

# M12D-Night Technical Specifications

## Dual-Lens Day&Night IP Camera



M12D with SecureFlex wall mount

### M12D: Megapixel IP Camera System With Integrated Recording

The M12D-Night has two integrated image sensors and two lenses. Depending on the illumination level, the camera automatically selects the color image sensor with daylight lens or the more light-sensitive B/W image sensor with IR lens to record the images.

The resolution of 1280 x 960 pixels is about twelve times as high as the CIF images from an analog camera. In VGA (640 x 480) and CIF (320 x 240) mode, the camera provides up to 4x zoom while creating minimal network load (MxPEG: approx. 1 Mbps, CIF 25 fps). Bidirectional audio, video motion detection and a passive IR sensor are also integrated. The Ethernet, ISDN and RS232 interfaces of the camera comply with current IT standards, including GSM/GPRS/UMTS (3G).

Digital zoom, panning, video motion detection, event-controlled frame rates and freely selectable image sections reduce the storage requirements of the M12 to a minimum. The integrated camera software features include alarm management with pre- and post-alarm images, FTP, e-mail, external ring buffer storage on Windows, Linux and Mac OS X computers as well as playback and MultiView functions for up to 40 cameras in the browser. Since the camera does not require additional heating (operating temp. -30 to +60°C, -20 to +140°F), power can be supplied via the network.

### Highlights

- In/Outdoor camera (IP65) with wall mount and fully concealed cabling
- Dual image sensors (two lenses), color and IR-sensitive B/W
- Integrated microphone and speaker
- Bidirectional IP & ISDN telephony
- Audio transmission to the browser
- Definable exposure zones
- Integrated video motion detection
- NightVision with up to 1 sec. exp. time
- Digital zoom and panning
- Video/audio recording and playback
- Software DVR for Windows/Linux/OS X
- Alarm management with pre- & post-alarm images

### Dual Camera System 2.5 Megapixels

- Fully digital color CMOS image sensor with 1280x960 pixels and backlight correction
- Fully digital B/W CMOS image sensor with 1280x960 pixels and eight times higher sensitivity than color sensor
- Two 8 mm standard wide-angle lenses: 5-element glass lens 1:2.0, 45° horiz.
- Optional: Tele lenses

### Automatic Exposure Without Iris

- Auto exposure times from 0.1 msec. to 1 sec.
- Configurable min./max. shutter speeds
- Freely definable exposure windows
- Purely software-based control with exposure windows, white balance, automatic contrast, sharpness filter and backlight correction
- MOBOTIX TrueColor software
- Individual exp. control for each image sensor

### Image Formats and Frame Rates

- Color 1280x960, 640x480, 320x240, 160x120
- Dual camera: 2560x960, 1280x480, 640x240
- Free image formats with zoom and panning (e.g. 1000x200 for skyline format)
- Image formats: JPEG, Motion JPEG, MxPEG, BMP
- Frame rate using MxPEG (320x240): 30 fps
- Frame rate using MxPEG (640x480): 30 fps

- Frame rate using MxPEG (1280 x 960): 10 fps
- Scheduled obscuring of image areas

### Image Storage Included

- Internal image storage (up to 600 Mega, 2,500 VGA, 4,000 CIF images or 6 min. video)
- Event and time-controlled image storage
- Adj. number of pre- and post-alarm images
- Browser playback with event search features

### Recording Included

- Integrated ring buffer recording by the camera on Windows or Linux file servers
- Event-controlled Snap Shot image recording with pre- and post-alarm images
- Event-controlled MxPEG recording (video and audio) with 2.4 Mbps at 640x480 pixels

### Video Management Included

- Ring buffer with up to 1 million alarms on the PC/server (no software installation or FTP!!!)
- Adjustable ring buffer size and delete schedule
- Image management with time/date search
- Definable MultiView for up to 30 cameras
- Freely definable function buttons
- MxViewer Windows client with Layout Editor

### Event/Alarm Control Included

- Freely definable time functions/repeats
- Passive IR motion sensor, signal input
- Temperature, illumination, microphone volume
- Motion detection in definable video motion fields
- TCP/IP messages on IP ports (Ethernet and ISDN)

### Alarm Signalling Included

- Signal output and audio messaging
- E-Mail and FTP via network or ISDN
- TCP/IP messages on IP ports (Ethernet and ISDN)
- Phone call (list & PIN code), with voice message

### Audio SIP Telephony and VoIP

- Integrated microphone and speaker
- ISDN telephony (with PIN code)
- Voice-over-IP to/from Windows PC
- Custom voice messages easily recorded
- Video IP telephony using SIP standard
- Automatic phone call on event/alarm
- Remote-control of camera from any phone
- Lip-synchronous audio recording (MxPEG)

### Software Everything Included

- No software installation required
- Live images and admin. using web browser
- Complete video management and recording software integrated in camera
- 4 simultaneous browser operating modes: HTML/JavaScript with M-JPEG, streaming (Java), ActiveX (MxPEG), PDA-optimized pages
- PDA interface with HTML-only pages (Pocket PC compatible)
- Website updates via FTP, also using ISDN
- Multiple cameras in one browser window
- Simultaneous ISDN dial-in/dial-out using PPP
- Freely definable user groups and access rights

### Power Supply 3 Watts

- Power supply via data cable, fully concealed
- PoE IEEE 802.3af compliant
- 3W power consumption

### Mechanics Maintenance-Free

- Fiber-reinforced housing with weather protection
- Integrated wall/ceiling mount with fully concealed cabling
- Weight (incl. SecureFlex wall mount): 850 g
- Dimensions (incl. SecureFlex wall mount): 130 x 240 x 175 mm (w x d x h)

### Characteristics

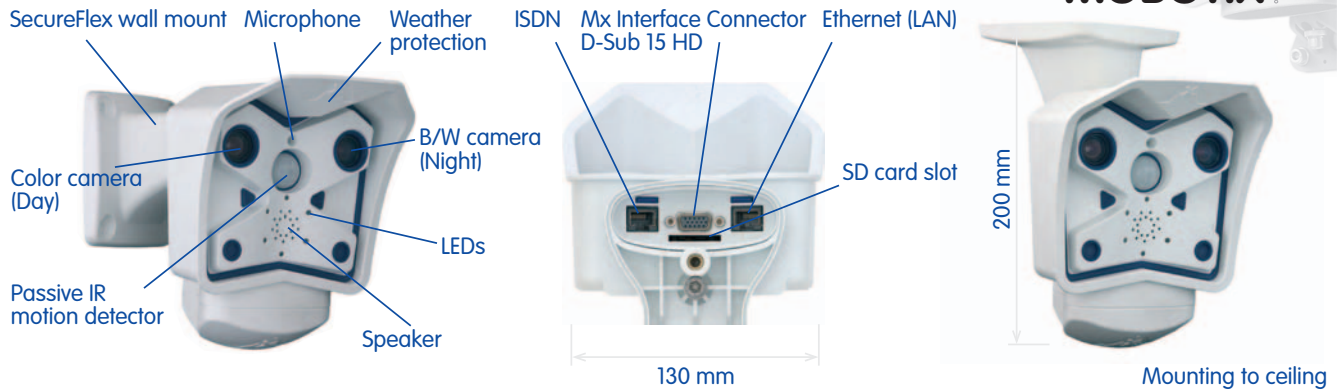
- Hardware resolution:  
Two 1280 x 960 CMOS, color and B/W  
Free software format with zoom/pan
- Frame/data rates for MxPEG video streaming (50% JPEG):
 

30 F/s	CIF (320x240)	1,2 Mbps
30 F/s	VGA (640x480)	2,4 Mbps
10 F/s	Mega (1280x960)	2,5 Mbps
- Day lens sensitivity (8 mm/2.0)  
1 Lux at 1/60 sec., 0.05 Lux at 1 sec.
- IR/Night lens sensitivity (8 mm/2.0)  
0.1 Lux at 1/60 sec., 0.005 Lux at 1 sec.
- Audio codec  
64 kBit ISDN and SIP (IP telephony)
- Temperature: -30° ... +60°C, IP 65

Technical information subject to change without notice

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### Outdoor wall mount with space for RJ45 wall outlet



L22 Super wide-angle 90°

L32 Wide-angle\*

L43 Wide-angle

L65 Tele\*

L135 Tele



90° hor. x 67° vert.  
in 10 m: 20.0 x 13.3 m

60° hor. x 45° vert.  
in 10 m: 11.5 x 8.2 m

45° hor. x 34° vert.  
in 10 m: 8.2 x 6.1 m

31° hor. x 23° vert.  
in 10 m: 5.5 x 4.0 m

15° hor. x 11° vert.  
in 10 m: 2.6 x 1.9 m

\*not available for M12

### Overview M12 Standard Models (see price list for details)

- M12M-Web-D43: In/outdoor camera for mounting to ceiling or wall, MEGA (1280x960), L43 wide angle lens
- M12D-IT-Night-D43N43: In/outdoor **Day/Night** camera (VGA) with one color, one B/W sensor, L43 wide angle lenses
- M12D-Sec-D22D135: In/outdoor camera for mounting to ceiling or wall, MEGA (1280x960), L22 super wide angle and L135 tele lens
- M12D-Sec-DNight-D22N22: In/outdoor **Day/Night** camera (MEGA) with one color, one B/W sensor, L22 super wide angle lenses
- M12D-Sec-DNight-D43N43: In/outdoor **Day/Night** camera (MEGA) with one color, one B/W sensor, L43 wide angle lenses

### Standard Delivery Includes

- M12D-Night camera
  - Camera with two camera modules
  - one color, one B/W image sensor and two lenses
  - automatic Day/Night switching
  - SecureFlex wall mount
  - Ethernet cable 50 cm
- SecureFlex wall mount
  - Wall mount made of 30% fiber-reinforced and shock-resistant PBT
  - Dowels and stainless steel screws

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### MX Interface Connector for Direct Connections

The MOBOTIX camera has **one switch input and one switch output** as well as **two signal inputs and two signal outputs** on the MX Interface Connector (D Sub 15 HD). You can use the camera's signal input/output pins, for example, to detect an opening door (using a Reed switch) or to switch on external device (e.g. a lamp).

The interface connector also has **Line In/Out pins for external audio devices**. You can use the Line In pin to have the camera transmit and record external audio signals (e.g. from an external microphone with pre-amplifier). On the other hand, the camera can use the Line Out pin to transmit sound to external devices (e.g. an audio amplifier). This in turn opens new possibilities as the camera can feed external loudspeakers (such as announcement systems on a train station) or it can use external and more sensitive microphones that can be placed farther away from the camera (e.g. when using a MOBOTIX camera as a video conferencing system and in access control scenarios).

Pin-out of MX Interface Connector D Sub 15 HD					
	PIN	Signal	Alternative	Description	Remarks
	5	GND		<b>Ground</b> for RS232, USB, Backup V-In	
Audio	4	Line-In +		<b>Audio input</b> , Line signal level $U_{RMS}=1V$	Galvanically isolated by transformer (DC decoupled)
	6	Line-In -			
	10	Line-Out +		<b>Audio output</b> , Line signal level $U_{RMS}=1V$	Galvanically isolated by transformer (DC decoupled)
	14	Line-Out -			
Signal	9	In 1		<b>Signal input</b> , active < 0,5V, inactive > +3V, max. voltage=24V	
	1	Out 1		<b>Signal output</b> , OpenCollector, active vs. GND, max. 24V/50mA, inactive 10kOhms vs. 3.3V	
USB	13	USB +5V		<b>Power supply</b> for USB devices 5V/100mA vs. GND	With backup power (12V) or PoE, 500mA also possible
	11	USB D+		<b>USB master data signals</b> , 0V to 3.3V	
	12	USB D-			
Serial interface	2	RxD	RxD-RS232	<b>active</b> = -3V to -12V, inactive = +3V to +12V	
			RxD-IO	<b>Signal input</b> , inactive: open or voltage > 3V, <b>active</b> : GND or voltage < 0V, max. ±12V	
	3	TxD	TxD-RS232	<b>active</b> = -3V to -12V, inactive = +3V to +12V	
			TxD-IO	<b>Signal output</b> , inactive: < 3V max. 3mA, <b>active</b> : > +3V max. 3mA, max. voltage ±12V	While the system reboots, the signal state is undefined
	7	RTS	RTS-RS232	<b>active</b> = +3V to +12V, inactive = -3V to -12V	
			RTS-IO	<b>Signal output</b> , inactive: < 3V max. 3mA, <b>active</b> : > +3V max. 3mA, max. voltage ±12V	While the system reboots, the signal state is undefined
	8	CTS	CTS-RS232	<b>active</b> = +3V to +12V, inactive = -3V to -12V	
			CTS-IO	<b>Signal input</b> , inactive: open or voltage > 3V, <b>active</b> : GND or voltage < 0V, max. ±12V	
	15	Backup V-In		<b>Backup power</b> 6V to 12V vs. GND, max. 1A	



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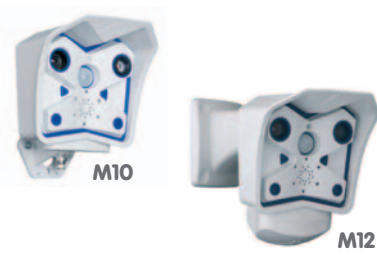
... the new face of IP video

### Hard- and Software Differences of the MOBOTIX M10/M12

To make a long story short – nothing changes with the basic functionality or the looks of the camera. Users, who have worked with M10 models before will not have any problems adjusting to a MOBOTIX M12.

Switching to the three times faster Intel "Bullverde" PXA270 processor with 520 MHz frequency has boosted image processing considerably, providing for notably higher image rates (up to 30 fps in VGA, up to 10 fps in MEGA resolution). The new hardware also brings new features, such as SIP video (Internet telephony with video) and new possibilities for extending the hardware (SD card, CF slots, MX Interface Connector, USB master pins for MOBOTIX expansion modules, etc.).

The following table shows the most important differences in the hardware and software:

	MOBOTIX M10	MOBOTIX M12
<b>Hardware Differences</b>		
Housing color	Gray or White	White
Wall/ceiling mount	Ball joint, SecureFlex mount for Secure models	SecureFlex mount covers RJ45 wall outlets and conceals the cabling (all models)
Lens options	Wide-angle L43, Tele 135	Super Wide-Angle L22, wide-angle L43, Tele 135
Serial interface	D Sub 9	D Sub 15 HD
USB connector	--	USB master (for MX expansion modules)
SD card*	--	SD card for extra storage
CF slot**	--	CF slot for MOBOTIX expansion modules (wireless, storage, ...)
Line In/Out pins for external audio devices	--	External microphones/PA systems via D Sub 15 HD
Backup power supply	--	Backup power (6 to 12 V, max. 1 A) via D Sub 15 HD
ISDN power supply	Power supply via ISDN NT	Power supply via ISDN NT not possible, but can be injected into 8-wire cable (split cable required)
PoE power supply	MOBOTIX PoE products (MX-NPA + power supply / NPR-4/8/20)	MOBOTIX PoE products and standard PoE IEEE 802.3af
<b>Software Differences</b>		
Frame rate (fps)	25 CIF • 12 VGA • 4 MEGA	30 CIF • 30 VGA • 10 MEGA
SIP video	--	SIP video

\* Available end of 2006  
 \*\* Supported in future software versions; only installed at the factory!