

Professional video management

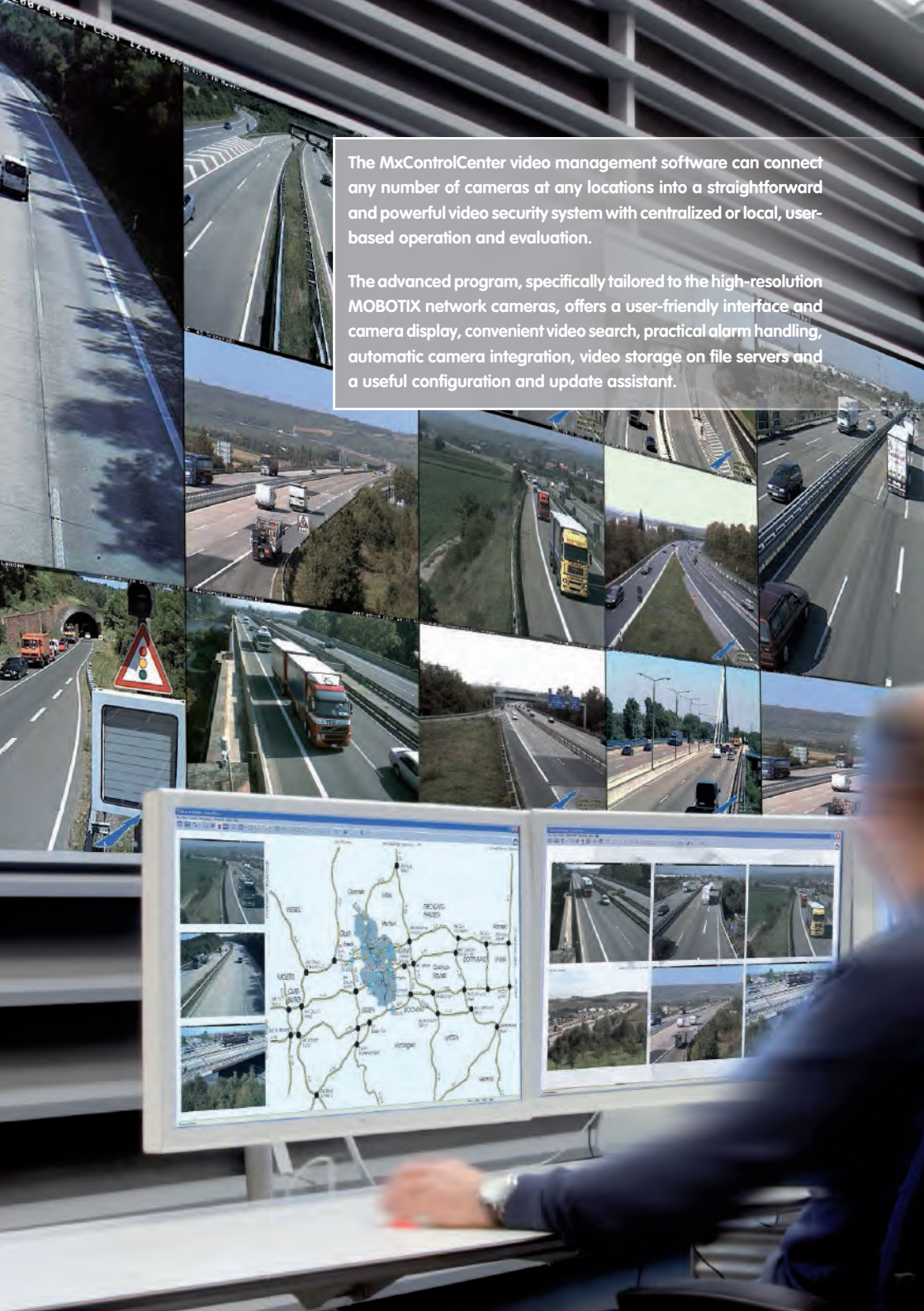


- Proven many times over worldwide in the most demanding video applications
- Unlimited number of users and cameras, no license fees
- Individual user interface, adaptable to each individual user
- Simplest installation and complete use on any standard PC
- Convenient layout editor for integrating real building plans
- Integration of conventional network and analog cameras as well
- Export recordings as AVI and Quicktime video with sound

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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The MxControlCenter video management software can connect any number of cameras at any locations into a straightforward and powerful video security system with centralized or local, user-based operation and evaluation.

The advanced program, specifically tailored to the high-resolution MOBOTIX network cameras, offers a user-friendly interface and camera display, convenient video search, practical alarm handling, automatic camera integration, video storage on file servers and a useful configuration and update assistant.



PERFECT INTERACTION

THE HIGH-RESOLUTION VIDEO SYSTEM SOLUTION FROM MOBOTIX

The **MxControlCenter (MxCC)** is the video management software developed by MOBOTIX with all the functions necessary for a professional security control center. Above all, MxCC maximizes its fullest potential when combined with the decentralized, high-resolution MOBOTIX cameras – a complete security system from one source and at an unbeatably low total cost.



Proven Many Times Over Worldwide

MxCC has been used in projects of all sizes for years – even with 1,000 cameras and more (e.g. Donbass Arena, University of Singapore).

No Storage Limit, Unlimited Number Of Users

MxCC runs without third-party software, needs no licenses, supports any number of users, cameras and recording devices; and is completely cost-neutral at the same time.

MxCC supports affordable NAS mass storage

Individual User Interface

All functions can be managed centralized in the system by the administrator, a group or an individual user.

Simple Installation And Configuration

MxCC runs on any standard PC, finds cameras and storage in the network automatically and configures all cameras at the push of a button.

Layout Editor For Real Building Plans

All MxCC functions were developed from real practical requirements in the most varied projects possible.

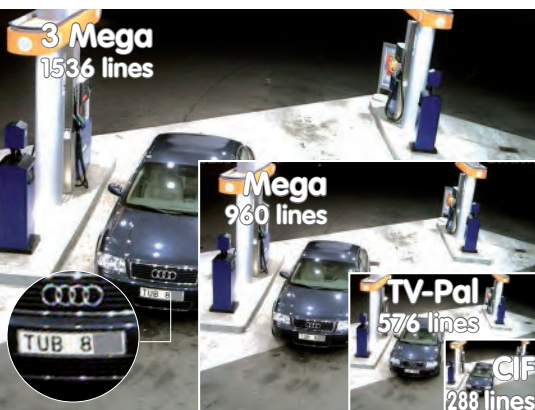
Integration Of Varied Camera Types

In addition to MOBOTIX network cameras and door stations, analog and motor-controlled cameras can be integrated in MxCC.



Download MxControlCenter for free from www.mobotix.com

The Decentralized MOBOTIX Concept



Original image
MOBOTIX camera:
Size comparison of
standard CIF versus
MOBOTIX HiRes

Innovator and technology leader

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. MOBOTIX has been producing megapixel cameras exclusively for many years now and, is regarded as **the global market leader for high-resolution video systems.**

Why High-Resolution Systems?

The higher the resolution, the more accurate the detail in the image. With analog technology, a recorded image generally has no more than 0,1 megapixels

(CIF). **Yet, one MOBOTIX camera with 3,1 megapixels records around 30 times more detail.** This means that greater image areas, including 360° panoramas, are possible, while still reducing the number of cameras, and thereby enormously reducing the costs as well. For example, four lanes of a gas station may be recorded with a single MOBOTIX camera, instead of the four standard cameras normally necessary for such a task.

Disadvantages Of The Old Centralized Solution

Usually, cameras only supply images, while processing and recording take place later on a central PC using (more expensive) video management software. This traditional centralized structure has many limitations, since it requires high network bandwidth and the PC processing power is insufficient when using several cameras. An HDTV MPEG4 film already places a heavy load on a single PC, so how can it be expected to keep up with a dozen high-resolution live cameras? **Due to the high number of PCs required, classical centralized systems are therefore becoming less and less appropriate and cost-effective.**

A standard system requires an extra PC including software for evaluation and storage



Standardized Network Technology

The cameras are connected and supplied with power using a single computer network cable and not via a video cable. This has the advantage that access can be granted from anywhere in the world using affordable standard fiber optic, copper and wireless components.

The Decentralized MOBOTIX Concept

In the decentralized MOBOTIX concept, each camera includes a **high-performance computer** and, if necessary, a **digital long-term flash memory (MicroSD card)** for several days of recording. The PC or the video control center now serves purely for viewing and control of the cameras (PTZ), not for analysis or recording. This eliminates overloaded, expensive video management software, as the important functions are already contained in the MOBOTIX cameras.

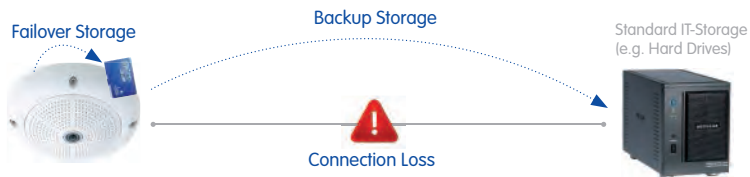


MOBOTIX systems operate in a decentralized manner and securely even without a recording PC

SD Card Memory Reduces Storage Costs

Events of up to 64 gigabytes can be recorded both within the camera and externally with no limitations via the network on a PC, server or inexpensive NAS file system. The high storage capacity and the possibility of recording only sequences in which something is occurring make it necessary to use external storage such as disk drives only rarely. This reduces the need for recording devices, network infrastructure and the maintenance expense of mechanical components in hard drives and fans. The internal storage on the other hand is digital without mechanical components and is therefore maintenance-free.

64 GB: Two weeks of 24/7 surveillance of four gas station lanes, four days of video in TV quality, 200,000 10-second clips in high resolution, or two million individual images



If a connection is lost or the standard memory fails, data are stored automatically in the camera (until the problem is corrected)

Even when external recording is preferred for cameras in positions at risk, the internal storage ensures that the video will be buffered in the the event of bandwidth fluctuations or even network failures. In any case, the decentralized system ensures a lower recording load, so that **ten times more cameras than usual** can be stored simultaneously on a PC or server. The results are obviously neither postage stampsize video, nor individual images, but high-resolution HDTV video with sound.

Fewer storage devices, lower costs

Customized Control Center Software

In contrast to other software solutions, MxControlCenter supports the decentralized recording technology of the MOBOTIX cameras. Besides higher performance, this technology easily bridges network failures without losing any of the recording.

For A Wide Variety Of Applications



Infoscreen entry hall MOBOTIX – MxCC 180° full screen display

For Every Size Of System

MxCC is versatile and is suitable not only for security applications

As professional video management software, MxCC is subject to no restrictions – either with regard to technology or system size. It makes no difference if you only want to use one camera like the shop owner on the corner – or several hundred simultaneously like an international football arena..

For Every Situation

The possibilities of MxCC – primarily in combination with the high-resolution network cameras from MOBOTIX – far exceed the standard of a traditional video management system. The program layout and functions can be tailored for nearly any application and any user type.

MxCC in use (from left to right): Traffic monitoring in Ghent, Lohbrügge power plant and Commerzbank



The Flexible Video Management System For

industrial companies of any size, retail stores, law offices and practices, security companies and services, municipal and public facilities, banks and savings banks, private teaching and care institutions (e.g. nursing homes).

MxCC is perfectly suited for **controlling security-oriented CCTV systems**; however, it is also a suitable operating software for the **video monitoring of production processes**, for preparing **time lapse videos**, for documenting construction progress and for **controlling information monitors with live video** in car washes or events.

For A Variety Of Camera Systems (Hybrid Solution)

MOBOTIX makes it especially easy to decide in favor of the decentralized, high-resolution video system. MxCC not only operates optimally with MOBOTIX cameras, but also allows you to continue using already existing video cameras from other manufacturers (hybrid solution). **IP cameras and even analog, motor-controlled PTZ cameras can be integrated, displayed live and remotely controlled via a virtual or real joystick.** The recorded videos of these third-party cameras can also be evaluated and exported at the monitor with MxCC.

PTZ (pan/tilt/zoom)



For A Minimum Of Hardware Requirements

Once again, the decentralized camera technology plays a part as the system advantage of decisive importance. Because the MOBOTIX cameras and not the video management software perform the computational work (e.g. movement detection, recording, storage, etc.), **MxCC needs only one standard PC with a monitor as the hardware platform.**

Clock rate > 1 GHz

at least Windows XP SP3

minimum screen resolution 1280x960

The modern system configuration based on the Internet Protocol (IP) can set up and manage security projects of any size extremely economically using standardized network components and connection paths that are usually already available.

MxCC Is Used All Over The World By

shipping and transportation companies, event venues and leisure facilities, filling stations and automotive companies, hotels and restaurants, farming operations, private individuals (for example, residential and vacation homes, stables, autos, etc.)

All Functions At A Glance

Navigator

1

Layouts: A layout includes several cameras in video windows of any size or as clickable icons

Video sources: All cameras integrated in the security system

Event search: Individual search queries for specific cameras, events and time periods (e.g. all motion sensor alarms of the previous night at the parking lot)

Local Archive: Stores photos of all registered shoplifters or persons banned from the store, for example

Video Player

2

Playback of recorded videos or single images; also simultaneously shows the videos of all cameras that have made recordings at a specific point in time or immediately before or after

PTZ Controls

3

Control of the pan/tilt functions and image detail enlargement of one camera (PTZ = pan/tilt/zoom using a virtual joystick)

Camera Soft Buttons

4

Contain all individually programmed functions of a selected camera (e.g. special image setting, start irrigation via camera, etc.)



Get Started Now With MxCC

No costs, no risk! Log on to the MOBOTIX website now and start your free download of MxCC: "www.mobotix.com > Support > Software-Downloads" (www.mobotix.com/other/Support/Software-Downloads).



Title Bar

5

For a quick orientation, primarily when several program windows are open or distributed to different monitors

Menu Bar

6

Function areas with associated sub-menu items such as Switch views, Open files, etc.

Toolbar

7

Buttons for the most important functions such as live announcements via a camera or printing

Display Panel

8

All cameras of the currently selected layout (e.g. all cameras of the Hamburg branch office) display as a grid or embed as an icon/video window in a background image (e.g. real building plan)

Alarm List

9

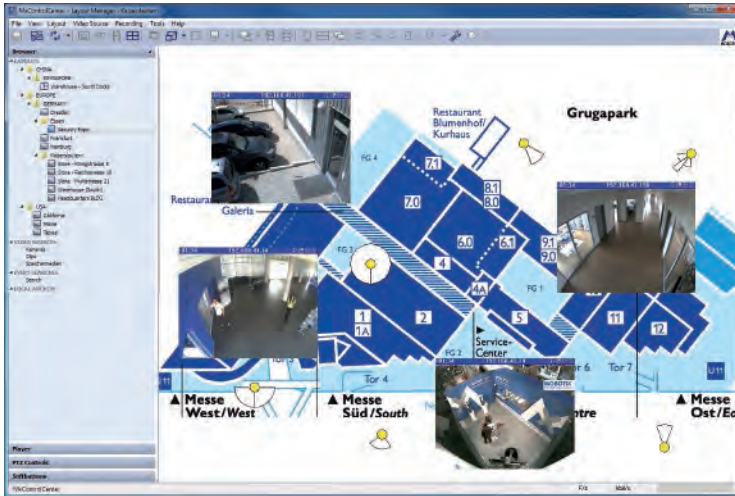
Chronological display of the alarm images from all cameras; a double click opens the search that can be used to view and export any recorded alarm



Software Included

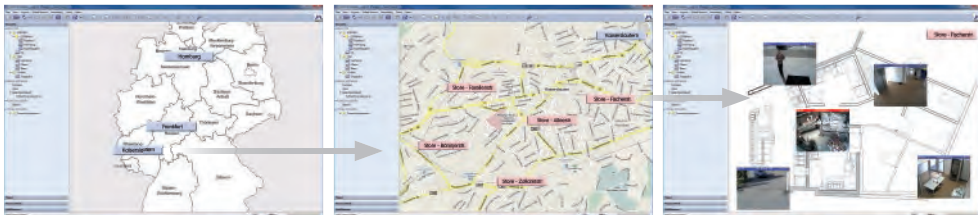
With MOBOTIX, the software for controlling the camera and searching data can be used at no charge. You can easily control the video system from any standard PC. This even works worldwide using a DSL Internet connection.

In addition to live images, the most recent alarms or recordings can also be displayed in the plan immediately. **Special MxCC camera symbols contain information about every camera type and lens positioning.** Any number of these types of building plans can be created in MxCC.



Each layout can also contain buttons for switching devices integrated in the network (e.g. light, door opener, blinds)

Various building plans can also be linked together directly. This allows a fast search for the camera, for example, at the customer parking lot of branch XY via real maps:



A German map contains links to all branch establishments > each branch establishment with all branches > each branch with its building plan > building plan XY with parking lot camera and five additional cameras.

Technological Leader In The Area Of Network Cameras

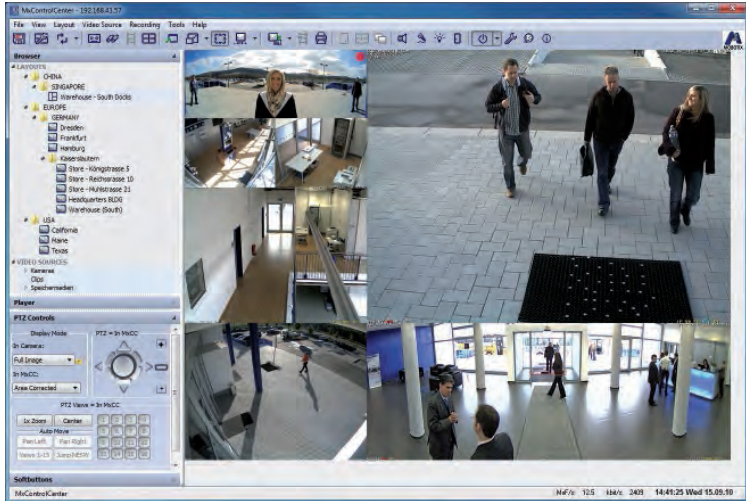
MOBOTIX is considered the world market leader for high-resolution video systems. Each camera includes a high-speed processor and also digital memory (SD Card) for long-term recording (decentralized MOBOTIX concept).

Practical Camera Layouts

Individual Grid Layouts

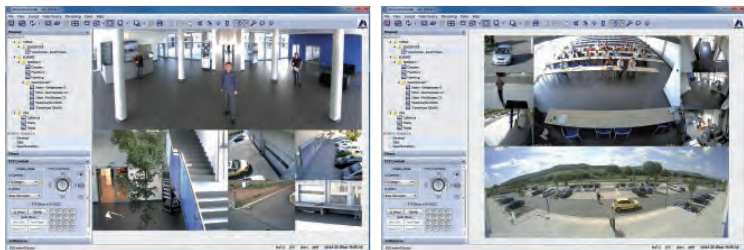
In addition to the background layouts with map and building plans, the image windows (live video film or only preview image) of several dozen cameras can be displayed simultaneously in a grid defined by the user with varying window sizes.

In a grid layout the image windows can be of varying size, e.g. for panorama images



Grid layouts can display not only current live images of selected cameras but also preview images of the most recent alarms (triggered, for example, by movement in the image) automatically in the display panel of alternating live images of specific cameras (sequencers), video clips recorded before in loop mode, and many more.

A specific layout can be assigned to the cameras, preferably in case of alarm (location layout)



Example: Alarm In The Branch Operation

The location layout of the branch office reporting the alarm is automatically displayed to the security officer in the company headquarters with important data such as contact persons, the security guard's mobile phone number, the telephone number of the closest police station, etc.

Auto grid is a grid layout where the display panel is automatically split by MxCC into smaller sections to show the various video sources. The user thus does not have to bother with the breakdown.

Grid layouts are always needed in practical situations when the display of the video sources is located in the foreground. As with the building plans, **any number of grid layouts can be created and stored with a generally unlimited number of cameras as well.**

The live image displayed on the screen can be adapted to the available bandwidth of the transmission path to the camera. For instance, a camera image is displayed every ten seconds; under alarm conditions the system can automatically switch to a higher image repetition rate. As a consequence, the load on the network is effectively relieved and the bandwidth-dependent transmission costs are considerably reduced.

Cost savings resulting from reduced bandwidth requirements



MxCC lets you prepare individual grids from grid elements of varying size – from 80x80 to 320x240 up to a maximum of 2560x960 pixels – with little effort. The available space will be divided up according to the width of the display panel.

Remote Configuration Of MxCC

When MxCC computers are networked at different locations (e.g. company headquarters and worldwide branches), the system administrator can configure each workstation remotely (logging on via the network and changing the MxCC configuration).

Cost Efficient Monitor Wall Solution



Plan Monitor Walls Efficiently And Economically

Monitor walls can be found in many professional control centers. They are generally made up of a large number of screens in which the live images from one or more cameras are displayed simultaneously on each monitor. The display and distribution of the cameras to the individual monitors is controlled by a central computer. However, depending on the size of the monitor wall and the number of integrated cameras, this usually requires very high computing power which can no longer be provided by standard hardware.

With MxCC and the Thin Client patent-pending concept invented by MOBOTIX, MOBOTIX offers a monitor wall control which can be controlled remotely from a single workstation economically and efficiently.

For this purpose, a standard PC with MxCC used as a main computer is connected to the cameras and any number of economical mini-PCs with an MxCC installed as Thin Clients via the video network. In turn, each Thin Client is connected to a monitor on which the images of one or a small number of cameras are displayed.

The highest computing power to fetch and display camera images via network is thus transferred from the central main computer to each decentralized Thin Client. However, the image displayed by each Thin Client on the monitor can be converted as desired via the main computer by a mouse click and MxCC. The main computer activates a port of the Thin Client's IP address in a purely technical manner and transfers the preset monitor display as a network message ("now switch to MxCC display x using cameras y and z").

Decentralized Video Wall: Reduces Costs, Increases Reliability

- Easy-to-implement **decentralized concept for video walls of any size**
- **No licensing fees and no additional software required except for MxCC**
- **Cost-effective mini PCs as thin clients** (no keyboard, no hard drive)
- If a **thin client malfunctions**, its display can **simply be switched to a different monitor**
- Layout of video walls can be modified with a network command; the command can also be **automatically** triggered by specific events or at specific times **from a MOBOTIX camera**
- **Scenarios can be defined** (e.g. all parking spaces, all vehicle access points), and allows you to switch between individual monitors and **the entire video wall at the push of a button**

Thin Clients

A Thin Client is a mini-PC that has a network connection and a monitor connection. Although MxCC runs on Thin Client, no keyboard or hard disk is needed, as it is controlled remotely via the main computer.



The layout displayed on each Thin Client monitor can be changed via the main computer (remote control function of MxCC).

Decentralized Monitor Wall

The solution presented is an innovative, patent-pending invention by MOBOTIX. Any number of camera layouts can be stored in MxCC; they can be transferred to the Thin Clients via network by pressing a button.

More Security In Case Of An Alarm

Whoever understands video surveillance systems knows that the surveillance personal has to constantly and permanently monitor the video terminals of all installed cameras at all times in order to discover an event, and notify the police. MxCC and the intelligent network cameras with built-in sensors can detect disturbances independently and react with the necessary actions at lightning speed. **This can be done without the need for staff surveillance and at all times.**

MOBOTIX cameras can make eventdriven recordings even without a PC or DVR switched on and can digitally store videos lon term with sound



Recordable Events By A MOBOTIX Camera

In addition to an integrated high-performance computer, a modern MOBOTIX camera has a high-quality image sensor for high-resolution images to be used as evidence, supported by full duplex audio with a microphone and speaker for lip-synchronized sound, a passive infrared sensor (PIR), a temperature sensor, and can be connected to, for example, external smoke sensors and an electrical door closing device via various camera connections. Depending on the application, a camera can be programmed in MxCC in such a way to automatically:

- **record movements** and persons in the (sub)area detected by the camera using digital image analysis or PIR,
- **detect temperature changes** and **noises**,
- process external **signal** inputs.

Robust, Low-Maintenance Technology

In general, MOBOTIX cameras have no moving parts. This makes the cameras very resistant to wear and tear, and reduces both maintenance costs and power consumption.

What Happens Then: Recording, Alarm Message, etc.

When a camera is programmed to record all movements/persons in the warehouse of a shoe store outside of opening hours, the MxCC user is offered a multitude of reactions that are automatically triggered by the camera and/or video management system - jointly or individually:

- The incident is recorded as **video with sound and displayed in the MxCC alarm list**.
- The camera emits an **acoustical alarm** or plays an **audio file**.
- The camera sends **e-Mails or SMS (via a provider) with an alarm image** or calls previously defined **telephone numbers**.
- Devices integrated in the system such as **lights or door locks** are switched on.
- **An alarm is sent to selected PC workstations with MxCC**, displaying, for example the building plan including a live image of the camera reporting the alarm (location layout in case of alarm).
- **Display of instructions and important background information** in the location layout e.g., telephone numbers, contact persons, etc.).
- **Remote alarm alerting to an alarm center or the police** (e.g., by phone call or e-mail).



MOBOTIX cameras use VoIP/SIP and H.264 - i.e. the most advanced international telephone standard based on ISDN and analog telephony

Improved Chance Of Detection Thanks To Sound

In case of alarm, MOBOTIX cameras activate their built-in microphones and record lip-synchronized sound independent of the frame rate. In addition, the cameras can be used for bidirectional communication via a VoIP phone.

More Security In Case Of An Alarm

Acknowledging Alarms

The responsible person must act appropriately after an alarm is triggered. MxCC provides an **Acknowledgment Feature** that can be used to ensure that all alarms are noticed and checked. Once all alarms have been acknowledged, the status field of the alarm list changes from red to green.

Only after all alarms from the list are clicked does the status display switch from red to green (at the top)

For each alarm, the display shows how long ago it was



Example:

If, for example, a camera detects the movements of an intruder in the area it records (video motion detection) in the sales room of a retail branch location at night, the **camera immediately triggers an acoustical alarm automatically via signal outputs and a network connection, contacts the security service via e-mail with an alarm image attachment, and sends an alarm SMS (via a provider) to the mobile telephone of the security guard in charge.**

The building plan of the sales room of the branch in question opens automatically in the central **security control center of the headquarters**, in which the **live image from the camera reporting the alarm is in turn displayed**. The security staff at the MxCC control center immediately have a view of the cameras in the immediate surroundings and can directly access their live images and recordings.

In addition, the **trendsetting VoIP/SIP technology of the MOBOTIX cameras makes it possible to listen to the intruder live** from anywhere via camera and MxCC or a smart phone. Of course, announcements can also be made.

MOBOTIX Network Cameras – Powerful, Yet Efficient

Less than four watts are enough to power a high-resolution MOBOTIX network camera, including all integrated features such as motion detection and long-term internal storage connected and supplied via the two-wire cable.



The MOBOTIX camera detects the intruder and triggers an alarm.

The branch office plan including alarm-triggering and additional cameras appears automatically on the monitor

The location layout can be determined individually per camera alarm

The security guard's iPhone reports the alarm and displays the live images from the camera

MOBOTIX Stores Data Reliably

Thanks to the lack of any moving parts, flash memory is particularly reliable and secure. The MOBOTIX FlashFile system (MxFFS) prevents unauthorized persons from reading or transferring the internally stored data, even if the card is stolen.

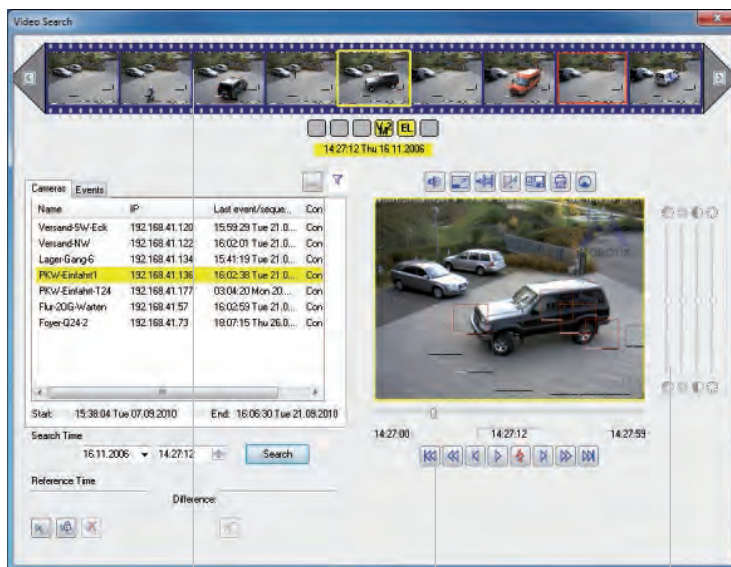
Fast Availability Of Video Evidence

Important events are recorded every day not only in connection with criminal acts. Sometimes a receptionist would simply like to know if someone rang the doorbell during his/her brief absence, or if an agitated customer really left his bank card at cash register 3 an hour ago.

In another case, it is important to filter out the decisive **video evidence as quickly and simply as possible from the recorded data and export it as evidence for a court of law – possibly printing it out.** MOBOTIX with MxCC has the right solutions available.

Time-Controlled Event Search

Searching for an event (e.g. shoplifting) that is supposed to have occurred at a known location is **particularly easy using the chronological display of all event recordings of one camera.** The search results are displayed in a time line – the selected event in a larger window. The **image settings** can be immediately optimized here and the event can be directly exported.



A mouse click makes a simple change to the recording of other cameras at the same point in time

Event Preview

Video Player

Image Post Processing

Secured Searches with SSL-Encryption

SSL encryption ensures that the data transferred from and to the camera are always encrypted. This makes it practically impossible for third parties to record the data and get possession of the access data.

Time Search For Multiple Cameras

The synchronization function via timeserver lets you store all cameras integrated in MxCC with the same system time. This is an important prerequisite for data to meet court standards, but also for the special MxCC function of **directly finding all events that were recorded in a specific time period and displaying them together on the monitor**.

For example, **the path of an intruder from the parking lot until the break-in** can be traced in the server room. The compiled video reproduces the complete event up to the point when the stolen devices are loaded into the trunk of a vehicle with a recognizable license plate. It can thus provide valuable evidence for further criminal investigation.



This event sequence (1 to 9) recorded by several cameras can be stored in MxCC as a complete video

And what is most useful: In the event search, you discover the man with the suitcase in the parking lot. By stopping the recording, you now know the exact system time.

Then you simply press a button to have all cameras in the immediate area display the event recordings from this point in time on the monitor.

Network Power Adapter Set For All Cameras

An important requirement for data to be admitted as evidence in a court: All cameras integrated in MxCC store data at the same system time, as a time synchronization is performed via a time server (via Web and master camera).

Fast Availability Of Video Evidence

Variable search criteria can be easily stored with MxCC and brought up at the push of a button

High Speed Search At The Push Of A Button (Customer Specific)

Using the **integrated storage function** of the MOBOTIX cameras **reduces the permanent network load, which in turn speeds up the event search.** And it is guaranteed that a search for specific cameras in a specified time period which is predefined and stored by the user in MxCC will deliver the results even faster. In this case, MxCC offers the great advantage while it does not require repetitive entry of search criteria for each individual search.

For example, **the recorded event videos of the last hour and only from the cameras at the entrances and exits are immediately displayed to a security service manager at the push of a button.** This predefined search function (one hour ago, all cameras x to y) lets him know after each inspection round who drove onto and left the company premises based on the recorded license plates.

The screenshot displays the MxControlCenter software interface. On the left, there is a sidebar with sections for 'Search Criteria', 'Table of predefined Event Searches', and 'Search Results'. The main area shows a grid of video thumbnails. Below the grid is a 'Video Player' showing a larger view of a selected video. At the bottom, a 'Quickfinder' feature displays an 'event histogram' with vertical bars representing event occurrences over time. Labels with lines pointing to these features are: 'Search Criteria', 'Table of predefined Event Searches', 'Search Results', 'Video Player', 'Quickfinder', and 'Selected Video'.

In order to directly obtain video clips with many events in succession, a **quickfinder with an event histogram** is displayed for immediate access using a mouse. The number and height of the vertical bars symbolizes the number and duration of the events (many bars = many events).

Keeping Track Of All Events

The event search combines a series of practical functions designed to simplify the search for events. MxControlCenter also supports synchronized and simultaneous event searches on several cameras.

Filtering Events

The recordings can be **filtered specifically for special event types (e.g. switch contacts, IR motion sensors, doorbell)**. One example that may be cited is filtering for only the images recorded at the video door stations after the doorbell is pressed.

Convenient Playback Functions

Clicking directly on the preview window of a stored event activates the **video player integrated in MxCC**. Selected video clips can be scrolled forwards and backwards quickly or simply image by image. Details in still images can be enlarged via the zoom function. The perspective of images distorted by very wide-angle lenses can be corrected digitally for easier evaluation.

Printing Event Images

If an image has been corrected or zoomed by post-processing, the original, non-processed image will also be printed. A print file can also be output as a PDF for easy sending and archiving of printouts.

Video Export Made Easy

MxCC makes the processing and export of recorded video clips with sound particularly easy. **Both individual and several clips can be selected and exported at once by a mouse click**. They can be either unprocessed original clips or files to process later, e.g. only relevant time sequences or details changed using PTZ.

MOBOTIX has developed its own compression method as MxPEG. It requires less network load and computing power and is accordingly extremely efficient. For third parties, these MxPEG videos can be exported together with a simple viewer version of MxCC that can only be used for pure playback and viewing. However, direct export in standard data formats such as **AVI or MJPEG** is also available with MxCC.



MxCC printout with original image (above) and zoom image (below)



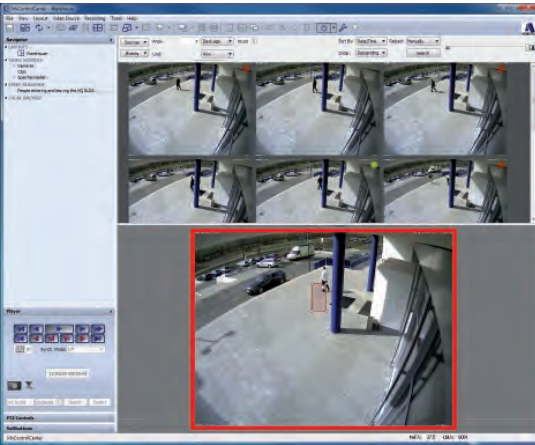
Camera IP Address: 10.8.0.118
Recording time: 9/15/2010 3:52 PM • printing time: 9/15/2010 3:52 PM

www.mobotix.com

Useful Images Despite Backlight

MOBOTIX cameras are not adversely affected by the glare from direct sunlight. The programming of individual exposure windows enables them to provide useful and highly detailed images at any time. This makes them ideal for business spaces with large glass fronts, for example.

Get The Most Of What Is There



Later Video Movement Detection

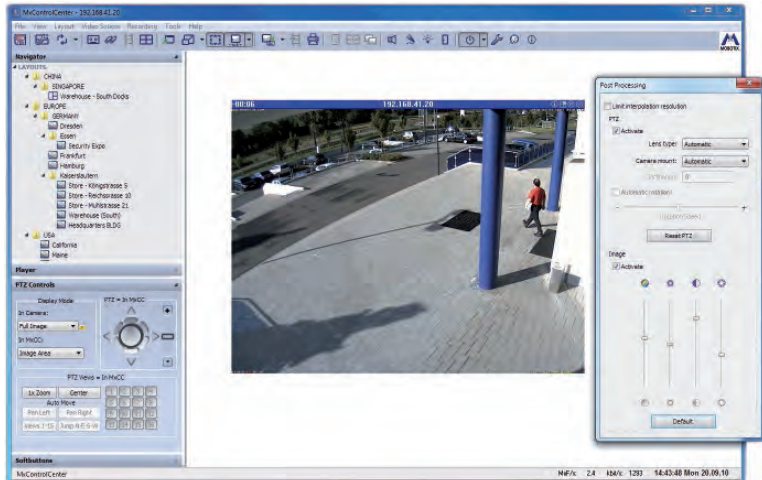
Each video recording of a MOBOTIX camera can also be searched later in MxCC for changes using the **VM windows feature (VM = Video Motion)**. For example, a VM window is placed over a door using the mouse and the recording sequences are immediately displayed in which something occurred only at the door at a specified time frame.

The high-performance computer in the camera allows this post-VM evaluation to be done extremely rapidly.

Fine Adjustment For More Meaningful Images

Not only detail and enlargement but also contrast, saturation and brightness can be finely adjusted with MxCC in both live and recorded images/videos for an optimal evaluation or data export. The unprocessed image data of the original camera recording are preserved and are always included in storage.

Despite later fine adjustment or change of image size, the original image is always preserved as well



Increased Resolution Reduces Amount Of Cameras Needed

High-resolution sensors provide a better overview and, as a result, far fewer cameras are needed to completely monitor a building or area. The absence of mechanical moving parts guarantees longevity without maintenance expense

Automatic Distortion Correction – Live And In The Recording

The correction of wide-angle lenses at up to 180° fisheye is integrated as a standard feature, in both the live display and playback. When a correction takes place in the camera, hardly any load is placed on neither the network nor the control center computer while the image is already transferred after correction. Uncorrected recordings can still be corrected later using MxCC.



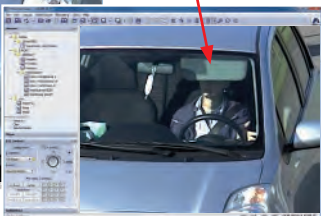
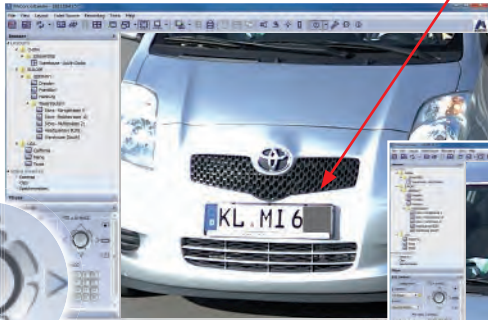
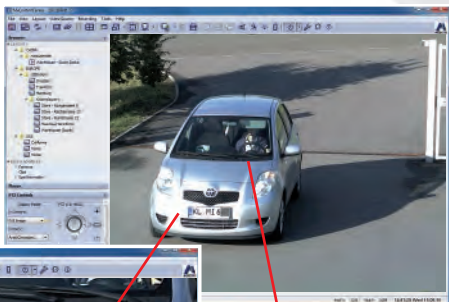
Fisheye (original image)



Double panorama (corrected)

PTZ (Pan/Tilt/Zoom) – Live And In The Recording

The cameras can be moved by remote control and the images zoomed both via the **virtual joystick integrated in the software** and via a **real, connected joystick**. In MOBOTIX cameras, this is always done using digital technology without moving components, which makes the system particularly low maintenance.



High-resolution images can be zoomed digitally (entirely without a motor)

Recorded video sequences can also be analyzed later using PTZ. MxCC offers an intuitive, virtual joystick for pan/tilt/zoom.

Operation Using The Mouse And Joystick

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

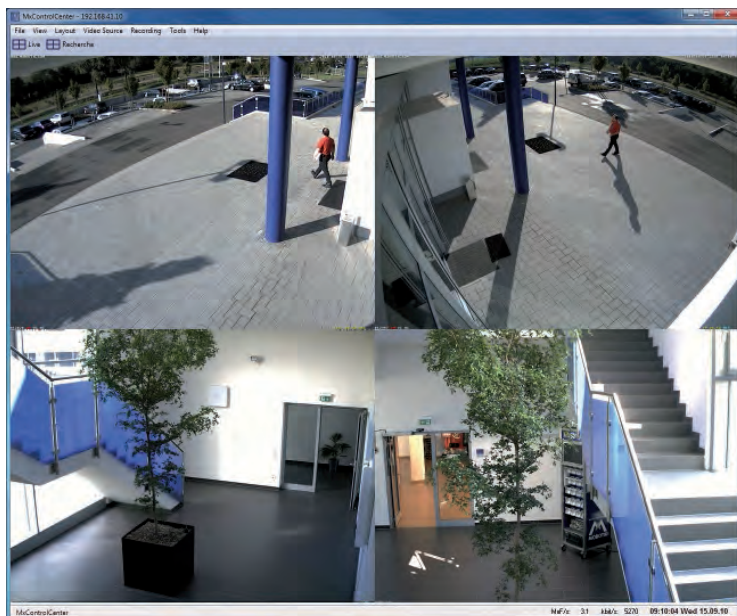
Secure Handling Of Sensitive Data

When an advantageous modern video monitoring solution is used, which is to some extent even legally required, special care must be shown in the use of the recorded data. MOBOTIX has therefore integrated several important security functions in MxCC which ease the daily work of all users and prevent undesired data abuse already in advance.

User-Dependent And Group-Dependent Access Rights

It is neither desirable nor practical for every employee to be allowed and required to use the same, complete scope of functions of the video system and the management software. The tool **"Users & Groups"** in MxCC therefore provides the system administrator an extremely powerful and versatile tool for access rights.

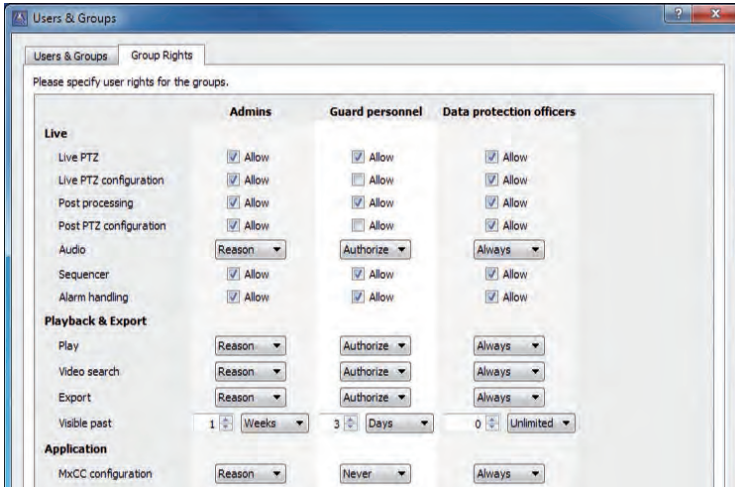
A reduced display of MxCC is sufficient for many users: large images and few control elements



Depending on whether a user or a user group is a system administrator, data protection officer, security guard, a cashier, house detective, manager, works council member, policeman or private person, **the program's user interface can have a different appearance**. The range extends from the live image recorded by a single camera to the professional desktop with all active MxCC functions and control elements.

Comprehensive Tool For Access Rights

The tool **"Users & Groups"** provides the administrator an extremely powerful and versatile tool for access rights. This makes it possible to limit the event search for individual users to the last 30 minutes.



Access rights can be provided especially simply and rapidly with a few clicks of the mouse

Scheduled Access Control

The basic functions activated for a user can be individualized even further. For example, the event search can be limited to the last 30 minutes and only for specific cameras.

Dual Control Prevents Uncontrolled Data Transfer

By permitting a supervisor, MxCC prevents unexamined data disclosure to third parties. In this respect, a supervisor (e.g. company data protection officer) must first activate the data export function by password entry and directly on the PC of the house detective.

User Logs Against Data Abuse

In order to see which persons have used functions of MxCC at a specific time, an authorized person can bring up the complete **action logs** of all registered users. **This makes it possible to see at a glance who has, for example, exported stored video data from the system.** Possible attempts of abuse can already be detected in advance.

Dead Man's Switch (In The MxCC Toolbar) Provides Staff Protection

To be sure that a security control center is occupied and that the staff is not in danger, an alarm is sent on request by email or phone call in case the deadman switch was not operated for an extended period.

Flexible Language Concept

MxCC is available in German, English, French, Chinese, Italian, Japanese, Dutch, Russian and Spanish. MOBOTIX offers a free "translation package" for all other (self-generating) language versions.

Automatic installation

You do not have to be a software specialist to set up MxCC. An installation assistant guides you step by step. All cameras installed in the network, newly added or removed are automatically found by MxCC, even in current operation, and can be configured and remotely operated as desired.

Fast Configuration In MxCC

With MxCC you can push a button to get an overview of all available cameras and their basic settings such as the status of the camera arming, type or recording or storage location. You can change the configuration settings for individual, several or all MOBOTIX cameras at once.

Exposure control: To set the optimal exposure, you can use the camera's predefined exposure window or set up your own exposure window for adjusting to local circumstances (large window areas).

Event settings: In addition to other events, it is possible here to set up one or more camera image areas in which movements in the image trigger an automatic alarm.

Recording parameters: Events detected by the camera activate a recording with a specific frame rate, resolution and pre-alarm and post-alarm recording. In addition to the internal SD card recording, the camera can also store on a PC or NAS (e.g., SnapServer).

The intelligent, digital MOBOTIX video technology offers a multitude of useful functions that only recently seemed unimaginable



Installation With Automatic Camera Search

MxCC supports all MOBOTIX functions such as dual sensor or hemispheric technology and automatically finds all cameras in the network at the push of a button. An integrated update assistant makes it possible to rapidly manage many cameras simultaneously.

Installing MOBOTIX cameras

With MOBOTIX, both software and hardware are equally easy to install. Unpack the camera, screw it to the ceiling, wall or pole. Connect the network cable and you are done. Probably no other camera can be connected more **quickly or easily**.

Integration Of MOBOTIX Video Door Stations

MxCC also integrates the new **MOBOTIX T24 IP video door station** – you can open the door, switch on the lights and speak over the intercom with a live image very comfortably from any MxCC workstation.



The hemispheric door camera captures the entire entrance area without any blind spots, from wall to wall, floor to ceiling

Free Of Charge: A Convenient Update Assistant

A large share of the functions of the entire video security system is based on the software that is installed on every MOBOTIX camera – **without additional costs** and directly from the factory. You can get a free update conveniently via MxCC and synchronously for all the cameras in the network. Without changing to new hardware, you can use the **newest camera functions developed by MOBOTIX**. You can also obtain all MxCC updates free of charge at the push of a button.

Example

In a single step via the MxCC control center, the latest software is installed on all 270 MOBOTIX hemispheric cameras in the shops of a retail chain. Now this software also contains video analysis tools for customer behavior (available in 2011).



The video analysis "pursues" each person and shows which areas are frequented particularly heavily

Innovative Hemispheric Camera For A Perfect Overview

With only one lens, a MOBOTIX hemispheric camera makes it possible to have a hemispheric 360° panorama view – from wall to wall, from the floor to the ceiling. The fisheye effect, which is typical for this lens, can be corrected digitally in the live image.

Total Costs Make The Difference

MxCC For No Cost At All, But...

... isn't the entire system with the necessary hardware and software very expensive all the same? **Clear answer: No!** The high-resolution MOBOTIX systems with fewer cameras, less installation and fewer recording devices (servers) offer unbeatable value for the money.

While many people still believe that IP cameras do not become more cost efficient than an analog system until a relatively high number of cameras is purchased, MOBOTIX proves that even small installations can be implemented extremely cost efficiently with a high-resolution system.

Fewer Cameras Thanks To Higher Resolution

The more accurate detail of megapixel technology requires fewer cameras compared to conventional solutions.

A MOBOTIX camera delivers up to 30 times more details than analog systems and replaces as many as six standard cameras



Less Cabling

Because MOBOTIX cameras are simply connected via the network cable and are simultaneously supplied with energy, their installation is significantly simpler, faster and more economical than in all other camera systems.

Less Network And Storage Load

MOBOTIX cameras can record on flash memory devices (such as MicroSD cards) to help reduce the load on the network. Through the camera's efficient internal software, MOBOTIX allow a standard network storage medium to have enough capacity **to record 10 times more cameras than is ordinarily the case.**



Conventional video system	MOBOTIX complete HiRes solution	
Cameras		
3x dome cameras	2,700	1x (store/cash register) 798
4x cameras with weather protection	4,000	1x D24M (4 gas pumps) 748
2x cameras with weather protection	2,000	2x D24M (car wash) 1,496
1x mechanical dome camera	2,300	1x M24M-Sec (repair shop) 798
2x day/night cameras	2,200	1x M12DNight (car dealership) 1,398
Costs	13,200	5,238
Network infrastructure		
500 m coaxial cabling	1,000	300 m CAT 5 cabling 600
500 m power supply cabling	1,000	1x 8-port switch 500
Costs	2,000	1,100
Camera software / licenses		
Costs	1,000	0
Central recording		Internal video recording
DVR system + software	4,900	6x SD card 4 GB incl. 0
Total costs	21,100	6,338

All figures in euros • Material costs without installation

Savings 70%

This example is based on an **average gas station with four lanes, store, car wash and repair shop**. The left column shows the costs of a conventional centralized storage video systems while the right column shows the costs of MOBOTIX. According to the calculations in this example, the savings with MOBOTIX come to 70% - the reasons are simple: **Fewer cameras thanks to more detail, no software costs, no additional data storage devices, no weatherproof housing with heating and less cabling.**

MicroSD Card With 64 GB Offers Plenty Of Storage Space

In a MOBOTIX camera, 64 GB of internal storage is sufficient for two weeks of 24/7 surveillance of four gas station lanes, four days of video in TV quality, 200,000 10-second clips in high resolution, or two million individual images.

An Example: Donbass Arena, Ukraine



A Football Dome Of Superlatives

The **Donbass Arena** built in the Ukrainian industrial city of Donetsk for 400 million US dollars opened its doors on August 29, 2009. The highly modern football stadium with a seating capacity of 51,504 (93% under roof) is the home base of FK Schachtar Donetsk (the Ukrainian champion many times over) and will be an important **venue of the European Football Championship in 2012**. The stadium has over 1,000 parking spaces, more than 60 restaurants, bars and cafés, numerous shops, VIP areas, a fitness center and even a football museum. In addition to sporting events, the

stadium is also used for large company events, international concerts and shows. By giving the Donbass Arena its highest rating of 5 stars, FIFA categorized it as the first elite stadium in Eastern Europe.

The Most Advanced Network Infrastructure

A total of approximately 1,200 kilometers of electrical and data cable was installed in the Donbass Arena

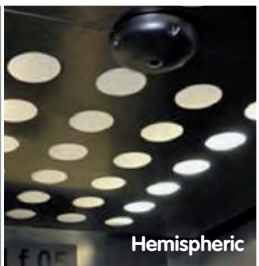
With 6,000 ports, the arena possesses one of the largest computer networks ever installed in the Ukraine. During construction, 60 kilometers of glass fiber cable and more than 400 kilometers of shielded Cat.6 copper cable were installed. This network simultaneously constitutes the perfect basis for an IP-based high-resolution video surveillance solution. To fulfill the expectations for elite status, **FIFA requires a permanent video surveillance system both within and outside of the stadium**. The cameras must have a still image function and be connected to color monitors housed in the control room.

High Demands On The Video System

The specifications for the Ukrainian MOBOTIX partner UNITOP responsible for the planning and installation of the video system contained the following minimum requirements:

- The recorded video material must permit identification of each individual visitor
- Recording of high-detail and thus high-resolution images evidence in case of adverse incidents in the surveillance areas
- Camera coverage of all entrances/exits, spectator stands, access paths and waiting areas, elevators, restaurants, shops, parking areas, offices, the museum and the server and equipment rooms

MOBOTIX cameras and MxCC fulfill the highest FIFA requirements without problems



Complete Solution Using 528 MOBOTIX Cameras And MxCC

After an intensive comparison with other providers, the decision was clearly made in favor of a complete MOBOTIX high-resolution, decentralized and weatherproof camera system with the free MxCC video management software, – featuring integrated software, storage unit and high-performance computer, simple integration in the existing computer network and the low number of cameras and network components.



Control center with MxCC workstations and 42" live image monitors

User interface in Russian



All in all, the installation comprises 528 MOBOTIX cameras that record to four SAN servers (a total of 210 terabytes). The video control center completely uses MxCC and includes four workstations with several 42" monitors for live monitoring by the security staff plus two monitor workstations for administration and data archiving.

Shortly after installation, the system successfully proved its performance capability by identifying rowdy fans. "The police officers were actually more than surprised by the high-detail images to be used as evidence from our MOBOTIX cameras," happily commented Donbass Head of Security Sergey Burgela.



More International References

Bahrain Defense Hospital (Bahrain) • Donbass Arena UEFA EURO 2012 (Ukraine) • Hudson River Park (New York) • Central Bank of Philippines • Orange Mobile (Romania) • Police of Portofino (Italy) • Republic Polytechnic (Singapore) • Sderbank of Russia (Ukraine) • Vatican Apostolic Library (Vatican City) • etc.

MxControlCenter Functions		
General		
Number of manageable cameras	Yes	Practically unlimited number of cameras, license-free.
Integration of analog/digital cameras from third-party manufacturers	Yes, including PTZ control	Analog cameras can be integrated via MxServer; various IP cameras (from third-party manufacturers) can be integrated directly.
Decentralized system concept	Yes	Decentralized recording directly in the cameras with event detection and flexibly configurable alarm actions.
Cascadable installations	Yes	Central management and monitoring of several MxCC locations from a central MxCC location („branch operation“).
Joystick support	Yes	Complete support of current joysticks including storage/movement to positions (Presets).
Audio transmission	Yes, bidirectional	If supported by camera model.
License fees	No	No license fees, no hidden costs - MxControlCenter is available free of charge at www.mobotix.com .
Localized program versions	Yes	Available in nine languages: German, English, French, Chinese (PRC), Italian, Japanese, Dutch, Russian, Spanish.
Program views		
Standard program view	Yes, individually configurable	Complete program view with all functions.
Reduced program view	Yes, individually configurable	Minimal view showing only the usable functions.
Full Image	Yes, individually configurable	Complete utilization of the complete monitor area for display of building plans/grid layouts.
Work areas	Yes, individually configurable	Storage/loading of the current program view as work area; can be linked to user groups.
Monitor walls	Yes	Directly via an MxCC instance or by remote control of individual MxCC Thin Client computer.
Layouts		
Structured layouts	Yes, practically unlimited	Rapid grouping by shifting the layouts (“Tree structure”).
Linked layouts	Yes, practically unlimited	Simple navigation from overview plans to detail plans for branch operation.
Search/filter functions	Yes	Rapid finding of layouts (e.g. locations) by entering the search/filter criteria in the text field.
Process navigation of the layouts	Yes	Display of the most recently used layouts as in browser („forward“ and „back“ buttons with selection lists).
Building plans	Yes, practically unlimited	Symbol display with automatic alarm activation with live/player/alarm/focus windows.
Grid layouts	Yes, practically unlimited	Automatic, predefined and individually configurable grids available.
Layout sequencer	Yes	Shows all layouts for the set duration in succession.

MxControlCenter Functions		
Display		
Live image window	Yes, practically unlimited	Scalable display of the live images of one camera.
Player window	Yes, practically unlimited	For fast access to the recordings of one camera.
Alarm window	Yes	Automatic live display of the cameras reporting an alarm.
Sequencer window	Yes	No fixed camera assignment; shows all cameras in the layout for the set duration in succession.
Focus window	Yes	No fixed camera assignment; always shows the live stream of the camera most recently clicked.
Preview window	Yes, practically unlimited	Displays the bandwidth-optimized video stream of one camera which is integrated via narrow-band connection (GSM, UMTS, ...).
Video clips/images	Yes, practically unlimited	MxPEG clips and JPEG can be inserted in own windows, e.g. for demonstration purposes or to display emergency numbers.
Camera sequencer (for example, full Image)	Yes	Shows all cameras of a layout for the set duration in succession.
Symbol display	Yes, practically unlimited	Especially helpful on overview plans; clicking an icon displays the video stream in the focus window, automatic display of the most recent alarm in the alarm window.
Image processing		
Automatic correction of image distortion (wide-angle lenses)	Yes, in live image and in recordings	Storage of the original ensures that data are suitable for admission to a court of law
vPTZ control	Yes, in live image and in recordings	Software PTZ enables digital zooming/panning/tilting in the live image and in recordings.
PTZ control	Yes	Supports various rotor heads including Pelco D protocol and cameras from third-party manufacturers (e.g. Bosch, Siemens)
Image optimization	Yes, in live image and in recordings	Correction of brightness, saturation, contrast and sharpness; always printed with the original image (usable in a court of law).
Event detection		
Image analysis	Yes, decentralized	Movement detection within definable areas directly in the cameras; exclusion areas can be defined for interfering influences.
Movement analysis	Yes	Analysis of visitor flows including detection of direction of movement, change of direction and departing from sketched out paths.
Use of internal camera sensors	Yes	All camera sensors can trigger events (number/function dependent on camera model).
Logical combination of events	Yes	Event detection can be made dependent on preconditions.
Event Filter	Yes	Frequency of events per time period can lead to alarm or prevent alarm (alarm only when a specific number is exceeded).
Activation of external systems/sensors	Yes	Integration of e.g., alarm reporting systems, smoke detectors, light barriers possible via cameras

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MxControlCenter Functions		
Alarming		
Visual alarm	Yes	Entry in alarm list, immediate access to recording; prioritizable alarms.
Acoustic alarm	Yes	System sound or any sound files (WAV format) can be used including automatic repetition until alarm is acknowledged.
Remote activation	Yes	For example to alarm center/police with direct activation via network message, e-mail with alarm image, phone call.
Alarm acknowledgment	Yes	Including display of the point in time and ongoing display of the time passed since the alarm was reported.
Automatic activation of layouts	Yes	Activation by the camera reporting the alarm including selection of the specified layout.
Immediate access to emergency plans, etc.	Yes	Can be defined for each camera and brought up as an information file in the standard program (e.g. text, HTML, PDF, sound) can be retrieved.
Alarm to external locations	Yes	By e-mail, phone call, network message.
Recording		
Decentralized recording with file server synchronization	Yes, internal SD card or NAS	Flash recording integrated in the camera ensures high reliability; synchronization with the file server or NAS systems for extra storage and use of backup functions.
Event recording with audio channel	Yes	Event controlled recording is only started when the camera detects specific events; powerful internal sensors, flexible implementation of the requirements by connection of external sensors. Connection of external sensors is possible.
Continuous recording with audio channel	Yes	Continuous recording optional with fixed or reduced frame rate (min. 0.2 fps) using automatic frame rate adjustment if events are detected; continuous recording of the audio channel.
Full image recording	Yes, practically unlimited	Recording of the complete camera sensor image, independent of the current live display (e.g. PTZ).
Local archive	Yes	Storage on local computer drive.
Live recording	Yes	Direct storage of the live images in the local archive (recordings of suspicious events).
Evaluation of recordings		
Event search	Yes	Use of individually configurable search profiles (e.g. based on time, cameras, events).
Event histogram	Yes	Scheduled display of event frequency for fast finding of events.
Later movement detection	Yes	Analysis of recorded video files for movements in the desired area.
Parallel time-synchronized replay of several cameras	Yes	Replay of the recordings corresponding to the actual time sequence.
Reference time-based evaluation	Yes	A mouse click makes a simple change to the recording of other cameras at the same point in time (reference time).

MxControlCenter Functions		
Export		
Export list	Yes	Merging of selected video clips from different cameras for export purposes.
Various export formats	Yes	AVI and Quicktime video with sound.
Export optional with/without image correction/optimization	Yes	Export of the original data for use permissible in a court of law, export of prepared files for optimal view.
Security		
User management with group access rights	Yes	Group/user management including limitation of specific work areas and mandatory action commentaries.
Failure detection of individual cameras/storage systems	Yes	Including notification by phone call, e-mail, network message.
Dead man's switch	Yes	Including notification by e-mail.
Falsification safety	Yes	By signature of the recorded files; data integrity can be checked at the time of export.
Activity log	Yes	All activities of the users are recorded and can be traced; filter functions for fast access to desired information.
Time synchronization	Yes	Uniform system time through support of internal/external time servers.
Four-eyes principle	Yes	Clearance approval of function authenticated by a third party (supervisor, data protection officer).
"Private sphere" mode	Yes	To safeguard the private sphere including switching off image generation, microphone, etc. in the cameras and withdrawal of all previous user rights.
Installation/updates		
Transmission of complete work environments	Yes	By simple export directly from MxCC (fast configuration of several workstations).
Update assistant for program and cameras	Yes, practically unlimited	Convenient updating of MxCC and camera software including backup and restoration of all configuration data of the cameras.
Configuration		
Global configuration for multi-user systems	Yes	By access of all systems to a write-protected directory containing all relevant configuration data (including building plans, information files, etc.).
Centralized control of the program configurations	Yes	Import/export and modification of relevant configuration data of the branches by headquarters.
Special functions		
Translation of the user interface into own languages	Yes	Translation package available for MOBOTIX partners worldwide on www.mobotix.com .
Integration in other programs	Yes	Via HTTP-API for remote control of the most important functions (live image display, reproduction of recordings, activation of layouts, ...).

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Complete HiRes Video Solutions

high-resolution, digital & cost-effective recording



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. Whether in embassies, airports, railway stations, ports, gas stations, hotels or highways, MOBOTIX video systems have been in operation on every continent for years.

Pioneer In Network Camera Technology

In just a short time, MOBOTIX has climbed to the second place in European market share and fourth place worldwide in terms of market share. MOBOTIX has been exclusively manufacturing megapixel cameras for many years now and is regarded as the global market leader for high-resolution video systems. In the decentralized MOBOTIX concept, every camera has an integrated high-speed processor and, if needed, a digital memory (MicroSD/SD card) for long-term recording.

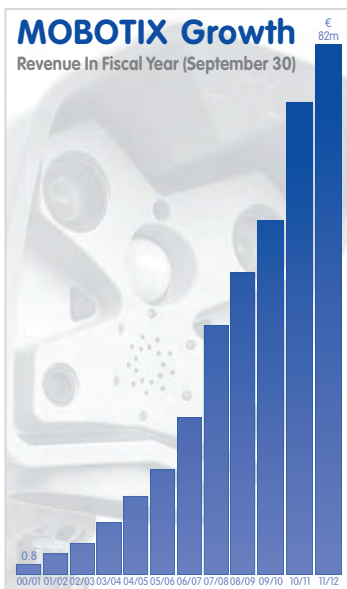
MOBOTIX cameras can make event-driven recordings even without a central PC or DVR and can digitally store videos long term with sound. This is why MOBOTIX solutions represent an unbeatably good value with their excellent image quality, even for small-scale installations.

Toll free: Sales and Support

Simply call us or send us an e-mail. We will get in touch with you promptly.

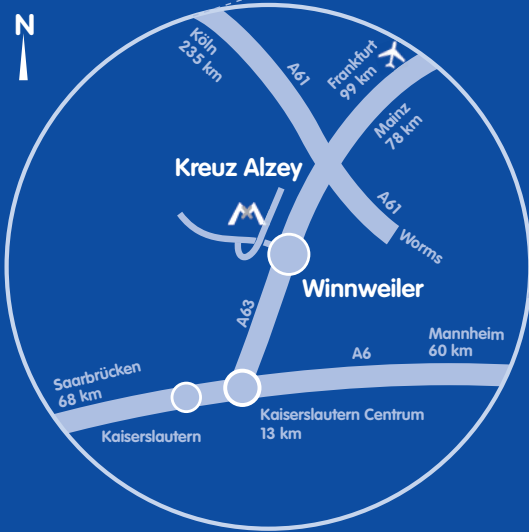
With MOBOTIX, you're in the best hands right from the start. Both our internal project managers and our experienced, highly specialized partners make sure that every system is planned and installed optimally. Our support specialists can help you with any technical questions you may have.

You can also consult
your electrician or
IT technician



MOBOTIX Training Programs And Seminars

MOBOTIX has its own training center with an extensive offering for all interested parties, customers, partners and security companies. MOBOTIX offers seminars for beginners and advanced users. For more information: www.mobotix.com.



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HiRes Video Innovations

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