 480	1024 x 768
Backlighting		
• MTBF backlighting (at 25 °C)	about 50000 hours	about 50000 hours
Control elements		
Control elements	Touch screen	Touch screen
Connection for mouse/keyboard/barcode reader	USB / USB	USB / USB
Touch operation		
• Touch screen	Analog, resistive	Analog, resistive
Supply voltage		
Supply voltage	24 V DC	24 V DC
Processor		
Processor	ARM, 266 MHz	ARM, 266 MHz
Memory		
Type	Flash / RAM	Flash / RAM
Interfaces		
Interfaces	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)
USB port	1 x USB	1 x USB
Industrial Ethernet		
• Industrial Ethernet interface	1 x Ethernet (RJ45)	1 x Ethernet (RJ45)

SIMATIC Thin Client

◾ Technical specifications (continued)

	6AV6646-0AA21-2AX0 10" Touch	6AV6646-0AB21-2AX0 15" Touch
Protocols		
WEB characteristics		
• HTTP	Yes	Yes
• HTML	Yes	Yes
• XML	Yes	Yes
• CSS	Yes	Yes
• JavaScript	Yes	Yes
Protocols (terminal link)		
• Sm@rtServer	Yes	Yes
• RDP	Yes	Yes
EMC		
Emission of radio interference acc. to EN 55 011		
• Emission of radio interferences acc. to EN 55 011 (limit class A)	Yes; EN 61000-6-4, interference emission: Intended for use in industrial areas.	
Degree and class of protection		
Front	IP54, NEMA 12, (when installed)	IP54, NEMA 12, (when installed)
Rear	IP20	IP20
Standards, approvals, certificates		
Certifications	CE, cULus, C-TICK, NEMA 12 (when installed: IP54, enclosure type 12; optional IP65, enclosure type 4X/type 12 (6AV6671-6AP00-0AX0))	CE, cULus, C-TICK, NEMA 12 (when installed: IP54, enclosure type 12; optional IP65, enclosure type 4X/type 12 (6AV6671-6AP00-0AX0))
EMC	The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information please refer to the user documentation.	The product is designed for use in industrial environments. When used in residential areas, the emission of radio interference according to limit class B of EN 55011 must be ensured. For further information please refer to the user documentation.
Suitable for safety functions	No	No
Ambient conditions		
maximum permissible angle of inclination without external ventilation	+/- 35 °	+/- 35 °
Storage/transport temperature		
• Transport, storage	-20 °C to +60 °C	-20 °C to +60 °C
Relative humidity		
• max. relative humidity	85 %; (Storage)	
Dimensions		
Front of enclosure (W x H)	325 mm x 263 mm	400 mm x 310 mm
Weight		
Weight	2.2 kg	3.6 kg

◾ Ordering data

	Order No.		Order No.
SIMATIC Thin Client		**Option packages**	
• 10" Touch device	**6AV6646-0AA21-2AX0**		
• 15" Touch device	**6AV6646-0AB21-2AX0**	**IP65 set** **(upgrade from IP54 to IP65)**	**6AV6671-6AP00-0AX0**
Starter kits		**Accessories**	See HMI accessories, from page 2/96
SIMATIC Thin Client **with Sm@rtAccess** (License to operate SmartAccess on the server)			
• Touch device 10" with Sm@rtAccess license (panels)	**6AV6653-6AA01-2AA0**		
• Touch device 15" with Sm@rtAccess license (panels)	**6AV6653-6BA01-2AA0**		
• Touch device 15"PRO with Sm@rtAccess license (panels)	**6AV6653-6CA01-2AA0**		
• Touch device 10" with Sm@rtAccess license for WinCC flexible 2008 Runtime	**6AV6653-6DA01-2AA0**		
• Touch device 15" with Sm@rtAccess license for WinCC flexible 2008 Runtime	**6AV6653-6EA01-2AA0**		
• Touch device 15" PRO with Sm@rtAccess license for WinCC flexible 2008 Runtime	**6AV6653-6FA01-2AA0**		

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Dimensional drawings

All dimensions in mm. Tolerance ± 1 mm.
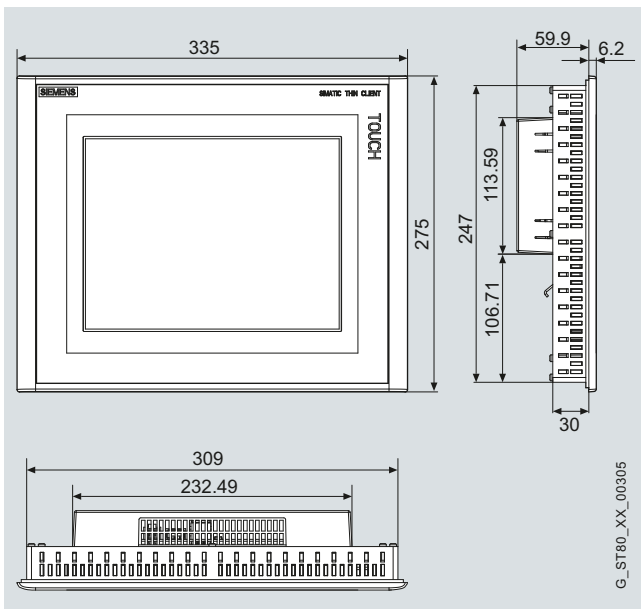
SIMATIC Thin Client 10" Touch
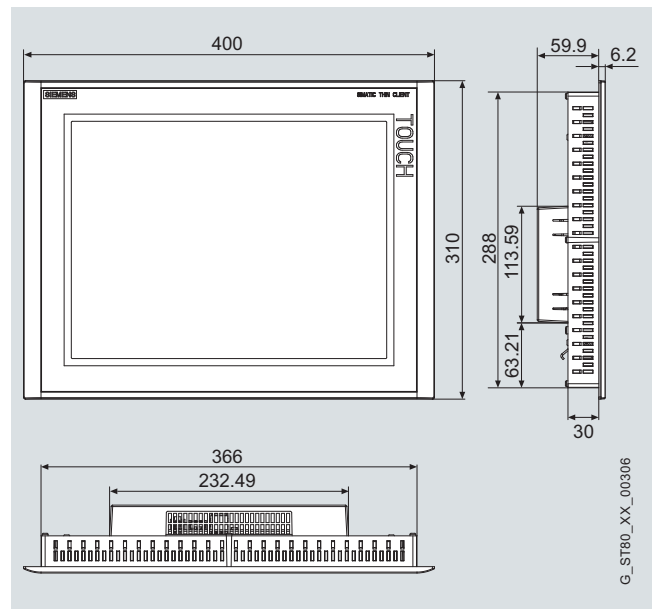
SIMATIC Thin Client 15" Touch

More information

Additional information is available in the Internet under:

http://www.siemens.com/simatic-thin-client

PC-based Automation
RMOS3 real-time operating system

■ Overview

SICOMP RMOS3

RMOS3 is a real-time and multitasking-capable operating system. In addition to real-time capability, which ensures fast response times, deterministic behavior is also an important feature. This guarantees response times within a short time interval.

Rugged operating systems guarantee reliable behavior even under exceptional circumstances. RMOS3 has been optimized for use in embedded applications. In harsh environments, the rugged memory cards or CompactFlash memories can be used instead of hard disks. In addition, RMOS3 is suitable for operation with or without an operator.

RMOS3 V3.50 Real-Time Operating System

With the RMOS3 V3.50, Intel Core i processors with up to 2 cores/4 threads are now also supported. The "Symmetric Multicore Processing" (SMP) mode makes it possible to implement complex applications that are simultaneously processed on multiple processor cores. RMOS3 V3.50 ensures that the cores are symmetrically utilized so that a performance increase of up to 100% can be achieved on the SIMATIC IPC with 2 processors.

The new RMOS3 real-time operating system is characterized by increased security thanks to memory protection, minimum interrupt response times and fast hard disk access. For SIMATIC IPCs, automation solutions based on C/C++ with demands for hard real time, deterministic response and high performance can now be created more easily, conveniently and with greater stability.

RMOS3-GNU V3.0

The RMOS3-GNU software package uses generally available Linux tools with which users can easily create real-time applications for RMOS3 on the SIMATIC IPC.

The GNU-based software tools for Windows XP/Vista/Windows 7 computers comprise the assemblers, C/C++ compilers, linkers and debuggers familiar in the Linux environment as well as the Eclipse development interface. The integrated cross debugger is useful for commissioning the customer application since the development and target system can be connected via TCP/IP. C/C++ header files and libraries are available for applications which use RMOS3 Version 3.30 or higher.

RMOS3-TCP/IP V3.0

The RMOS3-TCP/IP V3.0 software package offers the application developer a wide range of options for implementing TCP/UDP-based communication tasks running under the real-time operating system RMOS3, V3.40 or higher.

Apart from the usual UDP and TCP protocols for application development, the new version of RMOS3-TCP/IP not only provides Address Resolution Protocol (ARP), Multicast and ICMP services (Ping), but also client services for the DHCP (Dynamic Host Configuration Protocol), DNS (Domain Name System), NTP (Network Time Protocol) and SMTP (Simple Mail Transfer Protocol).

Together with the FTP programming interface and the Web server with process data connection, the programmer obtains numerous programming interfaces for even greater flexibility in communication.

RMOS3-GRAPHX V1.0

With the RMOS3-GRAPHX product, window-based, graphical user interfaces can be implemented with the RMOS3 real-time operating system Version V3.30 or higher.

Extensive graphical libraries increase the user-friendliness of the system and support cost savings due to centralization of the control and operation on a CPU.

With a Graphical User Interface (GUI), familiar from Windows, window displays can be implemented with the familiar command elements in the form of buttons, toolbars, scrollbars, selection lists and symbols as well as dialog boxes for prompts or inputs.

BSP SIMATIC IPC V4.0 for RMOS3

The Board Support Package BSP SIMATIC IPC V4.0 for RMOS3 is a software package for supporting all interfaces (e.g. PROFINET onboard) and other onboard functions (e.g. battery monitoring, watchdog) for the following industrial PCs: SIMATIC IPC227D, SIMATIC IPC427C, SIMATIC IPC627C, SIMATIC IPC 827C, SIMATIC IPC647C and SIMATIC IPC847C.

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■ **Overview**

RMOS3 is the real-time and multitasking-capable operating system from Siemens for implementing your automation solution with the programming languages C and C++. In mechanical engineering or in the manufacture of machine tools RMOS3 is used in test beds, packaging or printing machines where high response times in conjunction with open and closed-loop control tasks are required.

The new RMOS3 real-time operating system is characterized by increased security thanks to memory protection, minimum interrupt response times and fast hard disk access.

Furthermore, with the RMOS3 V3.50 version, Intel Core i processors with up to 2 cores/4 threads are now also supported. The "Symmetric Multicore Processing" (SMP) mode makes it possible to implement complex applications that are simultaneously processed on multiple processor cores. RMOS3 V3.50 ensures that the cores are symmetrically utilized so that a performance increase of up to 100% can be achieved on the SIMATIC IPC with 2 cores.

For SIMATIC IPC, automation solutions based on C/C++ with demands for hard real time, deterministic response and high performance can now be created more easily, conveniently and with greater stability.

RMOS3 has been optimized for use on PC platforms in embedded systems and fulfills industrial requirements with respect to:

- Real-time and multitasking capability
- Deterministic features
- Ruggedness
- Scalability/memory requirements
- Operation with or without an operator
- Modern development tools
- Quality assurance
- Warranty conditions
- Service & Support

■ **Technical specifications**

System requirements for the development system

- PC with Windows XP, Windows Vista or Windows 7

Required software components:

- RMOS3 development environment as of RMOS3 V3.40
- RMOS3-GNU as of V2.1, compiler and development interface
- Board Support Packages
  (optional, module-specific expansion packages)

System requirements for target system

- SIMATIC IPC427C
- SIMATIC Box PC 627B/827B, IPC627C
- SIMATIC Rack PC 647B/847B, IPC647C, IPC847C

Required software components:

- RMOS3 V3.50 runtime environment
  (RMOS nucleus and service programs)
- Board Support Packages (optional, module-specific drivers)

Product structure, listed acc. to development and runtime licenses

Product name	Description
RMOS3 V3.50 EL **RMOS3 V3.50 EL Update**	Single license for RMOS3 development environment incl. a RMOS3 runtime license comprising • Sources and libraries for application creation • RMOS3 runtime environment incl. loadable programs and TCP/IP stack and 10/100 Mbit/s LAN drivers • Configurable RMOS3 Nucleus for the Use on SIMATIC IPCs • Examples and documentation
RMOS3-GNU V3.0 EL **RMOS3-GNU V3.0 EL Update**	Single license for the GNU development tools incl. • Compiler, linker, debugger and Eclipse IDE • Special RMOS3 libraries for application creation • Example projects and documentation
BSP-SIMATIC IPC 4.0 EL [1] **BSP SIMATIC IPC V4.0 EL Update** [1]	• Single license for IPC227D, IPC427C, IPC627C, IPC827C, IPC647C, IPC847C incl. runtime license for BSP (no runtime license for RMOS3 V3.50): • Configurable nucleus • Driver for USB, LAN, PROFINET IO, PROFIBUS DP, BasicCAN • GNU example projects and documentation
RMOS3-TCP/IP V3.0 EL [1] **incl. German documentation** **RMOS3-TCP/IP V3.0 EL Update** [1]	Master license for TCP/IP communication • Application development with socket interface • Programming interface for FTP
RMOS3-PC IO V2.0	Free download as programming example with programming interface for access to PC I/O modules

[1] Optional Board Support Packages (BSP)

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PC-based Automation
RMOS3 real-time operating system

RMOS3 V3.50 real-time operating system

◾ Technical specifications (continued)
Product structure – Runtime licenses

Product name	Description
RMOS3 V3.50 RT	Single RMOS3 V3.50 runtime license
RMOS3-TCP/IP V3.x RT [1]	• Single RMOS3 TCP/IP runtime license • Required for application programs with socket interface
RMOS3-CANopen168 [1]	Single runtime license with software package when the CPCI-COM168 module is used in networks with CANopen
BSP SIMATIC IPC RT V4.x [1]	Single runtime license for BSP

Supported boot media
- Disk
- Hard disk
- IDE flash disk
- LAN (on request)

	Available drivers for RMOS3 V3.50
The drivers described below are currently available for RMOS3 V3.50	
Keyboard	• PS2 keyboard • USB keyboard [1]
Serial, parallel	• Universal I/O driver (BYT driver) for character-oriented I/O devices • COM driver for 3964(R) protocol Transmission mode and baud rate configurable
Graphics	• EGA (text mode) • Semi-graphical interface (function library on request) • RMOS3-GRAPHX (graphics library for pixel graphics window displays) [1]
Ethernet	10/100/1000 Mbit/s LAN driver: • IPC227D, IPC427C, IPC627C, IPC827C, IPC647C, IPC847C • Filter functionality, configurable transfer rates and transfer modes
USB [1]	• Optional USB driver for USB 1.1 protocol and USB 2.0 protocol • Support for keyboard, mouse, hub, memory stick and CD-ROM (on request)
PROFINET IO	• Module driver for operating the CP 1616-compatible PROFINET components (CP 1616, CP 1604, SIMATIC IPC with PROFINET onboard) • Supports the ERTEC 400 controller, RT and IRT, IO Controller and/or IO Device
PROFIBUS DP [1]	• Module driver and programming interface for SIMATIC PC with PROFIBUS onboard, CP5611 compatible, DPV0 master and/or slave
CAN [1]	• BasicCAN driver for connection to CAN bus • Supports the SJA1000 CAN controller on SIMATIC IPC427C

[1] Optional Board Support Packages (BSP)

◾ Ordering data / Order No.

RMOS3 V3.50 EL Single license for RMOS3 development environment incl. a RMOS3 runtime license	**6AR1405-0EA00-1AA4**
RMOS3 V3.50 EL Update Update from V3.40 to V3.50. Single license for RMOS3 development environment incl. a RMOS3 runtime license	**6AR1405-0EA50-1AA4**
RMOS3 V3.50 RT Single RMOS3 V3.50 runtime license	**6AR1403-0DA3**

Overview

RMOS3-GNU V3.0 is a software package that supports development and testing of applications for the real-time operating system RMOS3 (Version 3.40 and higher).

It builds on a GNU-based tool chain that is well-known and widely implemented in the Linux environment and contains the expansions required for RMOS3.

RMOS3-GNU V3.0 replaces the existing RMOS3-GNU V2.x product. An update from RMOS3-GNU V2.x to Version V3.0 is available.

RMOS3-GNU V3.0 contains the following new functions:

- Up-to-date versions of the GNU tool chain, e.g. C/C++ compiler V3.4.1
- Updated versions of Eclipse V3.4 and CDT plug-in V5.0.
- New Eclipse "terminal" plug-in for remote operation of the target system
- New Eclipse "profiling" plug-in for determining the system load and the task activity on the target system
- Extended Eclipse "remote launcher" plug-in for testing the applications on Privilege Level 0 or alternatively on Privilege Level 1

Technical specifications

System requirements: Development system

- Windows XP, Windows Vista, or Windows 7
- Java Runtime Environment, Version 1.5 and higher (only necessary when using Eclipse IDE)
- RMOS3 development environment RMOS3 Version 3.40 (incl. software fix RMOS3 V3.40.02) or RMOS3 V3.50 (incl. software fix RMOS3 V3.50.04)

System requirements: Target system

- RMOS3 version 3.40.02 and higher or version 3.50.04 (configurable nucleus V3.30.06 R01)

Licenses

The GNU-based tool chain is subject to the GNU GENERAL PUBLIC LICENSE (GPL) or
the GNU LESSER GENERAL PUBLIC LICENSE (LGPL).
Please read the licensing rules supplied with the product.

Ordering data

	Order No.
SICOMP RMOS3-GNU V3.0 EL Single license for the GNU development tools incl. compiler, linker, debugger and Eclipse IDE, special RMOS3 libraries for creating applications, project examples and documentation	**6AR1405-0BA00-1CA0**
SICOMP RMOS3-GNU V3.0 EL update Update V2.x to V3.0, development package, single license, CD-ROM, including description in German in PDF format	**6AR1405-0BA50-1CA0**

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PC-based Automation
RMOS3 real-time operating system

RMOS3-TCP/IP V3.0

■ **Overview**

The RMOS3-TCP/IP V3.0 software package provides libraries for the quick and easy generation of TCP/IP, FTP and Web applications. In addition, the software package offers FTP and Telnet services for the exchange of files and for the remote maintenance of the RMOS3 system. New additions are the DHCP, DNS, NTP and SMTP services for even greater flexibility in communication.

■ **Technical specifications**

System requirements for the development system

• PC with Windows XP, Windows Vista or Windows 7

Required software components:

• RMOS3 development environment as of RMOS3 V3.40

• RMOS3-GNU as of V2.1, compiler and development interface

• Board support packages
  (optional, module-specific expansion packages)

System requirements for target system

• SIMATIC Microbox PC IPC427C

• SIMATIC Box PC 627B/IPC627C

• SIMATIC Box PC 827B

• SIMATIC Rack PC 647B/IPC647C

• SIMATIC Rack PC 847B/IPC847C

Required software components:

• RMOS3 V3.40 or higher runtime environment
  (RMOS nucleus and service programs)

• Board support packages (optional, module-specific drivers)

■ **Ordering data** / **Order No.**

Ordering data	Order No.
SICOMP RMOS3-TCP/IP V3.0 EL Development package, single license, TCP/IP software for RMOS3 V3.40 or higher, CD-ROM, including description in German in PDF format	**6AR1403-0AN00-1BA0**
SICOMP RMOS3-TCP/IP V3.0 EL, update from V2.3 to V3.0 Development package, single license, TCP/IP software for RMOS3 V3.40 or higher, CD-ROM, including description in German in PDF format	**6AR1403-0AN50-1BA0**
SICOMP RMOS3-TCP/IP V3.x Runtime license Runtime license for TCP/IP software V3.0 or higher for use with RMOS3 V3.40 or higher	**6AR1403-0BN3**

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Overview

RMOS3-GRAPHX V1.0 provides you with a comprehensive graphics package which enables you to expand your C/C++ based automation solution under SICOMP RMOS3 with a user-friendly graphics interface for operator control and monitoring.

Use of the Qt-based graphics library of the Norwegian company Trolltech-Nokia (www.gt.nokia.com) allows window-based interfaces to be created with a "look and feel" and input facilities comparable to Windows. Real-time characteristics are maintained within the multi-tasking RMOS3 operating system environment.

In combination with the widely used development tools GNU, Eclipse and the QT Designer from Trolltech-Nokia, convenient development tools are available to you for creating your real-time applications on approved SIMATIC IPC hardware.

Technical specifications

System requirements for the development system

- PC with Windows XP, Windows Vista or Windows 7

Required software components:

- RMOS3 development enviroment RMOS3 V3.40 or higher or RMOS3 V3.30 including software fix RMOS3 V3.30.04
- RMOS3-GNU as of V2.1, compiler and development interface
- For RMOS3-GNU V3.0 or higher, an update for RMOS3-GraphX V1.1 is offered via Customer Support: http://www.siemens.com/automation/support-request
- RMOS3-GRAPHX V1.0, graphics package for creation of graphics interfaces for RMOS3
- Update RMOS3-GraphX V1.1 in connection with RMOS3-GNU V3.0 or higher is available via Customer Support: http://www.siemens.com/automation/support-request
- Qt Desktop Light Edition for Windows from Trolltech-Nokia (www.gt.nokia.com)

Optional:

- Board support packages (optional, module-specific expansion packages)

System requirements for target system

- SIMATIC IPC

Required software components:

- RMOS3 V3.40 or higher runtime environment (RMOS nucleus and service programs)
- RMOS3-GRAPHX V1.0 runtime license (graphics support, USB driver)

Optional:

- Board support packages (optional, module-specific drivers)

Ordering data

Ordering data	Order No.
RMOS3-GRAPHX V1.0 EL Master license for graphic library for the creation of window-oriented interfaces of RMOS3 Version 3.30 and higher	**6AR1403-0BG00-1AA0**
Qt Desktop Light Edition Single Platform Windows development package Qt Desktop Light Edition V4.1.4 for Windows, incl. Qt Designer	Obtainable from Trolltech-Nokia, www.gt.nokia.com

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PC-based Automation
RMOS3 real-time operating system

BSP SIMATIC IPC V4.0 for RMOS3

■ Overview

The Board Support Package BSP SIMATIC IPC V4.0 supports SIMATIC IPC devices of the C generation and the D generation starting with the NANOBOX PC IPC227D. The following SIMATIC IPCs can therefore now be operated along with their PROFINET onboard functionality, PROFIBUS, CAN, and hardware-based functions with the real time operating system RMOS3 V3.50 and higher:

- IPC227D
- IPC427C and IPC427D
- IPC627C and IPC827C
- IPC647C and IPC847C

■ Technical specifications

System requirements for the development system

- PC with Windows XP, Windows Vista or Windows 7

Required software components:

- RMOS3 development environment as of RMOS3 V3.50
- RMOS3-GNU V3.0 and higher, compiler and development interface
- Board Support Packages
  (optional, module-specific expansion packages)

System requirements for target system

- SIMATIC IPC227D
- SIMATIC IPC427C and IPC427D
- SIMATIC IPC627C and IPC827C
- SIMATIC IPC647C and IPC847C

Required software components:

- RMOS3 V3.50 or higher runtime environment
  (RMOS nucleus and service programs)
- Board Support Packages
  (optional, module-specific drivers)

■ Ordering data

	Order No.
BSP SIMATIC IPC V4.0 EL Board Support Package for SIMATIC IPC227D, SIMATIC IPC427C, SIMATIC IPC627C, IPC827C, SIMATIC IPC647C, and IPC847C for use with the SICOMP RMOS3 operating system V3.50 and higher, development package, single license, runtime license, CD-ROM, including description in German in PDF format, RMOS3 runtime license V3.50 and higher not included.	**6AR1403-0BC00-1DA0**
BSP SIMATIC IPC V4.0 EL Update Update from BSP SIMATIC IPC V3.1 to BSP SIMATIC IPC V4.0	**6AR1403-0BC50-1DA0**
BSP Nanobox IPC V1.x RT Package License bundle comprising RMOS3 V3.50 RT, RMOS3-TCP/IP V3.x RT and BSP SIMATIC IPC V4.x RT runtime licenses for use with the Nanobox PC IPC227D.	**6AR1403-1DC3**
BSP SIMATIC IPC V4.x RT Runtime license for Board Support Package BSP SIMATIC IPC V4.0 EL for • SIMATIC IPC227D • SIMATIC IPC427C • SIMATIC IPC627C, IPC827C • SIMATIC IPC647C, IPC847C for use with the SICOMP RMOS3 operating system V3.50 and higher	**6AR1403-0DC3**

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Overview

SIMATIC PCs offer users a wide range of designs and systems which perfectly match industrial applications and fulfill the high requirements in terms of ruggedness.

These include e.g.:

- Wide temperature of use up to 55 °C
- High resistance to vibration/shock
- Rugged housing design
- Special degrees of protection up to IP65, NEMA 4
- High electromagnetic compatibility (EMC)
- UL, CE industry certification
- Integral industrial power supplies (NAMUR)
- Easy-to-service design for rapid replacement of faulty components

Increased system availability

A graded concept is available for effective early detection of potential failures and minimization of actual downtimes. This consists of hardware and software expansion options specially developed for SIMATIC PCs with which the system availability can be individually increased depending on the safety requirements.

The use pays off:
Because the safety is significantly increased by components such as a second hard disk for additional data backup or the DiagMonitor for permanent self-diagnostics. The system availability options thus make a contribution to the significant minimization of the total costs (TCO) of the installation according to the motto: "Small effort, large effect".

The following components are available:

Hard disks options

- Solid-state drive (SSD)
- Second hard disk:
  The safety of the data stored on the hard disk is a cornerstone for system availability.
  - Simple and fast data backup of complete installation and user data in combination with the SIMATIC IPC Image & Partition Creator.
  - Following a faulty software installation or in the case of a hard disk defect, the system can be immediately put back into operation by booting the back-up disk.
  - Fast download of the last saved hard disk image to the working disk.

Two hard disks are optionally available in a user-friendly swap frame for the Rack PC to permit fast and easy data backup.

SIMATIC IPC CompactFlash/SIMATIC IPC CFast

The application of PCs in industrial areas requires rugged systems to prevent or minimize production downtimes. SIMATIC IPCs have been developed precisely for this purpose. One way of improving the industrial suitability and system availability of SIMATIC IPCs even further is to use SIMATIC PC CompactFlash cards instead of hard disk drives. These are system-tested with the SIMATIC IPCs.

SIMATIC PC CompactFlash is a hardware option that can be ordered via the relevant SIMATIC IPC configurator or separately as an accessory.

The SIMATIC IPC CFast memory cards are readily replaceable mass storage units for SIMATIC IPC427D and IPC477D. They are connected via a SATA interface.

As a result of the different interface, the SIMATIC IPC CFast memory cards are not compatible with the SIMATIC IPC CompactFlash memory cards.

SIMATIC IPC USB FlashDrive

- Mobile memory medium for SIMATIC IPC/PG
- Fast data transfer (USB 2.0) and high memory capacity
- Ultra-compact and rugged
- Preinstalled SIMATIC IPC BIOS Manager

SIMATIC IPC Service USB FlashDrive

The SIMATIC IPC Service USB FlashDrive is the ideal tool for maintenance as well as saving and restoring of data. With the preinstalled SIMATIC IPC Image & Partition Creator and SIMATIC IPC BIOS Manager, the FlashDrive is immediately ready for use.

Central I/O expansion PC IO

The PC IO expansion comprises:

- Basic module with encoder/counter functionality, PCI104 interface to the host system, and communication interfaces to the I/O modules
- Digital and analog I/O modules that are managed by the basic module
- Mechanical installation components

Industrial USB Hub 4 (see HMI accessories, page 2/96)

- The Industrial USB Hub 4 is essentially used as a USB hub for the connection of I/O devices to Multi Panels and Panel PCs with an integral USB interface
- USB I/O devices can be connected to the panel and operated via the USB Hub 4 without opening the cabinet door
- The Industrial Hub 4, in contrast to commercially available USB hubs, can be used in harsh industrial environments (IP65)

SIMATIC Panel PC Remote Kit

- Separation of computer unit and operator control unit
- At a maximum distance of up to 30 m
- Pure hardware solution, no need to install additional software
- Maintaining the full Panel PC front functionality

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PC-based Automation
Expansion components and accessories

Expansion components / accessories

■ Overview (continued)

SIMATIC IPC Image & Partition Creator

- Software tool for preventive data backup of hard disk contents
- High-speed restoring of system and data partitions with bit accuracy; user software and special installations are also backed up
- Software tool for editing the hard disk partitioning

SIMATIC IPC DiagMonitor

- Diagnostic and alarm software for monitoring SIMATIC IPCs
- Comprehensive monitoring of temperature, fans, hard disks (SMART, RAID, CF Card, SSD), watchdog
- Operating hours counter for preventive maintenance
- Integrated log functions, comprehensive text messages, online help (English/German)

SIMATIC IPC Remote Manager

Efficient remote maintenance and management of SIMATIC IPCs.

With the SIMATIC IPC Remote Manager you can use functions of the Intel Active Management Technology (Intel AMT) for SIMATIC IPCs. Intel AMT is used for remote management of PCs.

SIMATIC IPC BIOS Manager

The SIMATIC IPC BIOS Manager is a software tool with which CMOS data from the BIOS configuration of a SIMATIC IPC can be edited. The tool is obtained by downloading it from the Internet using the Automation Value Card from Customer Support.

ADDM Data Management

With ADDM, you are completely in control of the SIMATIC and SINUMERIK controllers – around the clock and with any program version. This tool, indispensable in modern production systems, allows user-friendly backup, comparison and management of control data.

DC-UPS uninterruptible power supplies

The uninterruptible DC power supply with battery modules consists of DC UPS modules.

The maintenance-free SITOP UPS500 with capacitors as energy stores are especially suitable for use at high ambient temperatures. A further advantage of these high-capacity double-layer capacitors is their shorter charging times.

For flexible use, there is the SITOP UPS500S – 15 A basic unit in 2.5 kW and 5 kW versions. Up to 3 SITOP UPS501S expansion modules of 5 kW each can be connected in parallel to extend the backup times. The SITOP UPS500P IP65 version has capacitors for 5 or 10 kW and supplies up to 7 A output current.

Input and output devices

The SIMATIC IPC accessories encompass various input devices.

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SIMATIC IPC CompactFlash

Overview

Rugged systems are required when using PCs in industrial environments to ensure minimal production standstill times. SIMATIC IPCs have been developed precisely for this purpose. One possibility for enhancing the industrial compatibility and system availability of the SIMATIC IPC is to use SIMATIC IPC CompactFlash instead of hard disk drives. These have been system-tested with the respective SIMATIC IPC.

SIMATIC IPC CompactFlash can be ordered as a hardware option through SIMATIC IPC Configurator or as an accessory. Depending on the application, cards are available with a storage capacity ranging from 2 GB to 16 GB.

The SIMATIC IPC CFast memory cards are readily replaceable mass storage units for SIMATIC IPC427D and IPC477D. They are connected via a SATA interface.

As a result of the different interface, the SIMATIC IPC CFast memory cards are not compatible with the SIMATIC IPC CompactFlash memory cards.

Ordering data

	Order No.
SIMATIC IPC CompactFlash	
• 2 GB	**6ES7648-2BF02-0XF0**
• 4 GB	**6ES7648-2BF02-0XG0**
• 8 GB	**6ES7648-2BF02-0XH0**
• 16 GB	**6ES7648-2BF02-0XJ0**
SIMATIC IPC CFast	
• 2 GB	**6ES7648-2BF10-0XF0**
• 4 GB	**6ES7648-2BF10-0XG0**
• 8 GB	**6ES7648-2BF10-0XH0**
• 16 GB	**6ES7648-2BF10-0XJ0**

SIMATIC IPC USB FlashDrive

Overview

The SIMATIC IPC USB FlashDrive is the ideal mobile storage medium for industrial applications.

Thanks to the rugged and ultra-compact construction in a metal enclosure, fast data transfer (USB 2.0) and the high memory capacity of 8 GB, the USB FlashDrive is ideally suited for use in industrial applications.

It replaces diskettes, CD and DVD read/write media as data memory. Thanks to its high access speed, it is also ideal for tools that are not to be installed on the computer ("portable apps"). In addition, it can be set up ready to boot using SIMATIC PC BIOS-Manager. There is an option of expanding the USB FlashDrive set up in this way into a "tool stick" using SIMATIC IPC Image & Partition Creator.

The SIMATIC IPC SERVICE USB FlashDrive is the perfect tool for backup and restoring. With the pre-installed SIMATIC IPC Image & Partition Creator V3.1, it is immediately ready to use.

Technical specifications

SIMATIC IPC USB FlashDrive SIMATIC IPC Service USB FlashDrive	
Supported operating systems	Windows 2000/XP/Vista/Windows 7/ Windows Server 2003/2008
Capacity	8 GB
Approvals	CE Industry
Temperature • During operation • Storage	+5 ... +55 °C -40 ... +70 °C
Device dimensions (L x W x H) in mm	59.1 x 16.7 x 7
Weight, approx.	12 g

Ordering data

	Order No.
SIMATIC IPC USB FlashDrive 8 GB (SLC), USB 2.0, metal enclosure, boot capability, SIMATIC IPC BIOS Manager V3.2 preinstalled for SIMATIC IPC: Rack PC, Box PC, Panel PC and for SIMATIC PG	**6ES7648-0DC50-0AA0**
SIMATIC IPC Service USB FlashDrive 8 GB (SLC), USB 2.0, metal enclosure, boot capability, SIMATIC IPC Image & Partition Creator V3.2 and SIMATIC IPC BIOS Manager V3.2 (Win PE) preinstalled, including CD	**6AV7672-8JD01-0AA0**

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PC-based Automation
Expansion components and accessories

PC I/O

■ Overview

The PC IO expansion extends the rugged use of the SIMATIC HMI IPC427C at the machine level.

You can find further information under Industrial PC -> SIMATIC PC -> SIMATIC Box PC.

The I/O expansion enables and supplements the use of the SIMATIC HMI IPC427C with:

- Extremely compact dimensions (262 mm wide, 134 mm high, depth from 47 mm)
- High system availability (rugged and maintenance-free, since without rotating parts, for example)
- Maximum flexibility

The PC IO expansion comprises:

- Base module with encoder/counter functionality, PCI104 interface to the HOST system and communication interfaces to the I/O modules
- Digital and analog I/O modules that are managed by the basic module
- Mechanical installation components

A selection guide with material list for your requirements can be found at:
http://www.siemens.com/simatic-pc/pc-io-selection

Module	Description
PC IO Base 400 (base module)	• PCI104 interface to host • 4 encoder inputs, can also be used as counters if required • 4 digital inputs • Management of encoder inputs and associated counters and up to four I/O modules over separate communication interfaces • Power supply distribution for 4 encoders
PC IO MOD Digital 010 (digital I/O module 0)	• 24 binary 24 V inputs • 16 binary 24 V outputs
PC IO MOD Analog 020 (analog I/O module 0)	• 8 analog inputs, 12 bits, 0 to 5 V, 0 to 10 V ±5 V, ±10 V • 8 analog outputs, 16 bits, ±10V • 4 Pt100 connections, 2-wire
PC IO KIT 040 (encoder expansion rack)	For expanding a SIMATIC Microbox PC 420/427B/IPC427C. Connection unit for: • 4 encoder inputs • 4 digital inputs • Encoder voltage supply
PC IO KIT 030 (I/O expansion rack)	For expanding a SIMATIC Microbox PC 420/427B/IPC427C. Expansion rack to hold • max. 2 I/O modules in the Microbox PC 42x system

■ Technical specifications

Electrical data

Supply voltages and current consumption

Parameters	Value
Power supply to base module	Via PCI-104 interface: 3.3 V DC and 5 V DC
Encoder supply voltage infeed	24 V DC
Current consumption of encoder inputs and counters	0.3 A per encoder
Power supply to digital I/O module 0	24 V DC
Current consumption of digital I/O module 0, max. approx.	4 A
Power supply to analog I/O module 0	5 V DC from Base 400
Current consumption of analog I/O module 0, max. approx.	

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■ **Technical specifications** (continued)

Counters and encoder inputs

Parameters	Value
Number of counters or encoder inputs on the base module	4
Input signal from encoder	RS 422
Counting depth	32 bits
Encoder input counting frequency	≤ 2 MHz
Sampling time for timer or pulse-width measurement	1 MHz or 4 MHz
Gate time for frequency measurement	Adjustable in the following stages: 8 µs, 32 µs, 128 µs, 512 µs, 2048 µs, 8192 µs, 16384 µs, 32768 µs, 131072 µs, 262144 µs, 524288 µs, 1048576 µs, 2097152 µs, 4194304 µs, 8388608 µs, 16777216 µs
Isolation	No
Protected against polarity reversal	No

Digital inputs on base module

Base module: Digital inputs

Parameters	Value
Number of digital inputs	4
Cable length (without lightning protection element)	max. 30 m
Input voltage	24 V DC
Input current	Approx. 2 mA
Time constant of input filter	0.01 ms
Isolation	No

Digital I/O module 0: Digital inputs:

Parameters	Value
Number of digital inputs	24
Cable length (without lightning protection element)	max. 30 m
Input voltage	24 V DC
Input current	Approx. 2 mA
Time constant of input filter:	
• Inputs 0 … 7	0.1 ms
• Inputs 8 … 23	1 ms
• Inputs 8 and 9 also designed as high-speed inputs (parallel to 1 ms path)	0.01 ms
Isolation	
For communication between the base module and the inputs of digital I/O module 0	Yes
Isolation test voltage	500 V DC
Between the individual inputs/outputs of digital I/O module 0	No, one electrical circuit

Digital I/O module 0: Digital outputs

Parameters	Value
Number of outputs	16, Organized in 4 output groups
Cable length (without lightning protection element)	max. 30 m
Output voltage	24 V DC
Output current:	
• Per output group	1 A max.
• Total per digital I/O module 0	4 A max.
Switching rate	≤ 2 kHz
Switching type	Current sourcing
Output delay:	
Internal transmission delay	16 µs
Register output to driver output (load-dependent):	
• 0 → 1 signal	max. 30 µs
• 1 → 0 signal (with a digital input connected)	max. 130 µs
Isolation:	
For communication between the base module and the outputs of digital I/O module 0	Yes
Isolation test voltage	500 V DC
Between the individual inputs/outputs of digital I/O module 0	No, one electrical circuit
Short-circuit protection of the output drivers	Threshold on Typ. 9 A max. 11 A electronically pulsing In order to comply with UL requirements, the user must limit the input current to 4 A. Use NEC Class 2 current source
Excess temperature shutdown	Above 150 °C
Overvoltage protection	Typ. 47 V max. 52 V
Status after POWER ON and after RESET	High resistance

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PC-based Automation
Expansion components and accessories

PC I/O

■ **Technical specifications** (continued)

Analog I/O module

Analog I/O module 0: Analog inputs

Parameters	Value	
Number of analog inputs	8	
Shielded cable length	max. 30 m	
Voltage ranges	0 … 5 V 0 … 10 V ±5 V ±10 V	
Permissible input voltage against analog ground	max. 15 V, continuous	
Impedance	> 10 kOhms	
Input type	Single-ended	
Resolution	12 bits (including sign)	
Repeatability	10 bits (including sign)	
Input filters	No	
Conversion time	max. 200 µs per channel	
Configuration cycle time for analog-to-digital conversion:	Without Pt100	With Pt100
• With one analog input	50 ... 100 µs	50 ... 200 µs
• With 4 analog inputs	200 ... 400 µs	200 ... 500 µs
• With 8 analog inputs	400 ... 800 µs	400 ... 1000 µs
Isolation	No	

Analog I/O module: Pt100 inputs

Parameters	Value
Number of external Pt100 inputs	4
Type	Two-wire measurement
Dynamic response	The mean value is constantly available and is updated approximately every 6 ms.
Isolation	No

Analog I/O module 0: Analog outputs

Parameters	Value
Number of analog outputs	8
Type	Single-ended
Shielded cable length	max. 30 m
Voltage range	±10 V
Load current	2 mA max.
Resolution	16 bits (including sign)
Accuracy	0.5 %
Conversion time	max. 200 µs per channel
Output value after POWER ON and after RESET	0 V
Configuration cycle time for digital-to-analog conversion[1]: • With one analog input • With 4 analog inputs • With 8 analog inputs	 100 ... 200 µs 400 ... 800 µs 800 ... 1600 µs
Short-circuit protection	No
Isolation	No

[1] The times also depend on the software response time (interrupt response time or polling times).

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■ **Technical specifications** (continued)

Environmental requirements for installation in Microbox PC 42x	
Degree of protection to EN 60529 (front/rear)	IP20
Protection class	Protection class I acc. to VDE 0106 Part 1 (IEC 536)

Vibration load during operation

Devices without hard disk:

Frequency	Acceleration	Displacement	Cycles per axis	Octaves/min
10 to 58 Hz	-	0.075 mm	10	1
58 to 200 Hz	9.8 m/s^2	-	10	1

acc. to IEC 60068-2-6, test Fc

Devices with hard disk: Wall mounting

Frequency	Acceleration	Displacement	Cycles per axis	Octaves/min
10 to 58 Hz	0.035 mm		10	1
58 to 200 Hz	4.9 m/s^2		10	1

Standard rail: No mechanical excitation permitted

Shock loading during operation

Devices without hard disk:

Acceleration	Shock duration
150 m/s^2	11 ms

acc. to IEC 60068-2-27, test Ea

3 in both pos. and neg. direction per axis, half-sine

Devices with hard disk: Wall mounting:

Acceleration	Shock duration
50 m/s^2	30 ms

Standard rail: No mechanical excitation permitted

Electromagnetic compatibility (EMC)

• Emitted interference

EN 55022 Class B
In order to comply with Class B, a 230 V AC power supply unit must be used which meets the requirements of EN 55022 Class B (e.g. "SITOP modular 5 A", type No.: 6EP1333-3BA00).

• Immunity to conducted interference on the supply lines
- ±2 kV (IEC 61000-4-4, Burst)
- ±1 kV (IEC 61000-4-5, symm. surge, length > 30 m) with lightning protection element (e.g. from Dehn, type "Blitzductor BVT AD24", type No.: 918402)
- ±2 kV (IEC 61000-4-5, unsymm. surge, length > 30 m) with lightning protection element (e.g. from Dehn, type "Blitzductor BVT AD24", type No.: 918402)

• Immunity to conducted interference on the unshielded supply lines
- ±2 kV (IEC 61000-4-4, burst)
- ±1 kV (IEC 61000-4-5, symm. surge, length > 30 m) with lightning protection element (e.g. from Dehn, type "Blitzductor BVT AD24", type No.: 918402)
- ±2 kV (IEC 61000-4-5, unsymm. surge) Length > 30 m) with lightning protection element (e.g. from Dehn, type "Blitzductor BVT AD24", type No.: 918402)

• Immunity to conducted interference on the shielded supply lines
- ±2 kV (IEC 61000-4-4, burst)
- ±1 kV (IEC 61000-4-5, surge symm., length > 30 m)
- ±2 kV (IEC 61000-4-5, surge unsymm., length > 30 m)

• Immunity to static discharge
- ±6 kV, contact discharge (IEC 61000-4-2)
- ±8 kV, air discharge (IEC 61000-4-2)

• Immunity to radio frequ. interference
- 10 V/m 80 % AM; 80 MHz to 1 GHz (IEC 61000-4-3);
- 10 V/m 80 % AM; 1.4 GHz to 2 GHz (IEC 61000-4-3)

• Immunity to high-frequ. current feed
- 10 V 80 % AM, 9 kHz to 80 MHz (IEC 61000-4-6)

Ambient temperature during operation	• 0 to 50 °C with Flash drive (horizontal; preferred mounting position) • 0 to 45 °C with Flash drive (vertical) • 5 to 40 °C with hard disk (horizontal and vertical)
Ambient temperature during storage and transport	-20 °C … +60 °C
Moist heat	30 °C/85 % (IEC 60068-2-78, Test Cab)

Approvals

Safety regulations	IEC/EN 60950-1

CE marking	• EC Directive 89/336/EEC (EMC Directive)
	 • Use in industry:
	 • Applications in residential areas, business and trade environments as well as in workshops:
	   - Emitted interference: EN 61000-6-4
	   - Noise immunity: EN 61000-6-2
	 • Applications in residential areas, business and trade environments as well as in workshops:
	   - Emitted interference: EN 61000-6-3
	   - Noise immunity: EN 61000-6-1

Dimensions and weights

Equipment dimensions (in mm)	• Width x height: 262 x 134 • Depth of basic unit: 47 • Depth of basic unit above rail: 52 • Additional depth per encoder expansion rack (Kit 040): 17 • Additional depth per I/O expansion rack (Kit 030): 22

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PC-based Automation
Expansion components and accessories

PC I/O

Ordering data	Order No.		Order No.
PC IO Base 400 PCI104 module for connecting up to 4 PC IO MOD xxx 010/020, with 4 encoder interfaces and 4 DI incl. fixing accessories (base module with fixing accessories)	6ES7648-2CE20-0AA0	**PC IO KIT 030** I/O module expansion rack for Microbox PC 420/427B/IPC427C for installing up to 2 I/O modules, including fixing accessories and a cover plate	6ES7648-1AA20-0XF0
PC IO MOD Digital 010 Digital I/O module with 24 DI and 16 DO, incl. connecting cable to PC IO Base 400 and mating connector	6ES7648-2CE40-0BA0	**PC IO KIT 040** Encoder expansion rack for Microbox PC 420/427B/IPC427C for contacting the encoder interfaces and DIs of the PC IO Base 400, including fixing accessories	6ES7648-1AA20-0XE0
PC IO MOD Analog 020 Analog I/O module with 8 AI, 8 AO and 4 PT100, incl. connecting cable to PC IO Base 400, mating connector and shield clamp	6ES7648-2CE40-0CA0		

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Overview

The Remote Kit makes it possible to separate the Panel PC 677B operator control unit from the computer unit and install them up to 30 m apart.

Technical specifications

SIMATIC Panel PC Remote Kit	
Design	Subsequent installation on the Panel PC 677B operator control unit
Supported operator control units	All Panel PC 677B operator control units: • 12" Touch/Key • 15" Touch/Key • 17" Touch • 19" Touch
Cable sets	• 5 m • 10 m • 15 m • 20 m • 30 m
Front panel functionality	As centralized installation with the following constraint in respect of USB functionality: • Distance 5 m: USB 2.0, and only one external 2.0 Hub • Distance > 5 m: USB 1.1, and only one external 1.1 Hub
External ports	2 additional USB ports on the remote module (on the rear of the remote operator control unit)
Power supply	24 V DC; 20.4 ... 28.8 V DC or 110 ... 240 V AC; 50/60 Hz
Approvals	CE, cULus (UL 508)
Scope of supply	• Remote module • Cable set • Mounting accessories for the PC 677B computer unit • European power supply cable (with the AC option)

Ordering data

	Order No.
SIMATIC Panel PC Remote Kit	
24 V DC, 5 m	**6AV7671-1EA00-5AA1**
24 V DC, 10 m	**6AV7671-1EA01-0AA1**
24 V DC, 15 m	**6AV7671-1EA01-5AA1**
24 V DC, 20 m	**6AV7671-1EA02-0AA1**
24 V DC, 30 m	**6AV7671-1EA03-0AA1**
100/240 V AC, 5 m	**6AV7671-1EA10-5AA1**
100/240 V AC, 10 m	**6AV7671-1EA11-0AA1**
100/240 V AC, 15 m	**6AV7671-1EA11-5AA1**
100/240 V AC, 20 m	**6AV7671-1EA12-0AA1**
100/240 V AC, 30 m	**6AV7671-1EA13-0AA1**
Accessories	
Power supply cable	
Europe: D/F/NL/E/B/A/S/FIN [1]	**6ES7900-1AA00-0XA0**
United Kingdom	**6ES7900-1BA00-0XA0**
Switzerland	**6ES7900-1CA00-0XA0**
USA	**6ES7900-1DA00-0XA0**
Italy	**6ES7900-1EA00-0XA0**
China	**6ES7900-1FA00-0XA0**
Sub-components of the Remote Kit (only available individually as spare parts)	
24 V DC remote module with fixing accessories	**6AV7671-1EX01-0AD0**
110/240 V AC remote module with fixing accessories	**6AV7671-1EX01-0BD0**
USB amplifier/CAT6 converter	**6AV7671-1EX02-0AB0**
5 m cable set (DVI, USB standard cable)	**6AV7671-1EX10-5AA0**
10 m cable set (DVI, Cat 6 cable)	**6AV7671-1EX11-0AA0**
15 m cable set (DVI, Cat 6 cable)	**6AV7671-1EX11-5AA0**
20 m cable set (DVI, Cat 6 cable)	**6AV7671-1EX12-0AA0**
30 m cable set (DVI, Cat 6 cable)	**6AV7671-1EX13-0AA0**

[1] A European power supply cable is included in the scope of delivery of the AC (100-240 V) version of the Remote Kit.

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PC-based Automation
Expansion components and accessories

SIMATIC Panel PC Remote Kit

■ **Dimensional drawings**

All dimensions in mm. For mounting cut-out see technical specifications.

Front dimensions	W	H
Touch panels		
12"	400	310
15"	483	310
19"	483	400
Key Panels		
12"	483	310
15"	483	355

Installation cutout	W+1	H+1	D
Touch panels			
12"	368	290	95
15"	450	290	93
19"	450	380	102
Key Panels			
12"	450	290	77
15"	450	321*	96

* In addition: two recesses 25 x 5 mm on the top side for keyboard slide-in label channels

G_ST80_XX_00267

Overview

SIMATIC IPC Image & Partition Creator Version 3.3

Paragon hard disk manager 2011 Suite
Install programs for 1ClickImage
Display "Getting Started"
Create an USB FlashDrive with Image & Partition Creator
Create a password USB FlashDrive with Image & Partition Creator
Start Image & Partition Creator from DVD

Select   Cancel
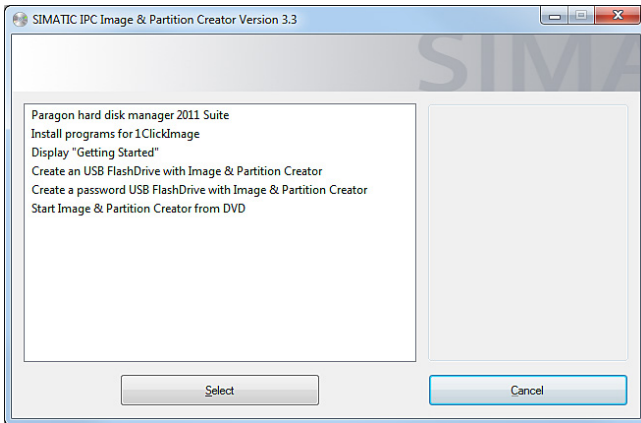
SIMATIC IPC Image & Partition Creator is the software tool for easy, preventive back-up and restoring of hard disk contents (images of individual partitions or complete hard disks). This software can be ordered through the Configurator for the SIMATIC IPCs, or separately with single license.

- Can run on all SIMATIC IPCs, regardless of the computer configuration
- Direct starting from the CD possible (no installation required)
- Complete backup by means of a mouse double-click with "1ClickImage" (must be installed)
- Menu-driven creation of a bootable USB flash drive as an alternative start medium from which SIMATIC IPC Image & Partition Creator can be started
- Independent of the operating system thanks to ability to start from the bootable SIMATIC IPC Image & Partition Creator CD or bootable USB flash drive with Image & Partition Creator

Ordering data

	Order No.
SIMATIC IPC Image & Partition Creator V3.3	Can be ordered using the SIMATIC IPC Configurator
SIMATIC IPC Image & Partition Creator V3.3 Software tool for very easy preventive data backup and efficient partition management on SIMATIC IPCs	**6ES7648-6AA03-3YA0**

Note:

SIMATIC IPC Image & Partition Creator is also available together with the SIMATIC IPC BIOS Manager preinstalled with the SIMATIC IPC Service USB FlashDrive.

PC-based Automation
Expansion components and accessories

SIMATIC IPC DiagMonitor

Overview
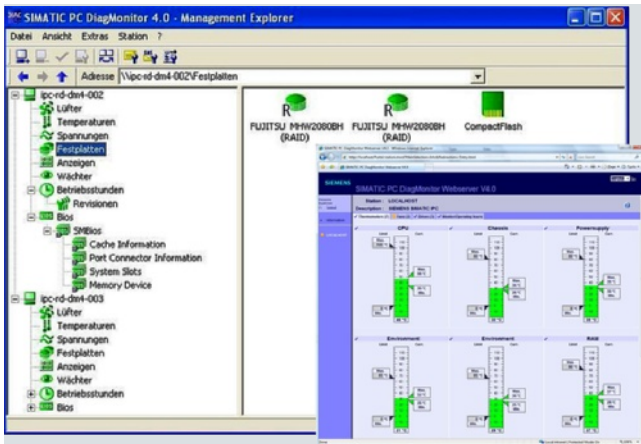
SIMATIC IPC DiagMonitor: Intelligent and comprehensive diagnostics for the SIMATIC IPC – local and remote.

The SIMATIC IPC DiagMonitor software for monitoring and remote signaling detects possible hardware and software faults at an early stage. It monitors, signals and visualizes the operating statuses of the SIMATIC IPC both locally and remotely.

DiagMonitor V4.4 can run on the following SIMATIC IPCs:

- Microbox PC 427B
- Box PC 627B/827B
- Rack PC IL 43 / 547B / 647B / 847B
- Panel PC 477B/577B/677B
- IPC427C / IPC627C / IPC827C
- IPC547C / IPC647C / IPC847C
- HMI IPC477C / HMI IPC477C PRO / HMI IPC577C / HMI IPC677C
- IPC227D / IPC277D / IPC427D / IPC477D / IPC547D

The software can be ordered as:

- Individual product from stock (e.g. for server applications on third-party PCs or immediate integration in new systems) or
- Option ordered according to the SIMATIC IPC configurator (Internet, Mall).

(DiagMonitor V3.1 is used with SIMATIC Microbox PC 420/427B, Box PC 627/627B, Rack PC IL 43/840/847B, Panel PC 477/477B/677/677B/877 and can be ordered directly via the PC configurator or as an individual product.)

Ordering data

	Order No.
SIMATIC IPC DiagMonitor V4.4	Can be ordered using the SIMATIC IPC Configurator
SIMATIC IPC DiagMonitor V4.4 Software tool for monitoring the SIMATIC IPC, incl. manual on CD ROM (English, German), single license	**6ES7648-6CA04-4YX0**
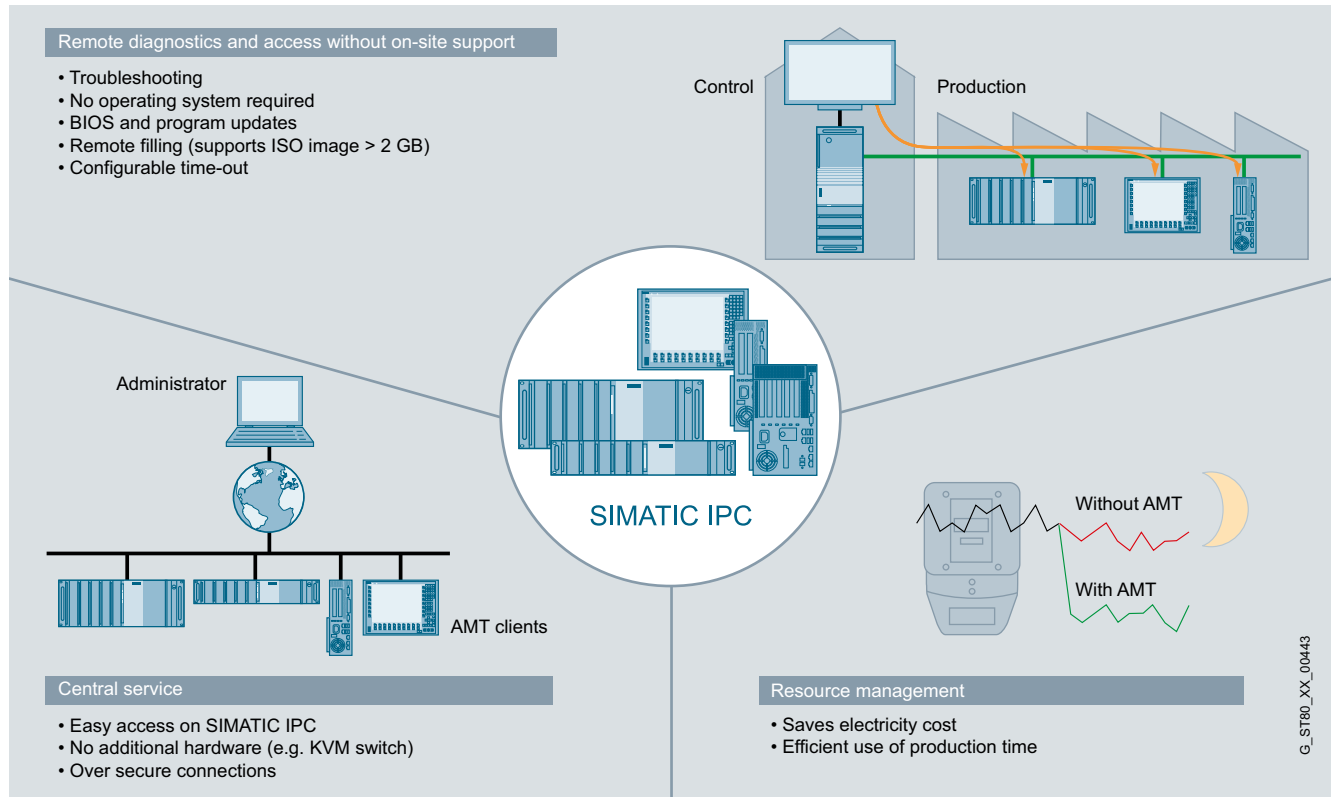
▍ Overview

Remote diagnostics and access without on-site support
- Troubleshooting
- No operating system required
- BIOS and program updates
- Remote filling (supports ISO image > 2 GB)
- Configurable time-out

Control   Production

Administrator

SIMATIC IPC

AMT clients

Without AMT

With AMT

Central service
- Easy access on SIMATIC IPC
- No additional hardware (e.g. KVM switch)
- Over secure connections

Resource management
- Saves electricity cost
- Efficient use of production time

G_ST80_XX_00443

SIMATIC IPC Remote Manager

Efficient remote maintenance and management of SIMATIC IPCs.

With the SIMATIC IPC Remote Manager you can use functions of the Intel active management technology (Intel AMT) for SIMATIC IPCs. Intel AMT is used for remote management of PCs.

Intel AMT offers a range of functions, such as:
- Remote reboot
- IDE redirection
- Keyboard video mouse redirection
- Power on / off / reset, and
- an integrated Web server.

http://support.automation.siemens.com/WW/view/en/56230140

▍ Ordering data

	Order No.
SIMATIC IPC Remote Manager V1.2 Software tool for remote maintenance and management of SIMATIC IPC, incl. manual on CD-ROM (English, German), single license	6ES7648-6EA01-2YA0

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■ Overview

The original SIMATIC PC keyboard is the ideal input medium for your SIMATIC PC. It combines the convenience of an office keyboard with the ruggedness of an industrial device. The SIMATIC PC keyboard is available with a USB connection and German/international layout.

■ Technical specifications

SIMATIC PC keyboard	
Description	SIMATIC PC keyboard
Layout	MF2, 105 keys, German/international
Dimensions (L x W x H) in mm	470 x 195 x 44
Weight, approx.	1400 g
Connecting cable	Length 1.75 m, USB plug
Temperature • During operation • Storage	 0 ... +50 °C -20 ... +60 °C
Current consumption	-
Current delivery	-
Transmission rate	-
Approvals	FCC, cURus, GS, CE, c-tick, GOST-R

■ Ordering data

	Order No.
SIMATIC PC keyboard German/international, USB connection incl. USB-PS2 adapter	**6ES7648-0CB00-0YA0**

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PC-based Automation
Input and output devices

IP65 membrane keyboard, desk version

Overview

The desktop version of the IP65 membrane keyboard is ideal for use in industrial areas in which a high degree of protection (IP65) is required. The keyboard is equipped with a touchpad.

Technical specifications

- Color "light-basic"
- MF2/Windows 95 compatible key layout with 105 short-stroke keys, type Omron
- German or international key layout
- Desktop unit made of polyester
- Mounting plate and base made of metal
- Front membrane made of resistant polyester (150 µm thick)
- 1 million strokes per key
- Y cable with 2 PS/2 connectors with 1.8 m connecting cable
- Weight approx. 1190 g
- Dimensions in mm (W x D x H): 478.6 x 180 x 26
- Licences: UL 1950, CSA C22.2 No. 950
- CE conformity according to EC 89/336
- Degree of protection IP65

Ordering data

	Order No.
Standard configuration	
IP65 membrane keyboard, desktop version with touchpad	
With PS/2 connector	
• German keyboard layout	**6GF6710-2AC**
• International keyboard layout	**6GF6710-2BC**

IP65 membrane keyboard, 19" built-in version

Overview

The built-in version of the IP65 membrane keyboard is ideal for use in industrial areas in which a high degree of protection (IP65 at the front, IP54 at the rear) is required. The keyboard is specially designed for installation in 19" cabinets.

Technical specifications

- Color "light-basic"
- MF2/Windows 95 compatible key layout with 105 short-stroke keys, type Omron
- German or international key layout
- Desktop unit made of polyester
- 19"/4HU mounting plate made of metal (1.6 mm thick)
- Front membrane made of resistant polyester (180 µm thick)
- Touchpad or trackball (IP65 version)
- Y cable with 2 PS/2 connectors with 1.8 m connecting cable
- Weight approx. 1480 g
- Dimensions in mm (W x D x H): 482.6 x 177.8 x 42.5
- Licences: UL 1950, CSA C22.2 No. 950
- CE conformity according to EC 89/336
- IP65 protection at the front, IP54 at the rear

Ordering data

	Order No.
Standard configuration	
IP65 membrane keyboard, 19" built-in version	
For installation in 19" cabinets	
With touchpad	
• German keyboard layout	**6GF6710-3AE**
• International keyboard layout	**6GF6710-3BE**
With trackball	
• German keyboard layout	**6GF6710-3BF**
• International keyboard layout	**6GF6710-3BG**

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19" slide-in keyboard PS/2 with trackball

■ **Overview**

With its compact design and integrated trackball the new draw-out keyboard is suitable in particular for industrial applications with limited space. This can be, for example, cubicles or mobile systems.

The draw-out keyboard is supplied in combination with a drawer.

■ **Ordering data** — **Order No.**

Standard configuration

19" withdrawable keyboard

With trackball

• German keyboard layout	**6GF6710-3BJ**
• International keyboard layout	**6GF6710-3BK**

SIMATIC IPC mouse

■ **Overview**

Robust mouse for harsh everyday use with a pleasantly coated slip-free surface, precise BlueTrack technology, three buttons incl. large scroll wheel, trouble-free cable operation and symmetrical casing design for right-handed and left-handed users.

• Interface: USB
• Operating systems: Microsoft Windows® 7, Windows Vista® and Windows XP (not for Windows XP 64 bit)
• Connection cable: 2 m long, USB plug
• Approvals corresponding to office environment:
  - ACA/MED Declaration of Conformity (Australia and New Zealand)
  - ICES-003 report on file (Canada)
  - EIP Pollution Control Mark, EPUP (China)
  - CE Declaration of Conformity, Safety and EMC (European Union)
  - WEEE (European Union)
  - VCCI Certificate (Japan)
  - KCC Certificate (Korea)
  - GOST Certificate (Russia)
  - BSMI Certificate (Taiwan)
  - FCC Declaration of Conformity (USA)
  - UL and cUL Listed Accessory (USA and Canada)
  - CB Scheme Certificate (International)

■ **Ordering data** — **Order No.**

SIMATIC IPC mouse

Optical (BlueTrack) wheel mouse, USB interface

Color

• Anthracite	**6ES7648-0BB00-0XA0**
• White	**6ES7648-0BB00-0XA1**

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PC-based Automation
SITOP power supplies

■ Overview

SITOP – reliable 24 V power supply

Efficient operation of a machine or plant requires a reliable, constant power supply. The quality and reliability of the SITOP stabilized power supplies ensure high levels of safety in DC power supply in industrial engineering and building management systems. They supply a stabilized 24 volts, but also other output voltages. Even in the case of large input voltage variations, the output voltage is kept stable with a high degree of accuracy. This enables the use of primary switched-mode power supplies in many applications for the supply of sensitive electronic systems - all the way up to loads requiring high currents.

The fan-free power supplies are characterized by their compact and rugged design, high overload capability, as well as special energy efficiency. The high efficiency across the entire load range and the low no-load loss ensure efficient operation. The large input voltage range and the international approvals mean that use is possible in almost all supply networks worldwide.

The complete SITOP range

In addition to the power supplies, the perfectly coordinated, complete range offers a unique choice of modules - from those that protect the 24 V power supply against interference on the primary and secondary side, right up to those providing complete protection. Every day, SITOP is used successfully in innumerable practical applications and protects against plant downtimes and production outages.

Quick selection and fast delivery

With the SITOP Selection Tool - available in the Internet under http://www.siemens.com/sitop-selection-tool and in the Industry Mall – the suitable power supply can be selected quickly and easily, the selected products can be saved or placed into the Mall's shopping cart and then ordered there.

We deliver all SITOP standard products from stock to ensure that you receive the SITOP power supply you selected quickly.

Customized SITOP products

Our standard power supplies cannot, of course, satisfy the requirements of every application. We can design a specific power supply for your application-specific requirements. You benefit from the expertise of large-scale production and gain maximum development security and quality.

Our customer-specific solutions are used today in many sectors of mechanical engineering, in automation technology, vehicle electronics, equipment manufacturing, or in industrial instrumentation technology. If your are interested, please contact your local Siemens office.

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1-phase, 24 V DC/10 A (SITOP PSU100S)

The single-phase power supply for universal use; complies with EU directive 94/9/EC (ATEX 100a); slim design; with 50 % extra power for 5 s and 120 % rated power up to 45 °C.

Ordering data	Order No.
SITOP PSU100S 24 V/10 A	**6EP1334-2BA20**
Stabilized power supply Input: 120/230 V AC Output: 24 V DC/10 A	
SITOP smart 240 W	**6EP1334-2AA01**
Stabilized power supply Input: 120/230 V AC Output: 24 V DC/10 A	
SIPLUS smart 10 A	**6AG1334-2BA20-4AA0**
For medial load based on 6EP1334-2BA20	

1-phase, 24 V DC/20 A (SITOP PSU100S)

High-performance, standard power supply for 1-phase 120/230 V AC grids, with automatic range switching; high overload capability through Extra power with 1.5 times the rated current for 5 s and continuous 120 % output power up to +45 °C ambient temperature.

Ordering data	Order No.
SITOP PSU100S 20A	**6EP1336-2BA10**
Stabilized power supply; Input: 120/230 V AC, Output: 24 V DC/20 A	

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PC-based Automation
SITOP power supplies

3-phase, 24 V DC/10 A (SITOP PSU300S)
3-phase, 24 V DC/20 A (SITOP PSU300S)

| ■ **3-phase, 24 V DC/10 A (SITOP PSU300S)** | ■ **3-phase, 24 V DC/20 A (SITOP PSU300S)** |

High-performance, standard power supply for 3-phase networks 3 AC 400-500 V, high overload capability through Extra power with 1.5 times the rated current for 5 s and continuous 120 % output power to +45° C ambient temperature.

High-performance, standard power supply for 3-phase networks 3 AC 400-500 V, high overload capability through Extra power with 1.5 times the rated current for 5 s and continuous 120 % output power to +45° C ambient temperature.

■ **Ordering data**	**Order No.**		■ **Ordering data**	**Order No.**
SITOP smart PSU300S 10 A	**6EP1434-2BA10**		**SITOP smart PSU300S 20 A**	**6EP1436-2BA10**
Stabilized power supply; input: 3 AC 400 … 500 V; output: 24 V DC/10 A			Stabilized power supply Input: 3 AC 400 ... 500 V Output: 24 V DC/20 A	
Accessories			**Accessories**	
Device labels	**3RT1900-1SB20**		**Device labels**	**3RT1900-1SB20**

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■ 3-phase, 24 V DC/ 40 A (SITOP PSU300S)

High-performance, standard power supply for 3-phase networks 3 AC 400-500 V, high overload capability through Extra power with 1.5 times the rated current for 5 s and continuous 120 % output power to +45° C ambient temperature.

■ Ordering data	Order No.
SITOP PSU300S 40 A	**6EP1437-2BA20**
Stabilized power supply Input: 3 AC 400 … 500 V Output: 24 V DC/40 A	
Accessories	
SITOP PSE202U redundancy module	**6EP1961-3BA21**
Input/output: 24 V DC/40 A suitable for decoupling two SITOP power supplies with a maximum of 20 A output current	
Device labels	**3RT1900-1SB20**

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PC-based Automation
24 V DC uninterruptible power supplies

■ Overview

***Permanently reliable 24 V – even when the power fails:
Uninterruptible power supply***

Supply network irregularities in the millisecond range are compensated for supremely well by all our power supplies.

Large fluctuations or even power failures, however, require special measures: The buffer module (see SITOP add-on modules) ensures optimal protection in the case of brief power failures up to 3 seconds.

Longer power failures into the minute range can be bridged with the new maintenance-free SITOP UPS500 with capacitor technology.

The DC UPS modules with battery modules secure continued operation for hours! Both DC UPS systems can be integrated simply into PC-based automation solutions using a free software tool.

Backup module	SITOP DC UPS module	SITOP UPS500
Expansion module with electrolyte capacitors for bridging temporary power failures. Can be combined with SITOP modular.	DC UPS module with maintenance-free lead-gel batteries for energy storage. Bridging of power failures even for hours.	DC UPS with high-capacity double-layer capacitors. Bridging of power failures for severyl minutes.
Selection criteria:	Selection criteria:	Selection criteria:
■ Low-cost protection against power failures for max. 3 seconds ■ Supports the power supply unit when there is a temporary increased power demand ■ High load current up to 40 A	■ The 24 V power supply is maintained for a long time, e.g. in order to continue processes. ■ High load current up to 40 A	■ Backup data and closing of applications within minutes. ■ Absolutely maintenance-free ■ High ambient temperatures up to 60°C ■ No ventilation is required since no gas is emitted ■ For distributed applications without control cabinet

G_ST80_XX_00486

The SITOP UPS500 is completely maintenance-free because it saves energy in high-capacitance double-layer capacitors. These have a long service life even in high temperatures, and do not need to be replaced. The installation location does not have to be ventilated because no gas is emitted. The innovative DC UPS buffers 24 V into the minutes range and makes it possible to back up data and to shut down PC-based applications (e.g. with SIMATIC PC) safely.

The SITOP UPS500S is designed for installing on a standard mounting rail and it can be modularly expanded to extend the backup time. The UPS500P in degree of protection IP65 is suitable for distributed use.

The SITOP DC UPS with battery modules using lead gel batteries up to 12 Ah enables process operation to continue for hours. The availability, battery supply line, aging status, and charge status are permanently monitored.

The integral battery management system ensures optimal charging of the battery modules and a long service life.

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■ **Overview** (continued)

SITOP power supply

DC UPS module with battery module

Load

24 V DC

AC or 3 AC

SITOP UPS500S basic unit 15 A
maintanance-free with capacitor, optionally with
expansion module as additional energy storage

Messages
- Mains or buffer operation
- Buffer ready or alarm
Charging status >85 % or <85 %
via USB interface or floating relay contacts

24 V DC

USB interface for data exchange with
industrial PC

G_KT01_EN_00357
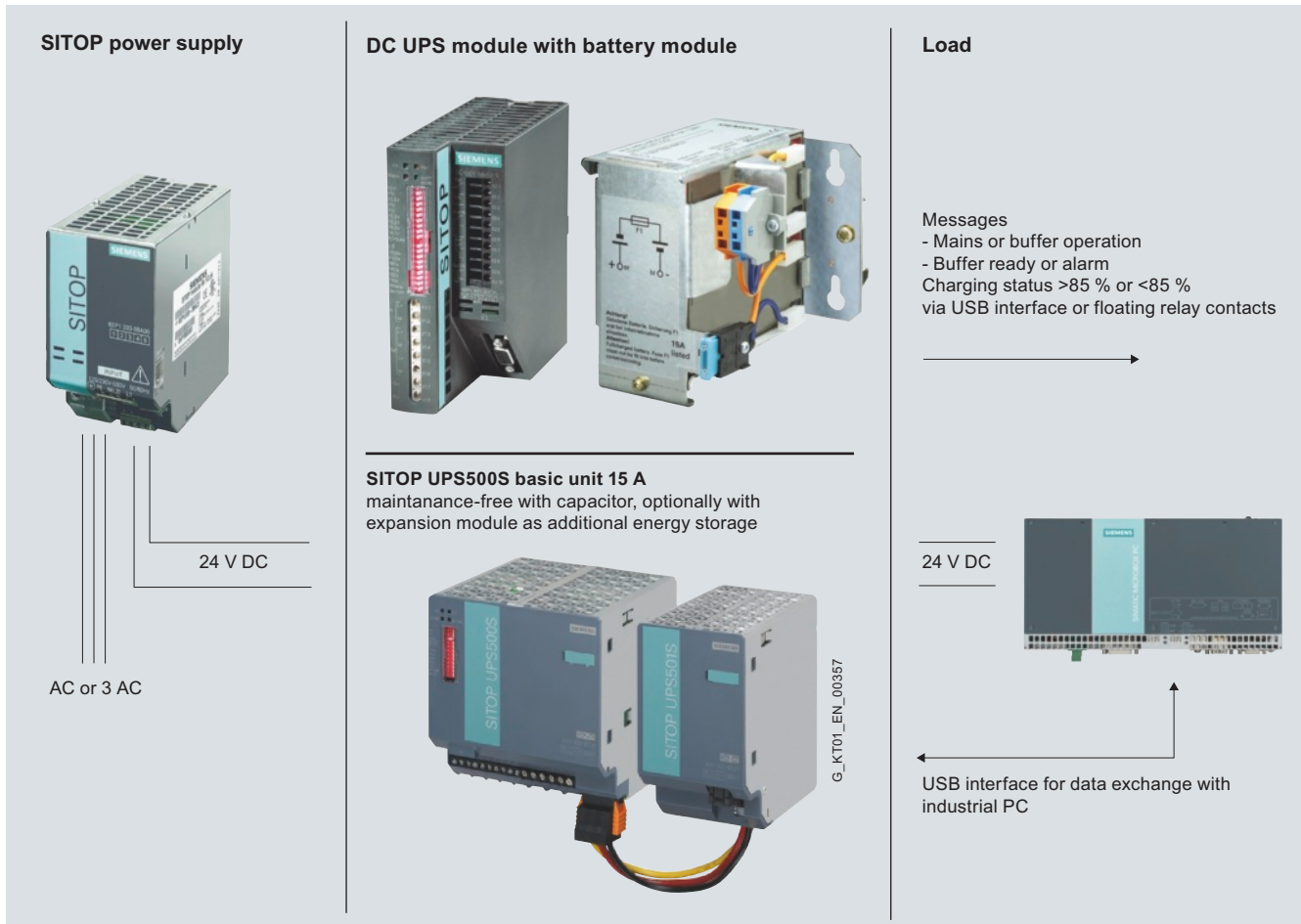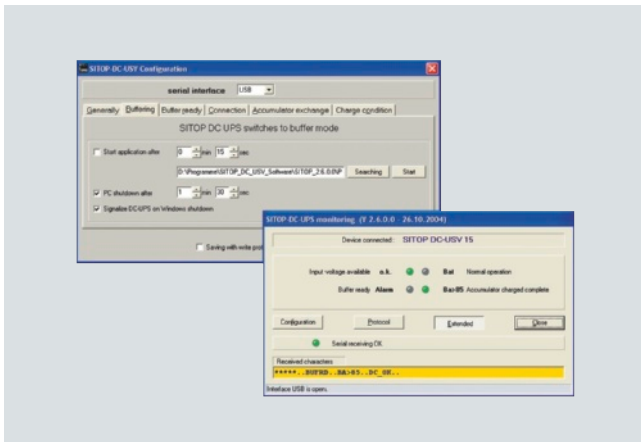
DC UPS software

Monitoring and configuration window of software V3 for SITOP DC UPS

The uninterruptible DC power supplies are optionally available with USB interface or serial interface. All relevant messages about the status of the uninterruptible DC power supply can be transferred to a PC (e.g. SIMATIC IPC) via this interface.

SITOP DC UPS software provides the user with a very easy to use software tool with which the signals sent by the uninterruptible DC power supply can be further processed on the PC. In monitoring mode, the statuses of the uninterruptible DC power supply are visualized on the PC.

Safe shutdown in the event of a power failure and automatic PC restart are supported. It is also possible to freely define responses to the different operating states of the uninterruptible DC power supply, so that extremely flexible integration into a wide variety of applications is possible.

The software runs under the Windows 2000, Windows XP, Windows Vista and Windows 7 operating systems. It is available as downloadable freeware on the SITOP homepage.

http://www.siemens.com/sitop-ups

■ **More information**

You can select the appropriate power supply quickly and easily using the SITOP Selection Tool:

http://www.siemens.com/sitop-selection-tool

PC-based Automation
DC UPS with capacitors

DC UPS with capacitors

■ Overview
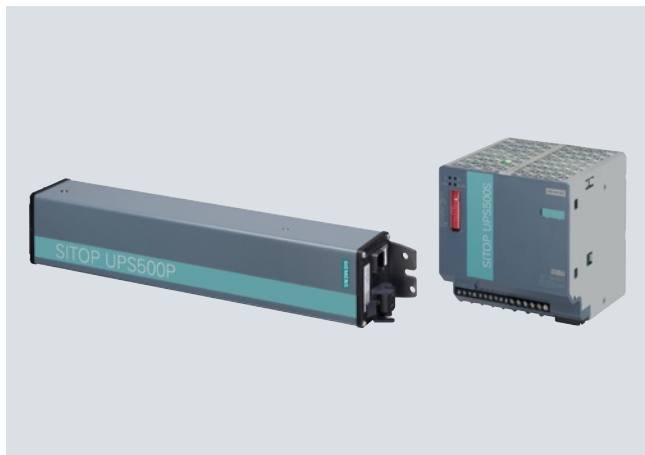
Uninterruptible power supplies normally store the electrical energy in lead-acid batteries. Temperatures such as those prevalent in control cabinets considerably shorten the service life of the battery, however, and the batteries must be replaced on a regular basis – annually at an ambient temperature of 40 °C, for example. The innovative SITOP UPS500, however, is based on absolutely maintenance-free capacitors with a long service life. Even at temperatures of 50 °C they still have more than 80% of their capacity after 8 years. This means that the energy storage unit does not have to be replaced. Because the capacitors do not emit any gas, the control cabinet does not have to be ventilated.

Another advantage is the significantly shorter charging times of the double-layer capacitors, which ensure that the buffer is ready very quickly after loss of power.

The SITOP UPS500P IP65 version has capacitors for 5 or 10 kW and supplies up to 7 A output current. The oblong metal enclosure is also suitable for installing on support arm systems.

Selection table SITOP UPS500
(optional with SITOP UPS501S expansion module)
and mains buffering times

Buffering and charging times										
SITOP UPS500S/501S configurations									**UPS500P**	
Basic unit	2.5 kW	5 kW	2.5 kW	5 kW	2.5 kW	5 kW	2.5 kW	5 kW	5 kW	10 kW
Expansion modules	-	-	1 × 5 kW	1 × 5 kW	2 × 5 kW	2 × 5 kW	3 × 5 kW	3 × 5 kW	-	-
Total energy	2.5 kW	5 kW	7.5 kW	10 kW	12.5 kW	15 kW	17.5 kW	20 kW	5 kW	10 kW
Load current	**Buffer times**									
0.5 A	134 s	236 s	390 s	478 s	632 s	748 s	851 s	1007 s	284 s	647 s
0.8 A	90 s	167 s	266 s	346 s	440 s	527 s	580 s	706 s	190 s	435 s
1 A	75 s	138 s	219 s	296 s	365 s	414 s	490 s	572 s	153 s	351 s
2 A	38 s	76 s	122 s	156 s	203 s	230 s	265 s	306 s	80 s	152 s
3 A	26 s	52 s	82 s	106 s	136 s	159 s	186 s	213 s	53 s	108 s
4 A	19 s	39 s	61 s	81 s	101 s	120 s	139 s	160 s	40 s	84 s
5 A	15 s	31 s	49 s	65 s	81 s	95 s	111 s	130 s	30 s	68 s
6 A	12 s	26 s	40 s	55 s	67 s	80 s	94 s	106 s	25 s	57 s
7 A	10 s	21 s	34 s	47 s	58 s	69 s	81 s	82 s	21 s	49 s
8 A	8 s	18 s	29 s	40 s	50 s	59 s	69 s	79 s	-	-
10 A	6 s	15 s	23 s	32 s	39 s	47 s	54 s	62 s	-	-
12 A	4 s	12 s	19 s	26 s	32 s	38 s	44 s	52 s	-	-
15 A	3 s	9 s	14 s	20 s	25 s	30 s	35 s	40 s	-	-
Charging current	**Charging times**									
2 A	54 s	120 s	158 s	223 s	263 s	318 s	355 s	417 s	130 s	360 s
1 A	110 s	205 s	311 s	425 s	503 s	625 s	695 s	816 s	-	-

Important information for selecting the energy storage units:

When the mains buffering times were determined, the discharge period of new or non-aged, completely charged capacitors was used as a basis. At a continuous ambient temperature of +50 °C, a loss of capacity of approx. 20% must be considered after a service life of 8 years.

■ More information

You can select the appropriate power supply quickly and easily using the SITOP Selection Tool:

http://www.siemens.com/sitop-selection-tool

Overview

Basic device 15 A, SITOP UPS500S

- Compact design, only 120 mm wide
- Two versions with integrated energy storage units:
  2.5 kW or 5 kW
- Can be expanded easily using a user-friendly plug-in system
  with the expansion module 5 kW
- Absolutely uninterruptible bridging of power failures, as soon
  as the DC UPS input voltage falls below the value set by the
  DIP switches
- High level of safety and availability through monitoring of
  operational readiness, and monitoring of the capacitor charge
  (message "> 85% charged")
- Support for automatic warm restart of industrial PCs through
  selectable shutdown characteristics
- With USB interface

Maintenance-free power supply in the form of a combination of a basic
module and an expansion module

SITOP UPS501S expansion module

- Additional energy storage (5 kW)
- Up to 3 expansion modules can be connected to a
  SITOP UPS500S to extend the buffer times
- Compact design, only 70 mm wide
- Can be easily connected to SITOP UPS500S
  via a user-friendly plug-in system
- Complete with balancing and safety circuits
- Can be snapped onto standard mounting rail
  EN 60715 35x7.5/15
- Dimensions (W x H x D) in mm: Approx. 70 x 125 x 125
- Weight: Approx. 0.7 kg

Ordering data	Order No.
SITOP UPS500S	
DC UPS basic device 15 A with	
• 2.5 kW	**6EP1933-2EC41**
• 5 kW	**6EP1933-2EC51**
SITOP UPS501S	
Expansion module 5 kW for connecting to the basic device	**6EP1935-5PG01**
Accessories	
Device labels	**3RT1900-1SB20**

PC-based Automation
DC UPS with capacitors

■ Overview
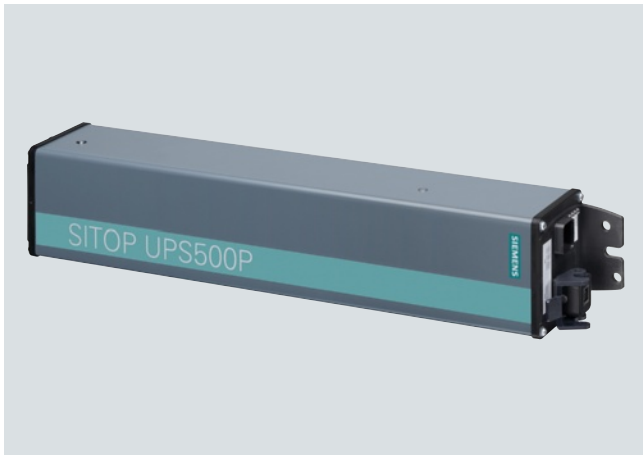
Basic device 7 A, IP65, SITOP UPS500P

- Compact design, degree of protection IP65
- For distributed use, e.g. on support arms
- Integrated energy storage: 5 kW or 10 kW
- Ambient temperature range for operation: 0 to +55 °C
- High degree of efficiency 96.9% or low power loss, approx. 6 W with 7 A load current
- USB interface
- Indication of the operating states normal operation, buffer mode, alarm message "Buffer not ready" and indication of the capacitor charge > 85%

■ Ordering data

	Order No.
SITOP UPS500P	
DC UPS basic device 7 A with	
• 5 kW	**6EP1933-2NC01**
• 10 kW	**6EP1933-2NC11**
Connector set consisting of connector for input and output and an assembled USB cable (2 m in length)	**6EP1975-2ES00**

5

■ Overview

By combining a DC UPS module with at least one 24 V battery module and a SITOP power supply unit, longer power failures can be bridged without any interruption.

The combination is used for example in machine-tool building, in the textile industry, on all types of production lines and filling plants, and in conjunction with 24 V industrial PCs. This prevents the negative effects which often result from power failures.

DC UPS modules: 6 A, 15 A, 40 A

Battery modules:
- 1.2 Ah (contains lead-acid batteries with corrosion-resistant lead-calcium high-performance grid plates and fiberglass mat)
- 3.2 Ah (contains lead-acid batteries with corrosion-resistant lead-calcium high-performance grid plates and fiberglass mat)
- 7 Ah (contains lead-acid batteries with corrosion-resistant lead-calcium high-performance grid plates and fiberglass mat)
- 12 Ah (contains lead-acid batteries with corrosion-resistant lead-calcium high-performance grid plates and fiberglass mat)
- 2.5 Ah (contains "high-temperature battery" type pure lead)

Selection table for battery modules and mains buffering times

Load current	Battery module 1.2 Ah (6EP1935-6MC01)	Battery module 3.2 Ah (6EP1935-6MD11)	Battery module 7 Ah (6EP1935-6ME21)	Battery module 12 Ah (6EP1935-6MF01)	Battery module 2.5 Ah (6EP1935-6MD31)
1 A	34.5 min	2.6 h	5.4 h	9 h	2 h
2 A	15 min	1 h	2.6 h	4.6 h	1 h
3 A	9 min	39.3 min	1.6 h	2.9 h	37.5 min
4 A	6.5 min	27.1 min	1.2 h	2.2 h	27 min
6 A	3.5 min	17.5 min	41 min	1.2 h	17.6 min
8 A	-	12.1 min	28.6 min	53.3 min	12.5 min
10 A	-	9 min	21.8 min	43.5 min	8.8 min
12 A	-	-	17.3 min	33.3 min	6.8 min
14 A	-	-	15.1 min	27.5 min	5.1 min
16 A	-	-	12.5 min	23.8 min	4.3 min
20 A	-	-	9.1 min	20.1 min	-
25 A	-	-	-	12.6 min	-
30 A	-	-	-	9.1 min	-

Important information for selecting the battery capacity:
- Determination of the mains buffering times is based on the discharge period of new or non-aged, completely charged battery modules at a battery temperature not below +25 °C to the shutdown of the DC UPS.
- Battery aging reduces the still available battery capacity up until the end of the service life to typically around 50 % of the original capacity value when new (1.2 Ah/3.2 Ah/7 Ah, etc.) and the internal resistance increases. When the message "Battery charge > 85%" appears, only around 50% x 85% = approx. 43% of the originally available capacity can be assumed at the end of the battery service life.

At battery temperatures below +25 °C, the available capacity is further reduced by approx. 30% at +5 °C battery temperature to approx. 70% of approx. 43%, leaving only approx. 30% of the original capacity available.

Accordingly, a significantly greater battery capacity must be selected when configuring the system: A drop to approx. 50% is compensated for by selecting 1/approx. 0.5 = approx. double the battery capacity (than required according to the table for the relevant load current and the relevant buffering time). Available capacity of approx. 43% is compensated for by selecting 1/approx. 0.43 = approx. 2.33 times the battery capacity. Available capacity of approx. 30% is compensated for by selecting 1/approx. 0.3 = approx. 3.33 times the battery capacity.

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DC UPS with battery modules

■ Overview (continued)

Recommendation:

- Instead of installing double the battery capacity to cope with battery aging, regular battery replacement midway through the expected service life (reduction of capacity to approx. 50%) can be more advisable for the following reasons: Until the middle (or somewhat past the middle) of the anticipated battery service life is reached, the capacity does not drop below 100 %. If the battery is replaced on a regular basis after reaching half of the anticipated service life, only single (instead of double) battery capacity must be installed (→ neutral price in terms of battery module costs, but only half of the space requirement).

  When swapped after half of the service life, the large scatter range of the residual capacity, which is not defined in more detail by battery manufacturers, can be avoided at the end of the service life (after the full time, many batteries are over or under the average of 50 % remaining capacity; this means that even if double the capacity is installed, the effect of aging at the end of the service life is not reliably compensated for, but only typically). If the battery is swapped after half of the anticipated service life, the projected buffering time is much more reliably adhered to.

  For batteries stored in a cool place below +25 °C and for no longer than approx. 4 months, the following service life can usually be assumed, highly dependent on the battery temperature):

Battery temperature	Drop to approx. 50% of residual capacity	Recommendation: Replace (at 100% of residual capacity) all	Alternative recommendation
+20 °C	4 years	2 years	
+30 °C	2 years	1 year	
+40 °C	1 year	0.5 years	Install double capacity and replace 1 x per year

In normal cases (installation in the coolest location in the control cabinet at approx. +30 °C), the battery should be replaced with single installed battery capacity in accordance with the selection table after 1 year of operation!

- On the DC UPS module 40 A, at least 2 battery modules of 7 Ah or higher must be connected in parallel for output currents > 30 A. When connecting battery modules in parallel, you must ensure identical capacity and aging.

- After a power failure, and at the end of the selected buffering time, the battery module is disconnected electronically from the loads as soon as the 24 V input voltage returns either automatically or by opening the On/Off control circuit, and quickly recharged with the charge current of the relevant DC UPS module (with *I-U* charge characteristic: initially constant current *I* for fast charging, and changeover to constant voltage *U* to maintain the charge when the battery is almost full).

■ More information

You can select the appropriate power supply quickly and easily using the SITOP Selection Tool:

http://www.siemens.com/sitop-selection-tool

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SITOP DC UPS module 6 A

- Compact design, only 50 mm wide
- Simple DIN rail mounting
- Completely uninterruptible mains buffering through immediate electronic connection of the battery as soon as the DC UPS input voltage falls below the value set by means of DIP switches.
- High level of safety and availability through monitoring of operational readiness, battery supply line, battery aging (message "Battery replacement necessary") and battery charge (message "Battery charged >85 %")
- Support for automatic warm restart of industrial PCs through selectable shutdown characteristics.
- Optionally with serial or USB interface.
  SW tool available for download from
  http://www.siemens.com/sitop
  Executes under Windows NT4.0, Windows 2000 and Windows XP.

Ordering data	Order No.
SITOP DC UPS module 6 A	**6EP1931-2DC21**
• With serial interface	**6EP1931-2DC31**
• With USB interface	**6EP1931-2DC42**

SITOP DC UPS module 15 A

- Compact design, only 50 mm wide
- Completely uninterruptible mains buffering through immediate electronic connection of the battery as soon as the DC UPS input voltage falls below the value set by means of DIP switches.
- High level of safety and availability through monitoring of operational readiness, battery supply line, battery aging (message "Battery replacement necessary") and battery charge (message "Battery charged >85%")
- Support for automatic warm restart of industrial PCs through selectable shutdown characteristics.
- Optionally with serial or USB interface.
  SW tool available for download from
  http://www.siemens.com/sitop
  Executes under Windows NT4.0, Windows 2000 and Windows XP.

Ordering data	Order No.
SITOP DC UPS module 15 A	**6EP1931-2EC21**
• With serial interface	**6EP1931-2EC31**
• With USB interface	**6EP1931-2EC42**
SIPLUS PS DC UPS module 15 A	**6AG1931-2EC21-2AA0**
(Extended temperature range -25 ... +60 °C)	

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PC-based Automation
DC UPS with battery modules

DC UPS module 40 A
Battery module 1.2 Ah

SITOP DC UPS module 40 A

- Compact design, only 102 mm wide
- Completely uninterruptible mains buffering through immediate electronic connection of the battery as soon as the DC UPS input voltage falls below the value set by means of DIP switches.
- High level of safety and availability through monitoring of operational readiness, battery supply line, battery aging (message "Battery replacement necessary") and battery charge (message "Battery charged >85 %")
- Support for automatic warm restart of industrial PCs through selectable shutdown characteristics.
- Optionally with USB interface.
  SW tool available for download from
  http://www.siemens.com/sitop
  Executes under Windows NT4.0, Windows 2000 and Windows XP.

Ordering data	Order No.
SITOP DC UPS module 40 A	**6EP1931-2FC21**
• With USB interface	**6EP1931-2FC42**
SIPLUS PS DC UPS module 40 A	**6AG1931-2FC21-7AA0**
(extended temperature range +25 A ... +70 A °C and medial loading)	

Battery module 1.2 Ah

- Battery module for DC UPS module 6 A
- It has two maintenance-free, closed lead-acid batteries (from the same lot) which are installed in a holder and connected in series with corrosion-resistant lead-calcium high-performance grid plates and glass fiber.
- Completely prewired with battery retainer and terminals
- Low self-discharge rate of approximately 3 % per month (at +20 °C)

Ordering data	Order No.
Battery module 24 V/1.2 Ah	**6EP1935-6MC01**
for DC UPS module 6 A	

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Battery module 24 V/2.5 Ah

- High-temperature battery module for DC UPS module 6 A and 15 A
- It has two maintenance-free, closed pure lead-acid batteries (from the same lot), which are installed in a holder and connected in series.
- Completely prewired with battery retainer and terminals
- Low self-discharge rate of approximately 3 % per month (at +20 °C)

Ordering data	Order No.
Battery module 24 V/2.5 Ah	**6EP1935-6MD31**
for DC UPS module 15 A	

Battery module 24 V/3.2 Ah

- Battery module for DC UPS module 6 A and 15 A
- It has two maintenance-free, closed lead-acid batteries (from the same lot) which are installed in a holder and connected in series with corrosion-resistant lead-calcium high-performance grid plates and glass fiber.
- Complete with battery retainer and terminals
- Low self-discharge rate of approximately 3 % per month (at +20 °C)

Ordering data	Order No.
Battery module 24 V/3.2 Ah	**6EP1935-6MD11**
for DC UPS module 15 A	

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PC-based Automation
DC UPS with battery modules

Battery module 7 Ah
Battery module 12 Ah

Battery module 7 Ah

- Battery module for DC UPS module 6 A, 15 A and DC UPS module 40 A (for > 30 to 40 A, 2 units are required in parallel)
- It has two maintenance-free, closed lead-acid batteries (from the same lot) which are installed in a holder and connected in series with corrosion-resistant lead-calcium high-performance grid plates and glass fiber.
- Completely pre-wired with terminals and battery retainer
- Low self-discharge rate of approximately 3% per month (at +20 °C)

Ordering data	Order No.
Battery module 24 V/7 Ah	**6EP1935-6ME21**
for DC UPS module 6 A, 15 A and 40 A	

Battery module 12 Ah

- Battery module for DC UPS module 6 A, 15 A and DC UPS module 40 A (for > 30 to 40 A, 2 units are required in parallel)
- It has two maintenance-free, closed lead-acid batteries (from the same lot) which are installed in a holder and connected in series with corrosion-resistant lead-calcium high-performance grid plates and glass fiber.
- Completely pre-wired with terminals and battery retainer
- Low self-discharge rate of approximately 3% per month (at +20 °C)

Ordering data	Order No.
Battery module 24 V/12 Ah	**6EP1935-6MF01**
for DC UPS module 6 A, 15 A and 40 A	

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■ Overview

MASTERGUARD UPS

- The A-19 and EI-19 series of Masterguard offer effective online protection against all kinds of power supply disturbances
- Genuine online operating principle, i.e. complete disconnection of the load from the irregularities of the line power supply
- 19" compact modules
- Simple operation and functional indication of operating states and load stages

MASTERGUARD UPS Series A-19/EI-19

- Permanent double-converter technology evens out any irregularity in the power supply and offers totally uninterrupted protection
- Easily configurable for use in 19" cabinets thanks to battery expansions and universal slide rail units
- With a height of just 2 HU for the A-19 series and 3 HU for the EI-19 series and with power-regulated fan and functional display, these units are ideal where space is limited.
- For communication, a choice can be made between serial and USB interface and, in addition, a network connection of the UPS can be set up by means of an SNMP plug-in card for the communication slot.

Standard configuration

MASTERGUARD UPS Series A-19

- A700-19
  Output: 700 VA; integrated battery: 6 min.
- A1000-19
  Output: 1000 VA; integrated battery: 7 min.
- A2000-19
  Output: 2000 VA
- A3000-19
  Output: 3000 A

Battery pack for MASTERGUARD Series A-19

- BPA 1000-19
  for UPS A1000-19 (max. 2 BP)
- BPA 3000-19
  for UPS A2000-19 (max. 5 BP) and UPS A3000-19 (max. 5 BP)

Accessories

Slide rail unit 2 HU 330-580 mm

Slide rail unit 2 HU 575-855 mm

Standard configuration

MASTERGUARD UPS Series EI-19

- EI-19
  Output: 6000 VA

Battery pack for MASTERGUARD Series EI-19

- BPEI-19

Accessories

Slide rail unit 3 HU 330-580 mm

Slide rail unit 3 HU 575-855 mm

ManageUPS SNMP adapter card

MopUPS shutdown software

- for Intel operating systems (Windows, Linux, Solaris for Intel)
- for Risc operating systems (Solaris SPARC, HPUX, AIX)

■ More information

http://www.masterguard.de

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PC-based Automation
Communication – Industrial Ethernet

Connection options to SIMATIC IPCs

Overview

The operating systems listed in the table refer exclusively to the communication products specified! Please refer to the description of the relevant IPC for the operating system that is available and has been released for that IPC.

Communication hardware	Communication software	Operating system environment of the communication software							SIMATIC Industrial PC/ Field PG						Embedded Systems				
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	Op. sys.	SIMATIC Industrial-PC			
		Windows 7 Professional / Ultimate	Windows Server 2008 R2	Windows Server 2008 + SP1/2	Vista Business / Ultimate + SP1/2	Windows XP Pro + SP3	Windows Server 2003 R2 / SP2	other operating systems	Field PG M3	SIMATIC IPC847C	SIMATIC IPC547C/D	SIMATIC IPC627C	SIMATIC IPC827C	SIMATIC IPC427C	Windows XP Embedded + SP1/SP2/FP 2007	SIMATIC IPC427C, SIMATIC HMI IPC477C	SIMATIC HMI IPC677C	SIMATIC IPC627C	SIMATIC S7 modular Embedded Controller
CPs and software for Industrial Ethernet																			
CP 1613 A2 (PCI 32 Bit)	HARDNET-IE S7 (S7-1613)	●	●	●	●	●	●	–	–	●	●	●	●	–	●	–	●	●	–
	HARDNET-IE S7 REDCONNECT [3]	●	●	●	●	●	●	–	–	●	●	○[4][5]	●	–	●	–	○[4][5]	○[4][5]	–
	S7 OPC Redundancy for Industrial Ethernet	–	●	–	–	–	–	–	●	●	●	●	●	●	●	–	●	●	–
CP 1623 (PCIe x1)	HARDNET-IE S7 (S7-1613)	●	●	●	●	●	●	–	–	●	●	○[5]	●	–	●	–	○[5]	○[5]	–
	HARDNET-IE S7 REDCONNECT [3]	●	●	●	●	●	●	–	–	○[5]	○[5]	○[4][5]	●	–	●	–	○[4][5]	○[4][5]	–
	S7 OPC Redundancy for Industrial Ethernet	–	●	–	–	–	–	–	●	●	●	●	●	●	●	–	○[5]	●	–
CP 1628 (PCIe x1)	HARDNET-IE S7 (S7-1613)	●	●	–	●	●	●	–	–	●	●	○[5]	●	–	●	–	○[5]	○[5]	–
	HARDNET-IE S7 REDCONNECT [3]	●	●	–	●	●	●	–	–	○[5]	○[5]	○[4][5]	●	–	●	–	○[4][5]	○[4][5]	–
	S7 OPC Redundancy for Industrial Ethernet	–	●	–	–	–	–	–	●	●	●	●	●	●	●	–	○[5]	●	–
CP 1612 A2 (PCI 32 Bit)	SOFTNET-IE S7	●	●	●	●	●	●	–	–	●	●	●	●	●	●	–	●	●	–
	SOFTNET-IE S7 Lean	●	●	●	●	●	●	–	–	●	●	●	●	●	●	–	●	●	–
	SOFTNET-IE PG	●	●	●	●	●	●	–	–	●	●	●	●	●	●	–	●	●	–
	S7 OPC Redundancy for Industrial Ethernet	–	●	–	–	–	–	–	●	●	●	●	●	●	●	–	●	●	–
SIMATIC PG/PC with integral Ethernet interface	SOFTNET-IE S7	●	●	●	●	●	●	–	●	●	●	●	●	●	●	●	●	●	●
	SOFTNET-IE S7 Lean	●	●	●	●	●	●	–	●	●	●	●	●	●	●	●	●	●	●
	SOFTNET-IE PG	●	●	●	●	●	●	–	●	●	●	●	●	●	●	●	●	●	●
	S7 OPC Redundancy for Industrial Ethernet	–	●	–	–	–	–	–	●	●	●	●	●	●	●	●	●	●	●
CPs and software for PROFINET																			
CP 1616 [1] (PCI 32 Bit)	HARDNET PN IO DK (DK-16xx PN IO) [1]	●	–	–	–	●	–	○	–	○	○	○	○	–	●	–	○	○	–
CP 1604 [1] (PCI-104)	HARDNET PN IO DK (DK-16xx PN IO) [1]	●	–	–	–	●	–	○	–	–	–	–	–	–	○[2]	○	○[2]	–	–	–
SIMATIC PG/PC with integral Ethernet interface	SOFTNET PN IO	●	●	●	●	●	●	–	●	●	●	●	●	●	●	●	●	●	●

1) Use of these CPs requires porting of the Development Kit DK-16xx PN IO to the relevant operating system environment. You can order the DK-16xx PN IO at www.siemens.com/simatic-net/dk16xx on the Internet. It contains sample software for Linux Suse 12 and Windows XP Professional. For IRT operation an exclusive interrupt is necessary; this is not available in all slots. The additional use of CP 1616/CP 1604 is not approved for SIMATIC Industrial PC versions and integrated PROFINET interface.
2) possible with restrictions, if necessary, depending on memory expansion and processor capacity
3) requires at least 2 PCI or 2 PCIe slots (4-way redundancy requires 4 free PCI or 4 PCIe slots!); hybrid configurations with CP 1613 A2 (PCI) and CP 1623 (PCIe) are possible, depending on PC expansion
4) without 4-way redundancy as there are only 2 slots
5) depending on the slots of the selected PC version

Notes
- Please always note the supplementary conditions for the specified SIMATIC NET products that you can view on the Internet pages shown below.
- for further details on XP embedded, see http://support.automation.siemens.com/WW/view/en/21661049
- further details on system requirements and operating environments can be found in the Readme file of the communication products on the SIMATIC NET PC Software V8.1 CD
- Updates and supplements to the catalog entries, as well as the above tables can be viewed at http://www.siemens.com/simatic-net/ik-info

● suitable
– not suitable
○ suitable under certain conditions

G_IK10_XX_10225

Connection options of Industrial Ethernet CPs to PG/PC/IPC

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Overview
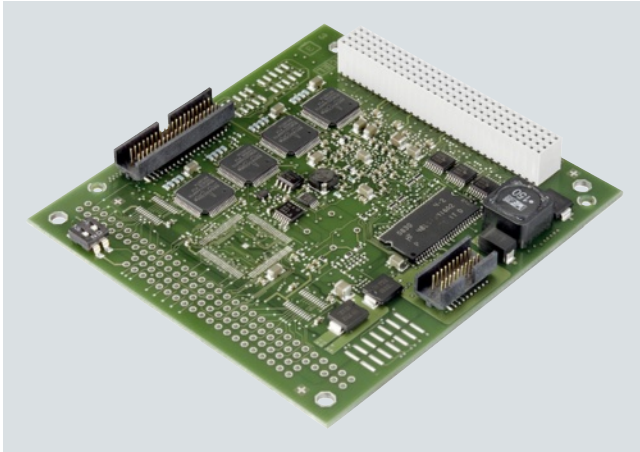
- PCI-104 module for connecting PCI-104 systems to PROFINET IO
- Full/half duplex with autonegotiation
- With Ethernet real-time ASIC ERTEC 400
- Integral 4-port real-time switch
- Communication services:
  - PROFINET IO controller and/or PROFINET IO device
  - Support of IRT in motion control applications
  - Support of PROFIenergy functionality
- High performance through direct memory access
- Integration in network management systems through the support of SNMP
- Comprehensive diagnostics possibilities for installation, start-up and operation of the module
- Powerful configuration tools are included in delivery of module

ISO	TCP/UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
	●	●	●				

Ordering data

	Order No.		Order No.
CP 1604 **communications processor** PCI-104 card (32-bit) with ASIC ERTEC 400 for connecting PCI-104 systems to PROFINET IO with 4-port real-time switch (RJ45); incl. IO-Base software for PROFINET IO-Controller and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32-bit Windows XP Professional and Windows 7; other operating systems using DK-16xx PN IO Development Kit German/English	**6GK1160-4AA01**	**Accessories** **Connection board for CP 1604** Connection board for CP 1604 with four RJ45 sockets incl. connecting cable	**6GK1160-4AC00**
		Power supply for CP 1604 Redundant power supply for CP 1604 for operating the integral 4-port switch of the CP 1604 with the PC-104 system switched off; includes connecting cable	**6GK1160-4AP00**
CP 1604 Microbox Package Package for implementing the CP 1604 in the SIMATIC Microbox PC; comprising the CP 1604, connection board, power supply and expansion racks for Microbox PC; for use with Development Kit DK-16xx PN IO; NCM PC	**6GK1160-4AU01**	**Development Kit DK-16xx PN IO** Software Development Kit for CP 1616/CP 1604; driver and IO-Base software for CP 1616/CP 1604 as PN IO controller and PN IO device in source code for transfer to other PC-based operating systems; incl. executable sample code for SUSE Linux 10, Windows XP Professional and Windows 7	See http://www.siemens.com/simatic-net/dk16xx
		IE TP Cord RJ45/RJ45 TP cable 4 x 2 with 2 RJ45 connectors • 0.5 m • 1 m • 2 m • 6 m • 10 m	 **6XV1870-3QE50** **6XV1870-3QH10** **6XV1870-3QH20** **6XV1870-3QH60** **6XV1870-3QN10**
		SCALANCE X204IRT Managed Industrial Ethernet switches; isochronous real time, LED diagnostics, error signaling contact with SET button, redundant power supply 4 x 10/100 Mbit/s RJ45 ports	**6GK5204-0BA00-2BA3**

More information

The DK-16xx PN IO development kit can be found on the Internet at:
http://www.siemens.com/simatic-net/dk16xx

PC-based Automation
Communication – Industrial Ethernet

CP 1616

Overview

ISO	TCP/ UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
	●	●	●				

- PCI module for connecting PCs and SIMATIC PGs/PCs to PROFINET IO (Universal Keyed 3.3 V and 5 V; 33 MHz/66 MHz; 32-bit, runs in 64-bit PCI-X systems)
- Full/half duplex with autonegotiation
- With Ethernet real-time ASIC ERTEC 400
- Integral 4-port real-time switch
- Communication services:
  - PROFINET IO controller and/or PROFINET IO device
  - Support of IRT in motion control applications
- High performance through direct memory access
- Integration in network management systems through the support of SNMP
- Comprehensive diagnostics possibilities for installation, start-up and operation of the module
- Powerful configuration tools are part of the scope of delivery of the module

Ordering data

	Order No.		Order No.
CP 1616 communications processor	**6GK1161-6AA02**	**Accessories**	
PCI Card (32 bit; 3.3/5 V universal keyed) with ASIC ERTEC 400 for connecting PCs to PROFINET IO with 4-Port-Real-Time-Switch (RJ45); incl. IO Base Software for PROFINET IO Controller and NCM PC; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for 32-bit Windows XP Professional and Windows 7; other operating systems via Development Kit DK-16xx PN IO; German/English		**Development Kit DK-16xx PN IO** Software development kit for CP 1616/CP 1604; driver and IO-Base software for CP 1616/CP 1604 as PN IO controller and IO device in source code for transfer to other PC-based operating systems; including executable example code for SUSE Linux 10, Windows XP Professional and Windows 7	See http://www.siemens.com/ simatic-net/dk16xx
		IE TP Cord RJ45/RJ45 TP cable 4 x 2 with 2 RJ45 connectors • 0.5 m • 1 m • 2 m • 6 m • 10 m	 **6XV1870-3QE50** **6XV1870-3QH10** **6XV1870-3QH20** **6XV1870-3QH60** **6XV1870-3QN10**
		SCALANCE X204IRT Managed Industrial Ethernet switches; isochronous real time, LED diagnostics, error signaling contact with SET button, redundant power supply 4 x 10/100 Mbit/s RJ45 ports	**6GK5204-0BA00-2BA3**

More information

The DK-16xx PN IO development kit can be found on the Internet at:
http://www.siemens.com/simatic-net/dk16xx

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Overview

- PCI card (32 bit; 33 MHz/66 MHz; 3.3 V/5 V Universal Key) for the connection of PG/PC to Industrial Ethernet
- 1 x 10/100/1000 Mbit/s RJ45 port, electrical
- Automatic data transmission rate detection (10/100/1000 Mbit/s), with autosensing and autocrossover function
- Communication services via
  - PROFINET
  - ISO or TCP/IP transport protocol
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- Designed for use in industrial environments
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software.

ISO	TCP/UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●	●	●		●	●	●	●

Ordering data

	Order No.		Order No.
CP 1612 A2 communications processor	**6GK1161-2AA01**	**SOFTNET PN IO**	
PCI card (32 bit, 33 MHz/66 MHz; 3.3 V/5 V universal keyed) for connection to Industrial Ethernet (10/100/1000 Mbit/s) with RJ45 interface, incl. driver for 32-bit Windows XP Professional SP2/3, 2003 R2 Server SP2, Vista Business/Ultimate SP1, Windows 2008 Server; German/English		Software for PROFINET IO Controller with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	
		SOFTNET-IE PN IO V8.2	
		For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
SOFTNET Security Client V4	**6GK1704-1VW04-0AA0**	• Single License for one installation	**6GK1704-1HW08-2AA0**
Software for designing secure IP-based VPN connections from a programming device/PC to network segments which are secured by SCALANCE S in bridge mode; Single license for 1 installation, runtime software (German/English), configuring tool (German/English) and electronic manual on CD-ROM (German/English/French/Italian/Spanish) for 32-bit Windows, XP Professional + SP1, SP2, SP3; for 32/64-bit Windows 7 Ultimate/Business		**SOFTNET PN IO Edition 2008 (V7.1)**	
		For 32-bit Windows XP Professional SP 2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German	
		• Single License for one installation	**6GK1704-1HW71-3AA0**
		Software Update Service	**6GK1704-1HW00-3AL0**
		For 1 year with automatic extension; requirement: current software version	
		Upgrade • From Edition 2006 to SOFTNET PN IO Edition 2008 or V8.1	**6GK1704-1HW00-3AE0**
		• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET PN IO Edition 2008 or V8.1	**6GK1704-1HW00-3AE1**

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PC-based Automation
Communication – Industrial Ethernet

CP 1612 A2

Ordering data	Order No.
SOFTNET S7 **for Industrial Ethernet**	
Software for S7 and open communication, incl. OPC server, PG/OP communication, and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on a USB stick, Class A	
SOFTNET-IE S7 V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2; German/English	
Up to 64 connections • Single License for one installation	**6GK1704-1CW08-2AA0**
SOFTNET S7 Edition 2008 (V7.1) **for Industrial Ethernet**	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German	
Up to 64 connections • Single License for one installation	**6GK1704-1CW71-3AA0**
Software Update Service	**6GK1704-1CW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade • From Edition 2006 to Edition 2008 or V8.1	**6GK1704-1CW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1	**6GK1704-1CW00-3AE1**
SOFTNET-IE S7 Lean Edition V8.2	
Up to eight connections • Single License for one installation	**6GK1704-1LW08-2AA0**
SOFTNET-S7 Lean Edition 2008 **(V7.1) for Industrial Ethernet**	
Up to eight connections • Single License for one installation	**6GK1704-1LW71-3AA0**
Software Update Service	**6GK1704-1LW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade • From Edition 2006 to Edition 2008 or V8.1	**6GK1704-1LW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1	**6GK1704-1LW00-3AE1**

Ordering data	Order No.
SOFTNET-IE PG **for Industrial Ethernet**	
Software for PG/OP communication, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	
SOFTNET-IE PG V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2; German/English	
• Single License for one installation	**6GK1704-1PW08-2AA0**
SOFTNET-PG Edition 2008 (V7.1) **for Industrial Ethernet**	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	**6GK1704-1PW71-3AA0**
Software update	**6GK1704-1PW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade • From Edition 2006 to Edition 2008 or V8.1	**6GK1704-1PW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1	**6GK1704-1PW00-3AE1**
IE TP Cord RJ45/RJ45	
TP cable 4 x 2 with 2 RJ45 connectors • 0.5 m • 1 m • 2 m • 6 m • 10 m	**6XV1870-3QE50** **6XV1870-3QH10** **6XV1870-3QH20** **6XV1870-3QH60** **6XV1870-3QN10**
Software Update Service	**6GK1706-0HB00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade • From Edition 2006 and higher to Edition 2008, single license	**6GK1706-0HB00-3AE0**
• From V6.0 to Edition 2008, single license	**6GK1706-0HB00-3AE1**

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Overview

ISO	TCP/UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●	●			●	●	●	●

- PCI card (32 bit; 33 MHz/66 MHz; 3.3 V/5 V universal key) with microprocessor for connection of PG/PC to Industrial Ethernet with 10/100 Mbit/s Autosensing/Autonegotiation
- Communication services using
  - Open IE communication via TCP/IP and UDP)
  - ISO transport protocol
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- 15-pole ITP connection
- RJ45 connection
- Time synchronization
- ISO and TCP/IP transport protocol onboard
- SNMP-supported diagnostics
- The appropriate OPC server and configuration tools are included in the respective scope of supply of the communication software

Ordering data — Order No.

CP 1613 A2 communications processor	**6GK1161-3AA01**
PCI card (32-bit, 33 MHz/66 MHz; 3.3 V/5 V universal keyed) for connection to Industrial Ethernet (10/100 Mbit/s) with ITP and RJ45 connection over HARDNET-IE S7/ S7-1613 and S7-REDCONNECT, for operating system support see SIMATIC NET Software	
HARDNET-IE S7 for Industrial Ethernet	
Software for S7 and open communication, incl. PG/OP communication, OPC server and NCM PC; up to 120 connections, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A; for CP 1613/CP 1613 A2/ CP 1623/CP 1628;	
HARDNET-IE S7 V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1716-1CB08-2AA0**
S7-1613 Edition 2008 (V7.1)	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	**6GK1716-1CB71-3AA0**
Software Update Service	**6GK1716-1CB00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• S7-1613, Edition 2006 or higher, to S7-1613 Edition 2008 or HARDNET-IE S7 V8.1	**6GK1716-1CB00-3AE0**
• from S7-1613 V6.0, V6.1, V6.2 or V6.3 to S7-1613 Edition 2008 or HARDNET-IE S7 V8.1	**6GK1716-1CB00-3AE1**
IE TP Cord RJ45/RJ45	
TP cable 4 x 2 with 2 RJ45 connectors	
• 0.5 m	**6XV1870-3QE50**
• 1 m	**6XV1870-3QH10**
• 2 m	**6XV1870-3QH20**
• 6 m	**6XV1870-3QH60**
• 10 m	**6XV1870-3QN10**

[1] also S5-compatible communication

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PC-based Automation
Communication – Industrial Ethernet

CP 1623

Overview

ISO	TCP/ UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●	●			●	●	●	●

- PCI Express Card (PCIe x1) with an internal microprocessor for connection of PG/PC to Industrial Ethernet
- 10/100/1000 Mbit/s (Autosensing/Autocrossover/Autonegotiation)
- Integrated 2-port switch (2 x RJ45 connection)
- Communications services via
  - Open IE communication (TCP/IP and UDP)
  - ISO transport protocol
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- Time synchronization
- ISO and TCP/IP transport protocol on board
- Integration into network management systems through the support of SNMP (V1)
- The appropriate OPC server and configuration tools are included in the scope of supply of the respective communication software.

Ordering data

	Order No.
CP 1623 communications processor	**6GK1162-3AA00**
PCI Express x1 card for connection to Industrial Ethernet (10/100/1000 Mbit/s), with 2-port switch (RJ45) via HARDNET-IE S7/ S7-1613 and S7-REDCONNECT. For operating system support, see SIMATIC NET Software	
HARDNET-IE S7 for Industrial Ethernet	
Software for S7 and open communication, incl. PG/OP communication, OPC server and NCM PC; up to 120 connections, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A; for CP 1613/CP 1613 A2/ CP 1623/CP 1628;	
HARDNET-IE S7 V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1716-1CB08-2AA0**
S7-1613 Edition 2008 (V7.1)	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	**6GK1716-1CB71-3AA0**
Software Update Service	**6GK1716-1CB00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• S7-1613, Edition 2006 or higher, to S7-1613 Edition 2008 or HARDNET-IE S7 V8.1	**6GK1716-1CB00-3AE0**
• from S7-1613 V6.0, V6.1, V6.2 or V6.3 to S7-1613 Edition 2008 or HARDNET-IE S7 V8.1	**6GK1716-1CB00-3AE1**
IE TP Cord RJ45/RJ45	
TP cable 4 x 2 with 2 RJ45 connectors	
• 0.5 m	**6XV1870-3QE50**
• 1 m	**6XV1870-3QH10**
• 2 m	**6XV1870-3QH20**
• 6 m	**6XV1870-3QH60**
• 10 m	**6XV1870-3QN10**

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Overview

ISO	TCP/ UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●	●			●	●	●	●

- PCI Express card (PCIe x1) with its own microprocessor and integrated 2-port switch (2 x RJ45 connection, 10/100/1000 Mbit/s) for the connection of a PG/PC to Industrial Ethernet
- Integrated security mechanisms (e.g. Firewall, VPN)
- ISO and TCP/IP transport protocol on board
- Communications services via
  - Open IE communication (TCP/IP and UDP)
  - ISO transport protocol
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- Integration into network management systems through the support of SNMP (V1/V3)

Ordering data

	Order No.
Communications processor CP 1628 [1] PCI Express x1 card for connection to Industrial Etherne t (10/100/1000 Mbps), with 2-port switch (RJ45) and integrated security (firewall, VPN) via HARDNET-IE S7 and S7-REDCONNECT. For operating system support, see SIMATIC NET Software	**6GK1162-8AA00**
HARDNET S7 for Industrial Ethernet Software for S7 and open communication, incl. PG/OP communication, OPC server and NCM PC; up to 120 connections, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A; for CP 1613/CP 1613 A2/ CP 1623/CP 1628; **HARDNET-IE S7 V8.2** For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single license for one installation	**6GK1716-1CB08-2AA0**
Software Update Service For one year with automatic extension; requirement: Current software version	**6GK1716-1CB00-3AL0**
Upgrade	
• S7-1613, Edition 2006 or higher, to S7-1613 Edition 2008 or HARDNET-IE S7 V8.1	**6GK1716-1CB00-3AE0**
• from S7-1613 V6.0, V6.1, V6.2 or V6.3 to S7-1613 Edition 2008 or HARDNET-IE S7 V8.1	**6GK1716-1CB00-3AE1**
IE TP Cord RJ45/RJ45 TP cable 4 x 2 with 2 RJ45 connectors	
• 0.5 m	**6XV1870-3QE50**
• 1 m	**6XV1870-3QH10**
• 2 m	**6XV1870-3QH20**
• 6 m	**6XV1870-3QH60**
• 10 m	**6XV1870-3QN10**

[1] Shipment without individual export license is restricted to certain countries. Export to other countries requires an individual export license that must be applied for from BIS (Bureau of Industry and Security). Note: Check the current country list: http://support.automation.siemens.com/WW/view/en/66627157

More information

You will find more information on the topic of Industrial Security on the Internet at: http://www.siemens.com/industrialsecurity

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PC-based Automation
Communication – Industrial Ethernet

HARDNET-IE S7-REDCONNECT

■ **Overview**

System configuration for S7-REDCONNECT

ISO	TCP/UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●				●	●	●	
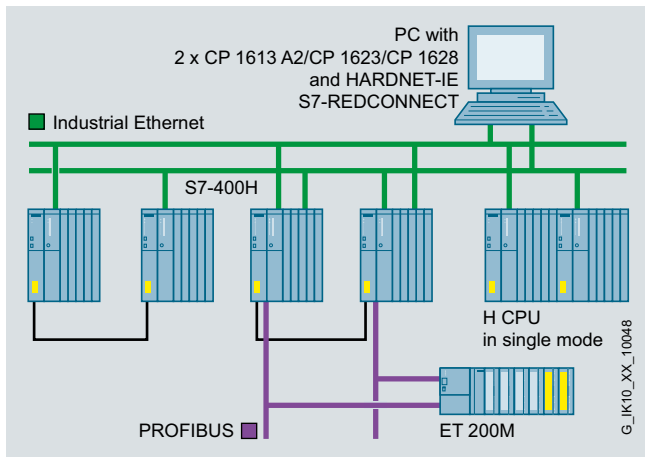
- For connecting PCs over redundant Industrial Ethernet to the SIMATIC S7-400H
- Protected from communication failures arising from a fault in the double bus or in redundant rings
- For redundant Layer 2 or Layer 3 Industrial Ethernet
- Can also be implemented in non-redundant networks
- No additional programming overhead for the PC and in H systems
- The appropriate OPC server and configuration tools are included in the scope of supply of the respective communication software
- Enhanced redundancy over 4-way communication (STEP 7 V5.1 + SP4 and higher)

Ordering data	Order No.		Order No.
HARDNET-IE S7-REDCONNECT		**HARDNET-IE S7-REDCONNECT Power Pack**	
Software for fail-safe S7 communication via redundant networks, incl. S7 OPC server, HARDNET-IE S7, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A;		For expansion from HARDNET-IE S7 to S7-REDCONNECT, single license for one installation, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A;	
HARDNET-IE S7-REDCONNECT V8.2		**HARDNET-IE S7-REDCONNECT Power Pack V8.2**	6GK1716-0HB08-2AC0
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English		For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2; German/English;	
• Single License for one installation	6GK1716-0HB08-2AA0		
S7-REDCONNECT Edition 2008 (V7.1)		**S7-REDCONNECT Power Pack Edition 2008 (V7.1)**	6GK1716-0HB71-3AC0
For 32-bit Windows XP Professional SP 2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German		For 32-bit Windows XP Professional SP 2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	6GK1716-0HB71-3AA0		
Software Update Service	6GK1716-0HB00-3AL0	**CP 1613 A2 communications processor**	6GK1161-3AA01
For 1 year with automatic extension; requirement: current software version		PCI card (32-bit, 33 MHz/66 MHz; 3.3 V/5 V universal keyed) for connection to Industrial Ethernet (10/100 Mbit/s) with ITP and RJ45 connection over HARDNET-IE S7 and S7-REDCONNECT, for operating system support see SIMATIC NET Software	
Upgrade			
• From Edition 2006 to S7-REDCONNECT Edition 2008 or V8.1	6GK1716-0HB00-3AE0		
• From V6.0, V6.1, V6.2 or V6.3 to S7-REDCONNECT Edition 2008 or V8.1	6GK1716-0HB00-3AE1	**CP 1623 communications processor**	6GK1162-3AA00
		PCI Express x1 card for connection to Industrial Ethernet (10/100/1000 Mbit/s), with 2-port switch (RJ45) via HARDNET-IE S7 and S7-REDCONNECT. For operating system support, see SIMATIC NET Software	
		CP 1628 communications processor	6GK1162-8AA00
		PCI Express x1 card for connection to Industrial Ethernet (10/100/1000 Mbit/s), with 2-port switch (RJ45) and integral security (firewall, VPN) via HARDNET-IE S7 and S7-REDCONNECT. For operating system support, see SIMATIC NET software	

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SOFTNET for Industrial Ethernet

■ **Overview**

System configuration SOFTNET for Industrial Ethernet

ISO	TCP/ UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
●	●			●	●	●	
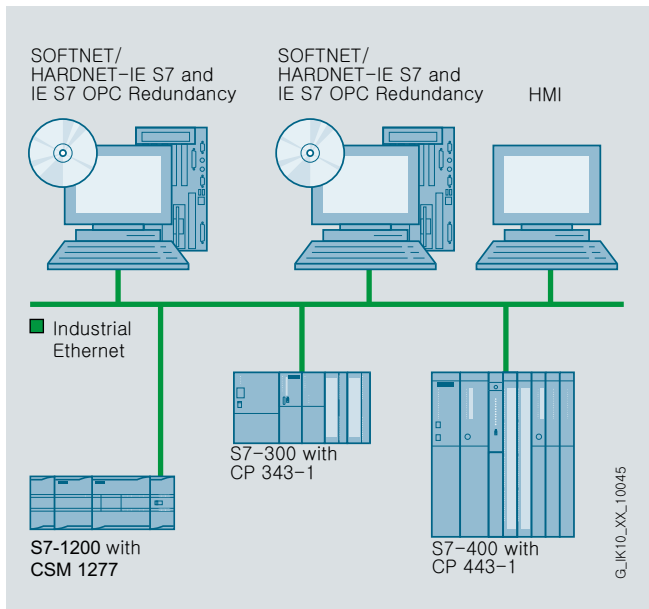
- Software for coupling programming devices/workstations to automation systems
- Communication services:
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE)
- Can be used with
  - Layer 2 Ethernet card (PCI/PCIe)
  - Integrated Industrial Ethernet interface, e.g. CP 1612 A2
  - Modem (Remote Access Service RAS)
- Complete protocol stack as a software package
- Increased availability thanks to additional option packages such as OPC Server Redundancy

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Ordering data	Order No.		Order No.

SOFTNET S7
for Industrial Ethernet

Software for S7 and open communication, incl. OPC server, PG/OP communication, and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on a USB stick, Class A

SOFTNET-IE S7 V8.2

For 32/64-bit
Windows 7 Professional/Ultimate;
for 64-bit: Windows 2008 Server R2;
German/English

Up to 64 connections
• Single License for one installation — **6GK1704-1CW08-2AA0**

SOFTNET-S7 Edition 2008 (V7.1)
for Industrial Ethernet

For 32-bit
Windows XP Professional SP2/3;
Windows 2003 Server R2, SP2;
Windows Vista Business/Ultimate
SP1; Windows 2008 Server;
English/German

Up to 64 connections
• Single License for one installation — **6GK1704-1CW71-3AA0**

Software Update Service — **6GK1704-1CW00-3AL0**

For 1 year with automatic extension; requirement: current software version

Upgrade
• From Edition 2006 to Edition 2008 or V8.2 — **6GK1704-1CW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1 — **6GK1704-1CW00-3AE1**

SOFTNET-IE S7 REDCONNECT VM V8.2

Software for fail-safe S7 communication via redundant networks, incl. S7 OPC server, HARDNET-IE S7, runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A for 32/64-bit: Windows 7 Professional/Ultimate;
for 64-bit: Windows 2008 Server R2;
German/English;
• Single License for one installation — **6GK1704-0HB08-2AA0**

SOFTNET-IE S7 Lean Edition V8.2

Up to eight connections
• Single License for one installation — **6GK1704-1LW08-2AA0**

SOFTNET-S7 Lean Edition 2008 (V7.1) for Industrial Ethernet

Up to eight connections
• Single License for one installation — **6GK1704-1LW71-3AA0**

Software Update Service — **6GK1704-1LW00-3AL0**

For 1 year with automatic extension; requirement: current software version

Upgrade
• From Edition 2006 to Edition 2008 or V8.1 — **6GK1704-1LW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1 — **6GK1704-1LW00-3AE1**

SOFTNET-PG
for Industrial Ethernet

Software for PG/OP communication, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A

SOFTNET-IE PG V8.2

For 32/64-bit:
Windows 7 Professional/Ultimate;
for 64-bit:
Windows 2008 Server R2;
German/English
• Single License for one installation — **6GK1704-1PW08-2AA0**

SOFTNET-PG Edition 2008 (V7.1)
for Industrial Ethernet

For 32-bit
Windows XP Professional SP2/3;
Windows 2003 Server R2, SP2; Windows Vista Business/
Ultimate SP1; Windows 2008 Server;
English/German
• Single License for one installation — **6GK1704-1PW71-3AA0**

Software update — **6GK1704-1PW00-3AL0**

For 1 year with automatic extension; requirement: current software version

Upgrade
• From Edition 2006 to Edition 2008 or V8.1 — **6GK1704-1PW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1 — **6GK1704-1PW00-3AE1**

IE S7 OPC Redundancy

Software for redundant OPC servers in the environment of Industrial Ethernet software, S7 products, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A

IE S7 OPC Redundancy V8.2

For 64-bit:
Windows 2008 Server R2;
German/English
• Single License for one installation — **6GK1706-1CW08-2AA0**
• Software Update Service for one year, with automatic extension; requirement: current software version — **6GK1706-1CW00-3AL0**

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PC-based Automation
Communication – Industrial Ethernet

SOFTNET-IE RNA

■ Overview

- SOFTNET-IE RNA (Redundant Network Access is the software for connecting a PC to networks with PRP (**P**arallel **R**edundancy **P**rotocol in accordance with IEC62439-3) capability
- High level of plant availability thanks to duplicate transmission of frames in two parallel, separate networks
- Reconfiguration times in a subnetwork do not affect the propogation time because the frames are transmitted via two separate networks (bumpless redundancy)
- Integration in network management systems through support for SNMP
- Configuring tools are included in the scope of delivery of the communication software in each case

■ Ordering data

	Order No.
SOFTNET-IE RNA	
Software for connecting PCs to PRP-enabled networks with integrated SNMP, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	
SOFTNET-IE RNA V8.1	
For 32-bit Windows XP; German/English	
• Single License for one installation	**6GK1711-1EW08-1AA0**
SOFTNET-IE RNA V8.2	
For 32/64-bit Windows 7 Professional/Ultimate; for 64-bit Windows 2008 Server R2; German/English	
• Single License for one installation	**6GK1711-1EW08-2AA0**
Software Update Service	**6GK1711-1EW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
SCALANCE X-200RNA Industrial Ethernet network access points	
Industrial Ethernet network access points with integrated SNMP access, web diagnostics and PROFINET diagnostics, for connecting non-PRP-enabled terminal equipment to PRP networks; incl. operating instructions, Industrial Ethernet network manual and configuration software on CD-ROM; with electrical and optical ports for glass multimode fiber-optic cable up to 5 km	
• **SCALANCE X204RNA** with four 100 Mbit/s RJ45 ports	**6GK5204-0BA00-2KB2**
• **SCALANCE X204RNA EEC** with two 100 Mbit/s RJ45 ports and two RJ45/SFP combo ports	**6GK5204-0BS00-3LA3**

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PG/PC/IPC with SOFTNET-IE RNA

Server with SOFTNET-IE RNA

Industrial Ethernet (LAN A)

Industrial Ethernet (LAN B)

SIPROTEC

SCALANCE X204RNA

SIMATIC S7-400 with CP 443-1RNA

PC

G_IK10_XX_10333

Overview
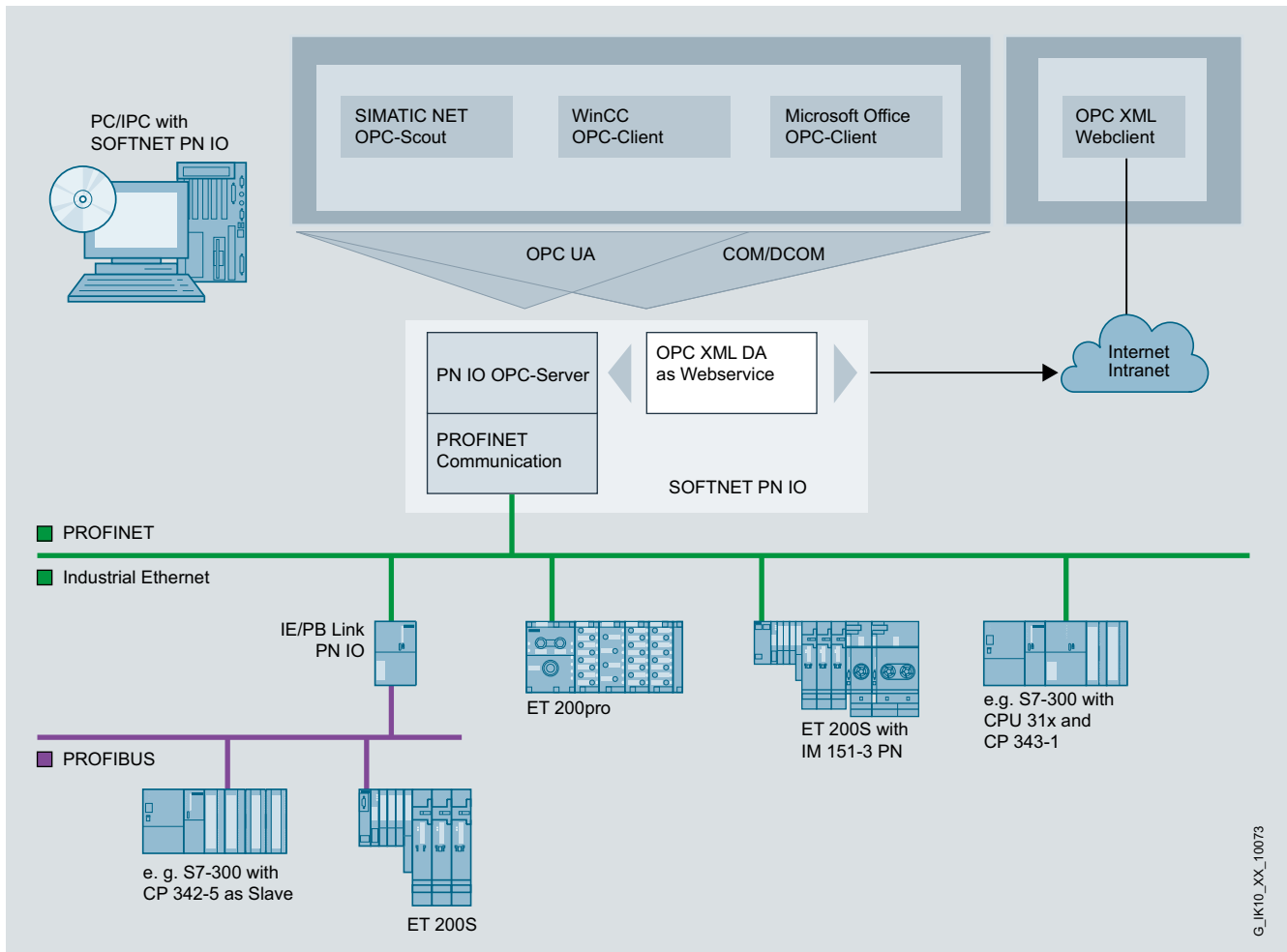
PC with SOFTNET PN IO as PROFINET IO Controller

ISO	TCP/UDP	PN	MRP	OPC	PG/OP	S7/S5	IT
	●	●		●			

- Software with PROFINET IO Controller function for coupling PG/PC and IPC with PROFINET IO Devices
- Possible applications:
  - PC-based control systems
  - HMI systems
  - Test applications
- Communication services:
  - PROFINET IO Controller
- Can be used with
  - Integrated interfaces of SIMATIC PG/PC
  - You can find more information about the environment of use at www.siemens.com/simatic-net/ik-info
- Cost-effective solution for the low-end performance range
- OPC server for I/O interfacing over PROFINET included in scope of supply

PC-based Automation
Communication – Industrial Ethernet

SOFTNET PN IO

Ordering data	Order No.
SOFTNET PN IO	
Software for PROFINET IO Controller with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	
SOFTNET-IE PN IO V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1704-1HW08-2AA0**
SOFTNET PN IO Edition 2008 (V7.1)	
For 32-bit Windows XP Professional SP 2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; German/English	
• Single License for one installation	**6GK1704-1HW71-3AA0**

	Order No.
Software Update Service	**6GK1704-1HW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 to SOFTNET PN IO Edition 2008 or V8.1	**6GK1704-1HW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET PN IO Edition 2008 or V8.1	**6GK1704-1HW00-3AE1**

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Overview

System integration with OPC server

OPC (**O**penness, **P**roductivity & **C**ollaboration) is a standardized, open, and vendor-independent interface that is widely used in automation.

A fundamental distinction is made between the classic OPC and its consistent further development OPC UA (**U**nified **A**rchitecture). Smooth migration to the new OPC UA standard is easily possible; this offers further value added, such as security. The SIMATIC NET OPC servers offer the two interfaces OPC UA and classic OPC for SIMATIC S7 and PROFINET.

- The appropriate OPC servers are included in the scope of supply of the respective communication software
- Standardized, open multi-vendor interface
- It permits interfacing of OPC-capable Windows applications to S7-communication, open communication (SEND/RECEIVE), PROFINET and SNMP.
- Increased availability thanks to additional option packages such as OPC server redundancy
- OPC Scout with browser functionality as an OPC client and OCX Data Control/.NET Data Control for simple OPC client creation

PC-based Automation
Communication – Industrial Ethernet

OPC server for Industrial Ethernet

Ordering data	Order No.		Order No.
SNMP OPC server	See SNMP OPC server	**S7 OPC Redundancy**	
Status monitoring of SNMP-capable devices in any OPC client systems; e.g. SIMATIC WinCC/PCS 7		Software for redundant OPC servers in the environment of Industrial Ethernet software, S7 products, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	
		S7 OPC Redundancy V8.2	
		For 64-bit: Windows 2008 Server R2; German/English	
		• Single License for one installation	**6GK1706-1CW08-2AA0**
		Software Update Service	**6GK1706-1CW00-3AL0**
		For 1 year with automatic extension; requirement: current software version	

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■ **Overview**
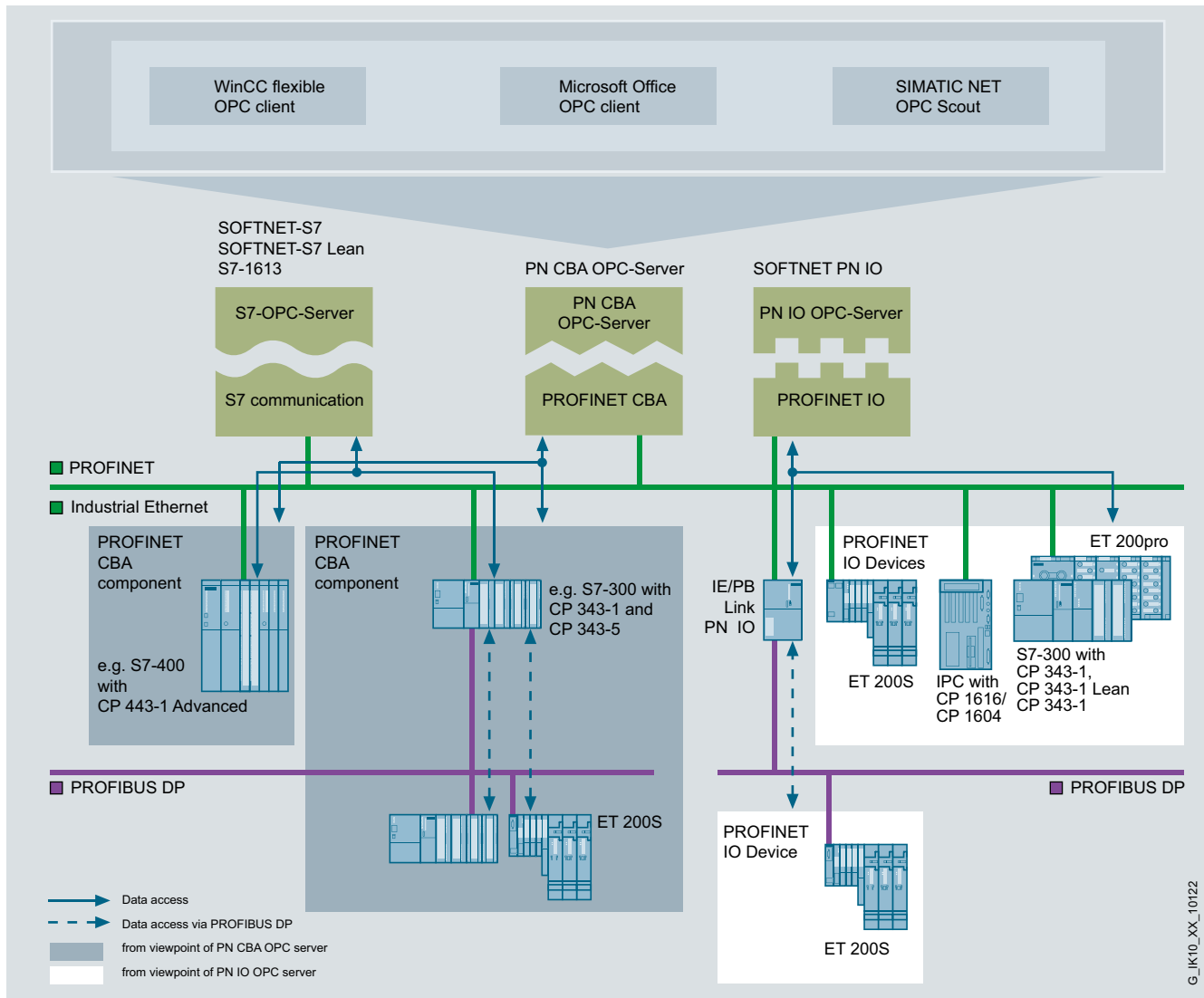
System integration with the PN CBA OPC server

- Access to variables in PROFINET CBA components over the OPC interface
- Use of the objects and symbols defined using the PROFINET engineering tool SIMATIC iMap and STEP 7
- Adding PROFINET functionality to existing installations. This enables it to be used in parallel with other communication protocols such as S7 communication with SOFTNET-S7 for Industrial Ethernet.
- OPC Scout as an OPC client with browser functions for the variables of the PROFINET CBA components

PC-based Automation
Communication – Industrial Ethernet

PN CBA OPC server

Ordering data	Order No.
PN CBA OPC Server Edition 2008	
PROFINET OPC server for CBA; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for 32-bit Windows XP Professional SP 2/3; Windows 2003 Server R2, SP2; German/English	
• Single license for one installation	6GK1706-0HB71-3AA0
• Software Update Service for one year, with automatic extension; requirement: Current software version	6GK1706-0HB00-3AL0
• Upgrade from Edition 2006 and higher to Edition 2008, single license	6GK1706-0HB00-3AE0
• Upgrade from V6.0, V6.1, V6.2 or V6.3 to Edition 2008, Single License	6GK1706-0HB00-3AE1
Software iMap V3.0	
for configuring PROFINET CBA	
Requirement: Windows 2000 Prof. with Service Pack 4 or later or Windows XP Prof. with Service Pack 1 or later or Windows 2003 Server with Service Pack 1 or later; on PG or PC with Pentium processor, min. 1 GHz; STEP 7 V5.3 or later with Service Pack 3, PN OPC Server V6.3 or later	
Type of supply: German, English with electronic documentation	
• Single license	6ES7820-0CC04-0YA5
• Software Update Service	6ES7820-0CC01-0YX2
• Upgrade to V3.0, single license	6ES7820-0CC04-0YE5

More information

http://www.siemens.com/cba

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S7 OPC Redundancy for Industrial Ethernet

■ **Overview**

OPC (**O**penness, **P**roductivity & **C**ollaboration) is a standardized, open, and vendor-independent interface that is widely used in automation. OPC UA (**U**nified **A**rchitecture) is the result of consistent further development of this standard, offering additional functions such as security or redundancy.

S7 OPC Redundancy is a software product compliant with the OPC UA standard that enables the redundant configuration of OPC UA servers to SIMATIC S7. The availability of automation data to operator control and monitoring systems is guaranteed thanks to the redundant use of OPC UA servers. This requires neither additional cabling for synchronizing the redundant OPC UA servers, nor additional programming overhead in the PC. The OPC UA servers are synchronized via high-performance Industrial Ethernet network access points at 10/100 and 1000 Mpbs. S7 OPC Redundancy represents an integrated customer solution for all SIMATIC NET S7 SOFTNET and HARDNET software products in the automation world.

■ **Ordering data**   **Order No.**

S7 OPC Redundancy	
Software for redundant OPC servers in the environment of Industrial Ethernet software, S7 products, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A	
S7 OPC Redundancy V8.2 for Industrial Ethernet	
For 64-bit: Windows 2008 Server R2; German/English	
• Single License for one installation	**6GK1706-1CW08-2AA0**
Software Update Service	**6GK1706-1CW00-3AL0**
For 1 year with automatic extension; requirement: current software version	

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PC-based Automation
Communication – Industrial Ethernet

SNMP OPC server

Overview
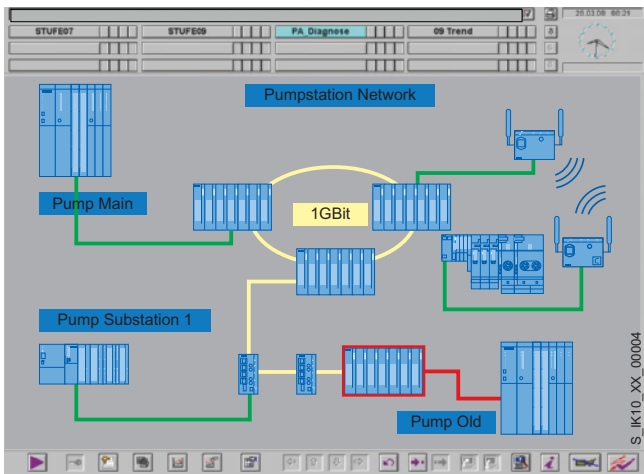
- Status monitoring of SNMP-capable devices in any OPC client systems; e.g. SIMATIC WinCC/PCS 7
- Easy access to SNMP-capable devices over the OPC interface
- Devices without SNMP agents can be monitored using the ping mechanism
- Configuring with STEP 7 or NCM PC
- Ready-to-use SNMP diagnostics profiles for Siemens devices, e.g. SCALANCE X/W
- Generation of any SNMP diagnostics profiles by means of the integral MIB compiler
- Easy setup of the monitored devices with the help of an autodiscovery function

Ordering data

	Order No.		Order No.
SNMP OPC server		**SNMP OPC Server Extended**	
Including MIB compiler; single license for one installation of runtime software; software and electronic manual on CD-ROM; license key on USB stick, Class A;		Administration of up to 200 IP addresses	
		• **Extended V8.2** for 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2; Single license for one installation	6GK1706-1NX08-2AA0
SNMP OPC Server Basic			
Administration of up to 20 IP addresses			
• **Basic V8.2** for 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2; Single license for one installation	6GK1706-1NW08-2AA0	• **Extended 2008 (V7.1)** for 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; Single license for one installation	6GK1706-1NX71-3AA0
• **Basic 2008 (V7.1)** for 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; Single license for one installation	6GK1706-1NW71-3AA0	**Software Update Service SNMP OPC Server Extended**	6GK1706-1NX00-3AL0
		For 1 year with automatic extension; requirement: current software version	
Software Update Service SNMP OPC Server Basic	6GK1706-1NW00-3AL0	**Upgrade SNMP OPC Server Extended**	
For 1 year with automatic extension; requirement: current software version		• From Edition 2006 to Edition 2008 or V8.1	6GK1706-1NX00-3AE0
Upgrade SNMP OPC Server Basic		• From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1	6GK1706-1NX00-3AE1
• From Edition 2006 to Edition 2008 or V8.1	6GK1706-1NW00-3AE0	**SNMP OPC Server Power Pack**	
• From V6.0, V6.1, V6.2 or V6.3 to Edition 2008 or V8.1	6GK1706-1NW00-3AE1	For upgrade from SNM OPC Server Basic to SNM OPC Server Extended	
		Power Pack V8.2	6GK1706-1NX08-2AC0
		Power Pack Edition 2008 (V7.1)	6GK1706-1NX71-3AC0

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■ Overview
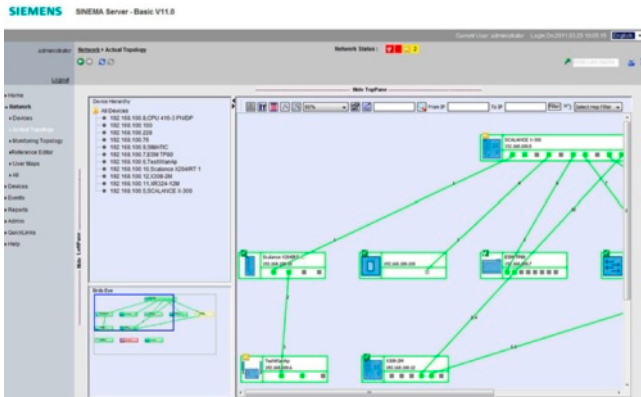
SINEMA Server is a web-based network monitoring software that significantly reduces the response time to communications problems in industrial networks, and thus avoids downtimes and saves costs.

- Simple operator input even for plant operators or service personnel, to enable autonomous detection and correction of communications problems
- Graphical representation of industrial networks (automatic topology detection and layout)
- Standardized network documentation (reports for inventory, availability and utilization)
- Simple operation via web browser or via an HMI/SCADA application, without special IT knowledge
- Network data such as network topology and device information automatically saved to a database
- Low installation and maintenance costs, especially thanks to the use of pre-installed industrial PCs (Microbox PC)
- High degree of flexibility for graphical representation thanks to automatic and customizable topology views
- Monitoring can be adapted to devices and users

■ Ordering data

	Order No.
SINEMA Server Basic V12	
Network monitoring software for industrial Ethernet and PROFINET networks, runtime software, software and electronic manual on DVD, license key on USB flash memory; software for installation on PC hardware with Windows 7 Ultimate/ Enterprise SP1 (32/64-bit), Windows XP SP3 (32-bit) and Windows Server 2008 R2 (64-bit); English/German/French/Chinese. Other languages possible on request.	
• For 50 devices that can be identified via IP address	**6GK1781-1BA12-0AA0**
• For 100 devices that can be identified via IP address	**6GK1781-1DA12-0AA0**
• For 250 devices that can be identified via IP address	**6GK1781-1JA12-0AA0**
• For 500 devices that can be identified via IP address	**6GK1781-1TA12-0AA0**
Upgrade SINEMA Server V11 to V12	**6GK1781-2AA12-0AA0**

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Connection options to SIMATIC IPCs

Overview

Connection options of PROFIBUS CPs to PG/PC

Communication hardware	Communication software	Windows 7 Professional / Ultimate	Windows Server 2008 R2	Windows Server 2008 + SP1/2	Vista Business / Ultimate + SP1/2	Windows XP Pro + SP3	Windows Server 2003 + SP1/2	Windows Server 2003 R2 / SP2	other operating systems	Field PG M3	SIMATIC IPC847C	SIMATIC IPC647C	SIMATIC IPC547C, SIMATIC HMI IPC577D	SIMATIC IPC627C	SIMATIC IPC827C	SIMATIC IPC427C	Windows XP Embedded + SP1/SP2/FP 2007	SIMATIC IPC427C	SIMATIC HMI IPC477C	SIMATIC HMI IPC677C	SIMATIC IPC627C	SIMATIC S7 modular Embedded Controller
CPs and software for Industrial Ethernet																						
CP 5603 (PCI-104)	CP with DP-Base	●	●	●	●	●	●	●	−	−	−	−	−	−	−	−	●	●	●	●	−	−
	HARDNET-PB DP DK [1] (DK-5613, DP-base)	○	○	○	○	○	○	○	−	−	−	−	−	−	−	−	○	○	○	○	−	○[5]
	HARDNET-PB DP (DP-5613)	●	●	●	●	●	●	●	−	−	−	−	−	−	−	−	●	●	●	●	−	−
	HARDNET-PB S7 (S7-5613)	●	●	●	●	●	●	●	−	−	−	−	−	−	−	−	●	●	●	●	−	−
	S7 OPC Redundancy for PROFIBUS	−	●	−	−	−	−	−	−	−	−	−	−	−	−	−	●	●	●	●	−	−
CP 5613 A2, CP 5614 A2 (PCI 32 Bit)	CP mit DP-Base	●	●	●	●	●	●	●	−	−	●	●	●	●	●	●	−	−	−	−	●	●
	HARDNET-PB DP DK [1] (DK-5613, DP-base)	○	○	○	○	○	○	○	○	−	○	○	○	○	○	−	○	−	−	−	○	○
	HARDNET-PB DP (DP-5613)	●	●	●	●	●	●	●	−	−	●	●	●	●	●	●	−	−	−	−	●	●
	HARDNET-PB S7 (S7-5613)	●	●	●	●	●	●	●	−	−	●	●	●	●	●	●	−	−	−	−	●	●
	S7 OPC Redundancy for PROFIBUS	−	●	−	−	−	−	−	−	−	●	●	●	●	●	●	−	−	−	−	●	●
CP 5623, CP 5624 (PCIe x1)	CP with DP-Base	●	●	●	●	●	●	●	−	−	●[4]	−	●	○[4]	●	−	−	−	−	−	○[4]	○[4]
	HARDNET-PB DP DK [1] (DK-5613, DP-base)	○	○	○	○	○	○	○	○	−	●	−	○	○	○	−	○	−	−	−	○[4]	○[4]
	HARDNET-PB DP (DP-5613)	●	●	●	●	●	●	●	−	−	●[4]	−	●	○[4]	●	−	−	−	−	−	○[4]	○[4]
	HARDNET-PB S7 (S7-5613)	●	●	●	●	●	●	●	−	−	●[4]	−	●	○[4]	●	−	−	−	−	−	○[4]	○[4]
	S7 OPC Redundancy for PROFIBUS	−	●	−	−	−	−	−	−	−	●[4]	−	●	○[4]	●	−	−	−	−	−	○[4]	○[4]
CP 5612 (PCI 32 Bit)	SOFTNET-PB DP	●	●	●	−	−	−	−	−	−	●	●	●	●	●	●	−	−	−	−	●	●
	SOFTNET-PB DP Slave	●	●	●	−	−	−	−	−	−	●	●	●	●	●	●	−	−	−	−	●	●
	SOFTNET-PB S7	●	●	●	−	−	−	−	−	−	●	●	●	●	●	●	−	−	−	−	●	●
	S7 OPC Redundancy for PROFIBUS	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−
CP 5622 (PCIe x1)	SOFTNET-PB DP	●	●	●	−	−	−	−	−	−	●[4]	−	○[4]	●	−	−	−	−	−	−	○[4]	○[4]
	SOFTNET-PB DP Slave	●	●	●	−	−	−	−	−	−	●[4]	−	○[4]	●	−	−	−	−	−	−	○[4]	○[4]
	SOFTNET-PB S7	●	●	●	−	−	−	−	−	−	●[4]	−	○[4]	●	−	−	−	−	−	−	○[4]	○[4]
	S7 OPC Redundancy for PROFIBUS	−	●	−	−	−	−	−	−	−	●[4]	−	○[4]	●	−	−	−	−	−	−	○[4]	○[4]
CP 5512 (Cardbus 32 Bit)	SOFTNET-PB DP	−	−	●	●	●	●	●	−	●	−	−	−	−	−	−	−	−	−	−	−	−
	SOFTNET-PB DP Slave	−	−	●	●	●	●	●	−	●	−	−	−	−	−	−	−	−	−	−	−	−
	SOFTNET-PB S7	−	−	●	●	●	●	●	−	●	−	−	−	−	−	−	−	−	−	−	−	−
CP 5711 (USB V2.0)	SOFTNET-PB DP	●	●	●	●	●	●	●	−	●	●	●	●	●	●	●	●	●	●	●	●	●
	SOFTNET-PB DP Slave	●	●	●	●	●	●	●	−	●	●	●	●	●	●	●	●	●	●	●	●	●
	SOFTNET-PB S7	●	●	●	●	●	●	●	−	●	●	●	●	●	●	●	●	●	●	●	●	●
	S7 OPC Redundancy for PROFIBUS	−	●	−	−	−	−	−	−	●	−	−	−	−	−	−	●	●	●	●	●	−
SIMATIC PG/PC	SOFTNET-PB DP	●	●	●	●	●	●	●	−	●	○[2]	○[2]	−	○[2]	○[2]	○[2]	●	○[2]	●	○[2]	○[2]	−
	SOFTNET-PB DP Slave	●	●	●	●	●	●	●	−	●	○[2]	○[2]	−	○[2]	○[2]	○[2]	●	○[2]	●	○[2]	○[2]	−
	SOFTNET-PB S7	●	●	●	●	●	●	●	−	●	○[2]	○[2]	−	○[2]	○[2]	○[2]	●	○[2]	●	○[2]	○[2]	−
	S7 OPC Redundancy for PROFIBUS	−	●	−	−	−	−	−	−	●	○[2]	○[2]	−	○[2]	○[2]	○[2]	●	○[2]	●	○[2]	○[2]	−

1) In order to use these CPs in other operating system environments, it is required to port HARDNET DP Development Kits (DK-5613) into the respective operating system. You can request the HARDNET DP DK in the Internet under www.siemens.com/simatic-net/dk5613.
2) integrated PROFIBUS interface is optional
3) depending on available memory and processor performance there could be restrictions
4) depending on the slots of the selected PC version
5) EM-PCI 104 expansion module is required

Notes
- Please always note the supplementary conditions for the specified SIMATIC NET products that you can view on the Internet pages shown below.
- for further details on XP embedded, see http://support.automation.siemens.com/WW/view/en/21661049
- further details on system requirements and operating environments can be found in the Readme file of the communication products on the SIMATIC NET PC Software CD V8.1
- Updates and supplements to the catalog entries, as well as the above tables can be viewed at http://www.siemens.com/simatic-net/ik-info

● suitable
− not suitable
○ suitable under certain conditions

G_IK10_XX_50025

Note:
The operating systems listed refer exclusively to the communication products specified!

For the actual operating system that is available and has been released, please refer to the description of the corresponding IPC.

Overview

DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●	●	●	●	●

- PCI-104 interface card with own microprocessor for connecting embedded systems with PCI-104 interface to PROFIBUS at up to 12 Mbit/s
- Function compatible with CP 5613 A2
- Communication services:
  - PROFIBUS DP master Class 1 and 2 or DP slave according to IEC 61158/61784
  - PG/OP communication with STEP 5 and STEP 7
  - S7 communication with HARDNET-PB S7 software package
  - Open communication (SEND/RECEIVE) based on the FDL interface
  - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Extensive diagnostics options for installation, commissioning and operation of the module
- Event and filter mechanism for reducing the load on the host CPU
- Multiprotocol operation and parallel operation of up to three CPs
- The appropriate OPC server and configuration tools are included in the scope of delivery of the respective communication software
- Linux-based development kit with driver sources for integration into "non-Windows" environments

Ordering data

	Order No.
CP 5603 communications processor PCI-104 card for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master or DP slave, incl. PG and FDL protocols; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English	**6GK1560-3AA00**
Software Upgrade For CP 5603, CP 5613 A2 and CP 5623 to Edition 2008 or V8.1	**6GK1561-3AA01-3AE0**
CP 5603 Microbox Package For use of CP 5603 in Microbox 420/427B/427C; consisting of CP 5603 module and Microbox expansion frame	**6GK1560-3AU00**
CP 5603 expansion rack For use in Microbox 420/427B/427C with mounting material	**6GK1560-3AA00-0AU0**
CP 5603 mEC Package For use of CP 5603 in SIMATIC S7-MEC; consisting of CP 5603 and withdrawable unit for CP 5603 for installation in the EM PCI-104 expansion module of the SIMATIC S7-MEC	**6GK1560-3AE00**
CP 5603 insert plate Metal plate with RS485 cutout for inserting for the S7 modular embedded controller	**6GK1560-3AA00-0AE0**
HARDNET-PB DP Development Kit HARDNET-PB DP Development Kit software for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; for integration into other operating system environments on systems with a PCI slot	See http://www.siemens.com/simatic-net/dk5613

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Communication – PROFIBUS

CP 5603

Ordering data	Order No.		Order No.
HARDNET-PB DP		**Software Update Service**	**6GK1713-5CB00-3AL0**
Software for DP, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;		For 1 year with automatic extension; requirement: current software version	
		Upgrade	
HARDNET-PB DP V8.2		• From Edition 2006 or 2007 to S7-5613 Edition 2008 or HARDNET-PB S7 V8.1	**6GK1713-5CB00-3AE0**
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English		• From V6.0, V6.1, V6.2 or V6.3 to S7-5613 Edition 2008 or HARDNET-PB S7 V8.1	**6GK1713-5CB00-3AE1**
• Single License for one installation	**6GK1713-5DB08-2AA0**	**FMS-5613 Edition 2008**	
DP-5613 Edition 2008		Software for FMS protocol incl. PG/OP communication; FDL, FMS-OPC server and NCM PC; runtime software, software and electronic manual on USB stick, Class A, for 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; German/English	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German			
• Single License for one installation	**6GK1713-5DB71-3AA0**	• Single License for one installation	**6GK1713-5FB71-3AA0**
Software Update Service	**6GK1713-5DB00-3AL0**	**Software Update Service**	**6GK1713-5FB00-3AL0**
For 1 year with automatic extension; requirement: current software version		For 1 year with automatic extension; requirement: current software version	
Upgrade		**Upgrade**	
• From Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET-PB DP V8.1	**6GK1713-5DB00-3AE0**	• From Edition 2006 or 2007 to FMS-5613 Edition 2008	**6GK1713-5FB00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET-PB DP V8.1	**6GK1713-5DB00-3AE1**	• From V6.0, V6.1, V6.2 or V6.3 to FMS-5613 Edition 2008	**6GK1713-5FB00-3AE1**
HARDNET-PB S7		**PROFIBUS FC Standard Cable GP**	**6XV1830-0EH10**
Software for S7 communication, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A, for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;		Standard type with special design for quick assembly, 2-core, shielded, sold in meters; delivery unit max. 1000 m, minimum order 20 m	
HARDNET-PB S7 V8.2		**PROFIBUS FastConnect bus connector RS485 Plug 180**	**6GK1500-0FC10**
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English		With 180° cable outlet, insulation displacement	
• Single License for one installation	**6GK1713-5CB08-2AA0**	**PROFIBUS bus terminal 12M**	**6GK1500-0AA10**
S7-5613 Edition 2008		Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German		**PROFIBUS FastConnect Stripping Tool**	**6GK1905-6AA00**
• Single License for one installation	**6GK1713-5CB71-3AA0**	Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables	

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More information

You can find the HARDNET-PB DP Development Kit on the Internet at:
http://www.siemens.com/simatic-net/dk5613

Overview

DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●		●	●	●	●

- PCI card (universal keyed 5 V/3.3 V) with own microprocessor for connection of PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Communication services:
  - PROFIBUS DP master according to IEC 61158/61784 on a PCI card
  - PG/OP communication with STEP 5 and STEP 7
  - S7 communication with HARDNET-PB S7 software package
  - Open communication (SEND/RECEIVE) based on the FDL interface
  - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Comprehensive diagnostics possibilities for installation, commissioning and operation of the module
- High performance over direct dual-port RAM access
- Event and filter mechanisms to reduce the loading on the host CPU
- Multiprotocol operation and parallel operation of up to four CPs
- Implementation in Motion Control applications is possible because a constant bus cycle time is supported
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communications software.

Ordering data

	Order No.
CP 5613 A2 communications processor	**6GK1561-3AA01**
PCI card (32-bit; 3.3 V/5 V) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocols; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English	
Software Upgrade	**6GK1561-3AA01-3AE0**
For CP 5603, CP 5613 A2 and CP 5623 to Edition 2008 or V8.1	
HARDNET-PB DP Development Kit	See http://www.siemens.com/ simatic-net/dk5613
HARDNET-PB DP Development Kit software for CP 5613/CP 5614/ CP 5613 A2/CP 5614 A2/ CP 5613 FO for integration into other operating system environments on systems with a PCI slot	
HARDNET-PB DP	
Software for DP, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;	
HARDNET-PB DP V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1713-5DB08-2AA0**
DP-5613 Edition 2008	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	**6GK1713-5DB71-3AA0**
Software Update Service	**6GK1713-5DB00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET-PB DP V8.1	**6GK1713-5DB00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET-PB DP V8.1	**6GK1713-5DB00-3AE1**

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PC-based Automation
Communication – PROFIBUS

CP 5613 A2

Ordering data	Order No.
HARDNET-PB S7	
Software for S7 communication, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A, for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;	
HARDNET-PB S7 V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1713-5CB08-2AA0**
S7-5613 Edition 2008	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	**6GK1713-5CB71-3AA0**
Software Update Service	**6GK1713-5CB00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 or 2007 to S7-5613 Edition 2008 or HARDNET-PB S7 V8.1	**6GK1713-5CB00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to S7-5613 Edition 2008 or HARDNET-PB S7 V8.1	**6GK1713-5CB00-3AE1**
FMS-5613 Edition 2008	
Software for FMS protocol, including PG/OP communication, FDL, FMS-OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A for 32-bit Windows XP Professional SP2/3, Windows 2003 Server R2, SP2, Windows Vista Business/Ultimate SP1; Windows 2008 Server; for CP 5613, CP 5613 A2, CP 5613 FO, CP 5614, CP 5614 A2; German/English	
• Single License for one installation	**6GK1713-5FB71-3AA0**

Ordering data	Order No.
Software Update Service	**6GK1713-5FB00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 or 2007 to FMS-5613 Edition 2008	**6GK1713-5FB00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to FMS-5613 Edition 2008	**6GK1713-5FB00-3AE1**
PROFIBUS FC Standard Cable GP	**6XV1830-0EH10**
Standard type with special design for quick assembly, 2-core, shielded, sold in meters; delivery unit max. 1000 m, minimum order 20 m	
PROFIBUS FastConnect bus connector RS485 Plug 180	**6GK1500-0FC10**
With 180° cable outlet, insulation displacement	
PROFIBUS bus terminal 12M	**6GK1500-0AA10**
Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long	
PROFIBUS FastConnect Stripping Tool	**6GK1905-6AA00**
Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables	

More information

You can find the HARDNET-PB DP Development Kit on the Internet.

You will find more information on the Internet at:
http://www.siemens.com/simatic-net/dk5613

The CP 5613 A2 module can also be used under the LINUX and UNIX operating systems. Information on the available LINUX distributors and UNIX operating systems can be found at:
www.siemens.com/simatic-net/ik-info

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Overview

DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●	●	●	●	●

- PCI card (universal keyed 5 V/3.3 V) with own microprocessor for connection of PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Communication services:
  - PROFIBUS DP master and slave interface according to IEC 61158/61784 on one PCI card
  - PG/OP communication with STEP 5 and STEP 7
  - S7 communication with HARDNET-PB S7 software package
  - Open communication (SEND/RECEIVE) based on the FDL interface
  - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Comprehensive diagnostics possibilities for installation, commissioning and operation of the module
- High performance over direct dual-port RAM access
- Event and filter mechanisms to reduce the loading on the host CPU
- Multiprotocol operation and parallel operation of up to four CPs
- Implementation of Motion Control applications is possible because a constant bus cycle time is supported
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communications software.

Ordering data

	Order No.
CP 5614 A2 communications processor	**6GK1561-4AA01**
PCI card (32-bit; 3.3 V/5 V) master and slave connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocols; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English	
Software Upgrade	**6GK1561-3AA01-3AE0**
For CP 5614 A2 and CP 5624 to Edition 2008 or V8.1	
HARDNET-PB DP Development Kit	See http://www.siemens.com/ simatic-net/dk5613
HARDNET-PB DP Development Kit software for CP 5613/CP 5614/ CP 5613 A2/CP 5614 A2/ CP 5613 FO for integration into other operating system environments on systems with a PCI slot	
HARDNET-PB DP	
Software for DP, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for CP 5603, CP 5613 A2, CP 5623, CP 5614, CP 5614 A2, CP 5624;	
HARDNET-PB DP V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1713-5DB08-2AA0**
DP-5613 Edition 2008	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	**6GK1713-5DB71-3AA0**
Software Update Service	**6GK1713-5DB00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET-PB DP V8.1	**6GK1713-5DB00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET-PB DP V8.1	**6GK1713-5DB00-3AE1**

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Overview

DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●	●	●	●	●

- PCI Express card (PCIe x1) with own microprocessor for connecting PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s
- Communication services:
  - PROFIBUS DP master Class 1 and 2 or DP slave according to IEC 61158/61784 on a PCI card
  - PG/OP communication with STEP 5 and STEP 7
  - S7 communication with HARDNET-PB S7 software package
  - Open communication (SEND/RECEIVE) based on the FDL interface
  - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package
- Extensive diagnostics options for installation, commissioning and operation of the module
- Event and filter mechanism for reducing the load on the host CPU
- Multiprotocol operation and parallel operation of up to four CPs
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

Ordering data	Order No.
CP 5623 communications processor	**6GK1562-3AA00**
PCI Express x1 card (32 bit) for connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master or DP slave, incl. PG and FDL protocols; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English	
Software Upgrade	**6GK1561-3AA01-3AE0**
For CP 5603, CP 5613 A2 and CP 5623 to Edition 2008 or V8.1	
HARDNET-PB DP Development Kit	see http://www.siemens.com/ simatic-net/dk5613
HARDNET-PB DP Development Kit software for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; for integration into other operating system environments on systems with a PCI or PCI Express slot	
HARDNET-PB DP	
Software for DP, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;	
HARDNET-PB DP V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1713-5DB08-2AA0**
DP-5613, Edition 2008	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; indows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	**6GK1713-5DB71-3AA0**
Software Update Service	**6GK1713-5DB00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET-PB DP V8.1	**6GK1713-5DB00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET-PB DP V8.1	**6GK1713-5DB00-3AE1**

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PC-based Automation
Communication – PROFIBUS

CP 5623

Ordering data	**Order No.**		**Order No.**
HARDNET-PB S7		**Software Update Service**	**6GK1713-5FB00-3AL0**
Software for S7 communication, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A, for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;		For 1 year with automatic extension; requirement: current software version	
HARDNET-PB S7 V8.2		**Upgrade**	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English		• From Edition 2006 or 2007 to FMS-5613 Edition 2008	**6GK1713-5FB00-3AE0**
• Single License for one installation	**6GK1713-5CB08-2AA0**	• From V6.0, V6.1, V6.2 or V6.3 to FMS-5613 Edition 2008	**6GK1713-5FB00-3AE1**
S7-5613 Edition 2008		**PROFIBUS FC Standard Cable GP**	**6XV1830-0EH10**
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German		Standard type with special design for quick assembly, 2-core, shielded, sold in meters; delivery unit max. 1000 m, minimum order 20 m	
• Single License for one installation	**6GK1713-5CB71-3AA0**	**PROFIBUS FastConnect bus connector RS485 Plug 180**	**6GK1500-0FC10**
Software Update Service	**6GK1713-5CB00-3AL0**	With 180° cable outlet, insulation displacement	
For 1 year with automatic extension; requirement: current software version		**PROFIBUS bus terminal 12M**	**6GK1500-0AA10**
Upgrade		Bus terminal for connection of PROFIBUS stations up to 12 Mbit/s with plug-in cable 1.5 m long	
• From Edition 2006 or 2007 to S7-5613 Edition 2008 or HARDNET-PB S7 V8.1	**6GK1713-5CB00-3AE0**	**PROFIBUS FastConnect Stripping Tool**	**6GK1905-6AA00**
• From V6.0, V6.1, V6.2 or V6.3 to S7-5613 Edition 2008 or HARDNET-PB S7 V8.1	**6GK1713-5CB00-3AE1**	Preset stripping tool for fast stripping of PROFIBUS FastConnect bus cables	
FMS-5613 Edition 2008			
Software for FMS protocol incl. PG/OP communication; FDL, FMS-OPC server and NCM PC; runtime software, software and electronic manual on USB stick, Class A, for 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; German/English			
• Single License for one installation	**6GK1713-5FB71-3AA0**		

More information

You can find the HARDNET-PB DP Development Kit on the Internet.

You will find more information on the Internet at:
http://www.siemens.com/simatic-net/dk5613

The CP 5623 module can also be used under LINUX and UNIX operating systems. Information on the available LINUX distributors and UNIX operating systems can be found at:
www.siemens.com/simatic-net/ik-info

Overview

DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●	●	●	●	●

- PCI Express card (PCIe x1) with own microprocessor for connecting PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s

- Two 9-pin sub-D sockets for parallel operation as DP master and DP slave

- Communication services:
  - PROFIBUS DP master and slave interface according to IEC 61158/61784 on one PCI card
  - PG/OP communication with STEP 5 and STEP 7
  - S7 communication with HARDNET-PB S7 software package
  - Open communication (SEND/RECEIVE) based on the FDL interface
  - PROFIBUS FMS according to IEC 61158/61784 with FMS-5613 software package

- Extensive diagnostics options for installation, commissioning and operation of the module

- Event and filter mechanism for reducing the load on the host CPU

- Multiprotocol operation and parallel operation of up to four CPs

- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

Ordering data

	Order No.
CP 5624 A2 communications processor	**6GK1562-4AA00**
PCI Express x1 card (32 bit) for master and slave connection to PROFIBUS incl. DP-Base software with NCM PC; DP-RAM interface for DP master, incl. PG and FDL protocols; single license for one installation, runtime software, software and electronic manual on CD-ROM, Class A, for operating system support see SIMATIC NET software; German/English	
Software Upgrade	**6GK1561-3AA01-3AE0**
for CP 5614 A2 and CP 5624 to Edition 2008 or V8.1	
HARDNET-PB DP Development Kit	see http://www.siemens.com/ simatic-net/dk5613
HARDNET-PB DP Development Kit software for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; for integration into other operating system environments on systems with a PCI or PCI Express slot	
HARDNET-PB DP	
Software for DP, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A, for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;	
HARDNET-PB DP V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1713-5DB08-2AA0**
DP-5613, Edition 2008	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	**6GK1713-5DB71-3AA0**
Software Update Service	**6GK1713-5DB00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 or 2007 to DP-5613 Edition 2008 or HARDNET-PB DP V8.1	**6GK1713-5DB00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to DP-5613 Edition 2008 or HARDNET DP V8.1	**6GK1713-5DB00-3AE1**

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PC-based Automation
Communication – PROFIBUS

CP 5624

Ordering data

	Order No.		Order No.
HARDNET-PB S7		**FMS-5613 Edition 2008**	
Software for S7 communication, incl. PG and FDL protocol, OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A, for CP 5603, CP 5613 A2, CP 5623, CP 5614 A2, CP 5624;		Software for FMS protocol incl. PG/OP communication; FDL, FMS-OPC server and NCM PC; runtime software, software and electronic manual on USB flash drive, Class A, for 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; for CP 5603, CP 5613, CP 5613 A2, CP 5623, CP 5613 FO, CP 5614, CP 5614 A2, CP 5624; German/English	
HARDNET-PB S7 V8.2			
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English			
• Single License for one installation	**6GK1713-5CB08-2AA0**	• Single License for one installation	**6GK1713-5FB71-3AA0**
S7-5613 Edition 2008		**Software Update Service**	**6GK1713-5FB00-3AL0**
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German		For 1 year with automatic extension; requirement: current software version	
		Upgrade	
• Single License for one installation	**6GK1713-5CB71-3AA0**	• From Edition 2006 or 2007 to FMS-5613 Edition 2008	**6GK1713-5FB00-3AE0**
Software Update Service	**6GK1713-5CB00-3AL0**	• From V6.0, V6.1, V6.2 or V6.3 to FMS-5613 Edition 2008	**6GK1713-5FB00-3AE1**
For 1 year with automatic extension; requirement: current software version		**PROFIBUS FastConnect bus connector RS 485 Plug 180**	**6GK1500-0FC10**
Upgrade		with 180° cable outlet	
• From Edition 2006 or 2007 to S7-5613 Edition 2008 or HARDNET-PB S7 V8.1	**6GK1713-5CB00-3AE0**	**PROFIBUS bus terminal 12M**	**6GK1500-0AA10**
• From V6.0, V6.1, V6.2 or V6.3 to S7-5613 Edition 2008 or HARDNET-PB S7 V8.1	**6GK1713-5CB00-3AE1**	Bus terminal for connection of PROFIBUS stations for up to 12 Mbit/s with plug-in cable	

More information

You can find the HARDNET-PB DP Development Kit on the Internet.

You can find more information on the Internet at:
http://www.siemens.com/simatic-net/dk5613

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Overview

DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●		●	●	●

- PC Card Type II (CardBus 32 bit) to connect PG/PC and notebooks with PC card slot (CardBus 32 bit) to PROFIBUS and to the MPI of the SIMATIC S7
- Communication services:
  - PROFIBUS DP Master Class 1 incl. acyclic DP expansions with SOFTNET-PB DP software package
  - PROFIBUS DP Master Class 2 incl. acyclic DP expansions with SOFTNET-PB DP software package
  - PROFIBUS DP slave with SOFTNET-PB DP Slave software package
  - PG/OP communication with STEP 5 or STEP 7
  - S7 communication with SOFTNET-PB S7 software package
  - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-PB DP or SOFTNET-PB S7 software package
- Can be used with:
  - STEP 7 and NCM PC; (ProTool, Micro/Win, ProTool/Pro, SIMATIC PDM for PG/OP communication)
  - SOFTNET-PB S7 (for S7 communication)
  - SOFTNET-PB DP, SOFTNET-PB DP slave (for DP)
- The appropriate OPC servers are included in the scope of supply of the respective communication software

Ordering data

	Order No.
CP 5512 communications processor	**6GK1551-2AA00**
PC-Card (CardBus, 32-bit) for connection of a programming device or notebook to PROFIBUS or MPI, under 32 bit in connection with PROFIBUS SOFTNET software or STEP 7; German/English	
SOFTNET-PB S7	
Software for S7 communication, incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5512, CP 5611, CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;	
SOFTNET-PB S7 V8.2	
for 32 Bit Windows 7 Professional/ Ultimate; English/German	
• Single License for one installation	**6GK1704-5CW08-2AA0**
SOFTNET-S7 Edition 2008	
for 32 Bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	**6GK1704-5CW71-3AA0**
Software Update Service	**6GK1704-5CW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 to SOFTNET-S7 Edition 2008 or V8.1	**6GK1704-5CW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-S7 Edition 2008 or V8.1	**6GK1704-5CW00-3AE1**

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PC-based Automation
Communication – PROFIBUS

CP 5512

Ordering data	Order No.			Order No.

SOFTNET-PB DP

Software for DP protocol
(master class 1 and 2),
incl. FDL protocol with OPC server
and NCM PC,
runtime software, software and electronic manual on CD-ROM, license key on USB flash drive; for CP 5512, CP 5611, CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;

SOFTNET-PB DP V8.2

for 32 Bit Windows 7 Professional/Ultimate; English/German
• Single License for one installation — **6GK1704-5DW08-2AA0**

SOFTNET-DP Edition 2008 (V7.1)

for Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German
• Single License for one installation — **6GK1704-5DW71-3AA0**

Software Update Service — **6GK1704-5DW00-3AL0**

For 1 year with automatic extension; requirement: current software version

Upgrade
• From Edition 2006 to SOFTNET-DP Edition 2008 or V8.1 — **6GK1704-5DW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Edition 2008 or V8.1 — **6GK1704-5DW00-3AE1**

SOFTNET-PB DP slave

Software for DP slave, with DP OPC server and NCM PC, single license for one installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5512, CP 5611, CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;

SOFTNET-PB DP Slave V8.2

for 32/64-bit: Windows 7 Professional/Ultimate;
for 64-bit: Windows 2008 Server R2 German/English
• Single License for one installation — **6GK1704-5SW08-2AA0**

SOFTNET-DP Slave Edition 2008 (V7.1)

for 32 Bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German
• Single License for one installation — **6GK1704-5SW71-3AA0**

Software Update Service — **6GK1704-5SW00-3AL0**

For 1 year with automatic extension; requirement: current software version

Upgrade
• From Edition 2006 to SOFTNET-DP Slave Edition 2008 or V8.1 — **6GK1704-5SW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Slave Edition 2008 or V8.1 — **6GK1704-5SW00-3AE1**

PROFIBUS FastConnect bus connector RS 485 Plug 180 — **6GK1500-0FC10**

With 180° cable outlet

PROFIBUS adapter for CP 5512 — **C79459-A1890-A10**

5

Overview

DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●		●	●	●

- PCI card (universal-keyed 5 V/3.3 V) for connecting PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s and to the MPI interface of SIMATIC S7

- Communication services:
  - PROFIBUS DP Master Class 1 incl. acyclic DP expansions with SOFTNET-PB DP software package
  - PROFIBUS DP Master Class 2 incl. acyclic DP expansions with SOFTNET-PB DP software package
  - PROFIBUS DP slave with SOFTNET-PB DP Slave software package
  - PG/OP communication with STEP 7
  - S7 communication with SOFTNET-PB S7 software package
  - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-PB DP or SOFTNET-PB S7 software package

- Can be used with:
  - STEP 7, STEP 7-Micro/Win, SIMATIC PDM (for PG/OP communication)
  - SOFTNET-PB S7 (for S7 communication)
  - SOFTNET-PB DP, SOFTNET-PB DP slave (for DP)

- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communications software.

Ordering data

	Order No.
CP 5612 **communications processor**	

• PCI card (32-bit)
  for connection of a programming
  device or PC to PROFIBUS
	6GK1561-2AA00

• PCI card (32-bit) CP 5612 and MPI cable, 5 m	**6GK1561-2AM00**
SOFTNET-PB S7	
Software for S7 communication, incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5512, CP 5611, CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;	
SOFTNET-PB S7 V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1704-5CW08-2AA0**
Software Update Service	**6GK1704-5CW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 to SOFTNET-S7 Edition 2008 or V8.1	**6GK1704-5CW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-S7 Edition 2008 or V8.1	**6GK1704-5CW00-3AE1**
SOFTNET-PB DP	
Software for DP protocol (master class 1 and 2), incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive; for CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;	
SOFTNET-PB DP V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1704-5DW08-2AA0**
Software Update Service	**6GK1704-5DW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 to SOFTNET-DP Edition 2008 or V8.1	**6GK1704-5DW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Edition 2008 or V8.1	**6GK1704-5DW00-3AE1**

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CP 5612

Ordering data	Order No.		Order No.
SOFTNET-PB DP slave		**Software Update Service**	**6GK1704-5SW00-3AL0**
Software for DP slave, with DP OPC server and NCM PC, single license for one installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;		For 1 year with automatic extension; requirement: current software version	
		Upgrade	
		• From Edition 2006 to SOFTNET-DP Slave Edition 2008 or V8.1	**6GK1704-5SW00-3AE0**
SOFTNET-PB DP Slave V8.2		• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Slave Edition 2008 or V8.1	**6GK1704-5SW00-3AE1**
for 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English		**PROFIBUS FastConnect bus connector RS 485 Plug 180**	**6GK1500-0FC10**
• Single License for one installation	**6GK1704-5SW08-2AA0**	With 180° cable outlet	
		PROFIBUS bus terminal 12M	**6GK1500-0AA10**
		Bus terminal for connection of PROFIBUS stations for up to 12 Mbit/s with plug-in cable	

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■ Overview

DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●		●	●	●

- PCI Express card (PCIe x1) for connection of PCs and SIMATIC PG/PC to PROFIBUS at up to 12 Mbit/s and to the MPI of the SIMATIC S7

- Communication services:
  - PROFIBUS DP Master Class 1 incl. acyclic DP expansions with SOFTNET-PB DP software package
  - PROFIBUS DP Master Class 2 incl. acyclic DP expansions with SOFTNET-PB DP software package
  - PROFIBUS DP slave with SOFTNET-PB DP Slave software package
  - PG/OP communication with STEP 7
  - S7 communication with SOFTNET-PB S7 software package
  - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-PB DP or SOFTNET-PB S7 software package

- Can be used with:
  - STEP 7, STEP 7-Micro/Win, SIMATIC PDM (for PG/OP communication)
  - SOFTNET-PB S7 (for S7 communication)
  - SOFTNET-PB DP, SOFTNET-PB DP slave (for DP)

- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communications software.

■ Ordering data

	Order No.
CP 5622 communications processor	
• PCI Express x1 card (32-bit) for connection of a PG or PC to PROFIBUS	**6GK1562-2AA00**
• PCI Express x1 card (32-bit) CP 5622 and MPI cable, 5 m	**6GK1562-2AM00**
SOFTNET-PB S7	
Software for S7 communication, incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5512, CP 5611, CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;	
SOFTNET-PB S7 V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1704-5CW08-2AA0**
Software Update Service	**6GK1704-5CW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 to SOFTNET-S7 Edition 2008 or V8.1	**6GK1704-5CW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-S7 Edition 2008 or V8.1	**6GK1704-5CW00-3AE1**
SOFTNET-PB DP	
Software for DP protocol (master class 1 and 2), incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive; for CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;	
SOFTNET-PB DP V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1704-5DW08-2AA0**
Software Update Service	**6GK1704-5DW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 to SOFTNET-DP Edition 2008 or V8.1	**6GK1704-5DW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Edition 2008 or V8.1	**6GK1704-5DW00-3AE1**

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CP 5622

Ordering data	Order No.
SOFTNET-PB DP slave	
Software for DP slave, with DP OPC server and NCM PC, single license for one installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;	
SOFTNET-PB DP Slave V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1704-5SW08-2AA0**
Software Update Service	**6GK1704-5SW00-3AL0**
For 1 year with automatic extension; requirement: current software version	

	Order No.
Upgrade	
• From Edition 2006 to SOFTNET-DP Slave Edition 2008 or V8.1	**6GK1704-5SW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Slave Edition 2008 or V8.1	**6GK1704-5SW00-3AE1**
PROFIBUS FastConnect bus connector RS 485 Plug 180	**6GK1500-0FC10**
With 180° cable outlet	
PROFIBUS bus terminal 12M	**6GK1500-0AA10**
Bus terminal for connection of PROFIBUS stations for up to 12 Mbit/s with plug-in cable	

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Overview

DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●		●	●	●

- USB adapter for the connection of PCs and SIMATIC PG/PC to PROFIBUS DP or MPI via USB 2.0
- Operation in extended temperature range of -20 °C to +60 °C
- Active PROFIBUS termination to supply the PROFIBUS network as end station of a segment
- Robust USB connection due to mechanical locking of the USB connector to the CP 5711 enclosure
- Communication services:
  - PROFIBUS DP master Class 1 and 2 according to IEC 61158/61784 with SOFTNET-PB DP software package
  - PROFIBUS DP slave with SOFTNET-PB DP Slave software package
  - PG/OP communication with STEP 5 or STEP 7 software package
  - S7 communication with SOFTNET-PB S7 software package
  - Open communication (SEND/RECEIVE on basis of the FDL interface) with SOFTNET-PB DP or SOFTNET-PB S7 software package
- PROFIBUS connection with up to 12 Mbit/s
- Can be used with:
  - STEP 7, STEP 7 Micro/WIN, WinCC/WinCC flexible, NCM PC, SIMATIC PDM (for PG/OP communication)
  - SOFTNET-PB S7 (for S7 communication)
  - SOFTNET-PB DP, SOFTNET-PB DP slave (for DP)
- The appropriate OPC servers and configuration tools are included in the scope of supply of the respective communication software

Ordering data

	Order No.
CP 5711 communications processor	
for connection of a programming device or notebook to PROFIBUS or MPI, under 32 bit in connection with PROFIBUS SOFTNET software or STEP 7; German/English	
• USB V2.0 adapter	**6GK1571-1AA00**
• USB V2.0 adapter CP 5711 and MPI cable, 5 m	**6GK1571-1AM00**
Mounting rail support for CP 5711	**6GK1571-1AA00-0AH0**
Compartment for CP 5711 enclosure; fastened mechanically to 35 mm DIN rail	
SOFTNET-PB S7	
Software for S7 communication, incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;	
SOFTNET-PB S7 V8.2	
For 32/64-bit: Windows 7 Professional/Ultimate; for 64-bit: Windows 2008 Server R2 German/English	
• Single License for one installation	**6GK1704-5CW08-2AA0**
SOFTNET-S7 Edition 2008 (V7.1)	
For 32-bit Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German	
• Single License for one installation	**6GK1704-5CW71-3AA0**
Software Update Service	**6GK1704-5CW00-3AL0**
For 1 year with automatic extension; requirement: current software version	
Upgrade	
• From Edition 2006 to SOFTNET-S7 Edition 2008 or V8.1	**6GK1704-5CW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-S7 Edition 2008 or V8.1	**6GK1704-5CW00-3AE1**

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PC-based Automation
Communication – PROFIBUS

CP 5711

Ordering data	Order No.		Order No.

SOFTNET-PB DP

Software for DP protocol (master class 1 and 2), incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive; for CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;

SOFTNET-PB DP V8.2

For 32/64-bit:
Windows 7 Professional/Ultimate;
for 64-bit:
Windows 2008 Server R2
German/English
• Single License for one installation — **6GK1704-5DW08-2AA0**

SOFTNET-DP Edition 2008 (V7.1)

For Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/Ultimate SP1; Windows 2008 Server; English/German
• Single License for one installation — **6GK1704-5DW71-3AA0**

Software Update Service — **6GK1704-5DW00-3AL0**

For 1 year with automatic extension; requirement: current software version

Upgrade
• From Edition 2006 to SOFTNET-DP Edition 2008 or V8.1 — **6GK1704-5DW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Edition 2008 or V8.1 — **6GK1704-5DW00-3AE1**

SOFTNET-PB DP slave

Software for DP slave, with DP OPC server and NCM PC, single license for one installation, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;

SOFTNET-PB DP Slave V8.2

For 32/64-bit:
Windows 7 Professional/Ultimate;
for 64-bit:
Windows 2008 Server R2
German/English
• Single License for one installation — **6GK1704-5SW08-2AA0**

SOFTNET-DP Slave Edition 2008 (V7.1)

For 32-bit
Windows XP Professional SP2/3; Windows 2003 Server R2, SP2; Windows Vista Business/ Ultimate SP1; Windows 2008 Server; English/German
• Single License for one installation — **6GK1704-5SW71-3AA0**

Software Update Service — **6GK1704-5SW00-3AL0**

For 1 year with automatic extension; requirement: current software version

Upgrade
• From Edition 2006 to SOFTNET-DP Slave Edition 2008 or V8.1 — **6GK1704-5SW00-3AE0**
• From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Slave Edition 2008 or V8.1 — **6GK1704-5SW00-3AE1**

PROFIBUS FastConnect bus connector RS485 Plug 180 — **6GK1500-0FC10**

With 180° cable outlet

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Overview

PC/IPC with
CP 5612/
CP 5622/CP 5711
and SOFTNET for
PROFIBUS

■ PROFIBUS

S7-1200 with
CM 1243-5

S5-115U to S5-155U
with CP 5431 FMS/DP

S7-300 with CP 342-5
or CP 343-5

S7-400 with
CP 443-5

DP-M	DP-S	FMS	OPC	PG/OP	S7/S5
●	●		●	●	●

- Software for connecting PCs/programming devices and notebooks to programmable controllers
- Communication services:
  - PROFIBUS DP master Class 1 and 2 with acyclic expansions
  - PROFIBUS DP slave
  - PG/OP communication
  - S7 communication
  - Open communication (SEND/RECEIVE) based on the FDL interface
- The corresponding OPC servers are included in the scope of supply of the respective communication software
- Can be used with:
  - CP 5512 (PC card, CardBus 32-bit)
  - CP 5611 A2 and CP 5612 (PCI, 32-bit)
  - CP 5612 (PCI, 32-bit)
  - CP 5621 and CP 5622 (PCIe x1)
  - CP 5622 (PCIe x1)
  - CP 5711 (USB V2.0)
  - Integrated PROFIBUS interfaces of SIMATIC PGs/PCs

Ordering data   Order No.

SOFTNET-PB S7

Software for S7 communication, incl. FDL protocol with OPC server and NCM PC, runtime software, software and electronic manual on CD-ROM, license key on USB flash drive, Class A; for CP 5611 A2, CP 5612 (Win 7 and higher), CP 5621, CP 5622 (Win 7 and higher), CP 5711;

SOFTNET-PB S7 V8.2

For 32/64-bit:
Windows 7 Professional/Ultimate;
for 64-bit:
Windows 2008 Server R2
German/English
- Single License for one installation   **6GK1704-5CW08-2AA0**

SOFTNET-S7 Edition 2008 (V7.1)

For 32-bit
Windows XP Professional SP2/3;
Windows 2003 Server R2, SP2;
Windows Vista Business/
Ultimate SP1; Windows 2008 Server;
English/German
- Single License for one installation   **6GK1704-5CW71-3AA0**

Software Update Service   **6GK1704-5CW00-3AL0**

For 1 year with automatic extension;
requirement: current software version

Upgrade
- From Edition 2006 to   **6GK1704-5CW00-3AE0**
  SOFTNET-S7 Edition 2008 or V8.1
- From V6.0, V6.1, V6.2 or V6.3 to   **6GK1704-5CW00-3AE1**
  SOFTNET-S7 Edition 2008 or V8.1

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SOFTNET for PROFIBUS

Ordering data	Order No.		Order No.

SOFTNET-PB DP

Software for DP protocol
(master class 1 and 2), incl.
FDL protocol with OPC server and
NCM PC, runtime software, software
and electronic manual on CD-ROM,
license key on USB flash drive; for
CP 5611 A2, CP 5612
(Win 7 and higher), CP 5621,
CP 5622 (Win 7 and higher),
CP 5711;

SOFTNET-PB DP V8.2

For 32/64-bit:
Windows 7 Professional/Ultimate;
for 64-bit:
Windows 2008 Server R2
German/English

- Single License for one installation → **6GK1704-5DW08-2AA0**

SOFTNET-DP Edition 2008 (V7.1)

For Windows XP Professional SP2/3;
Windows 2003 Server R2, SP2;
Windows Vista Business/Ultimate
SP1; Windows 2008 Server;
English/German

- Single License for one installation → **6GK1704-5DW71-3AA0**

Software Update Service — **6GK1704-5DW00-3AL0**

For 1 year with automatic extension;
requirement: current software version

Upgrade
- From Edition 2006 to SOFTNET-DP Edition 2008 or V8.1 → **6GK1704-5DW00-3AE0**
- From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Edition 2008 or V8.1 → **6GK1704-5DW00-3AE1**

SOFTNET-PB DP slave

Software for DP slave, with
DP OPC server and NCM PC,
single license for one installation,
runtime software, software and elec-
tronic manual on CD-ROM, license
key on USB flash drive, Class A; for
CP 5611 A2, CP 5612
(Win 7 and higher), CP 5621,
CP 5622 (Win 7 and higher),
CP 5711;

SOFTNET-PB DP Slave V8.2

For 32/64-bit:
Windows 7 Professional/Ultimate;
for 64-bit:
Windows 2008 Server R2
German/English

- Single License for one installation → **6GK1704-5SW08-2AA0**

SOFTNET-DP Slave Edition 2008 (V7.1)

For 32-bit
Windows XP Professional SP2/3;
Windows 2003 Server R2, SP2;
Windows Vista Business/
Ultimate SP1; Windows 2008 Server;
English/German

- Single License for one installation → **6GK1704-5SW71-3AA0**

Software Update Service — **6GK1704-5SW00-3AL0**

For 1 year with automatic extension;
requirement: current software version

Upgrade
- From Edition 2006 to SOFTNET-DP Slave Edition 2008 or V8.1 → **6GK1704-5SW00-3AE0**
- From V6.0, V6.1, V6.2 or V6.3 to SOFTNET-DP Slave Edition 2008 or V8.1 → **6GK1704-5SW00-3AE1**

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Overview

System integration with OPC server

- Standardized, open multi-vendor interface
- Interfacing of OPC-capable Windows applications to DP, FMS, S7 communication and open communication (SEND/RECEIVE) based on the FDL interface
- OPC Scout with browser functionality as an OPC client and OCX-Data-Control/.NET Data Control for simple OPC client creation
- The relevant OPC servers are supplied with each communication software package

PC-based Automation
Communication – PROFIBUS

S7 OPC Redundancy for PROFIBUS

Overview

OPC (**O**penness, **P**roductivity & **C**ollaboration) is a standardized, open, and vendor-independent interface that is widely used in automation. OPC UA (**U**nified **A**rchitecture) is the result of consistent further development of this standard, offering additional functions such as security or redundancy.

S7 OPC Redundancy is a software product compliant with the OPC UA standard that enables the redundant configuration of OPC UA servers to SIMATIC S7. The availability of automation data to operator control and monitoring systems is guaranteed thanks to the redundant use of OPC UA servers. This requires neither additional cabling for synchronizing the redundant OPC UA servers, nor additional programming overhead in the PC. The OPC UA servers are synchronized via high-performance Industrial Ethernet network access points at 10/100 and 1000 Mpbs. S7 OPC Redundancy represents an integrated customer solution for all SIMATIC NET S7 SOFTNET and HARDNET software products in the automation world.

Ordering data

	Order No.
S7 OPC Redundancy	
Software for redundant OPC servers, Runtime software, software and electronic manual on CD-ROM, license key on USB stick, Class A	
S7 OPC Redundancy V8.2 for PROFIBUS	
For 64-bit Windows 2008 server R2; English/German	
• Single License for one installation	**6GK1706-5CW08-2AA0**
Software Update Service	**6GK1706-5CW00-3AL0**
For 1 year with automatic extension; requirement: current software version	

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Customized Automation

6

Customized Automation
Introduction

Customized Automation

■ **Overview**

Customized Automation - Hardware

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Customized Automation - overview

With Customized Automation, field-proven SIMATIC, SIMATIC PC and SIMATIC HMI standards are transferred to individual products and systems – tailored precisely to the customer's requirements. The portfolio covers the hardware and software range, as well as support and logistics.

Customized Automation

■ Benefits

Time savings

- you can use comprehensive customization know-how and our long years of experience with the SIMATIC components
- you do not have to build up any additional know-how, and you can concentrate completely on your own core competence

Increase in profitability

- you invest your money and resources selectively in your core competence
- you implement reliable material requirements and logistics planning, tailored to your needs, thanks to our logistics services
- you have maximum investment security thanks to maximum quality, long-term availability and continuity with SIMATIC, SIMATIC PC and SIMATIC HMI
- you save unnecessary costs thanks to tailor-made solutions, and you benefit from the global service & support concepts with SIMATIC, SIMATIC IPC, and SIMATIC HMI

Increase in competitive edge for the machine

- you use SIMATIC products that correspond to the highest quality standards, offer optimal performance, and thus boost your productivity by minimizing standstill times
- you receive customized products with Customized Automation that fit outstandingly well into the "Totally Integrated Automation" (TIA) concept
- you stand out not only for exceptional technology but also for individual design of your machine, for example, by printing a logo on the front of the enclosure.

Customized hardware:

Customized products are modified SIMATIC HMI standard products. According to the necessary degree of modification of the hardware, these types of product are separately identified as:

- Design products
- OEM products
- Turnkey products

The customer-specific modifications are available in all performance classes, starting with Push Button Panels or Key Panels, Basic Panels, Comfort Panels up to Rack/Box/Panel PCs.

Customized software:

In the case of customer-specific products, the software can also be individually installed. This includes the generation of operating systems and also the integration and installation of driver software and images – for complete, turnkey systems.

Customized software products:

- Remote Operate Software
  for implementation of multi-user systems with HMI IPC and clients on the basis of MP 377 and HMI IPC477
- SIMATIC KNX/EIB2S7
  enables integration of actuators/sensors on a KNX/EIB bus of building automation systems into SIMATIC S7
- Open MODBUS for SIMATIC systems
  provides the capability of connecting systems from various manufacturers to SIMATIC automation systems

Customized products from various industries

SIMATIC HMI products are provided with additional features in order to facilitate optimum use in specific sectors of industry. Stainless steel front panels for the food, beverages and tobacco industry are one such example. With the exception of their front panels, the devices are identical to standard products in respect of function and technology.

We can offer products for the following industries:

- Renewable energy
- Automotive industry - HMI for factory automation
- General machine construction
- Food and beverages industry/pharmaceuticals
- Oil & gas/chemicals and shipbuilding

Customized products for various industries are developed and produced in conjunction with a customized product agreement.

■ More information

More information is available in the Internet at
http://www.siemens.com/hmi-oem

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Customized Automation
Introduction

Customized adaptations

■ Overview

Our SIMATIC IPC Customization Centers convert the field-proven SIMATIC IPCs into individualized products and systems for you – tailored precisely to your specific needs. Our portfolio ranges from individualized design, through software installation and special tests or certifications, right up to just-in-time delivery. This provides you with more **time** for your own projects while improving your **profitability** and thus your **competitive advantage**.

*Customized SIMATIC IPC -
precisely tailored to your requirements*

■ Benefits

You gain time because you ...

- can benefit from our comprehensive customization expertise and many years of experience regarding industrial PCs.
- do not have to create industrial computer-specific expertise and can therefore fully concentrate on your core competencies.

You increase profitability because you ...

- invest your money and resources specifically in your core competencies.
- implement a reliable inventory control and logistics planning as required thanks to our logistics services.
- ensure maximum investment protection due to maximum quality, long-term availability and continuity with SIMATIC IPC.
- avoid unnecessary costs due to custom-tailored solutions.
- benefit from worldwide Service & Support concepts with SIMATIC IPC.

You increase your competitive edge because you ...

- use industrial PCs that conform to the highest quality standards, offer optimum performance, and thus increase productivity by minimizing downtimes.
- use customer-specific SIMATIC IPCs that are optimally integrated in the Totally Integrated Automation (TIA) concept.
- not only stand out due to extraordinary technology, but also due to the customized design of your machine, e.g. by printing a logo on the device front of the industrial PC.

■ Application
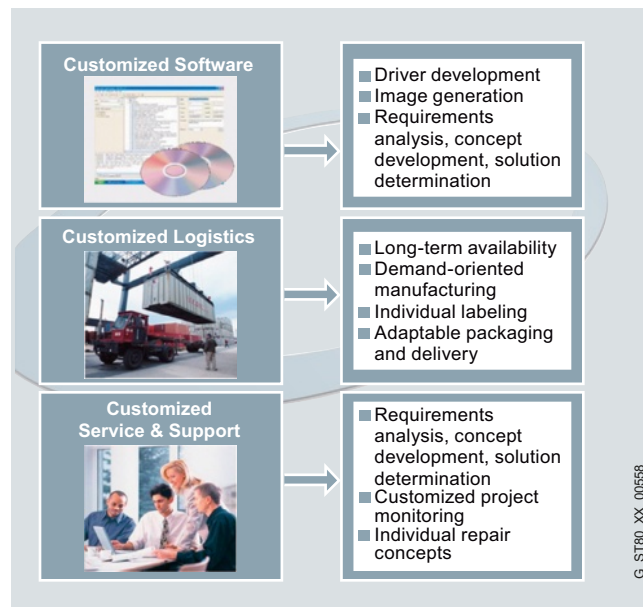
*Customized hardware -
Individual in design and configuration*

Customized design

- **Inscription or printed logo**, e.g. on the front cover of the enclosure, matches your corporate design requirements
- **Custom color design of enclosure**, individual enclosure components, e.g. enclosure front and front cover – for perfect optical integration of the PC in the operating environment

Customer-specific configuration

- **Optimization of the computer configuration** – corresponding to the requirements of your application, e.g. with or without PROFIBUS interfaces or optical drives
- **Optimal selection of the required components** - with regard to performance capability, long-term availability and compatibility, e.g. processor, fan, work memory, etc.
- **Installation of the hardware you specified** – e.g. third-party hardware such as drives and PC cards or customized, supplied hardware

Customized software – operating systems, drivers, image

Generation of operating systems

- E.g. for Windows XP embedded,
- and the RMOS3 real-time operating system from Siemens
- For customer-specific preinstalled LINUX operating system[1]

Integration and installation of driver software and image storage

- E.g. for additional plug-in cards, controllers and memory media
- For complete, turn-key systems

[1] Suitable for specific LINUX versions in accordance with the specifications of the Siemens manufacturer's declaration "Suitable for LINUX", see http://www.siemens.com/simatic-pc/suitable-for-linux

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Customized adaptations

Application (continued)

Customized service and support

Pre-sales and after-sales support

- Requirements analysis, concept creation, solution generation
- Competent project support from the offer through to delivery and beyond
- Individual repair concepts with worldwide Siemens service network with 190 branches and 33 repair centers
- 24-hour product support over the SIMATIC Hotline

System test of hardware and software, e.g.

- **EMC chamber** – Test for electromagnetic compatibility
- **Thermal simulation** – Thermal simulation and heat imaging camera to detect heat pockets
- **Heat test** – Testing of all components in a 36-hour heat test at 40 degrees Celsius in a heated cabinet
- **Stress test** – Test for high vibration/shock loading, specially for CPU, graphics, memory, modules, etc.

Product Equipment Data (PED)

- **Online tool PED** (www.siemens.com/ped) – For easy, systematic identification and management of device components. It shows you the most important components of your equipment (delivery status) easily and quickly and supports you worldwide in the event of a servicing requirement with the procurement of suitable replacement parts.

"Tempesting" (SITEMP)

- **TEMPEST (Temporary emanation and spurious transmission)** – For protecting compromising data from listening-in attacks by means of electromagnetic radiation
- Series measurements and certification of special PC hardware according to the standards of the German Institute for Safety in Information Technology (BSI) for radiation safety
- E.g. PC for processing highly sensitive research and development data

Certification and approval of hardware and software – e.g. UL and CE industry certification

On-site service – e.g. for plant failure, on-site repairs, product upgrades

Customized logistics

Availability tailored to your requirements

- **Configuration and design freeze** – Individual availability agreements for unchanged hardware and software versions of the products (image compatibility)
- **Replacement parts in centralized or decentralized spare parts storage** – For individually agreed periods or, where applicable, last-time buying and storage of components
- **License authorization** for discontinued software, e.g. for Microsoft operating systems such as Windows NT, MS DOS

Tailor-made right down to the detail

- **Change notices** – Individual agreements for customer information management, e.g. product discontinuation, version updates, phase-out announcements
- **Individual labeling** – On the industrial PC and/or product packaging, e.g. customized item/device/inventory numbers, warehouse barcodes or packing and safety instructions
- **Supply of accessories** – e.g. adapter cables, keyboards or accompanying documents and manuals

Individual logistics solutions

- **Kanban delivery** – We supply according to the requirements of the organization units in the production process of our customers who organize their production process control in accordance with the Kanban principle. This shortens the throughput time and reduces inventories.
- **Just in time** – We reduce the inventories and throughput times of our customers by supplying the hardware manufactured customer specifically at exactly the time when they need them in the production process or in the logistics chain
- **Reusable packaging** – Better than recycling! The packaging is collected from our customers after the specially manufactured hardware has been unpacked and reused for transporting the next delivery. Packaging material is saved to the advantage of our customers and the environment.

More information

You can find further information at:

Internet: http://www.siemens.com/customized-pc

Email: customized-pc.automation@siemens.com

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Customized hardware

■ **Overview**

***Customized products are modified
SIMATIC HMI standard products***

A distinction is made according to the degree of hardware modification:

• Design products
• OEM products
• Turnkey products

The Open Platform Program is available for customized software solutions.

With these possible modifications, products are planned for special customer requirements in the various industries.

• Customized products from various sectors

Further information can be found on the Internet at:

http://www.siemens.com/hmi-oem

Proportion of customized modifications on the individual product types:
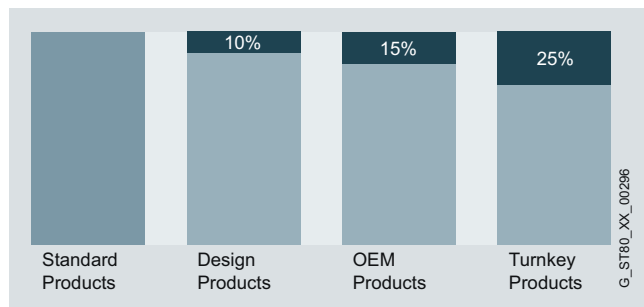
Customized hardware:

Design products

Customized design means modifying the design and visual impact of the SIMATIC, SIMATIC HMI and SIMATIC IPC products for seamless adaptation into the customer's individual machine and plant design and special operator philosophy.

The modification options are:

• Changing the company logo and and device type designation
• Changing the keyboard color scheme, the key labeling, or the key symbols
• Changing the enclosure color (front frame)

Design products are fully compatible with the standard products in technology and functionality, and can thus be fully integrated into the Totally Integrated Automation environment. Identical technology enables, for example, replacement using standard devices in the event of a fault in case the machine or plant supplier does not currently have a customized product in the spare parts warehouse.

OEM products

Product modifications for OEM (Original Equipment Manufacturer) customers are suitable for individual, industrial automation solutions that cannot be fulfilled with the help of standard products, or can only be handled with design-modified panels.

OEM products are individual solutions based on SIMATIC standard components. They are specified, offered, developed and supplied individually in consultation with the customer.

For this purpose, we simply combine the standard components, the customized components, and the additionally required software function expansions into a SIMATIC OEM device, as with a modular system.

Modification options:

• Changes in the keyboard layout, key size/design and key arrangement
• Freely definable front dimensions and mechanical components
• Integration into enclosure for desktop use or support arm mounting
• Different processes and memory media
• Different display technologies, sizes and resolutions
• Distributed configuration
• Additional modules or interfaces
• Freely selectable Windows versions as operating systems, pre-installed SIMATIC software packages

However, new OEM products can frequently be based on already implemented OEM products for efficiency and cost savings (see product examples). The end product is then represented as a customized modification of an existing OEM product.

Our OEM devices are available in every performance class - starting from OEM Push Button Panels, through Text Displays, Touch and Operator Panels, right up to multifunctional platforms (MPs) and PCs in rack/box/panel versions with extensive changes to hardware, equipment and installed software. Customized OEM products are developed and produced in various stages in accordance with quality standards.

Turnkey products

Customized turnkey products are ready-to-install and ready-to-use products from a single source that have been combined and assembled to customer specifications and in accordance with the specific technical requirements of HMI products. With the turnkey products, the HMI products are tested and supplied, e.g. as complete operator stations, that is, mounted and wired in special enclosures, and installed with the specified software:

• Optimized HMI operator station: ergonomic, functional, certified and tested
• Optimal mechanical installation of the devices with defined high degree of protection
• Flexible in installation and wiring
• Variable mounting options
  (support arm, stand, wall-mounting)
• Certified in accordance with VDE, CE and UL
  (in accordance with agreements and statutory conditions)
• Vibration-tested and shock-tested
• Packaged for safe transport
• Tested heat balance with passive cooling and with specified ambient temperature
• Customer-specific software suite with electronic software release management

Customized SIMATIC turnkey products offer standard product quality from a single source and are ready-to-install and ready-to-use.

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■ Overview

SIMATIC HMI products in individual corporate design for machines and plants are important for customers when making purchasing decisions. Seamless integration of the HMI devices in operation and ergonomics as well as in the overall machine and plant design is especially important.

The HMI devices with customer-specific design fully meet these requirements.

The following design changes are possible depending on the variant:

- Extremely fast design implementations
- Implementation of even low minimum quantities (no general agreements)
- Photo-realistic design up to 600 dpi
- Color gradients in the logo

The following changes (design variants) are possible:

- Version **A**:
  Inserting the individual company logo instead of the Siemens logo and changing the type designation
- Version **B**:
  Version A + changing keyboard colors, key labels, symbols and background color
- Version **C**:
  Version B + changing the frame color for the front frame
- **Digital Express design**:
  Version B in photo-realistic print quality, for small quantities with accelerated execution of the project

The following applies for variants **A-C**:

- A contractually agreed minimum quantity per year is necessary
- Stockpiling in accordance with contract
- First deliveries approximately 8 weeks after design start

Selected SIMATIC HMI Touch devices are available in Digital Express design thanks to adapted production procedures.

The following applies for implementation in **Digital Express design**:

- Without contractual obligation
- Even small ordering quantities
- Significantly reduced implementation time
- Photo-realistic print quality

The SIMATIC HMI products with customer-specific design are completely identical to the standard products in respect of technology and function. This similarity makes it possible to respond flexibly to almost any need situation. In this way, a machinery and plant supplier can quickly switch to standard products if in the event of a fault there are no HMI design units available in the spare parts inventory.

This flexible production makes cost-effective design products possible even in small ordering quantities. The devices are manufactured in the series production factory and are subject to the same quality requirements as standard devices.

The professional creation of customized designs is handled by the **SIMATIC HMI Design Center**.

The following services are offered to the customer:

- Support in the selection of suitable design variants
- Direct, specialist coordination and customer consultation in the selection of appropriate typefaces, colors, and standard symbols, e.g. to optimize machine operation
- Creation of a customer-specific design draft
- Short response times, first design draft around 5 days after design start
- Obtaining required customer approval

There are no one-off project costs for these services of the SIMATIC HMI Design Center (see "Additional information" for details). A quotation will be made for any further changes and consultation services.

Regarding customized design, it is also possible to match the colors of various SIMATIC HMI design devices in order to achieve a uniform corporate identity. The associated costs will be calculated according to actual requirements.

■ Benefits

- Seamless adaptation to the customer's machine and plant design and special operating philosophy
- No restrictions in ergonomics compared with a standard product
- Even small quantities of design products may be ordered
- Replaceable and fully compatible with the standard devices in terms of:
  - Functions and interfaces
  - SIMATIC HMI configuration software
  - Enclosure and installation dimensions
  - Logistics and service, identified repairs
- UL and CE certification, more upon request

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Customized Automation
Customized hardware

Design products

■ **Ordering data**

According to size of display	Device type	Order No. of basic product	Minimum order quantities Normal design Variant A/B	Minimum order quantities per order Express design
Touchscreen				
7 inch	**HMI TP700 Comfort**	**6AV2124-0GC01-0AX0**	75	3
	TP 177 6" DP mono	**6AV6642-0BC01-1AX1**		4
	TP 177 6" DP/PN color	**6AV6642-0BA01-1AX1**		4
9 inch	**HMI TP900 Comfort**	**6AV2124-0JC01-0AX0**	75	3
12 inch	**HMI TP1200 Comfort**	**6AV2124-0MC01-0AX0**	50	3
	MP 377 12" Touch	**6AV6644-0AA01-2AX0**		3
	MP 277 10" Touch	**6AV6643-0CD01-1AX1**		3
15 inch	**HMI TP1500 Comfort**	**6AV2124-0QC02-0AX0**	50	on request
	MP 377 15" Touch	**6AV6644-0AB01-2AX0**		3
	HMI TP1500 Basic color PN	**6AV6647-0AG11-3AX0**	50	on request
19 inch	**HMI TP1900 Comfort**	**6AV2124-0UC02-0AX0**	50	on request
22 inch	**HMI TP2200 Comfort**	**6AV2124-0XC02-0AX0**	50	-
Key				
3 inch	**HMI KP8 PN, Key Panel**	**6AV3688-3AY36-0AX0**	on request	on request
	HMI KP8F PN	**6AV3688-3AF37-0AX0**	on request	on request
	HMI KP300 Basic mono PN	**6AV6647-0AH11-3AX0**	200	on request
4 inch	**HMI KTP400 Comfort**	**6AV2124-2DC01-0AX0**	100	on request
	HMI KP400 Comfort	**6AV2124-1DC01-0AX0**	100	on request
	HMI KTP400 Basic mono PN	**6AV6647-0AA11-3AX0**	200	on request
7 inch	**HMI KP700 Comfort**	**6AV2124-1GC01-0AX0**	75	on request
	HMI KTP600 Basic mono PN	**6AV6647-0AB11-3AX0**	200	on request
	HMI KTP600 Basic color DP	**6AV6647-0AC11-3AX0**	200	on request
	HMI KTP600 Basic color PN	**6AV6647-0AD11-3AX0**	200	on request
9 inch	**HMI KP900 Comfort**	**6AV2124-1JC01-0AX0**	75	on request
12 inch	**HMI KP1200 Comfort**	**6AV2124-1MC01-0AX0**	50	on request
	HMI KTP1000 Basic color DP	**6AV6647-0AE11-3AX0**	75	on request
	HMI KTP1000 Basic color PN	**6AV6647-0AF11-3AX0**	75	on request
15 inch	**HMI KP1500 Comfort**	**6AV2124-1QC02-0AX0**	50	on request

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■ **Ordering data** (continued)

According to size of display	Device type	Order No. of basic product	Minimum order quantities Normal design Variant A/B	Minimum order quantities per order Express design
Touch/Monitor/Key				
7 inch	**IPC277D Touch**	depending on the configuration	50	2
9 inch	**IPC277D Touch**	depending on the configuration	50	2
12 inch	**Flat Panel Touch or Monitor**	depending on the configuration	50	on request
	IPC277D Touch	depending on the configuration	50	2
	Panel PC Touch or Key	depending on the configuration	50	on request
	ITC1200	**6AV6646-1AA22-0AX0**	75	on request
15 inch	**Flat Panel Touch or Monitor**	depending on the configuration	50	on request
	Flat Panel Touch PRO	**6AV7861-5TB10-1BA0**	50	on request
	IPC277D Touch	depending on the configuration	30	on request
	IPC477C Touch PRO	depending on the configuration	30	on request
	IPC477C Touch	depending on the configuration	30	2
	IPC677C Touch	depending on the configuration	30	2 (USB)
	Panel PC Touch or Key	depending on the configuration	30	on request
	ITC1500	**6AV6646-1AB22-0AX0**	30	on request
19 inch	**Flat Panel Touch or Monitor**	depending on the configuration	30	on request
	Flat Panel Touch PRO	**6AV7861-6TB10-1BA0**	30	on request
	IPC477C Touch PRO	depending on the configuration	30	2
	Panel PC Touch	depending on the configuration	30	on request
	ITC1900	**6AV6646-1AC22-0AX0**	30	on request
22 inch	**ITC2200**	**6AV6646-1AD22-0AX0**	30	on request

For all other products not listed here, please inquire directly.

■ **More information**

Ordering information

Explanation of the tables with selection and order data:

"Device type" and "Order No. of the associated basic product"

- "Type specification" and "Order No." of the HMI standard product to be modified.
- Start of delivery of a design variant cannot commence less than 4 months after the start of delivery of a standard device.

"Design variant"

- Type of modification required, according to design variants

"Minimum quantity"

- In order to be able to offer high-quality products at a competitive price in the global market, there must be a lower limit to the annual quantity and a minimum order quantity.
- The possible design devices with the associated minimum quantities are listed in the overview tables.

Prices and one-off costs

An additional amount over the price of the standard device is charged for the customized design device.

There are no additional costs for a one-off design (without Change Requests).

Processing

A special order processing is required for the customized design. Various approval steps by the customer are to ensure that the end product meets the customer's expectations. The orders are processed, like standard orders, via the Logistic Center Nuremberg (LZN). Orders and deliveries of 1 unit or more depending on the version or contract are possible!

Repairs/spare parts storage

Only identified repairs are carried out.

The customer-specific spare parts required for this purpose (device front panels) are to be stored and made available by the customer on expiry of the warranty period or on termination of supply.

Contacts

Please contact your local/national SIMATIC HMI representative (visit our Internet site for more information)

Further information can be found on the Internet at:

http://www.siemens.com/hmi-oem

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Customized Automation
OEM products

OEM products

Overview

- HMI product modifications for OEM customers are suitable for complex industrial automation tasks that cannot be implemented using standard products.
- OEM devices are available in all performance classes: from OEM Push Button Panels through Micro Panels, Panels and Multi Panels right up to Panel PCs as well as Rack and Box PCs - with far-reaching changes in hardware, equipment and software.
- The following modifications are possible:
  - Changes to keyboard layout: Number of keys, key size/design and key layout
  - Freely definable front dimensions and mechanical components
  - A variety of processors for customized performance
  - A variety of memory media and capacities
  - Installation of function cards
  - Display technologies, sizes and resolutions
  - Options such as direct key modules
  - Distributed configuration of Panel PCs
  - Housings for desktop, stand or support-arm versions (operator station concept)
  - Additional modules or interfaces, of course always complete with the necessary device drivers
  - Selectable Windows operating systems
  - Preinstalled SIMATIC software and customized software packages
  - additional functions due to PCIe slot
  - Frontplate design in color and labeling of the interfaces
  - Large number of interface options in the configurator in a very small space

Benefits

- The SIMATIC HMI OEM concept represents "customizing at its best":
  Your requirements, based on sector and application know-how, combined with our experience in the development of HMI devices of all performance classes, result in tailor-made solutions at a fair price.
- Customized OEM products are developed in defined stages in accordance with quality standards and produced using standard plant facilities - always in close cooperation with the customer.
- Users in various industries, including regenerative energies, the automotive industry, the food, beverages and tobacco industries, the oil and gas industry, as well as in the plastics-processing industry and others are benefiting from our experience of delivering tried and tested OEM versions and industry standards.

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Flexible front design concept for HMI products

Overview

MP 377 15" Touch OEM according to flexible front-mounting concept for injection molding machines

Customer requirements with regard to HMI devices are extremely diverse. The flexible front-mounting concept makes it possible to meet these diverse customer-specific requirements.

The flexible front-mounting concept enables customized front design as well as customized layout of the operator elements. The SIMATIC products form the technical basis of a device developed according to the flexible front-mounting concept.

The diversity of the standard products enables integration from the small 6" Flat Panel right up to high-performance PC technology. The customer's own, typical operator philosophy can also be optimally implemented since the flexible front-mounting concept offers the wide range of operator elements – from the classic 3SB operator elements, through short-stroke keys, right up to membrane keyboards.

The flexible communication options with PROFIBUS or PROFINET facilitate integration into new or existing machine concepts. Fail-safe operation can be implemented by using PROFIsafe components. To meet individual customer requirements, a device built in accordance with the flexible front-mounting concept can be designed as a built-in device or as a stand-alone unit. If designed as a stand-alone unit, care is taken to make the enclosure slimline and modern in appearance.

Benefits

The flexible front-mounting concept allows customized HMI solutions based on the field-proven SIMATIC components. A project using the flexible front-mounting concept is the obvious choice especially for the following customer requirements:

- Customized integration of operator elements and display systems
- High integration density of SIMATIC products
- Demand for customized design and layout
- Demand for optimal integration into plants and machinery
- Compact design as stand-alone product in enclosure
- Compact design as built-in unit at the machine level
- Use of field-proven components and thus also optimized time-to-market

These requirements can be implemented for the customer by means of a flexible front-mounting concept.

The general conditions for a project using the flexible front-mounting concept are:

- Minimum unit quantity 100 p.a.
- Project agreement
  - With unit quantity start-up forecasting and annual unit quantities for the project
  - for funding development costs
  - Key project dates and standard start-of-delivery dates
  - Logistics with delivery times

Application

The industrial environment imposes diverse requirements on technology and design. Thanks to its variable and modular approach, the flexible front-mounting concept opens up diverse options for re-combining SIMATIC standard components in a compact device configuration with individualized design and layout. The possible uses are thus diverse and universal.

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Customized Automation
OEM products

Flexible front design concept for HMI products

■ Design

The flexible design and the use of standard SIMATIC products make it possible to meet just about every technical requirement with regard to customized HMI. Components that can be combined to form an individualized HMI are listed below:

Basic devices:
• Flat Panels with different screen diagonals
• Thin Client
• Comfort Panel
• Panel PC

Operator control:
• Touch functionality
• Keys functionality with
  - 3SB elements
  - Short-stroke keys
  - Membrane keys (also illuminated)
• Keyswitches etc.

Additional elements:
• High-speed keys via PROFINET
• Emergency stop (also PROFIsafe)
• Front USB etc.

Design:
• Stand-alone (IP65 at front, <= IP54 at rear)
• Built-in unit (IP65 at front; IP20 at rear)
• Slimline enclosure design

Device connection:
• With support arm via VESA 100 on rear of enclosure
• Connected at the edges using hinges
• Installation in machinery

Design:
• Customized design
• Customized key layout
• Customized symbols and logos

■ More information

Quotation preparation

Product specification in accordance with customer requirements. Quotation drafted by SIMATIC HMI specialists.

Determining:
• One-time project costs
• Costs for sample devices/prototypes
• Standard unit prices
• General conditions (product agreement)

There must be a minimum limit to the annual unit quantity/purchase quantity (minimum quantity per version: from 100) and this must be agreed with the project customer. Customized products can only be ordered in conjunction with a product agreement. A customer-specific order number is allocated during the product agreement process.

Contacts

Please contact the HMI representatives of your Siemens sales office/national company.

Additional information in the Internet is available at:

http://www.siemens.com/hmi-oem

Flexible front-mounting concept project development and service

Customized projects using the flexible front-mounting concept are developed and produced in different steps in accordance with quality standards. Prototypes are created to test products. Once the devices have been approved by the customer, they undergo certification and are introduced into the production process.

Devices are produced in standard product factories, ensuring observation of customer quantity forecasts. For this purpose, individual quantity forecasts are exchanged with the customer.

In the event of questions and problems, customers can contact our worldwide 24-hour SIMATIC Customer Support.

Customized products can only be ordered in conjunction with a product agreement.

The following points are defined in the product agreement:
• Delivery and pricing
• Logistics - annual volume, purchase quantity, delivery batch volumes
• Spare parts
• Service
• Repairs/spare parts storage

The repair concept is also agreed with the customer. The necessary customized spare parts (device fronts) are defined here and offered to customers for their products after completion of delivery.

Overview

OEM MP 277 8.4" Touch

Benefits

- Heavy-duty, die-cast aluminum housing
- Easy mounting on patient table with clamping device
- Low space requirements
- Extremely good readability
- Simple operation
- Joystick can be connected optionally on left or right
- Ethernet communication

Application

The OEM MP 277 8.4" Touch is suitable for use as a control console for coronary angiography systems in the medical field.

Technical specifications

- Rugged die-cast aluminum housing
- 8.4'' TFT display
- 800 x 600 pixel resolution
- Operation by means of touch screen and optional joystick
- Customized application and customized WinCE image
- Degree of protection on front: IP65.

Option

- Different housing color

Ordering data

	Order No.
OEM MP 277 8.4" Touch	**On request**

Customized products can only be ordered in conjunction with a product agreement. The following points are defined in the product agreement:

- Status: Released for delivery
- Project runtime: None
- Non-recurring costs: None
- Minimum quantity: 200

More information

Additional information is available in the Internet under:

http://www.siemens.com/hmi-oem

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Customized Automation
OEM products

SIMATIC HMI Net Panel

Overview
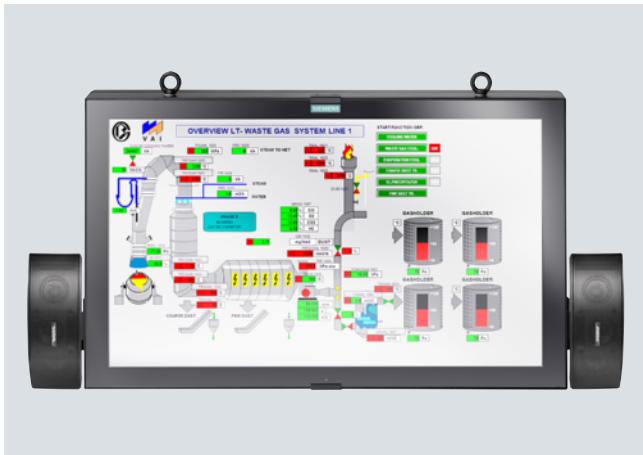
Professional display system for continuous, maintenance-free operation

The SIMATIC HMI Net Panel is multifunctional when it comes to rugged, large-scale display applications for industrial areas, as it is ideal for production plants and control stations or for trade fairs and information points visited by the public.

The Net Panel is based on a reliable industrial PC of the SIMATIC IPC series and is designed for 24-hour, maintenance-free operation in an industrial environment. It is extremely flexible in operation and can be used as a stand-alone solution or in the network as a complete industrial display system comprising several Net Panels. For applications that require audio output, variants of the Net Panel are available with audio modules and speaker equipment.

Remote Control for setting up the SIMATIC HMI Net Panel

The Remote Control Software included in the scope of delivery allows the Net Panel to be operated either locally or via the network. It enables the brightness and volume to be adjusted and the backlight to be switched off.

For self-diagnosis the device temperature can be indicated. The Remote Control software allows the function to be shut down to prevent burn-in effects (anti-image sticking). The anti-image sticking function should, however, only be deactivated when adequate measures have been implemented on the Net Panel to prevent image sticking.

Remote Operate as client/server solution for industrial display systems (optional)

When Remote Operate is installed, four virtual graphics cards can be set up on one IPC and presented as extended desktops.

On every SIMATIC HMI Net Panel, a Remote Operate client is installed that is assigned to a virtual graphics card. The different screen contents are distributed to the virtual graphics adapters using the HMI software WinCC. If the Net Panel is equipped with sound, MP3 and Wave files can be sent to a specific Net Panel where they can be played, using an easily accessible function.

Benefits

- High degree of system availability due to maintenance-free industrial design with IP65 degree of protection for continuous 24-hour operation
- High security of investment due to rugged industrial products from SIMATIC that will remain available over the long term
- Reduced costs through low-wear and power-saving LED backlight and anti image sticking function
- Easy, cost-efficient integration in a standard network environment without VGA/DVI/HDMI extensions or expensive video signal extenders
- Optionally available with audio module and loudspeaker for sound output
- Flexible mounting on support arm systems, wall and ceiling, as well as back-to-back mounting and with an angle of inclination of up to 20° from the vertical
- Remote Control Software (locally on the device and remotely from the network) for the easy parameterization of
  - Brightness
  - Deactivation of backlighting
  - Status messages of display
  - Speaker control
- Supported by WinCC flexible 2008 SP2 or higher (IPC427C with 1920 x 1080 resolution)

Application

The SIMATIC HMI Net Panel is designed for demanding large-scale displays in the industrial environment.

It is based on rugged, reliable PC technology with interfaces for easy, cost-efficient integration in existing networks and offers maximum flexibility for positioning and mounting.

The large LCD display with LED backlight, round-the-clock operation, and full PC openness make the large-scale display ideal for use as an industrial manufacturing display, add-on system, multimedia display, process visualization system, railway station and airport display (check-in, gate, baggage claim, advertising display) or at trade fairs, in shopping centers, hotels, museums and more.

Design

The SIMATIC HMI Net Panel is a rugged display system with an integrated industrial PC and optional audio and loudspeaker equipment.

- LCD display with 1920 x 1080 pixel full HD resolution
- Power saving and long-life LED backlight
- Integral SIMATIC industrial PC
- Rugged and attractive device design with reduced enclosure depth
- Degree of protection IP65 all-round, industry compatible
- Solid, shatterproof front pane of 6 mm laminated glass
- Anti-glare front pane resistant to welding beads
- Safety eyebolts (removable as required) for additional protection against dropping in suspended installations
- Optional: adapter for Rose & Krieger FSK 50 support arm system
- Integrated wide-range power supply
- Rear connector for 1x USB (with IP65 protective cap), 1x Industrial Ethernet (M12 4-pin with protective cap)
- Rear Quick-On connection for integrated 100 - 240 V power supply (connector included in scope of delivery)
- Rear status indicator

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■ Technical specifications

	SIMATIC HMI Net Panel	SIMATIC HMI Net Panel
Display		
Size	46" (116 cm) LCD TFT	46" (116 cm) LCD TFT
Resolution	1920 x 1080 Full HD (16:9)	1920 x 1080 Full HD (16:9)
Colors	16.7 million colors	16.7 million colors
Reading angle	+/- 178°	+/- 178°
Backlighting	LED backlight	LED backlight
Brightness	Typically 400 cd/m²	Typically 400 cd/m²
PC configuration		
Processor	**Celeron M 1.2 GHz**	**Core2 Solo 1.2 GHz**
Main memory	1 GB	4 GB
Mass storage	Compact Flash 4 GB	250 GB hard disk
Operating system	Windows Embedded Standard 2009	Windows Embedded Standard 2009
General features		
Enclosure design	Industry-compatible steel enclosure, black, powder-coated	Industry-compatible steel enclosure, black, powder-coated
Glass front	Shatterproof front pane of 6 mm laminated glass, anti-glare, resistant to welding beads	Shatterproof front pane of 6 mm laminated glass, anti-glare, resistant to welding beads
Audio (optional)		
Audio module	2x 15 W audio module	2x 15 W audio module
Loudspeakers	1 pair, mounted to left and right, BOSE or alternatively Visaton	1 pair, mounted to left and right, BOSE or alternatively Visaton
Interfaces		
USB 2.0	1x at rear (with IP65 protective cap)	1x at rear (with IP65 protective cap)
Ethernet	1x Industrial Ethernet, D-coded (M12 4-pin with protective cap)	1x Industrial Ethernet, D-coded (M12 4-pin with protective cap)
Power supply	100 - 230 V AC Quick-On plug connector	100 - 230 V AC Quick-On plug connector
Keyboard; mouse	Connectable via USB interface (optional USB hub recommended for commissioning)	Connectable via USB interface (optional USB hub recommended for commissioning)
Ambient conditions		
Degree of protection	IP 65 all-round; IP54 when USB is plugged in	IP 65 all-round; IP54 when USB is plugged in
Vibration load during operation	1g outline specification	1g outline specification
Shock loading during operation	5g outline specification	5g outline specification
Ambient temperature during operation	5…45°C for 24 h operation	5…45°C for 24 h operation
Conformity		
Approvals	CE	CE
Dimensions		
External dimensions (W x H x D in mm), weight	1138 x 681 x 130; approx. 55 kg	1138 x 681 x 130; approx. 55 kg
External dimensions (W x H x D in mm) with BOSE loudspeaker, weight	1410 x 681 x 130; approx. 58 kg	1410 x 681 x 130; approx. 58 kg
External dimensions (W x H x D in mm) with Visaton loudspeakers, weight	1565 x 681 x 130; approx. 57 kg	1565 x 681 x 130; approx. 57 kg
Software		
HMI software	Supported by WinCC flexible 2008 SP2 or higher	Supported by WinCC flexible 2008 SP2 or higher
Remote Control Software	For adjustment and control, locally or via network	For adjustment and control, locally or via network
Special features		
	Continuous glass front with narrow protective frame	Continuous glass front with narrow protective frame
	Auto-refresh function for anti image sticking	Auto-refresh function for anti image sticking
	2-point mounting, M8 on left and right sides of enclosure, 75 mm spacing	2-point mounting, M8 on left and right sides of enclosure, 75 mm spacing
	2x removable safety eyebolts on top of enclosure	2x removable safety eyebolts on top of enclosure

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Customized Automation
OEM products

Ordering data

	Order No.		Order No.
SIMATIC HMI Net Panel		**Accessories**	

Intelligent large-scale display; 1920 x 1080 full HD widescreen; 1 x Industrial Ethernet interface and 1 x USB on the rear; Windows Embedded Standard 2009; remote control software; enclosure design according to IP65, if plugged in at the rear IP54; includes Quick-On connector for 100 - 230 V power supply; CE

- Preferred type: 46" screen diagonal, IPC Celeron M 1.2 GHz, 1 GB RAM, 4 GB CF Card, without speakers, without audio module — **6AV7426-0AA12-0BA0**
- 46" screen diagonal, IPC Celeron M 1.2 GHz, 1 GB RAM, 4 GB CF Card, with Visaton speaker, with audio module 2 x 15 W — **6AV7426-0AA12-1BA0**
- 46" screen diagonal, IPC Celeron M 1.2 GHz, 1 GB RAM, 4 GB CF Card, with BOSE speaker, with audio module 2 x 15 W — **6AV7426-0AA12-2BA0**
- 46" screen diagonal, IPC Core2 Solo 1.2 GHz, 4 GB RAM, 250 GB hard disk, without speakers, without audio module — **6AV7426-0AD35-0BA0**
- Preferred type: 46" screen diagonal, IPC Core2 Solo 1.2 GHz, 4 GB RAM, 250 GB hard disk, with Visaton speakers, with audio module 2 x 15 W — **6AV7426-0AD35-1BA0**
- Preferred type: 46" screen diagonal, IPC Core2 Solo 1.2 GHz, 4 GB RAM, 250 GB hard disk, with BOSE speakers, with audio module 2 x 15 W — **6AV7426-0AD35-2BA0**

Support arm systems
Various support arm systems for ceiling, back-to-back, wall or stand mounting are offered by Rose & Krieger.

More information

Customized modification options on request. Recommended support arm system from Rose & Krieger.

SIMATIC HMI specialists define the product modifications precisely in accordance with customer requirements.

This is followed by drafting of a quote with:

- Non-recurring costs
- Prototype costs
- Standard unit prices
- and the marginal conditions in the form of a product agreement (e.g. minimum quantity).

The defined device can then be ordered easily using this product agreement and a customized order number.

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■ **Overview**

Turnkey products are ready-to-install and ready-to-use SIMATIC HMI products.

The benefits are found in the optimal mechanical installation of the devices, ergonomic, functional and with tested heat balance, and flexible in installation.

Products

● HMI operator stations

HMI devices with display diagonal of 10" and more are installed in selected enclosures to suit the function. HMI operator stations can be used wherever it is not possible to install human machine interface devices in a control cabinet or direct at the machine, and where off-the-shelf, turnkey products can save on engineering overhead. Installation of a customized image in the devices is possible (ready-to-run). Customized SIMATIC turnkey products offer standardized quality from a single source.

● Backplane cover

The backplane cover enables the enclosure of flat HMI products such as the HMI IPC 477C or MP 377. The backplane cover is provided with a VESA flange on the rear. More operator elements can be installed on the side in additional enclosures.

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Customized Automation
Turnkey products

HMI operator stations for turnkey products

Overview

Turnkey products are SIMATIC HMI products or "ready-to-run" operator stations, i.e. pre-configured, ready for installation and ready-to-run SIMATIC Panels Thin Client, Multi Panels or Flat Panels and Panel PCs, installed in customer-specific enclosures.

Examples are Multi Panels fitted in customized die-cast aluminum enclosures with external keyboard; with installed application software, ready for connection, and ready-to-run.

Application example: Multi Panel in aluminum enclosure with operator controls, two-tier and with external keyboard

Benefits

High industrial capability thanks to an all-round rugged, tried and tested design:

- Ergonomic, technically proven and certified solutions ready for operation
- Safe operation even under difficult environmental conditions
- Temperature-tested and temperature-monitored
- Suitable even for special industries, e.g., stainless steel versions for the food, beverages and tobacco industries
- For high availability and a safe return on your investment
- Siemens quality support, service and repair

The following issues are considered when developing the HMI operator stations:

- Optimal HMI product installation technology to eliminate thermal hotspots and heat pockets in the housing
- Calculation of actual maximum permissible ambient temperature of the entire operator station in continuous duty at location of use Data takes into account device heat dissipation values
- Ensuring the adherence to the load limits for rotary mass storage systems and large displays verified by shock and vibration tests on the entire operator station during operation
- Adherence to legal regulations (certifications)
- Determination and testing of required degrees of protection and EMC measures
- Assurance of surface quality along with its abrasion and chemical resistance
- To the greatest possible extent, passive technology provides the basis for all measures to improve the suitability of use of the operator stations in specific environments (e.g., no active air conditioning). The aim is to ensure durability and fault-free operation with minimum maintenance.

Application

Complete HMI operator stations can be used wherever HMI devices cannot be installed in a control cabinet or directly at the machine. Operator stations are suitable for:

- Industrial application
- Near-industrial application
- Use in secondary applications in food, beverage and tobacco production
- Stainless steel version in the primary areas of the food, beverages and tobacco industries

HMI turnkey products can be used wherever prefabricated, ready-to-run hardware and software products can be used to save on engineering.

Design

The HMI operator station concept is based on a modular system where HMI devices are built into selected enclosures to suit the functionality.

- HMI device enclosure for all-round protection (IP65)
- Mounting possible on stand or supporting bracket
- Rotation possible by means of adjusting elements
- Connection option for external keyboard and mouse
- Installation option for specific hardware components

Ambient temperature for turnkey products

The ambient temperature is always lower than the max. permissible ambient temperature of the HMI products (temperature values in Manual) installed in the operator station housing. Depending on the components and version (e.g. according to heat dissipation), permissible ambient temperatures around the operator station will vary between 5°C and 40 °C.
Higher operator station ambient temperatures can be achieved by applying additional cooling measures.

Function

- Fatigue-free, fast operation
- Operator station can be quickly adapted to different operators
- Coherent, easy-to-learn operator philosophy
- Rugged against shocks and vibrations in operation
- Suitable device selection (SIMATIC HMI devices from 10" display)
- Ensuring the data transfer and access to drives and interfaces
- Direct operation of the machine (conventional operator elements for direct connection to machine units)
- Simple alphanumeric input
- Cleaning agents taken into account

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HMI operator stations for turnkey products

■ **Ordering data**

Ordering notes

Product specifications and quotation preparations

- Product specification according to customer requirements
- Quotation preparation by SIMATIC HMI specialists, specification of:
  - one-time project costs
  - costs for sample devices/prototypes
  - standard unit prices
  - general conditions (product agreement)

Processing

Customized turnkey products are developed and produced in various stages in accordance with quality standards. Prototypes are created to test products. Once the devices have been approved by the customer, they undergo certification and are introduced into the production process.

Devices are produced using standard plant facilities, ensuring observation of customer quantity forecasts. For this purpose, individual quantity forecasts are exchanged with the customer.

In the event of questions and problems, customers can contact our worldwide 24-hour SIMATIC Customer Support. This is complemented by a special OEM After Sales Support service. Customer-specific project hotlines can be set up for bulk quantity customers.

Customized products can only be ordered in conjunction with a product agreement. The following points are defined in the product agreement:

- Delivery and pricing
- Logistics - annual volume, purchase quantity, delivery batch volumes
- Spare parts
- Service

Repairs/spare parts storage

Only identified repairs are performed. The required customer-specific spare parts (device fronts) are to be stored and provided by the customer upon delivery completion.

■ **More information**

Contacts

Please contact the HMI representatives of your Siemens sales office/national company.

http://www.siemens.com/hmi-oem

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Customized Automation
Customized software

■ Overview

Customized software

In the case of customer-specific products, the software can also be individually installed. This includes the generation of operating systems and also the integration and installation of driver software and images – for complete, turnkey systems.

The customized software suite comprises:

- Generation of operating systems
  - for Windows XP embedded, for example
  - and the RMOS3 real-time operating system from Siemens
  - for customized LINUX installation
- Integration and installation of driver software and pre-installed images
  - for additional cards, controllers, or memory media, for example
  - for completely turnkey systems

In addition, customized software products based on our experience in the industrial automation offer an opportunity to set up multi-user systems and industrial remote operation and the possibility of integrating SIMATIC S7 into building automation:

Remote Operate Software

The HMI Remote Operate Software is an industrial remote control system based on Ethernet.

The software (server) enables the creation of a multi-user system with HMI IPC. Up to 6 operator stations (slaves) based on clients with MP 377 and HMI IPCs. The clients can also be assigned to several servers.

KNX/EIB2S7

Bus systems for building management systems, such as KNX/EIB, and a host of associated components, are used for automation of building systems.

While controllers for the room level are used for local automation, field-proven industrial components like SIMATIC are resorted to in the case of more complex, higher-level automation.

Communication between the automation levels takes place over Ethernet using special KNXnet/IP interfaces. The KNX/EIB2S7 software package provides blocks for communication between SIMATIC S7 and building automation components. This means message frames of the KNX bus can be processed in a SIMATIC controller.

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Application

Remote Operate Software
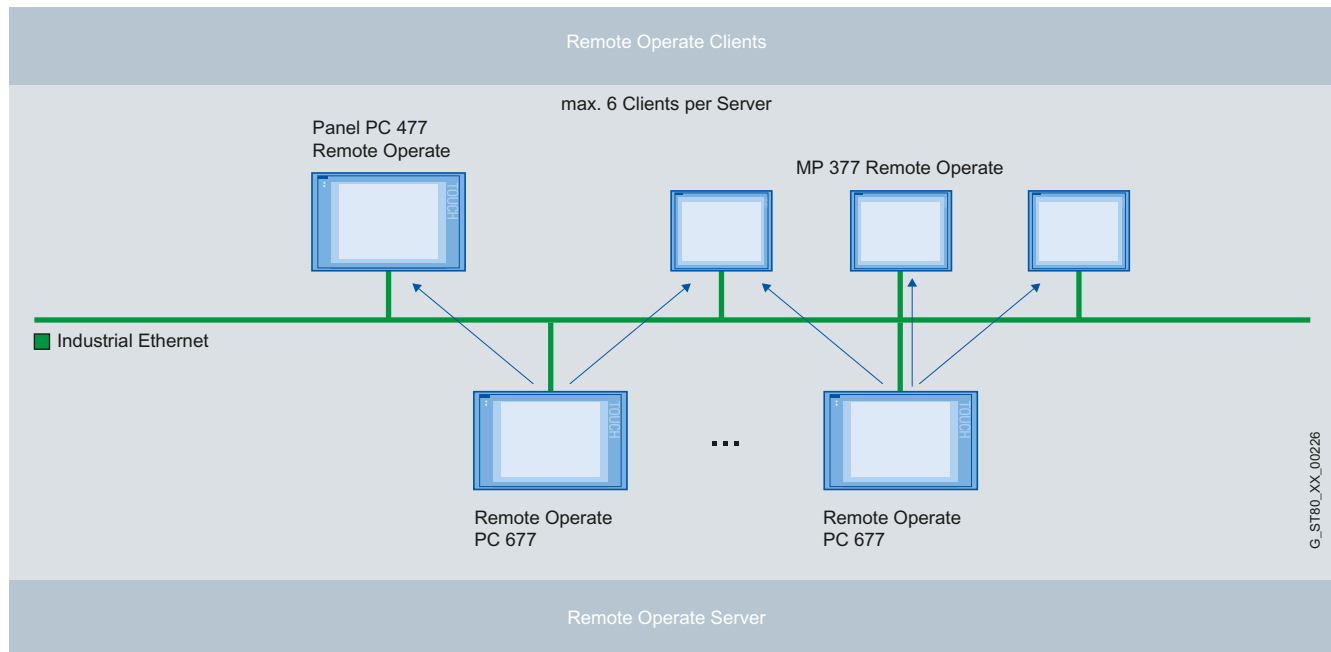
Panel PC with connected thin clients

Multi-user system with Panel PCs for up to 6 operator stations based on Thin Clients with MP 377 and PC 477

- Including operator lock
- In one software application with identical image contents
- Identical screen resolution
- Excluding server operating system
- Industrial remote control
  - Independent of the installed software
- Identical images on all devices
- Automatic scaling takes place in the case of differences in screen resolution between server and client

- Resolution up to 1280 x 1024 with true color
- Remote Operate Server with Windows XP Professional, Windows XP embedded, or Windows 7
- Up to 6 clients on one server
- Communication via Ethernet
- Designed for industrial requirements
  - Automatic login
  - Simple administration
  - Automatic reconnect
  - Permanent server/client assignment
  - Administration of operator authorization
  - Can be used after Windows login
  - Optional key-operated switch for operator authorization

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SIMATIC KNX/EIB2S7

Overview

- Software for communication between SIMATIC S7 and components of a building automation system
- For using components from industrial automation in the area of building automation
- Enables the integration of actuators/sensors into a KNX/EIB bus in automation solutions with SIMATIC S7
- For transferring information from the building automation system for automating a production plant

Benefits

- Use of field-proven industrial components in the area of building automation
- Use of information from building automation for automating production plants
- Simple transfer of configuring data from the KNX configuring tool ETS3
- Automatic matching of KNX addresses with the associated SIMATIC addresses
- Use of the SIMATIC standard

Application

With rising energy awareness and increased requirements regarding user-friendliness and security, recent years have seen building automation facing far-reaching demands.

Bus systems for building management systems, such as KNX/EIB, and a host of available components for these are used for implementing the corresponding systems.

While controllers for the room level are used for local automation, field-proven industrial components like SIMATIC are resorted to in the case of more complex, higher-level automation.

Communication between the automation levels takes place over Ethernet using special KNXnet/IP interfaces.

The KNX/EIB2S7 software package provides blocks for communication between SIMATIC S7 and building automation components. This means message frames of the KNX bus can be processed in a SIMATIC controller.

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Design

The SIMATIC S7 is connected with the KNX/EIB components via KNXnet/IP interfaces. The interfaces connect the KNX/EIB bus with the Industrial Ethernet bus of the SIMATIC S7.

Up to 5 KNXnet/IP interfaces can be connected to a SIMATIC S7 controller Up to 7,000 group addresses can be monitored, operated and read via these interfaces. The maximum number of group addresses depends on the controller type and the number of connected KNXnet/IP interfaces.

KNX/EIB2S7 supports the following CPUs of the SIMATIC S7:

- ET 200
  - IM 151-8 PN/DP CPU
- S7 300/400
  - CPU 315-2 PN/DP
  - CPU 317-2 PN/DP
  - CPU 319-3 PN/DP
  - CPU 414-3 PN/DP
  - CPU 416-3 PN/DP
- Soft PLC
  - SIMATIC WinAC RTX 2008 SP 1
- SIMATIC S7-300 with CP 343-1
  - CPU 315-2 DP
  - CPU 317-2 DP
  - CPU 319-3 PN/DP
- SIMATIC S7-400 with CP 443–1 Advanced
  - CPU 412-2 MPI/DP
  - CPU 414-2 MPI/DP
  - CPU 416-2 MPI
- Supported KNXnet/IP interfaces:
  - N 146/2 IP router
  - N 148/221 IP interface
  - N 350E IP controller
  - N 151 IP viewer

Mode of operation

The KNX components are parameterized with the ETS 3 software of the Konnex organization.

The KNX/EIB2S7 Editor is based on the exported parameterization data of ETS3 and evaluates the group address, data type, name and description. It only remains to select the group addresses that are to be received and to mark those that are to be automatically read at initialization.

Addresses are assigned automatically by the editor. The addresses can be viewed in the Editor or exported for documentation.

The parameterization of the blocks necessary for the SIMATIC is generated by the Editor at the click of a mouse and can then be downloaded to the SIMATIC. The blocks contained in KNX/EIB2S7 handle the communication on the basis of this parameterization.

When data is received, the current values are saved in the data blocks provided for them. The values that have been updated are then marked. Equally, there are blocks available for the selective reading and writing of values.

+

Technical specifications

Representation of the data types					
Data type	KNX value	EIS type	SIMATIC data type	Representation in the SIMATIC	User conversion
DPT1	BOOL	EIS1	Bit	TRUE/FALSE	n
DPT2	1 bit controlled	EIS8	Byte	MSB ([0000 00XY) LSB X = controlled Y = Value	n
DPT3	4 bits	EIS2	Byte	MSB (0000 XYYY) LSB X = Increase/decrease Y = Step 0-7	n
DPT4	Char	EIS13	Char	ASCII	n
DPT5	1 byte unsigned	EIS14	Byte		n
DPT6	1 byte signed	EIS14	Byte		y
DPT7	2 bytes unsigned	EIS10	Word		n
DPT8	2 bytes signed	EIS10	Int	Representation in 2s complement	n
DPT9	2 bytes float	EIS5	Real	Conversion implicit in the driver	n
DPT10	Time of Day	EIS3	DWord	MSB (0000 0000/dddh hhhh/00mm mmmm/00ss ssss) LSB d = day 0 no day; 1-7 h = hour 0-23 m = minute 0-59 s = second 0-59 Important! No value check by the driver	n
DPT11	Date	EIS4	DWord	MSB (0000 0000/000d dddd/0000 mmmm/0yyy yyyy) LSB d = day 0-31 m = month 0-12 y = year 0-99 (0-89 = 2000-2089; 90-99 = 1990-1999) Important! No value check by the driver	n
DPT12	4 bytes unsigned	EIS11	DWord		n
DPT13	4 bytes signed	EIS11	D Int	Representation in 2s complement	n
DPT14	Float	EIS9	Real	IEEE754	n
DPT15	Access	EIS12	DWord	MSB (XXXX6 XXXX5/XXXX4 XXXX3/XXXX2 XXXX1/EPDC NNNN) LSB X = AccessCode 6-digit; 0-9; 1 nibble each E = 1 detection error (reading of access information code was not successful) P = Permission 0=not accepted; 1= accepted D = Direction 0=left to	n
DPT16	String	EIS15	String (14)	Driver evaluates header of the S7 string and then generates the 14-character long EIB string.	n

6

Ordering data

	Order No.
KNX/EIB2S7 program package	**6AV6643-7AC10-0AA1**
Task: Software for connecting KNX/EIB components from building manage-ment systems to SIMATIC S7	
Type of delivery: Editor, function blocks for SIMATIC S7, samples, documentation on CD License for Editor on USB flash drive	

Customized Automation
Customized software

Overview
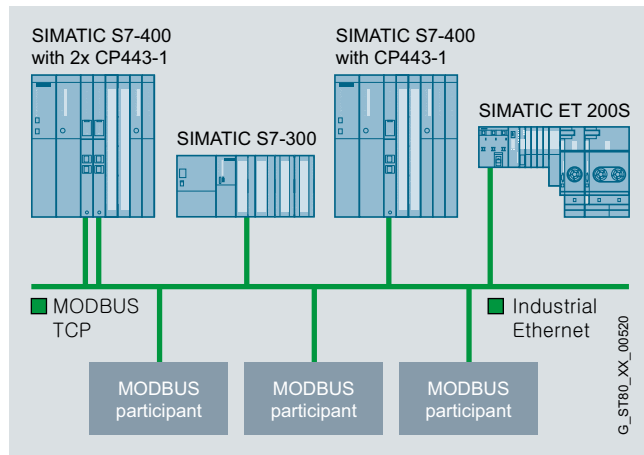
- Software for communication between SIMATIC S7 and devices that support the Modbus TCP protocol
- Expansion or upgrade of existing plants with SIMATIC automation systems
- Connection of controllers and systems from different manufacturers

Benefits

- Easy coupling of systems from different manufacturers with SIMATIC automation systems over Industrial Ethernet
- No specialized Modbus know-how required
- Engineering with the standard tool SIMATIC STEP 7
- Fast configuration with the help of a wizard (only available for specific versions)

Application

MODBUS is a protocol that is widely used internationally, open to all users and supported by many manufacturers. MODBUS/TCP was developed from it for use in modern networks. This protocol is now an open Internet draft standard that was introduced by IEFT (Internet Engineering Task Force), the organization for Internet standardization. This openness means that every manufacturer and user is able to use this protocol – a possibility that many leading manufacturers have already availed of. The increasing expansion of Ethernet communication into industrial areas as well as the office environment has extended the use of MODBUS/TCP in every sector. Heterogeneous system landscapes are the typical areas of use.

Design

Communication with Modbus TCP stations is performed via a communications processor (CP) or via the integrated PN interface of the SIMATIC S7 CPU.

A SIMATIC S7 controller can communicate simultaneously with more than one Modbus TCP station simultaneously, depending on the number of connection resources of the S7 CPU.

S7 OpenModbusTCP CP and Redundant V2 support the following CPs of SIMATIC S7:

- S7 300
  - CP 343-1
- S7 400
  - CP 443-1

S7 OpenModbusTCP PN CPU supports the following CPUs of SIMATIC S7:

- ET 200
  - IM 151-8 PN/DP CPU
- S7 300/400
  - CPU 314C-2 PN/DP
  - CPU 315-2 PN/DP
  - CPU 317-2 PN/DP
  - CPU 319-3 PN/DP
  - CPU 412-2 PN
  - CPU 414-3 PN/DP
  - CPU 416-3 PN/DP
- Soft PLC
  - SIMATIC WinAC RTX

Mode of operation

The Modbus block functions according to the client/server principle. The client is the active station and the server is the passive station in the communication process. Data is exchanged between the communication partners by means of various different function codes. The S7 can be operated as a client as well as a server during transmission.

In the initialization phase, it is determined on which S7 data blocks the Modbus registers and coils should be represented.

A distinction is made between client and server functionality during cyclic operation:

- If the S7 is operating as a client, when a task is activated, a Modbus message frame is generated from the specified current parameters and sent to the coupling partner over the TCP/IP connection. After the response frame has been received and the data has been checked and found to be consistent, the required actions, such as reading or writing data, will be performed. Any errors that occur during evaluation or processing will be indicated on the Modbus block.
- If the S7 is operating as a server, the block waits for a response frame from the client. If a frame is received from a client, it is checked and evaluated. After the frame has been checked and found to be consistent, the response frame is generated and the required actions, such as reading or writing data, will be performed. A processed request, or any errors that occur during evaluation, will be indicated on the Modbus block.

6

Technical specifications

	2XV9 450-1MB00	2XV9 450-1MB02	2XV9 450-1MB11
Client/server functionality	• / •	• / •	• / •
Function codes	1, 2, 3, 4, 5, 6, 15 and 16	1, 2, 3, 4, 5, 6, 15 and 16	1, 2, 3, 4, 5, 6, 15 and 16
Modbus address range	0 - 65535	0 - 65535	0 - 65535
Data volume			
Read register	125	125	125
Write register	123	123	123
Read bits	2000	2000	2000
Write bits	1968	1968	1968
Capable of multi-instance	•	•	•
Max. number of parallel block calls	• CPU-dependent • Client: No limits on block calls; max. number of blocks simultaneously active is limited by the CPU (AG_SEND) • Server: Limited by the max. number of AG_RECV calls of the CPU	• Unlimited number of block calls; • Number of simultaneously established connections is dependent on the CPU	• CPU-dependent • Client: No limits on block calls; max. number of blocks simultaneously active is limited by the CPU (AG_SEND) • Server: Limited by the max. number of AG_RECV calls of the CPU
Connection configuration	Static connections over NetPro	Dynamic connections over TCON and TDISCON	Static connections over NetPro
Communication	AG_(L)SEND/ AG_(L)RECV	TSEND/ TRCV	AG_(L)SEND/ AG_(L)RECV
Work memory requirement FB (Client/Server) IDB	16 KB approx. 1 KB	19 KB approx. 1 KB	20 KB approx. 1 KB
Can be used in CFC/PCS 7	•	•	•
Used with older CPs that do not support AG_CNTRL	Yes	-	No
Multiplexing of TCP connections	CP-dependent	-	CP-dependent
Redundancy functions	-	-	Single-sided or two-sided redundancy is possible
Bit memories/timers can be used	No	No	No

Ordering data

	Order No.		Order No.
S7-OpenModbusTCP CP Task: Software for coupling ModbusTCP devices to SIMATIC S7 via a communications processor (CP) Type of delivery: Function blocks for SIMATIC S7, example projects, documentation on CD	**2XV9450-1MB00**	**S7-OpenModbusTCP RED** Task: Software for coupling ModbusTCP devices to SIMATIC S7 H stations via 2 communications processors (CPs) Type of delivery: Function blocks for SIMATIC S7, example projects, documentation on CD	**2XV9450-1MB11**
S7-OpenModbusTCP PN CPU Task: Software for coupling ModbusTCP devices to SIMATIC S7 via the integrated PN interface Type of delivery: Function blocks for SIMATIC S7, example projects, documentation on CD	**2XV9450-1MB02**		

6

Customized Automation
Examples of sector products

■ Overview

SIMATIC HMI products are provided with additional features in order to facilitate optimum use in specific sectors of industry. Stainless steel front panels for the food, beverages and tobacco industry are one such example. With the exception of their front panels, the devices are identical to standard products in respect of function and technology.

We can offer products for the following sectors:

- Renewable energy
- Automotive industry - HMI for factory automation
- General machine construction
- Food and beverages industry, pharmaceuticals
- Oil & gas, chemicals industry and shipbuilding

Customized products for various industries are developed and produced in association with a customized product agreement.

Examples:
- Application area **renewable energy**:
    - SIMATIC Rack PC with flexible expansion
    - SIMATIC Box PC: 627/427 with QNX
- Use in the **automobile industry**:
    - HMI operator stations
    - Front panel for Panel PC, 15" with arrow keys on the side
    - Mobile Panel 277 10" Remote Operate
- Application area **mechanical equipment manufacture, general**:
    - Touch and Key front panel 15" for Panel PC, resistant to honing oil
    - Flat Panels 10.4" for Panel PCs – Flat Panel SCD1900 portrait
- Area of application **food** and **beverages industry** and **pharmaceuticals**:
    - Panels and Panel PCs with stainless steel front
    - HMI panels as rear-mounting devices
    - Flat Panels with stainless steel front
    - HMI stainless steel operator stations
- Area of application **oil & gas**, **chemicals** and **shipbuilding**:
    - MP 377 15" Touch daylight readable

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Renewable energy

Overview

SIMATIC HMI products are provided with additional features in order to facilitate use in specific sectors.

Photovoltaic systems are subject to hardly any mechanical stress and therefore require little maintenance. This also requires reliable and low-maintenance devices in the automation system. With the wide operating temperature range at a high computing power, with their various mounting styles, as well as options for diagnostics and data backup, SIMATIC Panels and IPCs meet these requirements.

Wind farms can be used in all climatic zones and also in poorly accessible areas, e.g. offshore. The requirements regarding the control systems are accordingly diverse, and complete freedom from maintenance of the devices is required. The industrial PCs of the 427 series can meet these requirements. Versions of the Microbox treated by special paint processes can also be used in salt-laden air.

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Customized Automation
Renewable energy

Overview

Solar systems

Compared to other power plants, photovoltaic systems are subject to hardly any mechanical stress and therefore require little maintenance. The same also applies for solar and solar-thermal systems. This also reduces the maintenance overhead on the devices. The SIMATIC Industrial PCs and Panels meet these requirements through the targeted selection of high-quality components and special production processes.

Benefits

SIMATIC Box PC family with mounting bracket for front mounting in portrait format

- Long service life
- Extra long spare parts availability
- Adapted computing power
- High system availability
- Individually adaptable

Application

All SIMATIC Panels and IPCs are developed for especially demanding environments and also for long service life. Spare parts availability for many years secures use in sound solar and photovoltaic systems.

- Rugged:
  Ambient temperatures of 0 °C to +55 °C offer high flexibility in the choice of installation location. Use of a TEK is recommended for increasing the temperature range (see Chapter: Temperature Extension Kit).

- Innovative and flexible:
  - We meet the ever-increasing demand for more computing power by using the current generation of processors from Intel®. Based on the current chipsets, devices are available with CeleronM, Core2Solo, Core2Duo and Core2Quad. This makes power-saving applications (e.g. simple data acquisition) just as possible as power-hungry applications (such as the software PLC in real-time WinAC RTX) and server systems.
  - The SIMATIC IPCs fit into any control cabinet. Different mounting methods enable a host of installation variants.

Optimized equipping of the Panels and IPCs for more system availability is one of the simplest options for increasing productivity by means of reducing standstill times. Electromechanical components often cause malfunctions in PCs. Since hard disks and fans in the industrial PC usually operate continuously, they are subject to an especially high rate of wear and tear. Software options for diagnostics and data backup, such as SIMATIC IPC DiagMonitor or SIMATIC IPC Image Creator, are particularly effective here, in addition to the use of high-quality industrial grade components.

6

Overview

Wind farms

Wind farms can be used to produce electrical power in all climatic zones, at sea, and in all types of terrain. The requirements regarding the control systems for wind turbines and wind parks are as diverse as the installation locations.

These locations are increasingly difficult to reach. This means the equipment must be completely maintenance-free. The Industrial PCs of the 427 series can meet these requirements. By selecting high-quality components and special production procedures, all the SIMATIC IPCs and Panels can be used for several years without requiring servicing.

Benefits

SIMATIC IPC427C with expansion frame

- Suitable for special temperature requirements
- Maintenance-free for offshore use
- Can handle high mechanical load
- High system availability
- Individually adaptable

Application

All SIMATIC Panels and IPCs are developed for especially demanding environments. The devices are optimally equipped to deal with vibration in wind turbines: rugged enclosures, special hard disk brackets, and interlocks are just a few examples of standard features on SIMATIC devices.

- Rugged:
  - The SIMATIC IPCs fit into any control cabinet. Different mounting methods enable a host of installation variants. Ambient temperatures of 0 °C to +55 °C are supported on the IPC427C, with much higher temperatures in some applications. Use of a TEK is recommended for extreme temperatures (see Chapter: Temperature Extension Kit).
  - Salt-laden atmospheres are hard on the devices. SIMATIC Panels are also available in the IP65 type and are thus eminently suitable for offshore use. Versions of the Microbox 427C also enable use in salt-laden atmospheres: this is made possible by special paint processes that have been in use for many years.

- Innovative and flexible:
  We meet the ever-increasing demand for more computing power by using the current generation of processors from Intel®. Based on current chipsets, devices with Celeron M, Core2 Solo, Core2 Duo and Core2 Quad are available. This makes power-saving applications (e.g. simple data acquisition) just as possible as power-hungry applications (such as the software PLC in real-time WinAC RTX) and server systems.

Optimized equipping of the IPC and the Panel for more system availability is one of the simplest options for increasing productivity by means of reducing standstill times. Electromechanical components often cause malfunctions in PCs. Since hard disks and fans in the industrial PC usually operate continuously, they are subject to an especially high rate of wear and tear. Software options for diagnostics and data backup, such as SIMATIC IPC DiagMonitor or SIMATIC IPC Image Creator, are particularly effective here, in addition to the use of high-quality industrial grade components.

6

Customized Automation
Automotive industry

HMI operator stations for the automobile industry

Overview

Operations computer: Unit operator panel and protective guard control box (PGCB)

The fully-equipped and wired turnkey solutions in a variety of designs are ideal for the requirements of the automotive industry.

Benefits

- Modern design combined with outstanding functionality
- Increased heat dissipation thanks to ribbed aluminum profile and backpanel heat sink
- Easy access to controls thanks to hinged front frame or hinged backpanel
- Modular system for precise customization and tailoring to Panel or Panel PC
- High-quality aluminum press-drawn section with clean surface finish

- Colors to complement design, also possible in customized RAL colors
- Rugged and maintenance-friendly device design
- Very high EMC
- Distributed configuration for large machines and distributed installations
- Optimized high-speed operator control thanks to:
  - Reduced number of operator controls
  - Optimum control element layout
  - 24 V DC hardware
  - Direct keys or high-speed PROFIBUS communication for direct keys
- Use of high-capacity mass storage for large software applications
- Silicone-free device configuration
- Chemically-resistant surfaces (resistant to lubricants and fillers, oils, etc., in particular)
- Welding sputter-resistant surface
- Project-specific software ready installed

Application

In automotive industry, the fault-free operation of production facilities is of paramount importance. The requirements of industrial control enclosures in respect of impermeability to dust and water, as well as those in respect of the management of the internal heat balance are therefore very high. In addition to the HMI IPC477C and HMI IPC577C, the HMI IPC677C and Flat Panels are also suitable for use as operator PCs in the automotive industry.

Design

- The modular design with a variety of aluminum frame and expansion profiles can support all required device combinations. A variety of operator stations appear in the overview:
  - Modular aluminum control enclosure system for the combination of multiple HMI Panels, Panel PCs, and Simatic S7 PLCs
  - Modular aluminum control enclosure system for the combination of multiple HMI Panels
  - Modular aluminum control enclosure system for the installation of an HMI Panel or Panel PC (see "Overview" figure bottom left)
- Can be accessed via hinged front frame or hinged backpanel
- Integrated support arm elements at the top and bottom for the direct attachment of support arm couplings
- Integrated handle attachments facilitate handling and underline the design image

Certifications/Approvals

- IP65
- NEMA 4/EEMAC Type 12
- cULus
- CE

6

Technical specifications

Examples from the automotive industry		
Type	**HMI operator control unit**	**Operator PC unit operator panel + PLC**
Components		
Computing unit	SIMATIC HMI IPC677C	PC Box based on SIMATIC HMI IPC677C
	• Core i7, 2.53 GHz, 4 GB RAM • 250 GB HD, • PROFINET + 2 x Ethernet interfaces 10/100 Mbit • Europe default 230 V	• Core i7, 2.53 GHz, 4 GB RAM • 250 GB HD, • Without MPI/PROFIBUS + 2 x Ethernet interface 10/100 Mbit • Europe default 230 V
Front panel	SIMATIC HMI IPC677C 15" Touch, 15" XGA 1024x768 resolution	Customized front with 2x6 control keys, 15" XGA 1024x768 resolution
Additional components		• PP17-I PROFIsafe • PP17-II • S7-400 configuration
Additional components		
Operator panel enclosure	CC-4000, mounted on stand	• VIP 6000 (upper part) • IW 6900 (lower part)
Dimensions	578 x 764 x 183 mm	630 x 1870 x 636 mm
Operator panel	with slide-in label	–
Keyboard	Sasse stainless steel keyboard IP65	Sasse stainless steel keyboard IP65
Mouse	Track-Ball integrated in the keyboard	Optical mouse
Elements	3 x 3SB3 elements with labeling plates, 1 x Emergency Off, 1x machine circuit-breaker, signal light processing possible	2 x 4 operator controls, 1 x Emergency Stop
Locking	• E1-locking for enclosure lock • E7 key-operated switch	Customized enclosure lock
Mounting	Installation in operator panel enclosure with electrical wiring	Installation in operator panel enclosure with electrical wiring
Ventilation	–	–
Terminals	Use of 3-wire terminals	Use of Wago terminals
Core identification	Yes	Yes
Base profile	• Icotec • RJ45 Ethernet port	• Icotec • RJ45 Ethernet port
Software:	• Windows 7, MUI • WinCC V7.x • SIMATIC STEP 7 Prof V5.x	• Windows 7, MUI • SIMATIC Softnet S7 for IE V 6.x • SIMATIC STEP 7 V 5.x • SIMATIC S7-Graph V 5.x • SIMATIC DistributedSafety V 5.x • InTouch Runtime V 9.x

Type	**Protective guard control box (PGCB)**
Components	• SIMATIC HMI KP8F • SIMATIC ET200S • SCALANCE X202 – 2P IRT Ethernet switch
Additional components	
Operator panel enclosure	AE housing
Dimensions	300 x 300 x 155 mm
Elements	• 8 short-stroke keys • 1 x emergency stop • 3 x Siemens key switches • 1 x signaling column
Locking	Customized enclosure lock
Mounting	Installation in operator panel enclosure with electrical wiring
Core identification	Yes

More information

Quotation preparation

Product specification according to customer requirements.

Quotation preparation by SIMATIC HMI specialists, specification of:

• Non-recurring costs
• Prototype costs
• Standard unit prices
• General conditions (product agreement)

There is a minimum annual quantity/purchase quantity (minimum quantity per type: 20), which is agreed with the customer for the project.

Customized products can only be ordered in conjunction with a product agreement.

A customer-specific order number is allocated during the product agreement process.

SIMATIC contacts in your area

http://www.siemens.com/automation/partners

6

Customized Automation
Automotive industry

Front panel 15" with motion keys at side

■ Overview
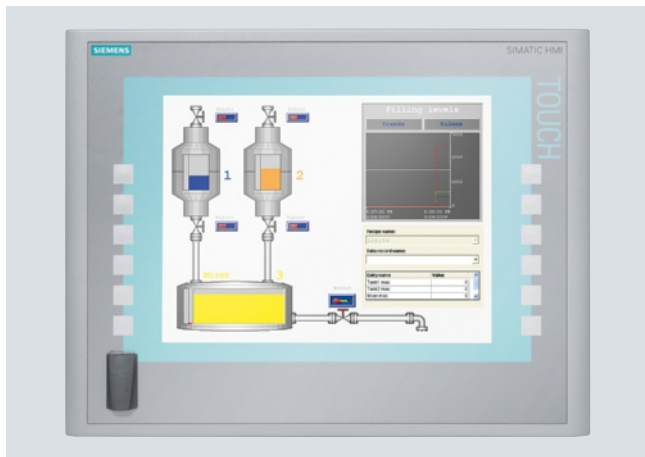
***Front panel 15" with function keys at side
for Panel PC in the automotive industry***

The front panel 15.1" with arrow keys at side is designed as a front unit for Panel PC. The arrow keys at the side allow intuitive and direct activation of movements in the plant. The display is a pure display unit, alphanumeric characters are entered using an external keyboard and external pointing device.

■ Benefits

- Display unit with additional function keys for efficient and direct activation of motions
- Display surface resistant to welding beads
- 24 V DC function keys for wiring to digital inputs of controller
- Non-interchangeable terminals

■ Application

Application example: Operations computer in the automotive industry

The front panel for Panel PCs with function keys at the side is designed for HMI operations in the automotive industry, e.g. as a display for control computers.

The front unit as the display unit with function keys at the side is always used if comprehensive inputs are necessary using an external keyboard and pointing device, but where efficient control of movements should be additionally possible using the function keys assigned to the graphics and directly to the PLC.

■ Design

- 2 x 6 function keys (24 V DC) on left and right of display
- Function keys connectable using non-interchangeable terminals, e.g. using vacant inputs of a Push Button Panel to the control
- Display surface resistant to welding beads
- USB interface at the front
- External dimensions and mounting cutout as for corresponding standard product
- IP65 degree of protection at the front

■ Technical specifications

Type	Front panel 15" with lateral function keys
Display	15.1" TFT
Resolution (pixels)	1024 x 768 pixels
General features	As for 15.1" front panel for HMI IPC677C
Special features	
Interfaces	USB interface at the front
Connectable to Panel PC	HMI IPC477C, HMI IPC677C, compact and distributed design
Number of keys	2 x 6 function keys (24 V DC) on left and right of display, wired to terminals

Modification possibilities

- Customized design
- Modification of front design

■ More information

Quotation preparation

Product specification according to customer requirements.

Quotation preparation by SIMATIC HMI specialists, specification of:

- Non-recurring costs
- Prototype costs
- Standard unit prices
- General conditions (product agreement)

There is a minimum annual quantity/purchase quantity (minimum quantity per type: 20), which is agreed with the customer for the project.

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SIMATIC contacts in your area

http://www.siemens.com/automation/partners

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■ Overview

Front view

- For high-contrast and clearly readable display of already configured SIMATIC WinCC process pictures of a stationary operator panel (e.g. with PC 677) without further configuring and adaptation overhead
- Server and client optimized for the following resolutions:
  - Remote Operate Server with 1024 x 768 pixels
  - Remote Operate Client with 800 x 600 pixels.
- Features
  - High-resolution display 10" SVGA
  - Integral acknowledgment and stop button (safety category 3 in accordance with EN 954-1)
  - Rugged and double-panel enclosure (drop height 1 m, complete IP65 degree of protection)
  - Thin Client concept: Communication with the higher-level operator station using Remote Operate software and PROFINET

■ Application

RO Client 800 x 600 pixels and RO Server 1024 x 768 pixels

The SIMATIC Mobile Panel 277 10" Remote Operate (RO) from Siemens bridges the gap between flexible use through portability and ease of handling, and the benefits of a thin client concept.

Existing WinCC configurations of a Panel PC 677 15" can be represented with functional compatibility. Reliable data transfer and short response times are guaranteed here. Operator input using the touch screen is intuitive. The optional device holder enables secure storage or stationary operation of the Mobile Panel.

■ Design

Rear view

Side view

User-friendliness and ergonomic use were consistent design considerations. With its low weight and compact design, the Mobile Panel sits comfortably in the hand.

The Mobile Panels are extremely impact-resistant thanks to the double-panel design and the rounded enclosure shape. The STOP button is protected by a "collar" against unintentional use and against damage when dropped. Harsh industrial environments present no problems to the SIMATIC Mobile Panels with their dust and spray-water-protected enclosures in degree of protection IP65.

The Mobile Panel is simply connected wherever it is needed in the plant. The rugged connection box with degree of protection IP65 can be installed anywhere. It ensures fault-free connection and disconnection during normal operation and thus enables the operator-control locations to be easily and safely changed when several connection points are available in a plant.

The cable is up to 25 meters in length and handles power supply, transfer of the STOP and acknowledgment button signals, and also data communication.

The device has no rotating media.

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Customized Automation
Automotive industry

Mobile Panel 277 10" Remote Operate

Mode of operation

All applications are run on the the Remote Operate Server, which in turn handles any control connection to the production process. The user now decides which applications will be operated and monitored from the Mobile Panel. The plant operator hardly notices that he or she is now working on the main operator station and no longer locally.

The device does not process the data locally, but instead accesses the data of up to ten selectable main operator stations with the help of the pre-installed Remote Operate Client software.

These main operator stations are, in turn, equipped with the Remote Operate Server software. All stations are connected via Industrial Ethernet.

The Mobile Panel is thus optimized exclusively on the visualization and management of the different stationary operator stations.

Communication with the higher-level operator station takes place via the Remote Operate software and is enabled via PROFINET.

Function

- Automatic restart after switching on and display of the server selection list (up to 4 hierarchical levels and up to 10 servers)
- Password protection
- Automatic Reconnect of client
- Operation authorization indication (traffic light) on the server and client

Sophisticated safety concept

The Mobile Panel has an acknowledgement button (in accordance with EN 60204-1) with three switching steps. This can be adjusted to an ergonomic position for both left-handed users and right-handed users simply by turning.

The STOP pushbutton (acc. to EN 60204-1) can be looped into the EMERGENCY OFF circuit of a machine and positively latches when pressed. It is distinguished from an EMERGENCY-OFF button by its gray color. This ensures that it cannot be mistaken for the EMERGENCY-OFF equipment.

The STOP and acknowledgment buttons are implemented as double circuits in accordance with Safety Category 3 to EN 954-1.

Technical specifications

Type	Mobile Panel 277 10" Remote Operate
Display	10" touch screen SVGA with 800x600 pixels, TFT display with 65,536 colors
Operation	Touch screen with captive stylus and stylus holder, three-level acknowledgment button (deadman's switch) integrated into the handle, stop button, function keys, key-operated switches and backlit pushbuttons as option. Suitable for left and right-handed operation
Interfaces	Hardwired connection line to connection box Plus for PROFINET/ Ethernet and power supply (e.g. Mobile Panel 277 PN)
Software	Remote Operate Client software (Thin Client) on Windows CE 5.0, function-compatible representation of existing WinCC configurations/ software applications of an existing server, e.g. PC677
Ambient conditions	Full IP65 degree of protection, ambient operating temperature 0°C to 40°C, drop height to 1.0 m
Certification	CE, cULus, C-Tick, EMC compliance, prototype test (BG/BIA or SIBE Switzerland)
In the accessories pack	CD-ROM, operating instructions, programming manual for Remote Operate Software
Options	Membrane function keys, access control (key-operated switch), buttons, handwheel
Weight	2.3 kg

Type	PN Plus connection box
Interfaces	2 x Ethernet with 10/100 Mbit/s, integrated switch
Expansion for operator-process communication	Reconnection during operation without interrupting the emergency stop circuit, monitoring of the STOP button, location recognition (through hardware)

Ordering data	Order No.
Mobile Panel 277 10" Remote Operate Configuration on request	**6AV6645-7AB10-0AS0**
Connection box PN Plus	**6AV6671-5AE11-0AX0**
Connecting cable	
• 5 m	**6XV1440-4BH50**
• 10 m	**6XV1440-4BN10**
• 25 m	**6XV1440-4BN25**

■ **More information**

Customer-specific modifications

- Individual company logo instead of the Siemens logo and changing the type designation
- Changing the keyboard colors, labeling, symbols and background color
- Possible options: Membrane function keys, access control, pushbuttons and handwheel

Quotation preparation

SIMATIC HMI specialists define the product modifications precisely in accordance with customer requirements.

This is followed by drafting of a quote by SIMATIC HMI specialists, determining the following:

- Non-recurring costs
- Prototype costs
- Standard unit prices
- and the marginal conditions in the form of a product agreement (e.g. minimum quantity).

The defined device can be easily ordered using this product agreement and a customized order number. Device fronts are to be stored and provided by the customer upon delivery completion.

6

Customized Automation
General machine construction

Front panel 15" Touch and Key for Panel PCs, resistant to honing oil

Overview
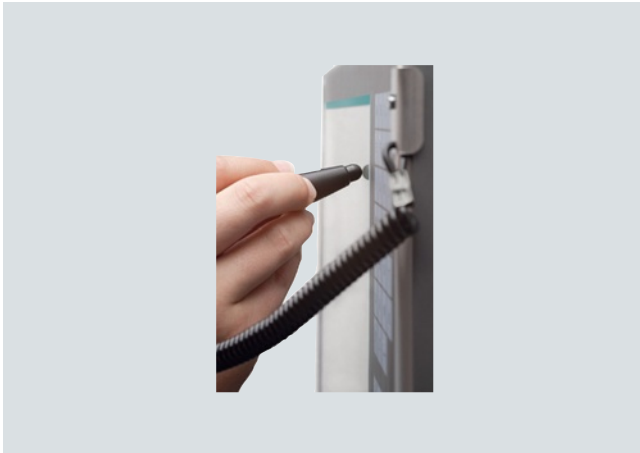
The Front Panel Touch and Key is designed as a front unit for Panel PCs. The combination of Touch and Key operation as well as the resistance to honing oil are characteristics of this product.

Complete lamination of the decoration foil over the touch area of the display increases the resistance against contamination and welding beads, and the absence of edges and joints facilitates cleaning. Openings and cutouts in the front have been completely omitted in favor of a homogenous surface which can also be used in the environment of honing oil and similar cooling agents and lubricants.

Clear operation is achieved using the Touch pen which is delivered as standard and can be stored in a front holder. Dirty or oily hands are therefore not an argument against using a Touch screen. The pen has an ergonomic shape, is optimized for operations when wearing gloves, and is linked to the front using an elastic helix cable. Its "parking position" in the special stainless steel holder on the front means that it is always readily accessible.

Benefits

- Combined Touch + Key operation for increased inefficiency
- Touch pen operation avoids contamination of the display area
- Ergonomically shaped touch pen which cannot be lost
- Simple cleaning
- Resistant to coolants and lubricants

Application

The front panel for Panel PCs with touch screen and membrane keyboard has been designed for operator control and monitoring at machine level for machine construction applications, where honing oil and lubricants are used.

The touch and key front is always used if efficient operation of the machine is associated with the following requirements:

- Intuitive operation using graphic representation on display
- Specific command inputs using fixed command inputs
- Effective inputs in forms using the integrated numeric and alphanumeric keyboard

Also in applications with increased environmental influences such as dirt and oil. The homogenous foil surface without joints or edges permits easy cleaning, and is resistant to coolants and lubricants.

Application examples

- Printing machines
- Drilling, milling, honing machines
- Brake test stands
- Injection molding machines
- Building management
- Warehouse systems
- Automotive industry

Design

- External dimensions and mounting cutout as for corresponding standard product
- Degree of protection IP65 at the front

6

■ **Technical specifications**

Type	Front panel 15" Touch + Key, resistant to honing oil
Display	15.1" TFT Touch
Resolution (pixels)	1024 x 768 pixels
General features	As front panel 15.1" Touch for Panel PC 677
Special features	
Interfaces	Without front-sided USB interface
Connectable to Panel PC	PC 477, PC 677 compact and distributed design
Number of keys	58 system keys and alphanumeric keys
	20 function keys with LED
Resistance	Tested with: Castrol Honilo 981 honing oil

■ **More information**

Quotation preparation

Product specification according to customer requirements.

Quotation preparation by SIMATIC HMI specialists, specification of:

• Non-recurring costs
• Prototype costs
• Standard unit prices
• General conditions (product agreement)

There is a minimum annual quantity/purchase quantity (minimum quantity per type: 20), which is agreed with the customer for the project.

Customized products can only be ordered in conjunction with a product agreement.

A customer-specific Order No. is allocated during the product agreement process.

http://www.siemens.com/automation/partners

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Customized Automation
General machine construction

Flat Panels, 10.4" for Panel PC

Overview

- Ideal for machine-level human machine interfacing
- Especially suitable for use in machines with restricted installation space
- Can be modified in design and front mechanical components (e.g. stainless steel front for food and beverages industry)
- Distance between the Flat Panel and PC max. 30 m
- Functions correspond to the standard Flat Panels
- Available with and without touch operation
- VGA and SVGA resolution

Application

The Flat Panel 10.4" TFT Touch has been designed as display and operator control unit for industrial PCs (e.g. SIMATIC Microbox 427C) and Panel PCs (e.g. PC 677C) and can be separated from the computing unit by up to 30 m.

They supplement the SIMATIC standard products and are suitable for machine-level human machine interfacing when PC functionality is required but little space is available for installing a display. VGA and SVGA resolution also in a secondary display, e.g. Panel PC 677C.

Technical specifications

Flat Panel	10.4"
Resolution (pixels)	800 x 600 pixels
Input unit	Analog-resistive touch screen
MTBF (at 25 °C)	50 000 h
Power supply	24 V DC, RoHS
Front dimensions (L x W x D in mm)	335 x 275 x 75
Installation dimensions (L x W in mm)	310 x 248
Certified in accordance with	
Can be connected to	
Approx. weight in kg	0.80

Ordering data | Order No.

Flat Panel 10" Touch	6AV7461-7TA00-0AA1
SIMATIC Flat Panel 10.4" TFT with analog-resistive Touch Panel, resolution 800 x 600 pixels, 24 V DC power supply, VGA, DVI-D interface, incl. VGA cable 1.8 m	

More information

Customized modification options
- Customized design
- Modification of front design, e.g. stainless steel front

6

Overview

Hygiene areas in food and beverage production, pharmaceuticals or fine chemicals all share one requirement: The devices and equipment must be easy to clean. The relevant directives, standards and legislative requirements must be observed, e.g. EHEDG, FDA, DIN EN 1672-2 (Hygienic Design), GMP, LMHV, LMBG.

However, optimization and variation in the device hardware are also perfectly possible:

- Degree of protection
- Ruggedness
- Temperature resistance
- Design and installation versions
- Suitable for clean rooms
- Certification in accordance with ATEX

The aim is to find the cost-optimized solution for the specific application case.

The overview below shows different features depending on the applications areas, from packaging to the wet area in processing.

Applications				
Features	Hygienic packaging	Pharmaceuticals, fine chemicals	Food and beverages, bottle cleaning, bottle filling, laboratories	Abattoirs, meat processing
Stainless steel front	partially	x	x	x
Stainless steel control boxes	x	x	x	x
Stainless steel fully enclosed	x	x	x	x
Simple to clean	x	x	x	x
No grooves and gaps, no projections	partially	partially	membrane-covered protective edge not always accepted	-
Increased tightness	-	-	x	x
Mechanical ruggedness, no membrane front	-	-	partially	x
Suitable for high-pressure cleaning (IP69K)	-	-	-	partially
ATEX Ex Zone 2/22	x	x	partially	-

The product examples described on the following pages cover a wide range of the most important requirements.

Benefits

- Simpler cleaning thanks to resistant and rugged stainless steel front with smooth surface, and minimal grooves and gaps
- High degree of protection IP66K (TP 177B and MP 277 additionally IP66K) on the front for increased sealing properties and ruggedness
- Food-standard sealing material and shatter protection for the display to prevent contamination of the foodstuffs
- Optimized frame design almost flush with the control cabinet so that liquids can run off
- Device front developed on the basis of DIN EN 1672-2
- Decorative membrane tested against chemicals in accordance with DIN 42115, Part 2[1]
- Food-standard flat seal in accordance with FDA 21 CFR 177.2006
- Rear tensioning frame (included in scope of supply) for even application pressure of the seal
- External dimensions and mounting cutout as for corresponding standard product

[1] Special resistance requirements must be examined separately.

High degree of protection for humid environments

With low installation depth and rugged front, the SIMATIC HMI Standard Panels are eminently suitable for industrial and machine-level use.

The Panels with stainless steel front are also even better equipped to meet the high requirements presented by the food and beverage production environment. IP66K degree of protection protects against water even with a jet strength of 100 l/min at 10 bar from a distance of 2.5 m to 3 m. The optimized frame profile and almost flush-mounting of the device on the control cabinet allow liquids to run off.

Installation of the operator panels in a stainless steel control cabinet as ready-to-use units is optionally available as a customized version.

Customized Automation
Food and beverages industry/pharmaceuticals

Introduction

Benefits (continued)

Certificates, listings and appraisals

SIMATIC HMI products with stainless steel front, and the stainless steel operator panel, were subjected to some or all of the tests below and are listed or appraised in accordance with:

- High degree or protection IP66K, NEMA Type 4, 4x, 12
- CE-compliant, cULus-listed
- LGA mark "Hygiene tested"
  (Approval document No. 5664018)
- Expert appraisal of the Munich University of Technology, Research Center Weihenstephan, in accordance with EHEDG recommendation (Report No.126/01.03.2007)
- Clean room qualification by IPA Fraunhofer Institute (test report: Examination of the clean room suitability and ESD characteristics of Panel PCs from Siemens AG, Report No. SI 0810-450 of October 2008)

Qualification for clean rooms

High-quality products such as semiconductors, medicines, food & beverages, and nanotechnology products are subject to special demands with regard to contamination with particles or bacteria.

Increased requirements for protection of the products and processes can only be met by production in clean rooms with suitable equipment under controlled conditions.

Clean rooms are classified according to particle quantities and sizes per m^3 of room air and time unit. Clean room classes in accordance with ISO 14644-1 (ISO 1 to 9) have been introduced in pharmaceuticals, for example, in accordance with EG-GMP, Annex 1 (Classes A to F), and in semiconductor production.

Example:
A person in normal clothing emits approximately 80,000 particles >= 0.5 mm per second
(in clean room clothing, this can be reduced to approximately 700 particles/s >= 0.5 mm).

- Requirements regarding equipment in clean rooms include the following:
- Surfaces that are easy to clean and disinfect
- As few adhesives as possible, e.g. electrostatic
- No emitting surfaces
- Shape favorable to air circulation, no air eddies
- Dense, as few hollow or dead spaces as possible
- Smooth, as few grooves and gaps as possible

The SIMATIC HMI products with stainless steel front and the stainless steel operator panel have been designed for these requirements.

The stainless steel operator stations with Panel PC 677B 15" Touch INOX and MP 377 15" Touch INOX have been tested by the Fraunhofer Institute and qualified for "obvious suitability for clean rooms of ISO Class 1 in accordance with DIN EN ISO 14644-1".

Application

Quality and hygiene are decisive competitive features in the production of food and beverages. In addition, higher volumes have to be produced in shorter times and with rising quality demands.

Objects and equipment that come into contact with food and beverages must be

- such that they are clean and can be maintained and, if necessary, disinfected, and have no adverse effect on the food and beverages
- installed in such a way that the immediate environment can be cleaned appropriately.

Objects and equipment must be clean and well maintained (extract from the German food and beverages hygiene legislation). This requires not only the innovative know-how of engineering offices, mechanical equipment manufacturers and plant builders, but also modern, powerful human machine interface systems whose hardware and software are adapted to the special requirements.

The SIMATIC Panels and Panel PCs with touch screens and stainless steel fronts have been designed for use in the food, beverages and tobacco industry and for operator control and monitoring close to food processing machines. For this reason, the devices with stainless steel front have been developed in compliance with DIN EN 1672-2 "Food processing machinery – Safety and Hygiene Requirements".

Simpler cleaning and disinfecting

The high quality requirements in the food and beverages industry require a high standard of the food processing machinery. There are many relevant regulations, directives, ordinances, standards and laws. Essential here is that all equipment and components must be easy to clean and disinfect so that cross-contamination of the foodstuffs can be avoided.

The Panels with stainless steel front have a 240 grit hairline finish, so they are suitably smooth. The membrane covering the display cutout is tested with regard to its resistance to chemicals, has minimal grooves and gaps in which micro-organisms could settle, and also provides shatter protection for the display.

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Overview

TP 177B color PN/DP, MP 277 10" Touch, MP 377 15" Touch and Panel PC 677B 15"

The SIMATIC Panels with touch screens and stainless steel fronts have been designed for use in the food, beverages and tobacco industry for operator control and monitoring close to food processing machines. They have been developed in compliance with DIN EN 1672-2 "Food processing machines – Safety and Hygiene Requirements".

- Simple cleaning and disinfecting
  - Stainless steel surface with 240 grade hairline finish
  - Membrane tested for resistance to chemicals
  - Minimal number of grooves and joints
  - Optimized frame profile so that liquids can run off
- Display shattering protection
- Degree of protection IP66K

Design

- External dimensions and mounting cutout as for corresponding standard product
- Optimized frame profile with a slight projection to the cabinet
- IP66K degree of protection at the front
- Surface ground with 240 grain abrasive
- Minimal number of grooves and joints

- Decorative film tested for resistance to chemicals
- Display splash protection
- Food-standard seals
- Rear tensioning frame for even application pressure of the seal

Technical specifications

	Multi Panels	
	MP 277 10" Touch INOX	**MP 377 15" Touch INOX**
General features		
Power supply	24 V DC	24 V DC
Display	10.4" color TFT Touch	15.1" TFT Touch
Resolution (pixels)	640 x 480	1024 x 768
MTBF of backlighting (at 25 °C)	about 50 000 hours LED backlighting	about 50 000 hours CCFL backlighting
Front		
Material	Stainless steel 1.4301, polyester-based membrane	
Surface	Hairline finish, 240 grit abrasive grain	
Device seal	EPDM flat seal	
Special features		
Ambient conditions		
Degree of protection	on the front: IP66K, NEMA 4, 4x and 12; on the rear: IP20	
Ambient temperature during operation	0 ... 50 °C	
Relative humidity	max. 85% (no condensation)	
Transport/storage temperature	-20 °C to +60 °C	
Approvals	FM Class 1 Div 2, cULus, CE, C-Tick, ATEX Zone 2/22	
Sector	Food & beverages, pharmaceuticals	Food & beverages, pharmaceuticals
HMI software (to be obtained separately)		
HMI engineering software	WinCC flexible 2005 Standard and higher	WinCC flexible 2007 Standard and higher
Dimensions		
External dimensions (W x H x D in mm)	325 x 263	400 x 310
Installation cutout (W x H x D in mm)	310 x 248	368 x 290
Special features	Clamping frame	Clamping frame
Weight	Approx. 4.2 kg	Approx. 6.2 kg

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Customized Automation
Food and beverages industry/pharmaceuticals

Panels and Panel PCs with stainless steel front

■ **Technical specifications** (continued)

	Panel PC	Panels
	Panel PC 677B 15" Touch INOX	**TP 177B PN/DP INOX**
General features		
Power supply	100/230 V AC (autorange), 50/60 Hz or 24 V DC	24 V DC
Display	15.1" TFT Touch	5.7" color STN Touch (256 colors)
Resolution (pixels)	1024 x 768	320 x 240
MTBF of backlighting (at 25 °C)	about 50,000 hours CCFL backlighting	
Special features	Without front USB interface	1 x emergency-off, 3 x short-stroke membrane keys with LED on front, wired to terminal
Front		
Material	Stainless steel 1.4301, polyester-based membrane	
Surface	Hairline finish, 240 grit abrasive grain	
Device seal	EPDM flat seal	
Special features	on the front: IP66K, NEMA 4, 4x and 12; on the rear: IP20	Decorative membrane drawn across the display
Ambient conditions		
Degree of protection	on the front: IP66K, NEMA 4, 4x and 12; on the rear: IP20	on the front: IP66K, NEMA 4, 4x and 12; on the rear: IP20
Ambient temperature during operation	0 ... 50 °C	0 ... 50 °C
Relative humidity	max. 85% (no condensation)	
Transport/storage temperature	-20 °C to +60 °C	
Approvals	CE, cULus	FM Class 1 Div 2, cULus, CE, C-Tick, ATEX Zone 2/22
Sector	Food & beverages, pharmaceuticals	Food & beverages, pharmaceuticals
HMI software (to be obtained separately)		
HMI engineering software	WinCC flexible Advanced and higher	WinCC flexible 2005 Compact and higher
HMI Runtime software	WinCC flexible RT	
Dimensions		
External dimensions (W x H x D in mm)	483 x 310	212 x 156
Installation cutout (W x H x D in mm)	450 x 296	198 x 142
Special features	Clamping frame	Clamping frame
Can be connected to SIMATIC PC	On Panel PCs as well as other SIMATIC Rack and Box PCs	
Weight	Approx. 15 kg	Approx. 1.5 kg

6

Ordering data

Ordering data	Order No.
TP 177B color PN/DP INOX with stainless steel front, otherwise corresponding to 6AV6642-0BA01-1AX0	**6AV6642-8BA10-0AA0**
MP 277 10" Touch INOX with stainless steel front and LED backlight, otherwise corresponding to 6AV6643-0CD01-1AX1	**6AV6643-0ED01-2AX0**
MP 377 15" Touch with stainless steel front and LED backlight; otherwise corresponding to 6AV6644-0AB01-2AX0	**6AV6644-0CB01-2AX0**
Panel PC 677B 15" with stainless steel front, otherwise corresponding to Panel PC 677B Configurator 6AV6643-0CD01-1AX1	**6AV7872-2…**

More information

Customized modification options

- Customized design
  - Use of the company name instead of the Siemens logo and modification of the type designation
  - Changing the background color
- Customer-specific hardware modifications such as the design and dimensions of the front plate, selection of the display, memory capacity, drives, options
- Customer-specific Panel PC configuration as a rugged embedded hardware and software system, without hard disk and with tailor-made software
- Customer-specific software suite with choice of Windows operating systems
- Customer-specific Panel PCs with software suite with choice of Windows operating systems
- Protection against condensation and corrosive gases (for selected panels)
- Device mounted in a stainless steel cabinet as a ready-to-install and ready-to-connect terminal which is ergonomic, functional, with high degree of protection as well as tested heat dissipation (e.g. with complete degree of protection IP66K)

Drafting a quotation

SIMATIC HMI specialists define the product modifications precisely in accordance with customer requirements.

This is followed by drafting a quotation with:

- Non-recurring costs
- Prototype costs
- Standard unit prices
- and the marginal conditions in the form of a product agreement (e.g. minimum quantity).

The defined device can then be easily ordered using this product agreement and a customized Order No.

6

Customized Automation
Food and beverages industry/pharmaceuticals

HMI Panels as rear-mounted devices

■ **Overview**
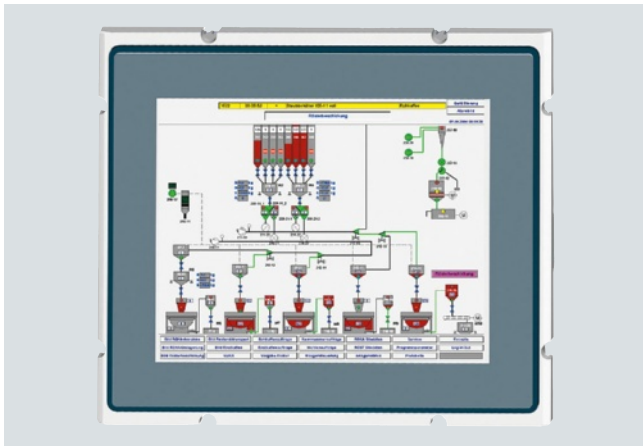
MP 377 12" Touch, rear-mounting

MP 277 8" Touch vertical, rear-mounting

MP 377 12" Touch, rear-mounting,
MP 277 8" Touch vertical, rear-mounting

The solution for installing HMI devices without "corners and edges" on the front. The devices are installed in the control cabinet enclosure from the rear and are flush with the control cabinet sheet metal at the front. They are therefore known as "rear-mounting devices".

■ **Benefits**

- Front surface flush with the control box
- Simple to clean
- No dirt-collecting edges and deposits
- Front membrane resistant to the usual cleaning agents and disinfectants
- Can be replaced with front-mounting device of the same type for service purposes (MP 377 12" Touch rear-mounting only)

■ **Design**

The front frame is modified customer-specifically on the "rear-mounting devices":

The surface with the display viewing area covered with decorative membrane, and the marginal area around the display necessary for touch operation must be flush with the control cabinet sheet metal at the front. For this purpose, the front frame with the device seal and the cutouts for the holding bolts are set back from the visible surface by the thickness of the control cabinet sheet metal. The enclosure must have a suitable number of stud bolts available. The all-round device seal thus enables a high degree of protection: IP65.

The installation cutout can be dimensioned in such a way that the rear-mounting device can be replaced with the same type of front-mounting device for service purposes.

The decorative membrane is also drawn across the visible area of the display on the rear-mounting devices, so there is no cutout with adhesive edge above the display. The decorative membrane is smooth.

For sensitive applications where the gap dimension of the control cabinet cutout has too great a tolerance, there is the option of covering the entire surface including the gap with a transparent and replaceable membrane.

■ **Technical specifications**

	MP 277 8" Touch vertical, rear-mounting	MP 377 12" Touch, rear-mounting
General features		
Power supply	24 V DC	24 V DC
Display	7.5" TFT Touch	12.1" TFT Touch
Resolution (pixels)	480 x 640 (portrait)	800 x 600
MTBF of backlighting (at 25 °C)	about 50,000 hours CCFL backlighting	
Special features	1 x emergency-off, 3 x short-stroke membrane keys with LED on front, wired to terminal	
Front		
Material	Aluminum under polyester-based membrane	
Surface	Hairline finish, 240 grit abrasive grain	
Device seal	On the enclosure, customized	On the front
Special features	Decorative membrane drawn across display	
Ambient conditions		
Degree of protection	IP65 at front; IP20 at rear	
Ambient temperature during operation	0 ... 50 °C	
Relative humidity	max. 85% (no condensation)	
Transport/storage temperature	-20 °C to +60 °C	
Approvals	CE	CE, cULus
Sector	Food & beverages, packaging systems, pharmaceuticals	
HMI software (to be obtained separately)		
HMI engineering software	From WinCC flexible 2007 Standard with add-on for portrait format	WinCC flexible 2007 Standard and higher
Dimensions		
External dimensions (W x H x D in mm)	229 x 318	As installation cut-out
Installation cutout (W x H x D in mm)	233 x 322 x 67	Compatible with standard device
Special features	Rear-mounting panel in portrait format	Rear-mounting panel; panel cutout as on standard device
Weight	Approx. 2.7 kg	Approx. 5.5 kg

■ **Ordering data**

	Order No.
MP 377 12" Touch, rear-mounting	**6AV6644-…**
Configuration on request	
MP 277 8" Touch vertical, rear-mounting	**6AV6643-…**
With emergency-off button and 3 short-stroke keys with LEDs on the front Configuration on request	

■ **More information**

Customized modification options

Customized rear-mounting versions can also be implemented:
- Customized operator controls possible on the front, e.g. membrane keys, emergency-off
- Adaptation to the design of the customized enclosure
- Customized design (logo and color scheme) on the front membrane
- Portrait mode of the display
- Increased resistance to shock and machine vibration

Quotation preparation

SIMATIC HMI specialists define the product modifications precisely in accordance with customer requirements.

This is followed by drafting of a quote with:
- Non-recurring costs
- Prototype costs
- Standard unit prices
- and the marginal conditions in the form of a product agreement (e.g. minimum quantity).

The defined device can then be easily ordered using this product agreement and a customized order number.

6

Customized Automation
Food and beverages industry/pharmaceuticals

Flat Panels with stainless steel front

■ Overview

Flat Panel 15" Touch INOX,
Flat Panel 15" Touch INOX (enclosed),
Flat Panel 19" Touch INOX,
Flat Panel 19" Touch INOX (enclosed)

The Flat Panels with touch screen and stainless steel front are designed as a display and operating unit for SIMATIC PCs in the food and beverages industry, pharmaceuticals and related industries.

They are easy to clean and can be installed in production areas subjected to splashes in a suitable control cabinet.

■ Design

- Functions compatible with the SIMATIC HMI Standard Flat Panels
- Enclosure seal EPDM, sulfur-free
- Decorative membrane laminated over display, no display cutout
- 240 grain brushed stainless steel surface

The Flat Panels 15" Touch INOX and 19" Touch INOX VESA are fully enclosed and are suitable for space-saving mounting on a support system. The cables are then run in the supporting tube.

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Technical specifications

	Flat Panel			
	15" Touch, INOX	15" Touch INOX fully enclosed	19" Touch, INOX	19" Touch INOX fully enclosed
General features				
Power supply	24 V DC	24 V DC	24 V DC	24 V DC
Display	15.1" TFT Touch	15.1" TFT Touch	19.1" TFT Touch	19.1" TFT Touch
Resolution (pixels)	1024 x 768	1024 x 768	1280 x 1024	1280 x 1024
MTBF of backlighting (at 25 °C)	approx. 50 000 hours CCFL backlighting			
Special features	Without front USB interface	OSD operation not accessible; values preset	Without front USB interface	OSD operation not accessible; values preset
Front				
Material	Stainless steel 1.4301, polyester-based membrane			
Surface	Hairline finish, 240 grit abrasive grain			
Device seal	EPDM flat seal		EPDM flat seal	EPDM flat seal
Special features	Decorative membrane drawn across display			
Ambient conditions				
Degree of protection	On the front: IP66K, NEMA 4, 4x and 12; on rear: IP20	Complete IP65, NEMA 4	On the front: IP66K, NEMA 4, 4x and 12; on rear: IP20	Complete IP66K, NEMA 4, 4x and NEMA 12
Ambient temperature during operation	0 ... 50 °C	0 ... +40 °C at an angle of up to +/- 20° from the vertical	0 ... 50 °C	0 ... +40 °C
Relative humidity	Max. 85% (no condensation)			
Transport/storage temperature	-20 °C to +60 °C			
Approvals	CE, cULus	CE, cULus	CE, cULus	CE, cULus
Sector	Food & beverages, pharmaceuticals	Pharmaceuticals	Food & beverages, pharmaceuticals	Food & beverages, pharmaceuticals
Dimensions				
External dimensions (W x H x D in mm)	483 x 310	383 x 324 x 72	483 x 400	483 x 399 x 61
Installation cutout (W x H x D in mm)	450 x 296		450 x 380	
Special features	Clamping frame	Tiltable customized flange for mounting on control cabinet, sealed by bellows	Clamping frame	fully enclosed, VESA 100
Weight	Approx. 7 kg	Approx. 12 kg	Approx. 10 kg	Approx. 12 kg

Ordering data

	Order No.
Flat Panel 15" Touch INOX	**6AV7486-2TA10-1AA0**
Flat Panel 15" Touch INOX fully enclosed	6AV7476-...
Configuration on request	
Flat Panel 19" Touch INOX	**6AV7486-4TA01-0AA0**
Cable 1.8 m enclosed	
Flat Panel 19" Touch INOX fully enclosed	**6AV7486-4TA11-0AA0**
Cable 1.8 m pre-assembled	

More information

Customized modification options
- Customized design
- Customized flange connection
- Cable length up to 30 m

Drafting a quotation

SIMATIC HMI specialists define the product modifications precisely in accordance with customer requirements.

This is followed by drafting a quotation with:
- Non-recurring costs
- Prototype costs
- Standard unit prices
- and the marginal conditions in the form of a product agreement (e.g. minimum quantity).

The defined device can then be easily ordered using this product agreement and a customized order number.

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Customized Automation
Food and beverages industry/pharmaceuticals

HMI stainless steel operator stations

■ **Overview**

SIMATIC HMI Panels or Panel PCs mounted in a stainless steel cabinet as a ready-to-install and ready-to-use terminal that is ergonomic and functional, and has a high degree of protection (complete degree of protection IP66K) as well as tested heat balance.

The populated and wired turnkey solutions are based on the hygienic design requirements of the food and beverages industry as well as other hygiene and wet areas, pharmaceuticals, fine chemicals and semiconductor production.

■ **Design**

• Control box completely assembled, wired, tested, with passive cooling

Design of stainless steel terminal

• For Panels and Panel PCs
• Angular surfaces so that liquids can run off
• Prepared for stand mounting
• With integrated handles at sides.

High complete degree of protection

• Screwed-on rear panel
• Cable inlet through stand and flange

Simple to clean

• No sharp corners or edges
• No dead spaces
• Hairline finish of surface with 240 grade grain

■ **More information**

Customized modification options

• Other HMI devices, display sizes and resolutions
• External stainless steel keyboard, e.g. without short-stroke keys with piezo technology
• Modification of the front/enclosure design (hygiene test optional) and cable routing
• Specific flange from enclosure manufacturers
• Breather gland
• Use in extended ambient temperature range, e.g. -20 °C to +60 °C
  - Air-water heat exchanger (internal)
  - "Temperature Extension Kit" plus active heating and cooling elements

Certification/approvals

• LGA Certificate "Hygiene-tested"
• Inspection certificate of the Munich University of Technology
• IPA Fraunhofer Institute

These modifications are defined by HMI specialists in consultation with the customer who then receives a specific offer.

A product agreement with minimum quantities is required for the implementation of customized modifications. Please contact your local/national Siemens HMI representative.

■ Overview

The requirements of the sectors oil and gas, chemicals and shipbuilding are diverse and range from use in areas subject to explosion hazard involving drill pipes, use in the extended temperature range (outdoor) and in direct sunlight, all the way to use on the darkened bridge of a ship.

In the case of drill pipes in the oil and gas industry and also in the chemicals industry, the following product features are important:

- Certification for areas subject to explosion hazard in Zones 2 and 22 in accordance with ATEX, FM Class I, Div. 2 and UL Haz. Loc.
- Daylight-readable display
- Use in sub-zero temperatures and in regions with high atmospheric humidity
- Resistant to harsh environmental conditions
- Stainless steel surfaces are demanded for increased resistance to chemicals

The following features are required in shipbuilding:

- Dimmable display down to complete black-out
- Marine Type certification such as Germanischer Lloyd and others

HMI sector products

- MP 377 15" Touch daylight readable

Customized Automation
Oil & gas/chemicals/shipbuilding

MP 377 15" Touch daylight readable

■ Overview
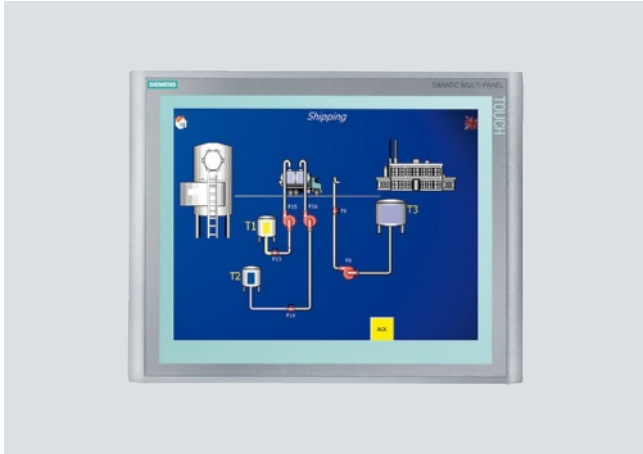
- Ideal for use in the oil & gas industry:
  - Certification in accordance with ATEX for Zone 2/22, UL Haz. Loc.,
  - FM Class I, Div.2
  - Bright, daylight-readable display
  - Rugged front for harsh environmental conditions
  - UV-protected decorative membrane
  - High degree of protection
  - Can be used in the extended outdoor temperature range at -30 °C to +70 °C with the TEK option in an air-conditioned control cabinet
- Ideal for use in shipbuilding:
  - Diverse shipbuilding certificates (available soon)
  - 100% dimmable display backlighting, local and centralized
  - Console installation without special measures or restrictions
  - High-contrast display with wide reading angle
  - Design version with black frame possible
- Features:
  - Daylight-readable, bright and dimmable LCD display
  - Splashwater-protected (IP66)
  - Rugged aluminum front, impact-resistant, UV-protected
  - Capacitive touch with 3 mm glass for harsh environmental conditions
  - Touch operation with thin gloves
  - Outdoor applications with extended temperature range (option)
  - ATEX Zone 2/22, FM Class I, Div. 2, UL Haz. Loc.
  - Marine certificates:
    DNV, GL, NK, ABS, LRS, CCS, RINA
  - Fan-free

■ Benefits

- A panel for applications inside and outside the production hall
- Extremely easy to read under diverse conditions
- Ergonomic dimmer function for optimal reading in control desks
- Can be connected to centralized dimming potentiometer (via PLC)
- Familiar HMI functions (exception: Sm@rt option and high-speed keys), no new training

■ Application

The Panel has a daylight-readable and dimmable display, making it predestined for use in control desks for, e.g. drill strings (oil & gas industry), ships (shipbuilding) and other exposed areas up to outdoor applications with the TEK Temperature Extension Kit option.

■ Design
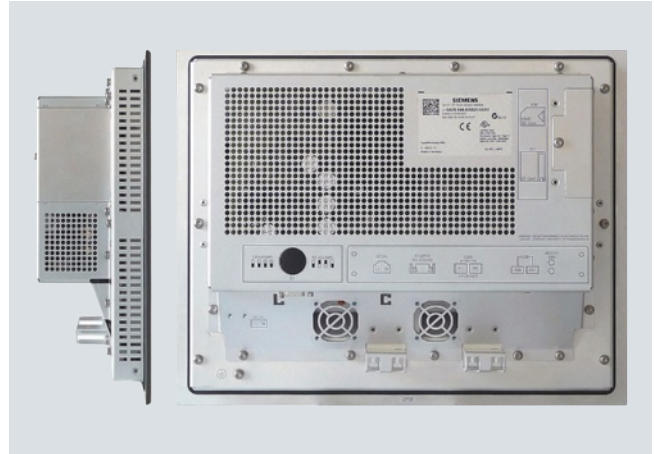
The "MP 377 15" Touch daylight readable" has a powder-coated milled aluminum front that is impact-resistant, scratch-proof and highly resistant to chemicals.

Touch operation uses projected capacitive technology protected against humidity, heat and dirt in harsh environments by a 3-mm pane of glass, without reflective membranes.

The refined polyester-based decorative membrane is UV-resistant and protected against yellowing and embrittling.

The LED-backlit and dimmable display is designed using transflective technology that allows a higher contrast than conventional, transmissive displays in extremely bright environments. The LED backlighting is dimmable using a slider on the process picture or centrally via the controller. Dimming is carried out using a gradation curve and is thus optimally ergonomically matched to the human eye.

The Panel is based on the field-proven electronics card of the MP 377 with WinCC flexible functionality and the familiar interfaces. The entire mechanical design is prepared for good convection and temperature balance, for long service life, and for operation onboard ship, or other vehicles with corresponding shock and vibration stresses.

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■ Technical specifications

Multi Panels	MP 377 15" Touch daylight readable
General features	
Display	15" TFT, transflective
Brightness	typ. 800 cd/m^2
Contrast	typ. 1000:1
Reading angle	160°
Resolution	1024 x 768
MTBF of backlit display (at 25°C)	50,000 hrs LED backlighting, dimmable 0 (off) to 100%
Input unit	Touch, projected capacitive
Power supply	24 V DC, typ. 1.5 A
Special features	Daylight-readable
Front	
Material	Aluminum, Autotex XE, glass
Surface	Powder-coated aluminum, polyester-based decorative membrane, glass (Mohs 7)
Device seal	HC / EPDM 4x4
Ambient conditions	
Degree of protection	Front IP66, rear IP20
Ambient temperature during operation	Front -30 °C to +70 °C, rear 0 °C to +50 °C, changeover time >= 3 min.
Relative humidity	10% to 90%, without condensation
Vibration	IEC 60068, Part 2–6 (sine), constant acceleration 1 g
Shock	IEC 60068, Part 2–29, 15 g peak value, 11 ms duration
Transport and storage conditions	IEC 60721-3-2, Class 2M2
Transport/storage temperature	-40 °C to +80 °C
Approvals	CE, cULus, C-Tick, ATEX Zone 2/22, UL haz. loc., FM Class I, Div. 2, shipbuilding certificates available soon
Sector	Oil & gas, ship, outdoor
Can be connected to SIMATIC PC	Multi Panels
HMI software	
HMI engineering software	Configurable from WinCC flexible 2008, SP1 with add-ons
HMI Runtime software	
Special features	Console mounting with an inclination of up to 90°, installation cutout as on MP 377 15" Touch (W x H)
Dimensions	
External dimensions (W x H x D in mm)	400 x 315.5 x 106
Installation cutout (W x H x D in mm)	365.6 x 287 x 100
Weight	4.6 kg

■ Ordering data — Order No.

MP 377 15" Touch daylight readable	6AV6644-8AB20-0AA1
Multi Panel 15" Touch with display suitable for natural-light viewing	

■ More information

Customized modification options
- Integration into customized turnkey operator panels
- Customized design

Drafting a quotation

SIMATIC HMI specialists define the product modifications precisely in accordance with customer requirements.

This is followed by drafting a quotation with:
- Non-recurring costs
- Prototype costs
- Standard unit prices
- and the marginal conditions in the form of a product agreement (e.g. minimum quantity).

The defined device can then be easily ordered using this product agreement and a customized Order No.

Customized Automation

Notes

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Appendix

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Appendix
Siemens Industry Training

Faster and more applicable know-how: Hands-on training from the manufacturer

Siemens Industry Training provides you with comprehensive support in solving your tasks.

Training by the market leader in the industry enables you to make independent decisions with confidence. Especially where the optimum and efficient use of products and plants are concerned. You can eliminate deficiencies in existing plants, and exclude expensive faulty planning right from the beginning.

First-class know-how directly pays for itself: In shorter startup times, high-quality end products, faster troubleshooting and reduced downtimes. In other words, increased profits and lower costs.

Achieve more with Siemens Industry Training

- Shorter times for startup, maintenance and servicing
- Optimized production operations
- Reliable configuration and startup
- Minimization of plant downtimes
- Flexible plant adaptation to market requirements
- Compliance with quality standards in production
- Increased employee satisfaction and motivation
- Shorter familiarization times following changes in technology and staff

Contact

Visit our site on the Internet at:

www.siemens.com/sitrain

or let us advise you personally.

Siemens Industry Training Customer Support Germany:

Phone: +49 (911) 895-7575

Fax: +49 (911) 895-7576

E-Mail: info@sitrain.com

Highlights Siemens Industry Training

Top trainers

Our trainers are skilled teachers with direct practical experience. Course developers have close contact with product development, and directly pass on their knowledge to the trainers.

Practical experience

The practical experience of our trainers enables them to teach theory effectively. But since theory can be pretty drab, we attach great importance to practical exercises which can comprise up to half of of the course time. You can therefore immediately implement your new knowledge in practice. We train you on state-of-the-art methodically/didactically designed training equipment. This training approach will give you all the confidence you need.

Wide variety

With a total of about 300 local attendance courses, we train the complete range of Siemens Industry products as well as interaction of the products in systems.

Tailor-made training

We are only a short distance away. You can find us at more than 50 locations in Germany, and in 62 countries worldwide. You wish to have individual training instead of one of our 300 courses? Our solution: We will provide a program tailored exactly to your personal requirements. Training can be carried out in our Training Centers or at your company.

The right mixture: Blended learning

"Blended learning" is a combination of various training media and sequences. For example, a local attendance course in a Training Center can be optimally supplemented by a teach-yourself program as preparation or follow-up. Additional effect: Reduced traveling costs and periods of absence.

Training offer for SIMATIC HMI

This page contains an overview of the SITRAIN training offer for SIMATIC HMI operator control and monitoring systems as well as for PC-based Automation.

Depending on your demands we'll make you fit for specific applications or teach you important background knowledge about products and systems.

All courses contain the largest possible share of practical exercises so that training can be carried out very intensively in very small groups.

Further information regarding course contents, dates and prices can be found in the Internet at:

www.siemens.com/sitrain

SITRAIN courses for SIMATIC HMI / PC-based Automation

Title	Target Group						Duration/ Medium	Short title
SIMATIC WinCC based onTIA Portal								
SIMATIC TIA Portal WinCC SCADA retraining course **TIA**		✔	✔	✔	✔	✔	3 days	TIA-WCCSUP
SIMATIC TIA Portal WinCC on the machine level **TIA**		✔	✔	✔	✔	✔	3 days	TIA-WCCM
SIMATIC TIA Portal WinCC SCADA **TIA**		✔	✔	✔	✔	✔	5 days	TIA-WCCS
SIMATIC TIA Portal WinCC on the machine level **TIA**		✔	✔	✔	✔	✔	WBT	WT-TIAWMUP
SIMATIC WinCC flexible								
SIMATIC WinCC flexible, system course 1		✔	✔	✔	✔	✔	3 days	ST-WCCFSYS1
SIMATIC WinCC flexible, system course 2		✔	✔	✔		✔	3 days	ST-WCCFSY2
SIMATIC WinCC V7.x								
SIMATIC WinCC, system course		✔	✔	✔	✔	✔	5 days	ST-BWINCCS
SIMATIC WinCC, advanced configuration, options for networking and access to database		✔	✔				5 days	ST-BWINOND
ANSI-C in the SIMATIC World, Introduction		✔	✔	✔		✔	5 days	ST-SIMACE
SIMATIC WinCC V7.x Market-specific Solutions								
Energy management								
Energy management with SIMATIC powerrate for WinCC		✔	✔	✔	✔	✔	3 days	ST-EMPRWCC
Energy management with B.Data		✔	✔	✔	✔	✔	4 days	ST-EMBDATA

Target group legend:
- Commissioning engineers, configuration engineers
- Programmers
- Service personnel
- Project managers, project team members
- Operators, users
- Decision makers, sales personnel
- Maintenance personnel

TIA These courses are based on the new engineering platform TIA Portal.

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Appendix
Standards and approvals

Operating system licenses for SIMATIC PC/PG

The accompanying operating system license is only valid for installation on the supplied SIMATIC PC/PG.

Installation can only be performed on these SIMATIC systems in accordance with Microsoft OEM licensing regulations.

Standards UL (U) and CSA (C)

All HMI products comply with the standards UL (U) and CSA (C), or the approval procedure has been applied for.

Products which have no approval are specially marked (see ordering data of the products).

CE marking

The electronic products described in this catalog comply with the requirements and protection objectives of the following EC directives insofar as they relate to the product concerned. They also comply with the corresponding harmonized European standards (EN) published for these products in the Official Journals of the European Community.

- Directive 2004/108/EC of the European Parliament and Council on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive)
- Directive 2006/95/EC of the European Parliament and of the Council on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (Low Voltage Directive)
- Directive 94/9/EC of the European Parliament and the Council on approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres (ATEX Directive).
- Directive 1999/5/EC of the European Parliament and of the Council on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (RTTE Directive)

The originals of the declarations of conformity are kept available for the responsible supervisory authorities at:

SIMATIC HMI:
Siemens AG
I IA AS S ID
Postfach 48 48
90327 Nürnberg
Germany

SIMATIC, SIMATIC NET, SIMATIC PC:
Siemens AG
IA AS EWA
Postfach 19 63
92209 Amberg
Germany

Note on the EMC Directive:

The installation instructions in the manuals must be adhered to when installing and operating the products described in this catalog. These contain, for example, important information on installation in cabinets and on the use of shielded cables.

Overview

At Siemens Industry Automation and Drive Technologies, more than 85 000 people are resolutely pursuing the same goal: long-term improvement of your competitive ability. We are committed to this goal. Thanks to our commitment, we continue to set new standards in automation and drive technology. In all industries – worldwide.

At your service locally, around the globe for consulting, sales, training, service, support, spare parts ... on the entire Industry Automation and Drive Technologies range.

Your personal contact can be found in our Contacts Database at:
www.siemens.com/automation/partner

You start by selecting a

- Product group,
- Country,
- City,
- Service.

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Appendix
Partners at Industry Automation and Drive Technologies

WinCC Competence Centers

WinCC Competence Centers

The WinCC Competence Centers are Siemens-internal partners. They offer a wide range of products and services designed to make optimal economic and system-oriented use of the openness and integration capability of WinCC.

In addition to the development of standard solutions/add-on products, they are authorized to implement customized/industry-specific solutions in the areas of application development and system integration on the basis of WinCC. The portfolio is rounded off with consulting services, project-related training, and workshops for decision-makers and users.

Sector competence in addition to automation expertise and WinCC system know-how ensure professional and efficient solutions. The software is, of course, developed in compliance with recognized standards on the basis of certified quality management in accordance with DIN ISO 9001.

You can find more information on the Internet at:
www.siemens.com/wincc-competence-center

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■ **Overview**

Siemens Solution Partner Automation

Solution Partner: Highest quality - guaranteed

The products and systems from Siemens Industry Automation and Drive Technologies offer the ideal platform for all automation applications.

Under the name of Siemens Solution Partner Automation, selected system integrators around the world act as uniformly qualified solution providers for the Siemens range of products and services in the fields of automation and drives. Day after day, they utilize their qualified product and system know-how as well as their excellent industry expertise to your advantage – for all requirements.

The partner emblem is the guarantee and indicator of proven quality. The basis for this are defined quality features that identify Solution Partners as reliable and competent solution providers:

- Solution quality
  Always a good result with tried and tested solutions expertise.
- Expert quality
  Certified technical competence ensures maximum efficiency.
- Project quality
  With proven project experience straight to the target.
- Portfolio quality
  Comprehensive portfolio for state-of-the-art solutions from a single source.

Solution Partner Finder

The Siemens Solution Partner Program helps you to find the optimum partner for your specific requirements.

Support is provided by the Solution Partner Finder, a comprehensive online platform that showcases the profiles of all our solution partners. You can convince yourself of the competence of the respective Solution Partner by means of the references provided. Various search criteria are available for this purpose.

Once you have located a partner, you are only one small step away from contacting them.

Find the right partner here for your specific task and convince yourself of the solution competence provided:

www.siemens.com/automation/partnerfinder

Additional information on the Siemens Solution Partner Program is available online at:

www.siemens.com/automation/solutionpartner

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Appendix
Siemens Automation Cooperates with Education

Comprehensive teaching support for educational institutions

Cooperates with Education

SIEMENS

Automation

Siemens Automation Cooperates with Education (SCE)
offers a global system for sustained support of technical skills. SCE supports educational institutions in their teaching assignment in the industrial automation sector and offers added value in the form of partnerships, technical expertise, and know-how. As the technological leader, our comprehensive range of services can support you in the knowledge transfer for Industry 4.0.

Our services at a glance

- Training curriculums for your lessons
- Trainer packages for hands-on learning
- Courses convey up-to-date, specialist knowledge
- Support for your projects/textbooks
- Complete didactic solutions from our partners
- Personal contact for individual support

Training curriculums for your lessons

Use our profound industrial know-how for practice-oriented and individual design of your course. We offer you more than 100 didactically prepared training curriculums on the topics of automation and drives technology free of charge. These materials are perfectly matched to your curricula and syllabuses, and optimally suited for use with our trainer packages. This takes into account all aspects of a modern industrial solution: installation, configuration, programming, and commissioning. All documents, including projects, can be individually matched to your specific requirements.

Particular highlights:

- With the new SIMATIC PCS 7 curriculums and trainer packages, you can pass on basic, practice-oriented PCS 7 knowledge at universities within about 60 hours (= 1 semester), using plant simulation.

- The new TIA Portal training materials for SIMATIC S7-1200 are available in English, German, French, Italian, Spanish and Chinese for download.

www.siemens.com/sce/documents

Trainer packages for hands-on learning

Our SCE trainer packages offer a specific combination of original industrial components which are perfectly matched to your requirements and can be conveniently used in your course. These price reduced bundles available exclusively to schools include innovative and flexible hardware and software packages. SCE can currently offers more than 90 SCE trainer packages including related equipment. These cover both the factory and process automation sectors. You can use them to impart the complete course contents on industrial automation at a very low cost.

Trainer packages are available for:

- Introduction to automation technology with LOGO! logic module and SIMATIC S7-1200 compact controller
- PLC engineering with SIMATIC S7 hardware and STEP 7 software (S7-300, S7-1500 and TIA Portal)
- Operator control and monitoring with SIMATIC HMI
- Industrial networking over bus systems with SIMATIC NET (PROFINET, PROFIBUS, IO-Link)
- Sensor systems with VISION, RFID and SIWAREX
- Process automation with SIMATIC PCS 7
- Power Monitoring Devices SENTRON PAC 4200
- Motor Management SIMOCODE
- Networked drive and motion technologies with SINAMICS/SIMOTION
- CNC programming with SinuTrain

Important ordering notes:

Only the following institutions are authorized to obtain trainer packages: vocational schools, Colleges and Universities, in-house vocational training departments, non commercial research institutions and non commercial training departments.

To purchase a trainer package, you require a specific end-use certificate, which you can obtain from your regional sales office.

www.siemens.com/sce/tp

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Comprehensive teaching support for educational institutions (continued)

Courses convey up-to-date specialist knowledge

Profit from our excellent know-how as the leader in industrial technologies. We offer you specific courses for automation and drive technology worldwide. These support you in the practice-oriented transferring of product and system know-how, are in conformance with curriculums, and derived from the training fields. Compact technical courses especially for use at universities are also available.

Our range of courses comprises a wide variety of training modules based on the principle of Totally Integrated Automation (TIA). The focus is on the same subject areas as with the SCE trainer packages.

Every PLC and drive course is oriented on state-of-the-art technology. Your graduates can thus be prepared optimally for their future professional life.

In some countries we are offering classes based on our training curriculums. Please inquire with your SCE contact partner.

www.siemens.com/sce/contact

Support for your projects/textbooks

Automation and drive technology is characterized by continuous and rapid developments. Service and Support therefore play an important role.

We can provide you with consulting for selected projects and support from your personal SCE contact as well as our web based and regional Customer Support.

As a particular service, SCE supports technical authors with our know-how as well as with intensive technical consulting. Siemens library of special textbooks covering the industrial automation sector provides an additional resource for you and your students. These can be found at the SCE web site.

www.siemens.com/sce/contact
www.siemens.com/sce/books

Complete didactic solutions

Our partners for learning systems offer a wide range of training systems and solutions for use in your courses or laboratory.

These models have been designed based on our trainer packages and thus save you the time and cost of self-construction of individual components. The Partner systems provide you with simple and effective help in the fulfillment of your teaching assignment.

www.siemens.com/sce/partner

Contact for individual support

You can find your personal SCE contact on our Internet site. Your local SCE Promoter will answer all your questions concerning the complete SCE offering, and provide you with timely and competent information about innovations. When you encounter challenges, you can profit from our global team of excellence.

If a direct SCE contact is not listed for your country, please contact your local Siemens office.

www.siemens.com/sce/contact

SCE Support Finder for your Internet request

You are an educator and need support on the topic of industry automation? Send us your request:

www.siemens.com/sce/supportfinder

Scan the QR code for further information (SCE homepage)

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Appendix
Online Services

**Information and Ordering
in the Internet and on DVD**

Siemens Industry Automation and Drive Technologies in the WWW
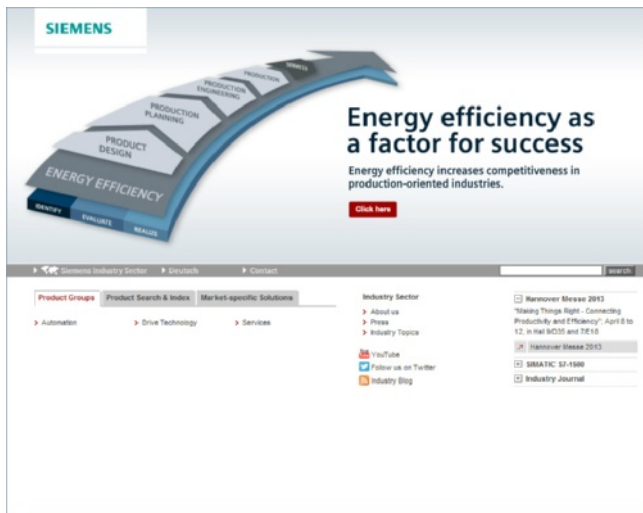
A detailed knowledge of the range of products and services available is essential when planning and configuring automation systems. It goes without saying that this information must always be fully up-to-date.

Siemens Industry Automation and Drive Technologies has therefore built up a comprehensive range of information in the World Wide Web, which offers quick and easy access to all data required.

Under the address

www.siemens.com/industry

you will find everything you need to know about products, systems and services.

Product Selection Using the Interactive Catalog CA 01 of Industry

Detailed information together with convenient interactive functions:
The interactive catalog CA 01 covers more than 80 000 products and thus provides a full summary of the Siemens Industry Automation and Drive Technologies product base.

Here you will find everything that you need to solve tasks in the fields of automation, switchgear, installation and drives.
All information is linked into a user interface which is easy to work with and intuitive.

After selecting the product of your choice you can order at the press of a button, by fax or by online link.

Information on the interactive catalog CA 01 can be found in the Internet under

www.siemens.com/automation/ca01

or on DVD.

Easy Shopping with the Industry Mall
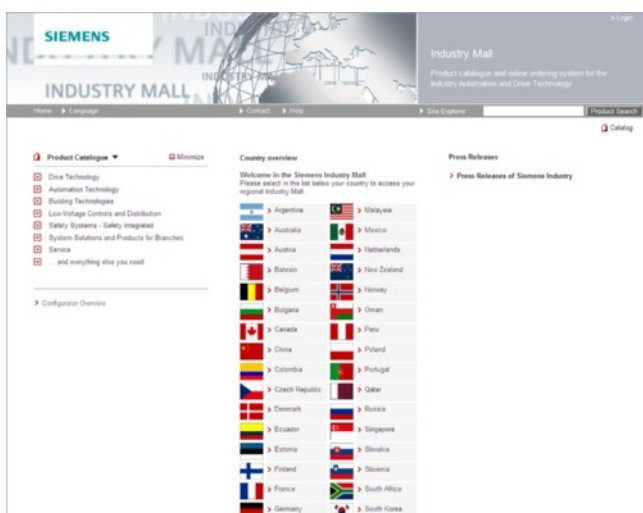
The Industry Mall is the virtual department store of Siemens AG on the Internet. Here you have access to a huge range of products presented in electronic catalogs in an informative and attractive way.

Data transfer via EDIFACT allows the whole procedure from selection through ordering to tracking of the order to be carried out online via the Internet.

Numerous functions are available to support you.

For example, powerful search functions make it easy to find the required products, which can be immediately checked for availability. Customer-specific discounts and preparation of quotes can be carried out online as well as order tracking and tracing.

Please visit the Industry Mall on the Internet under:

www.siemens.com/industrymall

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Downloading Catalogs
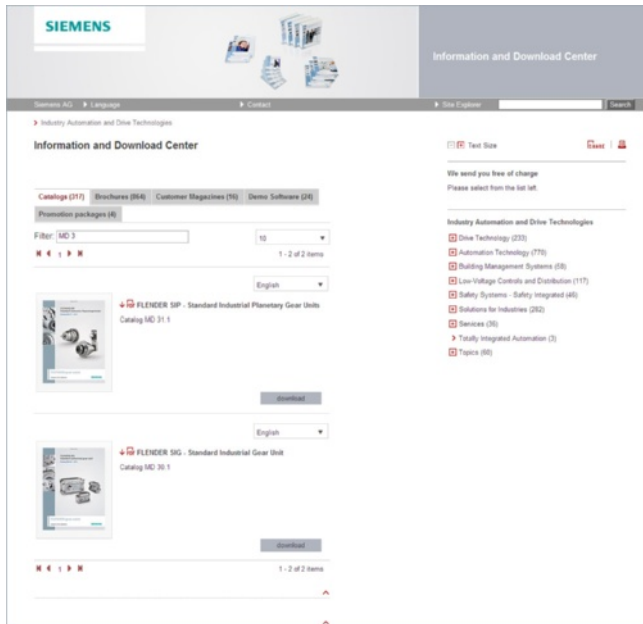
In addition to numerous other useful documents, you can also find the catalogs listed on the back inside cover of this catalog in the Information and Download Center. Without having to register, you can download these catalogs in PDF format or increasingly as digital page-turning e-books.

The filter dialog box above the first catalog displayed makes it possible to carry out targeted searches. If you enter "MD 3" for example, you will find both the MD 30.1 and MD 31.1 catalogs. If you enter "ST 70" both the ST 70 catalog and the associated news or add-ons are displayed.

Visit us on the web at:

www.siemens.com/industry/infocenter

Social Media
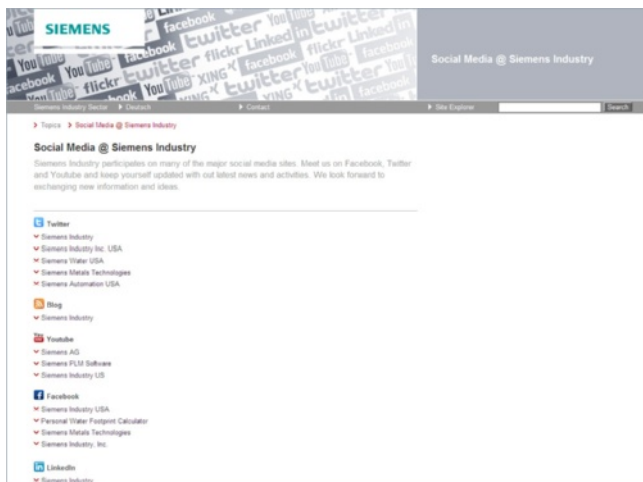
Connect with Siemens through social media: visit our social networking sites for a wealth of useful information, demos on products and services, the opportunity to provide feedback, to exchange information and ideas with customers and other Siemens employees, and much, much more. Stay in the know and follow us on the ever-expanding global network of social media.

Connect with Siemens Industry at our central access point:

www.siemens.com/industry/socialmedia

Or via our product pages at:

www.siemens.com/automation

or

www.siemens.com/drives

To find out more about Siemens' current social media activities visit us at:

www.siemens.com/socialmedia

Mobile Media
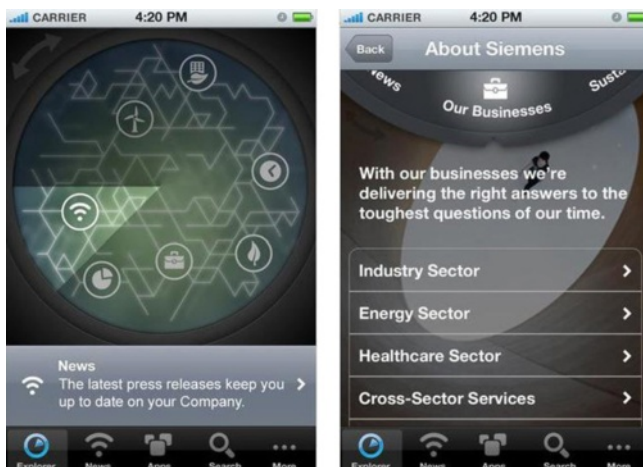
Discover the world of Siemens.

We are also constantly expanding our offering of cross-platform apps for smartphones and tablets. You will find the current Siemens apps at the app store (iOS) or at Google Play (Android).

The Siemens app, for example, tells you all about the history, latest developments and future plans of the company – with informative pictures, fascinating reports and the most recent press releases.

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Appendix
Industry Services

**Your machines and plant can do more
– with Industry Services.**

Whether it is production or process industry - in view of rising cost pressure, growing energy costs, and increasingly stringent environmental regulations, services for industry are a crucial competitive factor in manufacturing as well as in process industries.

All over the world Siemens supports its customers with product, system, and application-related services throughout the entire life cycle of a plant. Right from the earliest stages of planning, engineering, and building, all the way to operation and modernization. These services enable customers to benefit from the Siemens experts' unique technological and product knowledge and industry expertise.

Thus downtimes are reduced and the utilization of resources is optimized. The bottom line: increased plant productivity, flexibility, and efficiency, plus reduced overall costs.

Discover all advantages of our service portfolio:
www.siemens.com/industry-services

Technical Consulting & Engineering Support

Energy & Environmental Services

Planning

Technical Consulting & Engineering Support

Technical Consulting & Engineering Support

Modernization

Energy & Environmental Services

Energy & Environmental Services

Modernization & Optimization Services

Online Support
Technical Support
Spare Parts
Repair Services
Field Services
Training

Engineer & Build

Operation

Plant Maintenance & Condition Monitoring

Service

Energy & Environmental

Modernization & Optimization Services

G_DA65_EN_00270

Siemens supports its clients with technology based Services across a plants entire life cycle.

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**Industry Services
for the entire life cycle**

Online Support

Online support is a comprehensive information system for all questions relating to products, systems, and solutions that Siemens has developed for industry over time. With more than 300,000 documents, examples and tools, it offers users of automation and drive technology a way to quickly find up-to-date information. The 24-hour service enables direct, central access to detailed product information as well as numerous solution examples for programming, configuration and application.

The content, in six languages, is increasingly multimediabased – and now also available as a mobile app. Online support's "Technical Forum" offers users the opportunity to share information with each other. The "Support Request" option can be used to contact Siemens' technical support experts. The latest content, software updates, and news via newsletters and Twitter ensure that industry users are always up to date.

www.siemens.com/industry/onlinesupport

Online Support App

Using the Online Support app, you can access over 300,000 documents covering all Siemens industrial products - anywhere, any time. Regardless of whether you need help implementing your project, fault-finding, expanding your system or are planning a new machine.

You have access to FAQs, manuals, certificates, characteristics curves, application examples, product notices (e.g. announcements of new products) and information on successor products in the event that a product is discontinued.

Just scan the product code printed on the product directly using the camera of your mobile device to immediately see all technical information available on this product at a glance. The graphical CAx information (3D model, circuit diagrams or EPLAN macros) is also displayed. You can forward this information to your workplace using the e-mail function.

The search function retrieves product information and articles and supports you with a personalized suggestion list. You can find your favorite pages – articles you need frequently – under "mySupport". You also receive selected news on new functions, important articles or events in the News section.

Scan the QR code for information on our Online Support app.

The app is available free of charge from the Apple App Store (iOS) or from Google Play (Android).

www.siemens.com/industry/onlinesupportapp

Technical Support

The ability to quickly analyze system and error messages and take appropriate action are key factors in ensuring that plants run safely and efficiently. Questions can arise at any time and in any industry, whether it's an individual product or a complete automation solution. Siemens technical support offers individual technical assistance in matters related to functionality, how to operate, applications, and fault clearance in industrial products and systems – at any time and globally, over the phone, by e-mail, or via remote access. Experienced experts from Siemens answer incoming questions promptly. Depending on the requirements, they first consult specialists in the areas of development, on-site services, and sales. Technical support is also available for discontinued products that are no longer available. Using the support request number, any inquiry can be clearly identified and systematically tracked.

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Appendix
Industry Services

Spare Parts

Drive and automation systems must be available at all times. Even a single missing spare part can bring the entire plant to a standstill – and result in substantial financial losses for the operator. The spare parts services from Siemens protects against such losses – with the aid of quickly available, original spare parts that ensure smooth interaction with all other system components. Spare parts are kept on hand for up to ten years; defective parts can be returned. For many products and solutions, individual spare parts packages ensure a preventive stock of spare parts on-site. The spare parts services is available around the world and around the clock. Optimum supply chain logistics ensure that replacement components reach their destination as quickly as possible. Siemens' logistics experts take care of planning and management as well as procurement, transportation, customs handling, warehousing, and complete order management for spare parts.

Repair Services

Reliable electrical and electronic equipment is crucial for operating continuous processes. That is why it is essential that motors and converters always undergo highly specialized repair and maintenance. Siemens offers complete customer and repair services – on site and in repair centers – as well as technical emergency services worldwide. The repair services include all measures necessary to quickly restore the functionality of defective units. In addition, services such as spare parts logistics, spare parts storage and rapid manufacturing are available to plant operators in all verticals. With a global network of certified repair shops operated by Siemens as well as third parties, Siemens handles the maintenance and overhaul of motors, converters, and other devices as an authorized service partner.

Field Services

It's a top priority in all industries: the availability of plants and equipment. Siemens offers specialized maintenance services such as inspection and upkeep as well as rapid fault clearance in industrial plants – worldwide, continuously, and even with emergency services as needed. The services include startup as well as maintenance and fault clearance during operation. The startup service includes checking the installation, function tests, parameterization, integration tests for machines and plants, trial operation, final acceptance, and employee training. All services, including remote maintenance of drives, are also available as elements of customized service contracts.

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**Industry Services
for the entire life cycle**

Training

Increasingly, up-to-date knowledge is becoming a determining factor in success. One of the key resources of any company is well-trained staff that can make the right decision at the right moment and take full advantage of the potential. With SITRAIN – Training for Industry, Siemens offers comprehensive advanced training programs. The technical training courses convey expertise and practical knowledge directly from the manufacturer. SITRAIN covers Siemens' entire product and system portfolio in the field of automation and drives. Together with the customer, Siemens determines the company's individual training needs and then develops an advanced training program tailored to the desired requirements. Additional services guarantee that the knowledge of all Siemens partners and their employees is always up-to-date.

Technical Consulting & Engineering Support

The efficiency of plants and processes leads to sustainable economic success. Individual services from Siemens help save substantial time and money while also guaranteeing maximum safety. Technical consulting covers the selection of products and systems for efficient industrial plants. The services include planning, consulting, and conceptual design as well as product training, application support, and configuration verification – in all phases of a plant's lifecycle and in all questions related to product safety. Engineering support offers competent assistance throughout the entire project, from developing a precise structure for startup to product-specific preparation for implementation as well as support services in areas such as prototype development, testing and acceptance.

Energy & Environmental Services

Efficient energy use and resource conservation – these top sustainability concerns pay off – both for the environment and for companies. Siemens offers integrated solutions that unlock all technical and organizational potential for successful environmental management. Customized consulting services are aimed at sustainably lowering the cost of energy and environmental protection and thus increasing plant efficiency and availability. The experts provide support in the conceptual design and implementation of systematic solutions in energy and environmental management, enabling maximum energy efficiency and optimized water consumption throughout the entire company. Improved data transparency makes it possible to identify savings potential, reduce emissions, optimize production processes, and thereby noticeably cut costs.

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**Industry Services
for the entire life cycle**

Modernization & Optimization Services

High machine availability, expanded functionality and selective energy savings – in all industries, these are decisive factors for increasing productivity and lowering costs. Whether a company wants to modernize individual machines, optimize drive systems, or upgrade entire plants, Siemens' experts support the projects from planning to commissioning.

Expert consulting and project management with solution responsibility lead to security and make it possible to specifically identify savings potential in production. This secures investments over the long term and increases economic efficiency in operation.

Plant Maintenance & Condition Monitoring

Modern industrial plants are complex and highly automated. They must operate efficiently in order to ensure the company's competitive strength. In addition, the steadily increasing networking of machines and plants require consistent security concepts. Maintenance and status monitoring as well as the implementation of integrated security concepts by Siemens' experts support optimum plant use and avoid downtime. The services include maintenance management as well as consulting on maintenance concepts, including the complete handling and execution of the necessary measures. Complete solutions also cover remote services, including analysis, remote diagnosis, and remote monitoring. These are based on the Siemens Remote Services platform with certified IT security.

Service Contracts

Making maintenance costs calculable, reducing interfaces, speeding up response times, and unburdening the company's resources – the reduced downtimes that these measures achieve increase the productivity of a plant. Service contracts from Siemens make maintenance and repairs more cost-effective and efficient. The service packages include local and remote maintenance for a system or product group in automation and drive technology. Whether you need extended service periods, defined response times, or special maintenance intervals, the services are compiled individually and according to need. They can be adjusted flexibly at any time and used independently of each other. The expertise of Siemens' specialists and the capabilities of remote maintenance thus ensure reliable and fast maintenance processes throughout a plant's entire lifecycle.

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Siemens Service Option for SIMATIC PC / PG
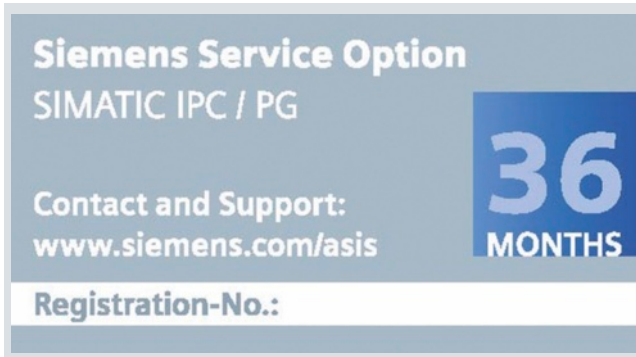
The expanded hardware service for SIMATIC PC/PG products

Purchasing and registering this additional agreement for a SIMATIC PC/PG extends the time period for free repairs of this device to 36 months after delivery.

Scope of services of the service option within the period of service (36 months):

- Free[1] repair during the period of service at one of our authorized repair centers near you
  The addresses of our worldwide partners can be found on the Internet at www.siemens.com/asis

- Within the agreed contractual period, Siemens will bear the costs that are incurred in the repair center (labor and materials/replacement parts), which are needed to restore the functions[2] of the hardware

- Siemens will also assume the return shipping costs of the repaired device from the repair center to the customer

[1] Wear and tear as well as problems that arise due to improper handling of the devices are not included.

[2] For hard disk defects that require the system to be restored, the repair service will only cover restoring the installation to its original condition ex works.
The uploading of additional application software, drivers and setting up the operating software are not covered by the free repair service.

Product family	Order No. Service Option	Order designation
SIMATIC Rack PC	A5E00510072	36 months service option for SIMATIC Rack PC and Box PC
• SIMATIC IPC547		
• SIMATIC IPC647		
• SIMATIC IPC847		
SIMATIC Box PC		
• SIMATIC IPC227		
• SIMATIC IPC427		
• SIMATIC IPC627		
• SIMATIC IPC827		
SIMATIC Panel PC	A5E00509961	36 months service option for SIMATIC Panel PCs
• SIMATIC IPC277		
• SIMATIC IPC477D/ HMI IPC477		
• SIMATIC HMI IPC577		
• SIMATIC HMI IPC677		
SIMATIC Field PG	A5E00510007	36 months service option for SIMATIC Field PG M2/M3
• SIMATIC Field PG M2		
• SIMATIC Field PG M3		

Ordering and registering the additional agreement:

- Select the appropriate order number for the optional package based on the family of products and place your order

- Scope of delivery:
  Description of services in 4 languages + service device label with a license number for identifying the additional agreement on the device

- Activation of the service license number for a SIMATIC PC/ SIMATIC PG via the Internet (www.siemens.com/ped):
  The registration must be completed within the first 90 days after initial delivery of the device!

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Appendix
Expertise and services relating to all aspects of PC-based Automation

Overview

Expertise and services relating to all aspects of PC-based Automation

Do you require support with the dimensioning and options of a PC-based Automation project, or even engineering support?

Specifically for this purpose, Siemens has established a team of specialists in Cologne and Milan who work closely with Development and Product Marketing and can thus provide our sales departments worldwide with competent support in PC-based Automation.

Our core competencies
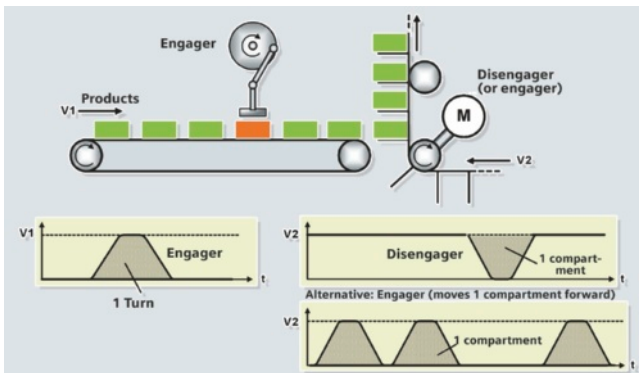
- Design of PC-based Automation systems from Siemens
- Integrated, customer-specific technology (add-ons) using high-level languages (C++) in Windows or real-time environments
- Knowledge transfer/workshops for the integration of third-party components, as well as for applications using the Open Development Kit (ODK)
- Technology and application know-how
- Development of add-ons for WinAC and WinCC flexible

Reference applications
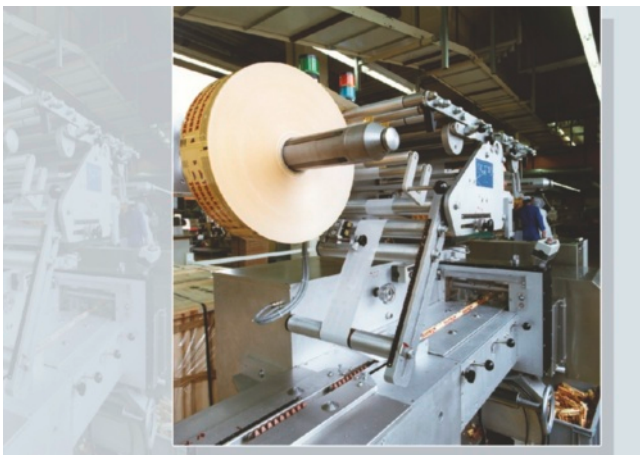
- Fast recording of measured values
- Software blocks for drives library
- Customer-specific communications via Ethernet (OPC/ActiveX, TCP socket)
- Synchronous operation, flying shear, table interpolation for electric and hydraulic axes
- Integration of PCI cards into PC-based Automation applications (e.g. WinAC and ASi-Bus)
- Customer-specific development and integration of C++ programs
- Database connections
- Integration of complex control algorithms

Contacts

Activation of the Competence Centers for your application via your regional contact.

If you do not yet have a contact person in your region, just go to:
www.siemens.com/automation/partner

The latest information about the workshops offered can be found on the Internet:
www.siemens.com/pc-based

■ Overview

Software types

Software requiring a license is categorized into types.
The following software types have been defined:

- Engineering software
- Runtime software

Engineering software

This includes all software products for creating (engineering) user software, e.g. for configuring, programming, parameterizing, testing, commissioning or servicing.

Data generated with engineering software and executable programs can be duplicated for your own use or for use by third-parties free-of-charge.

Runtime software

This includes all software products required for plant/machine operation, e.g. operating system, basic system, system expansions, drivers, etc.

The duplication of the runtime software and executable programs created with the runtime software for your own use or for use by third-parties is subject to a charge.

You can find information about license fees according to use in the ordering data (e.g. in the catalog). Examples of categories of use include per CPU, per installation, per channel, per instance, per axis, per control loop, per variable, etc.

Information about extended rights of use for parameterization/configuration tools supplied as integral components of the scope of delivery can be found in the readme file supplied with the relevant product(s).

License types

Siemens Industry Automation & Drive Technologies offers various types of software license:

- Floating license
- Single license
- Rental license
- Rental floating license
- Trial license
- Demo license
- Demo floating license

Floating license

The software may be installed for internal use on any number of devices by the licensee. Only the concurrent user is licensed. The concurrent user is the person using the program. Use begins when the software is started.
A license is required for each concurrent user.

Single license

Unlike the floating license, a single license permits only one installation of the software per license.

The type of use licensed is specified in the ordering data and in the Certificate of License (CoL). Types of use include for example per instance, per axis, per channel, etc.

One single license is required for each type of use defined.

Rental license

A rental license supports the "sporadic use" of engineering software. Once the license key has been installed, the software can be used for a specific period of time (the operating hours do not have to be consecutive).
One license is required for each installation of the software.

Rental floating license

The rental floating license corresponds to the rental license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

Trial license

A trial license supports "short-term use" of the software in a non-productive context, e.g. for testing and evaluation purposes.
It can be transferred to another license.

Demo license

The demo license support the "sporadic use" of engineering software in a non-productive context, for example, use for testing and evaluation purposes. It can be transferred to another license. After the installation of the license key, the software can be operated for a specific period of time, whereby usage can be interrupted as often as required.

One license is required per installation of the software.

Demo floating license

The demo floating license corresponds to the demo license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

Certificate of license (CoL)

The CoL is the licensee's proof that the use of the software has been licensed by Siemens. A CoL is required for every type of use and must be kept in a safe place.

Downgrading

The licensee is permitted to use the software or an earlier version/release of the software, provided that the licensee owns such a version/release and its use is technically feasible.

Delivery versions

Software is constantly being updated.
The following delivery versions

- PowerPack
- Upgrade

can be used to access updates.

Existing bug fixes are supplied with the ServicePack version.

PowerPack

PowerPacks can be used to upgrade to more powerful software. The licensee receives a new license agreement and CoL (Certificate of License) with the PowerPack. This CoL, together with the CoL for the original product, proves that the new software is licensed.
A separate PowerPack must be purchased for each original license of the software to be replaced.

Upgrade

An upgrade permits the use of a new version of the software on the condition that a license for a previous version of the product is already held.
The licensee receives a new license agreement and CoL with the upgrade. This CoL, together with the CoL for the previous product, proves that the new version is licensed.
A separate upgrade must be purchased for each original license of the software to be upgraded.

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Appendix

Software Licenses

■ Overview

ServicePack

ServicePacks are used to debug existing products. ServicePacks may be duplicated for use as prescribed according to the number of existing original licenses.

License key

Siemens Industry Automation & Drive Technologies supplies software products with and without license keys.

The license key serves as an electronic license stamp and is also the "switch" for activating the software (floating license, rental license, etc.).

The complete installation of software products requiring license keys includes the program to be licensed (the software) and the license key (which represents the license).

Software Update Service (SUS)

As part of the SUS contract, all software updates for the respective product are made available to you free of charge for a period of one year from the invoice date. The contract will automatically be extended for one year if it is not canceled three months before it expires.

The possession of the current version of the respective software is a basic condition for entering into an SUS contract.

You can download explanations concerning license conditions from www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

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Order No. Index

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■ **Length key for connecting cables**

On connecting cables whose length is freely selectable according to the following lists, the blanks (…) in the order no. must be completed in accordance with the length codes given.

The different length keys must be taken into account here! Other lengths on request.

Length of the connecting cable = Multiplier x length key	Order no. supplement of the connecting cable
	6 X V ■ ■■■■ - ■■■■ ■ ■
Multiplier	
• 0.01 m	E
• 0.1 m	H
• 1.0 m	N
• 10.0 m	T
• 100.0 m	U
Length digit	
• 10	1 0
• 12	1 2
• 15	1 5
• 16	1 6
• 20	2 0
• 25	2 5
• 32	3 2
• 40	4 0
• 50	5 0
• 60	6 0
• 63	6 3
• 80	8 0

Ordering example:

The 6XV1 404-0A… connecting cable must be 16 m long.
Multiplier 1.0 m (N) x length digit 16 (16) gives a length of 16 m.
The order no. supplement is N16.
This is entered in the blank spaces of the order no.
The complete order no. for the 16 m long connecting cable is then **6XV1 404-0AN16**.

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Appendix
Catalog improvement suggestions

Fax form

To

Siemens AG
I IA AS S ID 2
ST 80 / ST PC 2013 / Ms. Beyer
Gleiwitzer Str. 555
90475 Nürnberg

Fax: +49 (911) 895-153114

E-mail: barbara.beyer@siemens.com

Your address

_____
Name

_____
Job

_____
Company/Department

_____
Street/No.

_____
Postal code/City

_____
Tel. No./Fax

_____
E-mail address

Your opinion is important to us!

Our catalog should be an important and frequently used document. For this reason we are continuously endeavoring to improve it.

A small request on our part to you:
Please take time to fill in the following form and fax it to us.

Thank You!

We invite you to grade our catalog on a point system from 1 (= good) to 6 (= poor):

Do the contents of the catalog live up to your expectations? ☐   Do the technical details meet your expectations? ☐

Is the information easy to find? ☐   How would you assess the graphics and tables? ☐

Can the texts be readily understood? ☐

Did you find any printing errors?

Appendix

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Conditions of sale and delivery

1. General Provisions

By using this catalog you can acquire hardware and software products described therein from Siemens AG subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

1.1 For customers with a seat or registered office in Germany

For customers with a seat or registered office in Germany, the following applies subordinate to the T&C:

- the "General Terms of Payment"[1] and,
- for software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office in Germany"[1] and,
- for other supplies and services, the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"[1].

1.2 For customers with a seat or registered office outside Germany

For customers with a seat or registered office outside Germany, the following applies subordinate to the T&C:

- the "General Terms of Payment"[1] and,
- for software products, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or Registered Office outside of Germany"[1] and
- for other supplies and/or services, the "General Conditions for Supplies of Siemens Industry for Customers with a Seat or Registered Office outside of Germany"[1].

2. Prices

The prices are in € (Euro) ex point of delivery, exclusive of packaging.

The sales tax (value added tax) is not included in the prices. It shall be charged separately at the respective rate according to the applicable statutory legal regulations.

Prices are subject to change without prior notice. We will charget the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials. A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

An exact explanation of the metal factor can be downloaded at:
www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

3. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog - especially with regard to data, dimensions and weights given - these are subject to change without prior notice.

4. Export regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

Export of goods listed in this catalog may be subject to licensing requirements. We will indicate in the delivery details whether licenses are required under German, European and US export lists. Goods labeled with "AL" not equal to "N" are subject to European or German export authorization when being exported out of the EU. Goods labeled with "ECCN" not equal to "N" are subject to US re-export authorization.

The export indications can be viewed in advance in the description of the respective goods on the Industry Mall, our online catalog system. Only the export labels "AL" and "ECCN" indicated on order confirmations, delivery notes and invoices are authoritative.

Even without a label, or with label "AL:N" or "ECCN:N", authorization may be required i .a. due to the final disposition and intended use of goods.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you must comply with all applicable national and international (re-)export control regulations.

If required for the purpose of conducting export control checks, you (upon request by us) shall promptly provide us with all information pertaining to the particular end customer, final disposition and intended use of goods delivered by us respectively works and services provided by us, as well as to any export control restrictions existing in this relation.

The products listed in this catalog may be subject to European/German and/or US export regulations. Any export requiring approval is therefore subject to authorization by the relevant authorities.

Errors excepted and subject to change without prior notice.

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1) The text of the Terms and Conditions of Siemens AG can be downloaded at
www.siemens.com/automation/salesmaterial-as/catalog/en/terms_of_trade_en.pdf

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Catalogs

Industry Automation, Drive Technologies and Low-Voltage Power Distribution

**Further information can be obtained from our branch offices
listed at www.siemens.com/automation/partner**

System Solutions Interactive Catalog on DVD	*Catalog*
Products for Automation and Drives and Low Voltage Power Distribution	**CA 01**

Building Control	
GAMMA Building Control	ET G1

Drive Systems	
SINAMICS G130 Drive Converter Chassis Units	D 11
SINAMICS G150 Drive Converter Cabinet Units	
SINAMICS GM150, SINAMICS SM150 Medium-Voltage Converters	D 12
ROBICON Perfect Harmony Medium-Voltage Air-Cooled Drives Germany Edition	D 15.1
Digital: SINAMICS G180 Converters – Compact Units, Cabinet Systems, Cabinet Units Air-Cooled and Liquid-Cooled	D 18.1
SINAMICS S120 Chassis Format Units and Cabinet Modules	D 21.3
SINAMICS S150 Converter Cabinet Units	
SINAMICS DCM Converter Units	D 23.1
SINAMICS DCM Cabinet	D 23.2
SINAMICS and Motors for Single-Axis Drives	D 31
Three-Phase Induction Motors SIMOTICS HV, SIMOTICS TN	D 84.1
• Series H-compact	
• Series H-compact PLUS	
Asynchronous Motors Standardline	D 86.1
Synchronous Motors with Permanent-Magnet Technology, HT-direct	D 86.2
DC Motors	DA 12
SIMOREG DC MASTER 6RA70 Digital Chassis Converters	DA 21.1
SIMOREG K 6RA22 Analog Chassis Converters	DA 21.2
Digital: SIMOREG DC MASTER 6RM70 Digital Converter Cabinet Units	DA 22
SIMOVERT PM Modular Converter Systems	DA 45
SIEMOSYN Motors	DA 48
MICROMASTER 420/430/440 Inverters	DA 51.2
MICROMASTER 411/COMBIMASTER 411	DA 51.3
SIMOVERT MASTERDRIVES Vector Control	DA 65.10
SIMOVERT MASTERDRIVES Motion Control	DA 65.11
Synchronous and asynchronous servomotors for SIMOVERT MASTERDRIVES	DA 65.3
SIMODRIVE 611 universal and POSMO	DA 65.4

Note: Additional catalogs on SIMODRIVE or SINAMICS drive systems and SIMOTICS motors with SINUMERIK and SIMOTION can be found under Motion Control

Low-Voltage Three-Phase-Motors	
SIMOTICS Low-Voltage Motors	D 81.1
MOTOX Geared Motors	D 87.1
SIMOGEAR Geared Motors	MD 50.1
SIMOGEAR Gearboxes with adapter	MD 50.11

Mechanical Driving Machines	
FLENDER Standard Couplings	MD 10.1
FLENDER High Performance Couplings	MD 10.2
FLENDER SIG Standard industrial gear unit	MD 30.1
FLENDER SIP Standard industrial planetary gear units	MD 31.1

Process Instrumentation and Analytics	
Field Instruments for Process Automation	FI 01
Digital: SIPART Controllers and Software	MP 31
Products for Weighing Technology	WT 10
Digital: Process Analytical Instruments	PA 01
Digital: Process Analytics, Components for the System Integration	PA 11

Digital: These catalogs are only available as a PDF and/or as an e-book.

Low-Voltage Power Distribution and Electrical Installation Technology	*Catalog*
SENTRON Protection, Switching, Measuring and Monitoring Devices	LV 10.1
SIVACON · ALPHA Switchboards and Distribution Systems	LV 10.2
Standards-Compliant Components for Photovoltaic Plants	LV 11
3WT Air Circuit Breakers up to 4000 A	LV 35
3VT Molded Case Circuit Breakers up to 1600 A	LV 36
Digital: SIVACON System Cubicles, System Lighting and System Air-Conditioning	LV 50
Digital: ALPHA Distribution Systems	LV 51
ALPHA FIX Terminal Blocks	LV 52
SIVACON S4 Power Distribution Boards	LV 56
SIVACON 8PS Busbar Trunking Systems	LV 70

Motion Control	
SINUMERIK & SIMODRIVE Automation Systems for Machine Tools	NC 60
SINUMERIK & SINAMICS Equipment for Machine Tools	NC 61
SINUMERIK 840D sl Type 1B Equipment for Machine Tools	NC 62
SINUMERIK 808D, SINAMICS V60 and G120, SIMOTICS 1FL5 and 1LE1	NC 81.1
SINUMERIK 828D BASIC T/BASIC M, SINAMICS S120 Combi, 1FK7 and 1PH8 motors	NC 82
SIMOTION, SINAMICS S120 & SIMOTICS Equipment for Production Machines	PM 21
Drive and Control Components for Cranes	CR 1

Power Supply and System Cabling	
Power supply SITOP	KT 10.1

Safety Integrated	
Safety Technology for Factory Automation	SI 10

SIMATIC HMI/PC-based Automation	
Human Machine Interface Systems/ PC-based Automation	ST 80/ ST PC

SIMATIC Ident	
Industrial Identification Systems	ID 10

SIMATIC Industrial Automation Systems	
Products for Totally Integrated Automation	ST 70
SIMATIC PCS 7 Process Control System	ST PCS 7
Add-ons for the SIMATIC PCS 7 Process Control System	ST PCS 7.1
Digital: Migration solutions with the SIMATIC PCS 7 Process Control System	ST PCS 7.2

SIMATIC NET	
Industrial Communication	IK PI

SINVERT Photovoltaics	
Inverters and Components for Photovoltaic Installations	RE 10

SIRIUS Industrial Controls	
SIRIUS Industrial Controls	IC 10

Information and Download Center

PDF versions of the catalogs are available on the Internet at:
www.siemens.com/industry/infocenter
There you'll find additional catalogs in other languages.

Please note the section "Downloading catalogs" on page "Online services" in the appendix of this catalog.

www.siemens.com/automation