

Automation Devices AC500, AC31, CP400/CP500

Technical catalogue



ABB



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Further Accessories for Control Engineering







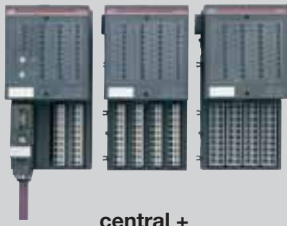


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Automation Devices

Operator Panels and PLC families

<p>Operation</p>	 <p>Text display</p>	 <p>Graphical display</p>	 <p>Touch screen</p>
<p>Control / communication</p>	 <p>scalable</p>	 <p>small</p>	 <p>compact</p>
<p>I/O modules</p>	 <p>central + decentral</p>	 <p>central + decentral</p>	 <p>decentral</p>
<p>PLC family</p>	<p>AC500/S500</p>	<p>AC31 series 40..50</p>	<p>AC31 series 90</p>

Using these components you will be able to find a proper automation solution for every application:

Operator panels:	Text display, graphical display or touch screen
Scalable PLC AC500:	Simple and consistent expandability, flexible when choosing a field bus.
I/O modules S500:	For use as centralized expansion of the AC500 PLC and decentralized field-bus-neutral I/Os.
Small PLC AC31 series 40..50:	Small but high-performance. Expandable centrally and decentrally.
Compact PLC AC31 series 90:	For demanding applications. Simple decentral expandability. With 60 I/Os and up to 5 integrated interfaces for open communication.
Programming:	Acc. to IEC61131-3 (incl. extensive libraries and configurators).
Power supplies:	Linear power supplies and primary-switched power supplies.
Logic modules:	For small and cost-effective solutions. Available in different versions and for different voltages.

Automation Devices

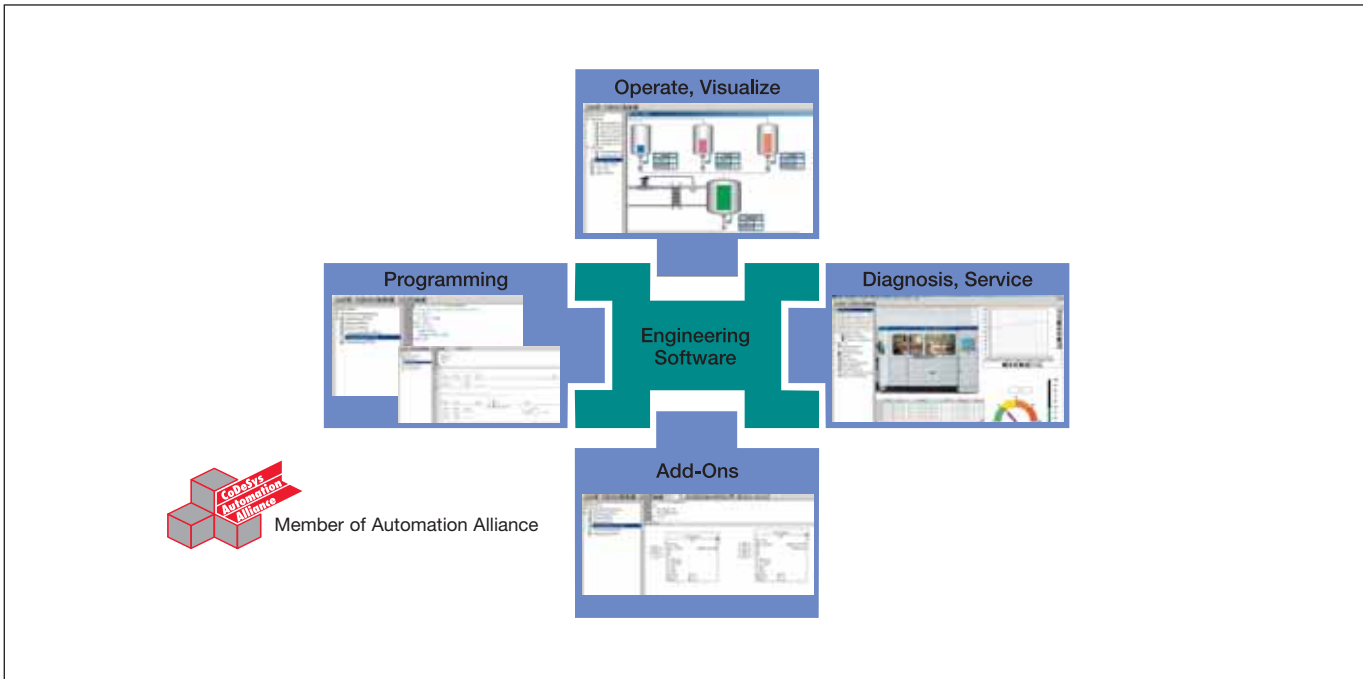
Communication Protocols

Overview of communication protocols:

Communication processor / module	Description
Ethernet	Supports transmission and reception of data using TCP/IP and/or UDP/IP. Further application layers can be implemented by subsequent loading. Simultaneous operation of TCP/IP, UDP/IP and application layer is also assured. The protocols IP, TCP, UDP, ARP, RP, BOOTP and DHCP are supported as a standard feature. Communication with third-party systems via MODBUS/TCP or customer-specific application layers. Star-shaped topology via Ethernet hub or switch. Maximum transfer rate 10 Mbit/s with 10 Base T or 100 Mbit/s with Fast-Ethernet. Transmission media: Twisted-pair cable with RJ45 connector. Maximum cable length: 100 m at a transfer rate of 100 Mbit/s.
Profibus DP	Provides master-slave communication in the field. Connection to Profibus automation systems and intelligent preprocessors like drives, operator panels and sensors. Maximum length of the network (RS 485): 1200 m at 9.6 kbit/s. Maximum perm. number of stations: 32 stations per network (master and slave stations), 126 stations when using repeaters. Supported transfer rates: 9.6 kbit/s up to 12 Mbit/s. System cable: Shielded twisted-pair cable or fiber-optic cable, transmission standard EIA RS485.
Modbus® RTU	Open master/slave protocol. Standard protocol implemented in AC500 and AC31. Point-to-point topology via RS232 or multi-point topology via RS485. With RS232, a maximum of 1 master and 1 slave is possible, RS485 allows the operation of 1 master and a maximum of 31 slaves. The maximum cable length is 15 m with RS232 and 1.2 km with RS485. Data transmission can be performed with a maximum of 187.5 kbit/s (AC500). Different transmission media are possible. One widely used option is the RS485 bus physics, a shielded twisted-pair cable with terminating resistors.
CANopen and DeviceNet	For transmission of data between control systems, decentralized I/O modules, drives, valves, etc. DeviceNet and CANopen both utilize the physical structure and the data transport mechanisms of CAN (Controller Area Network). The difference lies in the transmission protocols. Cable lengths and transfer rates: from 40 m at 1 Mbit/s to 1000 m at 20 kbit/s. CANopen: The bus operates on the master/slave principle with one master and up to 127 slaves. A shielded twisted-pair cable is used according to ISO 11898. DeviceNet: The bus operates on the multi-master and/or the master/slave principle, with up to 64 bus subscribers. Two types of shielded twisted-pair cables are used: trunk cable for the main line and drop cable for the branch line.
ARCNET	ARCNET is the basis for cost-efficient and fast connection of a process visualization and other systems by networking. Data transfer rate: 2.5 Mbit/s. Collision free data transfer due to token bus with automatic login and logoff of the bus subscribers. Automatic reconfiguration of the network when a station activates or deactivates. Up to 255 masters are possible on the same network. Overall network length: 300 m max., up to 6 km with repeaters. Variable network topology: Bus, tree or star topologies or mixtures of these. Variable transmission media: Mixed use of coaxial cables, twisted-pair cables and/or fiber-optic cables is possible.
CS31	Bus for an easy connection of CPUs and I/O devices. Data transfer rate: 187.5 kbit/s. Topology: Multi-point line, RS485, without branch lines. Maximum number of devices: 1 master and 31 slaves. Maximum cable length: 500 m or 2000 m with repeater. With repeaters you can also achieve bus redundancy. Transfer rate: 187.5 KBaud. The slaves usually are decentralized I/O modules with an integrated CS31 bus interface. Data transfer is performed at 187.5 kbit/s. For the transmission medium primarily a shielded twisted-pair cable with termination resistors is used. Other transmission media: fiber-optic cables via converter (glass fibers max. 3 km, plastic fibers max. 100 m), contact lines, slip rings (max. bus length 50 m) and data photocells.

Automation Devices Programming

Programming packages PS501 and AC1131



Designed for standardized IEC 61131-3 programming in five different languages. Other features: Configuration of the overall system including field buses and interfaces, extensive diagnostic functions, alarm handling, integrated visualization and open software interfaces.

Programming in conformity with IEC 61131-3

For planning, programming, testing and commissioning of an automation application. The following functionalities are available:

- 5 standardized programming languages: Function Block Diagram (FBD), Instruction List (IL), Ladder Diagram (LD), Structured Text (ST), Sequential Function Chart (SFC)
- Free graphical function chart (CFC).
- Debugging functions for the program test
 - Single step
 - Single cycle
 - Breakpoint

Offline simulation

IEC 61131-3 commands can be simulated without a PLC being connected, including the relevant malfunctions. After the program test, the application can be downloaded to the control system.

Sampling trace

Timing diagrams for process variables and storage of data in a ring buffer with event trigger.

Recipe management and watch lists

Values of selected variables are displayed. Pre-defined values can be assigned to variables which can then be downloaded to the control system all at once ("Write recipe"). Ongoing values from the control system can also be pre-assigned for reading into the Watch and Recipe Manager, and stored in memory there

("Read recipe"). These functions are also helpful, for example, for setting and entering control parameters.

Visualization

Includes color change, moving elements, bitmaps, text display, allows input of setpoint values and display of process variables read from the PLC, dynamic bar diagrams, alarm and event management, function keys and ActiveX elements.

Configurators of the communication interfaces:

For PROFIBUS DP, CANopen, DeviceNet, Ethernet, Modbus and CS31.

Open interfaces

DDE and OPC.

Programming

Serial or via Ethernet or ARCNET networks.

Engineering interface (optional)

Provides access from the programming system to an external project database where the program source code of one or several automation projects is managed. Optionally, a version control system, such as Visual Source Safe, can be used in order to ensure data consistency of the program code for several different users and projects.

Other features

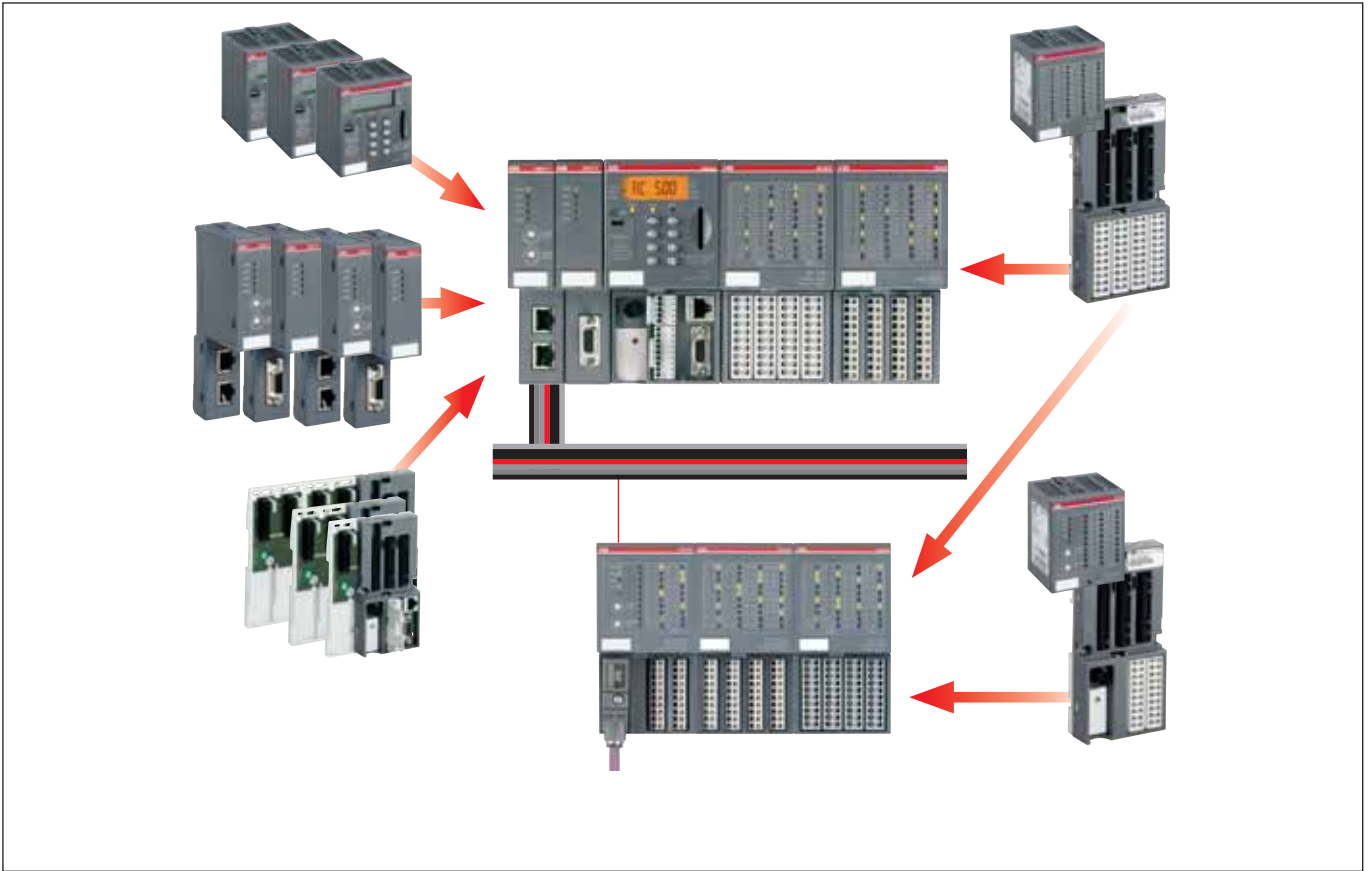
- Comprehensive libraries
- Windows 32-bit standard
- Operating systems Windows 2000 and XP

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

The AC500 PLC family

Scalable PLC AC500 with S500 I/O devices



The new AC500 consists of different devices that can be combined and flexibly expanded to suit the customer's individual requirements. It is also possible, for instance, to operate several field buses simultaneously in any desired combination with a single control system. Customers can choose between different

CPU performance classes, which can even be easily replaced subsequently to meet increasing requirements. Our common tool AC500 Control Builder provides standardized programming of the entire platform according to IEC 61131-3, as well as further features and utilities.

CPUs



- 1 Back-lighted LCD display and keypad
- 2 SD card slot
- 3 Plug-in communication modules (1 to max. 4)
- 4 Optionally with integrated Ethernet or ARCNET
- 5 Fieldbus-neutral interface for use as slave or for programming
- 6 Two serial interfaces for programming, ASCII, Modbus or CS31 field bus (master)
- 7 Expandable by up to ten local I/O modules

The CPUs are available in different performance classes which can all be programmed in five different languages. They provide an LCD display, an operator keypad, an SD card slot and two integrated serial interfaces. The CPUs can be simply plugged onto the CPU terminal base. Optionally, they are also available with integrated Ethernet or ARCNET.

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

The AC500 PLC family

The communication modules

For connection to standard field bus systems and integration into existing networks. Up to four communication modules in any desired combination are allowed at one CPU.

The CPU terminal base

Available in three different versions, enables easy plugging of the CPU and one, two or four communication modules.

The S500 I/O modules

Digital and analog modules in different versions. They can be simply plugged onto the terminal units – for local expansion of the CPU (max. seven modules) and decentralized expansion via the FBP interface. Flexible use thanks to configurable channels.

The terminal units

Multi-purpose usage for both digital and analog I/Os, for 1, 2 and 3-wire designs. Enable simple prewiring without electronics. For 24 V DC and 230 V AC, available with spring- or screw-type terminals, as desired.

The FBP interface module

With embedded digital I/Os and a field-bus-neutral interface for connecting the chosen FBP connector. For decentralized expansion of the AC500 system by up to seven I/O modules (incl. max. 4 analog modules). Please refer to the FieldBusPlugs catalog for further information about the FBP connector. The currently available FBP field bus plugs are listed in the paper 2CDC 120 141 D0201.¹⁾

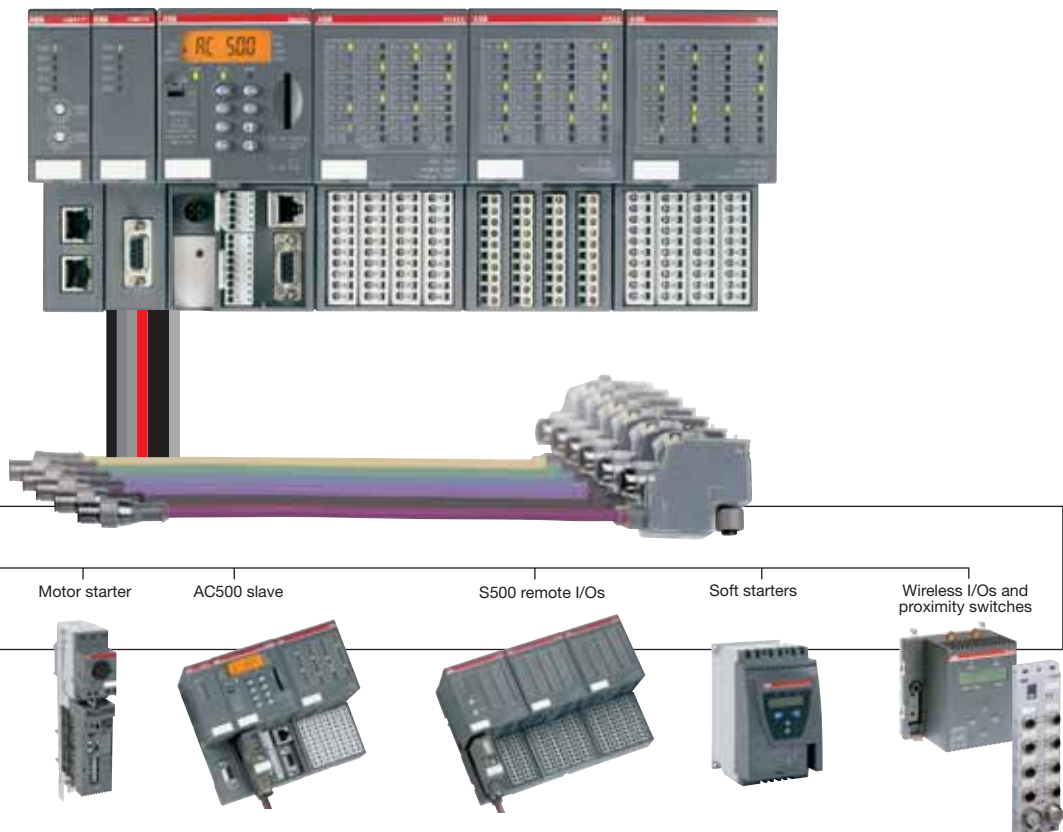
The SD card

Optional, for downloading and uploading the user program without a PC, for firmware update of the CPU or for data logging.

Simple integration in the field level

Integration of the S500 I/O modules in the field level is performed using a FieldBusPlug, depending on the used FBP connector (e.g. ProfibusDP).¹⁾ Using the FBP, the AC500 can also be operated as a field bus slave.

¹⁾ Please also refer to table “Interface Modules“ on page 2/17 for additional information.

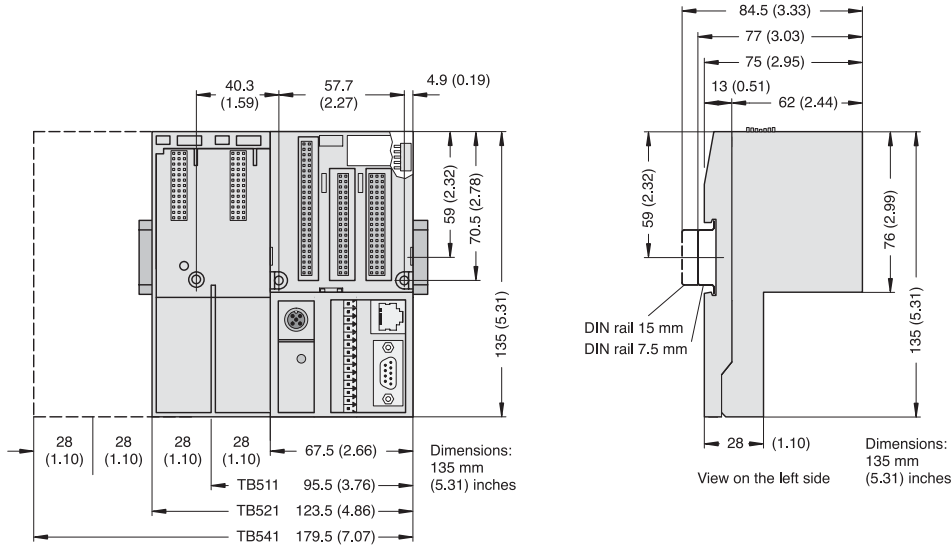


Automation Devices

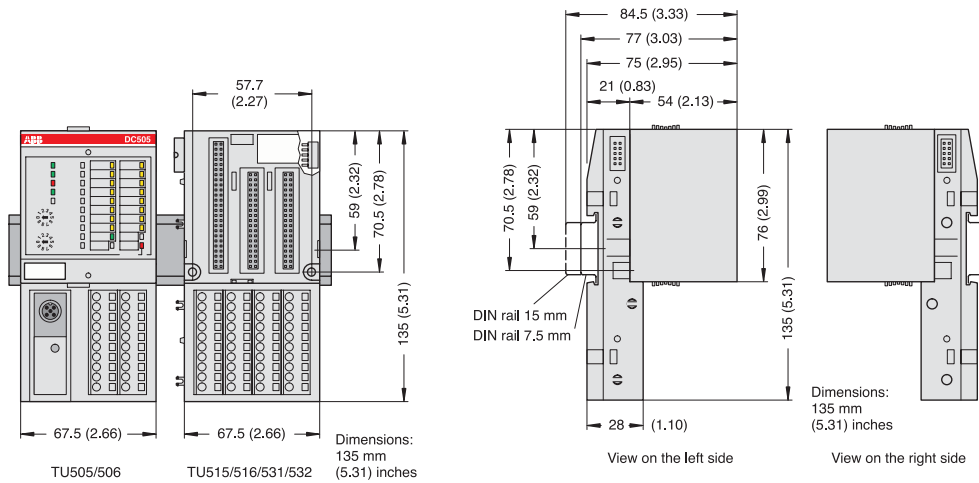
Scalable PLC AC500 with S500 I/O Devices

Dimensional drawings

CPU terminal base TB511, TB521 and TB541



I/O expansion and interface modules



Approvals



cUL



GL, Germany



DNV, Norway



BV, France



RINA, Italy

Lloyd's Register Of Shipping

LRS, United Kingdom

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Overview of AC500 CPUs

Details/Type:	PM571	PM571-ETH	PM581	PM581-ETH	PM581-ARC
Supply voltage	24 V DC		24 V DC		
Program memory Flash EPROM and RAM [kB]	64		256		
Integrated data memory [kB]	24, incl. 4 kB RETAIN		288, incl. 32 kB RETAIN		
Plug-in memory card [SD card]	128 MB		128 MB		
Cycle time for 1000 instructions in ms binary word floating-point	0.3 0.3 6		0.15 0.15 3		
Max. number of centralized inputs/outputs Digital inputs Digital outputs Analog inputs Analog outputs	320 240 160 160		320 240 160 160		
Max. number of decentralized inputs/outputs	depends on the used standard field bus CS31 field bus only: up to 31 stations with up to 120 DIs / 120 DOs per station				
Data buffering	battery		battery		
Real-time clock (with battery back-up)	x		x		
Program execution cyclical time-controlled multi tasking	x x x		x x x		
User program protection by password	x		x		
Internal interfaces					
COM1: RS232/RS485 configurable Connection Programming, Modbus, ASCII, CS31	x terminal block x		x terminal block x		
COM2: RS232/RS485 configurable Connection Programming, Modbus, ASCII	x SUB-D x		x SUB-D x		
Integrated Ethernet coupler Ethernet connection	x RJ45		x RJ45		
Integrated ARCNET coupler ARCNET connection			x Coax		
Display and 8 function keys	x RUN/STOP status, diagnosis		x RUN/STOP status, diagnose		
Function					
Timers	unlimited		unlimited		
Counters	unlimited		unlimitedt		
Function Block Diagram (FBD)	x		x		
Instruction List (IL)	x		x		
Ladder Diagram (LD)	x		x		
Structured Text (ST)	x		x		
Sequential Function Chart (SFC)	x		x		
Continuous Function Chart (CFC)	x		x		
Approvals	CE, GL, DNV, BV, LRS, cUL , RINA				

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Overview of AC500 CPUs

Details/Type:	PM582	PM582-ETH	PM582-ARC	PM590	PM590-ETH	PM590-ARC	PM591	PM591-ETH	PM591-ARC
Supply voltage	24 V DC			24 V DC			24 V DC		
Program memory Flash EPROM and RAM [kB]	512			2056			4096		
Integrated data memory [kB]	288, incl. 32 KB RETAIN			3072, incl. 512 KB RETAIN			3072, incl. 512 KB RETAIN		
Plug-in memory card [SD card]	128 MB			128 MB			128 MB		
Cycle time for 1000 instructions in ms binary word floating-point	0.15 0.15 3			0.02 0.01 0.02			0.02 0.01 0.02		
Max. number of centralized inputs/outputs Digital inputs Digital outputs Analog inputs Analog outputs	320 240 160 160			320 240 160 160			320 240 160 160		
Max. number of decentralized inputs/outputs	depends on the used standard field bus CS31 field bus only: up to 31 stations with up to 120 DIs / 120 DOs per station								
Data buffering	battery			battery			battery		
Real-time clock (with battery back-up)	x			x			x		
Program execution cyclical time-controlled multi tasking	x x x			x x x			x x x		
User program protection by password	x			x			x		
Internal interfaces									
COM1: RS232/RS485 configurable Connection Programming, Modbus, ASCII, CS31	x terminal block x			x terminal block x			x terminal block x		
COM2: RS232/RS485 configurable Connection Programming, Modbus, ASCII	x SUB-D x			x SUB-D x			x SUB-D x		
Integrated Ethernet coupler Ethernet connection	x RJ45			x RJ45			x RJ45		
Integrated ARCNET coupler ARCNET connection	x Coax			x Coax			x Coax		
Display and 8 function keys Function	x RUN/STOP status, diagnosis			x RUN/STOP status, diagnosis			x RUN/STOP status, diagnosis		
Timers	unlimited			unlimited			unlimited		
Counters	unlimited			unlimited			unlimited		
Function Block Diagram (FBS) Instruction List (IL) Ladder Diagram (LD) Structured Text (ST) Sequential Function Chart (SFC) Continuous Function Chart (CFC)	x x x x x x			x x x x x x			x x x x x x		
Approvals	CE, GL, DNV, BV, LRS, cUL, RINA								

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Overview of S500 I/O modules

	Digital I/O modules							Interface modules	
	DI524	DC522	DC523	DC532	DX522	DX531	DC541	DC505-FBP	DC551-CS31
Number of channels per module									
Digital inputs DI	32	–	–	16	8	8	–	8	8
Digital outputs DO	–	–	–	–	8	4	–	–	–
Configurable channels DC (configurable as inputs or outputs)	–	16	24	16	–	–	8	8	16
Additional configuration of channels as									
fast counter	Configuration of max. 2 channels per module. Operating modes see table on page 2/13.					–	Yes. See table on page 2/14 for possible configurations	–	Configuration of max. 2 channels p. module. Operating modes see table on page 2/13.
pulse-width modulator	–	–	–	–	–	–		–	–
rpm, time and frequency counter	–	–	–	–	–	–		–	–
interrupt I/O	–	–	–	–	–	–		–	–
Occupies max. 1 DO or DC when used as counter	–	x	x	x	–	–	–	–	x
Connection via terminal block (refer to table on page 2/18)	x	x	x	x	x	x	–	x	x
Connection via CPU terminal base. Occupies one communication module slot.	–	–	–	–	–	–	x	–	–
Digital inputs									
Input signal voltage	24 V DC					230 V AC or 120 V AC	24 V DC	24 V DC	24 V DC
Frequency range	–					47 ... 63 Hz	–	–	–
Input characteristic acc. to EN61132-2	Type 1					Type 2	Type 1	Type 1	Type 1
0 signal	– 3 V DC ... + 5 V DC					0 ... 40 V AC	– 3 V DC ... + 5 V DC	– 3 V DC ... + 5 V DC	
Undefined signal state	> + 5 V DC ... < + 15 V DC					> 40 V AC ... < 74 V AC	> + 5 V DC ... < + 15 V DC	> + 5 V DC ... < + 15 V DC	
1 signal	+ 15 V DC ... + 30 V DC					74 ... 265 V AC	> + 5 V DC ... < + 15 V DC	+ 15 V DC ... + 30 V DC	
Input time delay (0 -> 1 or 1 -> 0)	8 ms typically, configurable from 0.1 up to 32 ms					20 ms typically	8 ms typically, configurable from 0.1 up to 32 ms	8 ms typically, configurable from 0.1 up to 32 ms	
Input current per channel									
at input voltage + 24 V DC	5 mA typ.					–	5 mA typ.	5 mA typ.	
at input voltage + 5 V DC	> 1 mA					–	> 1 mA	> 1 mA	
at input voltage + 15 V DC	> 5 mA					–	> 5 mA	> 5 mA	
at input voltage + 30 V DC	< 8 mA					–	< 8 mA	< 8 mA	
at input voltage 159 V AC	–					> 7 mA	–	–	–
at input voltage 40 V AC	–					< 5 mA	–	–	–
Digital outputs									
Transistor outputs 24 V DC, 0.5 A	–	x	x	x	–	–	x	x	x
Readback of output	–	x	x	x	–	–	x	x	x
Relay outputs, supplied via process voltage UP, changeover contacts	–	–	–	–	x	x	–	x	–
Switching of 24 V load	–	x	x	x	x	x	x	x	x
Switching of 230 V load	–	–	–	–	x	x	–	–	–
Output voltage at signal state 1	Process voltage UP minus 0.8 V				–	–	Process voltage UP minus 0.8 V	Process voltage UP minus 0.8 V	
Output current									
- Nominal current per channel	–	500 mA at UP = 24 V			–	–	500 mA at UP = 24 V	500 mA at UP = 24 V	
- Maximum (total current of all channels)	–	8 A			–	–	8 A	4 A	8 A
Residual current at signal state 0	–	< 0.5 mA			–	–	< 0.5 mA	< 0.5 mA	
Demagnetization when switching off inductive loads	–	by internal varistors			–	–	by internal varistors	by internal varistors	

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Overview of S500 I/O modules

	Digital I/O modules							Interface modules	
	DI524	DC522	DC523	DC532	DX522	DX531	DC541	DC505-FBP	DC551-CS31
Switching frequency									
- for inductive load	-	0.5 Hz max.			2 Hz max.		0.5 Hz max.	0.5 Hz max.	
- for lamp load	-	11 Hz max. at max. 5 W			xx Hz max.	11 Hz max. at max. 5 W	11 Hz max. at max. 5 W	11 Hz max. at max. 5 W	
Short-circuit / overload proofness	-	x	x	x	by external fuse / circuit breaker. 6 A gL/gG per channel		x	x	x
Overload indication (I > 0.7 A)	-	after approx. 100 ms			-	-	-	after approx. 100 ms	
Output current limiting	yes, with automatic reclosure								
Proofness against reverse feeding of 24 V signals	-	x	x	x	-	-	x	x	x
Contact rating									
for resistive load, max.	-	-	-	-	3 A at 230 V AC 2 A at 24 V DC		-	-	-
for inductive load, max.	-	-	-	-	1.5 A at 230 V AC 1.5 A at 24 V DC		-	-	-
for lamp load	-	-	-	-	60 W at 230 V AC 10 W at 24 V DC		-	-	-
Lifetime (switching cycles)									
Mechanical lifetime	-	-	-	-	300.000		-	-	-
Lifetime under load	-	-	-	-	300 000 at 24 V DC/ 2 A 200 000 at 120 V AC/ 2 A 100 000 at 230 V AC/ 3 A		-	-	-
Spark suppression for inductive AC load	-	-	-	-	External measure depending on the switched load		-	-	-
Demagnetization for inductive DC load	-	-	-	-	External measure: Free-wheeling diode connected in parallel to the load		-	-	-
Process voltage UP									
- Nominal voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
- Maximum ripple	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %	5 %
- Reverse polarity protection	x	x	x	x	x	x	x	x	x
- Fuse for process voltage UP	10 A miniature fuse							10 A miniature fuse	
Connections for sensor voltage supply. Terminal + 24 V and 0 V for each connection. Permitted load for each group of 4 or 8 connections: 0.5 A	-	8	4	-	-	-	-	-	-
Short-circuit and overload proof 24 VDC sensor supply voltage	-	x	x	-	-	-	-	-	-
Maximum cable length for connected process signals									
Shielded cable [m]	1000	1000	1000	1000	1000	1000	1000	1000	1000
Unshielded cable [m]	600	600	600	600	600	600	600	600	600
Potential isolation									
per module	x	x	x	x	x	x	x	x	x
between the input channels	-	-	-	-	-	-	-	-	-
between the output channels	-	-	-	-	x	x	-	-	-
Voltage supply for the module	internally via extension bus interface (I/O bus)						internally via backplane bus	via FBP	by external 24 V DC voltage via terminal
Field bus connection	via AC500 CPU or interface module						via AC500 CPU	via FBP	CS31 field bus, via terminal
Address setting	automatically (internal)						automatically (internal)	by code switch on the front side	by code switch on the front side
Operating state indicators									
Yellow LED for I/O state	32	16	24	32	16	12	8	16	24
Green LED for voltage supply	1	1	1	1	1	1	1	1	1
Red LED for module and group errors	4	4	4	4	2	2	1	2	1
Mounting position	1. Horizontal mounting. 2. Vertical mounting possible with restrictions (max. output load per group: 50 % at 40 °C).								
Cooling	Cooling by natural convection must not be obstructed by cable ducts or other interior components of the switchgear cabinet.								

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Overview of S500 I/O modules

	Analog I/O modules			
	AX521	AX522	AI523	AO523
Number of channels per module				
Analog inputs AI, individual configuration	4	8	16	
Analog outputs AO, individual configuration	4	8	–	16
Signal resolution for channel configuration				
– 10 V ... + 10 V: 12 bits + sign	x	x	x	x
0 ... 10 V: 12 bits	x	x	x	x
0 ... 20 mA, 4 ... 20 mA: 12 bits	x	x	x	x
Temperature: 0.1 °C	x	x	x	x
Monitoring configuration per channel				
Plausibility monitoring	x	x	x	x
Wire break & short-circuit monitoring	x	x	x	x
Analog Inputs AI				
Signal configuration per AI	Max. number per module and with regard to the configuration: AIs / Measuring points (depending on the use of 2/3-wire connection or differential input)			
0 ... 10 V	4 / 4	8 / 8	16 / 16	–
– 10 V ... + 10 V	4 / 4	8 / 8	16 / 16	–
0 ... 20 mA	4 / 4	8 / 8	16 / 16	–
4 ... 20 mA	4 / 4	8 / 8	16 / 16	–
Pt100, – 50 °C ... + 400 °C (2-wire)	4 / 4	8 / 8	16 / 16	–
Pt100, – 50 °C ... + 400 °C (3-wire), occupies 2 AIs	4 / 2	8 / 4	16 / 8	–
Pt100, – 50 °C ... + 70 °C (2-wire)	4 / 4	8 / 8	16 / 16	–
Pt100, – 50 °C ... + 70 °C (3-wire), occupies 2 AIs	4 / 2	8 / 4	16 / 8	–
Pt1000, – 50 °C ... + 400 °C (2-wire)	4 / 4	8 / 8	16 / 16	–
Pt1000, – 50 °C ... + 400 °C (3-wire), occupies 2 AIs	4 / 2	8 / 4	16 / 8	–
Ni1000, – 50 °C ... + 150 °C (2-wire)	4 / 4	8 / 8	16 / 16	–
Ni1000, – 50 °C ... + 150 °C (3-wire), occupies 2 AIs	4 / 2	8 / 4	16 / 8	–
0 ... 10 V using differential inputs, occupies 2 AIs	4 / 2	8 / 4	16 / 8	–
– 10 V ... + 10 V using differential inputs, occupies 2 AIs	4 / 2	8 / 4	16 / 8	–
Digital signals (digital input)	4 / 4	8 / 8	16 / 16	–
Input resistance per channel	Voltage: > 100 kΩ. Current: approx. 330 Ω.			–
Time constant of the input filter	Voltage: 100 μs. Current: 100 μs.			–
Conversion cycle	2 ms (for 8 AI + 8 AO), 1 s for Pt/Ni...			–
Overvoltage protection	x	x	x	–
Data when using the AI as digital input				
Input time delay	8 ms typ., configurable from 0.1 up to 32 ms			–
Input signal voltage	24 V DC			–
0 signal	– 30 V ... + 5 V			–
1 signal	+ 13 V ... + 30 V			–
Analog outputs AO				
Possible configuration per AO	Max. number of AOs per module and with regard to the configuration:			
– 10 V ... + 10 V	4	8	–	16
0 ... 20 mA	4	4	–	8
4 ... 20 mA	4	4	–	8
Output resistance (burden) when used as current output	0 ... 500 Ω		–	0 ... 500 Ω
Output loading capability when used as voltage output	max. ± 10 mA		–	max. ± 10 mA

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Overview of S500 I/O modules

	Analog I/O modules			
	AX521	AX522	AI523	AO523
Process voltage UP				
Nominal voltage	24 V DC	24 V DC	24 V DC	24 V DC
Maximum ripple	5 %	5 %	5 %	5 %
Reverse polarity protection	x	x	x	x
Max. line length of the analog lines, conductor cross section > 0.14 mm ²	100 m			
Conversion error of analog values caused by non-linearity, calibration errors ex works and the resolution in the nominal range	0.5 % typ., 1 % max.			
Potential isolation				
per module	x	x	x	x
between the input channels	-	-	-	-
between the output channels	-	-	-	-
Voltage supply for the module	internally via extension bus interface (I/O bus)			
Operating state indicators				
Yellow LED for I/O state	8	16	16	16
Green LED for voltage supply	1	1	1	1
Red LED for module and group errors	2	2	2	2
Mounting position	1. Horizontal mounting. 2. Vertical mounting possible with restrictions (max. output load per group: 50 % at + 40 °C).			
Cooling	Cooling by natural convection must not be obstructed by cable ducts or other interior components of the switchgear cabinet.			

Table: Digital I/O modules, „fast counter“ operating modes.
Not applicable for DC541 (see separate table on page 2/14)

Operating mode, configured in the user program of the AC500		Occupied inputs DI or DC	Occupied outputs DO or DC	Maximum counting frequency	Notes
0	No counter	0	0	-	-
1	One count-up counter with „end value reached“ indication	1	1	50 kHz	Note for input module DI524: It is not possible to set an output directly. As an alternative, the status byte should be evaluated and applied to another output in the system.
2	One count-up counter with „enable“ input and „end value reached“ indication	2	1	50 kHz	
3	Two up/down counters	2	0	50 kHz	„End value“ interrogation via status byte.
4	Two up/down counters with 1 counting input inverted	2	0	50 kHz	
5	One up/down counter with „dynamic set“ input	2	0	50 kHz	Acts to the rising signal edge (0->1). „End value“ interrogation via status byte.
6	One up/down counter with „dynamic set“ input	2	0	50 kHz	Acts to the falling signal edge (1->0). „End value“ interrogation via status byte.
7	One up/down counter with directional discriminator. For synchro transmitters using two counting pulses with an offset of 90° (track A and B).	2	0	50 kHz	For synchro transmitters with 24 V signals. In case of 5 V synchro transmitters, the signal has to be increased to 24 V. The zero track of the synchro transmitter is not processed. Interrogation of the „end value“ indication via the status byte. Single evaluation.
8	-	0	0	-	-
9	One up/down counter with directional discriminator and double evaluation. For synchro transmitters using two counting pulses with an offset of 90° towards each other (track A and B).	2	0	30 kHz	See operating mode 7. Difference: Double evaluation, i.e. evaluation of the rising edge and the falling edge of track A -> higher accuracy due to the double number of counting pulses.
10	One up/down counter with directional discriminator and fourfold evaluation. For synchro transmitters using two counting pulses with an offset of 90° towards each other (track A and B).	2	0	15 kHz	See operating mode 7. Difference: Fourfold evaluation, i.e. evaluation of the rising edge and the falling edge of track A and track B -> higher accuracy due to the fourfold number of counting pulses.

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Overview of S500 I/O modules

Table: Possible configurations for the multifunctional module DC541

Configuration as	Configuration for channel no. Function	Chan. 0	Chan. 1	Chan. 2	Chan. 3	Chan. 4-7	Max. no. of channels for this function	Remarks and notes regarding possible alternative combinations of the remaining channels (a and b)
Interrupt	Digital input	1	1	1	1	4	8	Each channel can be configured individually as interrupt input or interrupt output.
	Digital output	1	1	1	1	4	8	
Mode 2: Counting functionality and multifunctional I/Os, mutually exclusive with mode 1 (interrupt functionality)								
Multifunctional I/Os, digital I/Os, PWM, counter, time and frequency measurement	Digital input	1	1	1	1	4	8	Usual input.
	Digital output	1	1	1	1	4	8	Usual output.
	PWM, resolution 10 kHz	1	1	1	1	4	8	Outputs a pulsed signal with an adjustable on-off ratio.
	Up/down counter, 50 kHz	1	1	OK *1)	OK *1)	OK *1)	2	*1) a) Both channels (0 and 1) configured as 50 kHz counters => channels 2 to 7 can be configured as digital I/Os. b) Only one channel (0 or 1) configured as 50 kHz counter => the second channel can be configured as counter < 50 kHz or for time/frequency measurement with a max. resolution of 200 µs. The remaining channels (2 to 7) can be configured as digital I/Os.
	Up/down counter, 5 kHz	1	1	1	1	OK *2)	4	*2) a) Four channels (0 to 3) configured as 5 kHz counters => channels 4 to 7 can be configured as digital I/Os. b) Not all of the four channels 0 to 3 configured as 5 kHz counter => the remaining channels (of chan. 0 to 3) can be configured as counters for 2.5 kHz or for time/frequency measurement with a max. resolution of 200 µs as desired. The remaining channels (4 to 7) can be configured as digital I/Os.
	Up/down counter, 2.5 kHz	1	1	1	1	4	8	
	Time/frequency measurement, resolution 50 µs	1	OK *3)	OK *3)	OK *3)	OK *3)	1	*3) Channel 0 configured for a max. resolution of 50 µs => channels (1 to 7) can be configured as digital I/Os.
	Time/frequency measurement, resolution 100 µs	1	1	OK *4)	OK *4)	OK *4)	2	*4) a) Both channels (0 and 1) configured for a max. resolution of 50 µs => chan. 2 to 7 can be configured as digital I/Os. b) Only one channel (0 or 1) configured for a max. resolution of 50 µs => the second channel can be configured as counter < 50 kHz or for time/frequency measurement with a max. resolution of 200 µs. The remaining channels (2 to 7) can be configured as digital I/Os.
Time/frequency measurement, resolution 200 µs	1	1	1	1	4	8	Times, frequencies and rotational speeds are measured with a maximum resolution of 200 µs.	
Fast counter	Bidirectional 32 bit counter, 50 kHz max.	Channels 0 to 3: track A, track B, zero track, touch trigger				OK *6)	1	For connection of an incremental transmitter. For signals up to 50 kHz (corresponds to a motor with a rotational speed of 3000 rpm). The counter always occupies the first 4 channels (0 to 3). *6) The remaining channels (4 to 7) can be configured as limit values, as 5 kHz counters, for time/frequency measurement with a resolution of 200 µs or as digital I/Os.
	Shaft (endless counting)	1				OK *7)	1	„Endless“ forward counting. An overflow occurs corresponding to the 32 bit value. *7) The remaining channels can be configured as limit values, as 5 kHz counters, for time/frequency measurement with a resolution of 200 µs or as digital I/Os.
	32 bit counter incl. sign	1				OK *8)	1	*8) The remaining channels can be configured as limit values, as 5 kHz counters, for time/frequency measurement with a resolution of 200 µs or as digital I/Os.
	Limit values for 32 bit counter	OK *9)				1	1	Various counting values of the 32 bit counter can be displayed directly via these outputs. *9) In this case, the channels 0 to 3 are used as 32 bit counters.

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

AC500 system data

Operating and environmental conditions

Voltages according to EN 61131-2

24 V DC	Process and supply voltage Absolute limits Residual ripple Polarity reversal protection	24 V DC (-15 %, +20 % without residual ripple) 19.2 V ... 30 V incl. residual ripple < 5 % 10 s
120 V AC	Supply voltage Frequency	120 V AC (-15 %, +10 %) 47 Hz ... 62.4 Hz/50 ... 60 Hz (-6 %, +4 %)
230 V AC	Supply voltage Frequency	230 V AC (-15 %, +10 %) 47 Hz ... 62.4 Hz/50 ... 60 Hz (-6 %, +4 %)
120–240 V AC	Wide voltage input Voltage Frequency	102 V ... 264 V/120 V ... 240 V (-15 %, +10 %) 47 Hz ... 62.4 Hz/50 ... 60 Hz (-6 %, +4 %)

Power failure bridging time according to EN 61131-2

Temperature	DC supply AC supply	Failure < 10 ms, time between 2 failures > 1 s, PS2 Failure < 0.5 periods, time between 2 failures > 1 s
	Operation Storage Transport	0 °C ... +60 °C for horizontal mounting -25 °C ... +75 °C -25 °C ... +75 °C 95 % max., no condensation
Humidity Air pressure	Operation Storage	> 800 hPa / < 2000 m > 660 hPa / < 3500 m

Creepage distances and clearances

The creepage distances and clearances correspond to Overvoltage Category II, Pollution Severity 2

Electromagnetic compatibility

Interference immunity

against electrostatic discharge (ESD) interference voltage with air discharge interference voltage with contact discharge	acc. to EN 61000-4-2, Zone B, Criteria B 8 kV 4 kV*
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Interference immunity

against radiated interferences (CW radiated) Test field strength	acc. to EN 61000-4-3, Zone B, Criteria A 10 V/m
---	--

Interference immunity

against transient interference voltages (burst)	acc. to EN 61000-4-4, Zone B, Criteria B
---	--

Interference immunity

against conduction-bound interferences (CW conducted) Test voltage	acc. to EN 61000-4-6, Zone B, Criteria A 3V Zone B
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Impulse voltage

	acc. to EN 61000-4-5, Zone B, Criteria B
--	--

Emitted interferences

	acc. to EN 55011, Group 1, Class A
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Mechanical data

Connection type / terminals Mounting Degree of protection Housing Vibration resistance	horizontal IP 20 acc. to UL 94 all three axes 2 Hz ... 15 Hz, continuously 3.5 mm 15 Hz ... 150 Hz, continuously 1 g (4 g in preparation) 15 Hz ... 150 Hz, continuously 1 g all three axes 15 g, 11 ms, semi-sinusoidal
Vibration resistance with SD card plugged in Shock resistance	
Device mounting DIN top-hat rail acc. to DIN EN 50022 Screw mounting Torque	35 mm, overall height 7,5 mm or 15 mm Screws with 4 mm diameter 1.2 Nm

* Use with higher interference voltages is possible but requires additional external measures

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Ordering data

AC500 CPUs

- 2 internal serial interfaces, RS232/RS485 configurable
- Display and 8 function keys for diagnosis and status
- Centrally expandable with up to 7 expansion modules
- Simultaneous operation of up to 4 external communication modules in any desired combination
- Optional SD card for data storage and program backup
- Can also be used as slave on Profibus DP or DeviceNet via FieldBusPlug (in preparation: CANopen)



AC500 CPUs, type PM571						
Type	Program memory	Cycle time in ms 1000 instructions Bit/Word/Float. point	Integrated coupler	Order code	Price	Weight per piece kg
PM571	64 kB	0.3/0.3/6	–	1SAP 130 100 R0100		0.135
PM571-ETH ¹⁾	64 kB	0.3/0.3/6	Ethernet	1SAP 130 100 R0170		0.15

¹⁾ Separate communication processor integrated.

AC500 CPUs, type PM581 and PM582						
Type	Program memory	Cycle time in ms 1000 instructions Bit/Word/Float. point	Integrated coupler	Order code	Price	Weight per piece kg
PM581	256 kB	0.15/0.15/3	–	1SAP 140 100 R0100		0.135
PM581-ETH ¹⁾	256 kB	0.15/0.15/3	Ethernet	1SAP 140 100 R0170		0.15
PM581-ARCNET ¹⁾	256 kB	0.15/0.15/3	ARCNET	1SAP 140 100 R0160		0.16
PM582	512 kB	0.15/0.15/3	–	1SAP 140 200 R0100		0.135
PM582-ETH ¹⁾	512 kB	0.15/0.15/3	Ethernet	1SAP 140 200 R0170		0.15
PM582-ARCNET ¹⁾	512 kB	0.15/0.15/3	ARCNET	1SAP 140 200 R0160		0.16

¹⁾ Separate communication processor integrated.

AC500 CPUs, type PM590 and PM591						
Type	Program memory	Cycle time in ms 1000 instructions Bit/Word/Float. point	Integrated coupler	Order code	Price	Weight per piece kg
PM590	2048 kB	0.05/0.05/0.5	–	1SAP 150 000 R0100		0.135
PM590-ETH ¹⁾	2048 kB	0.05/0.05/0.5	Ethernet	1SAP 150 000 R0170		0.15
PM590-ARCNET ¹⁾	2048 kB	0.05/0.05/0.5	ARCNET	1SAP 150 000 R0160		0.16
PM591	4096 kB	0.05/0.05/0.5	–	1SAP 150 100 R0100		0.135
PM591-ETH ¹⁾	4096 kB	0.05/0.05/0.5	Ethernet	1SAP 150 100 R0170		0.15
PM591-ARCNET ¹⁾	4096 kB	0.05/0.05/0.5	ARCNET	1SAP 150 100 R0160		0.16

¹⁾ Separate communication processor integrated.

Ethernet communication module

10/100 Mbit/s, full/half duplex with auto-sensing.
 2-port switch integrated.
 Transport protocols TCP/IP, UDP/IP, Modbus TCP.
 CPU interface: 8 kB dual-port memory.
 Contains a separate communication processor, 256 kB RAM memory and 512 kB flash memory.
 No external power supply required.

Type	Protocol	Interfaces	Order code	Price	Weight per piece kg
CM577-ETH	TCP/IP, UDP/IP, Modbus TCP	2 x RJ45	1SAP 170 700 R0001		0.115

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Ordering data

Profibus DP communication module

For Profibus DP master V0/V1. Multi master functionality.
 Transfer rate: 9.6 kbit/s up to 12 Mbit/s.
 Max. no. of subscribers: 126 (V0) or 32 (V1).
 CPU interface: 8 kB dual-port memory.
 Contains a separate communication processor and 256 kB RAM memory.
 No external power supply required.

Type	Interface	Order code	Price	Weight per piece (kg)
CM572-DP	Sub-D socket	1SAP 170 200 R0001		0.115

DeviceNet communication module

For DeviceNet master.
 Transfer rate: 125 kbit/s, 250 kbit/s, 500 kbit/s.
 CPU interface: 8 kB dual-port memory.
 Contains a separate communication processor, 256 kB RAM memory and 512 kB flash memory.
 No external power supply required.

Type	Interface	Order code	Price	Weight per piece (kg)
CM575-DN	Plug-in terminal block, spring-type terminals	1SAP 170 500 R0001		0.115

CANopen communication module

For CANopen master.
 Transfer rate: 10 kbit/s up to 1 Mbit/s.
 CPU interface: 8 kB dual-port memory.
 Contains a separate communication processor, 256 kB RAM memory and 512 kB flash memory.
 No external power supply required.

Type	Interface	Order code	Price	Weight per piece (kg)
CM578-CN	Plug-in terminal block, spring-type terminals	1SAP 170 800 R0001		0.115

Terminal base

For mounting and connection of the CPUs and communication modules
 1 to 4 plug-in communication modules
 Connection for communication coupler integrated in the CPU
 I/O interface for direct connection of up to 10 expansion modules
 Fieldbus-neutral FieldBusPlug-Slave interface
 Connection COM1: 9-pole pluggable terminal block
 Connection COM2: 9-pole SUB-D (socket)

Type	Number of coupler slots	Connection for coupler integrated in the CPU	Order code	Price	Weight per piece (kg)
TB511-ETH	1	Ethernet RJ45	1SAP 111 100 R0170		0.215
TB511-ARCNET	1	ARCNET COAX	1SAP 111 100 R0160		
TB521-ETH	2	Ethernet RJ45	1SAP 112 100 R0170		
TB521-ARCNET	2	ARCNET COAX	1SAP 112 100 R0160		
TB541-ETH	4	Ethernet RJ45	1SAP 114 100 R0170		

Interface modules

For decentralized I/Os
 DC505-FBP Communication via FieldBusPlug with Profibus DP or DeviceNet (in preparation: CANopen)
 Fieldbus-dependent FieldBusPlug required*
 DC551-CS31 Communication via internal interface with CS31 system bus
 Plug-in electronic modules, terminal block TU551 or TU552 required
 DC: Channels can be configured individually as inputs or outputs

Type	Number of DI/DO/DC	Input signal	Output signal	Order code	Price	Weight per piece (kg)
DC505-FBP	8/-/8	24 V DC	Trans. 24 V DC, 0.5 A	1SAP 220 000 R0001		0.3
DC551-CS31	8/-/16	24 V DC	Trans. 24 V DC, 0.5 A	1SAP 220 500 R0001		0.3

* Please refer to the FieldBusPlugs catalog for information about FBP. The currently available FBP field bus plugs are listed in the paper 2CDC 120 141 D02**.

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Ordering data

Digital input/output modules

- For central expansion of the AC500 CPUs (up to 10 digital or analog modules in any combination)
- For decentralized expansion in combination with interface module DC505-FBP or DC551-CS31 (up to 7 digital or analog modules with a maximum of 4 analog modules)
- Plug-in electronic modules, terminal block required (refer to table below)
- Exception: DC541 (occupies one communication module slot on the CPU terminal base, no terminal block required)
- DC: Channels can be configured individually as inputs or outputs.

Type	Number of DI/DO/DC	Input signal	Relay / transistor outputs	Output signal	Order code	Price	Weight per piece kg
DI524	32/-/-	24 V DC	-	-	1SAP 240 000 R0001		0.2
DC522	-/-/16	24 V DC	Transistor	24 V DC, 0.5 A	1SAP 240 600 R0001		0.2
DC523	-/-/24	24 V DC	Transistor	24 V DC, 0.5 A	1SAP 240 500 R0001		0.2
DC532	16/-/16	24 V DC	Transistor	24 V DC, 0.5 A	1SAP 240 100 R0001		0.2
DX522	8/8/-	24 V DC	Relay	230 V AC, 3 A ¹⁾	1SAP 245 200 R0001		0.3
DX531	8/4/-	230 V AC	Relay	230 V AC, 3 A ¹⁾	1SAP 245 000 R0001		0.3
DC541 ²⁾	-/-/8	24 V DC	Transistor	24 V DC, 0.5 A	1SAP 270 000 R0001		0.1

¹⁾ Relay outputs, changeover contacts

²⁾ Multifunctional module, refer to table on page 2/14 for details

Analog input/output modules

- For central expansion of the AC500 CPUs (up to 10 digital or analog modules in any combination)
- For decentralized expansion in combination with interface module DC505-FBP or DC551-CS31 (up to 7 digital or analog modules with a maximum of 4 analog modules)
- Plug-in electronic modules, terminal block required (refer to table below)
- Each channel can be configured individually
- Resolution: 12 bits + sign

Type	Number of AI/AO	Input signal	Output signal	Order code	Price	Weight per piece kg
AI523	16 / 0	0 ... 10 V, ± 10 V 0 / 4 ... 20 mA Pt100, Pt1000 Ni1000	-	1SAP 250 300 R0001		0.2
AX521	4 / 4			1SAP 250 100 R0001		0.2
AX522	8 / 8 (max. 4 current outputs)		± 10 V 0 / 4 ... 20 mA	1SAP 250 000 R0001		0.2
AO523	0 / 16 (max. 8 current outputs)		-	1SAP 250 200 R0001		0.2

Terminal blocks

For digital and analog expansion modules and interface modules.

Please note: For modules with relay outputs, terminal blocks for 230 V AC (TU531/TU532) are required!

For the module-terminal block assignments, please consult the table!

	for I/O modules				for interface modules			
	TU515 screw-type	TU516 spring-type	TU531 screw-type	TU532 spring-type	TU505-FBP screw-type	TU506-FBP spring-type	TU551-CS31 screw-type	TU552-CS31 spring-type
DI524	x	x						
DC522	x	x						
DC523	x	x						
DC532	x	x						
DX522			x	x				
DX531			x	x				
AI523	x	x						
AX521	x	x						
AX522	x	x						
AO523	x	x						
DC505-FBP					x	x		
DC551-CS31							x	x

Automation Devices

Scalable PLC AC500 with S500 I/O Devices

Ordering data

Type	for	Supply	Connection type	Order code	Price	Weight per piece kg
TU505-FBP	FBP interface modules		Screw-type terminals	1SAP 210 200 R0001		0.3
TU506-FBP	FBP interface modules		Spring-type terminals	1SAP 210 000 R0001		0.3
TU515	I/O modules	24 V DC	Screw-type terminals	1SAP 212 200 R0001		0.3
TU516	I/O modules	24 V DC	Spring-type terminals	1SAP 212 000 R0001		0.3
TU531	I/O modules AC / relay	230 V AC	Screw-type terminals	1SAP 217 200 R0001		0.3
TU532	I/O modules AC / relay	230 V AC	Spring-type terminals	1SAP 217 000 R0001		0.3
TU551-CS31	CS31 interface modules	24 V DC	Screw-type terminals	1SAP 210 600 R0001		0.3
TU552-CS31	CS31 interface modules	24 V DC	Spring-type terminals	1SAP 210 400 R0001		0.3

Accessories for AC500						
Type	for	Description	Order code	Price	Weight per piece kg	
TK501	AC500 CPUs COM2	Programming cable Sub-D/Sub-D, length 5 m	1SAP 180 200 R0001		0.4	
TK502	AC500 CPUs COM1	Programming cable Sub-D/terminal block, length 5 m	1SAP 180 200 R0101		0.4	
UTF21-FBP	Cable for programming the AC500 via the integrated field-bus neutral interface	Connection to PC via USB interface. Includes USB extension cable and installation CD.	1SAJ 929 400 R0001			
MC502	AC500 CPUs	Memory card (SD card) 128 MB	1SAP 180 100 R0001		0.1	
TA521	AC500 CPUs	Lithium battery for data buffering	1SAP 180 300 R0001		0.1	
TA523	I/O modules	Pluggable marker holder for I/O modules, packing unit incl. 10 pcs.	1SAP 180 500 R0001		0.3	
TA524	Terminal base	Communication module, dummy housing	1SAP 180 600 R0001			
TA525	I/O modules	White labels, packing unit incl. 10 pcs.	1SAP 180 700 R0001		0.1	
TA526	CPU terminal base	Accessories for back plate mounting, packing unit incl. 10 pcs.	1SAP 180 800 R0001		0.2	
TA527	CPU terminal base	5-pole power plug for AC500. Spare part. Can be plugged to CPU terminal base TB5x1. Packing unit incl. 5 pcs.	1SAP 181 100 R0001		0.2	
TA528	CPU terminal base	9-pole COM1 plug for AC500. Spare part. Can be plugged to CPU terminal base TB5x1. Packing unit incl. 5 pcs.	1 SAP 181 200 R0001		0.2	

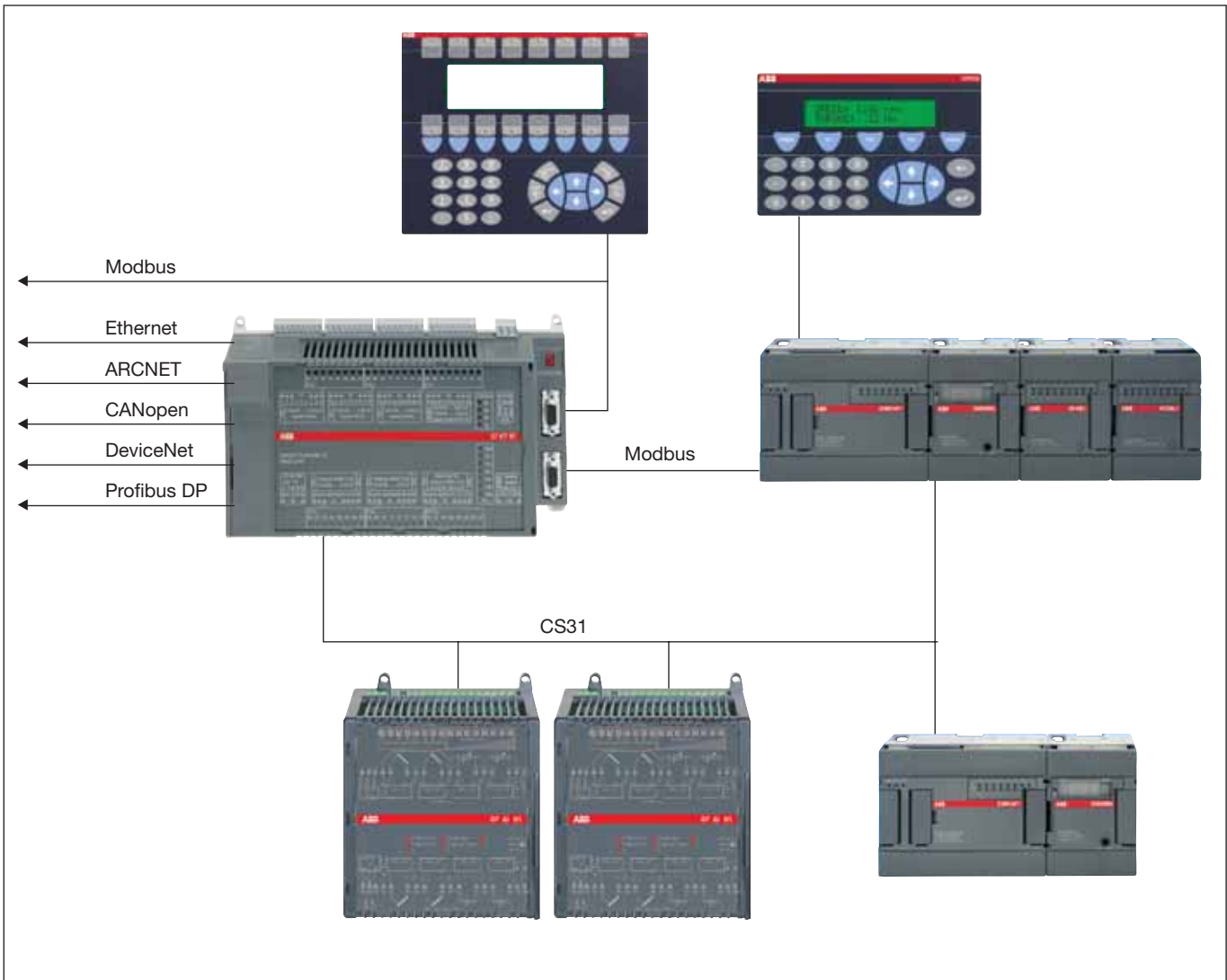
Programming package PS501 Control Builder						
For all AC500 CPUs						
All programming languages according to IEC 61131-3						
Contains: 5 programming languages, sampling - trace, debugging, offline simulation, integrated visualization, trace recording (multi-channel), recipe management, Continuous Function Chart						
Languages: German / English / French						
Scope of delivery: Software, libraries and documentation (PDF) on CD-ROM						
Type	for	Description	Order code	Price	Weight per piece kg	
PS501	all AC500 CPUs	Programming package PS501 Control Builder AC500	1SAP 190 100 R0002		0.3	
PS541-HMI		License for runtime visualization package. For installation and visualization of images created with the programming package PS501. Delivery includes license code and documentation.	1SAP 190 500 R0001		0.3	

Please refer to the FieldBusPlugs catalog for FieldBusPlug (FBP) ordering data . The currently available FBP field bus plugs are listed in the paper 2CDC190022D0201.

Automation Devices

Small and Compact PLCs AC31

The AC31 PLC family



Automation Devices

Small and Compact PLCs AC31

The AC31 PLC family

The AC31 PLC family

AC31 offers compact, high performance CPUs in varying designs with the possibility of decentral networking.

All CPUs are universally programmable according to IEC 61131-3, beginning with the small PLCs (series 40..50) up to the high-performance compact PLCs (series 90).

They occupy only small space and offer high functionality with up to 1 MByte of user memory, with 60 integrated I/Os (analog and digital), with two serial interfaces (both of which are configurable for MODBUS or ASCII) and with a plug-in smart media card for loading user programmes or for data storage.

Up to two further communication interfaces with their own processors are already integrated within the CPUs. The user can choose varying combinations of integrated field

busses or network protocols, e.g. Ethernet + PROFIBUS DP, ARCNET + CANopen or CANopen + Ethernet.

The couplers are integrated within the standard housing of the CPU in order to save space. Tools for the configuration of the field busses used are already an integral part of the software package 907 AC 1131.

The components of AC31 series 40..50 and of AC31 series 90 can be mixed as desired. This way it is even possible to combine I/O modules of series 40..50 with the compact controllers of series 90 or vice versa to combine I/O modules of series 90 with a small PLC of series 50.

	series 40	series 50	07KT95	07KT96	07KT97	07KT98
MODBUS	x	x	x	x	x	x
Ethernet	x	x			x	x
CANopen					x	x
Profibus DP					x	x
ARCNET					x	x
DFÜ RCOM			x	x	x	x
CS31 system bus		x	x	x	x	x

Automation Devices

Small and Compact PLCs AC31

Overview of AC31 CPUs

		Small PLC AC31 series 40..50					
Details	Type	CR41	CT41	CR42	CT42	KR51	KT51
Program memory Flash EPROM and RAM [kB]		34				34	
Supply voltage 24 V DC 120 / 230 V AC		x x	x -	x x	x -	x x	x -
Plug-in Smart Media Card		-		-		-	
Cycle time for 1 kB [ms] 100% binary values 65% binary values and 35% words		0.4 1.2				0.4 1.2	
Number of inputs and outputs Digital, internal (DI / DO / DC) DI/DO maximum Analog, internal (AI / AO) AI/AO maximum		8 / 6 / - 110 - / - 36		8 / 6 / - 110 3 / - 36		8 / 6 / - 1000 - / - 222	
Digital inputs 24 V DC		x				x	
Digital outputs Transistor (T) 24 V DC, 0.5 A Relay (R) 120 / 230 V AC, 2 A		- x	x -	- x	x -	- x	x -
Analog input ranges ± 10 V 0 ... 10 V, 0 ... 5 V, ± 5 V 0 ... 20 mA, 4 ... 20 mA PT100 (- 50 °C ... + 400 °C) PT100 (- 30 °C ... + 70 °C) PT100 (- 100 °C ... + 524 °C) configurable as DI		- - - - - -		x - - - - x -		- - - - - - -	
Analog output ranges ± 10 V 0 ... 20 mA, 4 ... 20 mA		- -				- -	
Data buffering by battery		integrated				integrated	
Real-time clock		x				x	
Programming package 907 AC 1131 907 PC 331 AC31GRAF		x x x				x x x	
Program execution cyclical or time-controlled multitasking		x x x				x x x	
User program protection password		x				x	
Serial interfaces RS232 (programming, Modbus, ASCII) RS485 (CS31, Modbus, programming)		1 -				1 1	
Integrated potentiometers		2				2	
Data memory [kB]		2				2	
Timers		unlimited (42 at the same time)				unlimited (42 at the same time)	
Counters		unlimited (function)				unlimited (function)	
Fast counters (pieces / frequency)		2 / 7 kHz				2 / 7 kHz	
Interfaces / protocols CS31 ASCII MODBUS® Ethernet ARCNET Profibus DP CANopen RCOM (additional coupler)		- x x x - - - -				x x x x - - - -	
Remark:		Centrally expandable by up to 6 I/O modules of series 40 ... 50. Up to 110 digital or 36 analog I/Os or mixed.					

Automation Devices

Small and Compact PLCs AC31

Overview of AC31 CPUs

Compact PLC AC31 series 90			
KT95	KT96	KT97	KT98
480	480	480	1000
x	x	x	x
-	-	-	-
x	x	x	x
-	-	-	-
0.22	0.22	0.22	0.07
12 / 8 / 0 1012 4 / 2 228 / 226	24 / 16 / 0 1032 - 224 / 224	24 / 16 / 8 1040 8 / 4 232 / 228	24 / 16 / 8 1040 8 / 4 232 / 228
x	x	x	x
x	x	x	x
-	-	-	-
x	-	x	x
x	-	x	x
-	-	x	x
-	-	x	x
-	-	x	x
-	-	-	-
-	-	x	x
x	-	x	x
-	-	x	x
optional	optional	optional	optional
x	x	x	x
x	x	x	x
-	-	-	-
-	-	-	-
x	x	x	x
x	x	x	x
x	x	x	x
2	2	2	2
-	-	-	-
-	-	-	-
256, incl. 16 kB RETAIN	256, incl. 16 kB RETAIN	256, incl. 16 kB RETAIN	1280, incl. 256 kB RETAIN
unlimited	unlimited	unlimited	unlimited
unlimited	unlimited (function)	unlimited (function)	unlimited
2 / 50 kHz	2 / 50 kHz	2 / 50 kHz	2 / 50 kHz
x	x	x	x
x	x	x	x
x	x	x	x
-	-	x	x
-	-	x	x
-	-	x	x
-	-	x	x
-	-	x	x
x	x	x	x
Remark:			

Automation Devices

Small and Compact PLCs AC31

Overview of AC31 I/O modules

Digital I/O modules	Bus modules series 50 ^{*1)}			Series 40 .. 50 Only in connection with bus modules or CPU								
	ICMK 14 F1	ICMK 14 F1	ICMK 14 N1	XI 16 E1	XO 16 N1	XO 08 Y1	XO 08 R1 ^{*2)}	XO 08 R2	XC 08 L1	XK 08 F1	XC 32 L1 ^{*3)}	
Type												
Supply voltage				internal								
24 V DC	x	-	x	internal								
230 V AC	-	x	-	internal								
Number of digital input and outputs (DI / DO / DC)	8 / 6 / -	8 / 6 / -	8 / 6 / -	16 / - / -	- / 16 / -	- / 8 / -	- / 8 / -	- / 8 / -	- / - / 8	4 / 4 / -	- / - / 32	
Digital inputs 24 V DC	x	x	x	x	-	-	-	-	x	x	x	
Digital outputs												
Relay (R) 120 / 230 V AC, 2 A	x	x	-	-	-	-	x	x	-	x	-	
Transistor (T) 24 V DC, 2 A	-	-	-	-	-	x	-	-	-	-	-	
Transistor (T) 24 V DC, 0.5 A	-	-	x	-	x	-	-	-	x	-	x	
Short circuit- / overload-proof	-	-	x	x	x	x	-	-	x	-	x	
Interfaces / protocols												
CS31 field bus	x	x	x	-	-	-	-	-	-	-	-	
Profibus DP	-	-	-	-	-	-	-	-	-	-	-	
Connection type (1 = 1 wire, 3 = 3 wires)												
spring-type terminal	1	1	1	1	1	1	1	1	1	1	with HE10 conn.	
screw-type terminal	1	1	1	1	1	1	1	1	1	1		
Remark:	^{*1)} Centrally expandable by up to 6 I/O modules of series 40 ... 50. Up to 110 digital or 36 analog I/Os or mixed. ^{*2)} 8 normally open outputs, 4 of these outputs can also be configured as normally closed outputs. ^{*3)} 4 counters 20 kHz / 4 frequency meters can be connected to prewiring system INTERFAST.											

Analog I/O modules	Series 40 .. 50 only with bus module or CPU				Series 90	
	XM 06 B5	XE 08 B5	XTC 08 ^{*4)}	XC 32 L2 ^{*5)}	07 AI 91	07 AC 91 ^{*6)}
Type						
Supply voltage						
24 V DC					x	x
230 V AC					-	-
Number of analog inputs and outputs AI / AO / AC	4 / 2 / -	8 / - / -	8 internal	8 / - / -	8 / - / -	- / - / 16
Analog input signals						
0 ... 10 V	-	-	-	x	-	-
± 10 V	x	x	-	-	x	x
± 20 mA	x	x	-	-	-	-
0 ... 20 mA	-	-	-	-	x	x
4 ... 20 mA	x	x	-	-	-	x
± 50 mV, ± 500 mV, ± 5 V	-	-	-	-	x	-
PT100, PT1000	x	x	-	-	x	-
thermocouple	-	-	-	-	x	-
Analog output signals						
± 10 V	x	-	-	-	-	x
0 ... 20 mA, 4 ... 20 mA	x	-	-	-	-	x
± 20 mA	-	-	-	-	-	-
Short circuit- / overload-proof	x	x	x	x	x	x
Interfaces / protocols						
CS31 field bus	-	-	-	-	x	x
Profibus DP	-	-	-	-	-	-
Connection type (1 = 1 wire, 3 = 3 wires)						
spring-type terminal	1	1	1	with HE10 connector	1	1
screw-type terminal	1	1	1		1	1
Display of channel number / value	x	x	x	-	-	-
Remark:	^{*4)} Display for 8 internal channels. ^{*5)} Plus 24 configurable digital I/Os (DC). Same as XC 32 L1 but 8 of 32 DC can also be used as AI. ^{*6)} Incl. 1 x DI for shut-off of all AOs of the module. With 2 modes of operation: (1) 8 AI and 8 AO with resolution of 12 bits or (2) in pairs as AI or AO with 8 bits.					

Automation Devices

Small and Compact PLCs AC31

Overview of AC31 I/O modules

Series 90			
07 DI 92	07 DC 91	07 DC 92	07 TC90 / TC91 ^{*7)}
x	x	x	x
-	-	-	-
32 / - / -	16 / 8 / 8	- / - / 32	32 / 32 / -
x	x	x	-
-	-	-	-
-	-	-	-
x	x	x	-
x	x	x	-
x	x	x	x
-	-	-	-
-	-	-	-
1	1	1	-

^{*7)} Special key pad for connection of operator panels with up to 32 buttons / switches and 32 LEDs to the CS31 field bus.

Bus modules series 50



Input / output modules series 40...50



Input / output modules series 90



Automation Devices

Small and Compact PLCs AC31

AC31 system data

System data AC31 series 40..50

Operating and environmental conditions

Environmental conditions

• Temperature		
operation	horizontal	0 °C to +55 °C
	vertical	0 °C to +40 °C
storage		-40 °C to +75 °C
transport		-25 °C to +75 °C
• Humidity		DIN 40040 Class F, no condensation
annual average		≤ 75%
for up to 30 days per year		95%
occasionally		85%
• Air pressure		DIN 40050
operation		≥ 800 hPa (≤ 2000 m)
storage		≥ 600 hPa (≤ 3500 m)

Mechanical data

• Degree of protection	IP 20
• Housing	UL V2
• Vibration resistance	CEI68-2-8 Test Fc
• Shock resistance	CEI68-2-27 Test Ea

Supply voltage tolerances

• 24 V DC	9.2 to 30 V (-20%, +25%)
• 120 V AC (50 / 60 Hz)	97.75 to 126.5 V (-18.5%, +5.5%)
• 230 V AC (50 / 60 Hz)	195.5 to 253 V (-15%, +10%)

System data AC31 series 90

Operating and environmental conditions

• Voltages		
24 V DC	process and supply voltage	24 V DC (+20%, -15% without residual ripple)
	absolute limits	19.2 V ... 30 V, incl. residual ripple
	residual ripple	≤ 5%
120 V AC	supply voltage	120 V AC (+10%, -15%)
	frequency	50 Hz (+5%, -5%) or 60 Hz (+5%, -5%)
230 V AC	supply voltage	230 V AC (+10%, -15%)
	frequency	50 Hz (+5%, -5%) or 60 Hz (+5%, -5%)
• Power failure bridging time		
	DC supply	Failure ≤ 10 ms, time between 2 failures ≥ 1 s
	AC supply	Failure ≤ 0.5 periods, time between 2 failures ≥ 1 s
• Temperature	operation	0 °C to +55 °C
	storage	-25 °C to +75 °C
	transport	-25 °C to +75 °C
• Humidity		50 ... 95%, no condensation
• Air pressure	operation	≥ 800 hPa / ≤ 2000 m
	storage	≥ 660 hPa / ≤ 3500 m

Creepage distances and clearances

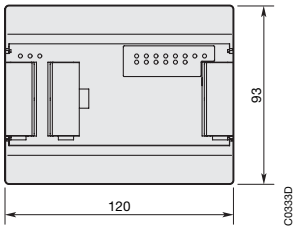
Creepage distances and clearances correspond to	Overvoltage Category II, Pollution Severity 2
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Automation Devices

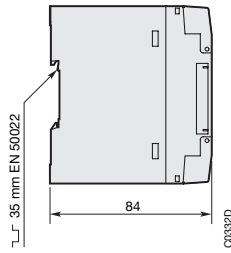
Small and Compact PLCs AC31

Dimensional drawings

CPUs series 40..50 and bus modules

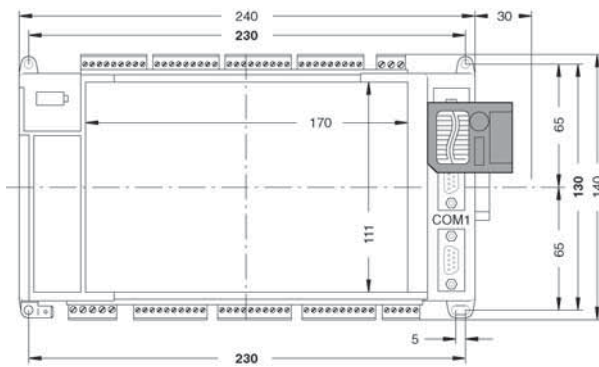


07CR41/42, 07CT41/42, 07KR51, 07KT51
and ICMK 14 F1/N1

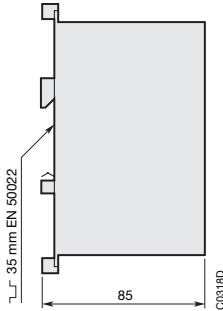


W x H x D [mm]	120 x 93 x 84
W x H x D [inches]	4.72 x 3.66 x 3.31
Mounting	35 mm DIN rail acc. to DIN EN 50022 or screw mounting

CPUs series 90

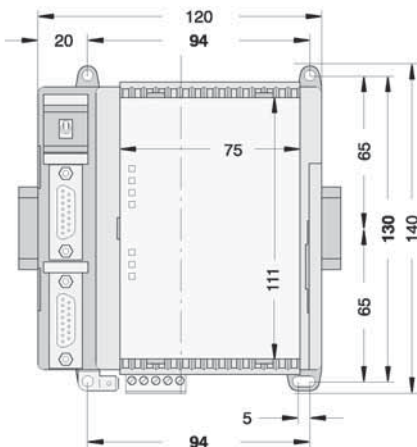


07KT94, 07KT94-S, 07KT96, 07KT97 and 07KT98



W x H x D [mm]	240 x 140 x 85
W x H x D [inches]	9.45 x 5.51 x 3.35
Mounting	35 mm DIN rail acc. to DIN EN 50022 or screw mounting

Communication modules series 90



07KP90, 07KP93

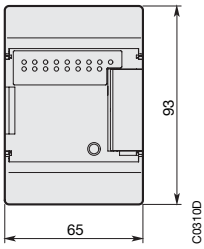
W x H x D [mm]	120 x 140 x 85
W x H x D [inches]	4.72 x 5.51 x 3.35
Mounting	35 mm DIN rail acc. to DIN EN 50022 or screw mounting

Automation Devices

Small and Compact PLCs AC31

Dimensional drawings

I/O modules and communication modules series 40..50



W x H x D [mm]	65 x 93 x 84.5
W x H x D [inches]	2.56 x 3.66 x 3.33
Mounting	35 mm DIN rail acc. to DIN EN 50022 or screw mounting

XI16E1, XO16N1, XO08R1, XO08Y1, XC08L1, XK08F1, XM06B5, XE06B5, 07KP53

Approvals

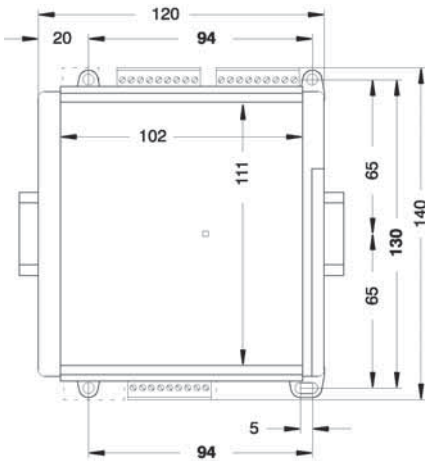


Germanischer Lloyd



Lloyds Register of Shipping

I/O modules series 90



W x H x D [mm]	120 x 140 x 85
W x H x D [inches]	4.72 x 5.51 x 3.35
Mounting	35 mm DIN rail acc. to DIN EN 50022 or screw mounting

07DI92, 07DC91/92, 07AI91, 07AC91



Germanischer Lloyd



UL



CSA

Lloyds Register of Shipping



DNV, Norway

Automation Devices

Small and Compact PLCs AC31

Ordering data for Small PLCs AC31 series 40..50



07 CR 41

SB7667C3

CPUs AC31 series 40

Description: see „Overview of CPUs“.

Centrally expandable with up to 6 I/O modules. CRxx: relay outputs, CTxx: transistor outputs.

Program memory without / with online changes: 34 [kB] / 17 [kB].

Type	Integrated I/Os (DI / DO / AI)	Integrated counter inputs / pulse outputs	Supply voltage	Connction type	Order code	Price	Weight p. piece kg
07 CR 41	8 / 6 / -	2 / -	24 V DC	Screw-type termin.	1SBP 260 020 R1001		0.400
				Spring-type termin.	1SBP 260 520 R1001		0.400
			120/230 VAC	Screw-type termin.	1SBP 260 021 R1001		0.800
				Spring-type termin.	1SBP 260 521 R1001		0.800
07 CT 41	8 / 6 / -	2 / 1	24 V DC	Screw-type termin.	1SBP 260 022 R1001		0.400
				Spring-type termin.	1SBP 260 522 R1001		0.400
07 CR 42	8 / 6 / 3	2 / -	24 V DC	Screw-type termin.	1SBP 260 023 R1001		0.400
			120/230 VAC	Screw-type termin.	1SBP 260 024 R1001		0.800
07 CT 42	8 / 6 / 3	2 / 1	24 V DC	Screw-type termin.	1SBP 260 025 R1001		0.400

CPUs AC31 series 50

Description: see „Overview of CPUs“. Integrated CS31 field bus.

Centrally expandable with up to 6 I/O modules, decentrally with up to 31 I/O modules.

KRxx: relay outputs, KTxx: transistor outputs.

Program memory without / with online changes: 34 [kB] / 17 [kB].

Type	Integrated I/Os (DI / DO / AI)	Integrated counter inputs / pulse outputs	Supply voltage	Connction type	Order code	Price	Weight p. piece kg
07 KR 51	8 / 6 / -	2 / -	24 V DC	Screw-type termin.	1SBP 260 010 R1001		0.400
				Spring-type termin.	1SBP 260 510 R1001		0.400
			120/230 VAC	Screw-type termin.	1SBP 260 011 R1001		0.800
				Spring-type termin.	1SBP 260 511 R1001		0.800
07 KT 51	8 / 6 / -	2 / 1	24 V DC	Screw-type termin.	1SBP 260 012 R1001		0.400
				Spring-type termin.	1SBP 260 512 R1001		0.400



07 KR 51

SB7664C3

Automation Devices

Small and Compact PLCs AC31

Ordering data for Small PLCs AC31 series 40..50



ICMK 14 F1

SE7665C3

Bus modules series 50

Description: see „Overview of I/O modules“. Integrated CS31 field bus.
Centrally expandable with up to 6 I/O modules.

Type	Number of DI / DO	Relay / transistor outputs	Supply voltage	Connction type	Order code	Price	Weight p. piece kg
ICMK 14 F1	8 / 6	Relay	24 V DC	Screw-type termin.	1SBP 260 050 R1001		0.400
				Spring-type termin.	1SBP 260 550 R1001		0.400
ICMK 14 F1	8 / 6	Relay	120/230 VAC	Screw-type termin.	1SBP 260 051 R1001		0.800
				Spring-type termin.	1SBP 260 551 R1001		0.800
ICMK14 N1	8 / 6	Transistor	24 V DC	Screw-type termin.	1SBP 260 052 R1001		0.400
				Spring-type termin.	1SBP 260 552 R1001		0.400

Description: see „Overview of I/O modules“. Integrated MODBUS RTU slave. Automatic baudrate adaptation. Centrally expandable with up to 6 I/O modules (digital or analog modules).

Type	Number of DI / DO	Relay / transistor outputs	Supply voltage	Connction type	Order code	Price	Weight p. piece kg
ICMK 14 F1-M	8 / 6	Relay	24 V DC	Screw-type termin.	1SBP 260 053 R1001		0.400
ICMK 14 F1-M	8 / 6	Relay	120/230 V AC	Screw-type termin.	1SBP 260 054 R1001		0.800
ICMK 14 N1-M	8 / 6	Transistor	24 V DC	Screw-type termin.	1SBP 260 055 R1001		0.400

Replacement for series 30 CS31 I/O devices

I/O modules of series 30 that are no longer available can be replaced by the module ICMK-CS31 and a corresponding expansion module (standard I/O for AC31 series 40..50). Further information can be obtained on request.

Type		Supply voltage	Order code	Price	Weight p. piece kg
ICMK 14-CS31		24 V DC	1SBP 260 056 R1001		0.400
ICMK 14-CS31		120/230 V AC	1SBP 260 057 R1001		0.800

Automation Devices

Small and Compact PLCs AC31

Ordering data for Small PLCs AC31 series 40..50



SB766BC2
XI 16 E1

Digital I/O modules series 40..50

Description: see „Overview of I/O modules“.

Type	Number of DI / DO / DC	Input signal	Output signal	Connection type	Order code	Price	Weight p. piece kg
XI 16 E1	16 / - / -	24 V DC	-	Screw-type termin.	1SBP 260 100 R1001		0.220
				Spring-type termin.	1SBP 260 600 R1001		0.220
XO 16 N1	- / 16 / -	-	24 V DC, 0.5 A	Screw-type termin.	1SBP 260 105 R1001		0.220
				Spring-type termin.	1SBP 260 605 R1001		0.220
XO 08 Y1	- / 8 / -	-	24 V DC, 2 A	Screw-type termin.	1SBP 260 108 R1001		0.220
				Spring-type termin.	1SBP 260 608 R1001		0.220
XO 08 R1	- / 8 / -	-	250 V AC, 2 A	Screw-type termin.	1SBP 260 101 R1001		0.220
				Spring-type termin.	1SBP 260 601 R1001		0.220
XO 08 R2^{*)}	- / 8 / -	-	250 V AC, 2 A	Screw-type termin.	1SBP 260 109 R1001		0.220
				Spring-type termin.	1SBP 260 609 R1001		0.220
XC 08 L1	- / - / 8	24 V DC	24 V DC, 0.5 A	Screw-type termin.	1SBP 260 102 R1001		0.220
				Spring-type termin.	1SBP 260 602 R1001		0.220
XK 08 F1	4 / 4 / -	24 V DC	250 V AC, 2 A	Screw-type termin.	1SBP 260 104 R1001		0.220
				Spring-type termin.	1SBP 260 604 R1001		0.220
XC 32 L1^{**)}	- / - / 32	24 V DC	24 V DC, 0.5 A	HE10 connector	1SBP 260 110 R1001		0.220

^{*)} 8 normally open outputs, 4 of them can also be configured as normally closed outputs

^{**)} 4 counters 20 kHz / 4 frequency meters can be connected to prewiring system INTERFAST. HE10 not included.



SB766BC2
XM 06 B5

Analog I/O modules series 40..50

Description: see „Overview of I/O modules“.

Type	Number of AI / AO	Input signal	Output signal	Connection type	Order code	Price	Weight p. piece kg
XM 06 B5	4 / 2	± 10 V, ± 20 mA, 4 ... 20 mA, PT100, PT1000	± 10 V, 0 ... 20 mA, 4 ... 20 mA	Screw-type termin.	1SBP 260 103 R1001		0.220
				Spring-type termin.	1SBP 260 603 R1001		0.220
XE 08 B5	8 / -	± 10 V, ± 20 mA, 4 ... 20 mA, PT100, PT1000	-	Screw-type termin.	1SBP 260 106 R1001		0.220
				Spring-type termin.	1SBP 260 606 R1001		0.220
XC 32 L2^{*)}	8 / -	0 - 10 V	-	HE10 connector	1SBP 260 111 R1001		0.220

^{*)} Plus 24 configurable digital I/Os (DC). Same as XC 32 L1 but 8 of 32 DC can also be used as analog inputs.

4 counters 20 kHz / 4 frequency meters can be connected to prewiring system INTERFAST. HE10 not included.

Communication modules for CPUs of series 40..50

Networking interface for small PLC AC31 series 40..50. Connection to CPU via ribbon cable. Voltage supply from CPU. Cable: see accessories.

Type	Protocol	Software	Interfaces	Order code	Price	Weight p. piece kg
07 KP 53	MODBUS	included (in AC1131 & AC31GRAF)	2 Modbus RTU, Master or Slave (RS232/RS485)	1SBP 260 162 R1001		0.220

Ethernet interface for series 40 ..50 CPU

external accessory connected to the serial mini DIN of CPU - powered by CPU.

Type	Protocol	Interface	Order code	Price	Weight p. piece kg
e-AC31	MODBUS TCP programming	RJ45	1SBP 260 165 R1002		0.200

Automation Devices

Small and Compact PLCs AC31

Ordering data - Accessories for series 40..50



07 SK 50

SB7628C3



07 ST 50

SB7630C3

Display series 40..50

External 24 V DC supply.

Type	Description	Order code	Price	Weight p. piece kg
XTC 08	Display for 8 internal channels (4 digits + sign + selected channel)	1SBP 260 107 R1001		0.500

Accessories for series 40..50

Type	Accessory for	Description	Order code	Price	Weight p. piece kg
07 SK 50	CPUs series 40..50	Programming cable. PC-Sub D, 9 poles	1SBN 260 200 R1001		0.220
07 SK 52		Programming cable without connector on PC side	1SBN 260 202 R1001		0.220
07 SG 50		Simulation device for CPUs, 8 switches	1SAY 110 811 R0001		0.100
07 SK51	CPUs series 40..50, MODBUS coupler KP53	Communication cable MODBUS/ASCII, PC-Sub D9 plug	1SBN 260 201 R1001		0.220
07 SK 53		Communication cable MODBUS/ASCII without connector on PC side	1SBN 260 203 R1001		0.220
LAF100/HE10-20/UNI/662/UL*	I/O modules XC32L1 / XC32L2	Cable with HE10 connector for exten. and naked wire on the other side, cable length: 1 meter	003900706		
LAF150/HE10-20/UNI/662/UL*	I/O modules XC32L1 / XC32L2	Cable with HE10 connector for exten. and naked wire on the other side, cable length: 1.5 meters	003900825		
LAF200/HE10-20/UNI/662/UL*	I/O modules XC32L1 / XC32L2	Cable with HE10 connector for exten. and naked wire on the other side, cable length: 2 meters	003900906		
LAF300/HE10-20/UNI/662/UL*	I/O modules XC32L1 / XC32L2	Cable with HE10 connector for exten. and naked wire on the other side, cable length: 3 meters	003901104		
LAF500/HE10-20/UNI/662/UL*	I/O modules XC32L1 / XC32L2	Cable with HE10 connector for exten. and naked wire on the other side, cable length: 5 meters	003901322		
07 ST 50	CPUs and bus modules series 40..50, digital I/O modules	2-tier screw-type terminal for digital 3-wire sensors / actuators, 2 pieces	1SBN 260 300 R1001		0.220
07 ST 51	XM06B5, XE08B5	2-tier screw-type terminal for analog 3-wire sensors, 2 pieces	1SBN 260 301 R1001		0.220
07 ST 52		2-tier spring-type terminal for digital 3-wire sensors / actuators, 2 pieces	1SBN 260 302 R1001		0.052
07 ST 54	CPUs and bus modules series 40..50	Set of spring-type terminals	1SBN 260 311 R1001		0.052
07 ST 55	XI16E1, XO16N1, XE08B5	Set of spring-type terminals	1SBN 260 312 R1001		0.052
07 ST 56	XO08R1, XC08L1, XK08F1	Set of spring-type terminals	1SBN 260 313 R1001		0.052
07 ST 57	XM06B5	Set of spring-type terminals	1SBN 260 314 R1001		0.052
	Series 40..50	Labels for marking of I/O channels	1SBN 260 310 R1001		
Documentation	Series 40..50	English	1SBC 260 400 R1001		0.200
Documentation	Series 40..50	French	1SBC 260 401 R1001		0.200

*) refer to prewiring system INTERFAST documentation for additional information.

INTERFAST harnesses are also available for series 40..50 CPUs + remote modules XI16E1, XO16N1, DC92.

Automation Devices

Small and Compact PLCs AC31

Ordering data for Compact PLCs AC31 series 90

Compact PLCs AC31 series 90

Description: see „Overview of CPUs“. Integrated CS31 field bus.

Optional: Battery, Smart Media Card for data storage and user program backup (refer to accessories).

Type	Integrated digital I/Os (DI / DO / DC)	Integrated analog I/Os (AI / AO)	Counter inputs	Program memory [kB]	Order code	Price	Weight p. piece kg
07 KT 95	12 / 8 / –	4 / 2	2	480	GJR5 252 800 R0200		1.3
07 KT 96	24 / 16 / –	– / –	2	480	GJR5 252 900 R0200		1.3
07 KT 97	24 / 16 / 8	8 / 4	2	480	GJR5 253 000 R0200		1.3

Compact PLCs AC31 series 90 with up to 2 internal communication processors

Description: see „Overview of CPUs“. Integrated CS31 field bus.

Number of I/Os identical with 07 KT 97.

Optional: Battery, Smart Media Card for data storage and user program backup (refer to accessories).

Type	Processor 1	Processor 2	Program memory [kB]	Order code	Price	Weight p. piece kg
07 KT 97 - Profibus	Profibus DP	–	480	GJR5 253 000 R0220		1.3
07 KT 97 - CANopen	CANopen	–	480	GJR5 253 000 R0280		1.3
07 KT 97 - Ethernet	Ethernet	–	480	GJR5 253 000 R0270		1.3
07 KT 97 - ARCNET	ARCNET	–	480	GJR5 253 000 R0260		1.3
07 KT 97 - Ethernet - ARCNET	Ethernet	ARCNET	480	GJR5 253 000 R0276		1.3
07 KT 97 - Ethernet - Profibus	Ethernet	Profibus DP	480	GJR5 253 000 R0272		1.3
07 KT 97 - Ethernet - CANopen	Ethernet	CANopen	480	GJR5 253 000 R0278		1.3
07 KT 97 - Ethernet - Ethernet	Ethernet	Ethernet	480	GJR5 253 000 R0277		1.3
07 KT 97 - ARCNET - Profibus	ARCNET	Profibus-DP	480	GJR5 253 000 R0262		1.3
07 KT 97 - ARCNET - CANopen	ARCNET	CANopen	480	GJR5 253 000 R0268		1.3
07 KT 98 - Profibus	Profibus DP	–	1000	GJR5 253 100 R0220		1.3
07 KT 98 - CANopen	CANopen	–	1000	GJR5 253 100 R0280		1.3
07 KT 98 - Ethernet	Ethernet	–	1000	GJR5 253 100 R0270		1.3
07 KT 98 - ARCNET	ARCNET	–	1000	GJR5 253 100 R0260		1.3
07 KT 98 - Ethernet - ARCNET	Ethernet	ARCNET	1000	GJR5 253 100 R0276		1.3
07 KT 98 - Ethernet - Profibus	Ethernet	Profibus-DP	1000	GJR5 253 100 R0272		1.3
07 KT 98 - Ethernet - CANopen	Ethernet	CANopen	1000	GJR5 253 100 R0278		1.3
07 KT 98 - Ethernet - Ethernet	Ethernet	Ethernet	1000	GJR5 253 100 R0277		1.3
07 KT 98 - ARCNET - Profibus	ARCNET	Profibus-DP	1000	GJR5 253 100 R0262		1.3
07 KT 98 - ARCNET - CANopen	ARCNET	CANopen	1000	GJR5 253 100 R0268		1.3



07 KT 95

07_KT_94_perspektive



07 KT 97

07_KT_94_perspektive



07 KT 98

07_KT_94_perspektive

Automation Devices

Small and Compact PLCs AC31

Ordering data for Compact PLCs AC31 series 90



07 DI 92

07_DI_92_perspektive



07 DC 92

07_DC_92_perspektive



07 AI 91

07_AI_91_perspektive



07 KP 90

SST03598

Digital I/O modules series 90

Description: see „Overview of I/O modules“. Integrated CS31 field bus.
DC: Channels can be individually configured as input or output.

Type	Number of DI / DO / DC	Input signal	Output signal	Details	Order code	Price	Weight p. piece kg
07 DI 92	32 / - / -	24 V DC	-	Input delay 7 ms	GJR5 252 400 R0101		0.25
07 DC 91	16 / 8 / 8	24 V DC	24 V DC 0.5 A (T)	Input delay 7 ms	GJR5 251 400 R0202		0.25
07 DC 92	- / - / 32	24 V DC	24 V DC 0.5 A (T)	Input delay 7 ms, electrically isolated in groups of 8	GJR5 252 200 R0101		0.25
07 TC 90	- / - / -	- / - / -	-	Keypad controller for connection of operator panels with up to 32 keys / switches and 32 LEDs to the CS31 bus. Voltage supply 24 V DC, without housing.	GJR5 251 800 R0101		0.1
07 TC 91	- / - / -	- / - / -	-		GJR5 252 700 R0101		0.1

Analog I/O modules series 90

Description: see „Overview of I/O modules“. Integrated CS31 field bus.
AC: Channels can be individually configured as input or output.

Type	Number of AI / AO / AC	Input signal	Output signal	Order code	Price	Weight p. piece kg
07 AI 91	8 / - / -	± 10V, 0 ... 20mA, ± 50 mV, ± 500 mV, ± 5 V, PT100, PT1000, thermocouple, 12 bits	-	GJR5 251 600 R0202		0.25
07 AC 91*)	- / - / 16	± 10 V, 0 ... 20 mA, 4 ... 20 mA, 12 bits	± 10 V, 0 ... 20mA, 4 ... 20 mA, 12 bits	GJR5 252 300 R0101		0.25

*) Incl. 1 x DI for shut-off of all AOs of the module.
With 2 modes of operation: (1) 8 AI and 8 AO with resolution of 12 bits or (2) in pairs as AI or AO with 8 bits.

Communication modules series 90

Further networking interfaces for compact PLCs AC31 series 90. Connection to CPU via ribbon cable.
Supply voltage 24 V DC.

Type	Protocol	Software	Interfaces	Order code	Price	Weight p. piece kg
07 KP 90	RCOM	Included	2 (1) RCOM (RS232/RS485); (2) RS232 for commissioning	GJR5 251 000 R0303		0.45
07 KP 93	MODBUS	Included	2 Modbus RTU, Master or Slave (RS232/RS485)	GJR5 253 200 R1161		0.4

ARCNET: Communication interfaces to PC

For communication between ARCNET controllers and PC (programming, visualization).

Type	Description	Order code	Price	Weight p. piece kg
SH FARC E3 K	ARCNET-COAX interface card for ISA bus, without RS485, transfer rate 2.5 Mbps	1SAY 111 401 R0001		
SH ARC PCI K	ARCNET-COAX interface card for PCI bus, transfer rate 2.5 Mbps	1SAY 111 402 R0001		
SH ARC PCMCIA	ARCNET-PCMCIA interface card (basic card)	1SAY 111 403 R0001		
SH KOAX- PCMCIA	COAX interface module for basic card	1SAY 111 404 R0001		

Automation Devices

Small and Compact PLCs AC31

Ordering data - Accessories series 90, Programming pack. 907 AC1131

Accessories for series 90

Type	Accessory for	Description	Order code	Price	Weight p. piece kg
07 SK 90	CPUs AC31 series 90 (KT94-S, KT95-KT98)	Programming cable incl. adapter 25/9 poles. Cable length: 5 m	GJR5 250 200 R0001		
07 SK 92		System cable for modem	GJR5 250 400 R0001		
07 MC 90	CPUs 07KT95 / 96 / 97 / 98	Smart Media Card for data storage and user program backup, 8 MB	GJR5 252 600 R0201		
07 LE 90	CPUs AC31 series 90 (07KT94-S, 07KT95, 07KT98)	Lithium battery for data buffering	GJR5 250 700 R0001		
-	RCOM coupler 07KP90	For commissioning interface. Adapter for programming cable 07SK90.	GJV3 073 915 R0001		
-	AC31-S: 07KP94-S	Interface cable incl. adapter for KT94-S with operator panel (passive mode)	GJR5 250 300 R0001		

Programming package 907 AC1131 (acc. to IEC61131-3)

For small PLC AC31 series 40..50 (functionalities adjusted) and compact PLC AC31 series 90. Operating system: Windows 98 / NT / 2000 / XP.

Description: See „Overview of Programming Packages“.

Programming cable: See Accessories.

Includes: 6 programming languages, sampling-trace, debugging, offline simulation, trace recording (multi-channel), recipe management, visualization, field bus configurators, online visualization package, etc.

Scope of delivery: Software, libraries and documentation on CD-ROM, update service.

Type	Manual language	Description	Order code	Price	Weight p. piece kg
907 AC 1131	German	Programming package	GJP5 206 900 R0102		
907 AC 1131	English	Programming package	GJP5 207 000 R0102		

Programming package AC31GRAF (based on IEC61131-3)

For small PLC AC 31 series 40..50. Operating system: Windows 98 / NT / 2000 / XP.

Description: See „Overview of Programming Packages“.

Programming cable: See Accessories.

Includes: 4 programming languages, debugging, visualization and many more. Can be used with previous PLCs of type 30 series and 07KR91 ... 07KT94.

Scope of delivery: Software, libraries and documentation on CD-ROM.

Type	Manual language	Description	Order code	Price	Weight p. piece kg
AC31GRAF	English	Programming package	1SBS 260 250 R0101		
AC31GRAF	French	Programming package	1SBS 260 250 R0101		
AC31GRAF	Italian	Programming package	1SBS 260 250 R0101		

907 AC1131 documentation

Language		Description	Order code	Price	
German	CPUs AC31 series 90 (07KT94-S, 07KT95, 07KT98)	Manuals for AC31 (as in software package 907 AC 1131). Complete hard- and software description, incl. CD-ROM containing documentation (4 ring binders)	1SAC 133 947 R0101		
English			1SAC 133 947 R0201		

Automation Devices

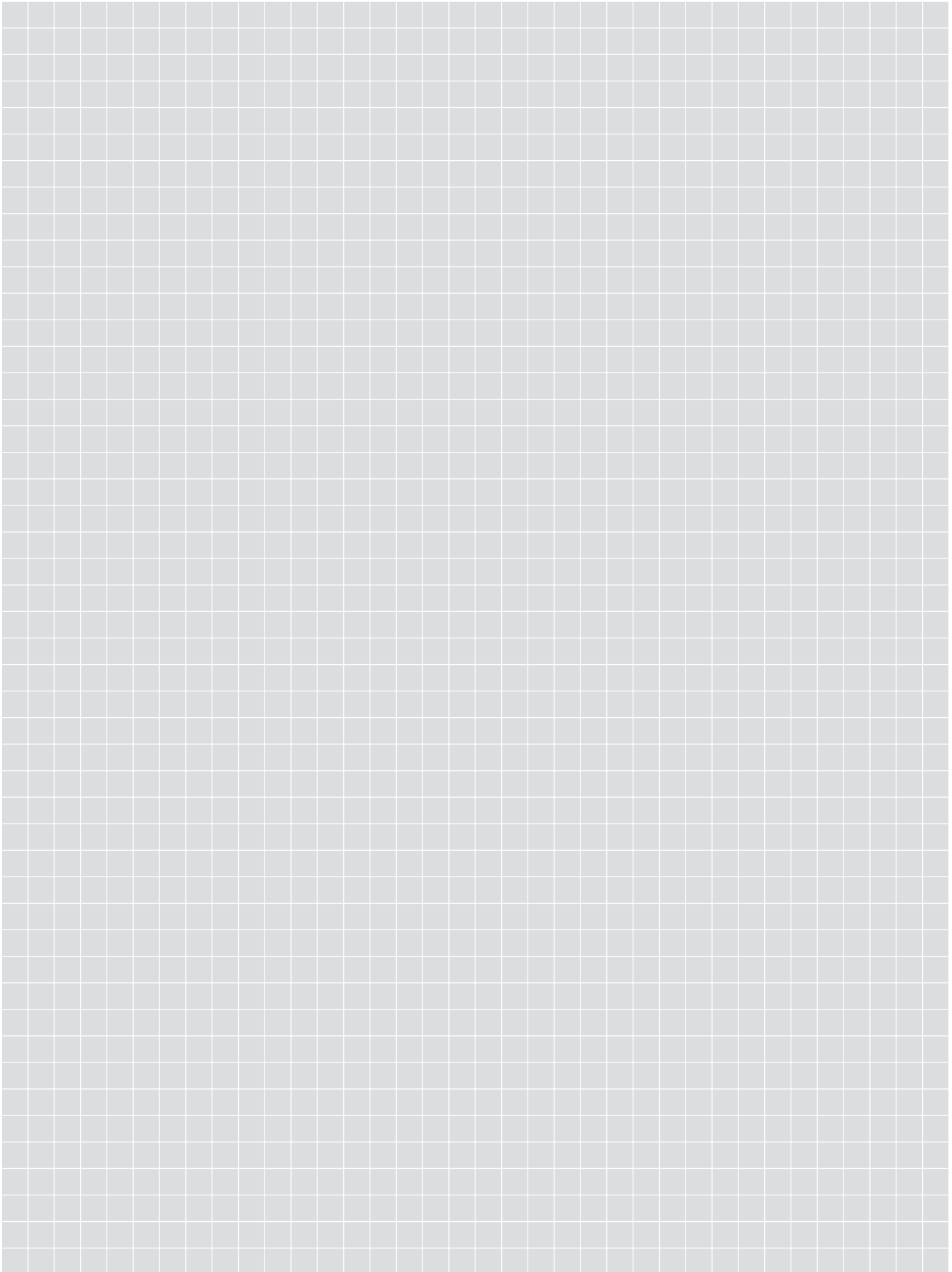
Further Accessories for Control Engineering

Ordering data for Bus repeaters

Bus repeater for CS31 field bus

Type	Voltage supply	Description	Order code	Price	Weight p. piece kg
NCB	24 V DC	Repeater for CS31 bus, max. length 2000 m (3 repeaters)	FPR3 471 200 R1002		0.34
NCBR	=24 V DC	Repeater for CS31 bus, for redundant, ring- or star-shaped bus configuration	FPR3 471 300 R1002		0.34

Notes





Displays and Operator Panels



Man-machine communication

ABB operator panels distinguish by their comprehensive functionality and their very easy handling. They immediately make the complete operating information of production plants and machines available and therefore enable the user at any time to intervene the production process and to enter or modify parameter settings and commands correspondingly.

An individual solution for each application

ABB operator panels facilitate the decision. For every field of application the user can choose a proper device that exactly matches the application's needs and thus also meets the requirements in terms of investment.

Two series of operator panels are available: CP400 touch panels and CP500 text/graphics displays and touch panels.

The operator panels offer highly efficient functionality such as alarm and event management, graphics animation, macro and Ladder Diagram functionality and recipe management. The available back-lighted displays range from a compact 3 inches monochrome display up to a large-size 10,4 inches TFT color display with 256 colors.

Displays and Operator Panels

CP400: Graphics and text displays, touch panels



	CP410M	CP420B	CP430B	CP430B-ETH
Reference	1SBP 260 181 R1001	1SBP 260 182 R1001	1SBP 260 183 R1001	1SBP 260 184 R1001
Screen type	graphics & text STN-LCD	touch panel blue STN-LCD	touch panel blue STN-LCD	
Screen size	3"	4.7"	5.7"	
Display resolution (pixels)	160 x 80	240 x 128	320 x 240	
Brightness (cd/m ²)	36	110	110	
CPU	32 bit RISC	32 bit RISC	32 bit RISC	
Contrast adjustment				
- via touch panel	-	●	●	
- via rotary switch	●	-	●	
Number of colors	16 gray levels	16 blue levels	16 blue levels	
Backlight type	LED	CCFL*	CCFL*	
Backlight life time (h)	75,000	50,000	50,000	
Status LED. Power supply (P), COMx (Cx), Ethernet (E)	P, C1	P, C1, C2	P, C1, C2, E	
Touch screen type	-	Analog	Analog	
Touch screen life time (number of touch operations)	> 500,000	> 1,000,000	> 1,000,000	
Keys				
- menu key	-	-	1	
- function key	-	-	4	
- mechanical keys	16 (10 can be used as function keys)	-	-	
Memory for application (MB)	4	4	4	
Data storage (CF card)	-	-	-	
Real time clock	●	●	●	
Data / recipe management	-	-	512 kB	
Alarm management	-	●	●	
Trend curves	-	●	●	
Password protection, 9 levels	●	●	●	
Number of supported languages	2	5	5	
Macro & Ladder Diagram	●	●	●	
Offline / online simulation	●	●	●	
COM1, RS232/RS485, 9 poles	-	●	●	
COM2				
- socket, number of poles	9	9	25	
- RS232 / RS485	●	●	●	
- RS422	●	-	●	
COM3, RS422/RS485, 9 poles	-	-	-	
USB 2.0	-	-	-	
Printer port	-	-	SUBD25	
Ethernet	-	-	●	
UL certificate (in preparation)	●	●	●	
Housing dimensions (W x H x D) in mm (inches)	173.0 x 105.5 x 51.8 (6.8 x 4.2 x 2.2)	170.3 x 102.6 x 44.6 (6.7 x 4.0 x 1.8)	195.0 x 145.0 x 60.0 (7.8 x 5.7 x 2.4)	
Display dimensions (W x H) in mm (inches)	65 x 35 (2.6 x 1.4)	111 x 61 (4.4 x 2.4)	117.2 x 88.4 (4.6 x 3.5)	
Power supply	24 V DC ±15%, 8 W	24 V DC ±15%, 12 W	24 V DC ±15%, 20 W	
Protection class, front cover	IP65	IP65	IP65	
Ambient temperature	0 °C to + 50 °C			
Storage temperature	- 10 °C to + 60 °C			
Relative humidity	20 % to 90 %			
Weight (kg)	0.65	0.47	0.81	

* CCFL = Cold-cathode fluorescent lamp (backlight type)

Displays and Operator Panels

CP400: Graphics and text displays, touch panels



CP430C	CP430C-ETH	CP440C-ETH	CP450T	CP450T-ETH
1SBP 260 185 R1001	1SBP 260 186 R1001	1SBP 260 187 R1001	1SBP 260 188 R1001	1SBP 260 189 R1001
Color STN-LCD		Color STN-LCD	Color STN-LCD	
5.7"		7.5"	10.4"	
320 x 240		640 x 480	640 x 480	
300		350	350	
32 bit RISC		32 bit RISC	32 bit RISC	
●		●		-
●		-		-
256 colors		256 colors		256 colors
CCFL*		CCFL*		CCFL*
75,000		45,000		50,000
P, C1, C2, E		P, C1, C2, C3, E		P, C1, C2, C3, E
Analog		Analog		Analog
> 1,000,000		> 1,000,000		> 1,000,000
1		1		1
5		6		7
-		-		-
4		4		4
-		●		●
●		●		●
512 kB	512 kB	512 kB		512 kB
●		●		●
●		●		●
●		●		●
5		5		5
●		●		●
●		●		●
●		●		●
25		25		25
●		●		●
●		●		●
-		●		●
-		2		2
●		-		-
	●	●		●
	●	●		●
195.0 x 145.0 x 60.0 (7.8 x 5.7 x 2.4)		231.0 x 176.0 x 46.8 (9.1 x 6.9 x 1.8)		297.0 x 222.0 x 52.3 (11.7 x 8.7 x 2.1)
117.2 x 88.4 (4.6 x 3.5)		153.7 x 115.8 (6.1 x 4.6)		213.2 x 160.4 (8.4 x 6.3)
24 V DC ±15%, 20 W		24 V DC		24 V DC
IP65		IP65		IP65
		0 °C to + 50 °C		
		- 10 °C to + 60 °C		
		20 % to 90 %		
0.81		1.2		1.9

Displays and Operator Panels

Ordering data for CP400 operator panels

Operator panels with graphics display LCD screen with backlight

Type	Pixels	Display	Order code	Price	Weight per piece kg
CP410 M	160 x 80	3", 16 gray levels	1SBP 260 181 R1001		0.65

Operator panels with touch display

Type	Pixels	Display	Order code	Price	Weight per piece kg
CP420 B	320 x 240	4.7", 16 blue levels	1SBP 260 182 R1001		0.47
CP430 B	320 x 240	5.7", 16 blue levels	1SBP 260 183 R1001		0.81
CP430 B-ETH	320 x 240	5.7", 16 blue levels	1SBP 260 184 R1001		0.81
CP430 C	320 x 240	5.7", 256 color STN	1SBP 260 185 R1001		0.81
CP430 C-ETH	320 x 240	5.7", 256 color STN	1SBP 260 186 R1001		0.81
CP440 C-ETH	640 x 480	7.5" 64,000 color STN	1SBP 260 187 R1001		1.20
CP450 T	640 x 480	10.4", 64,000 color TFT	1SBP 260 188 R1001		1.90
CP450 T-ETH	640 x 480	10.4", 64,000 color TFT	1SBP 260 189 R1001		1.90

Programming cables CP400

Type	Plug on CP400 side	Description	Order code	Price	Weight per piece kg
TK401	SubD9	Connection to COM1 of CP400. Length: 4 m	1SBN 260 216 R1001		0.18
TK402	SubD25	Connection to COM2 of CP400. Length: 4 m	1SBN 260 217 R1001		0.23

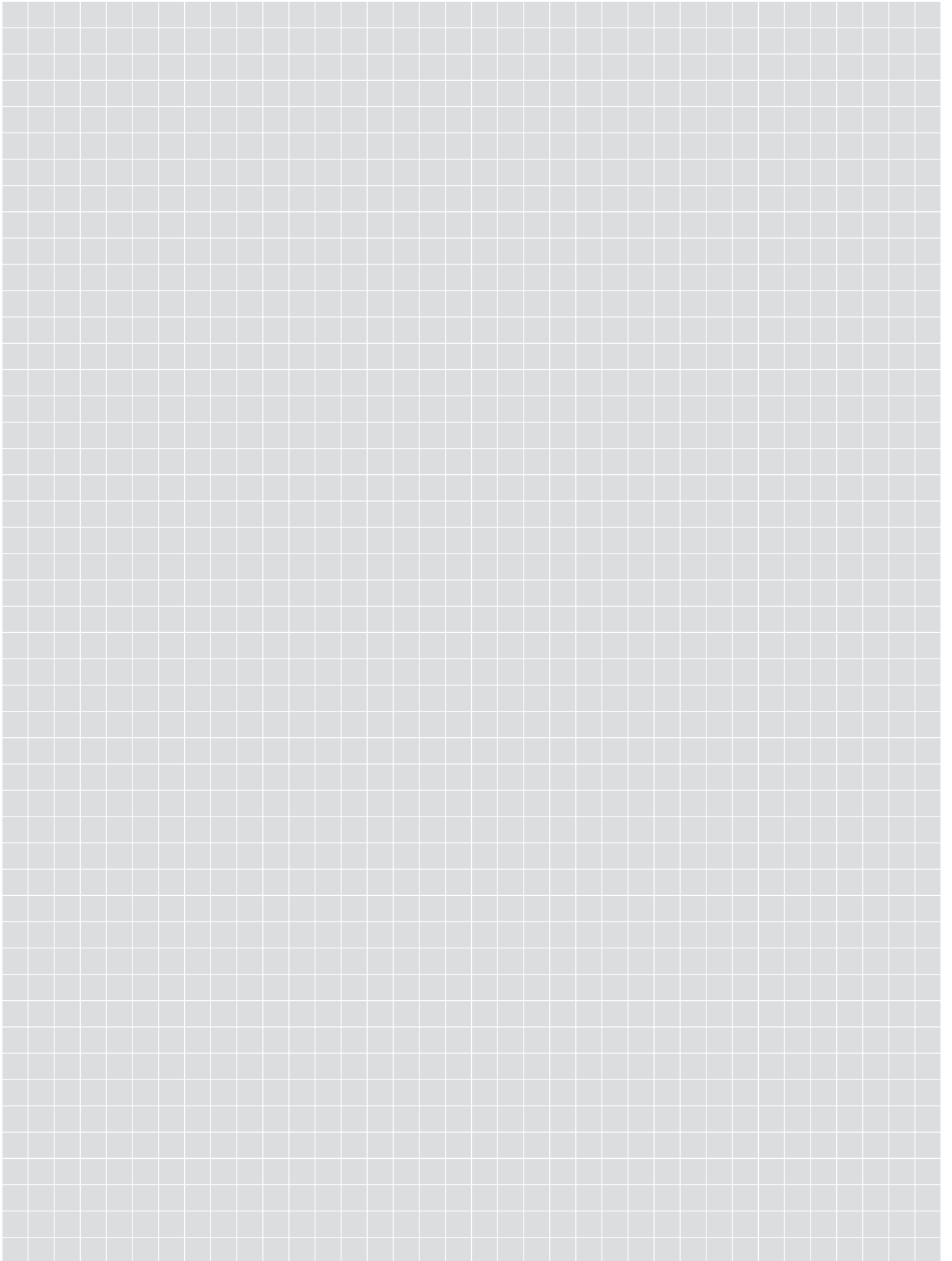
Communication cables CP400 (connection operator panel <-> PLC)

Type	Plug on PLC side	PLC	Order code	Price	Weight per piece kg
TK403	MiniDin	AC31 series 40..50	1SBN 260 218 R1001		0.12
TK404	SubD9	AC31 series 90	1SBN 260 220 R1001		0.12
TK405	SubD9	AC500	1SBN 260 221 R1001		0.13

Programming software

Type	Description	Order code	Price	Weight per piece kg
CP400Soft	Programming software for CP400 operator panels. Delivery includes the programming software and corresponding documentation on CD-ROM.	1SBS 260 284 R1001		0.07

Notes



Displays and Operator Panels

CP500: Text and graphics displays, touch panels



	CP501	CP502	CP503	CP511	CP512
Display type	STN-LCD with backlight	STN-LCD with backlight	STN-LCD with backlight	STN-LCD with backlight	B/W-STN-LCD with backlight
Display	text	text	text	graphics and text	graphics and text
Display size	2 lines x 16 characters	2 lines x 20 characters	4 lines x 20 characters	240 x 64 pixels	240 x 128 pixels
Display area W x H (mm)	55.7 x 11.0	73.5 x 11.5	70.4 x 20.8	5.2" 127.2 x 33.9	5.3" 120.0 x 64.0
Text height (mm)	5	5	5	variable	variable
LEDs			5 (2 colors)	16 (2 colors)	16 (2 colors)
Function keys / other keys	4	3 / 20	5 / 22 (with labels)	8 / 22 (with labels)	16 (8 with labeling strip)
Web functions				with ETPP card	with ETPP card
Buzzer				●	●
Alarm management			1 group	4 groups	4 groups
Time channel		●	●	●	●
Real-time clock		●	●	●	●
Trend curves				real-time	historical
Data logger					
Recipe management		●	●	●	●
Report printing		●	●	●	●
Password protection		8 levels	8 levels	8 levels	8 levels
Multilanguage support		●	●	●	●
Application memory	16 kB Flash	64 kB Flash	64 kB Flash	400 kB Flash	400 kB Flash
Voltage supply	5/24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Current consumption	200 mA	150 mA	150 mA	450 mA	450 mA
Ambient temperature	0 – 50 °C	0 – 50 °C	0 – 50 °C	0 – 50 °C	0 – 50 °C
Communication interfaces	RS232 or RS422	RS232, RS422/RS485 (at the same time)	RS232, RS422/RS485 (at the same time)	RS232, RS422	RS232, RS422
Expansion slot	–	–	–	1	1
Degree of protection front cover	IP65	IP65	IP65	IP65	IP65
Dimensions W x H x D (mm)	104 x 69 x 38	142 x 90 x 47,5	147 x 163,5 x 38	211 x 198 x 69	214 x 232 x 87
Weight (kg)	0.2	0.5	0.7	1.5	1.4
Order Number	1SBP 260 170 R1001	1SBP 260 171 R1001	1SBP 260 172 R1001	1SBP 260 173 R1001	1SBP 260 174 R1001
Certificates					
- UL	●	●	●	●	●
- LR	●	●	●	●	●

Displays and Operator Panels

CP500: Text and graphics displays, touch panels



1SBP 260 176 R0001



1SBP 260 177 R0001



1SBP 260 178 R0001

CP551

CP552

CP554

Touch B/W STN with backlight	Touch LCD 16 gray levels	256 Colors TFT touch display
graphics and text	graphics and text	graphics and text
320 x 240 pixels	320 x 240 pixels	320 x 240 pixels
3.8" 78.0 x 58.5	5.7" 115.2 x 86.4	5.7" 115.2 x 86.4
variable	variable	variable
●	with ETPP card	with ETPP card
●	●	●
4 groups	5 groups	5 groups
●	●	●
●	●	●
historical	historical	historical
●	●	●
●	●	●
●	●	●
8 levels	8 levels	8 levels
●	●	●
400 kB Flash	400 kB Flash	400 kB Flash
24 V DC	24 V DC	24 V DC
450 mA	400 mA	450 mA
0 – 50 °C	0 – 50 °C	0 – 50 °C
Ethernet RS232, RS422/RS485	RS232, RS422/RS485	RS232, RS422/RS485
–	1	1
IP65	IP65	IP65
138 x 100 x 30	200 x 150 x 69	200 x 150 x 69
0.6	1.5	1.5
1SBP 260 176 R0001	1SBP 260 177 R0001	1SBP 260 178 R0001
●	●	●

Displays and Operator Panels

Ordering data for CP500 operator panels

Operator panels with text display

- LCD display with backlight
- Voltage supply 24 V DC
- CP501: voltage supply 5 V DC, 24/5 V DC converter included in scope of delivery
- CP502/503: integrated real-time clock
- CP502/503: Recipe management
- CP502/503: Password protection in 8 levels
- CP502/503: Multilanguage support

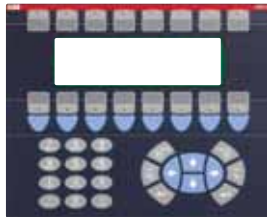


CP502

Type	Lines	Charact. per line	Function keys / other keys	LEDs	Interfaces	Order code	Price	Weight p. piece kg
CP501	2	16	4		RS232 or RS422	1SBP 260 170 R1001		0.2
CP502	2	20	3 / 20		RS232, RS422, RS485	1SBP 260 171 R1001		0.5
CP503	4	20	5 / 22	5	RS232, RS422, RS485	1SBP 260 172 R1001		0.7

Operator panels with graphics display

- LCD display with backlight
- Voltage supply 24 V DC
- Graphics and text display
- Real-time clock
- Trend curves
- Recipe management
- Password protection in 8 levels
- CK516 Management
- Multilanguage support
- Memory size 400 kB



CP511

Type	Pixels	Function keys / other keys	LEDs	Interfaces	Order code	Price	Weight p. piece kg
CP511	240 x 64	8 / 22	16	RS232, RS422	1SBP 260 173 R1001		1.5
CP512	240 x 128	16 / 22	16	RS232, RS422	1SBP 260 174 R1001		1.4

Operator panels with touch display

- LCD display with backlight
- CP554 with 256 colors TFT display
- Voltage supply 24 V DC
- Graphics and text display
- Real-time clock
- Trend curves and data logger
- Recipe management
- Password protection in 8 levels
- CK516 Management
- Multilanguage support
- Memory size 400 kB



CP554

Type	Pixels	Display	Interfaces	Order code	Price	Weight p. piece kg
CP551	320 x 240	B/W - STN	RS232, RS422, RS485	1SBP 260 176 R1001		1.4
CP552	320 x 240	B/W - STN	RS232, RS422, RS485	1SBP 260 177 R1001		1.5
CP554	320 x 240	Color TFT	RS232, RS422, RS485	1SBP 260 178 R1001		1.5

Displays and Operator Panels

Ordering data - Accessories

Programming cables

Type	Interface	Order code	Price	Weight p. piece kg
CAB5	RS232	1SBN 260 210 R1001		
CAB6	RS232/RS422 converter	1SBN 260 211 R1001		

Communication cables

Type	Controller	Order code	Price	Weight p. piece kg
CAB45	Series 40 / 50 MiniDin	1SBN 260 213 R1001		
CAB90	Series 90	1SBN 260 214 R1001		
CAB57	Series AC500 SubD9	1SBN 260 215 R1001		
CAB8	RS422/RS485 converter	1SBN 260 212 R1001		

Programming software for operator panels CP5xx

Applicable for all CP5xx operator panels, delivery on CD-ROM.
Also includes documentation for all CP5xx operator panels.

Type	Description	Order code	Price	Weight p. piece kg
CPsoft	Software, documentation on CD	1SBS 260 283 R1001		

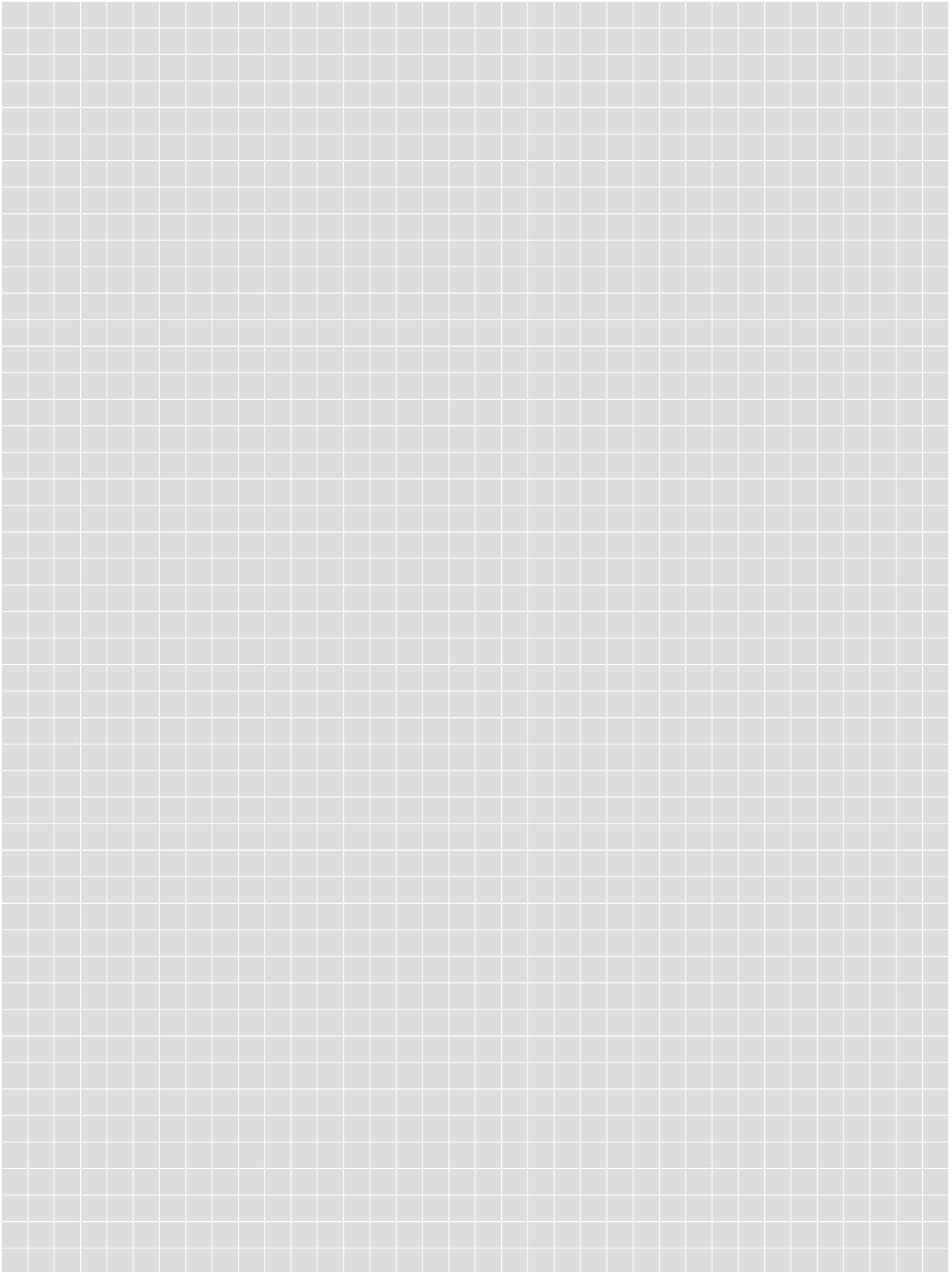
Accessories

Type	Description	Order code	Price	Weight p. piece kg
CK516	Add-on keyboard. Up to 4 keyboards per operator panel possible via multidrop.	1SBP 260 180 R1001		
IFCPBDP	Communication interface PROFIBUS DP	1SBN 260 320 R1001		
IFCETTP	Communication interface Ethernet	1SBN 260 322 R1001		
IFC-PI	Printer interface	1SBN 260 325 R1001		
IFC-MC	Memory expansion interface for PCMCIA memory cards (memory card not included)	1SBN 260 324 R1001		
PCMCIA 4MB	Memory card 4 MB	1SBN 260 326 R1001		
PCMCIA 8MB	Memory card 8 MB	1SBN 260 327 R1001		
Protection sheet for CP551	Protection film for display CP551 (packing unit contains 5 pieces)	1SBN 260 330 R1001		
Protection sheet for CP552	Protection film for display CP552 (packing unit contains 5 pieces)	1SBN 260 328 R1001		
Protection sheet for CP554	Protection film for display CP554 (packing unit contains 5 pieces)	1SBN 260 331 R1001		



CK516

Notes





Comprehensively customer support

ABB draws upon its long years of experience in low-voltage engineering to provide you with a comprehensive range of support services available worldwide. You can call upon contact persons in our country sales offices. For all questions to do with automation engineering you can also contact our consultants by phone or fax.

Special seminars and training courses are offered for many ABB products and systems, not least covering the automation of machinery and production lines. On request, we will also be pleased to provide on-the-spot training at your own premises. Just talk to your regional consultant.



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