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## Allround Easy. Allround Secure.



High-resolution 180° Panorama

High-resolution 180° Panorama

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HiRes

**3 Megapixel**

2048 x 1536  
Software zoom

Skyline

**Format free**

Each image format  
freely definable

**30 Frames/s**

VGA (640 x 480)  
30 F/s Mega

**Virtual PTZ**

Digital pan, tilt,  
zoom

**Backlight**

Safe using CMOS  
without mechanical iris

**Internal DVR**

Internal via Flash,  
external via Network

Win/Liv/Mac

**Recording**

via Network on PC  
up to 1 Terabyte

Microphone & speaker

**Audio**

bi-directional via IP,  
variable framerates

SIP-Client with video

**IP Telephony**

Alarm notify,  
cam remote control

**VideoMotion**

Multiple windows  
precision pixel-based

-22 to +140 °F

**Weatherproof**

-30 to +60 °C, IP65,  
no heating necessary

IEEE 802.3at

**PoE**

Network power  
even in winter

**Robust**

No moving parts  
fiber glass housing

McCC/Measy

**Licence free**

Video-Management-  
Software

### HiRes Video Innovations

The German company MOBOTIX AG is known as the leading pioneer in network camera technology and its decentralized concept has made high-resolution video systems cost efficient.

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### MOBOTIX Camera Data

Enter your camera data here.

Camera Model: \_\_\_\_\_

Camera Name: \_\_\_\_\_

Factory IP Address: \_\_\_\_\_

Current IP Address: \_\_\_\_\_

DHCP: \_\_\_\_\_

Admin User Name: \_\_\_\_\_

Admin Password: \_\_\_\_\_

Original Q24M image;  
Wall mounted at a height  
of 2.3 m in a bank



### MOBOTIX Seminars

MOBOTIX offers inexpensive seminars that include workshops and practical exercises. For more information, visit [www.mobotix.com](http://www.mobotix.com) > **Seminars**.

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### Important Notes

#### Electrical Installation

Electrical systems and equipment may only be set up, changed and maintained by a qualified electrician or under the direction and supervision of a qualified electrician in accordance with the appropriate electrical guidelines.

#### Legal Aspects Of Video And Sound Recording

You must comply with all data protection regulations for video and sound monitoring when using MOBOTIX products. Depending on national laws and the installation location of the IP Video Door Station, the recording of video and sound data may be subject to special documentation or it may be prohibited. All users of MOBOTIX products are therefore required to familiarize themselves with all valid regulations and comply with these laws. MOBOTIX AG is not liable for any illegal use of MOBOTIX products.

#### Network Security

MOBOTIX products include all of the necessary configuration options for operation in Ethernet networks in compliance with data protection laws. The operator is responsible for the data protection concept across the entire system. The basic settings required to prevent misuse can be configured in the software and are password-protected. This prevents unauthorized parties from accessing these settings.

#### Never Remove The Dome

The MOBOTIX cameras S14D and S14M should never be operated without their preinstalled transparent domes (sensor modules S14D and housing S14M) or protective lens screens (sensor modules S14D). The camera is no longer weatherproof when operated without the domes or protective lens screens. The exposed metal ring around the lens can become extremely hot when the exterior temperature is high. Touching this ring can cause burns.

Additional Information:  
[www.mobotix.com](http://www.mobotix.com)

Notes And Copyright Information

Download the latest version of this manual, of the **Camera Software Manual** and the manuals for MxEasy and MxControlCenter as PDF files from [www.mobotix.com](http://www.mobotix.com) (**Support > Manuals**).

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## FOREWORD

Dear MOBOTIX customer,

Congratulations on purchasing this globally unique and discreet hemispherical network camera "Made in Germany". With its wide range of image display options such as the panorama function, a virtual PTZ function and live distortion correction, the Q24M offers whole new application possibilities. Proven MOBOTIX concept advantages such as integrated event, alarm and telephony functions, as well as modern and highly beneficial long-term flash storage located directly in the camera, are also available.

This Camera Manual Part 1 will give you an initial overview of the innovative underlying MOBOTIX concept. This includes all the information you need to unpack and install the camera (Chapter 2) and to view initial images on a PC (Chapter 3).

Please see the Software Camera Manual Part 2, included in the camera packaging, for information on how to work with the many camera functions, such as e.g. event control or image storage.

If you would prefer to work with **MxEasy** or **MxControlCenter** instead of the browser controlled MOBOTIX camera software, you can download these programs for free including a manual (PDF) from the MOBOTIX website:

[www.mobotix.com/eng\\_US/Support/Software-Downloads](http://www.mobotix.com/eng_US/Support/Software-Downloads)

If you have any questions, our support and international sales staffs are available under [intl-support@mobotix.com](mailto:intl-support@mobotix.com) from Monday to Friday, 8 a.m. to 6 p.m (German time).

We would like to thank you for your trust and wish you all the best with your new MOBOTIX camera!



Security-Vision-Systems







Q24M with 10°  
On-Wall mount

Q24M with  
In-Ceiling mount

## THE MOBOTIX CONCEPT



### HiRes Video Innovations

The German company MOBOTIX AG is known as the leading pioneer in network camera technology since its founding in 1999, and its decentralized concept, has made high-resolution video systems cost efficient. Whether in embassies, airports, railway stations, ports, gas stations, hotels or on highways - over one hundred thousand MOBOTIX video systems have been in operation on every continent for years.

### Technology Leader Of Network Cameras

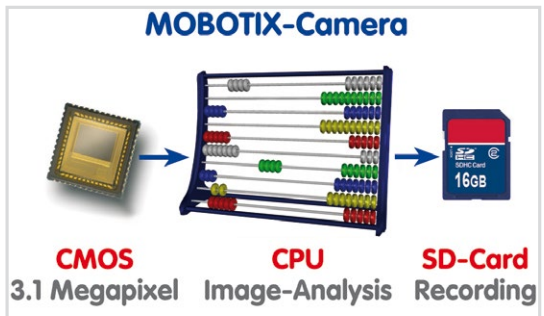
In a short time, MOBOTIX has gained the second place in Europe and the fourth place worldwide in terms of market share. MOBOTIX has been solely producing megapixel cameras for years and, in this area, ranks as global market leader in high-resolution video systems with a market share of over 60%.

### Why High-Resolution Systems?

The higher the resolution, the more accurate the detail in the image. With the old analog technology, a live image has no more than 0.4 megapixels and a recorded image generally 0.1 megapixels (CIF). On the contrary, one MOBOTIX camera with 3.1 megapixels records around 30 times more detail. As a result, larger image areas with up to 360° allround views are possible, thus reducing the number of cameras and therefore the costs. For example, four lanes of a gas station can be recorded with one MOBOTIX camera instead of four conventional cameras.

### Disadvantages Of Old Centralized Solution

Usually cameras only supply the images while the processing and recording is done later on a central PC using video management software. This traditional centralized structure has many limitations, since it requires a high network bandwidth and the PC processing power is not enough for several cameras. A HDTV MPEG4 film already puts considerable strain on a PC, how can it be expected to process dozens of high-resolution live cameras? Traditional centralized systems are therefore less suitable and unprofitable than high-resolution systems due to the high number of PCs needed.



### The Decentralized MOBOTIX Concept

Unlike with other systems, with the decentralized MOBOTIX concept a high-speed computer and, if requested, digital memory (SD card) is built into every camera for long-term recording. The PC now serves purely for viewing, not for analysis or recording. As a result, MOBOTIX cameras can record in response to an event even without the PC being switched on and digitally store the videos with sound.

### The Benefits

MOBOTIX video solutions therefore require significantly:

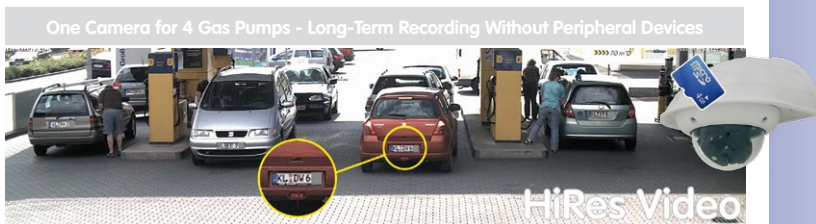
- **fewer cameras** due to the more accurate detail of panoramic images with megapixel technology,
- **fewer PCs/DVRs**, because around 40 cameras can store high-resolution videos with sound efficiently on a single PC, or no PC at all when recording in the camera using digital memory (USB, SD card),
- **lower network bandwidth**, because everything is processed in the camera itself and the high-resolution images therefore do not have to be constantly transported for analysis.

### Robust And Low-Maintenance

MOBOTIX cameras have no mechanical motors for lenses or for movement. Without any moving parts, they are therefore so robust that maintenance is reduced to a minimum. The unique temperature range from  $-30^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$  is achieved without heating or fan at approximately 4.5 watts. Since no PC hard disk is required for recording, there are no parts that wear out in the entire video system.

### Software Included - For Life

There are no software and licensing costs with MOBOTIX, because the software is always supplied with the camera; for an unlimited number of cameras and users. The software package supplied with the camera also includes professional control room software, like that used in football stadiums, for example. Updates are supplied free of charge on the website. The system price for a weatherproof camera including lens, query software and day-to-day recording on the SD card is under 1,000 euro.



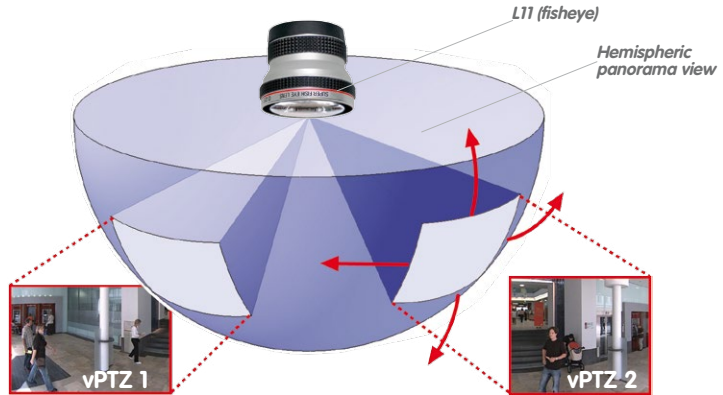
## INNOVATIVE HEMISPHERIC TECHNOLOGY

### The Hemispheric Camera

The primary components of a hemispheric camera include a fisheye lens, a high-resolution image sensor, and image correction software that is integrated into the camera. Using an ultra-wide angle fisheye lens, the hemispheric camera captures a 180°-hemispheric image of the room and projects it onto a high-resolution image sensor.



Fisheye view



When ceiling mounted, the image area of the hemispheric camera covers the entire room. The image in the hemisphere is convex, particularly near the image borders. These image sections are corrected for the viewer by the integrated distortion correction software, allowing a view of the scene from the usual perspective. The **virtual PTZ** feature allows you to enlarge or move image sections within the hemisphere just like PTZ camera, yet without the need for moving parts.

### Handle Several Image Sections at Once

One or more image sections can be corrected for perspective in the hemispheric view, allowing you to monitor and record several different areas of a room **at the same time**, something that a mechanical PTZ camera is not capable of doing.



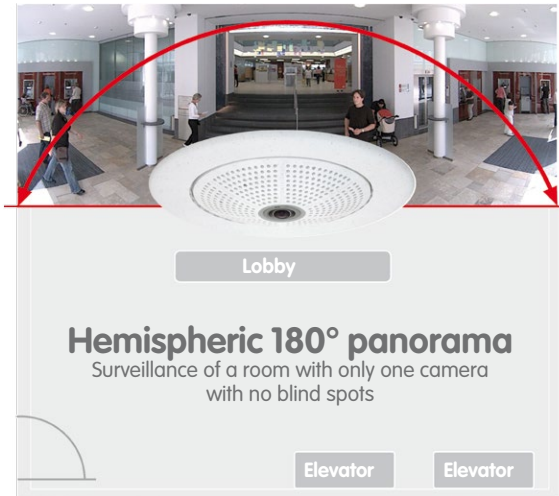
Q24M with  
In-Ceiling mount

### Discreet and Low Maintenance

Hemispheric cameras are extremely discreet because they manage their task with only **one lens**, which is generally focused on an entire room and not a specific object. Hemispheric cameras are without mechanical moving parts and require low maintenance. In addition, they are silent when panning and focusing on a specific image area.

### Less Cameras Thanks To Panoramic Views

The perspective of the hemispheric image can also be transformed into an ultra-wide angle panoramic view spanning 180° if the camera is mounted on a wall, providing a wall-to-wall view of the room without any blind spots. It offers a substantially better view of the scene, compared to other cameras, and it also results in the need for fewer cameras overall. When ceiling mounted, one camera can also capture an entire room by two opposite panoramic views.



Original Q24M image:  
wall-mounted at a  
height of 2.3 m/7.5 ft



Hemispheric room coverage with wall mounting - one Q24M replaces four standard cameras

### Keeping Objects In View At All Times

Using solutions featuring several individual cameras, moving objects will normally jump from one viewing area of a camera to another. This often produces a confusing situation for the viewer because objects may disappear from sight for a moment or even appear twice if the viewing areas overlap. This is not the case with hemispheric panoramic cameras. Objects remain in view at all times and the viewer can always keep good track of objects in the scene.



### Everything Stored In The Recording

Traditional optical PTZ cameras can only record what is being viewed live. The virtual PTZ feature from MOBOTIX allows users to pan to other areas at a later stage in the recording because the **entire room** can be recorded as a hemispheric image.



Integrated  
MicroSD card  
(max. 64 GB)

## MOBOTIX HEMISPHERIC TECHNOLOGY

### Perfect Room Overview

With the innovative MOBOTIX Hemispheric Technology, an entire room can be ideally monitored. For instance, one single, particularly elegant and discreet, Q24M replaces the time-consuming and expensive installation of several standard cameras. This world first demonstrates again the innovative strength of MOBOTIX as a global leader for megapixel video security systems.



### High-Resolution 180° Panorama

When several cameras are monitoring a single room, it is difficult to understand the room layout in its single view. This makes it hard to comprehend the overall setting. The new panorama function of the Q24M delivers a widescreen image of a high-resolution 180° allround view. High image quality is achieved through the use of a 3.1 megapixel sensor and the new hemispheric lens.



Original image Q24M:  
mounted to a wall in  
2.3 m height in a bank

vPTZ control also  
via USB joystick

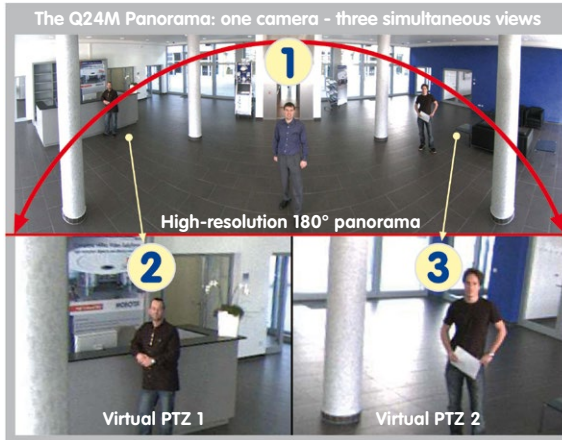
### Virtual PTZ (vPTZ) – Without Motor

The Q24M also zooms in on detail. The image of the Hemispheric camera can be continuously enlarged and any image section examined using a joystick, for example. Thus you have a mechanical PTZ-camera without maintenance or wear and tear. While zooming into a section in the live image, a full image can be stored in the recording for later analysis. No PTZ-camera in the world that operates with a motor can do that!



### One Camera, More Views

The surround function of the Q24M (ceiling mounted) immediately replaces four conventional cameras and shows four different directions simultaneously in quad view on a monitor. Virtual PTZ is available for each of the four views. Together with the 180° panorama the Q24M can deliver two more views simultaneously, making it possible to see the overview and to focus on two scenes at the same time (Display Mode "Panorama Focus").



Panorama Focus:  
Original Q24M image

### Highly User-Friendly

The full image from a hemispheric lens (Fisheye) is difficult to analyze. MOBOTIX solves this problem by perfectly straightening the uneven lines in the live image using the camera software. Since the image distortion correction of the hemispheric view and the generating of the panoramic view take place in the camera itself, no additional load is placed on the viewer PC, unlike a "standard" camera. Thus, displaying a large number of panoramic cameras simultaneously on a single PC is possible.

### Highly Efficient Image Transferring

While other camera systems always transfer the full images via the network for further analysis, a MOBOTIX camera sends only the relevant image sections. Therefore, a Q24M panorama image needs only about 1/6 of the original data volume or bandwidth. This means up to six times more MOBOTIX cameras can transfer images over a network compared to "standard" cameras.

### Internal DVR With 32 GB

The Q24M stores high-resolution video with sound directly on the integrated Flash memory without using an external recording device or PC, therefore using no additional network load. Old recordings can be overwritten automatically or deleted after a predefined period. The storage capacity is sufficient for around 400,000 panorama images or 33 hours of film (32 GB MicroSD).

## SUPERIOR STORAGE SOLUTION

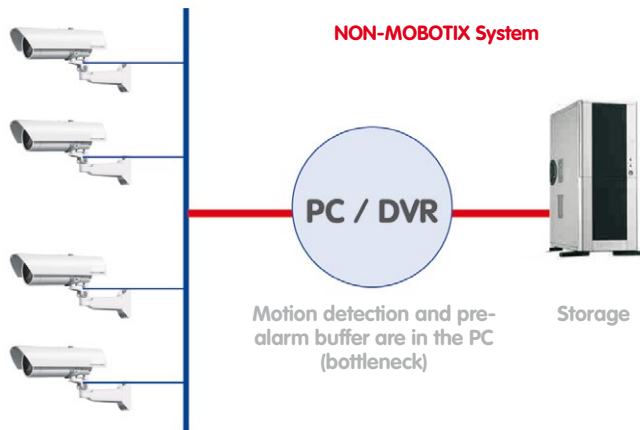


### The Market Demands Better Image Quality

When it comes to future-proof video surveillance systems, it is not a matter of analog or digital but whether it is high-resolution or not. It is important to note that HiRes video only with decentralized network camera technology can be implemented at much lower cost than any other type of video surveillance system.

### Central Storage As A Bottleneck

These days, video data is normally pre-processed and stored centrally on a PC or DVR using video management software. Video and audio streams from all installed cameras are directed to this central device. This system is comparable to a highway at rush hour: the more cameras there are, the faster a data jam on the PC or DVR occurs. This means that despite HiRes cameras, the data is generally not stored in high-resolution format.



**Central PC is a bottleneck and a risk for the entire system**

### MOBOTIX Stores HiRes Cost Efficiently

MOBOTIX solves the PC storage bottleneck problem using a unique and yet amazingly effective method - through the camera itself. High-resolution video with lip synchronized sound is saved either remotely over the network or locally on flash memory devices (commercial SD or CF cards, USB memory).



Flash memory is a sophisticated form of semiconductor memory without mechanical moving parts and represents the storage medium of the future thanks to its reliability, ease of use and low cost.



### Software and storage integrated in MOBOTIX cameras

#### MOBOTIX Stores Data In Flash Memory

- No PC / network is needed for operations and there is no network load
- USB flash media can be connected directly to the camera (instead of internal SD / CF card); no network is necessary
- Greater reliability (no hard disk drive)
- Ring buffer: Old images can be overwritten automatically or deleted after a specified time

#### MOBOTIX Stores Data Reliably

MOBOTIX' own flash file system (MxFFS) prevents unauthorized persons from reading or transferring the internally stored data, even if the card is stolen.

#### MOBOTIX Only Saves What Is Necessary

The MOBOTIX system includes three important additional options that allow more data to be stored for a longer time:

- Only the relevant image sections are stored instead of the entire image (for example, sky or ceiling is removed)
- Video recording only begins when relevant events take place (such as movement in the image)
- Temporarily increased frame rate during continuous recording of events

By connecting external memory over the network (NAS), the system can be expanded without limitations even while it is running.

#### MOBOTIX Data Storage

- **Inside the camera** - a 16 GB SD card is enough to record all day long, making central data storage devices or PCs unnecessary
- In **USB memory** (connection via USB cable) data storage without mechanical moving parts or network load (greater protection against data theft)
- A **file server (NAS)** can store around 10 times more data from MOBOTIX HIRE cameras (than usual) since they use a n organization internally





## ADDED SECURITY VALUE

Q24M Panorama: one camera - three simultaneous views



### Robust, Low-Maintenance Technology

The real added value of MOBOTIX products is reflected in characteristics such as enhanced functionality, **long life and robustness**. MOBOTIX cameras basically have no moving parts. This makes the cameras very resistant to wear and tear, and reduces both maintenance costs and power consumption.

### Alarm Management And Forwarding

**Integrated sensors** enable MOBOTIX cameras to recognize when an event has occurred. If necessary, the cameras will respond immediately with an alarm tone and will establish a direct video and sound connection to a control room.

### Absolute Data Security

The security barriers that are built into the camera are extremely secure. The camera images are only accessible to authorized persons and are encrypted via SSL when they are transferred over the network.

### Notification Of Failure

MOBOTIX cameras will automatically report any impairment or failure. This ensures maximum reliability and readiness for use.

### Subsequent Searches

Events rarely confine themselves to just one spot. So even when you are looking at an enlarged detail in live mode, it is always a full image that is recorded. And in this full image, any section can always be enlarged later or whenever necessary.

Floor plan and camera view in MxControlCenter (free control center software from MOBOTIX)

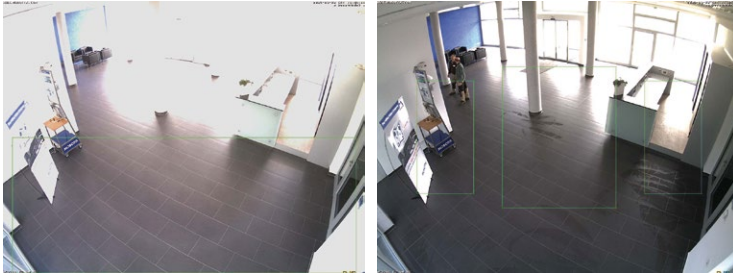


### Sound Increases The Chance Of Detection

In the event of an alarm, MOBOTIX cameras can turn on their built-in microphones and record lip-synchronous sound. They are therefore an even greater help in analyzing a situation and easing clarification. In addition, the video system can be used for bidirectional communication via a loudspeaker/microphone.

### No Problems With Backlight

MOBOTIX cameras are not affected adversely by sunlight such as direct sunlight. They deliver meaningful, detailed images all the time, because the camera software supports easy programming of independent **exposure windows** to cope with specific situations. This makes them ideal for rooms with large glass fronts.



Placing the exposure window in the lower image area (left image) delivers less optimum results compared to moving three individual exposure windows up toward the windows (right image)

### Vandalism-Proof Models

In critical environments or for outdoor use, it is often best to choose **vandalism-proof** MOBOTIX cameras. Their steel housing resists even the hardest attacks, and the cameras will deliver a perfect picture of the attackers.



## THE MOST IMPORTANT COST BENEFITS

- 1 Increased Resolution Reduces Amount Of Cameras Needed**  
1536 lines, high-resolution sensors give a better overview and allow monitoring an entire room with just one camera.
- 2 Reduced Installation Costs At Any Distance**  
Standard Ethernet connection enables the use of common network components such as fiber, copper and wireless (WLAN).
- 3 Intelligent Cameras Reduce The Number Of Storage Devices**  
The decentralized MOBOTIX concept enables the user to save around 10 times the standard number of cameras using just one storage device.
- 4 Event-Controlled Image Format Minimizes Storage Costs**  
Automatic image adjustment (frame rate, size) in the case of movement, noises or sensor action reduces bandwidth and storage requirements.
- 5 Low Power Costs, No Extra Heating**  
Anti-fogging without heating allows the system to be powered throughout the year using network cable or two wires (PoE standard) and saves on the cost of power cabling.
- 6 Backup Power Supply Costs Reduced By 80%**  
Low power consumption, approx. 5 watts, enables year-round PoE (no heating required) with one centralized UPS from the installation room using network cable.
- 7 Robust And Practically Maintenance-Free**  
Fiberglass-reinforced composite housing with built-in cable protection and no mechanical moving parts (no auto iris) guarantees longevity.
- 8 Software For A Thousand Cameras & Storage Devices Included**  
The right premium operating software for every application: MxEasy for compact video solutions, MxControlCenter for the professional control center.
- 9 Unlimited Scalability And High Return On Investment**  
More cameras and storage can be added at any time – even while the system is in use; image format, frame rate and recording parameters can be camera-specific.
- 10 Additional Functions And Other Extras Included**  
Sound support, lens, wall mount and weatherproof housing (-30 to +60°C/-22 to +140°F) are included in the camera delivery; microphone and speakers available for most models.

## THE MOST IMPORTANT TECHNICAL ADVANTAGES

### High-Resolution Digital Image Instead Of TV Quality

Megapixel sensor and image processing inside the camera generate sharp images with a higher resolution than HDTV, allowing them to be recognized as evidence in a court of law.

1

### Hemispheric Technology For An Overview With No Blind Spots

360° allround view or 180° widescreen image, corrected for perspective; only one camera is needed to view the entire room or train platform without any blind spots.

2

### Bridging Of Recording During Network Failures

In-camera data storage (up to 64 GB) can even bridge longer network failures or bandwidth fluctuations (for example with wireless networks).

3

### Professional Software For Systems Of Any Size

This control center and recording software, which is free of charge and used in tens of thousands of systems around the world, sets no limits on the number of users, cameras or servers.

4

### Very Low Network Load

Efficient video codecs, motion detection and data storage of up to 64 GB in the camera guarantee a very low network load.

5

### No Storage Limit

There is no storage limit for the entire system because each camera is able to manage its own terabyte-sized storage device (NAS) via the network.

6

### Sun And Backlight Compensation

CMOS-sensor without auto iris, digital contrast enhancement and configurable exposure measurement zones guarantee optimum exposure control.

7

### Day & Night Maintenance-Free

MOBOTIX dual cameras with two sensors and digital switching between day and night modes operate reliably with no mechanical components in all lighting conditions.

8

### Simultaneous Recording, Event Search And Live Viewing

Live video for multiple users, simultaneous recording and event search possible in seconds from anywhere in the world via a network connection.

9

### Sound And SIP Telephony

Lip-synchronous sound (live & recording); every camera is also a video IP telephone compliant with the SIP standard, featuring camera control and automatic alarm calls.

10

## 1 INTRODUCTION

### 1.1 Q24M Overview



#### Innovative Hemispherical Technology For The Perfect Room Overview

The MOBOTIX Q24M Hemispheric camera is an elegant, ultra-compact and weather proof IP network dome camera with a special hemispheric lens (fisheye). When mounted on the ceiling, the camera is capable of providing full **360° allround view** or a **180° widescreen panorama** when mounted on a wall. The first of its kind in the world, this camera is evidence of the MOBOTIX commitment to innovation as the global leader in megapixel video security cameras.

#### High-Resolution 180° Panorama (Wall-Mounted)

When several cameras are monitoring a single room, it is difficult to understand the room layout in its single view. This makes it hard to comprehend the overall setting. The new panorama function of the Q24M delivers a widescreen image of a high-resolution 180° allround view. High image quality is achieved through the use of a 3.1 megapixel sensor and the new hemispheric lens.

Original Q24M image;  
Wall mounted at a height  
of 2.3 m in a bank



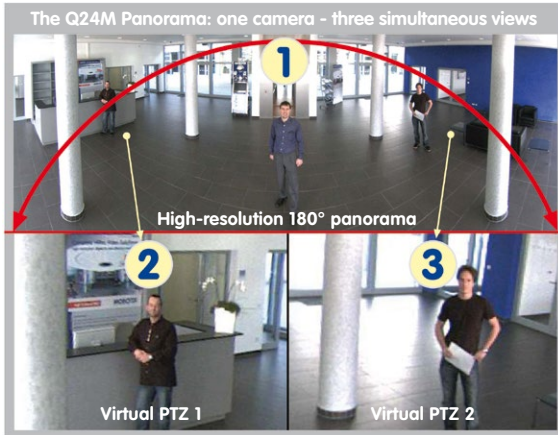
Original full image



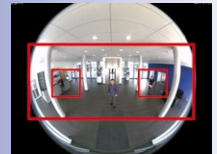
High-resolution 180° panorama

**Panorama Focus – One Camera, Three Views (Wall-Mounted)**

Maximum room overview while simultaneously viewing detail in a single image: the Q24M is capable of providing two more views at the same time with the 180° panorama, allowing you to focus on two scenes in parallel ("Panorama Focus" display mode).



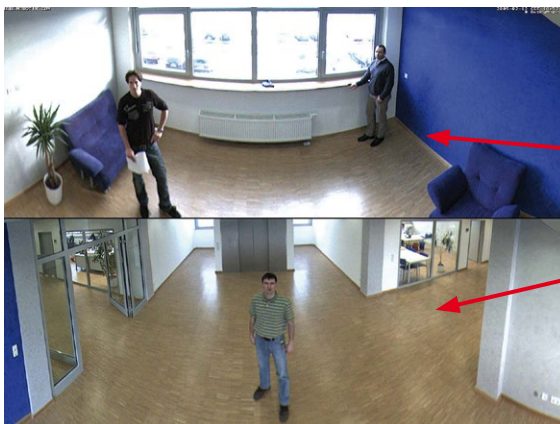
Panorama Focus:  
Original Q24M image



Original full image

**Double Panorama For A Simultaneous View In Two Directions (Ceiling-Mounted)**

When the camera is mounted in the center of the ceiling of a room, "Double Panorama" display mode provides a corrected panorama image of both halves of the room. It corresponds roughly with the situation of personally standing in the middle of the room and being able to look both forwards and backwards at the same time. A superb overview for the user – provided by a single Q24M camera alone.



Double Panorama:  
Original Q24M image



Original full image

### Full Image And Normal View

With innovative MOBOTIX Hemispheric Technology, an entire room can be ideally monitored. For instance, one single, particularly elegant and discreet, Q24M replaces the time-consuming and expensive installation of several standard cameras. The overview image provided by a single Q24M, which may be tailored in a number of ways according to specific user requirements, not only reduces the number of required cameras, but also minimizes the system costs by reducing the wiring complexity, emergency power requirements and number of recording devices required.

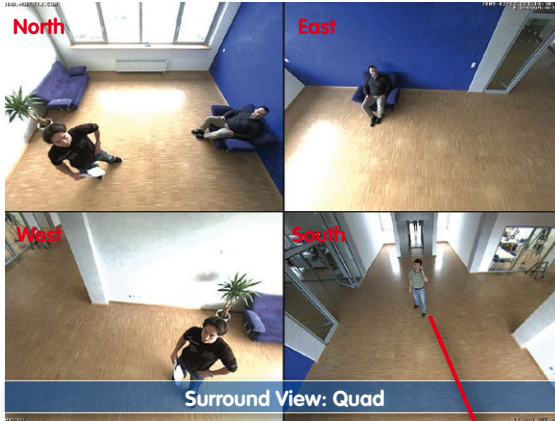
In addition to Panorama, Double Panorama and Panorama Focus views, the Q24M image may be displayed on a monitor in the original fisheye version ("Full Image" display mode), the camera-corrected full image ("Normal" display mode) and in a quad view of all four directions ("Surround" display mode). Switching to a different display mode is possible at any time within seconds.



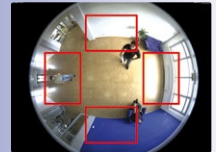


**Surround View (Quad View), Based On The Correct Full Image**

The Q24 "Surround" display mode replaces (when ceiling mounted) four cameras, and shows four directions simultaneously on the monitor in a quad view. The preset North position can be moved to any direction in the image; the camera generates the other three directions (East, South, West) automatically and stores them as separate views.



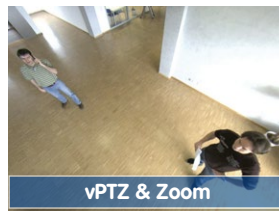
Original Q24M image:  
Each of the 4 views can  
be individually modified



Original full image

Each of the four views features a software-controlled pan/tilt/zoom function (virtual PTZ), allowing it to be customized as necessary.

In order to reduce user workload, the Q24M can store in addition to the North, East, South and West standard views, a total of **256 user-defined camera views using the vPTZ function**, which can easily be brought up using joystick keys or softbuttons. Besides being able to manually bring up specific camera views, the camera can also show them automatically by moving through the North, East, South and West views or by showing the first 16 saved camera views (one after the other like in a slide show).

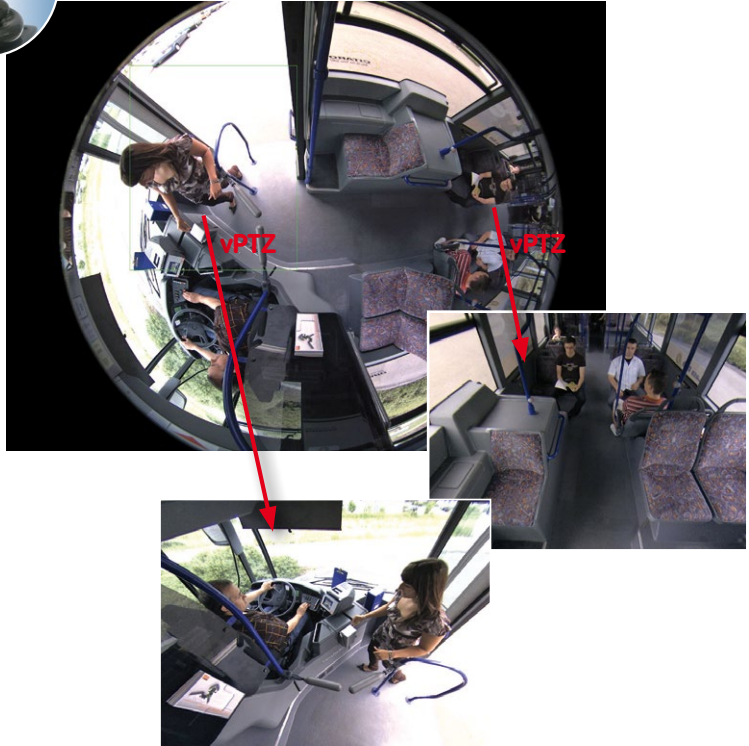


**Virtual PTZ (vPTZ) – No Motor Required**

The Q24M can zoom in on detail as well. These vPTZ functions are a standard feature in the integrated Q24M camera software. The image from the hemispheric camera can be enlarged using e.g. the mouse wheel, a joystick or a software-controlled PTZ panel, and you can "move" the view to any section of the image. This provides the features of a mechanical PTZ camera without the disadvantages of maintenance and wear.



Quick and easy navigation with a USB joystick



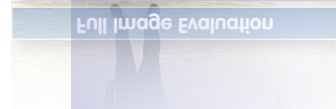
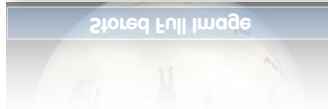
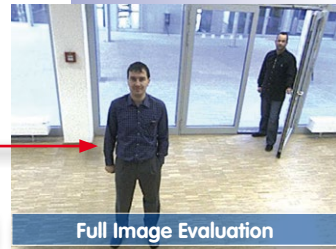
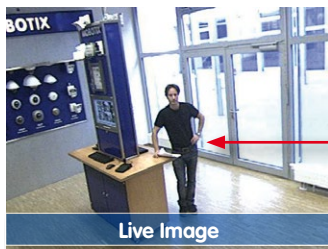
The vPTZ functionality works differently depending on the camera operation platform (**web browser, MxEasy, MxControlCenter**). Virtual zoom, pan and tilt using MxEasy and MxControlCenter is very simple thanks to special software tools and the use of an optional joystick. However, a joystick may also be used even with pure browser-based operation from Internet Explorer (together with an ActiveX plug-in).

### Simultaneous Corrected Live Image And Full Image Recording

All conventional, motorized PTZ cameras only store the image that is currently viewed as the live image (**live image recording**). This has one serious disadvantage as the recording can only show what has happened in the "visible" portion of the image; the rest is lost and cannot be examined later on. For this reason, MOBOTIX has added the new **full image recording** feature to the Q24M. This will not store the currently viewed image that reflects the pan/tilt position and the zoom setting chosen by the user, but the full sensor image - without vPTZ settings or image correction. When examining the recorded images, the vPTZ features again come into play, as they allow zooming the visible image and use the pan/tilt features to examine every corner of the recorded full image.

**Example:** The people marked by the red circle in the middle area of the image would not have been recorded by a regular PTZ camera; the full image recording of the Q24M allows to determine for example, the exact time at which the people entered the image area recorded by the camera. A **Browser** (Internet Explorer with MxPEG ActiveX plug-in), **MxControlCenter** or **MxEasy** can be used to examine the recorded sequences.

Integrated vPTZ functions allow "analysis" of the complete saved full image at a later point in time (in MxEasy and MxControlCenter)



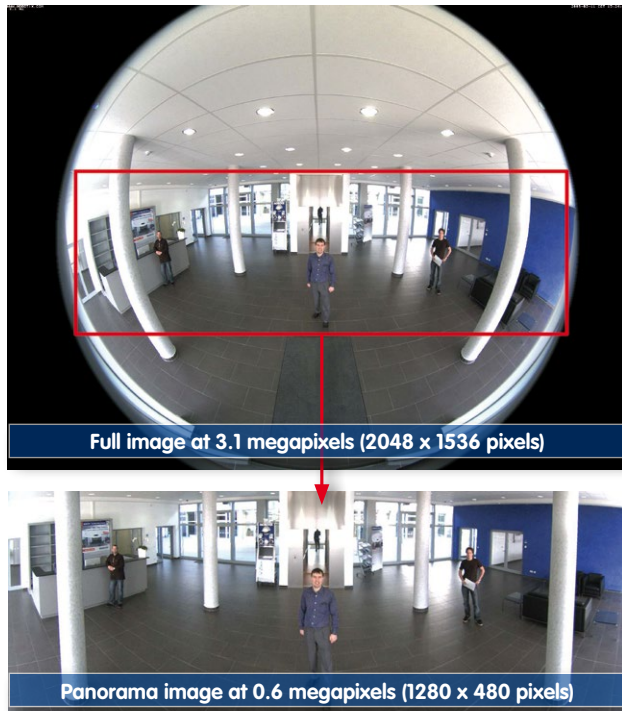
The camera software is responsible for image correction, reducing load on the user PC

### Maximum Ease Of Use

The full image generated by the hemispherical lens (fisheye) can be difficult to evaluate. MOBOTIX solves this problem with image distortion correction in the camera software that displays perfectly corrected live images. The user PC does not experience any additional load through this process, as image correction and generation of all desired image views takes place in the camera itself. The result is that a large number of panoramic cameras may be displayed simultaneously on a single PC.

### Highly Efficient, Application-Oriented Image Transfer

While other camera systems must transport the full 3.1 megapixel image over the network for further processing, a MOBOTIX camera will only transmit the desired image sections. This means that a Q24M panorama image will only require a small part of the usual data and bandwidth. Data from up to six times as many MOBOTIX cameras may be transported over the same network compared to "standard" cameras.



Corrected image after panorama correction

Economical bandwidth usage due to smaller, in-camera corrected images (no loss of image information)

### Internal DVR

The Q24M secure models feature **direct recording to integrated MicroSD cards**, which makes the camera fully independent of any external storage media, even for longer periods of time. The camera internally saves high-resolution video with sound, without requiring an external storage device or PC, and thus without any network load whatsoever. Old recordings may be overwritten automatically or automatically deleted after a specified period of time. A 16 GB MicroSD card, for example, allows the camera to store more than a quarter million event images in VGA format (640x480). For security reasons, the camera can even encrypt the stored data.



4 GB MicroSD-card  
already installed in the  
camera (Q24M-Secure)

Power failures are not an issue, as the video and image sequences remain safely stored on the MicroSD card. Access to stored video sequences is possible at any time from the camera user interface in the browser, MxControlCenter or MxEasy. If you would like to archive sequences, you can store all of the data or only certain parts to a computer or a hard disk.

### High Frame Rates Of Up To 30 fps

Like all other MOBOTIX cameras, the Q24M models can generate live video streams with high frame rates and up to 3.1 megapixel image resolution (QXGA with 2048x1536 pixels). Up to 30 fps are generated at megapixel resolution (1280x960 pixels). Even at 3.1 megapixel resolutions, the camera will still generate up to 20 fps! Lip-synchronous audio is transferred at all times.

### Robust And Maintenance-Free

Thanks to its low power consumption of about 4 Watts and the total absence of mechanical moving parts, the Q24M models feature the highest operating temperature range from -30°C to +60°C (-22°F to +140°F). Both Q24M models (BASIC & SECURE) are absolutely dust proof to IP54, with the SECURE model being resistant against water jets (IP65) also. Since the cameras neither fog up nor require heating, power can be supplied all-year round via the network cabling using standard PoE products.

### Camera Design Creates New Applications

Some application scenarios benefit from a surveillance camera that is present, but without attracting attention. The low-key, elegant appearance of the camera, especially when installed with the In-Ceiling set, makes the Q24M an optimum solution where discreet design and an inconspicuous look are important. Hotels and restaurants present an ideal example, but installations in public buildings, waiting rooms and showrooms are also highly suitable.

The integrated DVR functionality with long-term storage on a MicroSD card also makes the camera an ideal solution for **mobile applications** since it only requires a power supply via the network cable (standard PoE) for full event-driven recording with video and audio, thus delivering a complete **standalone product**. Application examples in this context are installations in public transportation such as busses, trains, aboard ships, airplanes, etc.

Q24M in the In-Ceiling Set (local public transport bus)



Q24M in the In-Ceiling Set with stainless steel ring (elevator)



### Model Versions

The Q24M is available in **Secure and Basic models**, which come with different features. Both models can also be ordered with an L22 Super Wide-Angle lens with a horizontal image angle of 90°.

### 1.2 Q24M – Next Generation Hemispheric Technology

The MOBOTIX Q24M is the tuned and optimized successor to the well-received Q22M, introduced successfully in 2008. In one of the most renowned and competitive international design competitions, the MOBOTIX Hemispheric camera was the first security and surveillance camera in the world to receive the red dot award for product design ([www.red-dot.org](http://www.red-dot.org)). The red dot is awarded to products of exceptionally high quality design. The technical capabilities of the MOBOTIX Q24M also make it an excellent choice. Above all, this performance is the result of the use of a new microprocessor and modified system platform.



reddot design award  
honourable mention 2009

#### Significant Increase In Frame Rates (Up To 100 Percent)

Even 3.1 megapixel camera images may be transferred at a rate of 20 frames per second, and megapixel images at up to 30 images per second.

#### User-Friendly Panorama Correction

In the standard "Panorama" view, the user may now switch between customized views of the live image at the click of a button.

#### 4 GB MicroSD Card

Every Q24M Secure is delivered at no extra charge with a high-quality, factory-installed 4 GB MicroSD card (internal DVR) as a standard feature – sufficient for around 50,000 panorama images or 10 hours of HiRes video including audio (4 frames/s).

#### Direct Camera Connection

The network cable and MiniUSB are easily connected over a newly developed and optimally sealed connector - without needing to open the camera housing - in the rear casing of the camera.

#### Adjustable PoE Classes, 1 to 3

The desired PoE class of the camera may be raised or lowered from the default value of 2 to 1 or 3 from the camera software in the browser, to precisely adjust the functionality of the camera and its accessories.

#### Only About 4 Watt Power Consumption

Despite the use of a more powerful processor, the power consumption of the Q24M is maintained at the extremely low level of only about 4 watts.

Camera vPTZ functions may be controlled with a mouse or joystick

Using a joystick: Internet Explorer with activated MxPEG ActiveX plugin, MxControlCenter or MxEasy required

MxControlCenter and MxEasy can be downloaded free-of-charge at [www.mobotix.com](http://www.mobotix.com)

### 1.3 General MOBOTIX Camera Functions

Like all other MOBOTIX cameras, the Q24M models include a range of (software) functions, such as video motion detection, long-term recording, alarm messaging and video IP telephony, to name but a few. Unlike in camera systems from other manufacturers, buying and installing additional software on the computer is unnecessary. Instead of using a web browser, you can also download the free MxControlCenter software from the MOBOTIX website, which allows quick displaying of multiple cameras on one monitor, alarm switching with audio or an easy event search.

#### vPTZ: Virtual Pan/Tilt/Zoom Features

While MxControlCenter has provided virtual PTZ features for some time now, these features are now available directly via MOBOTIX camera. This means that you can continuously zoom into or out of the live image using either the mouse wheel or a joystick. When storing images or video sequences, you can choose to store either the visible image area of the live image or the full sensor image (full image storage). This also allows you to examine parts of an image or video that had not been visible in the live image section on display at the time of the recording.

#### Automatic Image Correction

Another problem familiar from the field of photography are the distortions that result from using wide-angle lenses. Straight lines near the image borders are bent outwards. The integrated distortion correction features of the camera (and of MxControlCenter) allow correcting the curve of various lenses using software algorithms.

#### Live Video With Up To 30 fps, Including Audio

MOBOTIX cameras deliver smooth live video with lip-synchronous audio, yet they keep network load to a minimum. Some analog systems may also be able to do this, but the recording quality is much higher with MOBOTIX since the cameras efficiently store the high, live image resolution and frame rate without compromising image quality. MOBOTIX technology thus provides for continuous recording of simultaneous video from 30 cameras at 30 frames per second each, including audio, all on one standard PC.

#### Low Bandwidth Requirements

MOBOTIX' patent pending **MxPEG streaming format** allows fast live video with audio at extremely low network load (1 to 2 Mbps). Since the MOBOTIX camera itself detects movements in the image (and not the computer), video sequences are only transmitted if movements occur.

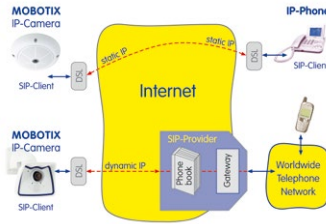
#### Voice Over IP

Moreover, MxPEG provides for lip-synchronous live audio and two-way communication between the camera and a computer. Room surveillance is possible using a browser (Internet Explorer), MxControlCenter or MxEasy. Customized alarm notification on your mobile or via Internet telephony is just as easy as event-controlled voice messages directly from the camera.



**Internet Telephony (SIP) And Video SIP**

Video SIP allows establishing audio/video connections to the camera using Windows Messenger or similar applications (e.g. CounterPath X-Lite/Eyeball). This feature also allows the camera to be remote controlled using the phone keys, the camera itself can place phone calls in case of alarms.



**Long-Term Storage On File Servers Included**

MOBOTIX cameras have an integrated long-term storage system for Linux, Windows and Mac OS X computers. Every camera manages its own ring buffer storage on the shared folder. Thanks to this decentralized approach, 30 live cameras can store images of up to 30 frames per second each, including audio, on a single computer.

**Internal DVR: Storage on MicroSD Or CF Cards**

MOBOTIX cameras support direct storage on an internal MicroSD/SD/CF card (basic models excluded). By using this integrated flash card DVR, the camera is able to offer the following additional applications:

- Stand-alone use of the camera without a file server by recording to the MicroSD card.
- High-security application with recording on a file server or NAS/SAN in which the SD card serves as storage buffer. It can thus bridge longer network or file server failures without losing any video sequences (supported in a future software version).
- Event downloads from the MicroSD card for evaluation of the recorded sequences on a computer.

	Internal DVR	External USB Storage	Remarks for USB Storage
M12	optional	optional	Adapter cable required
D12	optional	optional	Adapter cable required
V12	optional	-	-
M24M	<b>included</b>	optional	Device can be connected directly
D24M	<b>included</b>	optional	Adapter cable required
Q24M	<b>included</b>	optional	Adapter cable required

Internal DVR is either an option during order placement (e.g. M12 R8) or upgradeable later with an SD card

A 4 GB MicroSD card is included with the Q24M Secure

### Event And Time-Controlled

Just like triggering event-controlled recording upon detecting movements in the image, the camera can also record when the volume detected by the microphone exceeds a certain trigger value. Using scheduled daily recording, time tasks can start or stop video recording, upload images to a web site or send e-mails with video/audio clips. Vacation times and holidays can be programmed.

### Remote Alerting

In case of an alarm, MOBOTIX cameras automatically pop up windows or activate other functions at a remote security control center. The cameras can use network/wireless, GSM/GPRS/UMTS (3G) or Internet connections for this purpose.

### Integrated Power-over-Ethernet

Power is supplied as Power over Ethernet via the network cabling using the MOBOTIX NPA-Set or from a PoE compatible switch (both according to the IEEE 802.3af PoE Standard).

No heating required  
- PoE is no problem  
even in winter

#### Caution

Previous MOBOTIX network power accessories such as the NPA Set, Power Box and Power Rack (MX-NPA-Set, MX-NPR-4 and MX-NPR8/20) are not suitable for use with the Q24M.

No heating is necessary thanks to the well-insulated plastic housing and anti-fogging properties. Due to their low power consumption (approx 4.5 watts), MOBOTIX cameras, unlike those of other manufacturers, may be operated both indoors and outdoors using a PoE power supply.

### Logos, Animated Or Freestyle

The MOBOTIX camera logo generator allows time-scheduled banners and graphics (including files loaded automatically from any URL) to be integrated into current camera. MOBOTIX cameras are the only network IP cameras supporting animated and transparent graphics.

Logo generator for  
display of graphics  
already integrated  
in the live image



**30 Cameras Live Using MxControlCenter**

Instead of using a web browser, you can also download the free-of-charge MxControlCenter from [www.mobotix.com](http://www.mobotix.com), which allows fast display of up to 30 MOBOTIX cameras on one monitor. In addition, MxControlCenter can process incoming alarms with sound from the cameras and allows comfortable search and evaluation of alarm video clips (including audio). The integrated Layout Editor of MxControlCenter allows you to quickly create floor plans by simply dragging/dropping the cameras onto a background image. Load a floor plan as background image, drag & drop the cameras; done.



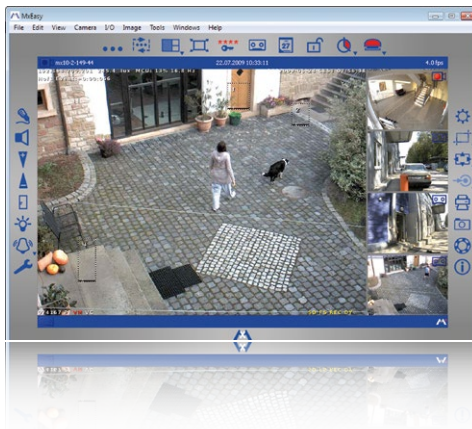
Management of several hundred cameras on one standard PC

Free download at [www.mobotix.com](http://www.mobotix.com)

No license fees  
free updates

**MxEasy – Intuitive Application For Windows, Macintosh And Linux**

The new MOBOTIX MxEasy aims at easy operation of the most important camera functions through its intuitive user interface, thus creating a new user experience when viewing and controlling MOBOTIX cameras. The clear design allows management of up to 16 cameras, and the application can show up to four cameras at the same time.



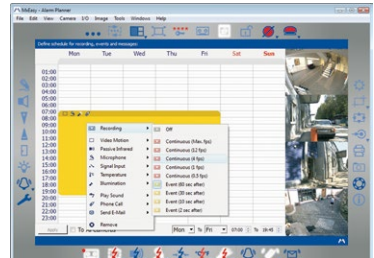
For up to 16 MOBOTIX cameras

Free download at [www.mobotix.com](http://www.mobotix.com)

No license fees  
free updates

All settings selected in MxEasy (e.g. virtual camera position, zoom, brightness, volume, microphone sensitivity, image storage, signal outputs) are usable immediately and are stored instantly in the configuration of the corresponding camera. The calendar function integrated in the **Alarm Planner** provides access to innovative features for scheduled settings of one or more cameras.

For the first time, this tool not only controls video and audio recording based on certain time and date information, but also allows activating/deactivating features like video motion detection, image brightness and the microphone based on a date and time schedule.



MxEasy is available as a free-of-charge download for MS Windows and Mac OS X operating systems under [www.mobotix.com](http://www.mobotix.com). A Linux version will be available soon.

### Diverse Installation Options

Not only can MOBOTIX cameras be installed under almost all weather and temperature conditions, they also offer suitable installation materials from a wide range of accessories for any conceivable application scenario.

### Additional Camera Functions (Software)

- **True software scaling** to easily generate smaller image formats for PDAs (such as 320x240, 160x120, etc.).
- **Audio video recording** with three different recording modes: event recording with audio, continuous recording with variable frame rate and audio as well as event-controlled snapshot recording of JPEG images.
- **Storage failure detection** can monitor a file server (or a flash device) and can use one or more of the defined messaging options for error notification.
- **Player of recorded images/video sequences with audio** in the integrated video management system.
- **Multiwatcher screen can display and monitor several cameras** over the Internet, with only one camera requiring access from the outside. This "proxy" camera uses only very little bandwidth, making it an ideal solution for low-bandwidth connections.
- **MultiView screen for displaying multiple cameras** or events in one browser window.
- **Event notification** by e-mail, SMS (using a provider), voice notification (Phone Call-Out), sounds and by visual means (e.g. red frame in live image) using two separate messaging paths.
- **Object tracing** for analyzing the paths of objects that are moving in the image.
- **Time Tables** with handling of customized holidays and vacations. The time tables are used to control the camera's arming, image recording messaging, logos, the obscure image function as well as other features.

- **Remote signaling for master/slave cameras**, with the master camera controlling the arming status of the slave cameras. This allows arming, for example, of all slave cameras using a key switch connected to the master camera.
- **Transfer profiles** for comfortably controlling transmissions via FTP, e-mail, phone calls and network messages.
- **Speakerphone\*** with speak, listen and intercom modes using the microphone and speaker.
- **Phone Call-In\* to remotely control the camera using a touchtone telephone** (retrieve camera information, establish an Internet connection, announce the retrieved IP address, intercom feature, etc.).
- **MxPEG video compression** using MxControlCenter. The ActiveX plug-in for Internet Explorer users brings all advantages of MxPEG to the browser-based user interface (including the audio stream to and from the camera).
- **Routing** allows use of other network connections besides the standard route.
- **DynDNS client** for accessing the camera via the Web using a symbolic name (e.g. `mymobotixcam.dyndns.org`), despite the provider assigning a new dynamic IP address every time the camera connects to the Internet.
- **None-voidable backup system** starts the cameras in the original operating state if a software update fails, allowing the user to easily restart the update process.
- **Enhanced startup options** for the camera (obtain IP address via DHCP, announcement of IP address and other network data, reset to factory default settings).
- **Notifications upon errors or when rebooting** provide a method for executing one or more notifications (e.g. blinking of the camera LEDs, audio message, FTP, e-mail, phone call, network message).
- **Extended security features** protect the pages and features of the camera and prohibit unauthorized access (IP-level access control, intrusion detection). They also provide SSL-protected transmission of the video sequences and the data (using SSL encryption and X.509 certificates).

\* Telephony features using VoIP connections (internet telephony)

#### Free Software Updates ([www.mobotix.com](http://www.mobotix.com))



MOBOTIX provides **software updates free-of-charge** at regular intervals that improve and expand the camera's functionalities. Chapter 6, *Software Update*, in the *Software Manual* provides more information on the process.

Free-of-charge software updates from [www.mobotix.com](http://www.mobotix.com)

## 1.4 Lens Options, Hardware And Software Features

MOBOTIX Q24M cameras come with a standard **L11 fisheye lens with a 180° horizontal image angle**. The camera is also available with an **L22 Super Wide-Angle lens with a horizontal image angle of 90°**. The integrated virtual PTZ features of the camera software or MxControlCenter/MxEasy properly correct the lens distortion that is specific to each of the lenses. Both lenses deliver good image quality even when using maximum digital zoom. Since MOBOTIX cameras are backlight-proof, they do not require a mechanical auto iris, making them extremely robust and maintenance free.



Lens Table	L11	L22
Original image		
35mm equivalent focal length	11 mm (0.43 in)	22 mm (0.87 in)
Actual focal length	1,8 mm (0.07 in)	4 mm (0.16 in)
Aperture	2.0	2.0
Horizontal image angle	180°	90°
Vertical image angle	160°	67°
<b>Distance 1 m (1.09 yd):</b>	m	m
Image width	infinite	2.0
Image height	11	1.3
<b>Distance 3 m (3.28 yd):</b>	m	m
Image width	infinite	10.0
Image height	55	6.6
<b>Distance 10 m (10.94 yd):</b>	m	m
Image width	infinite	20.0
Image height	110	13.3
<b>Distance 20 m (21.88 yd):</b>	m	m
Image width	infinite	40.0
Image height	220	26.6

**Notes**

The specified focal lengths of MOBOTIX lenses do not reflect the actual focal length of the lenses, but the focal length (Lxx mm) converted to 35 mm camera format. For example, the MOBOTIX Super Wide-Angle lens has an actual focal length of 4 mm. This would be the equivalent of 22 mm on a 35 mm camera. This lens is thus called L22.

Converting the focal lengths to 35 mm camera as a known format provides for better comparison of the image formats and the image angles of the different lenses. Another benefit is that you can easily set any average 35 mm camera (analog or digital) to the same focal length as the MOBOTIX lens (Lxx) to obtain the same image angle. This approach greatly facilitates lens selection.

Stated focal lengths of MOBOTIX cameras are given with reference to a 35 mm camera

	<b>Q24MI-Basic D11</b> /MX-Q24MI-Basic-D11	<b>Q24MI-Basic D22</b> /MX-Q24MI-Basic-D22	<b>Q24M-Secure D11</b> /MX-Q24M-Sec-D11	<b>Q24M-Secure D22</b> /MX-Q24M-Sec-D22
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**Q24M Hardware Features**

Outdoor weatherproof	IP54	IP54	IP65	IP65
Ethernet/ISDN/USB/RS232	E / - / - / -	E / - / - / -	E / - / U* / -	E / - / U* / -
MicroSD slots	-	-	1	1
Integrated microphone/speaker	-/X	-/X	X/X	X/X
Mono (M) / Dual (D)	M	M	M	M
Image Sensor	Color	Color	Color	Color
Lens	L11	L22	L11	L22
Resolution	VGA	VGA	3 MEGA	3 MEGA
Resolution horizontal x vertical	640x480	640x480	2048x1536	2048x1536
Max. frame rate CIF/VGA/MEGA/3MEGA (fps)	16/16/-/-	16/16/-/-	30/30/30/20	30/30/30/20
Sensitivity at 1/60 second (lux)	1	1	1	1
Sensitivity at 1 second (lux)	0.05	0.05	0.05	0.05
RAM Storage (MB)	64	64	128	128
Temp. video storage, ring buffer (MB)	2	2	64	64
Internal DVR (MicroSD card), ring buffer (GB)**	-	-	up to 32	up to 32
• CIF images (for 32 GB int. DVR), approx.	-	-	2 mil.	2 mil.
• VGA images (for 32 GB int. DVR), approx.	-	-	1 mil.	1 mil.
• MEGA images (for 32 GB int. DVR), approx.	-	-	350,000	350,000
• 3 MEGA images (for 32 GB int. DVR), approx.	-	-	160,000	160,000
External audio (Line-In/Out)	-	-	-	-
Signal input pins	-	-	-	-
Signal outputs	-	-	-	-
Concealed cabling	X	X	X	X

**Q24M Software Features**

Digital zoom (continuous) with panning	X	-	X	X
Panorama and surround views	X	-	X	-
Additional storable views	X	-	X	X
Full image recording	-	-	X	X

\*Special MiniUSB adaptor cable available as an accessory

\*\*A 4 GB MicroSD card is included with all Q24M Secure models, MicroSD cards of up to 64 GB may be used





**Software Features (All Models)**

Digital zoom (continuous) with panning	X*	X	X	X
Motion JPEG/MxPEG video streaming	X/X	X/X	X/X	X/X
Custom exposure windows	X	X	X	X
Video Motion detection	X	X	X	X
Time and event control (FTP, email, logos)	X	X	X	X
Weekly schedules/holidays	-	X	X	X
Web functionality (FTP, email)	X	X	X	X
Quad/MultiView in browser	X	X	X	X
Recording/Playback in browser	X	X	X	X
Logo generator, animated	-	X	X	X
Single image recording (pre-/post-alarm images)	3	3	10	50
Terabyte ring buffer (Win/Lin/Mac) via network	-	-	X	X
Continuous video/audio recording, 0.2 to 30 fps	-	-	X	X
Video/audio recording (event-triggered)	-	-	X	X
Event-controlled frame rate with continuous audio	-	-	X	X
Flexible event logic	-	-	-	X
Master/Slave arming by one camera	-	-	-	X
Time-scheduled privacy zones, several areas	-	-	-	X
Bidirectional audio (IP) from/to browser	-	-	X**	X**
Customized voice messages	-	-	X	X
VoIP telephony (Audio/Video, SIP)	-	-	X**	X**
Alarm calls to softphones (SIP) e.g. X-Lite	-	-	X	X
Remote alarm notification (via TCP/IP, IP Notify)	-	-	X	X
RS232 Data Logger/Terminal	-	-	X***	X***
Programming interface/HTTP API	-	-	X	X
Security features (HTTPS/SSL, IP-level access control, network authentication IEEE 802.1X)	X	X	X	X

**Model Feature List**

Image size	VGA	3 Mega	VGA	3 Mega
Image Sensor	Color	Color	Color & B/W	Color & B/W
Standard lens for software version	L22	L22	L22	L22
Audio support (Microphone/Speaker)	-/L**	-/L**	M/L**	M/L**

The Web version is only available for the M12

The Basic version is only available for the D24M and Q24M

The IT version is not available for the Q24M

\*Only available for Q24M

\*\*D24M IT and Secure models allow connecting an external speaker and microphone. D24M cameras are not delivered with a microphone and speaker.

\*\*\*RS232 only for M12/D12

SW image sensors with megapixel resolution (1280x960 pixels)

M12 lens included if requested by customer

## 2 INSTALLATION

The Q24M is primarily designed for installation on walls or ceilings. The supplied L11 180° lens captures the entire room, practically from wall to wall and from floor to the ceiling. See sections 2.4 and above. for the different installation options; drilling templates can be found at the end of the manual.

### 2.1 Preparing The Installation

Before mounting the MOBOTIX Q24M, the following questions should be answered:

1. **Where will the camera be mounted?**  
Mounting to a ceiling or wall; section 2.1.1. and 2.1.2
2. **Which other mounting options are available?**  
On-wall mounting, in-ceiling mounting, vandalism protection, wall mounting, pole mounting, see section 2.1.3
3. **How is the camera connected to network and how is power supplied?**  
MX-NPA-PoE or other PoE components (IEEE 802.3af), see section 2.1.4
4. **How are the connections furnished from the building?**  
Wall outlets, see section 2.1.5
5. **What cabling considerations are necessary?**  
Wiring, see section 2.1.6 and 2.11

The following sections contain a brief answer to each of these questions, as well as references to the relevant sections in this manual. For more information on the MOBOTIX Q24M and available accessories, please see: [www.mobotix.com](http://www.mobotix.com)

Wall installation with  
On-Wall Set 10°



## 2.1.1 Wall-Mounted

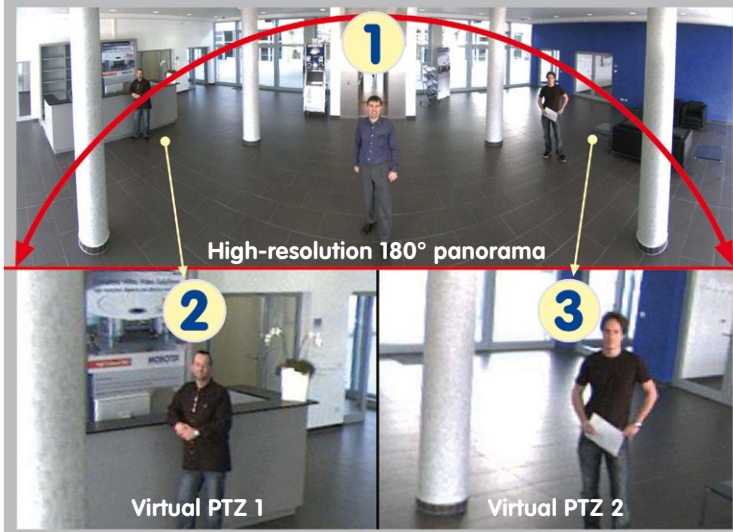
To make optimal use of the high-resolution 180° panorama functionality of the Q24M, the camera must be mounted on an internal or external wall. The entire hemisphere of the room directly in front of the camera is then effectively monitored, from the wall on the left of the camera to the wall on the right. Corresponding fine-tuning in the user interface software allows the displayed panorama image to be adjusted to different practical applications (see section 3.3).



Wall installation with On-Wall Set 10°

The camera should preferably be mounted in the middle of the room to be monitored using the 10° On-Wall Set

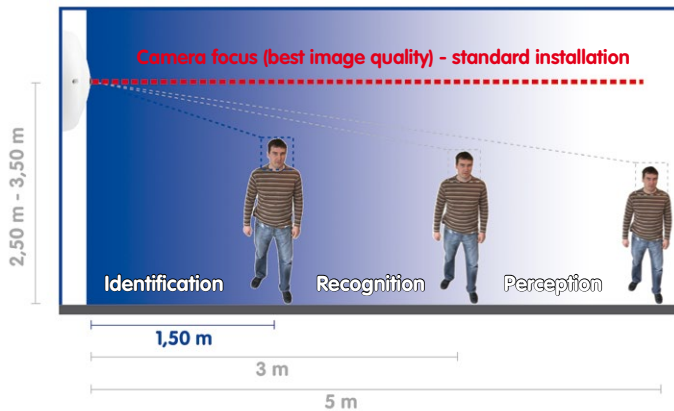
### The Q24M Panorama: one camera - three simultaneous views



Original image from the camera shown above using the 10° On-Wall Set (Panorama Focus View)

### Selecting An Appropriate Camera Position

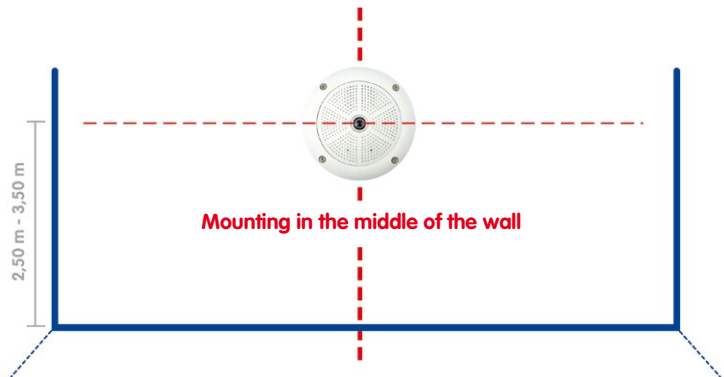
The Q24M is primarily suited to providing an excellent overview, and less suitable for more exact details. For active operation, the camera should be mounted at a (out of direct reach) height ranging from 2.5 to 3.5 m. People, for example, may be identified very well at distances of up to 1.5 m, and with sufficient detail at up to 3 m. Objects can be recognized even at distances of 5 m and more from the camera. During installation, ensure that the camera is focused on the most important areas of the room as directly as possible, in order to provide the desired level of detail recognition. For wall installation, use of the 10° On-Wall Set is ideal in many cases.



Wall Mount: Mounting the camera in the middle of the wall



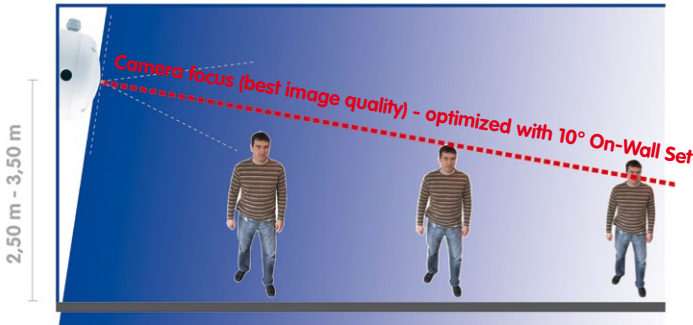
The OBEN / TOP label is only visible when the outer shell is removed



**Hint:** The Q24M should always be installed on a wall such that the arrow on the camera housing marked OBEN / TOP points towards the ceiling of the room.

### Wall Installation With The 10° On-Wall Set For Image Optimization

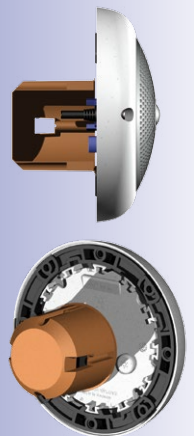
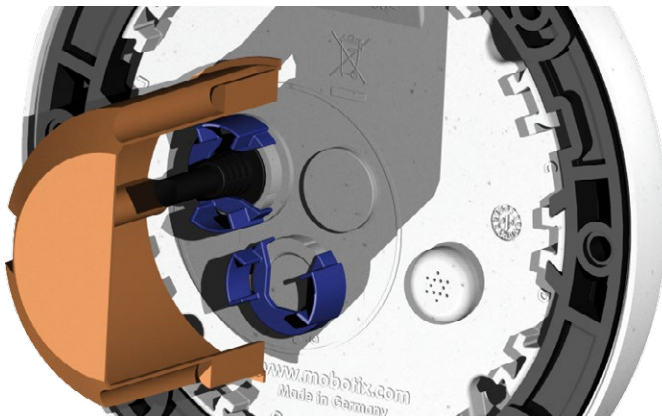
An on-wall set, available as an accessory in 0° and 10° inclinations, may also be used for installation. While the 0° set primarily offers easier installation and more storage space for cables and add-on modules (WLAN, connectors, etc.), the 10° set may also increase the image quality in certain cases. In particular for wall installations which must be carried out at greater heights for technical or other reasons (over doors, windows, etc.) adding a slight tilt to the camera, and thus also the lens, will return better results, as the center of the lens is then focused more directly on the center of activity in the room (optimal utilization of lens capabilities).



Optimized image quality through wall installation with On-Wall Set 10°

### Wall Mounting Over A Wall Outlet

Professional wall or ceiling installation of a Q24M is generally possible without accessories. However, due to elevation of the rear casing of the camera caused by connections and holders, a wall outlet should be installed prior to camera installation (see drilling template Q24M). This provides perfect protection to the cabling, ensuring that it cannot be seen or damaged from outside.

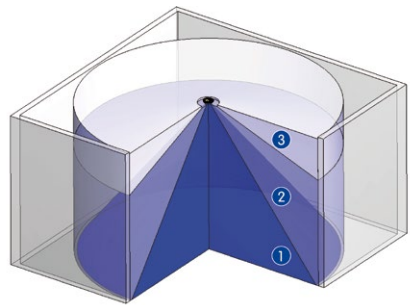


Discreet ceiling  
installation using the  
In-Ceiling Set

### 2.1.2 Ceiling-Mounted



Thanks to its hemispherical lens, a single Q24M can monitor an entire room right into each of the four corners (360° Panorama View). The camera should ideally be positioned on the ceiling in the center of the room. Due to its inherent physical and optical properties, the precision of the lens decreases as the distance from the lens grows. This means that the maximum usable image area varies greatly depending on the intended purpose of the camera. Rooms with a square floor area of up to approx. 40 m<sup>2</sup> in general allow recognizing details even at the borders of the full image. If you would only like to know if persons enter a room, or to monitor specific objects, rooms of up to 100 m<sup>2</sup> floor area can be monitored using a single Q24M.

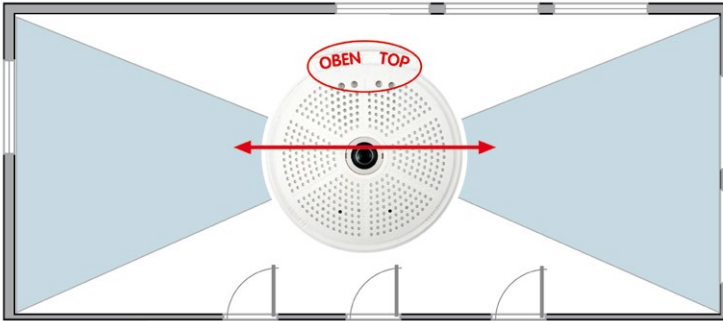


The **image quality** (precision) diminishes as the distance of an object to the camera focus point increases: 1 very good, 2 good, 3 satisfactory

Outdoors, the Q24M is usually mounted on a building wall, corner or pole instead of the ceiling. **For this situation, we recommend the use of the practical wall mount from the range of accessory products (section 2.8) or an extension.**

### Non-Square Rooms

When viewing a 360° (full) image in the browser, you will notice that the top and bottom of the image is not fully visible, i.e. some image information has been clipped. This is not a fault of the camera, but intended behavior that aims at achieving the best possible utilization of the image sensor by the camera software. Bearing this in mind, it is advisable to install the Q24M in rectangular room ceilings so that the arrow marked OBEN / TOP points towards one of the longer walls of the room as shown in the figure.

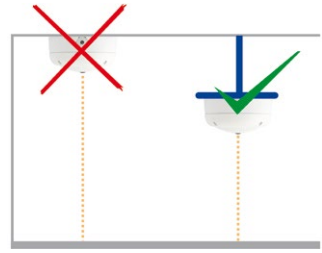


Original full image from the Q24M (ceiling installation in a rectangular room)

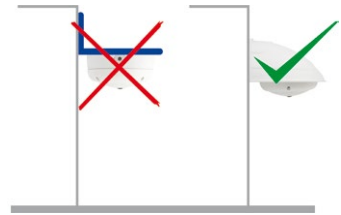
Never mount the camera to metal surfaces (condensation may damage the camera): **MOBOTIX recommends using an On-Wall Mount or the Wall Mount**

### Lowered Mounting Or Mounting On Extensions

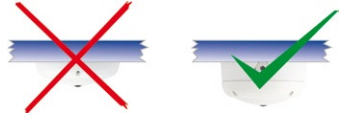
When mounting the camera in rooms with a high ceiling, or outdoors, it may be advisable to mount the camera in a lower position. This reduces the distance between the camera and the objects that are to be monitored, which in turn increases the recognizability of details. One practical solution would be to install the camera on a base plate attached to a suitable extension (metal tube) hanging from the ceiling. The network cable can be hidden from view by running through the interior of the tube.



Similar to lowered mounting from the ceiling, you can also attach the camera to an extension mounted to a wall to better use the 360° image of the camera (e.g. outside, above a portal). Such an installation would use the pole mount accessory (MX-D22-OPT-MH) in conjunction with the wall mount (MX-D22-OPT-WH) as a sturdy base for the camera, which is then mounted to the extension pole.



MOBOTIX does not recommend attaching the camera directly to metal carriers, especially when mounting the camera outdoors or when the ambient temperature varies greatly. As an additional measure to protect the camera against condensation, you should use either the On-Wall set (MX-D22-OPT-AP) or the Wall Mount (MX-D22-OPT-WH).

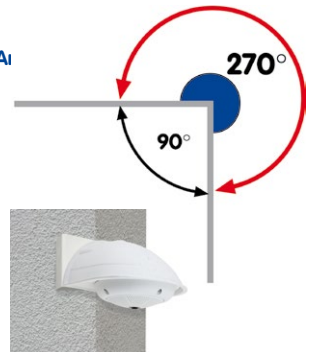


For the installation on building corners, the Corner and Pole Mount and a Wall Mount will be needed

### Installation On Building Corners With The Corner Ai

This is a special method of Q24M installation, offering substantial advantages for the outdoor surveillance of buildings.

The hemispherical lens of a single Q24M can cover the entire 270° range from one building wall to the other, for an "around the corner" view!





## 2.1.3 Mounting Options

### On-Wall Installation (MX-OPT-AP)

The On-Wall Set can reliably protect external cables if the cables cannot be fed in the center below the camera housing. The On-Wall mount also provides ample space for extra modules.



On-Wall Set (IP65, for outdoor applications)

### On-Wall Installation With 10° Inclination (MX-OPT-AP-10DEG)

This On-Wall Set is identical to the regular On-Wall Set, except that the mounted camera is tilted by 10 degrees. The inclination makes it possible for the camera to deliver the best images even in demanding situations.



On-Wall Set 10° (IP65, for outdoor applications)

### In-Ceiling Installation (MX-OPT-IC)

The In-Ceiling Set allows the Q24M camera to be installed in suspended ceilings, for example. This type of installation provides optimum protection for the camera and reduces the visible profile to a minimum, since the camera only protrudes 24 mm from the ceiling.



Discreet in-ceiling installation; decorative outer ring also available in stainless steel

### Vandalism Set (MX-Q24M-OPT-VANDAL)

The Vandalism Set provides added protection for Q24M cameras. The set consists of a robust stainless steel cover (matt or polished) and an impact-resistant polycarbonate dome. A camera equipped with the Vandalism Set is perfectly suited for applications in demanding environments (such as prisons, trouble areas, train stations, etc.).



Vandalism Set (IP65)

### Wall Mount (MX-OPT-WH)

The Q24M/D24M Wall Mount is the ideal solution for mounting the Q24M to walls for indoor and outdoor applications. The camera is absolutely dustproof and resistant against water jets (IP65). The wall mount also covers RJ45 wall outlets and has ample space for additional modules.



Wall Mount made from sturdy PBT-30GF (IP65)

### Corner And Pole Mount (MX-OPT-MH)

The MOBOTIX Corner and Pole Mount is the ideal choice when mounting the MOBOTIX Q24M to a pole or building corner (Panorama View covering approx 270°). This mount can only be used in conjunction with the wall mount. For poles with a diameter ranging from 60 to 180 mm.

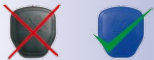


Outdoor Corner and Pole Mount made from stainless steel (in conjunction with Wall Mount)

The Q24M supports the Power over Ethernet standard IEEE 802.3af (PoE)

The Network Power Adapter replaces the crossover cable when directly connecting to a computer

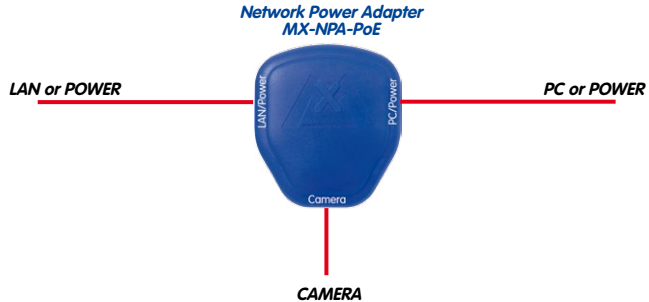
Only use the new (blue) MX-NPA-PoE set for the Q24M - the MOBOTIX Network Power accessories NPA-Set, Power-Box, and Power-Rack (MX-NPA-Set, MX-NPR-4 and MX-NPR8/20) are not compatible with the Q24M



## 2.1.4 Network Connection And Power Supply, UPS

### Power over Ethernet (PoE Conforming To IEEE 802.3af)

All Q24M models are supplied with power using the PoE standard. The Network Power Adapter (MX-NPA-PoE-Set) may be used for smaller installations. For larger installations, it is worth investing in a PoE capable supply device available on the market.



### Caution

The **maximum length** of the network cable for power supply over an Ethernet cable is **100 m/328 ft**.

**Previous MOBOTIX network power accessories** such as the NPA Set, Power Box and Power Rack (MX-NPA-Set, MX-NPR-4 and MX-NPR8/20) are **not** suitable for use with the Q24M.

### Note

The MOBOTIX Q24M can be powered by switches or routers which support the PoE (Power-over-Ethernet) standard and conform to IEEE 802.3af.

Sections 2.11 and higher contain more information on the possible combinations of connecting the Q24M and power supply options.

#### Advantages of PoE power supply:

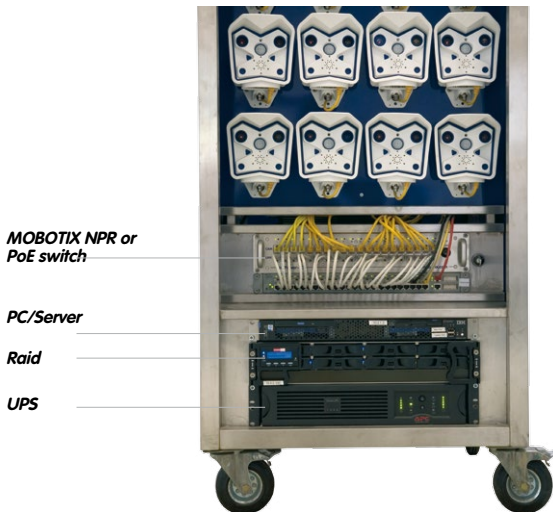
- Allows setting up centralized backup power supply via the network.
- Reduces energy consumption.
- No extra network connection for camera required.

### Using Uninterruptible Power Supplies (UPS)

In order to maintain a continuous power supply even when utility power fails, you should install an uninterruptible power supply (UPS). These devices also provide full protection against electrical surges and voltage fluctuations and thus enhance the reliability of the system as a whole.

When using a more powerful 19" rack-mounted UPS, you can also protect all other network components (e.g. switches, routers, PoE switches, etc.).

Since MOBOTIX cameras do not require any heating (even during winter), the average power consumption of approximately 4.5 W is very low. This in turn means that you can centralize the UPS-protected power supply by injecting power into the network cables (max. 100 m). This kind of protected power supply can be used either with MOBOTIX PoE products (MX-NPA-PoE + Universal Power Supply) or with PoE-compliant switches according to IEEE 802.3af.



### 2.1.5 Preparing The Camera Connections, Wall Outlets

Once the camera position, the position of the cable outlets and the method of power supply have been decided upon, the cabling can be installed. Before mounting the MOBOTIX Q24M, you should make sure that the network connections have been properly tested to ensure that the camera functions correctly when it is installed.

UPS not only protect the camera against power failures, they also protect all other connected network devices against damage from voltage peaks and lows

19" system with UPS

PoE power supply of the cameras allows using one UPS over the network (enhanced security)

### 2.1.6 Wiring, Fire Prevention, Lightning And Surge Protection

When installing the wiring inside or outside of buildings, make sure you always adhere to the relevant regulations on wiring, fire prevention and protection against lightning.:

MOBOTIX cameras are protected against the effects of small electrical surges by a range of measures. These measures, however, cannot prevent the camera from being damaged when stronger electrical surges occur. Particular care should be taken when installing the camera outside to ensure proper **protection against lightning**, as this also protects the building and the entire network infrastructure.

MOBOTIX recommends having MOBOTIX cameras installed only by certified specialists accustomed to installing network devices and having proper respect for the applicable regulations regarding lightning protection and fire prevention as well as the current technology for preventing damages from electrical surges.

#### Wiring

When installing the wiring, make sure to follow these guidelines:

- **Data cable:** Make sure you only use double-shielded CAT5 or higher cable (**S/STP**) for Ethernet connections.
- **Outdoors:** Installing the camera outdoors requires special precautions and measures regarding the cables as well as lightning and surge protection (see below).
- **Wire lengths:** The cable segments must not exceed the maximum allowed cable lengths in order to ensure proper data transfer (see section 2.11).
- **Avoiding induction:** When running data cables parallel to existing regular power lines or high-voltage wires, make sure you observe the minimum distances to the power cables.



#### Fire Prevention

When installing the power lines to the camera, make sure you always adhere to the country-specific regulations (e.g. VDE in Germany, IEEE in the USA) in effect on wiring and fire prevention at the site of the installation.

### Lightning And Surge Protection

More information is available at an institution such as the International Electrotechnical Commission (IEC, [www.iec.ch](http://www.iec.ch)) or at a manufacturer of protection devices against lightning and electrical surges, such as Dehn ([www.dehn.de](http://www.dehn.de)).



## 2.2 Q24M Basic/Secure: Delivered Parts, Components, Dimensions

### 2.2.1 Delivered Parts And Camera Components



Item	Quantity	Part Name
1.1	1	Camera
1.2	1	Lens
1.3	1	Lens wrench
1.4	1	MicroSD card (4 GB)*, pre-installed
1.5	1	CAT5 patch cable, 0.5 m incl. washer, pre-installed
1.6	1	Allen wrench 3 mm
1.7	1	Allen wrench 2 mm
1.8	1	Torx wrench
1.9	1	Outer shell
1.10	1	Mounting ring
1.11	4	Universal screw anchors 8 mm
1.12	4	Stainless steel washers Ø 5,3 mm
1.13	4	Stainless steel wood screws with hex head 4.5x60 mm
1.14	4	Stainless steel Allen screws M4x16 mm
1.15	4	Stainless steel washers Ø 4.3 mm
1.16	2	Cable retainer with bayonet catch (patch cable, MiniUSB)

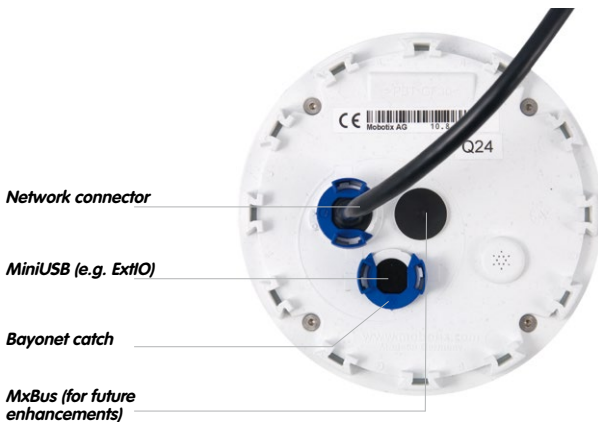
\*MicroSD card only available for Q24M Secure

2.2.2 Camera Housing And Connectors

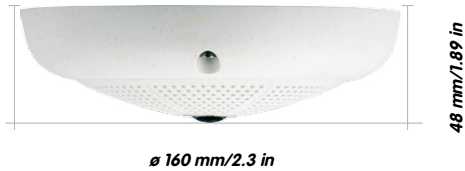
The MOBOTIX Q24M consists of the camera housing (motherboard and lens), the outer shell and the mounting ring.

Connections

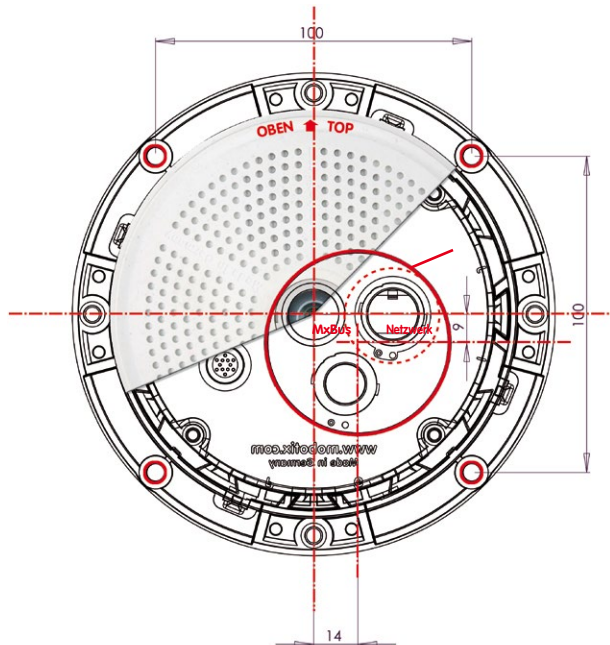
- NET (Ethernet network incl. PoE power supply)
- MiniUSB (e.g. for ExtIO)
- Slot for MicroSD card



## 2.2.3 Q24M: Dimensions Without Mounting Options



## Mounting Ring Drilling Template (Incl. Space For Wall Outlet)



Find the drilling templates (scale 1:1) at the end of the manual as a fold-out

The blue circle indicates the hole to cut for the wall outlet

## Note

Find the folded drilling template at the end of the manual.

Make sure that the drilling template is not scaled or adjusted to the paper size when printing the PDF file (enlarged or reduced).



2.3 Available Q24M Accessories - Overview

**On-Wall Set (MX-OPT-AP)**

Consists of On-Wall Mount and mounting supplies. Conforms to U.S. installation standards. Reliably protects the cabling and allows integrating additional modules within the On-Wall Mount (WLAN, battery, ...).



**10° On-Wall Set (MX-OPT-AP-10DEG)**

Consists of On-Wall mount and mounting supplies for inclined installation (10°) of a camera. Conforms to U.S. installation standards Reliably protects the cabling and allows integrating additional modules within the On-Wall Mount (WLAN, battery, ...).



**Vandalism Set (MX-Q24-Sec-Vandal-ESPO)**

Consists of polished stainless steel housing, lens protector and security screws. Ideally suited for surveillance at critical locations.



The polished vandalism protection housing is made from stainless steel 1.5 mm strong

**Vandalism Set (MX-Q24-Sec-Vandal-ESMA)**

Alternative design featuring matt stainless steel housing. As above incl. lens protector and security screws.



The matt vandalism protection housing is made from stainless steel 1.5 mm strong

Can also be used as a wall mount in drywalls

### In-Ceiling Set (MX-OPT-IC)

For simple installation in false ceiling tiles. Suitable for discreet surveillance. Optionally available with a stainless steel ring.



### Outdoor Wall Mount (MX-OPT-WH)

Consists of Outdoor Wall Mount and mounting supplies. Covers RJ45 wall outlets. Space for expansion modules (battery, UMTS, WLAN, etc.) Easily mounted to poles using Pole Mount. Weatherproof IP65.



### Corner And Pole Mount (MX-OPT-MH)

Flange for Outdoor Wall Mount. Can be mounted to wall corners or poles. 3 mm stainless steel, white. Wall Mount may be ordered separately or as a set.



### Network Power Adapter Set (MX-NPA-PoE-Set\*)

The Network Power Adapter Set allows injecting the power supply for the MOBOTIX Q24M into the network cable. This makes it possible to use the network cable to both connect the camera and remotely supply power (up to 100 m). The MOBOTIX Network Power Adapter Set including power supply with RJ45 connector is required if you do not use a PoE compatible switch or router to supply power to the MOBOTIX camera.



\* Country-specific versions of the set are available from MOBOTIX (DE, US, GB, AUS, JP)

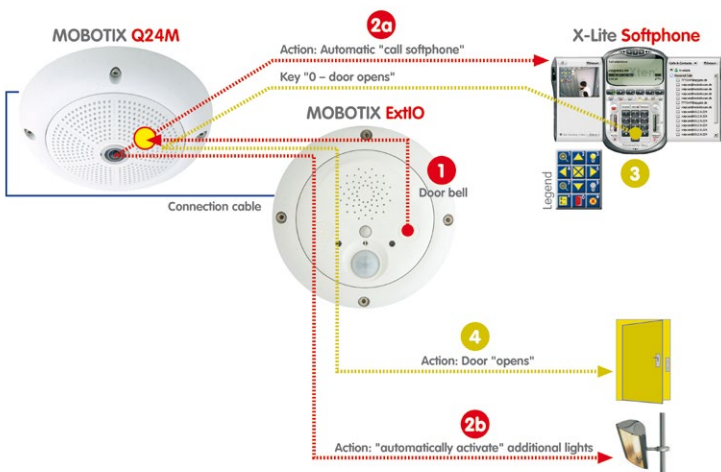


**ExtIO Function Extension (MX-ExtIO)**

The ExtIO contains a powerful speaker, microphone, infra-red motion sensor, environmental temperature sensor, 2 input and 2 output contacts and 2 illuminated buttons. It is ideal for door communication, elevators, access control, etc.

The ExtIO may be operated directly with the Q24M over a separately available MOBOTIX USB cable. The ExtIO can operate in two different modes:

- MiniUSB: Directly connected to the camera using a separately available cable (max. 5 m)
- Ethernet: Connect the ExtIO over a standard PoE switch; maximum distance to camera 200 m

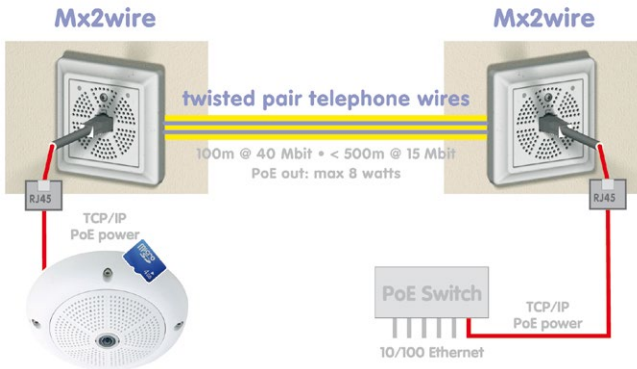


**Mx2wire Media Converter (MX-2wire-Set-PW)**

The Mx2wire system allows you to set up an Ethernet Network with PoE over paired telephone wires. This allows an existing two-core analog telephone line to be put to use to connect a 10/100 MB Ethernet device (e.g. PC, WLAN, network camera, IP telephone or IP door station). The achievable data rate is up to 40 Mbps. Around 15 Mbps can be reached over 500 m of bell wire.



An identical Mx2wire device is placed at the beginning and the end of the line. Configuration as sender or receiver is automatic. The Mx2wire nodes are supplied with power by the feeding network cable. The connected devices may be supplied with up to 8 watt over PoE, as the injected PoE signal is transmitted parallel to the network signal. The Mx2wire is delivered in a standard wall outlet frame available in different designs, but may also be used with the included on-wall outlet.



**Stand/Wall Mount for Camera Tests (MX-OPT-TW-Demo-1)**

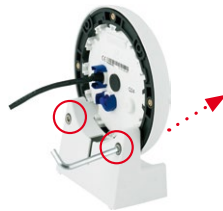
The Stand/Wall Mount is a useful accessory for testing and for finding the optimum mounting position of the camera. The set also includes an Allen wrench as well as a Torx screw with dowel and the corresponding Torx wrench for installing as alternative wall mount for testing.

**Using as a Stand (with/without tripod)**

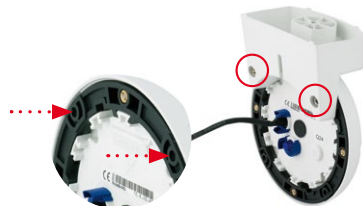
Using this stand, you can now place the camera upright on a flat surface or mount the whole assembly on a tripod (1/4" tripod thread at the bottom of the stand).

**Converting to a wall mount (simulation of On-Wall set with 10 deg. tilt)**

1. If required, release the two stainless steel Allen Screws and remove the camera from the stand/wall mount.



2. Place the camera with the two upper body screws exactly into the two receptacles of the Stand/Wall Mount. **Note:** The print on the camera back is legible.

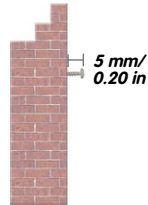


Installation hint: The print on the camera back is legible.

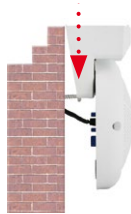
- 3. Mount the camera to the stand using the two stainless steel Allen screws.



- 4. Use the Torx screw to fasten the mount onto the wall. Make sure that the head of the screw is not tight against the wall, but that it still has 5 mm/0.2 in to go.



- 5. Slide the entire assembly from above over the Torx screw in the wall.



- 6. Properly tighten the Torx screw to secure the assembly in the desired position. There is a special hole in the Stand/Wall Mount to access the Torx screw.



**Caution**

The Stand/Wall Mount has been only designed used for testing purposes. Make sure that you replace this mount by a proper wall mount before bringing the system into service.

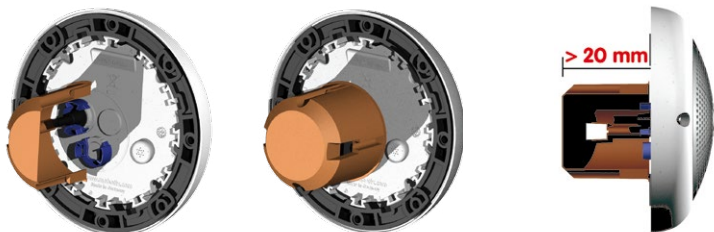
## 2.4 Mounting The Camera Without Accessories



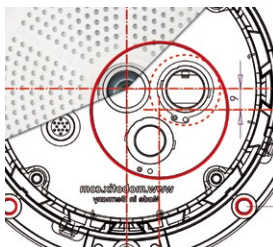
### 2.4.1 Mounting Instructions

The Q24M, being an overview camera, is primarily designed for installation on walls or ceilings. Direct installation of the camera without any accessories is, in general, always possible, however - due to elevation of the rear casing of the camera where connections and their holders are - a flush-mounted wall outlet should be installed first.

Installation over a standard flush-mounted wall outlet (minimum installation depth 20 mm/8 in)



The drilling template also includes a blue circle marking the minimum size and position of this wall outlet, in addition to the drilling holes. To guarantee maximum coverage of the room by the camera, the Q24M should be positioned on the wall or ceiling as close to the middle of the room as possible.





### 2.4.2 Required Tools

Please check that all components supplied with the camera are present in the original packaging first (see section 2.2).

#### The Following Additional Tools Are Required For Installation:

- Any additional materials for fastening the camera to a ceiling/wall, if necessary – **4 wood screws incl. screw anchors and washers** are included in the original packaging.
- **Screwdriver**
- **Power drill** for screw anchor holes needed for ceiling/wall mounting
- **MOBOTIX Drilling Templates** (at the end of this manual)
- **Scissors** to cut out the template
- **Pen** to mark the drill holes
- Materials and any tools needed to connect the pre-installed MOBOTIX network cable in the camera with the on-site network cable.
- **Wall outlet and tools** to install the outlet in the wall/ceiling (keyhole saw)
- **Soft cotton cloth** to clean the front of the lens



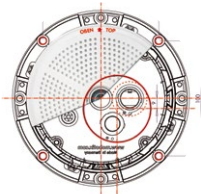
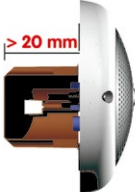



Q24M seen from the side with cable bent properly

Due to the space required for cable and connectors, we recommend a flush-mounted wall outlet with an installation depth of at least 20 mm/8 in

RJ45 patch cable: 50 cm (19.7 in) cable incl., other lengths available from MOBOTIX as accessories

Due to the space required for cable and connectors, we recommend a flush-mounted wall outlet with an installation depth of at least 20 mm/8 in

### 2.4.3 Procedure

1. Install and prepare the **network connection**.
2. **Install the flush-mounted wall outlet:** The pre-installed cable attached to the camera must be connected with the on-site network cable. For installation without accessories, a flush-mounted wall outlet must be installed first, in order to provide a connection. The cabling is perfectly protected and cannot be seen or damaged. The camera cannot be mounted directly on top of protruding wall outlets. Use the supplied camera drilling template (fold-out at the end of this manual) to mark the position of the wall outlet for the desired camera position.
 

3. **Remove the outer shell:** Remove all four Allen screws using the supplied Allen wrench and lift off the outer shell.
 
4. **Drill the holes:** Drill the holes for the supplied screw anchors (see drilling template). Remember to take the proper direction of the camera into consideration (OBEN / TOP arrow pointing upwards for wall installation, or in the direction of the longer wall for ceiling installation in rectangular rooms).
 
5. **Connect the cable:** Connect the on-site network cable to the camera patch cable using a standard connector.
 

6. **Mount the camera:** Use the (included) screws to affix the mounting ring and the camera at the designated position.



7. **Install the rubber seal:** Place the rubber seal with the groove around the edge of the black mounting ring of the camera.



8. **Attach the outer shell:** Replace the outer shell and screw all four Allen screws tight using the supplied Allen wrench. Ensure that the rubber seal is properly positioned.



9. **Clean the lens:** If necessary, gently clean the front of the lens with a soft cotton cloth. Do not apply excessive pressure to the surface of the glass when cleaning the lens.
10. **Establish a connection to the camera, check the image:** Establish a connection to the camera as described in sections 3.1 ff. The live image from the camera should be visible on the computer monitor. Check image sections on the computer monitor as well.

### Caution

The **maximum torque** for all screws is **1 to 1.2 Nm**.

Only use the factory pre-installed network cable supplied with the MOBOTIX camera. Always ensure that the cable retainer with bayonet catch is closed properly around the network cable. All openings at the back of the camera housing except the pressure equalization element need to be sealed properly with the rubber plugs. This is the only way to guarantee that the camera remains weatherproof.

**Note****Note on fastening cables leading in to the camera:**

Cables passing in to the back of the camera (patch cable for the network connection and ExtIO cable) are secured using a special cable retainer with bayonet catch.

When replacing this cable, ensure that the cable is properly seated in the connector and that the retainer with the blue bayonet catch is locked (short clockwise turn until it clicks into place).

**Removing The Cable Retainer**

Rotate the bayonet catch anti-clockwise to the "open circle" symbol (see diagram). The catch may be removed from the side. The cable can now be pulled out of the camera.

Open the cable retainer by rotating the bayonet catch to the marked position

Bayonet catch open



**Caution**

Only use **Original MOBOTIX cable** to connect the camera. Standard cables purchased from other suppliers do not meet the necessary specifications for proper retention (no IP54 and IP65 weather protection).



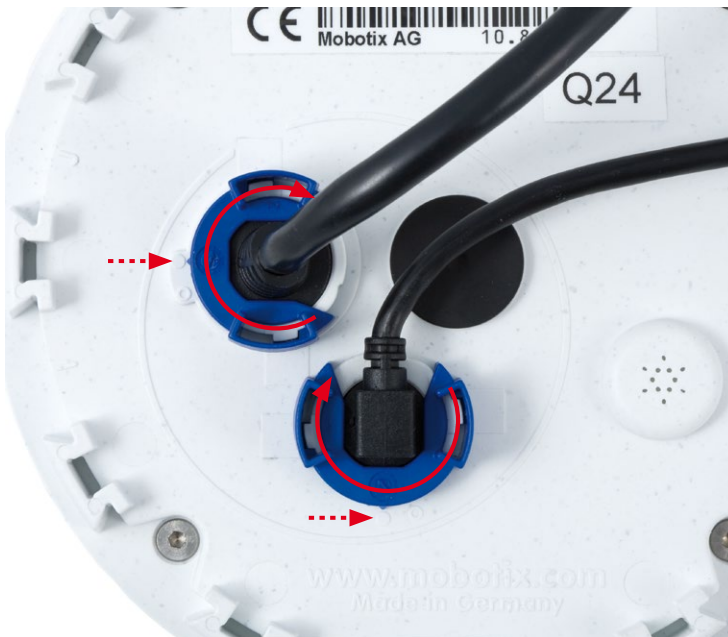
*Ethernet patch cable*



*MiniUSB cable*

**Replacing The Cable Retainer**

Insert the cable into the receptacle on the camera. Position the bayonet catch from the side (opening points to the right). Rotate the bayonet catch clockwise to the "filled circle" symbol (see image). The cable is now properly retained.



Close the cable retainer by rotating the bayonet catch to the marked position

Bayonet catch closed



## 2.5 Mounting The Camera With The On-Wall Set



### 2.5.1 Mounting Instructions

On-Wall sets available in 0° and 10° inclinations allow fast and simple installation of the Q24M on a wall or room ceiling. When using the set outdoors (IP65), ensure that the screw holes on the rear of the camera housing are sealed with the included foam rubber washers. It is not possible to install the on-wall set directly above an on-wall or flush-mounted outlet.

Installation using the 10° On-Wall Set is often the right choice if a Q24M is to be used as a panorama camera installed at a greater than usual height (3 m or higher). Tilting the lens in the direction of the center of activity in the room maximizes image quality. Consider the desired camera position carefully during installation!

If discreet appearance of the Q24M is of particular importance, the In-Ceiling Set for ceiling installation is the best possible choice (see section 2.6).

The network connection and drill holes must be prepared correctly before installing the On-Wall Set (both indoors and outdoors):

- **Network connection:** You can use any one of the four openings in the On-Wall set to guide the cabling into the camera. The network cable must be fed through the opening without a connector. An additional connector to connect to the camera cable is required. When preparing for installation, keep in mind that the camera must later be positioned in the correct orientation, according to its purpose (OBEN / TOP arrow pointing upwards for wall installation, or in the direction of the longer wall for ceiling installation in rectangular rooms).
- **Preparing the drill holes:** Use the supplied drilling template for the Q24M On-Wall Set (fold-out at the end of this manual) to mark the position for drilling the anchor holes with regard to the camera position.

## Caution

When using the On-Wall Set outdoors, ensure that the screw holes on the rear of the camera housing are sealed with the foam rubber washers included in delivery (IP65).

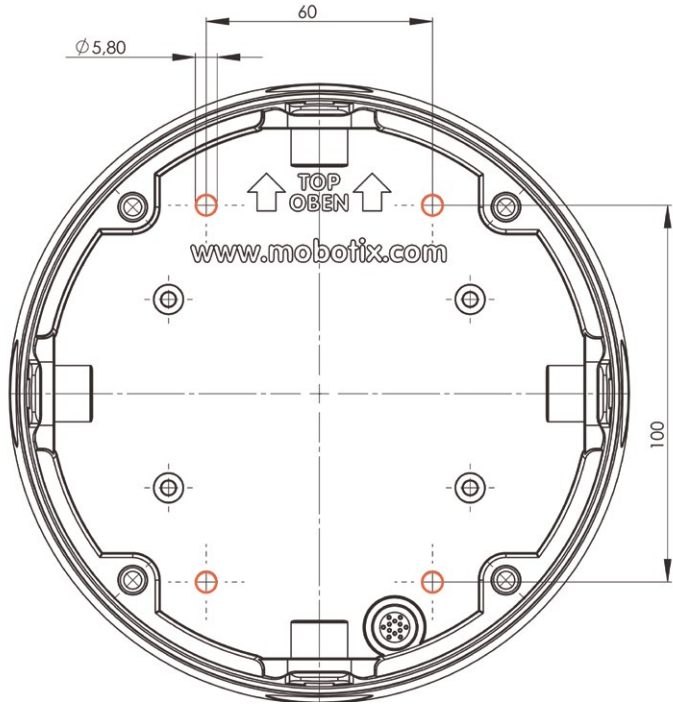
### 2.5.2 On-Wall Set



The On-Wall Set must be ordered separately from the MOBOTIX camera.

Item	Quantity	Part Name
2.1	1	On-Wall set housing
2.2	4	Stainless steel Allen screws M4x35 mm
2.3	4	Stainless steel washers Ø 4,3 mm
2.4	4	Foam rubber washers
2.5	4	Lock screws with counter nuts
2.6	2	Cable fitting with counter nut and O-ring cord

## Drilling Template On-Wall Set



Find the drilling templates (scale 1:1) at the end of the manual as a fold-out



## Notes

Use the fold-out template included at the end of the printed manual (valid for both 0° and 10° On-Wall Sets).

Make sure that the drilling template is not scaled or adjusted to the paper size when printing the PDF file (enlarged or reduced).

The maximum torque for all screws is 1 to 1.2 Nm.



### Scope Of Delivery And Required Parts

Please check that all components supplied with the On-Wall Set are present in the original packaging first.

### The Following Additional Tools Are Required For Installation:

- Suitable materials for ceiling/wall installation: **4 wood screws incl. screw anchors and washers** (e.g. from the original camera packaging).
- **Screwdriver**
- **Power drill** for screw anchor holes needed for ceiling/wall mounting
- **MOBOTIX Drilling Templates** (at the end of this manual)
- **Scissors** to cut out the template
- **Pen** to mark the drill holes
- Materials and tools needed to connect the pre-installed MOBOTIX network cable in the camera with the on-site network cable.
- **Soft cotton cloth** to clean the front of the lens

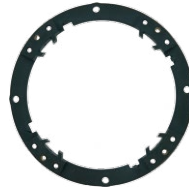


### 2.5.3 Procedure

- Attach washers:** Prior to installation, stick a black foam rubber washer around each of the four screw holes on the rear side of the on-wall housing (remove the adhesive foil and press into place, surface must be clean and free of grease). This prevents water from entering the housing.
- Prepare the cabling:** Insert the seal into the cable opening of the On-Wall Set such that the black rubber seal is on the outside. Fix it in place from the inside using a small hexagonal nut.
- Mount the On-Wall Set:** Mount the On-Wall Set (without the camera) at the intended position using e.g. the wood screws (included with Q24M camera, Pos. 1.13). Make sure the OBEN / TOP arrow points in the correct direction.
- Cable feeding:** Attach the counternut to the network cable, pass it through the seal from the outside and tighten the nut. The network cable is now screwed into the On-Wall Set, weatherproof. All unused openings must be sealed with the included sealant plugs. The cable passing into the housing must always be installed using the supplied three-part fittings.
- Remove the camera outer shell:** Unscrew all four Allen screws with the supplied Allen wrench. Remove the outer shell.



6. **Remove the mounting ring:** Separate the black mounting ring from the camera housing (lift the spring clip). This ring is not required when mounting the camera to the On-Wall set.



7. **Connect the cable:** Connect the on-site network cable to the network cable passing through the On-Wall Set using a standard connector. Excess cable can be stored easily within the On-Wall mount.



8. **Attach the camera to the mount:** The camera must be seated firmly within the On-Wall mount. The tapered guides at the back of the camera housing fit exactly into the openings of the On-Wall mount. Once, again, ensure that OBEN / TOP arrow points in the correct direction.



9. **Attach the outer shell:** Position the outer shell without the rubber seal and tighten all four Allen screws using the included Allen wrench.



10. **Clean the lens:** If necessary, gently clean the front of the lens with a soft cotton cloth. Do not apply excessive pressure to the surface of the glass when cleaning the lens.
11. **Establish a connection to the camera, check the image:** Establish a connection to the camera as described in sections 3.1 and above. The live image from the camera should be visible on the computer monitor. Check image sections on the computer monitor as well.

The decorative ring is available in different colors and in stainless steel

## 2.6 Mounting The Camera With The In-Ceiling Set



### 2.6.1 Mounting Instructions

The In-Ceiling Set offers the most stylish installation option for the Q24M. When properly installed, the only visible component is a particularly sleek and discreet hemispheric camera, while most of the remaining components are concealed inside the ceiling.

For these reasons, the Q24M installed with the In-Ceiling Set is the preferred option for most indoor spaces frequented by customers or the general public (e.g. hotels, restaurants, banks, retail stores, public buildings, etc.).

The common use of suspended ceilings in commercial and public buildings is an additional reason to place a preference on in-ceiling installation. The installation process is also simplified, as the network cable may be laid without difficulty and only a 15 cm diameter hole must be cut in the ceiling or ceiling component.

Before installing the MOBOTIX Q24M to an indoor location using the In-Ceiling Set, you must prepare the network connection and drill a hole for the camera:

- **Network connection:** The network cable is fed through the ceiling directly above the camera.

When preparing for installation, keep in mind (particularly with regard to cable slack) that the camera may later need to be repositioned in the correct orientation, according to its specific purpose (OBEN / TOP arrow pointing in the direction of the longer wall for ceiling installation in rectangular rooms).

- **Cut a hole for installation:** The hole should have a **diameter of 150 mm** (see drilling template at the end of the manual).

See section 2.1.2 for a detailed description

## 2.6.2 In-Ceiling Set0



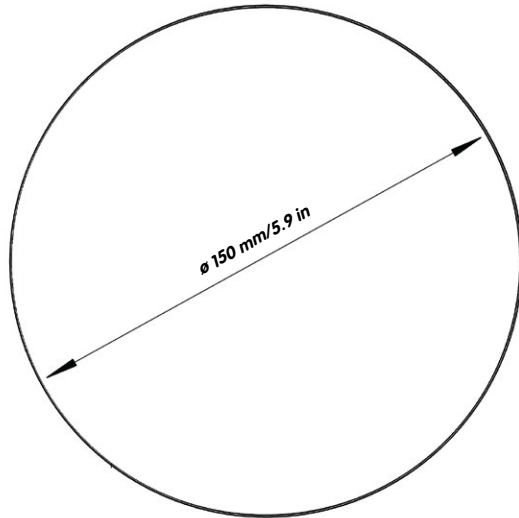
The In-Ceiling set must be ordered separately from the camera

Item	Quantity	Part Name
3.1	1	Ceiling mounting ring incl. 4 flat headed screws
3.2	1	Decoration ring
3.3	2	Wrench for In-Ceiling mount
3.4	4	Clamps

## Q24M Drilling Template In-Ceiling Set

Find the drilling templates (scale 1:1) at the end of the manual as a fold-out

The In-Ceiling Set can be used in panels ranging from 6 to 22 mm/0.24 to 0.86 in thickness

**Notes**

Find the folded drilling template at the end of the manual.

Make sure that the drilling template is not scaled or adjusted to the paper size when printing the PDF file (enlarged or reduced).

### Scope Of Delivery And Required Parts

Please check that all components supplied with the In-Ceiling Set are present in the original packaging first.

### The Following Additional Tools Are Required For Installation:

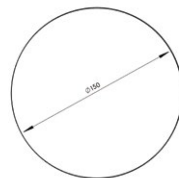
- **Power drill** with matching hole saw (150 mm diameter) or **jigsaw**
- **MOBOTIX Drilling Templates** (at the end of this manual)
- **Scissors** to cut out the template
- **Pen** to mark the hole positions
- **Two blue In-Ceiling wrenches** from the In-Ceiling Set
- Materials and tools needed to connect the pre-installed MOBOTIX network cable in the camera with the on-site network cable.
- **Soft cotton cloth** to clean the front of the lens



### 2.6.3 Procedure

1. **Prepare the network connection:** Run the network cable above the suspended ceiling and ensure that enough cable slack is available.

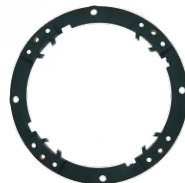
2. **Cut a hole for installation:** Cut a round hole for camera installation (e.g. with a 150 mm hole saw). Use the supplied cutting template of the In-Ceiling Set (fold-out at the end of the manual).



3. **Remove the outer shell:** Remove all four Allen screws using the supplied Allen wrench and lift off the outer shell.



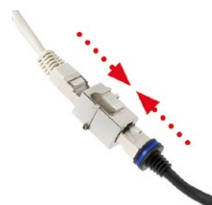
4. **Remove the mounting ring:** Separate the mounting ring from the camera housing. This ring is not required when mounting the camera in the In-Ceiling Set.



5. **Place the camera in the In-Ceiling Set:** The dovetail guides at the back of the camera housing fit exactly into the openings of the In-Ceiling mounting ring.



6. **Connect the cable:** Connect the on-site network cable to the camera network cable using a standard connector.





7. **Insert the camera and the In-Ceiling Set into the hole:** Make sure that all winged cams are retracted before placing the In-Ceiling Set with the camera into the hole. Pay attention to the orientation: the OBEN / TOP arrow should point in the direction of the longer wall for ceiling installation in rectangular rooms. Tightening the screws of the In-Ceiling Set extends the winged cams, thus firmly holding the set in place.



The blue winged cams (see left) automatically secure the In-Ceiling Set in the ceiling when tightening the screws

8. **Install the decorative ring:** Use the two wrenches from the In-Ceiling Set to place the ring on the set as shown in the figure and turn the ring clockwise until it stops.



Installing the decorative ring: turn clockwise

The two **wrenches from the In-Ceiling Set** may also be used for **dismounting**. Insert them as shown and turn the ring counter-clockwise. Loosen the screws of the In-Ceiling Set; this will automatically retract the winged cams. You can now remove the In-Ceiling Set, with the camera still attached, from the ceiling.



Removing the decorative ring: turn counter-clockwise - only relevant when completely removing the camera

9. **Clean the lens:** If necessary, gently clean the front of the lens with a soft cotton cloth. Do not apply excessive pressure to the surface of the glass when cleaning the lens.
10. **Establish a connection to the camera, check the image:** Establish a connection to the camera as described in sections 3.1 and above. The live image from the camera should be visible on the computer monitor. Check image sections on the computer monitor as well.

## 2.7 Installing The Vandalism Set



### 2.7.1 Mounting Instructions

The Vandalism Set serves to provide additional security and protection for Q24M cameras. It may be installed with little effort and at low cost. This set is recommended for use under particularly demanding conditions (such as prisons, trouble areas, train stations, etc.). The set consists of a robust stainless steel cover for the camera housing (matt or polished) and an impact-resistant dome cover made of reinforced plastic.

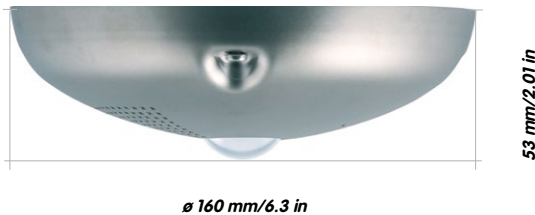
To install the Vandalism Set, simply mount the stainless steel cover and the included security screws (with the four mounted spacers) over the standard housing.

2.7.2 Vandalism Set



The Vandalism set must be ordered separately from the camera.

Item	Quantity	Part Name
4.1	1	Stainless steel cover 2 mm stainless steel
4.2	4	Spacers for Vandalism set
4.3	4	Security screws M4x16 mm
4.4	1	Two-hole driver bit for security screws
4.5	1	Polycarbonate dome incl. washer
4.6	1	Lens wrench



Available Variants Of The MOBOTIX Q24m Vandalism Set:



*Stainless steel, polished*



*Stainless steel, matt*

### Scope Of Delivery And Required Parts

Please check that all components supplied with the Vandalism Set are present in the original packaging first.

### The Following Additional Tools Are Required For Installation:

- **Allen wrench** for removing the standard outer shell (included in Q24M packaging)
- **Screwdriver with bit receptacle** for the two-hole driver bit
- Clean and soft **cotton cloth**



### 2.7.3 Procedure

In order to install the Vandalism Set, replace the white plastic outer shell of the Q24M, including the Allen screws, with the stainless steel cover, the security screws and the four spacers of the Vandalism set.

1. **Remove the outer shell:** Remove all four Allen screws using the supplied Allen wrench and lift off the outer shell.



2. **Remove the lens gasket:** Unscrew the lens using the lens wrench (included with the camera) and remove the lens gasket.



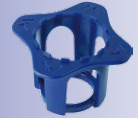
3. **Replace the lens:** Screw the lens back in using the lens wrench.



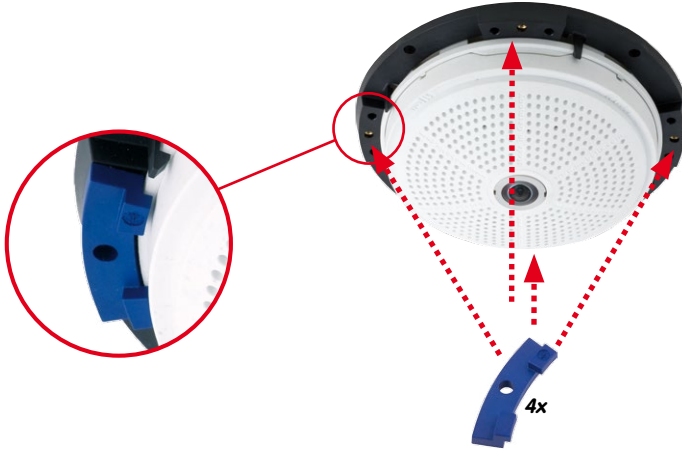
4. **Adjust the live image:** Establish a connection to the camera as described in sections 3.1 and above. The live image from the camera should be visible on the computer monitor. Select the highest available image resolution. Check image sections (image center and focus) on the computer monitor and adjust the lens with the lens wrench if necessary.

5. **Clean the lens:** If necessary, gently clean the front of the lens with a soft cotton cloth. Caution: Do not apply excessive pressure to the surface of the glass when cleaning the lens!

- 6. **Mount the dome:** Screw the dome on in a clockwise direction using the supplied wrench. If required, clean the dome gently using a soft cotton cloth before completing installation. Check the sharpness of the camera image again, and correct it if necessary.
- 7. **Mount the spacers:** Place the **four spacers** on the mounting ring.



Lens wrench for installing the dome



Spacers for Vandalism set

Maximum torque for all screws is 1 to 1.2 Nm

- 8. **Mount the stainless steel cover:** Position the stainless steel cover as shown and tighten the security screws using the included **two-hole driver bit**.



Security screw and two-hole driver bit

Stainless steel cover must be positioned correctly to line up with the LED openings

## 2.8 Installing The Wall Mount



### 2.8.1 Mounting Instructions

The Wall Mount allows you to easily mount Q24M cameras to walls or extensions, both indoors and outdoors. The camera remains IP65 weatherproof (dust-proof and resistant to water jets). The Wall Mount also covers RJ45 wall outlets and has ample space for additional modules (WLAN, batteries, etc.).

**Before mounting** the MOBOTIX Q24M with the Wall Mount, you must prepare the network connection and drill the holes for the fixtures:

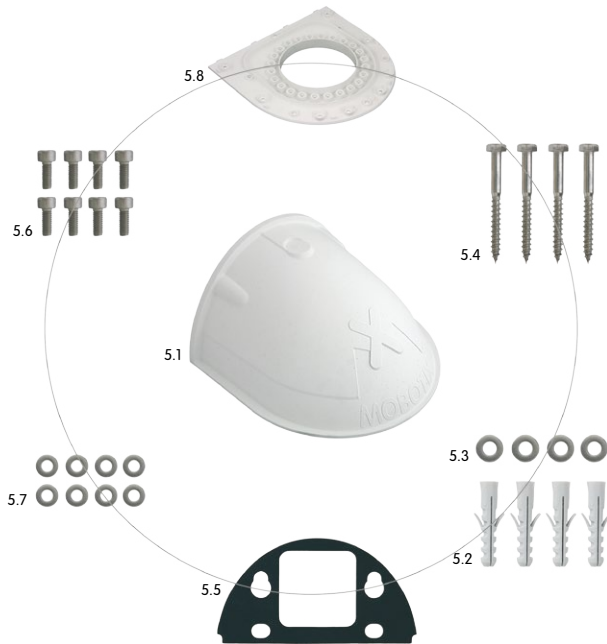
- The **on-site network cabling** is passed through the opening in the back of the wall mount. The cable and the required (standard) connector for the camera cable (patch cable) are ideally protected by a robust wall sealing made from foam rubber. Nothing is visible or accessible from the outside. The Wall Mount may be mounted directly on top of flush or protruding wall outlets. Maximum width x height of the outlet: 88 mm x 80 mm.
- Only use the Q24M **factory installed patch cable** (50 cm cable length) or a MOBOTIX cable of different length available from the range of accessories.
- All openings of the camera housing need to be closed off properly. This is the only way to guarantee that the camera remains weatherproof.
- The included screw anchors should be used for the **drill holes** in the wall. Use the supplied drilling template for the Q24M Wall Mount (fold-out at the end of this manual) to mark the position for drilling the holes and the holes through which the cables will later be fed.



Direct installation  
over on-wall and flush-  
mounted wall outlets



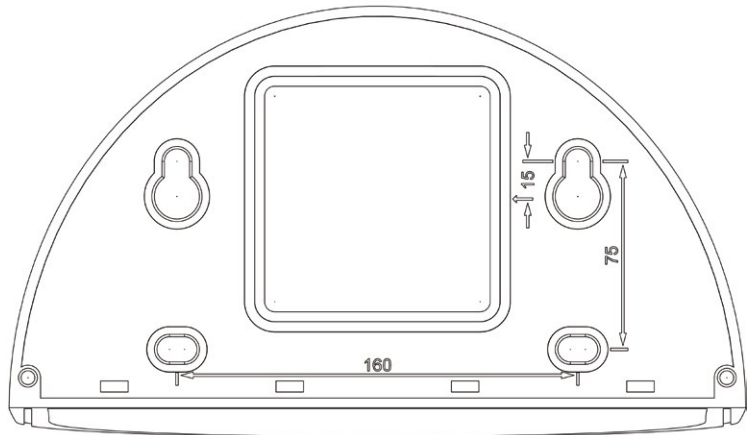
2.8.2 Wall Mount



Item	Quantity	Part Name
5.1	1	Wall Mount
5.2	4	Universal screw anchors 8 mm
5.3	4	Stainless steel washers Ø 6.4 mm
5.4	4	Stainless steel wood screws with hex head 6x50 mm
5.5	1	Wall sealing
5.6	8	Stainless steel Allen screws M4x16 mm
5.7	8	Stainless steel washers Ø 4.3 mm
5.8	1	Bottom plate

## Drilling Template Wall Mount

Find the drilling templates (scale 1:1) at the end of the manual as a fold-out



Direct installation over on-wall and flush-mounted wall outlets



**Depth: 201 mm/7.91 in**



**Width: 216 mm/8.5 in**

**Notes**

Find the folded drilling template at the end of the manual.

Make sure that the drilling template is not scaled or adjusted to the paper size when printing the PDF file (enlarged or reduced).

### Scope Of Delivery And Required Parts

Please check that all components supplied with the Wall Mount Set are present in the original packaging first.

### The Following Additional Tools Are Required For Installation:

- **Power drill** for screw anchor holes
- **Screwdriver**
- **MOBOTIX Drilling Templates** (at the end of this manual)
- **Scissors** to cut out the template
- **Pen** to mark the hole positions
- **Materials and tools** needed to connect the pre-installed MOBOTIX network cable in the camera with the on-site network cable.
- Clean and soft **cotton cloth**

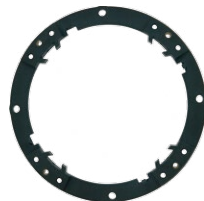


## 2.8.3 Procedure

1. **Remove the camera housing:** Remove all four Allen screws using the supplied Allen wrench and lift off the outer shell. The screws and outer shell will be needed again shortly.



2. **Remove the camera mounting ring:** Separate the black mounting ring from the camera housing. This ring is not required when mounting the camera to the Wall Mount.



3. **Separate the bottom plate from the Wall Mount:** The bottom plate is used to hold the camera, and is only attached and screwed into place during a later step.



4. **Pass the camera cable up through the bottom of the bottom plate:** Ensure the orientation is correct. The spring clips should be on the underside of the bottom plate.



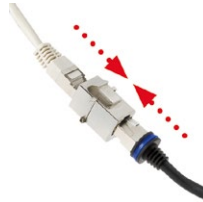
5. **Snap the camera into place on the bottom plate:** Firmly push the camera into the Wall Mount. The plastic spring clips will snap into place when the trapezoidal elements on the rear of the camera housing exactly match up with the corresponding openings on the Wall Mount. Pay attention to the direction of the camera (OBEN / TOP arrow pointing in the direction of the longer wall for ceiling installation in rectangular rooms).



- 6. Mount the Wall Mount (without camera):** Stick the black wall sealing to the back of the Wall Mount (remove the adhesive foil first, the surface must be clean and free of grease). Pass the network cable through the large square opening and into the Wall Mount. Use the included screws to install the Wall Mount (without the camera) at the intended position. Pass the network cable through the large square opening on back side of the Wall Mount.



- 7. Connect the cable:** Prepare the on-site network cable for connection with the camera patch cable using a standard connector. Excess cable can be stored easily within the Wall Mount.



- 8. Install the bottom plate with the camera in the Wall Mount:** Connect the camera patch cable to the network cable. Then mount the bottom plate with the camera in the slots from below and fix it in place on the Wall Mount using the 4 Allen screws (Allen wrench included).



- 9. Attach the outer shell:** Position the outer shell (without the rubber seal) and tighten all four Allen screws using the included Allen wrench.



- 10. Clean the lens:** If necessary, gently clean the front of the lens with a soft cotton cloth. Do not apply excessive pressure to the surface of the glass when cleaning the lens.
- 11. Establish a connection to the camera, check the image:** Establish a connection to the camera as described in sections 3.1 and above. The live image from the camera should be visible on the computer monitor. Check image sections on the computer monitor as well.

## 2.9 Installing The Corner And Pole Mount

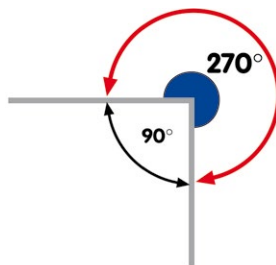


### 2.9.1 Mounting Instructions

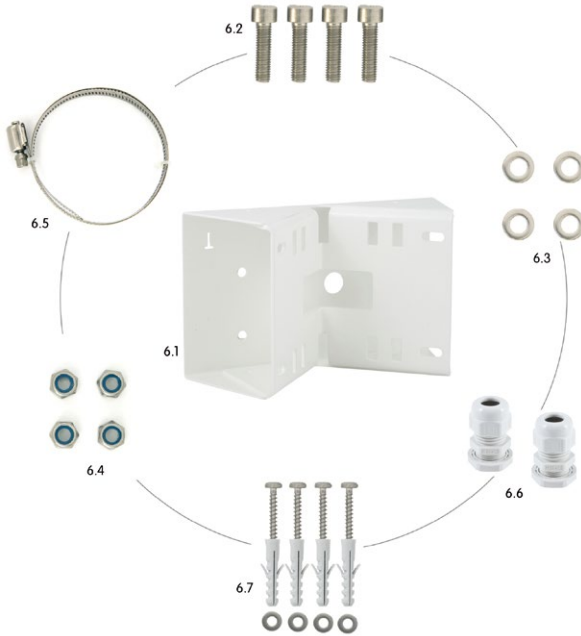
The Corner and Pole Mount is made from stainless steel and is extremely robust and rustproof. It is used in combination with the Wall Mount described in section 2.8, in the case that a Q24M is to be installed on a pole or building corner. The Wall Mount required for complete installation must be ordered separately.

The mounting pole should have a diameter between 60 and 180 mm. Thanks to the 360° panorama view from above, installing the camera on the corner of a building makes it possible to monitor a range of approximately 270° from one building wall to the other (around the corner) with one single Q24M camera.

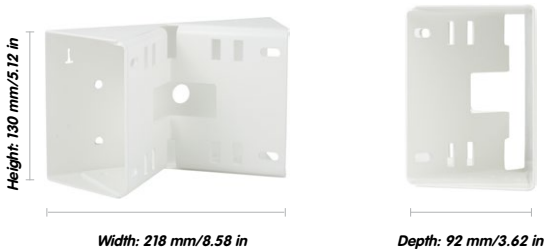
By design, the Corner and Pole Mount cannot be mounted above a wall outlet for the camera cabling.



2.9.2 Corner And Pole Mount



Item	Quantity	Part Name
6.1	1	Pole mount, stainless steel, white, powder-coated
6.2	4	Stainless steel Allen screws M6x20 mm
6.3	4	Stainless steel washers Ø 6 mm
6.4	4	Stainless steel lock nuts M6
6.5	2	Stainless steel straps
6.6	2	Cable fitting with counter nut and O-ring cord
6.7	4	Wood screws 6x80mm incl. screw anchors and washers



**Scope Of Delivery And Required Parts**

Please check that all components supplied with the Corner and Pole Mount Set are present in the original packaging first.

**The Following Additional Tools Are Required For Installation As A Pole Mount:**

- **Screwdriver**
- Materials and tools needed to connect the pre-installed MOBOTIX network cable in the camera with the on-site network cable.

**The Following Additional Tools Are Required For Installation Of The Corner Mount:**

- **Power drill** for screw anchor holes
- **Screwdriver**
- **Scissors** to cut out the template
- **Pen** to mark the hole positions
- Materials and tools needed to connect the pre-installed MOBOTIX network cable in the camera with the on-site network cable.





## 2.9.3 Mounting To A Pole



Use the supplied stainless steel straps to affix the Corner and Pole Mount to a pole.

- Guide the supplied **stainless steel straps** through the openings in the Corner and Pole Mount as shown in the diagram. Make sure that you are using the slots of the mount that fit best for the thickness of the pole. The stainless steel straps allow attaching the mount to poles with diameters between 60 and 180 mm.



- Guide the on-site network cable from behind through one of the large round holes of the Corner and Pole Mount. In order to properly protect the cabling, it is best to pass the cabling from the inside of the pole through the Corner and Pole Mount directly into the camera (concealed cabling). **Note: The cable length from the pole should be at least 80 cm!**



- Tighten the **stainless steel straps** on the Pole Mount with a screwdriver. If necessary, the ends of the straps can be cut off.

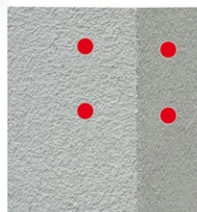


## 2.9.4 Mounting To A Wall Or Building Corner



Use the included screw anchors, screws and washers to affix the Corner and Pole Mount to a building corner.

- Mark the **four screw anchor holes** on the corner of the building, ensuring that the arrows on the mount point upwards. Drill the holes with a 10 mm wall drill.



- Pass the on-site network cable through one of the large round holes at the back of the Corner and Pole Mount, then through one of the 16 mm diameter holes on the front of the mount. In order to properly protect the cabling, you should let the cabling run from the inside of the building through the Corner and Pole Mount directly into the camera (concealed cabling). **Note: The cable length from the building corner should be at least 80 cm!**



- Place the included **wall anchors** in the drilled holes and screw the Corner and Pole Mount into place on the corner of the building using the wood screws and washers. Use the supplied drilling template (fold-out at the end of this manual) to mark the positions for drilling the holes.



- Then: Install the Wall Mount on the Corner and Pole Mount (section 2.9.5).

### 2.9.5 Mounting The Wall Mount To The Corner And Pole Mount

- Feed the cables **through the appropriate hole at the back** of the Outdoor Wall Mount. The wall sealing on the Wall Mount must be in place already (see section 2.8).



- Use the 6 x 20 mm Allen screws, Ø 6 mm washers and M6 nuts included with the Corner and Pole Mount and **attach the Wall Mount to the Corner and Pole Mount.**



- Then continue with the remaining work steps described in section 2.8.3!



## 2.10 Replacing The MicroSD Card

The camera must be taken down to remove, insert or replace a MicroSD card. To avoid data loss, be sure to deactivate MicroSD card recording in the camera software and reboot the MOBOTIX camera before removing the card.

### Caution

A MicroSD card may only be removed from the camera after you have deactivated Recording to SD Card and rebooted the camera. Failing to do so may lead to data loss!

### 2.10.1 Removing The MicroSD Card

1. **Deactivate recording:** Recording to MicroSD card must be deactivated (**Admin Menu > Storage on External File Server / Flash Device**). If MicroSD card recording is still active, deactivate recording and reboot the camera. Section 3.4, Micro SD Card Recording, contains more information on this topic.

2. **Remove the outer shell:** Remove all four Allen screws using the supplied Allen wrench and lift off the outer shell.



3. **Remove the connection cables:** The connected cables (patch cable, MiniUSB if present) must be removed from the camera first by rotating and opening the bayonet catch (see end of **section 2.4.3**).



4. **Remove the back of the camera and take out the MicroSD card:** Remove the four screws from the back plate using the supplied 2 mm Allen wrench and carefully lift off the back plate. Gently push on the MicroSD card in the card slot of the camera. The card will be released from the slot and can then be removed from the camera.



Bayonet catch open



Carefully loosen the rear casing at the openings on the side with a screwdriver before removing it.



Push-push function: only remove the MicroSD card after first gently pushing it in



To use the camera without a MicroSD card, continue with step 2 in section 2.10.2 (Mount the Back Plate).

## 2.10.2 Inserting A MicroSD Card

- 1. Insert the MicroSD card:** Push the MicroSD card into the card slot as shown, until an audible and perceptible click indicates it is in place.
- 2. Mount the back plate:** Replace the back plate of the camera housing, ensuring that the back plate screw holes are correctly positioned above the thread inserts.
- 3. Screw the back plate tight and replace the connection cables:** Place the four Allen screws back into the back plate and tighten the screws using the supplied 2 mm Allen wrench. The previously removed patch cable must now be reconnected (see end of **section 2.4.3**).
- 4. Attach the outer shell:** Replace the outer shell and screw all four Allen screws tight using the supplied Allen wrench.
- 5. Activate recording:** If you have inserted a MicroSD card that has already been MxFFS formatted, you can activate recording under Admin Menu > Storage on External File Server / Flash Device. Once the camera has been rebooted, it automatically activates recording.
- 6. If you have inserted a new MicroSD card,** it must first be formatted as described in section 3.4, MicroSD Card Recording.



Push-push function:  
insert MicroSD card,  
then push until it clicks



Bayonet catch closed



## 2.11 Network And Power Connection

### 2.11.1 Notes On Cable Lengths And Power Supply

- Power may only be supplied to the camera via its Ethernet connector. A MOBOTIX Power Adapter or similar high-quality PoE product is recommended to provide the power supply via the network cable (see section 2.3, *Available Q24M Accessories*):
  - **one camera:** with the Network Power Adapter (MX-NPA-PoE)
  - **multiple cameras:** with quality PoE products conforming to IEEE 802.3af
- The **maximum length** of the network cable for power supply over an Ethernet cable is **100 m**.
- Make sure that you only use switches or routers that support the **10/100 Mbps Ethernet interface** of the camera. Check for LED activity on the corresponding port of the switch or router. When deploying several cameras, read the notes in section 4.11, *Operating Multiple Cameras*, in the *Software Manual*.
- It is highly recommended to use uninterruptible power supplies (UPS), which also protect the cameras and the network components against electrical surges.
- If you are using IEEE 802.3af Power over Ethernet network components to supply power to MOBOTIX cameras, make sure that these components do not have a fan. Since the power consumption of MOBOTIX cameras is very low compared to other products, the reliability of the entire system is increased, thus extending the life of these components.

### 2.11.2 PoE Variables

The power consumption of the camera depends on the functions in use as well as any connected expansion modules (see table). PoE classes 1, 2 or 3 may be selected in the browser-based user interface in order to optimally adjust the camera to your system design (PoE switch in use, emergency power concept, etc.).

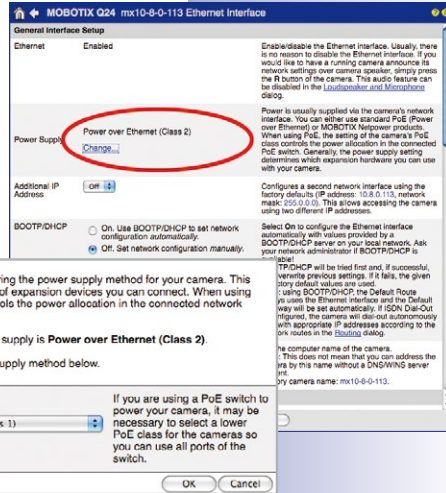
#### PoE power level classes (IEEE 802.3af standard):

Class	Max. power consumption	Possible camera functions
1	0.44 W - 3.84 W	Low energy operation without int. flash recording and audio
2	3.84 W - 6.49 W (factory default)	<b>Standard mode (all camera functions incl. flash recording and audio)</b>
3	6.49 W - 12.95 W	Camera operation with USB peripheral devices (e.g. ExtIO, ext. storage)

Class 2 is the MOBOTIX factory default

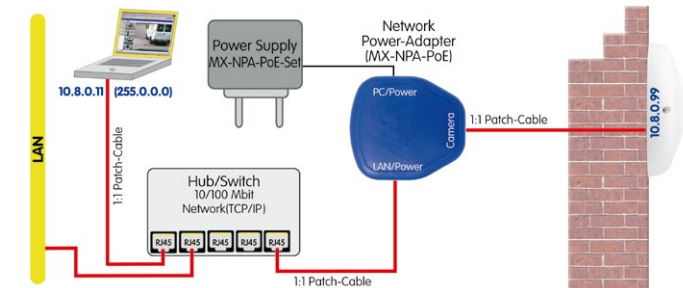
The **MOBOTIX factor default is Class 2**, because a Q24M with SD card storage activated requires **around 4.5 W**. This default is usually fine, and nothing needs to be changed. However, if the lower power level class 1 is sufficient for your application, it may - due to possible internal power distribution schemes amongst the ports of the PoE switch in use - be advantageous to change the PoE power level class in the browser:

1. Select **Admin Menu > Network Setup > Ethernet interface** (for experts).
2. Under Power Supply, click Change.
3. A **Power Wizard** will appear to guide you through the PoE configuration steps.
4. The camera will then need to be cycled through a hard reboot (disconnect the camera from the power supply, then reconnect it, e.g. by disconnecting, then reconnecting the network cable at a PoE switch).



2.11.3 Power Supply Using A Switch

1. Connect the factory pre-installed cable of the camera to the **Camera** connector of the Network Power Adapter.
2. Connect the **LAN/Power** connector of the NPA to an Ethernet connector of the switch/router or the Ethernet wall outlet.
3. Plug the RJ45 connector of the external power unit into the **PC/Power** connector on the Network Power Adapter.



The IP addresses in the figures are only examples!

Only use the new (blue) MX-NPA-PoE set for the Q24M - the MOBOTIX Network Power accessories NPA-Set, Power-Box, and Power-Rack (MX-NPA-Set, MX-NPR-4 and MX-NPR8/20) are not compatible with the Q24M



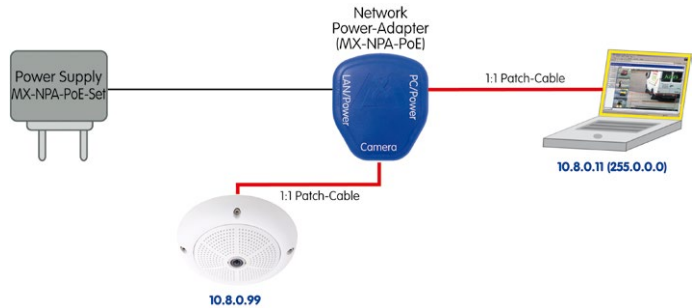
The IP addresses in the figures are only examples!

Only use the new (blue) MX-NPA-PoE set for the Q24M - the MOBOTIX Network Power accessories NPA-Set, Power-Box, and Power-Rack (MX-NPA-Set, MX-NPR-4 and MX-NPR8/20) are not compatible with the Q24M



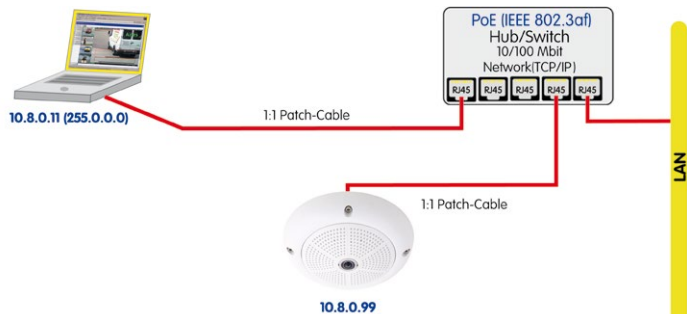
### 2.11.4 Power Supply When Connected Directly To A Computer

1. Connect the factory pre-installed cable of the camera to the **Camera** connector of the Network Power Adapter.
2. Connect the **PC/Power** connector of the Network Power Adapter to the Ethernet port of the computer.
3. Plug the RJ45 connector of the external power unit into the **LAN/Power** connector on the Network Power Adapter.



### 2.11.5 Power Supply (PoE IEEE 802.3af) Using Power-over-Ethernet Products

Connect the factory pre-installed cable of the camera to the Ethernet connector of the PoE switch/router. The switch/router must support the PoE standard IEEE 802.3af.



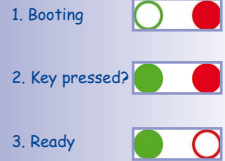
The IP addresses in the figures are only examples!



2.11.6 Camera Startup Sequence

As soon as the camera's power supply has been established, the two LEDs will show the progress of the startup sequence (see section 5.4.3, *LED Signals and LED Configuration*, in the *MOBOTIX Camera Software Manual Part 2*).

- **Booting:** Immediately after connecting the power supply, the red LED lights up, blinks for two seconds, then stays on permanently red. A camera self-test is carried out at this point, and the entire system is started. In case of an error, the camera will start using the backup system.
- **Waiting for key pressed:** Both LEDs light up for four seconds. If you press the **R or L key of the camera** during this time, the camera will execute the corresponding function (see sections 3.2.5 and 3.2.6, *Starting the Camera with IP Address*).
- **Ready:** Once the camera software has been started, the green LED is on permanently and the red LED blinks. You can now reach the camera via the network using a browser.



**Notes**

During the startup sequence of the camera, the LEDs will always light up, even if they have been deactivated in **Admin Menu > LED Setup**.

Download the free-of-charge MxEasy and MxControlCenter software at [www.mobotix.com](http://www.mobotix.com)

Camera software  
in the browser

## 3 OPERATING THE CAMERA

### 3.1 Manual and Automatic Operation – Overview

MOBOTIX cameras do not require any extra software. Thus, you can set up and operate the MOBOTIX camera using a JavaScript-enabled browser on all common operating systems (such as Windows, Linux, Macintosh, etc.). As an alternative, you can also use the MOBOTIX applications MxControlCenter and MxEasy. Follow these steps to set up the camera:

1. **Connect the camera to the network.** Power is supplied directly via the Ethernet cable (see Chapter 2, «Installation»)
2. **Set up the camera's network parameters:**
  - **Manually via a web browser** (see Section 3.2.1, «Manually Setting Up The Network Parameters In A Browser» and below)
  - **Automatically with MxControlCenter/MxEasy** (see Section 3.2.3 and Section 3.2.4) or **via DHCP** (see Section 3.2.7, «Starting The Camera With An Automatic IP Address (DHCP)»)
3. **Configure the camera** using the web-based user interface, MxControlCenter or MxEasy.

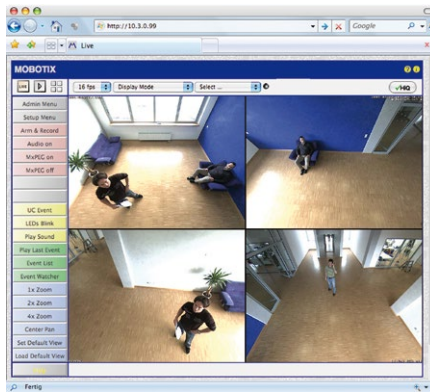
Every MOBOTIX camera comes preconfigured with a static IP address in the 10.x.x range (for example, 10 . 8 . 0 . 99). However, local computer networks usually have IP addresses in the 172 or 192 ranges. In order to access a MOBOTIX camera via the network, the camera needs to obtain an IP address in the same address range. You can **set up the network parameters of the MOBOTIX camera using one of the following methods: Manually, using MxCC and MxEasy or by DHCP.**



### 3.1.1 Manually Using A Computer In The 10.x.x.x IP Address Range

You can set up the camera's network parameters using a browser and the embedded camera software. To do this, connect the camera to a computer or a network that is using a 10.x.x.x IP address range (see Section 3.2.1, «*Manually Setting Up The Network Parameters In A Browser*»). Once this has been completed, you can enter the camera's default IP address in the browser's address bar of the computer (see Section 3.2.2, «*First Images And The Most Important Settings In The Browser*»). Next, click on the **Admin Menu** button to open the camera's Quick Installation in the browser's user interface. This is where you can configure the desired network parameters of the camera. Once you have completed the Quick Installation, you can connect the camera with its new network parameters to the desired network.

The default IP address of your camera is printed on a sticker on the front



#### Advantages

- The camera does not need to be physically accessible, that is, it may already be mounted.
- No additional software is required.
- The network parameters can be set flexibly through manual entry.

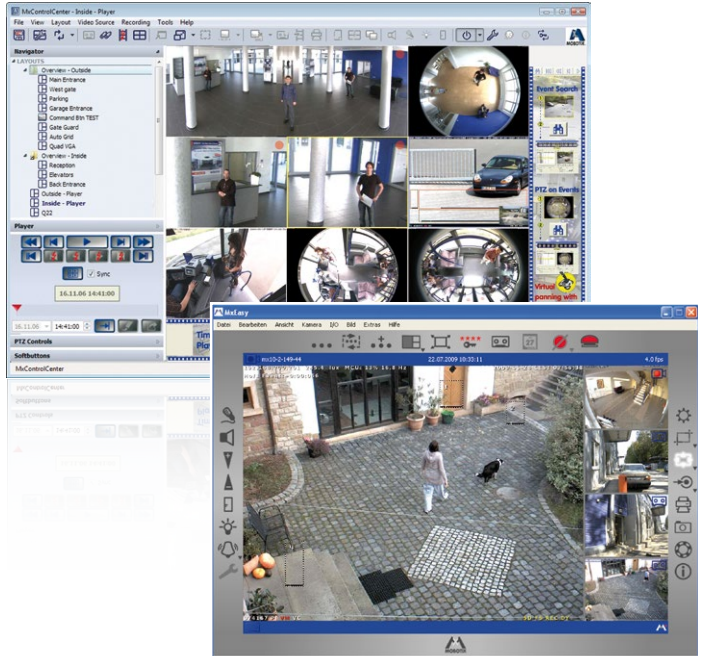
#### Disadvantages

- The computer or the network needs to operate in the 10.x.x.x IP address range or need to be able to access such a network.
- The setup does not work automatically.
- You need to know the relevant network parameters.

### 3.1.2 Automatically Using MxControlCenter Or MxEasy

You can set up the camera's network parameters using the free-of-charge video management software MxControlCenter or MxEasy (see *Section 3.2.3* and *Section 3.2.4*). You can also use one of these applications to automatically configure the network parameters of MOBOTIX cameras that are not operating on the same IP address range as the computer.

MxControlCenter  
software (free download  
from [www.mobotix.com](http://www.mobotix.com))



MxEasy  
(free download from  
[www.mobotix.com](http://www.mobotix.com))

#### Advantages

- You can connect the camera directly to the target network.
- The camera does not need to be physically accessible, that is, it may already be mounted.
- The camera can be configured to automatically receive an IP address (optional).
- The network parameters can be manually set (optional).
- You do not need to access the camera software.

#### Requirement

- Either MxControlCenter or MxEasy must be installed on the computer.

### 3.1.3 Automatically Using DHCP

The camera can automatically obtain its network parameters using DHCP (Dynamic Host Configuration Protocol). This requires the network to have a functioning DHCP server (for example, a DSL router with activated DHCP server) and the camera must be booted using DHCP (see *Section 3.2.7, «Starting The Camera With An Automatic IP Address (DHCP)»*). The IP address automatically assigned by the DHCP server will be announced via the camera speaker as soon as the camera has booted successfully.

#### Advantages

- You can connect the camera directly to the target network.
- Network parameters are automatically assigned.
- No additional software is required.
- You do not need to access the camera software.

#### Disadvantages

- The camera needs to be physically accessible as you need to press a key on the camera housing to boot it using DHCP.
- Requires a running DHCP server on the network.



### 3.2 First Images And The Most Important Settings

Once the MOBOTIX camera has been connected to the network, you need to set up the camera's network interface accordingly. This step involves setting up and checking the network parameters of the camera. If your network is already using an IP address in the 10.x.x.x range with a 255.0.0.0 network mask, you do not need to change the camera's network parameters. You can access the camera directly (see [Section 3.2.2](#)). If your network or computer does not use an IP address in the 10.x.x.x range (for example, in the 192 or 172 ranges), you should follow one of the following methods for changing the camera's network parameters:

- **Manual Setup** (see [Section 3.2.1](#))
- **Automatic setup using MxControlCenter or MxEasy** (see [Section 3.2.3](#) and [Section 3.2.4](#))

#### Note

We will use a camera with the factory address 10.8.0.99 in the following examples. Replace this IP address with the IP address of your camera. You will find the IP address of your camera on a small sticker on the camera. Make sure that the IP addresses used in the following examples are not already being used by other devices in the network.

Pressing the "L" key (see [Section 3.2.6](#)) will prompt the camera to announce its current IP address on the camera speaker

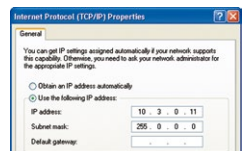
#### 3.2.1 Manually Setting Up The Network Parameters In A Browser

You need a computer that is using a 10.x.x.x IP address in order to manually set up the network parameters of the MOBOTIX camera. The computer's network parameters usually have to be changed for this purpose.

#### 1. Change the network parameters of your computer:

##### Windows (XP, Vista and 7):

1. Open **Start > Settings > Control Panel > Network Connections**. Clicking on **Properties** opens the dialog box shown.
2. Double-click on **Internet Protocol (TCP/IP)**. On the **General** tab, activate the *Use the following IP address* option. Enter an IP address in the 10.x.x.x range in this field (for example, 10.8.0.11).
3. Once all dialog boxes have been closed, the computer will have the IP address 10.8.0.11.



Entry in "Subnet mask" field: 255.0.0.0

## Linux/Unix:

1. Open a terminal as `root` user.
2. Enter the following command: `ifconfig eth0:1 10.8.0.11`
3. The computer is now also using the IP address `10.8.0.11`

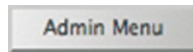
## Mac OS X:

1. Open **System Properties > Network**.
2. Select **Ethernet**. In the **Configuration** field, select **Manual** and enter a `10.x.x.x` IP address (for example, `10.8.0.11`).
3. Click on **Apply** on the bottom right-hand side of the dialog box to assign the computer the IP address `10.8.0.11`.



## 2. Set Up The Target Network Parameters Of The MOBOTIX Camera:

1. Open a web browser on the computer and enter the default IP address of the MOBOTIX camera in the address bar of the browser (for example, `10.8.0.99`). Pressing Enter displays the user interface of the MOBOTIX camera (see also *Section 3.2.2, «First Images And The Most Important Settings In The Browser»*).
2. Click on the **Admin Menu** softbutton in the user interface of the MOBOTIX camera. The Quick Installation starts automatically once the *admin* user has logged on.



**Note:** The Quick Installation can also be executed at a later stage by opening **Admin Menu > Network Setup > Quick Installation** (see also *Quick Installation in the Camera Software Manual Part 2*).

3. Enter the target network parameters of the camera on the appropriate page of the Quick Installation assistant.

**Note:** The network parameters can also be modified retrospectively via **Admin Menu > Network Configuration > Quick Installation**.



4. Once you have completed the Quick Installation and rebooted the camera, the new network parameters will be activated. The camera can now be connected to the target network and, if required, further configured.

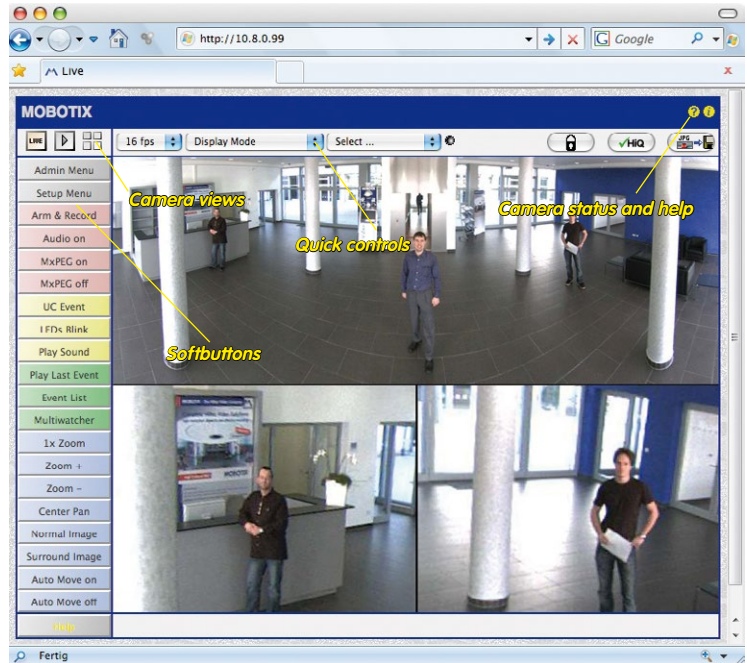
## Default user data

User name: **admin**  
password: **meinsm**

### 3.2.2 First Images And The Most Important Settings In The Browser

Once the MOBOTIX camera has been connected to the power supply and to the network, you can access the user interface with the live camera image in the web browser. Internet Explorer, Firefox, Safari or any other graphical browser with activated JavaScript is suitable. It does not matter which operating system is used.

After entering the camera's IP address in the browser's address bar, you will see the live view of the MOBOTIX camera with its user interface controls, such as softbuttons, buttons for the different camera screens, pull-down menus (Quick Controls), icons for accessing the online help and the camera status, and status information elements.



#### Note

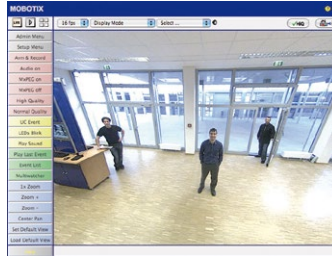
##### Default access data for the administration menu

- User name: **admin**
- Password: **meinsm**

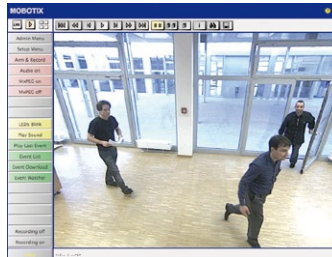


**Camera Views: Live, Player, MultiView**

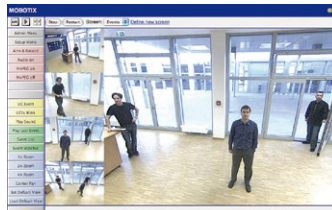
The MOBOTIX camera automatically displays the **live** screen when it starts up (factory default setting). You can set a different start page in **Admin Menu > Language and Start Page** (for example, the **Guest** screen) to allow a restricted access to the live image.



The other available standard screens include **Player** (playback of recorded images and video sequences) and the **MultiView** screen (displays several cameras with live or recorded images).



**MultiView** allows you to view several cameras via a "proxy" camera (especially useful if you want to access your cameras from outside of the network with reduced bandwidth) and the **PDA** mode provides a special screen for mobile devices.



**Note**

For more information on camera screens, see the section "Camera Screens In The Browser" in the *Camera Software Manual Part 2* or the online help of the camera's user interface.



Live view:  
<http://<camera IP>/control/userimage.html>



Player screen:  
<http://<camera IP>/control/player>



MultiView screen:  
<http://<camera IP>/control/multiview>

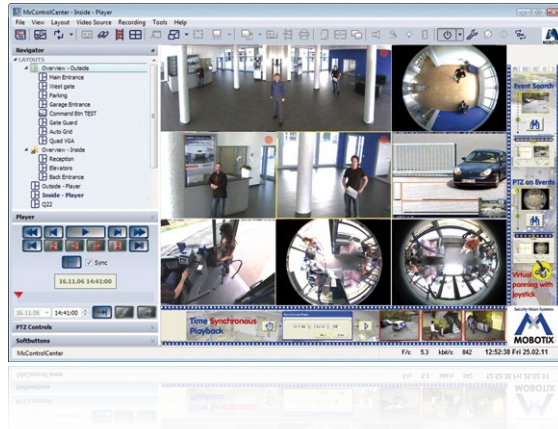
PDA screen:  
<http://<camera IP>/pda>

PDA event list:  
<http://<camera IP>/control/player?eventlist&pda>

Guest screen:  
<http://<camera IP>/cgi-bin/guestimage.html>

Download  
MxControlCenter  
for free from  
[www.mobotix.com](http://www.mobotix.com)

### 3.2.3 First Images And Network Parameter Configuration In MxControlCenter



#### Installation

Download the setup file from the MOBOTIX website to install the latest version. The latest versions are available at [www.mobotix.com](http://www.mobotix.com) in the **Support > Software Downloads > MxControlCenter** section.

To install MxControlCenter, simply double-click on the setup file and follow the instructions.

The selected files are copied to the computer (older versions will be removed automatically) and the designated shortcuts are created during the installation process (Desktop, Start Menu, etc.).

#### Caution

MxControlCenter will automatically attempt to find all MOBOTIX cameras in the physically-connected network (that is, even a MOBOTIX camera with a factory IP address of 10 . x . x . x ). Make sure that the **firewall settings** on your computer are low enough so that MxControlCenter is not blocked. If any MOBOTIX cameras are found, MxControlCenter can **automatically reconfigure** them so that they are available in the current subnet of the computer. If you do not have permission to modify these settings on your computer, contact your system administrator for assistance.

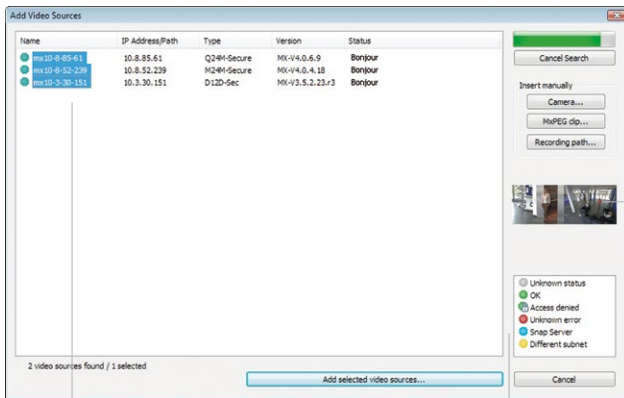
## First Images And The Most Important Settings

### MOBOTIX– Searching And Displaying MOBOTIX Cameras

Launch MxControlCenter after successful installation by double-clicking on the shortcut that was created during installation or the executable file **MxCC . exe** in the installation directory on your computer.

The **Add Video Sources** dialog box appears and the application automatically searches for MOBOTIX cameras in the local network when you launch the program for the first time. Select **Video Source > Add** from the menu to perform a camera search at a later time.

If your MOBOTIX camera is properly connected, it should appear together with the existing video sources in the following list:



List of video sources

Legend



Camera preview

Automated Search For  
MOBOTIX Cameras

### Note

**Video sources** in this context not only refer to MOBOTIX cameras, but also to third-party IP cameras, file server paths, MxPEG clips and analog cameras connected via MxServer (for example, analog dome cameras). These video sources are not found automatically and need to be added manually.

### Cameras Are Found But Are Located In A Different Subnet

The symbols in the first column and the legend in the dialog box indicate whether you can access a particular camera directly from the MxControlCenter, which is the case for all cameras designated with  (**OK**). Cameras designated with  (**different subnet**) are located in a different subnet. This usually applies to new cameras or cameras that have been reset to their factory settings.

#### Note

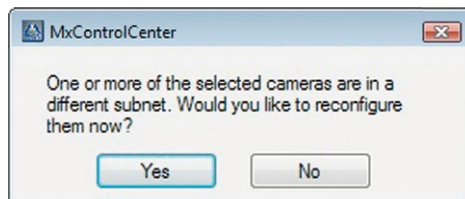
MxControlCenter finds all MOBOTIX cameras, even when the computer and the cameras are not located in the same subnet.

Once you have marked all of the desired video sources in the list with **OK**, you can now select the ones that you wish to display and manage in MxControlCenter. The live image is automatically displayed in the preview window when a camera is selected to help you identify the cameras.

For cameras marked with **Different subnet** or if you want to add additional video sources, follow the instructions in the following sections. You can also display the selected cameras directly in a layout. For more information, see «*Creating A New Layout*» further down.

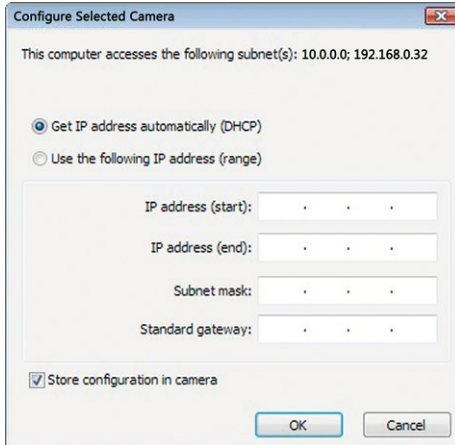
### Reconfiguring Cameras In A Different Subnet

If one or more MOBOTIX cameras are displayed with the status **Different subnet** (for example, cameras with a factory IP address), MxControlCenter automatically offers to configure the network settings of these cameras. In this case, the application displays the dialog box shown here after you have clicked on the **Add selected video sources** button. Click on **Yes** to configure the cameras to the subnet of the computer.





A DHCP server automatically assigns IP addresses for network devices in most networks so that you can automatically select the default setting **Get IP address automatically (DHCP)** in the **Configure Selected Cameras** dialog box.

Activate the **Use this IP address/this range** option if the IP address of a particular camera must be assigned manually (for networks with static IP addresses). Obtain the assigned IP address, subnet mask and standard gateway from your network administrator and enter the data. All you have to do is enter the range of IP addresses that includes the addresses of all of these cameras to reconfigure multiple cameras at the same time.



Make sure that the **Store configuration in the camera** checkbox is selected. This setting ensures that the cameras are displayed with the correct network settings even after they have been rebooted. Click on **OK** to close the dialog box.

Wait until MxControlCenter has changed the network settings and rebooted the cameras. The status of the reconfigured camera changes from  (**Different subnet**) to  (**OK**).

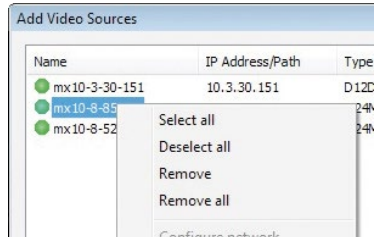
### Defining Additional Video Sources

In addition to the MOBOTIX cameras that are found automatically, you can also manually add video sources to the list of video sources for MxControlCenter.

- **Camera:** Here, you can enter the known IP address or DNS name of a MOBOTIX camera or a third-party IP camera if it was not found by the automatic search feature.
- **MxPEG clip:** Adds an MxPEG video clip previously recorded by a MOBOTIX camera as a video source.
- **Recording path:** Adds the path of an external file server where a MOBOTIX camera has recorded audio/video data. The videos or images recorded at that location can now be played back using the **Player** or **Video Search**.

### Editing The Video Source List

Right-click on this list to open a shortcut menu from which you can select all video sources or cancel the selection. You can also use this method to remove from the list some or all of the video sources that you would not like to display or manage in MxControlCenter.

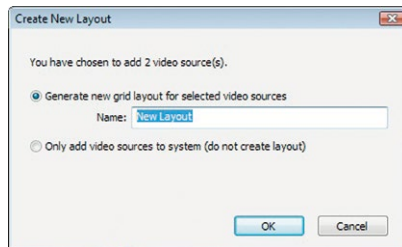


If you have cancelled the camera configuration process or need a password that differs from the camera's factory default password, you can also configure the camera from the shortcut menu at a later date and enter the user name and password required for reconfiguration at that time.

It is also possible to open the **Configure selected cameras** dialog box using the shortcut menu in order to change the camera network parameters.

### Creating A New Layout

Select the camera or other video sources that you would like to display in a layout (a view with a group of selected cameras) in the **Add video sources** dialog box and then click on **Add selected video sources**.



The **Create new layout** dialog box is displayed. If you select the **Generate new grid for selected video sources** option here, MxControlCenter automatically generates a grid layout that displays windows of the same size for all selected video sources. Give each layout a unique name (for example, underground garage).

If you select the second option, the video sources you selected are simply integrated in the MxCC system where you can use them to generate a layout at a later time.

Click on **OK** to confirm.

## 3.2.4 First Images And Network Parameter Configuration In MxEasy

### Installing And Starting MxEasy

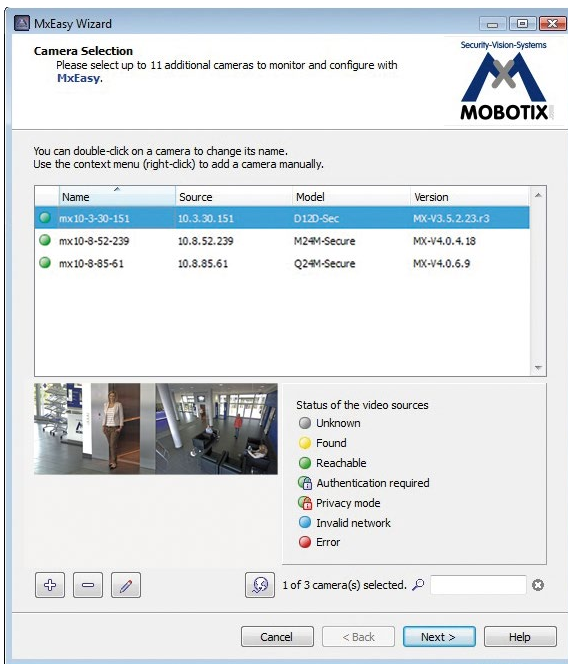
Download the current version of MxEasy from the MOBOTIX website ([www.mobotix.com](http://www.mobotix.com) > **Support** > **Software Downloads in the MxEasy area**). Double-click on the shortcut for the program or load the program file.



Free MxEasy download  
@ [www.mobotix.com](http://www.mobotix.com)

### Finding Cameras

When you start MxEasy for the first time on a computer, the MxEasy Assistant automatically begins to search for MOBOTIX cameras and displays all cameras found in a list. The camera list will be updated automatically as soon as new MOBOTIX cameras are connected to, or removed from the network.



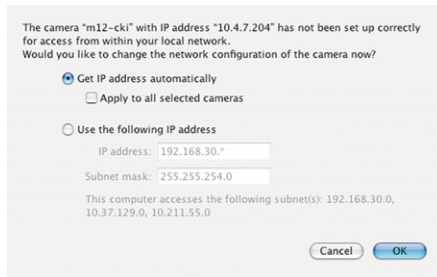
MxEasy also automatically monitors and displays the operating status of all cameras. Cameras that are not on the same subnet as the computer will get a differently colored symbol than the cameras that are on the same subnet. Likewise, the cameras that have an unknown password or for which no user name/password combination has been specified in MxEasy will be displayed in a different color. The following section *“Reconfiguring Network Addresses Of Cameras”* contains information about cameras with the status **Invalid network** (for example, all new MOBOTIX cameras with factory settings).

\*Bonjour: automatic recognition of network services in IP networks

### Reconfiguring Network Addresses Of Cameras

Using Bonjour\*, MxEasy finds not only cameras on the same network as your computer, but also MOBOTIX cameras located in other subnets (the **Invalid Network** status). In such a case, you would not be able to establish any connection to cameras in a different network or subnet (without going into much further detail regarding TCP/IP network configurations). This is possible, for example, when a camera with a factory IP address is connected to a network in which a DHCP server automatically assigns the IP addresses. MxEasy can automatically configure such a camera so that it is "integrated" into your existing network. To do so, you only have to select the affected camera in the list and then click on **Continue**.

After a security prompt, a new dialog box for configuring the selected camera is displayed.



If your computer automatically obtains its IP address from a DHCP server, then this is certainly the best choice for that specific camera and most likely for all other cameras that have been found in a different subnet (**Get IP address automatically** option).

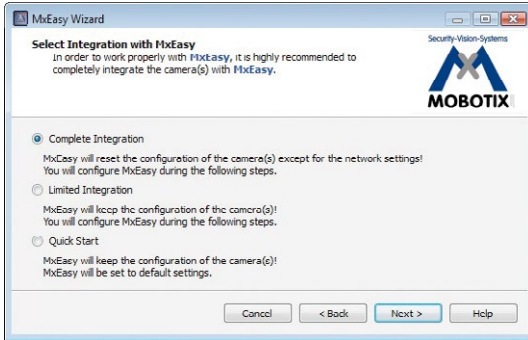
If you have assigned a static IP address to your computer, you will probably want to assign static IP addresses (issued by your system administrator) to every camera (the **Use this IP address** option). Normally, you enter the same configuration used for the network settings of your computer.

When you click on **OK**, the selected cameras are automatically reconfigured and they are located in the same subnet as the computer.

### 3.2.5 Integrating And Displaying Cameras

After a camera has been reconfigured, it has the status **Accessible** and can be integrated into MxEasy. The MxEasy Assistant then displays the **Define Integration Mode in MxEasy** dialog box.

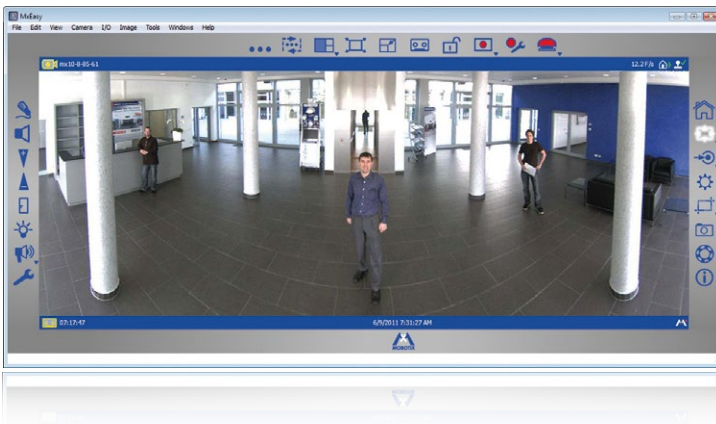




Here, you can jump directly to the main window of MxEasy with the current live camera image by activating the option **Quick Start**. However, some required detailed configurations may have to be made at a later time (for example, password protection, available bandwidth). For this reason, we recommend activating the option **Complete integration** and complete the remaining dialog boxes of the MxEasy Assistant until the main window appears.

If one of the integrated cameras includes a **Q24M**, the MxEasy Assistant opens an additional page where you can specify the **mounting positions** (*Ceiling, Wall, Floor*) and **display modes** (*Panorama, Surround, etc.*) of the individual sensor modules.

After you are done with the MxEasy Assistant, the application's main window appears and displays the first camera:



Main window with Panorama image of a Q24M

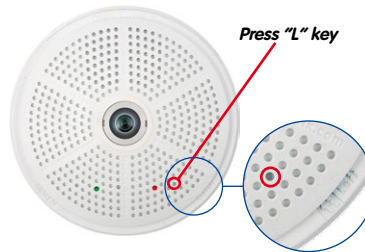
For more information, see the **MxEasy User Manual**, which can be downloaded as a PDF file from the MOBOTIX website: [www.mobotix.com](http://www.mobotix.com) > **Support** > **Manuals**.

Passwords and camera settings will not be changed

### 3.2.6 Starting The Camera With The Factory IP Address

Under certain circumstances, you may have to reset the camera to its factory IP address. This could be the case, for example, if the IP address has been lost or the camera does not respond to the last known IP address. Proceed as follows to start up the camera with its factory IP address:

1. If the camera is powered on, disconnect the power supply by unplugging the corresponding cables and then reconnect the power supply.
2. Wait until both LEDs light up simultaneously for the first time.
3. **Press the L key within the next four seconds and hold it down** (if you need to try again, go back to Step 1). Use a **paper clip** for this purpose but **avoid using sharp or pointed objects!**



4. **Only release the L key** once the camera emits a single sound ("boing").

#### Notes

If you use the camera's **L key** to load the factory network configuration, this configuration is not automatically saved in the camera's flash memory. When the camera is next rebooted without using the **L key**, the last stored network configuration will be used. To permanently store the new network configuration in the camera's flash memory, open **Admin Menu > Store**.

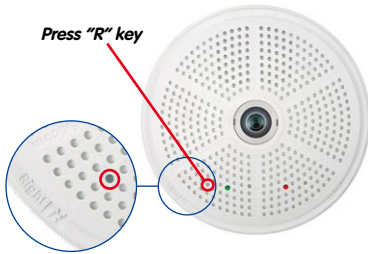
As opposed to resetting the camera using **Admin Menu > Reset configuration to factory defaults**, the user information will **not** be reset if the camera is booted using the factory IP address.

Make sure you store the default network configuration to the permanent flash memory

### 3.2.7 Starting The Camera With An Automatic IP Address (DHCP)

If your network has a DHCP server, you can start the MOBOTIX camera with DHCP support. The camera automatically obtains an IP address from the DHCP server and announces the new network data. Please note that this announcement can only be heard if the camera is connected to an external speaker.

1. If the camera is powered on, disconnect the power supply by unplugging the corresponding cables and then reconnect the power supply.
2. Wait until both LEDs light up simultaneously for the first time.
3. **Press the R key within the next four seconds and hold it down** (if you need to try again, go back to Step 1). Use a **paper clip** for this purpose but **avoid using sharp or pointed objects!**



4. **Only release the R key** once the camera emits a double sound ("boing boing").

#### Notes

Starting the camera with an automatic IP address (DHCP) is only **temporary**. The network configuration of the camera can be permanently set to DHCP under **Admin Menu > Ethernet Interface**.

Make sure that the network has a functioning DHCP server when starting the camera with DHCP support. If this is not the case, the camera cannot obtain a valid IP address and will use its last IP address.

You should also make sure that the cameras always obtain the same IP addresses by permanently assigning the MAC addresses of the cameras to the desired IP addresses.

In case of an error, the camera uses its last IP address

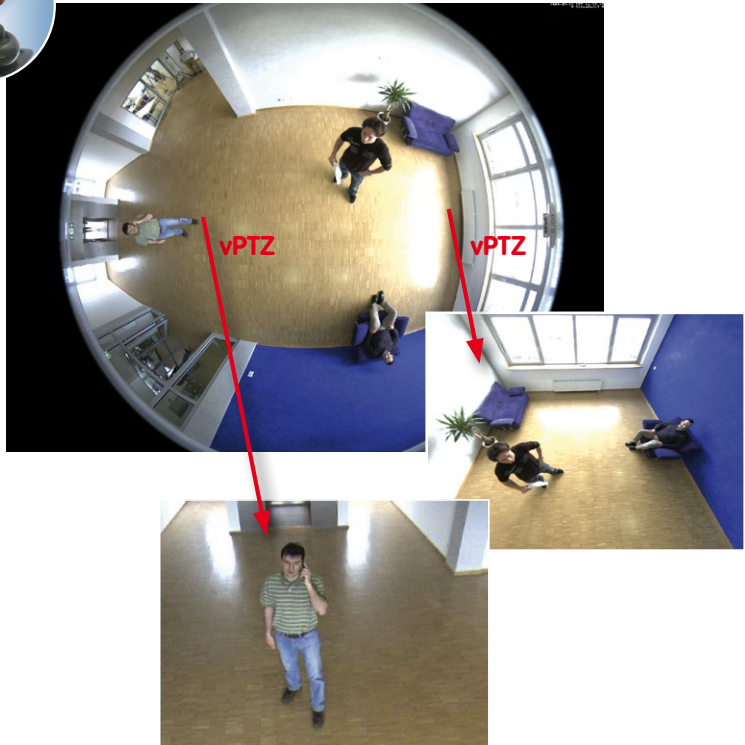
### 3.3 Virtual PTZ And Full Image Recording

#### 3.3.1 Preparing The Virtual PTZ Function

The virtual PTZ function allows you to use a mouse or joystick to continuously zoom in on images from the selected video source and "virtually" move the enlarged image section within the entire image sensor area.



Greater ease of use through a joystick



#### Operation Using The Mouse And Scroll Wheel

The vPTZ function of the Q24M can be controlled in the browser using the mouse. This position becomes the new image center by clicking on any position on the image displayed on the monitor. The image moves accordingly and the image distortion is automatically corrected. The **scroll wheel** can be used to control the zoom function. This functionality is disabled in the default settings of the camera and must therefore first be activated. To do this, go to **Setup Menu > vPTZ Settings**, disable **Lock Mouse Wheel Zoom**, click on **Set** and then on **Close** to save your settings. You can now use the scroll wheel to zoom + (roll upwards) or zoom - (roll downwards).

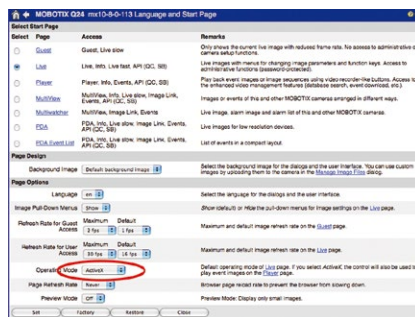
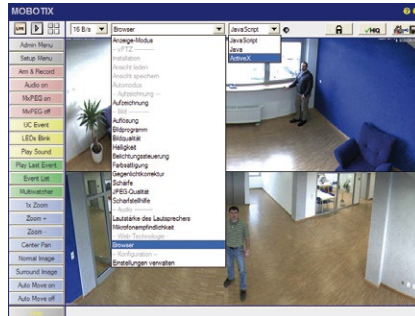
In case of an error, the camera uses its last IP address

**Operation Using USB Joystick**

A standard USB joystick can drastically improve vPTZ operation for the user – in the browser, in MxEasy, and in the MxControlCenter (however, MxCC is also equipped with a virtual joystick that can be operated using the mouse). Please first install the joystick on the PC according to the manufacturer's instructions.

In order to use a USB joystick in the browser, make sure that you have a PC with a Windows operating system and the latest version of Internet Explorer and that the **“ActiveX” mode in the camera software (browser) is activated:**

- Switch to **Browser** in the Quick Control.
- Under **Browser**, select the option **ActiveX** in the field to the right. The USB joystick can then be used until the browser is closed.
- To store the setting permanently, ActiveX must be activated in the **Admin Menu**. To do so, use **Language and Start Page** in the Admin Menu.
- Under the page options, select the **ActiveX** operating mode.
- Store the settings permanently in the camera by clicking on **Set** and **Close**.
- The joystick can now be used.



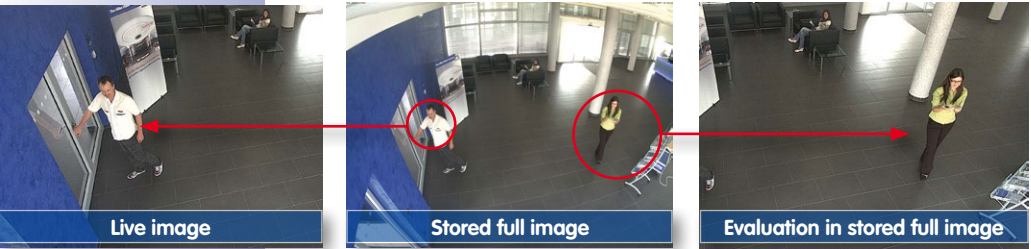
**Notes**

You will find more information and details on vPTZ in the **Camera Software Manual Part 2, Section 4.3.6, «Virtual PTZ»**, the **MxEasy** manual, **Section 2.4.1, «Activating the PTZ Features»**, the **MxControlCenter** manual, **Section 2.4.6, «Using the vPTZ Features»** and **Section 3.1.4, «The “PTZ Controls” Section In The Sidebar Panel»**.

Current versions of all manuals can be downloaded anytime from the MOBOTIX website [www.mobotix.com](http://www.mobotix.com) under **Support > Manuals**.

### 3.3.2 Full Image Recording

It is possible to record a **full image**, regardless of the live image stream that is being displayed. This ensures that the recording always contains the full image of the lens used, even though the operator may have used the vPTZ features to zoom into the image in order to examine a specific detail.



Stored full image:  
Original camera image  
without distortion or  
image correction

This means that you can use the vPTZ features in VGA resolution to pan, tilt and zoom in the live image while the camera is, for example, recording full images at 1 fps in MEGA or QXGA resolution.

In **MxEasy** or **MxControlCenter**, the recorded full images may be prepared for the user with the vPTZ functions (for example, panning and zooming in on an image detail such as a doorway).

If **full image recording is not activated**, only the last displayed live image will be saved (save what is seen). The **main benefit** of live image storage is to ensure that the full power of the camera processor is used for live image correction and maximum frame rates. The **main advantage of full image recording** lies in the special functionality of the D14D, in that it can always ensure the availability of a maximum size (full) image for later searches, despite vPTZ actions carried out on the live image. The mechanical limitations of motor-driven PTZ cameras mean that they simply **cannot** provide this unique advantage to the user!

#### Notes

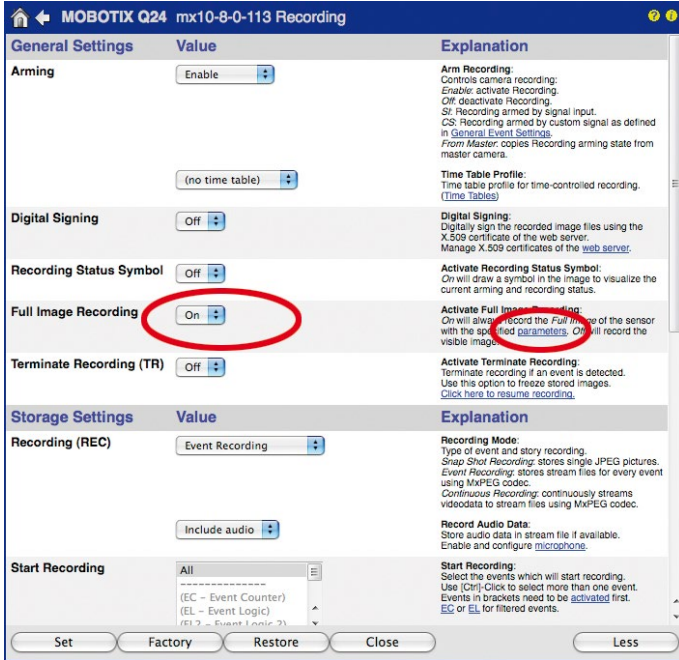
**Post-event search in the full image:** If you are using Full Image Recording on D14D cameras, you should use at least MEGA resolution when storing. This will facilitate later searches in **MxControlCenter** or **MxEasy**. The advanced distortion correction features require this function to deliver satisfactory image quality.

**Full image recording on:** Due to the increased processing time, full image recording reduces the data rate of the live image stream, which may drop by around 10 to 30 percent. We therefore recommend reducing the frame rate for storage as much as possible to affect the live image stream as little as possible.

**Full image recording off:** The event that triggered a video motion (VideoMotion VM) window may not be in the recorded sequences while the window was not displayed at the time.

## Activate/Deactivate Full Image Recording In The Browser

To configure this feature, open the **Setup Menu > Event Control > Recording** dialog box and activate or deactivate the **Full Image Recording** option.



### 3.3.3 Special Q24M Configuration In The Browser

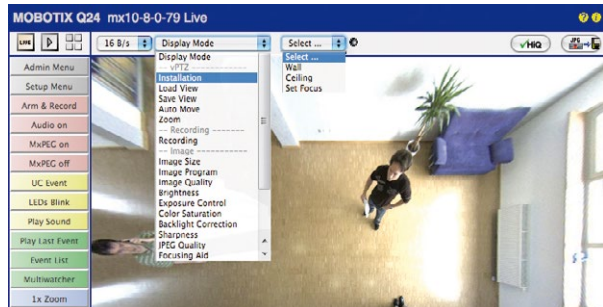
Thanks to its hemispherical lens, the MOBOTIX Q24M provides certain special configuration options for the image settings. Depending on where the camera is mounted (ceiling or wall) and on the live image display preferred by the user, certain important basic settings and, if necessary, their adjustment must be configured when a Q24M is first installed.

A corresponding adjustment of the image setting is strongly recommended if the on-wall set is mounted with an inclination of 10 degrees (available as a Q24M accessory).

#### Configuration Of The Q24M Basic Parameters

Complete the steps described below in the browser window:

1. **Log onto the camera and boot it** as described in *Section 3.2*.
2. **Select mounting position wall/ceiling/floor:** Click on **Installation** in the Quick Control panel and then select **Wall**, **Ceiling** or **Floor** according to the mounting position of the camera. **Ceiling** always means that the orientation of the camera or sensor module is from **top to bottom** and for **Floor**, the camera or sensor module's orientation is from **bottom to top**.



As a result, you will get a **perspective-corrected panorama view** for each image sensor matching the specified mounting position. Panorama view is set as a factory default and it can be changed as described below.

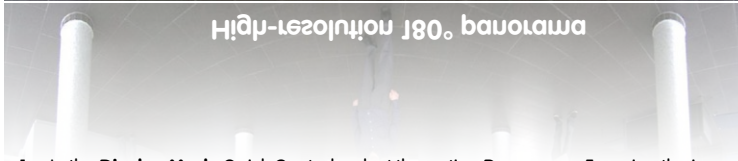
3. Switch to the **Display Mode** Quick Control.
4. Set the mode that you want to be the standard view. For demonstration purposes, the descriptions below describe the typical display mode for the wall mount and the ceiling mount, **Panorama** and **Surround** respectively. Every other display mode can be operated in the same way.



Wall-Mounted: Setting And Correcting the Standard View "Panorama"



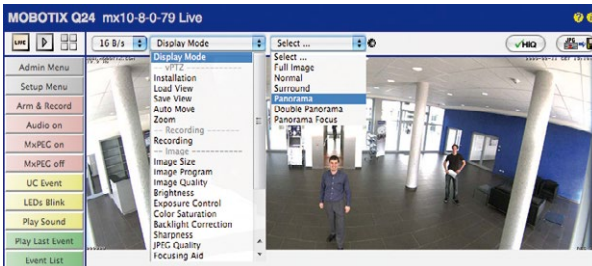
High-resolution 180° panorama



High-resolution 180° panorama

Camera live image with panorama correction

1. In the **Display Mode** Quick Control, select the option **Panorama**. Examine the image that is now displayed. If the section meets your expectations, no further adjustment is necessary, and panorama configuration is complete. To change the image section to meet your specific expectations, continue with Step 2.

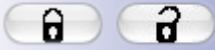


Camera live image without MOBOTIX panorama correction with Quick Controls visible

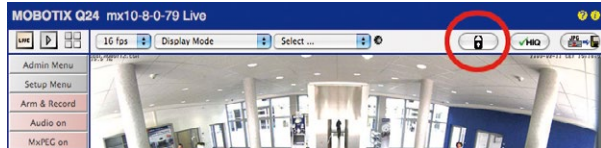
Note

The currently visible image section may differ from the desired image section due to the installation position or any accessories in use, for example. However, it is not necessary to physically move the camera, as in this case the browser alone can be used to adjust the visible panorama image by zooming, panning and tilting. Tilted vertical lines may also be optically straightened to the image edges using the panorama correction function. These tilted lines are primarily caused if the camera or sensor module is tilted (for example, due to mounting with 15° wedges) or if the image tilt is modified.

- Click on the **lock icon**. Clicking on the lock once opens it (lock clasp is raised). The lock prevents execution of later vPTZ actions, which could also unintentionally modify the view you configure. This holds for all overview display modes, that is, also for Panorama/Focus, Double Panorama and Surround.



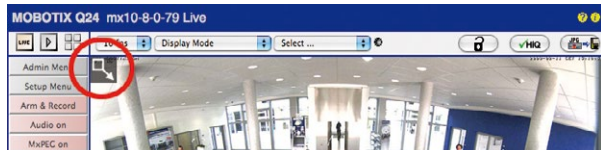
Open lock



- A new **icon for processing the panorama image** appears in the top left corner of the camera image. Enlarge the image by clicking on the icon once (OnScreen Control appears).



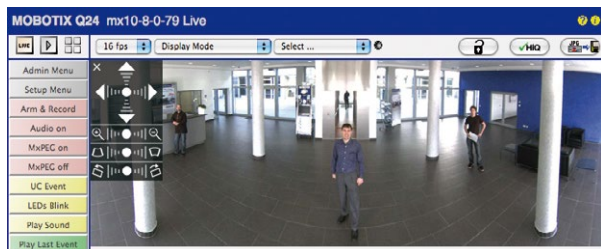
Click on the icon



- Using the **OnScreen Control** visible in the live camera image, you can now change the displayed live camera image as desired (panning, tilting, zooming, rotating and panorama correction; see fig. on the right). When doing so, the vPTZ function using the mouse or joystick is deactivated. In case of a S14D with two sensor modules, click on the corresponding camera image (right/left) to edit it (highlighted with a yellow frame).



Camera live image with panorama correction with OnScreen Control visible

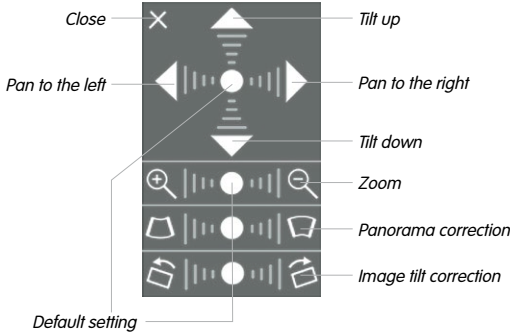


- After you have modified the desired setting, close the control panel (x in the top left hand corner).
- Click on the lock icon again** to close it (lock clasp is down). The panorama image setting is then locked until the camera is next restarted.

**Caution**

To permanently save the standard image setting defined for the Q24M, go to the **Store Complete Configuration** option in the **Manage Settings** Quick Control. The settings will then remain in effect, even after rebooting.

**Functions Of The Q24M's OnScreen Control**



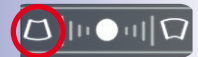
To use the OnScreen Control, click on the arrows in the top area for shifting the image section. In the bottom areas, which are displayed when needed, click to the left and/or right of the center point.

The same applies for every area: **The further away that you click from an area's center point, the greater the change triggered.** To reset an area, click on its center point again.

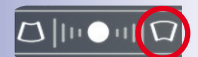
During panorama correction, clicking between the two trapezoid symbols straightens the left or right tilting lines, which are best visible at the edges of the image section.



Depending on the mounting position (ceiling, wall, floor), panorama correction and mounting error correction may not be available!



Bring columns together at the top (necessary to correct the example on the left)



Bring columns together at the bottom

### Ceiling-Mounted: Set North (User-Defined North Direction)

Once a sensor module (S14D) or entire camera (S14M) is mounted on a ceiling, you need to specify its North direction. This is not the “true” direction of North but rather the **main line of sight or the focus** of the camera or sensor module. It serves as a reference for the North direction in the **Surround** and **Double Panorama** display modes (the **Ceiling** option was already selected in the **Installation Type** Quick Control).

1. In the case of a double image, click on the corresponding sensor module (camera image) and select the **Normal** option from the **Display Mode** Quick Control.

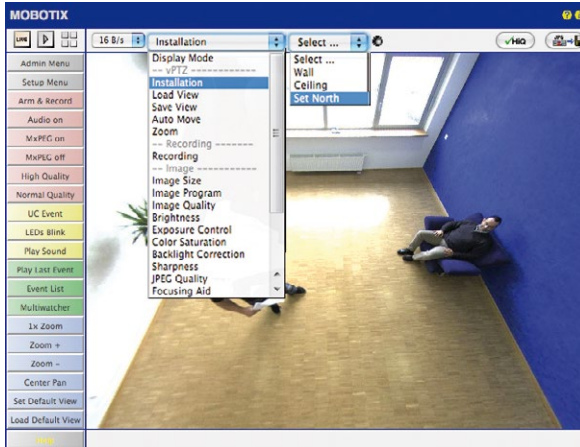


2. **Rotate the live image** in the desired direction using the mouse or a joystick connected to the computer.

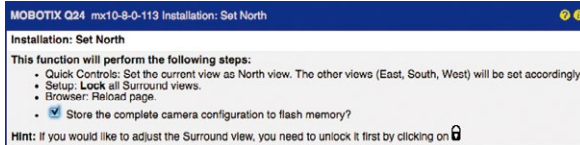


For vPTZ use and the configuration of a USB joystick, see Section 3.3.1

- In the **Installation Quick Control**, select the **Set North** option.



- Store the desired North direction permanently by first activating the checkbox and then clicking on **Yes**.



- You have now set the North direction for the **Surround** and **Double Panorama** display modes. In the next step, you can set these views as the standard view for the camera live image.



Caution: No OnScreen Control is available in "Double Panorama" mode



In the **Display Mode** Quick Control, select the option **Surround or Double Panorama**. You can fine-tune the views using the vPTZ via mouse or joystick and, as described above, by unlocking and locking the standard view using the lock icon (open lock, correct display and close lock again).

#### Note

For each of the **subviews** (*North, East, etc.*), the **OnScreen Control** on the side can be used to adapt it (open lock, click on subview, adapt view, click on next subview, adapt view and close lock again).



## 3.4 MicroSD Card Recording

### 3.4.1 Introduction

Flash-based storage devices (MicroSD cards, USB sticks and solid-state drives) do not contain any moving parts as compared to the commonly used hard drives. Flash-based storage devices are compact and highly resistant to moisture and vibrations. They feature low energy consumption and they do not lose any data in the event of a power failure, meaning that they are ideal for use with MOBOTIX cameras.



Flash memory devices: more robust than hard drives

#### Number Of Write/Delete Cycles Per Flash Storage Cell

The number of write/delete cycles of every storage cell of a flash device is limited. The controller of the flash device automatically detects individual flash cells that are no longer functioning. The contents of the faulty cell will then be rebuilt using a checksum and will be moved to a properly working spare cell. The faulty storage cell will be marked as “bad” and will no longer be used. No data is lost in this process.

In addition, MOBOTIX cameras constantly monitor activated flash storage devices. MOBOTIX has developed a technology to test the wear of the flash device by logging the number of write/delete cycles (patent pending). The flash memory wear is automatically displayed in the status bar in the live camera image but it can also be viewed at any time in the **Admin Menu > Camera Status** dialog box.

#### Conservative Memory Usage Thanks To MOBOTIX MxFFS File System

MxFFS formatting of the MicroSD card means that MOBOTIX camera software will use the flash device as evenly as possible, thus allowing for the maximum possible number of write/delete cycles. This also means that all storage cells of the flash device will be written and deleted with the same frequency, if possible. MOBOTIX technology increases the life of the flash device considerably and also improves the security and the reliability of the storage process.

#### Storage Requirements And Life Expectancy Of MicroSD Cards

The life expectancy of a MicroSD card increases proportionally to the storage capacity, since the camera software will execute fewer write/delete cycles on each storage cell. The first deletion will begin once the SD card has been filled to capacity (first full cycle).

All specifications are based on calculated averages

32 GB MicroSD Card: Storage Requirements						
	6 fps CIF		6 fps VGA		1 fps MEGA	1 fps QXGA
	M-JPEG	M-JPEG	MxPEG	M-JPEG	M-JPEG	
File size single image	15 kB	45 kB	–	120 kB	240 kB	
Storage required per second	90 kB	270 kB	75 kB	120 kB	240 kB	
Storage required per 24 hrs	7.8 GB	23.5 GB	6.5 GB	10.4 GB	20.8 GB	
Time for one full cycle	4 days	1.3 days	4.8 days	3 days	1.5 days	

4 GB MicroSD Card: Storage Requirements						
	6 fps CIF		6 fps VGA		1 fps MEGA	1 fps QXGA
	M-JPEG	M-JPEG	MxPEG	M-JPEG	M-JPEG	
File size single image	15 kB	45 kB	–	120 kB	240 kB	
Storage required per second	90 kB	270 kB	75 kB	120 kB	240 kB	
Storage required per 24 hrs	7.8 GB	23.5 GB	6.5 GB	10.4 GB	20.8 GB	
Time for one full cycle	12 hours	4 hours	14.4 hours	9.2 hours	4.4 hours	

### Caution

The MicroSD card's service life depends on production quality and frequency of use. Set the type of recording (event-controlled or continuous recording, frame rate, resolution) according to your specific requirements.

We recommend changing the pre-installed, high-quality 4 GB MicroSD card once a year if you have it constantly set to continuous recording.

### Monitoring The Cell Wear Of Flash Storage Devices (Patent Pending)

MOBOTIX uses its own technology for this purpose and has a pending patent. You can view the flash wear in the status bar of the live image or by opening **Admin Menu > Camera Status**.

In addition, the camera can send a warning message (for example, via e-mail) if it detects a critical error while storing data (**Admin Menu > Error Notification**). You can then exchange the MicroSD card in order to secure the stored data.

File Server / Flash Device	
Type	SD Flash Card
File System	MxFFS
Flash Wear	1%
Transfer Buffer Usage	0% (0: 0%, max: 0%)
Lost Event Images	0
Sequences	1 (1 files)
Newest Sequence	1970-01-01 01:00:00 #0
Oldest Sequence	1970-01-01 01:00:00 #0
Current Usage	4.0 MBytes (0.4%)
Max. Size	936 MBytes



3.4.2 Formatting The MicroSD Card

Before a MOBOTIX camera can store image and video sequences on a MicroSD card, the card needs to be formatted as MxFFS (MicroSD cards delivered with MOBOTIX cameras are already MxFFS-formatted). The following steps are necessary to format a storage device (**Admin Menu > Storage on External File Server / Flash Device**):

1. Make sure that there is a MicroSD card in the card slot of the MOBOTIX camera.
2. Click on **Format** in the **SD Flash Card** line.
3. Note down the characters shown in the **Encryption password** field or enter your own password. Next, click on **OK**.

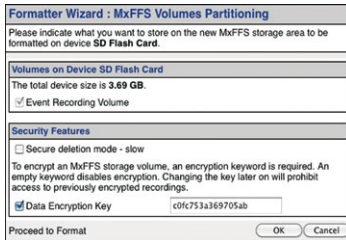
**Hint:** The **Secure deletion mode – slow** option will ensure that the data on the MicroSD card is overwritten completely so that the data cannot be recovered in any way. However, keep in mind that this kind of safe formatting takes considerably more time.

4. In the next dialog box, enter the user name and the password of a user of the **admins** group and click on **OK** to confirm.

The MOBOTIX camera now starts formatting the card. It takes 5 to 12 minutes to format an 8 GB MicroSD card if the **Secure deletion mode – slow** option is disabled.

If **Secure deletion mode – slow** is enabled, this may take anywhere between 3 and 14 hours.

Once the formatting has been completed, you can activate the MicroSD card for recording (see next section).



Format SD card:  
Admin Menu > Storage  
on External File Server/  
Flash Device

The **Secure deletion mode – slow** option takes several hours. You can also use suitable applications on Windows, Linux/UNIX, and Mac OS X computers to repartition and securely format the SD card

**Caution**

Make sure that you always wait until the formatting process has been completed before accessing the camera again. If the **Secure deletion mode – slow** option is disabled, this usually takes just a few minutes. You can only access the MicroSD card once MxFFS formatting has been completed.

Formatting with the **Secure deletion mode – slow** option enabled takes several hours. You can also use suitable applications on Windows, Linux/UNIX and Mac OS X computers to repartition and securely erase the MicroSD card.

Activate recording:  
Admin Menu >  
Storage on External File  
Server / Flash Device

### 3.4.3 Activate Recording

Follow these steps to activate the recording to a MicroSD card that has already been MxFFS-formatted (**Admin Menu > Storage on External File Server / Flash Device**):

1. Make sure that there is a MicroSD card in the card slot of the MOBOTIX camera.
2. Make sure that the MicroSD card is formatted in MxFFS format.
3. Activate the **SD Flash Card** option.
4. Click on **Set** and then **Close** to store the configuration.
5. Reboot the MOBOTIX camera (**Admin Menu > Reboot Camera**).

Once the camera has rebooted, make sure that the camera displays the **FR REC** symbols in its live image. If this is the case, the camera uses the MicroSD card as recording target. If not, you must activate the recording (see below).

#### Activating The Recording

If the **FR REC** symbols are not visible in the live image after rebooting, you need to activate the recording using one of the following methods:

- **In the web browser:** Automatic activation by clicking on the **Arm & Record** softbutton. Confirm this in the Easy Dialog by clicking on the **Yes** button.
- **In the web browser:** Manual activation via the Quick Control **Recording > Recording on** or in **Setup Menu > Recording**.
- **MxEasy:** It is possible to activate the recording based on the time or date using the Alarm Planner of MxEasy (see *MxEasy User Manual*).

#### Encryption And Authentication

All video data stored on the MicroSD card is encrypted to ensure security at all times. The password for this is defined during the card's formatting procedure and needs to be entered for authentication whenever the recordings are accessed (see next section).

### 3.4.4 Accessing Camera Data

The following options facilitate access to the stored image and video sequences on a MicroSD card:

- **In the web browser:** Play back the recorded event images without audio directly from the MicroSD card using the Playback view of the camera software.
- **In MxEasy:** Play back the recorded video sequences with audio by accessing the MicroSD card in the MOBOTIX camera via the camera.
- **In MxControlCenter:** Play back the recorded video sequences with audio by accessing the MicroSD card in the MOBOTIX camera via the camera or with a direct access to the MicroSD card via a card reader connected to the computer. Access the card by setting the MicroSD card's drive/volume as a **directory** in MxControlCenter.

If the recordings stored on the MicroSD card were encrypted, you need to enter the password used for the encryption before you can access the data. If this is the case, both MxControlCenter and MxEasy will provide a dialog box for this purpose.

#### Caution

When **using the MicroSD card from one MOBOTIX camera in another MOBOTIX camera**, you need to make sure that the time on the original camera is in sync with the new camera. We recommend using automatic time synchronization via a time server (**Admin Menu > Date and Time**).

### 3.4.5 Deactivating The Card Memory

Follow these steps to deactivate the memory on a MicroSD card (**Admin Menu > Storage on External File Server / Flash Device**):

1. Activate the **None** option.
2. Click on the **Set** button at the bottom of the dialog box and then on **Close**.
3. Reboot the MOBOTIX camera (**Admin Menu > Reboot Camera**).

Once the camera has rebooted, make sure that the symbol **FR REC** is no longer visible in the bottom right-hand corner of the live image.

4. You can now safely remove the MicroSD card from the camera (see *Chapter 2, «Installation»*).

**Caution**

A **MicroSD card may only be removed from the camera after you have deactivated the recording** to MicroSD card and **rebooted the camera**. **Failing to do so may lead to data loss!**

Removing connected flash storage devices from the camera without properly deactivating them may lead to data loss and/or destroy certain areas of the storage device. This is limited to 4 MB of lost data per incident due to MxFFS formatting.

### 3.4.6 Using A MicroSD Card In A Different MOBOTIX Camera

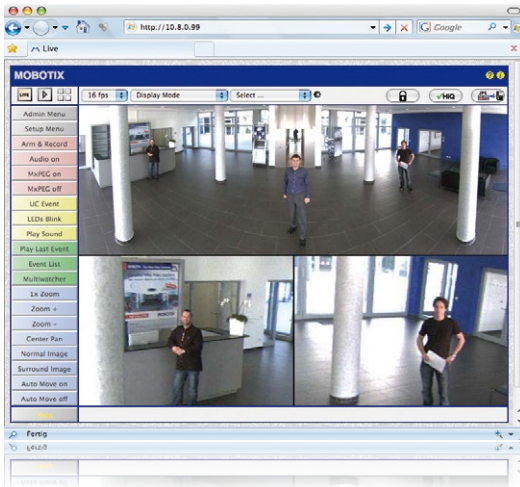
A MicroSD card containing recorded video data from a MOBOTIX camera can be inserted into any MicroSD card-enabled MOBOTIX camera. Once a MicroSD card recording has been activated (requires a reboot), the "new" MOBOTIX camera automatically synchronizes with the card and resumes recording. No data is lost in this process. Make sure that you deactivate MicroSD card recording before removing the card and then reboot the MOBOTIX camera.

If the MicroSD card's contents are encrypted, you need to enter the same password in the "new" camera in the **Admin Menu > Storage on External File Server / Flash Device** dialog box. Otherwise, the camera cannot access the MicroSD card.

### 3.4.7 Limitations On Warranty When Using Flash Storage Media

MOBOTIX will not assume any responsibility for flash storage devices (for example, MicroSD cards or connected USB storage devices) delivered with or integrated into MOBOTIX cameras. The same applies to damage to flash storage devices or damage resulting from the use of devices that are not supplied by MOBOTIX.

### 3.5 Configuration In The Browser



#### 3.5.1 Overview

A MOBOTIX camera can be completely configured using a JavaScript-enabled browser on all common operating systems (such as Windows, Linux, Macintosh, etc.). The camera provides a HTML-based user interface for this purpose. The camera executes the changes you make to the camera configuration via HTTP commands using programs and scripts of the embedded software. The settings are stored in the camera's flash memory.

This section contains an overview of the general browser settings of the MOBOTIX camera, as well as further configuration options. The **Software Camera Manual Part 2** contains more detailed descriptions of the software features.

#### 3.5.2 General Browser Settings

- **Run the Quick Installation:** After booting the MOBOTIX camera for the first time, accessing the administration menu (**Admin Menu** button) will automatically start the Quick Installation. The Quick Installation assistant helps you in setting the most important parameters of the camera. For security reasons, you should set your own administrator password and disable public access to the camera.  
=> (*Software Camera Manual Part 2, Section 5.2*)

- **Disable public access:** Guest users are only allowed to access the Guest screen of the camera without entering a password. If this is not desired, you should deactivate public access (**Quick Installation** or **Admin Menu > Users and Passwords**).  
=> (*Software Camera Manual Part 2, Section 5.4.1*)
- **Add users and assign access rights:** Similar to a computer operating system, you can add users and user groups and assign the desired rights (**Admin Menu > Users and Passwords**, **Admin Menu > Group Access Control Lists (ACL)**). This approach allows individual access rights to be assigned or denied to camera-specific features based on the user groups.  
=> (*Software Camera Manual Part 2, Section 5.4.1*)
- **Deactivate the automatic reboot:** In its factory state, every MOBOTIX camera will automatically reboot every morning at 3:36 a.m. All images in the camera's storage buffer will be deleted during this reboot. Images stored on external file servers, internal flash storage, or SD cards will NOT be affected by this reboot. Make sure that you deactivate the automatic reboot if this is not desired (**Admin Menu > Time Tasks**).  
=> (*Software Camera Manual Part 2, Section 7.9.2*)
- **Optimize the image settings:** The factory image settings of MOBOTIX cameras deliver excellent images for most application scenarios and should not be changed. If you do wish to make changes, your changes should be minor and gradual. You should, however, set an image program according to the application scenario of the camera. Image programs provide a quick and simple method for adjusting the camera to the application scenario as they perform several configuration steps at once (**Image Programs Quick Control**).  
=> (*Software Camera Manual Part 2, Section 5.5.2*)
- **Set the resolution of the live image:** By factory default, all MOBOTIX cameras are delivered with an image resolution of 640 x 480 pixels. You can select the desired resolution using the **Resolution Quick Control**.  
=> (*Software Camera Manual Part 2, Section 4.3.3*)
- **Adjust the exposure:** The automatic exposure control of the MOBOTIX camera uses individually configurable windows to determine the best image exposure. Open the **Exposure Control Quick Control** and select a predefined set of exposure windows. If required, you can also define custom exposure windows (**Setup Menu > Exposure Settings**).  
=> (*Software Camera Manual Part 2, Section 5.7*)

- **Activate event control and recording:** By factory default, the MOBOTIX camera's event control is disabled. Click on the **Arm & Record** button to activate event control. This will activate motion detection and recording. Cameras with integrated flash memory (MOBOTIX R models and models with SD card) will use the flash memory by default to store the image and video data (recording target). If desired, you can set additional events and adjust the settings of the recording and storage parameters (**Setup Menu > Event Settings, Setup Menu > Recording and Admin Menu > Recording to External File Server / Flash Device**).

=> (*Software Camera Manual Part 2, Chapter 7 and Chapter 8*)

- **Set up actions/messaging:** Upon detecting an event, the MOBOTIX camera can trigger alarms. These alarms can be adjusted to your needs and you can assign them to one or more events: playing back an alarm sound on the camera speaker, showing the visual alarm in the camera live image, sending an e-mail or network message with the alarm image, placing a phone call, uploading an alarm image to an FTP server, switching a signal output line of the camera (for example, for switching on the lights/opening a door).

For the settings, see **Setup Menu > Action Group Overview**. The actions to be performed are defined and used in these action groups in the form of "action profiles." The different action profiles can also be defined in the following areas: Admin Menu in the Hardware Configuration (profiles for signal output), Transfer Profiles (FTP, e-mail, network messages) and Sound and VoIP Telephony (sound profiles, VoIP profiles). For more information, see the online help for the camera (see *Section 3.6.12, «Online Help In The Browser»*).

- **Activate shock detector:** The Q24M is the first MOBOTIX camera with a pre-installed shock detector (for all IT and Secure versions). If, for example, the camera's housing receives a blow, it automatically registers it and send a notification via a network message or telephone call. A general advantage is that MOBOTIX cameras are extremely tough, not least because of the absence of mechanical moving parts. This typically allows them to stay fully operational, in particular, when they are subject to strong vibrations. Open the **Setup Menu > Event Control > Environment Events > Edit** dialog box if you would like to activate the shock detector (and any other sensors).

User Name: admin  
password: meinsm

Admin Menu

Setup Menu

Make sure to permanently store changed parameters!

Automatic time synchronization using a time server

**More::** Display advanced features

**Less:** Hide advanced features

### 3.5.3 Additional Configuration Options

- **Administering the camera:** You can modify the camera configuration in the Administration Menu or the Setup Menu.
  - **Admin Menu:** This menu contains the basic configuration dialog boxes of the camera (for example, passwords, interfaces, software updates).
  - **Setup Menu:** This menu contains the dialog boxes for configuring the image, event and recording parameters. Some of these settings can be changed using the corresponding Quick Controls in the live view.
- **Resetting changes:** If you would like to reset some larger changes in one dialog box without resetting the complete configuration, you can use the **Default** button at the bottom of the dialog box to reset only this dialog box's settings to the factory defaults. If you would like to reset all image settings, you can do so using the **Manage Settings > Restore Image Settings** Quick Control in the live image of the camera.
- **Storing changes permanently:** Once you have finished configuring the camera, you should always store the settings in the camera's permanent memory. You can do so in each dialog box (clicking on the **Set** button at the bottom of each dialog box will temporarily implement the change; when you click on **Close**, you will be asked to store the complete configuration in the camera's permanent memory) or in the Admin Menu (**Admin Menu > Store current configuration into flash memory**). The **Configuration** section of the Administration Menu provides more functions for storing, copying and managing camera settings. For more information on this topic, see *Chapter 5, «Basic Camera Configuration»* in the *Camera Software Manual Part 2*.
- **Time tasks and time synchronization:** Apart from a multitude of possibilities for controlling the camera using time (time tables, holiday and vacation, scheduled tasks, etc.), the camera can also synchronize its internal clock. This allows you to manually synchronize the camera with a computer or automatically using a time server or another MOBOTIX camera. The camera can use either NTP time servers or Time Protocol servers. For additional information, see *Section 5.4.2, «Date And Time/ Time Zones And Time Servers»* in the *Camera Software Manual Part 2*.
- **The More and Less buttons:** When opening some of the camera dialog boxes, the camera only shows the most important parameters. These dialog boxes have a **More** button in the bottom right-hand corner. Click on it to display additional options. If all options are displayed, click on the **Less** button to hide the additional options.



### 3.6 Additional Notes

#### 3.6.1 Weatherproofness

The MOBOTIX Q24M-Secure is has been certified according to protection class IP65 (absolutely dustproof and resistant against water jets) and can also be wall-mounted outdoors using the corresponding wall mount. The MOBOTIX Q24M-Basic has has been certified according to protection class IP54 (dustproof, resistant to splashed water).

#### 3.6.2 Password For The Administration Menu

Accessing the Administration Menu of the camera (Admin Menu softbutton) is only possible after entering a user name and password.

- Factory default user name is **admin**.
- Factory default password is **meinsm**.

The Quick Installation assistant automatically appears when the Administration Menu is accessed for the first time. It provides an easy method to adjust the basic camera settings to the current application scenario. For security reasons, we highly recommend changing the default administrator password after the camera has been properly configured.

Enter the user name and password exactly as shown above. Note that all entries are case-sensitive.

#### Caution

Make sure that you store information on **user names and passwords** in a secure place. If you lose the administrator password and cannot access the administration menu, the password can only be reset at the factory. This service is subject to a fee!

#### 3.6.3 Permanently Deactivating The Microphone

Deactivating a camera's microphone may be necessary in order to protect the privacy of persons at a workplace or for other reasons. You can permanently and irreversibly deactivate the microphone in the **Admin Menu > Loudspeaker and Microphone** dialog box.

The microphone can be irreversibly deactivated!

#### 3.6.4 Starting The Camera With The Factory IP Address

If the camera's IP address is not known, you can start the camera with its factory IP address. *Section 3.2.6, «Starting The Camera With The Factory IP Address»* describes this procedure in more detail.

You can reset specific parts of the configuration

### 3.6.5 Resetting The Camera To Factory Settings

All settings of the MOBOTIX camera can be permanently reset to the factory default settings. This makes sense if you have, for example, obtained a camera without any information or you would like to reset all settings after testing the camera. In order to perform this procedure, you need to have administrative access to the camera (**admin.s** group). Open **Admin Menu > Reset** to reset the camera to factory defaults.

#### Note

Note: All defined users are deleted and the admin password is reset to the factory default when you reset the camera using **Admin Menu > Reset**. If you want to maintain the existing users, use the method described in *Section 3.2.6, «Starting The Camera With The Factory IP Address»*.

### 3.6.6 Activate Event Control And Motion Detection

In its default configuration, the camera's event control and video motion detection features are not enabled. In order to activate event-controlled recording, open **Setup Menu > General Event Settings** and activate the Arming switch. Another method is to click on the **Arm & Record** softbutton in the browser's user interface. The camera displays the motion detection window in the live image (dotted frame in the center) and the camera automatically stores images as soon as the motion detection window detects movements.



If the dotted rectangle in the live image is visible, the camera is armed

### 3.6.7 Deactivate Text And Logo Options

As camera arming is deactivated in its default configuration (see preceding section), the MOBOTIX camera displays only the text **www.mobotix.com**, the time stamp and the MOBOTIX logo at the top of the image. Once the camera arming has been activated, the text at the bottom of the live image (event, action, messaging and recording symbols) will also appear.

You can deactivate the status bar at the bottom of the live image and the text bar in the top left-hand corner by setting Text Display in the **Setup Menu > Text & Display Settings** dialog box to **Off**. Setting Text Display to **Date and Time** will only display the time stamp in the live image. To hide the logo in the live image, open **Admin Menu > Logo Profiles** and set Logo Display to **Deactivated**.

### 3.6.8 Deactivating The Camera Reboot

Per factory default, the MOBOTIX camera automatically reboots once a week between 3 a.m. and 4 a.m. The reason for this is that external influences (for example, radiation in high locations) can lead to camera malfunctions. The automatic reboot will refresh the camera's memory and will ensure proper operation without requiring any interaction on the part of the user. If desired, you can deactivate the automatic reboot of the camera in the **Admin Menu > Time Tasks** dialog box.

You can deactivate and customize the text and logo display settings

### 3.6.9 Browser

Current Internet browsers (Internet Explorer, Netscape, Mozilla Firefox, Safari, etc.) with enabled JavaScript can display the camera's live images with their standard settings. Text-based browsers cannot display the user interface and are not suitable for operating the camera.

*Section 4.1.3, «Browser Settings» in the Camera Software Manual contains more detailed information on possible browser problems.*

### 3.6.10 Cleaning The Camera And Lens

If the lens becomes dirty during the installation process, clean the lens using a lint-free cotton cloth. Make sure that the lens is still in focus after cleaning and adjust its focus if required.

#### Cleaning The Dome:

- Always mount and unmount the dome using the provided tool (M) in order to protect it from being scratched and from getting dirty.
- You should clean the dome at regular intervals. Always use a soft, lint-free cotton cloth for this purpose.
- If the dirt is more persistent, add a mild alcohol-free detergent without abrasive particles.
- Make sure you instruct cleaning personnel on how to clean the camera.

### 3.6.11 Safety Warnings

**Electrical surges:** MOBOTIX cameras are protected against the effects of small electrical surges by a range of measures. These measures, however, cannot prevent the camera from being damaged when stronger electrical surges occur. Particular care should be taken when installing the camera outside to ensure proper **protection against lightning**, as this also protects the building and the entire network infrastructure.

**Electrical installation:** Electrical systems and equipment may only be set up, changed and maintained by a qualified electrician or under the direction and supervision of a qualified electrician in accordance with the appropriate electrical guidelines.

**Legal aspects of video and sound recording:** You must comply with all data protection regulations for video and sound monitoring when using MOBOTIX products. Depending on national laws and the installation location of the Q24M, the recording of video and sound data may be subject to special documentation or it may be prohibited.

All users of MOBOTIX products are therefore required to familiarize themselves with all valid regulations and comply with these laws. MOBOTIX AG is not liable for any illegal use of MOBOTIX products.

**Network security:** MOBOTIX products include all of the necessary configuration options for operation in Ethernet networks in compliance with data protection laws. The operator is responsible for the data protection concept across the entire system. The basic settings





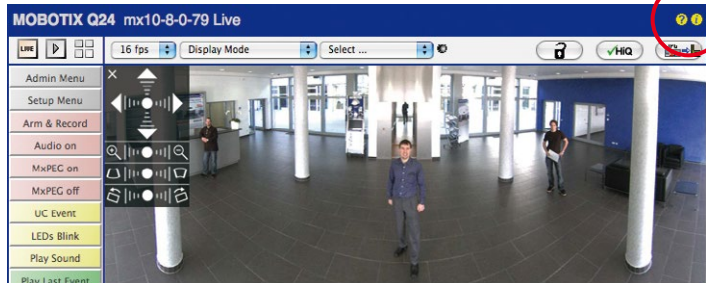
required to prevent misuse can be configured in the software and are password-protected. This prevents unauthorized parties from accessing these settings.



**Never remove the dome:** A S14D or S14M should never be operated without the transparent dome or protective lens screen mounted on it. The camera is no longer weatherproof when operated without the domes or protective lens screens. The exposed metal ring around the lens can become extremely hot when the exterior temperature is high, causing burns when touched.

### 3.6.12 Online Help In The Browser

For more information, see the News and Functional Overview pages in the online help of the camera's browser interface. Click on the  icon to open the camera's online help. Furthermore, detailed information on the camera and its current configuration is displayed in the **Camera Status** dialog box. Click on the  icon to open the relevant page.



### 3.6.13 RoHS Declaration

The products of MOBOTIX AG are in full compliance with Art. 5 of the German Electrical and Electronic Equipment Act and the E.U. Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) as far as they are subject to these regulations. (You can find the MOBOTIX RoHS Declaration under [www.mobotix.com](http://www.mobotix.com), **Support > Spec Sheets**).

### 3.6.14 Disposal

Electrical and electronic products contain many reusable materials. For this reason, we would ask that you dispose of MOBOTIX products at the end of their service life in accordance with all legal requirements and regulations (or deposit these products at a municipal collection center). MOBOTIX products may not be disposed of with household waste! If the product contains a battery, please dispose of the battery separately (the corresponding product manuals contain specific directions if the product contains a battery).



### 3.6.15 Disclaimer

MOBOTIX AG does not assume any liability for damage that is the result of improper use of its products or failure to comply with the operating manuals or the applicable rules and regulations. Our **General Terms and Conditions** apply. You can download the current version at [www.mobotix.com](http://www.mobotix.com) (using the COS link at the bottom of each page).



## A MOBOTIX GLOSSARY

### 2G

Second generation of wireless telephone technology (see »**GSM/2G**).

### 3G

Third generation of wireless telephone technology (see »**UMTS/3G**).

### ActiveX

Control element on Windows computers, which can also be used in other programs (including Windows Internet Explorer) to run special tasks. The »**MxPEG** ActiveX control provides a mechanism for other applications to play the video and audio data generated by MOBOTIX cameras.

### Arming

Refers to the process of activating an alarm system so that specific events can trigger the corresponding alarms. Traditional alarm systems can be armed using a key switch or by entering a code on a keyboard. MOBOTIX cameras can be armed using a "software switch", a key switch, other systems (e.g. an alarm system), or automatically using weekly schedules.

### AVC Video

Abbreviation of *Advanced Video Coding*. AVC Video is a standard for video compression (similar to »**H.264**).

### Auto Grid

Automatically generated »**Layout** used for displaying the live images from all cameras.

### Background Layout

»**Layout** type in MxControlCenter, which shows cameras and camera icons on a background image (e.g. the floor plan of a building). In contrast to a »**Grid Layout**, you can place cameras and icons at any position on the background image.

### Bandwidth

Describes the capacity of a network connection. Bandwidth is commonly measured in *kilobits per second* (short *kbit/s*, also *kbps*) for slower connections (modem, ISDN, »**GSM/2G**), in *megabits per second* (short *Mbit/s*, also *Mbps*) for fast (»**UMTS/3G**, »**Fast Ethernet**) and in *gigabits per second* (short *Gbit/s*, also *Gbps*) for superfast connections (»**Gigabit Ethernet**).

### Bonjour

(French for "hello") is a technology developed by Apple based on the »**Zeroconf** protocol. Bonjour is a method for network devices to automatically advertise and detect services on IP networks. For example, you can find a printer or a network camera on the local network without knowing the exact IP address of the device you are looking for.

### CamIO

MOBOTIX signal module that the camera uses to directly operate lamps, sirens and access controls, as well as external audio components (speakers and microphones).



### CCTV

Abbreviation of *Closed-Circuit Television*. A television system in which the analog video signal is transmitted to monitor within one particular environment only (for example, a building). The term CCTV is often used for video surveillance systems.

### CF Card

Abbreviation of *Compact Flash Card*. An ultra-compact, digital (random-access) memory medium based on flash memory modules and well-known as an image storage medium for digital cameras.

### CIF, 2CIF, 4CIF (in accordance with PAL TV standard)

Abbreviation of *Common Intermediate Format*. Corresponds to 1/4 TV image with 288 rows and 352 columns (0.1 megapixels). 2CIF (1/2 TV image) has the same number of rows (288), but 704 columns (0.2 megapixels). 4CIF corresponds to the image quality of a traditional TV image with 576 rows and 704 columns (0.4 megapixels).

### CMOS

Abbreviation of *Complementary Metal-Oxide Semiconductor*. MOBOTIX cameras rely on this type of image sensor for energy-efficient digitalization of image information.

### DevKit

Camera *development kit* with independent image sensors based on MOBOTIX M12D or M24M cameras, intended for concealed installation in other devices.

### DHCP

Abbreviation of *Dynamic Host Configuration Protocol*. Allows a server to automatically assign devices in the network with the appropriate configuration (including the IP address, DNS server and gateway), as opposed to fixed IP addresses on the individual network devices.

### DNS

Abbreviation of *Domain Name Service*. Allows the domain names of servers on the Internet (e.g. [www.mobotix.com](http://www.mobotix.com)) to be linked ("resolved") to their corresponding IP addresses (e.g. 212.89.150.84).

### Dome Camera

Most often refers to cameras with a round and compact design. The lens can be freely positioned and is protected by a transparent dome-shaped plastic housing.

### DSL

Abbreviation of *Digital Subscriber Line*. Denotes a fast Internet connection capable of providing bandwidth of up to 16 Mbps for a typical household.

### DualDome

Dome camera with two lenses and image sensors such as the MOBOTIX D12D. These lenses can deliver wide-angle and telephoto images independently of one another.

### DVR

Abbreviation of *Digital Video Recorder*. Commonly describes a dedicated computer with at least one harddisk that is used to store the video and audio data generated by analog or digital cameras.

**DynDNS**

Abbreviation of *Dynamic DNS* (or *DDNS*, Dynamic Domain Name Service). Similar to »**DNS**, this links domain names (e.g. **mydomain.com**) with IP addresses, whereby the IP addresses may change at any time. This service provides a convenient method to access your MOBOTIX cameras from home or work if the camera internet connection is not through a »**Router**, which assigns a fixed IP address, but instead over a »**DSL** connection with a dynamically assigned IP address from the provider. A well-known provider of this (free) service is **www.dyndns.org**.

**Ethernet**

The most common technology for communication within a wired network. It provides for data exchange between all devices (computers, printers, IP cameras, etc.) connected to a local area network (»**LAN**).

**Event**

Refers to a situation when something happens or changes. In terms of video surveillance, this means a change in the status of an area that is being monitored. This can be movement of a person, a change in brightness, a drop in ambient temperature, the detection of a noise via a microphone, an electrical signal at a signal input, the manual operation of a button, etc.

**ExtIO**

MOBOTIX expansion module that the camera uses to directly operate lamps, sirens and door openers as well as external audio components (speakers and microphones).

**Fast Ethernet**

»**Ethernet** connections with speeds of up to 100 Mbit/s.

**FixDome**

Camera without moving parts in a dome-shaped housing.

**Flash Memory**

See »**CF Card**.

**fps**

Abbreviation of *frames per second* (see »**Frame Rate**).

**Frame Rate**

Specifies how many frames per second (»**fps**) are generated and sent by the camera. The human eye perceives movement as a fluid video sequence when more than 16 images per second are produced.

**FTP**

Abbreviation of *File Transfer Protocol*, one of the standard protocols used to transfer large files over the Internet. MOBOTIX cameras are using FTP to update webcam images on web servers, for example.

**Gigabit Ethernet**

»**Ethernet** connections with speeds of up to 1000 Mbit/s.



### Grid Layout

»**Layout** type in MxControlCenter, which shows cameras in a table with rows and columns (e.g. the classic »**Quad Display** with four cameras in a two-by-two grid). In contrast to a »**Background Layout**, you can only place the cameras in one of the grid's display windows. MxControlCenter comes with a set of predefined grids and also allows creating custom grids. The »**Auto Grid** is a special type of grid layout, which automatically adjusts the size of the display windows according to the display area and the numbers of cameras.

### GSM/2G

Abbreviation of *Global System for Mobile Communication*. Second generation of wireless telephone technology.

### H.264

A standard for video compression (also called *AVC video* or *MPEG-4 Part 10*). H.264 is commonly used in »**HDTV** video broadcasting and SIP Video applications.

### HDTV

Abbreviation of *High Definition TV*. Describes a TV and video broadcasting standard with a »**Resolution** of 1980x1080 pixels that commonly uses »**H.264** as compression method to reduce bandwidth requirements.

### HiRes

Abbreviation of *High Resolution*. Refers to high-resolution images (more than 1 megapixel).

### Image Compression

Reduces the file size of an image by reducing the amount of redundant image information. This is particularly important when transferring and saving files, since it lowers the required »**Bandwidth**.

### Image Post-Processing

Digital image processing. The goal is to correct errors made during image generation (caused by overexposure, underexposure, blurring, weak contrast, image noise, etc.) in order to create a "better" image.

### IP Network

Data »**Network** based on the *Internet protocol* (TCP/IP).

### IP Phone

Hardware phone, which uses IP packets to establish phone connections via a network (see also »**VoIP**).

### JPEG

Abbreviation of *Joint Photographic Experts Group*. This group is responsible for the development of the JPEG standard method for image compression. JPEG is the most common lossy image format for photos on the Internet. Loss in image quality is barely noticeable at JPEG quality rates between 99% (lowest compression) and 60%.

### LAN

Abbreviation of *Local Area Network*. Represents a computer network that is usually covering a small physical area (e.g. a home, office, school, building or manufacturing site).

**Latency**

Interval between capturing the image of a camera and displaying the same image on a monitor (also called “scene-to-screen time”).

**Layout**

Describes, how **»Video Sources** are displayed by MxControlCenter. When displaying the images from network cameras, the layout determines the positions and resolutions of the images displayed on the monitor. In addition to the actual video images, you can also incorporate graphic elements such as the location of the cameras, etc. (see **»Background Layout**, **»Grid Layout**, **»Auto Grid**).

**LED**

Abbreviation of *Light Emitting Diode*. An electronic semiconductor component, built in to MOBOTIX cameras and add-on modules, which emits light when current flows through the component in the correct direction.

**Linux**

Free and open source operating system based on the work of Linus Torvalds. Serves as the operating system for all MOBOTIX cameras.

**Logical Network**

A system of computers and networked devices that appear as a single network to the user (even if it runs on more than one **»Physical Network**).

**Megapixel**

One million pixels. Larger formats of images can be displayed as a multiple of this, for example, 3 megapixels is equal to 3 million pixels.

**MonoDome**

Dome camera with one lens, such as the MOBOTIX D24M.

**Motion Detection**

See .

**Motion JPEG (M-JPEG)**

Video compression method where each individual image is compressed separately as a **»JPEG** image. Unlike **»MPEG**, the quality of M-JPEG recordings is not dependent on movement within the image.

**MPEG**

Abbreviation of *Motion Pictures Expert Group*. Standard for compressing and saving image and video data, resulting in quality loss. Originally created for playing entertainment content on PCs, MPEG concentrates on displaying still image material and compromises the quality of moving image material in order to increase the transmission speed.

**MPEG-4 Part 10**

A standard for video compression (same as **»H.264**).

### MxControlCenter

MOBOTIX video management software for professional control of mid-sized and large camera networks.

### MxEasy

MOBOTIX video management software for small and compact camera networks of up to 16 cameras.

### MxPEG

MOBOTIX-developed protocol for compression and storage of image and video data with minimal network load and high image quality. The MxPEG »**ActiveX** control allows video and audio data from MOBOTIX cameras to be displayed in other applications (including Internet Explorer). To date, MxPEG remains the *only* protocol specifically designed for security applications.

### NAS

Abbreviation of *Network Attached Storage*. A storage system connected via an Ethernet cable. All network devices (cameras) in a »**Physical Network** have access to this storage system.

### Network

Group of computers that are connected via various cables and switches (or hubs) and share access to data and devices such as printers and network cameras.

### NTP

Abbreviation of *Network Time Protocol*. This protocol is designed to synchronize the clocks of network devices from a time server that supports this protocol. Go to [www.pool.ntp.org](http://www.pool.ntp.org) to find public NTP time servers.

### PIR

Abbreviation of *Passive Infrared Sensor*. This sensor is used to detect movements based on the infrared light emitted by moving persons.

### PoE

Abbreviation of *Power over Ethernet*. A technology for supplying network-ready devices (such as network cameras) with power via the Ethernet data cable.

### Physical Network

A system of computers and networked devices that are connected by network cables, »**Switches**, wireless devices or other suitable hardware. Physical networks may include one or more »**Logical Networks** or be part of a logical network. The most simple physical network is a network cable running from one computer's Ethernet port to the Ethernet port of a second computer (or a MOBOTIX camera, for example).

### Preferred Layout

»**Layout** of a camera that is automatically displayed by MxControlCenter if that camera sends an alarm.

### PTZ

Abbreviation of *Pan/Tilt/Zoom*. Refers to the movement of a video camera to the left and right, up and down, and to the camera's ability to enlarge an image.

**Quad Display**

Layout in which the images from four cameras are displayed in one window.

**Resolution**

Indicates the number of pixels used to produce an image. The more pixels an image has, the greater the detail when the image is enlarged. The resolution is expressed as either the number of pixel columns times pixel rows, or as a total number of pixels. A VGA image has 640 columns and 480 rows (640 x 480 pixels), which equals 307,200 pixels, or approximately 0.3 megapixels.

**Ring Buffer**

Type of storage where the newest items overwrite the oldest ones if the assigned disk space is full. Commonly used by MOBOTIX cameras to store audio/video recordings.

**RoHS**

Abbreviation of *Restriction of Hazardous Substances Directive*. Refers to EC Directive 2002/95/EC, which prohibits the use of certain hazardous substances when manufacturing products and components. The goal of this directive is to prevent these substances from harming the environment when the products are recycled after their useful life.

**Router**

Network device that connects multiple networks with one another. The router not only creates the physical connection between the devices in different networks (like a »**Switch**), it also analyzes the relevant data packets and forwards ("routes") these packets to the correct target network (e.g. the Internet).

**SD Card / microSD card**

Also called *SD Memory Card* (abbreviation of *Secure Digital Memory Card*). A digital storage medium based on flash storage modules such as USB sticks.

**Sequencer**

Feature that automatically switches the camera displayed in the main window after a specific time delay.

**SIP**

Abbreviation of *Session Initiation Protocol*. Network protocol for setting up, controlling and terminating a communication connection via a computer network. SIP is frequently used by »**IP Phones** and »**Softphones**, but more recently also for »**Video SIP**.

**Signal Input/Signal Output**

Used for coupling a device that triggers alarms (e.g., a fire alarm system or a network camera) to a control center or another type of transmitter (e.g., an IP phone or other IP device).

**Snap Server**

»**NAS** system manufactured by Overland Storage ([www.overlandstorage.com](http://www.overlandstorage.com)). MOBOTIX MxControlCenter automatically finds all Snap Servers in a »**Physical Network**.

**Snapshot**

Photograph of a situation created spontaneously and directly with a mouse click or other such event directed by the user.

### Softphone

Computer application that simulates an »*IP Phone*.

### Subnet

Synonym for »*Logical Network*.

### Switch

Hardware used to connect multiple network devices (computers, cameras, printers, etc.) within a network. A »*PoE* switch can also supply the cameras with power over an Ethernet cable.

### UMTS/3G

Abbreviation of *Universal Mobile Telecommunications System*. Third generation of wireless telephone technology.

### UPS

Abbreviation of *Uninterruptible Power Supply*. Refers to devices that continue to supply power in the event of a sudden power failure. These devices usually operate using a battery. UPS units are commonly installed on the power lines of devices and systems in order to protect them in the event of a power failure.

### Video Motion Detection

Action of sensing a movement within a particular area. MOBOTIX cameras use algorithmic methods to detect changes from image to image in predefined areas, while taking into account preset conditions. MOBOTIX cameras use windows (»*Video Motion Window*) to determine if there are movements in a video stream. If a camera detects a movement, it signals an event and triggers an alarm.

### Video Motion Window

Area in the live or recorded video stream in which MOBOTIX cameras can search for movements (see also »*Video Motion Detection*).

### Video SIP

Based on »*SIP* and creates a *video connection* between two video-enabled devices via a network connection (e.g. between a »*SIP* video phone and a MOBOTIX camera) to transfer compressed video data (e.g. using »*H.264*).

### Video Source

Any source offering video content that can be displayed in MxControlCenter. These are usually MOBOTIX cameras, but also third-party IP cameras, recordings stored on file servers and on »*Snap Server* »*NAS* systems, »*MxPEG* clips and analog cameras connected via MxServer (e.g. an analog »*Dome Camera*).

### Video Wall

Wall with a set of (usually large) monitors, used e.g. in security applications to provide overview.

### VM

Abbreviation for »*Video Motion Detection*.

### VoIP

Abbreviation of *Voice over Internet Protocol*; see »*SIP*.

**Wi-Fi**

Trademark of the Wi-Fi Alliance (see [www.wi-fi.org](http://www.wi-fi.org)) that manufacturers of electronic equipment can use to brand certified products belonging to a class of wireless »LAN devices based on the IEEE 802.11 standards.

**Wireless Devices**

Electronic devices that use electromagnetic waves to establish voice or data connections (rather than using some kind of wire connection). Wireless devices typically use »GSM/2G, »UMTS/3G, »Wi-Fi, among other, less common technologies.

**Wizard**

Refers to a software component that helps the user install or set up a particular program and that guides the user through the configuration process by means of simple questions.

**WLAN**

Abbreviation of *Wireless Local Area Network*. Used to provide network (and thus, also Internet) connections without requiring cables. This is a synonym of »Wi-Fi.

**Zeroconf**

A technology, which allows devices in IP-based networks to automatically “advertise” their services without the need of a »DHCP server. A printer commonly advertises its printing service over the network, a MOBOTIX camera its imaging service. Using Zeroconf, MxControlCenter can find other MOBOTIX cameras, »Snap Servers, etc.









## Q24M Hemispheric Camera

**Konformitätserklärung**  
**Declaration of Conformity**  
**Déclaration de conformité**

**Hersteller:** MOBOTIX AG  
**Manufacturer:**  
**Fabricant :**

**Produkt:** Netzwerk-Kamera  
**Product:** Network camera  
**Produit :** Caméra de réseau

**Typ:** Q24M  
**Type:**  
**Type :**

Bei bestimmungsgemäßer Verwendung erfüllt das bezeichnete Produkt die Bestimmungen der im Folgenden aufgeführten Richtlinien:  
 The product identified above complies with the essential requirements of the relevant standard, when used for its intended purpose:  
 Le produit désigné ci-dessus est conforme aux exigences fondamentales des normes s'y rapportant :

**Niederspannungsrichtlinie** 2006/95/EG  
**Low-voltage directive**  
**Directive basse-tension**

**Angewendete harmonisierte Normen:** EN 60950:2005  
**Harmonised standards applied:**  
**Normes harmonisées :**

**EMV-Richtlinie** 2004/108/EG  
**EMC directive**  
**Directive CEM**

**Angewendete harmonisierte Normen:** EN 55022:2006  
**Harmonised standards applied:** EN 55024:1998+A1:2001+A2:2003  
**Normes harmonisées :** EN 61000-6-2:2005  
 EN 61000-4-2  
 EN 61000-4-3  
 EN 61000-4-4  
 EN 61000-4-5  
 EN 61000-4-6  
 EN 61000-4-8

**Weitere angewendete Normen:** EN 50121-4:2007  
**Other harmonised standards applied:** EN 55022:2006 CFR 47, FCC Part 15B  
**Autres normes harmonisées :** C-Tick AS/NZS 3548 CISPR 22:2005 (mod.)

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Langmeil, 18.05.2009

**Ort, Datum**  
**Place & date of issue**  
**Lieu et date**

Dr. Ralf Hinkel  
 Vorstand/CEO, MOBOTIX AG

**Name und Unterschrift**  
**Name and signature**  
**Nom et signature**

**MOBOTIX - The HiRes Video Company**

To demonstrate our confidence in the quality of our products, MOBOTIX cameras have been used to capture all images that appear in this manual.

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Technical specifications subject to change without notice!

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High-resolution 180° Panorama

High-resolution 180° Panorama

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**30 Frames/s**

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30 F/s Mega

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zoom

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without mechanical iris

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external via Network

Win/Liv/Mac

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via Network on PC  
up to 1 Terabyte

Microphone & speaker

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**VideoMotion**

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no heating necessary

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Network power  
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**Robust**

No moving parts  
fiber glass housing

McCC/Measy

**Licence free**

Video-Management-  
Software

### HiRes Video Innovations

The German company MOBOTIX AG is known as the leading pioneer in network camera technology and its decentralized concept has made high-resolution video systems cost efficient.

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