



Quick Installation

MOBOTIX VDS Thermal Camera

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Before You Start

This section contains the following information:

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Support

If you need technical support, please contact your MOBOTIX dealer. If your dealer cannot help you, he will contact the support channel to get an answer for you as quickly as possible.

If you have internet access, you can open the MOBOTIX help desk to find additional information and software updates. Please visit:

www.mobotix.com > [Support](#) > [Help Desk](#)



Safety Notes

- This product must not be used in locations exposed to the dangers of explosion.
- Electrical systems and equipment may only be installed, modified and maintained by a qualified electrician or under the direction and supervision of a qualified electrician in accordance with the applicable electrical guidelines. Make sure to properly set up all electrical connections.
- Make sure to install this product in a well-ventilated spot and do not close off any vent openings.
- Do not use this product in a dusty environment.
- Protect this product from moisture or water entering the housing.
- Make sure that you install this product as outlined in this document. A faulty installation can damage the product!
- Do not replace batteries of the product. Batteries can explode if they are replaced by an incorrect type.
- This equipment is not suitable for use in locations where children are likely to be present.
- If using a Class I adapter, the power cord shall be connected to a socket-outlet with proper ground connection.
- To comply with the requirements of EN 50130-4 regarding the power supply of alarm systems for 24/7 operation, it is highly recommended to use an uninterruptible power supply (UPS) for powering the product.
- This equipment is to be connected only to PoE networks without routing to other networks.

Legal Notes

Special Export Regulations!

Cameras with thermal image sensors ("thermal cameras") are subject to the special export regulations of the U.S.A. and including the ITAR (International Traffic in Arms Regulation):

- According to the currently applicable export regulations of the U.S.A. and the ITAR, cameras with thermal image sensors or parts thereof must not be exported to countries embargoed by the U.S.A., except if a special permit can be presented. At present, this applies to the following countries: Crimea region of Ukraine, Cuba, Iran, North Korea, Sudan, and Syria. The same export ban applies to all persons and institutions listed in "The Denied Persons List" (see www.bis.doc.gov, "Policy Guidance > Lists of Parties of Concern"; <https://www.treasury.gov/resource-center/sanctions/sdn-list/pages/default.aspx>).
- Under no circumstances must the camera itself or its thermal image sensors be used in the design, the development or in the production of nuclear, biological or chemical weapons or in the weapons themselves.

Legal Aspects of Video and Sound Recording

You must comply with all data protection regulations for video and sound monitoring when using MOBOTIX AG products. Depending on national laws and the installation location of the cameras, 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 applicable regulations and to comply with these laws. MOBOTIX AG is not liable for any illegal use of its products.

Declaration of Conformity

The products of MOBOTIX AG are certified according to the applicable regulations of the EC and other countries. You can find the declarations of conformity for the products of MOBOTIX AG on www.mobotix.com under **Support > Download Center > Certificates & Declarations of Conformity**.

RoHS Declaration

The products of MOBOTIX AG are in full compliance with European Unions Restrictions of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS Directive 2011/65/EC) as far as they are subject to these regulations (for the RoHS Declaration of MOBOTIX, please see www.mobotix.com, **Support > Download Center > Documentation > Brochures & Guides > Certificates**).

Disposal

Electrical and electronic products contain many valuable materials. For this reason, we recommend 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 must not be disposed of in 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).

Disclaimer

MOBOTIX AG does not assume any responsibility for damages, which are the result of improper use or failure to comply to the manuals or the applicable rules and regulations. Our General Terms and Conditions apply. You can download the current version of the **General Terms and Conditions** from our website at www.mobotix.com by clicking on the corresponding link at the bottom of every page.

Intended Use

The MOBOTIX VDS Thermal Camera Mx-M16TB-Rxxx-VdS is intended for use in environments with increased fire risk. It can be used, for example, in waste management to discover possible sources of fire at an early stage by detecting critical temperature thresholds and reporting them to the fire alarm system in use.

NOTE!**Important Information**

- The tested and approved temperature measurement range is between 50°C and 200°C/122°F and 392°F.
- The temperature events trigger when one pixel exceeds the threshold.
- The system must be operated with a power supply recognized according to DIN EN 54-4.
- A pan-tilt unit and an optional optical sensor module are not part of the VdS approval.

Tested Measurement Distances

Camera Type	Field of View (HxV)	Distance
M16TB-R079-VdS	45°x32°	40 m/132 ft
M16TB-R119-VdS	25°x19°	50 m/164 ft
M16TB-R237-VdS	17°x13°	60 m/197 ft

VdS Certification/Firmware

This product has the VdS certification number **G 222015**; the camera firmware must be **MX-V5.4.0.49-VdS**.

NOTE! Only a person who has successfully completed the MOBOTIX **VdS Early Fire Detection** certification training is allowed to make configuration changes!

System Overview

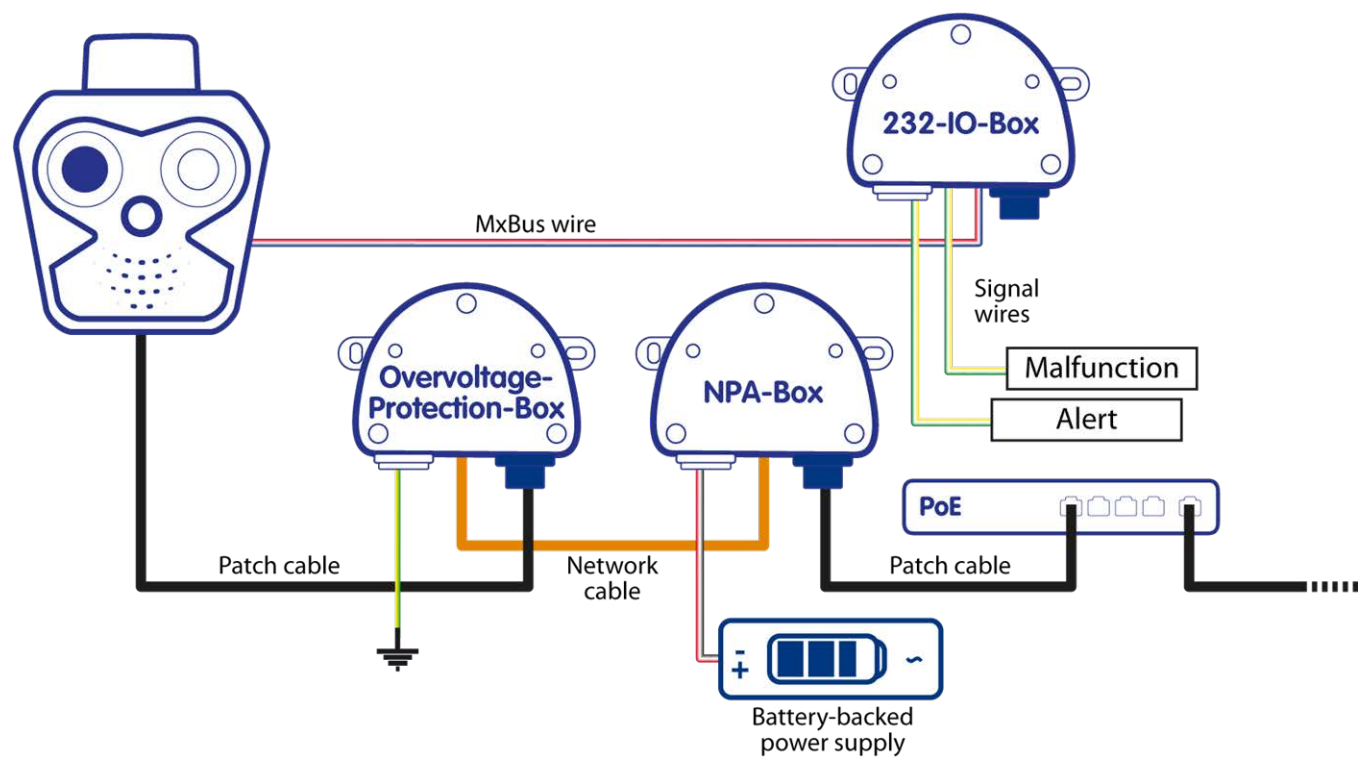


Fig. 1: Overview of the MOBOTIX VDS Thermal Camera

Delivered Parts and Dimensions

This section contains the following information:

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MOBOTIX VDS Thermal Camera: Scope of Delivery



Scope of delivery MOBOTIX VDS Thermal Camera

Item	Count	Description
1.1	1	Mx-M16TB-Rxxx-VdS
1.2	1	MX-232-IO-Box
1.3	1	MX-NPA-Box
1.4	1	MX-Overvoltage-Protection-Box-LSA

Installation

This section contains the following information:

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Wiring Overview

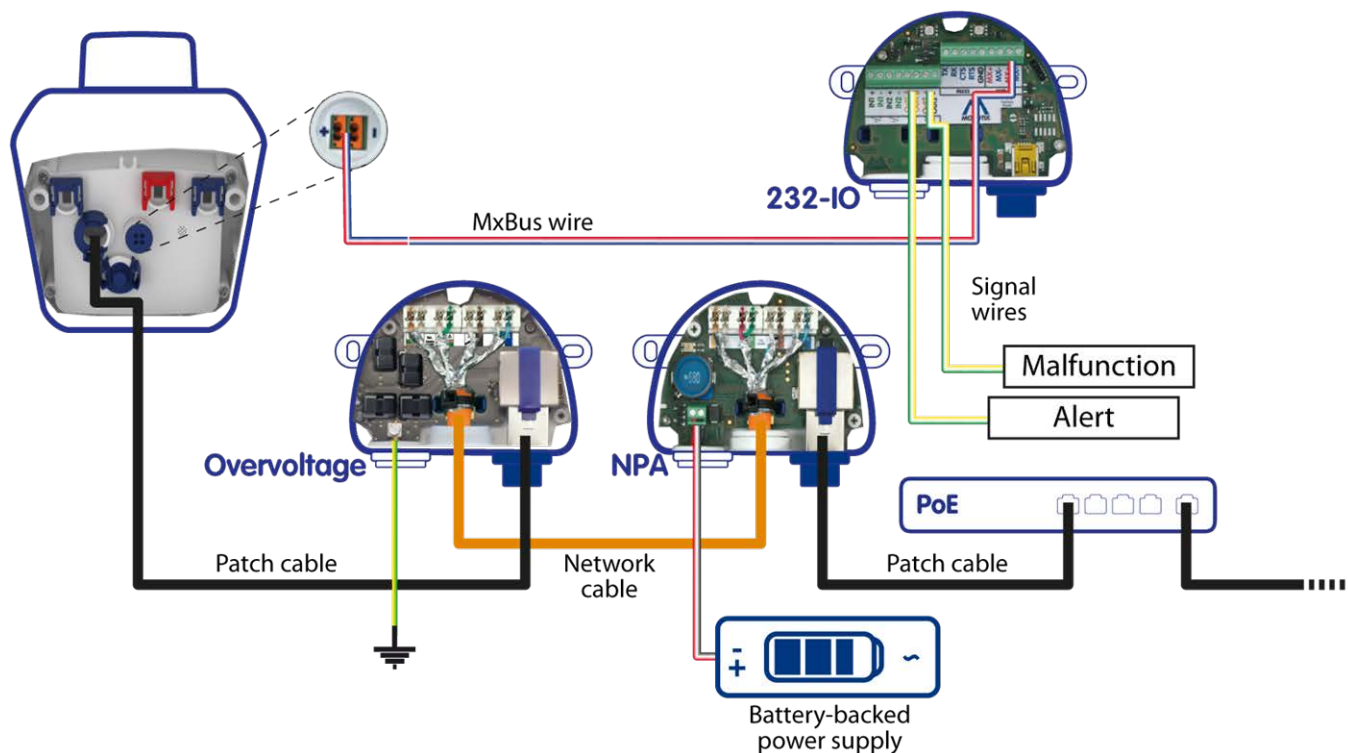


Fig. 2: Wiring of the MOBOTIX VDS Thermal Camera system

NOTE!

- The cable between the MOBOTIX VDS Thermal Camera and the MX-Overvoltage-Protection-Box must not exceed 0.5 m. It is recommended to install the MX-Overvoltage-Protection-Box in the wall arm of the camera.
- For MxBus wiring, use a cable of type J-Y(ST)Y with 2x2x0.8 mm². The maximum length for the MxBus cable is 100 m/110 yd.
- For alarm and fault output, use cables of type J-Y(ST)Y with 2x2x0.8 mm². The maximum length for these cables is 3 m/10 ft.
- The battery-backed power supply (not included) must comply with EN54-4.


Information on Installing the Components

For more information on installing the individual components of the MOBOTIX VDS Thermal Camera system, please refer to the documents listed below.


M16B Thermal TR

Quick Installation	Manual	Technical Specifications
		

MX-232-IO-Box

Quick Installation/Technical Specifications


MX-NPA-Box

Quick Installation/Technical Specifications


MX-Overvoltage-Protection-Box-LSA

Quick Installation/Technical Specifications



Configuration

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Prerequisites

Before you start using the camera, please make sure that the following conditions are met:

- The camera is a MOBOTIX VDS Thermal Camera with the order code **Mx-M16TB-Rxxx-VdS**.
- The camera is running the VdS-approved firmware **MX-V5.4.0.49-VdS**.
- When using an M16B Thermal TR camera purchased previously that it is running the VdS-approved firmware **MX-V5.4.0.49-VdS**.
- A person who has successfully completed the MOBOTIX **VdS Early Fire Detection** certification training.

NOTE! Only a person who has successfully completed the MOBOTIX **VdS Early Fire Detection** certification training is allowed to make configuration changes!

Initial Camera Setup

- Start your web browser.
- Enter the IP address of your camera. This can be found on the label of the camera as well as on the shipping box.
- You will be prompted to set a password for the admin user of the camera. Make sure you keep the password in a safe place.

Fig. 3: Setting the new *admin* password

Create VdS_Admins User Group

- Open the **Admin Menu** of the camera.
- In the **Group Access Control Lists** dialog, create a group named `VdS_Admins` with these rights:
 - **Browser Screen / View:**
 - Live
 - **Configuration:**
 - Admin
 - Image Setup
 - Event Setup

Access Rights	Browser Screen / View				MxMC & VMS		Configuration			Remove Group
	Guest	Live	Player	MultiView	Event Stream	HTTP API	Admin	Image Setup	Event Setup	
Public Access	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Disable all
Groups										
admins	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
es_admins	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
es_guests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
es_users	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
www_guests	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
www_users	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VdS_Admins	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Open [Users and Passwords](#) to manage users and to assign groups.

Set Factory Restore Close More

Fig. 4: Creating the `VdS_Admins` group

- Click on **Set**, then on **Close** and permanently save the settings.

Add vds-admin User

NOTE! Only a person who has successfully completed the MOBOTIX **VdS Early Fire Detection** certification training is allowed to make configuration changes!

- Open the **Admin Menu** of the camera.
- In the **Users and Passwords** dialog, create a user named `vds-admin` and set a proper password.

Fig. 5: Creating the `vds-admin` user

- Click on **Set**, then on **Close** and permanently save the settings.

Configure MxBus Interface

- Open the **Admin Menu** of the camera.
- In the **Manage MxBus Modules** dialog, activate the connected MX-232-IO-Box.
- Check **Use in Classic Mode**, switch **Line Termination** to **On** and click on **Activate**. The LEDs of the MX-232-IO-Box light up green and blue.

Fig. 6: Activating the MxBus interface

- Click on **Set**, then on **Close** and permanently save the settings.

Configure Event Control

The MOBOTIX VDS Thermal Camera contains preconfigured events and action groups that are required for proper system operation.

Preconfigured events

- Shock Detector: For reporting possible manipulation of the camera.
- Thermal Event: To detect and report the exceeding of a critical temperature threshold.
- Fault Message Input: To report a fault in the VdS Thermal System.
- User Click: For acknowledging events.

The preset action groups **Stoerung**, **Thermal Event** and **Quittierung** trigger various messages via the assigned outputs and/or by means of internal camera action types.

Adjusting the Configuration

The individual events of the MOBOTIX VDS Thermal Camera can be adapted to the conditions of your installation using the following steps.

- Open the camera's web interface in your browser using the IP address you have set.
- Open the **Setup Menu** of the camera.
- Edit the individual events in **Event Control > Event Overview**.

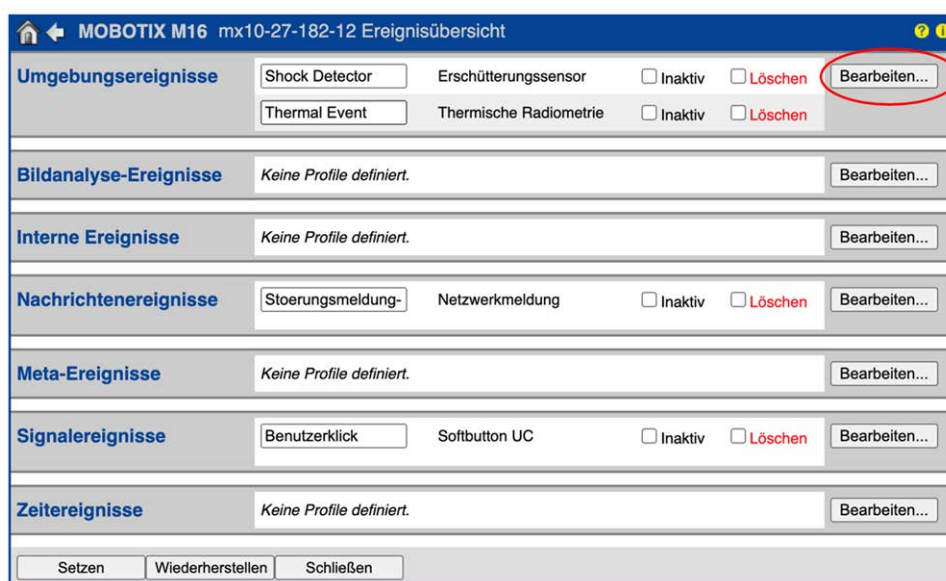


Fig. 7: Event overview in the Setup Menu

Adjusting the Sensitivity of the Shock Detector Event

The sensitivity can be adjusted using the dropdown list. Lower values trigger earlier. Test the trigger sensitivity on-site based on the conditions and requirements of the installation.

MOBOTIX M16 mx10-27-182-12 Umgebungseignisse

Eigenschaft	Wert	Erklärung
Erschütterungssensor	7	Erkennungsempfindlichkeit: Legt den Auslösewert für Ereignisse des Erschütterungssensors fest. Niedrigere Werte lösen früher aus. Erhöhen Sie diesen Wert nur, wenn häufig Fehlalarme auftreten.
Fadenkreuz für thermische Spotmessung	<input type="checkbox"/>	Fadenkreuz für thermische Spotmessung anzeigen: Zeigt ein Fadenkreuz zum Einstellen der Kamera an.

Ereignisse	Wert	Erklärung
Shock Detector	<input type="checkbox"/> Inaktiv <input type="checkbox"/> Löschen	
Thermal Event	<input type="checkbox"/> Inaktiv <input type="checkbox"/> Löschen	

Neues Profil hinzufügen

Setzen Voreinstellung Wiederherstellen Schließen Weniger

Fig. 8: Configuring the Shock Detector event

Adjusting the Thermal Event

You can adjust the **Thermal Event** of the camera to the on-site conditions as follows:

- Unfold the corresponding event.
- To edit the measurement area, use **Shift-click** in the live image of the camera to define a rectangle around the area you want to measure.

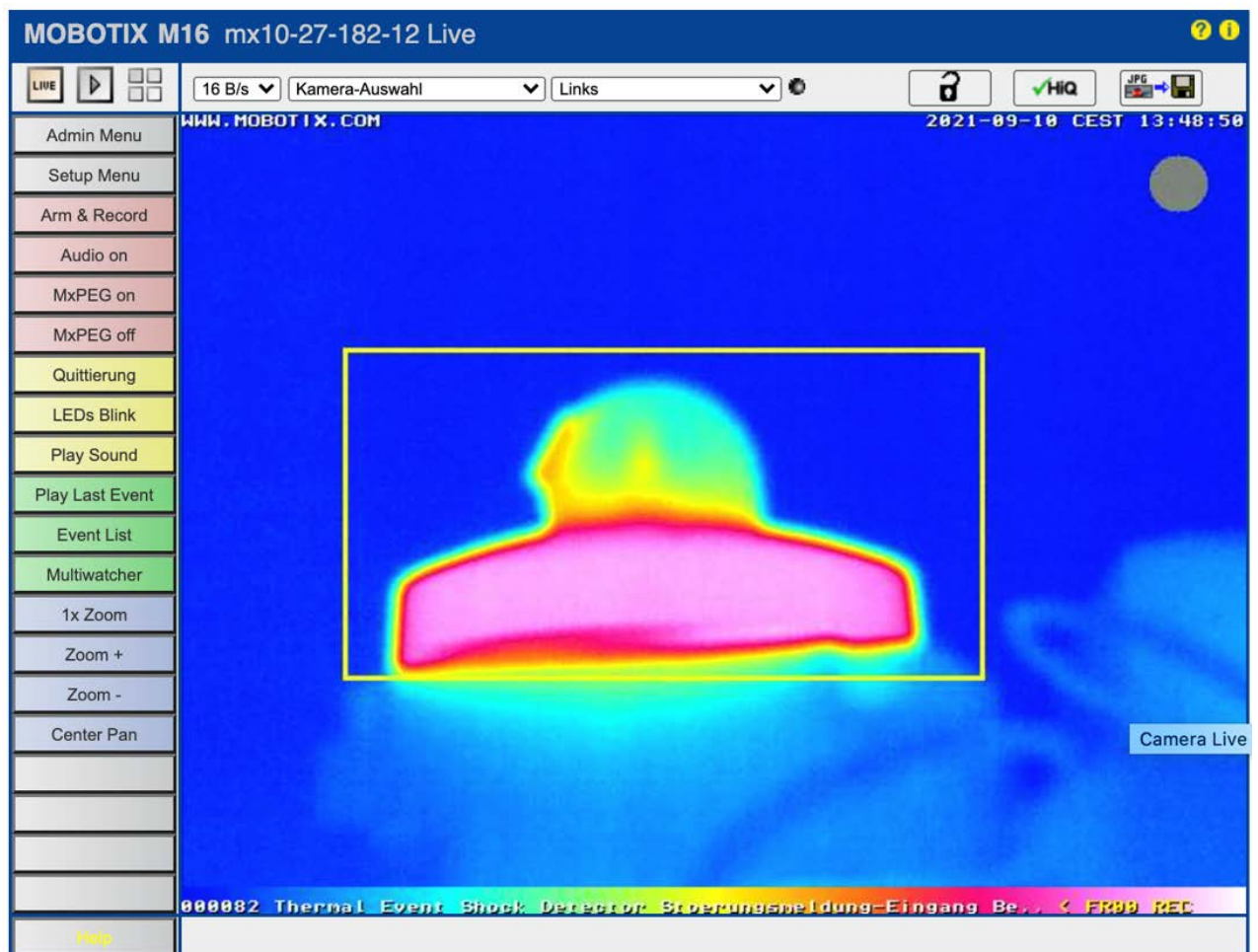


Fig. 9: Editing the measurement area

- In the **Thermal Event** dialog, click **Insert Rectangle** to define the area.
- Click on **Set** to save the settings.

- To change the trigger level of the event, enter the desired temperature value in the dialog and click on **Set**.

Temperaturwert ▼	Alarmtyp: Wählen Sie den Alarmtyp aus.
°C ▼	Temperatur-Einheit: Einheit für den Schwellwert.
80	Temperaturwert: Geben Sie den Temperaturwert ein [-40..550 °C] [-40..1022 °F].
Größer als ▼	Vergleich: <ul style="list-style-type: none">• <i>Größer als:</i> Löst ein Ereignis aus, wenn die Temperatur im Messbereich diesen Wert überschreitet.• <i>Kleiner als:</i> Löst ein Ereignis aus, wenn die Temperatur im Messbereich diesen Wert unterschreitet. Abhängig vom ausgewählten Messmodus ist die in 'Temperaturwert' festgelegte Temperatur entweder eine absolute Temperatur oder die Durchschnittstemperatur in einem definierten Referenzbereich.

Fig. 10: Adjusting the trigger level of the Thermal Event

- Click on **Set**, then on **Close** and permanently save the settings.

For more general settings of the camera, please refer to the general [M16 Camera Manual](#).



Technical Specifications

Camera Variants	M16B Thermal	M16B Thermal TR
Specialties	IP Thermografic camera with/without Thermal Radiometry technology (TR) and Germanium lens; can be optionally equipped with a second optical 6MP sensor module (day/-color or night/black and white to be ordered separately for easy self-assembly)	
Main Differences	Temperature measurement only in the center of the image (Thermal Spot, 2x2 pixel	TR temperature measurement of each pixel in the whole image area, up to 20 independant temperature events

Technical Specifications

Thermal Lenses/Sensors, 50 mK, 336 x 252 (Factory-Assembled)	M16B Thermal	M16B Thermal TR
Thermal sensor, horiz./vert. image angle 45°/32°	Mx-M16TB-T079	–
Thermal sensor, horiz./vert. image angle 25°/19°	Mx-M16TB-T119	–
Thermal sensor, horiz./vert. image angle 17°/13°	Mx-M16TB-T237	–
Calibrated Thermal sensor TR/Thermal Radiometry, horiz./vert. image angle 42° / 32° & 45° / 35°	–	MX-M16TB-R075 Mx-M16TB-R079
Calibrated Thermal sensor TR/Thermal Radiometry, horiz./vert. image angle 35° / 27° & 17° / 13°	–	MX-M16TB-R090 Mx-M16TB-R119
Calibrated Thermal sensor TR/Thermal Radiometry, horiz./vert. image angle 17°/13°	–	Mx-M16TB-R237
Thermal image sensor	Uncooled microbolometer, 336 x 252 pixels, Pixel Pitch 17 µm, IR range 7,5 to 13,5 µm	
Sensitivity NETD (thermal resolution)	Typ. 50 mK, < 79 mK (50 mK is equal to temperature changes of 0,05°C)	
Thermal image representation	False colors or black and whiteF	
Temperature measuring range (adjustable)	High Sensitivity: -40 to 170°C/-40 to 320°F – Low Sensitivity: -40 to 550°C/-40 to 1022°F	
Temperature measuring method (via camera)	In the center of the image (2x2 pixels)	Complete image areas (customizable temperature measurement windows)

Optical Lenses/Sensors, 6MP, M16B Thermal
3072 x 2048 (Available With
Optional Sensor Module)
M16B Thermal TR

Sensor module with Fisheye Lens B016 (180° x 180°), night version optionally with long-pass filter (LPF)	Day/Color: Mx-O-SMA-S-6D016 Night/Black&White: Mx-O-SMA-S-6N016 LPF/Black&White: Mx-O-SMA-S-6L016
Sensor module with Ultra Wide Lens B036 (103° x 77°), night version optionally with LPF	Day/Color: Mx-O-SMA-S-6D036 Night/Black&White: Mx-O-SMA-S-6N036 LPF/Black&White: Mx-O-SMA-S-6L036
Sensor module with Super Wide Lens B041 (90° x 67°), night version optionally with LPF	Day/Color: Mx-O-SMA-S-6D041 Night/Black&White: Mx-O-SMA-S-6N041 LPF/Black&White: Mx-O-SMA-S-6L041
Sensor module with Wide Lens B061 (60° x 45°), night version optionally with LPF	Day/Color: Mx-O-SMA-S-6D061 Night/Black&White: Mx-O-SMA-S-6N061 LPF/Black&White: Mx-O-SMA-S-6L061
Sensor module with Standard Lens B079 (45° x 34°), night version optionally with LPF	Day/Color: Mx-O-SMA-S-6D079 Night/Black&White: Mx-O-SMA-S-6N079 LPF/Black&White: Mx-O-SMA-S-6L079
Sensor module with Tele Lens B119 (31° x 23°), night version optionally with LPF	Day/Color: Mx-O-SMA-S-6D119 Night/Black&White: Mx-O-SMA-S-6N119 LPF/Black&White: Mx-O-SMA-S-6L119
Sensor module with Distant Tele Lens B237 (15° x 11°), night version optionally with LPF	Day/Color: Mx-O-SMA-S-6D237 Night/Black&White: Mx-O-SMA-S-6N237 LPF/Black&White: Mx-O-SMA-S-6L237
Sensor module with Super Tele Lens B500 (8° x 6°), night version optionally with LPF	Day/Color: Mx-O-SMA-S-6D500 Night/Black&White: Mx-O-SMA-S-6N500 LPF/Black&White: Mx-O-SMA-S-6L500
Sensor module with CS-Mount (no lens included)	Day/Color: Mx-O-SMA-S-6DCS Night/Black&White: Mx-O-SMA-S-6NCS

Technical Specifications

Optical Lenses/Sensors, 6MP, M16B Thermal 3072 x 2048 (Available With Optional Sensor Module)

M16B Thermal TR

Sensor module with CSVario Day/Color: Mx-O-SMA-S-6DCSV

Lens B045-100-CS Night/Black&White: Mx-O-SMA-S-6NCSV

Image sensor with individual exposure zones 1/1.8" CMOS, 6MP (3072 x 2048), Progressive Scan Color or Black And White

Light sensitivity in lux at 1/60 s and 1/1 s Color Sensor: 0,1/0,005 Black And White Sensor: 0,02/0,001

Hardware

M16B Thermal

M16B Thermal TR

Microprocessor i.MX 6 Dual Core incl. GPU (1 GB RAM, 512 MB Flash)

H.264 Hardware-Codec Yes, bandwidth limitation available; output image format up to QXGA

Protection class IP66 and IK06; with second 6MP sensor module: IK04 with B036 to B237, IK06 with B016

Intended use Not for use in hazardous areas (Ex area); no mounting behind glass windows

Ambient temperature (range, incl. storage) -40 to 60°C/-40 to 140°F (cold boot from -30°C/-22°F)

Internal DVR, ex works 4 GB (microSD)

Microphone/speaker Microphone Sensitivity: -35 +-4 dB (0 dB = 1 V/pa, 1 kHz)
Speaker: 0.9 W at 8 Ohm

16bit/16kHz HD wideband audio (Opus codec) Yes (live and audio messages)

Passive infrared sensor (PIR) Yes

Temperature sensor Yes

Shock detector (tamper detection) Yes

Power consumption (typically at 20°C/68°F) 9 W (10 W possible over the short term)

PoE class (IEEE 802.3af) Class 2 or 3 (variable), factory setting: class 3 (required for thermal operation)

Interfaces Ethernet Yes (MxRJ45)/Yes/Yes
100BaseT/MxBus/USB

Interface RS232 With accessory (MX-232-IO-Box)

Hardware	M16B Thermal	M16B Thermal TR
Mounting options	Wall, pole or ceiling (wall and ceiling mount included)	
Dimensions (height x width x depth)	210 x 158 x 207 mm	
Weight	1,320 g	
Housing	PBT-30GF, color: white	
Standard accessory	Screws, dowels, screw caps, 2 Allen wrenches, module key, VarioFlex wall and ceiling mount with rubber sealing, 0.5 m ethernet patch cable, 1 blind module, Quick Install	
Detailed technical documentation	www.mobotix.com > Support > Download Center	
Online version of this document	www.mobotix.com > Support > Download Center	
MTBF	> 80,000 hours	
Certifications	EN55032:2012 EN55022:2010; EN55024:2010 EN61000-6-1:2007; EN 61000-6-2:2005 EN61000-6-3:2007+A1:2011 EN61000-6-4:2007+A1:2011 AS/ NZS CISPR22:2009+A1:2010 CFR47 FCC part15B	
Protocols	IPv4, IPv6, HTTP, HTTPS, FTP, FTPS, SFTP, RTP, RTSP, UDP, SNMP, SMTP, DHCP (client and server), NTP (client and server), SIP (client and server) G.711 (PCMA and PCMU) and G.722	
Manufacturer's warranty (since May 2018)	3 years	

Image Formats, Frame Rates, Image Storage		M16B Thermal	M16B Thermal TR
Available video codecs		MxPEG/MJPEG/H.264	
Image formats		Freely configurable format 4:3, 8:3, 16:9 or customized format (Image Cropping), such as 2592x1944 (5MP), 2048x1536 (QXGA), 1920x1080 (Full-HD), 1280x960 (MEGA)	
Multistreaming		Yes	
Multicast stream via RTSP		Yes	
Max. image format (dual image from both sensors)		2x 6MP (6144 x 2048)	

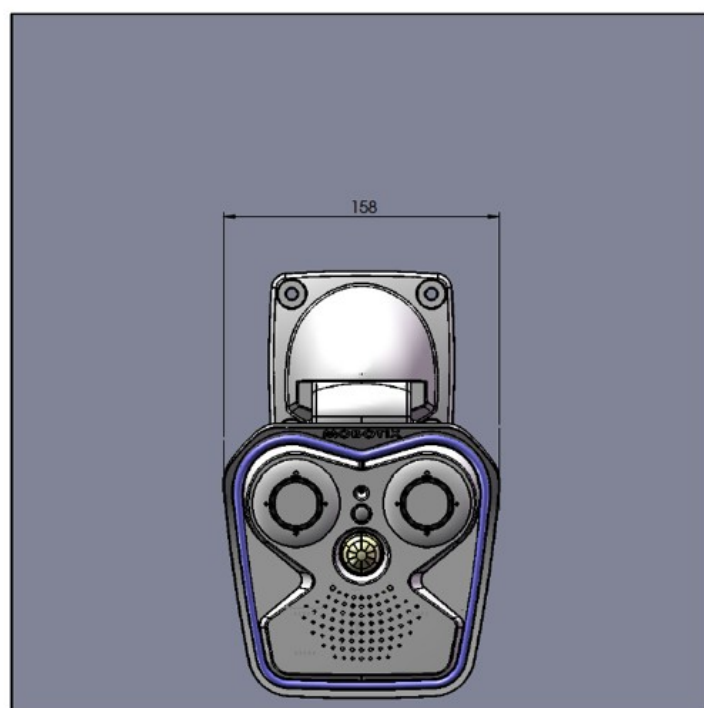
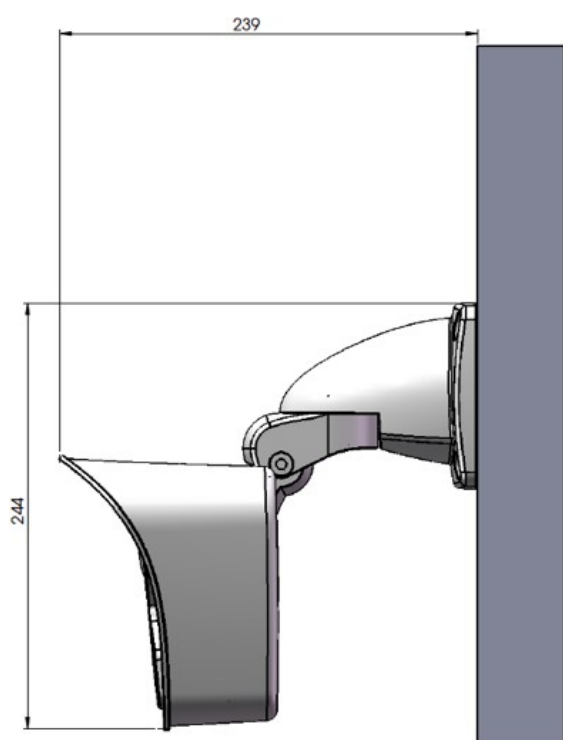
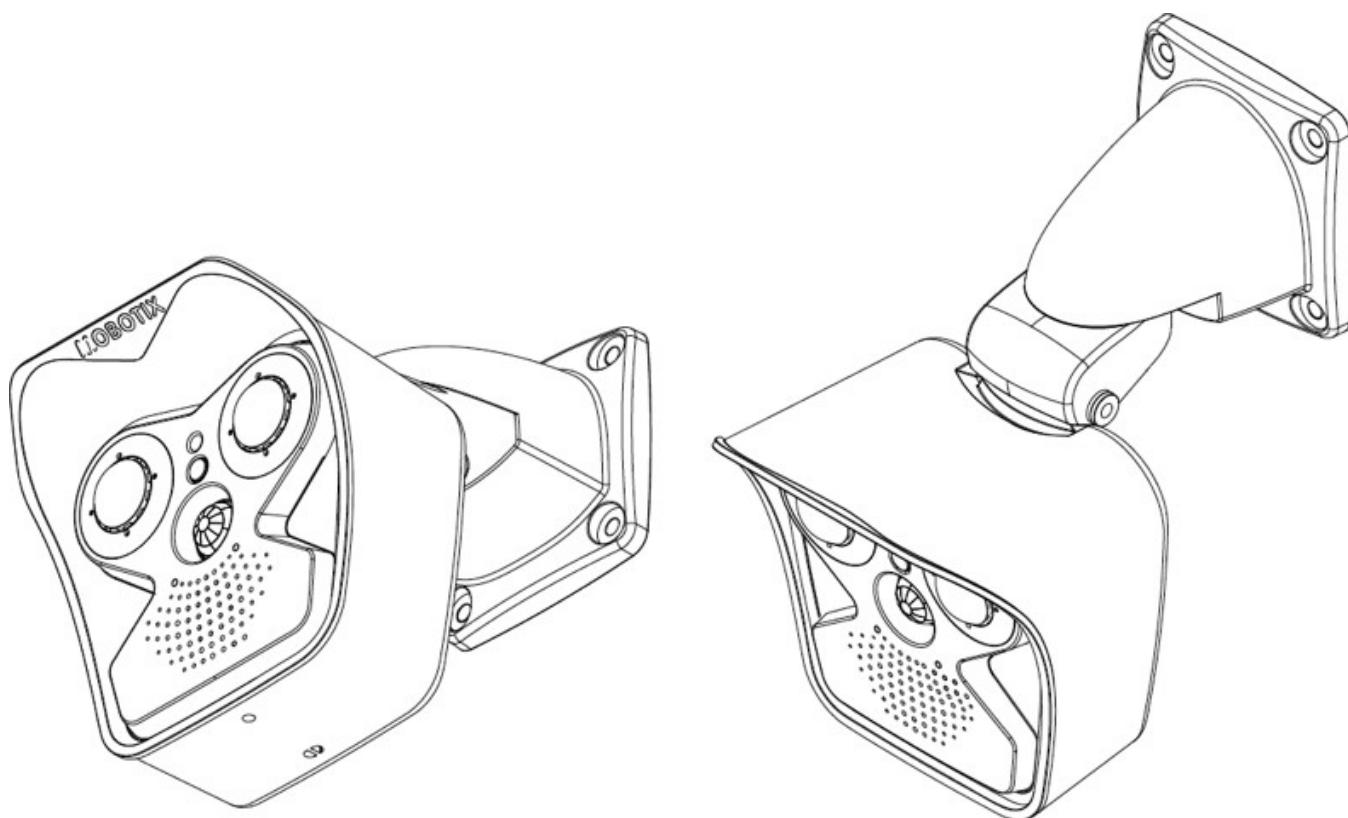
Technical Specifications

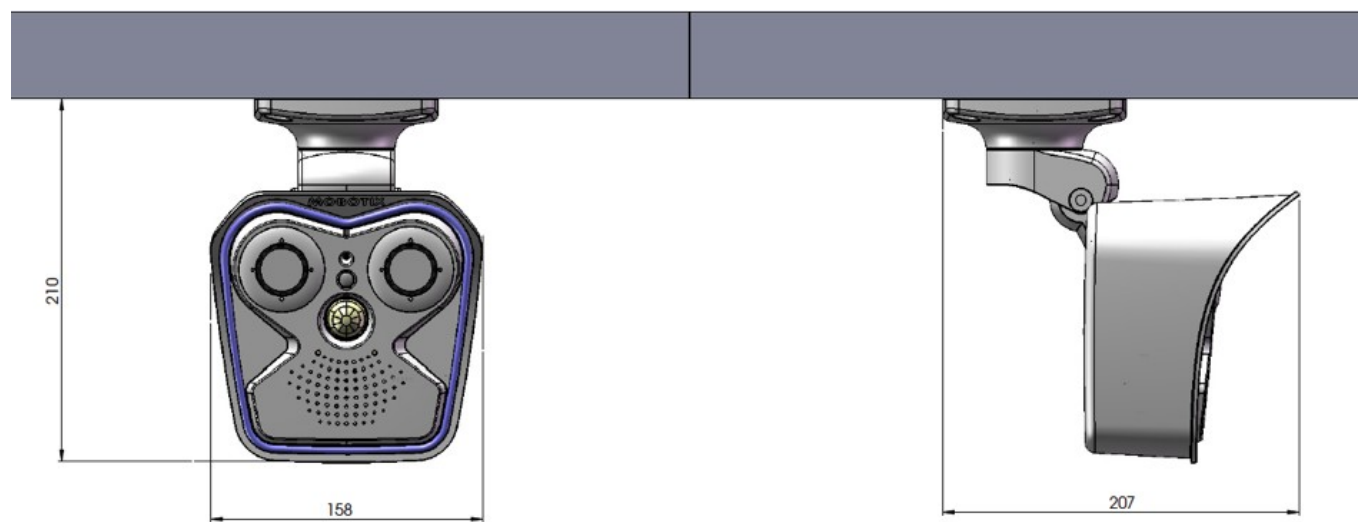
Image formats	Freely configurable format 4:3, 8:3, 16:9 or customized format (Image Cropping), such as 2592x1944 (5MP), 2048x1536 (QXGA), 1920x1080 (Full-HD), 1280x960 (MEGA)
Max. frame rate for thermal images, Thermal Overlay and dual images (thermal & optical)	9 frames per second (fps)
Max. frame rate for optional optical 6MP sensor module (fps, only single core used)	MxPEG: 42@HD(1280x720), 34@Full-HD, 24@QXGA, 15@5MP, 12@6MP, 6@2x6MP MJPEG: 26@HD(1280x720), 13@Full-HD, 9@QXGA, 5@5MP, 4@6MP, 2@2x6MP H.264: 25@Full-HD, 20@QXGA
Number of images with 4 GB microSD (internal DVR)	CIF: 250,000, VGA: 125,000, HD: 40,000, QXGA: 20,000, 6MP: 10,000
Max. frame rate for thermal images, Thermal Overlay and dual images (thermal & optical)	9 frames per second (fps)
Max. frame rate for optional optical 6MP sensor module (fps, only single core used)	MxPEG: 42@HD(1280x720), 34@Full-HD, 24@QXGA, 15@5MP, 12@6MP, 6@2x6MP MJPEG: 26@HD(1280x720), 13@Full-HD, 9@QXGA, 5@5MP, 4@6MP, 2@2x6MP H.264: 25@Full-HD, 20@QXGA
Number of images with 4 GB microSD (internal DVR)	CIF: 250,000, VGA: 125,000, HD: 40,000, QXGA: 20,000, 6MP: 10,000
Max. frame rate for thermal images, Thermal Overlay and dual images (thermal & optical)	9 frames per second (fps)
Max. frame rate for optional optical 6MP sensor module (fps, only single core used)	MxPEG: 42@HD(1280x720), 34@Full-HD, 24@QXGA, 15@5MP, 12@6MP, 6@2x6MP MJPEG: 26@HD(1280x720), 13@Full-HD, 9@QXGA, 5@5MP, 4@6MP, 2@2x6MP H.264: 25@Full-HD, 20@QXGA
Number of images with 4 GB microSD (internal DVR)	CIF: 250,000, VGA: 125,000, HD: 40,000, QXGA: 20,000, 6MP: 10,000

General Functions	M16B Thermal	M16B Thermal TR
Temperature measurement of 2x2 pixels in the center of the image (Thermal Spot)	Yes	
TR temperature measurement in the whole image area	No	Yes
Event trigger for temperatures above or below a limit between -40 to 550°C/-40 to 1022°F	Yes	
Digital zoom and pan	Yes	
ONVIF compatibility	Yes (Profile S, audio support with camera firmware V5.2.x and higher)	
Genetec protocol integration	Yes	
Programmable exposure zones	Yes	
Snapshot recording (pre/post-alarm images)	Yes	
Continuous recording with audio	Yes	
Event recording with audio	Yes	
Time controlled flexible event logic	Yes	
Weekly schedules for recordings and actions	Yes	
Event video and image transfer via FTP and email	Yes	
Playback and QuadView via web browser	Yes	
Bidirectional audio in browser	Yes	
Animated logos on the image	Yes	

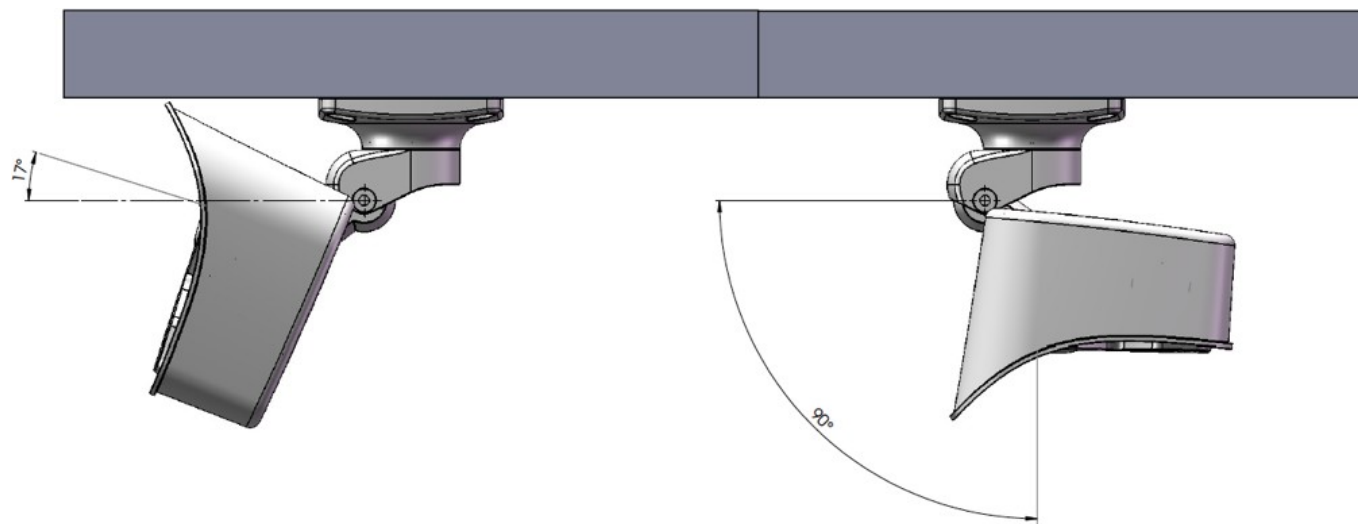
Technical Specifications

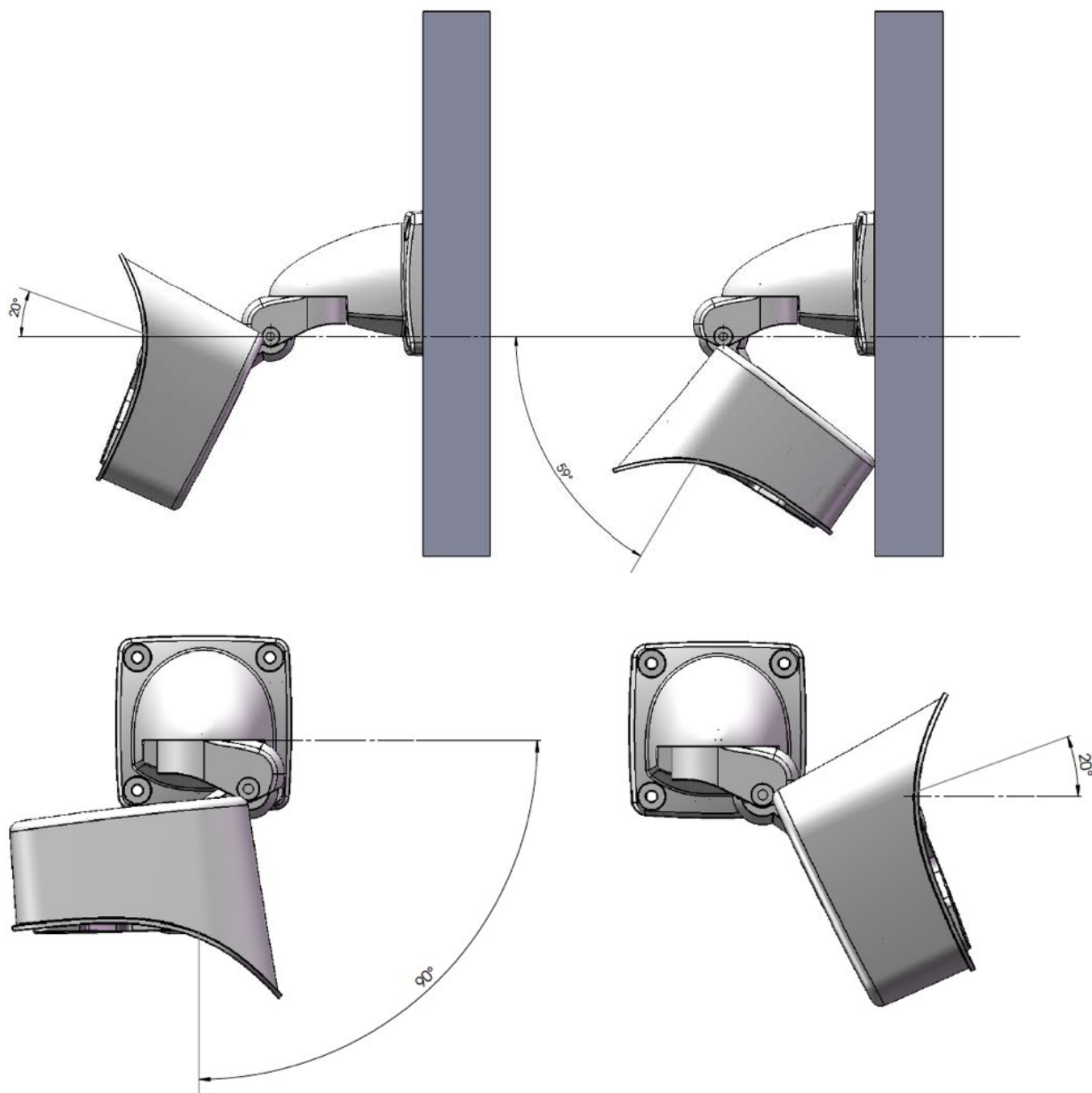
General Functions	M16B Thermal	M16B Thermal TR
Master/Slave functionality	Yes	
Privacy zone scheduling	Yes	
Customized voice messages	Yes	
VoIP telephony (audio/video, alert)	Yes	
Remote alarm notification (network message)	Yes	
Programming interface (HTTP-API)	Yes	
DVR/Storage Management	Inside camera via microSD card, externally via USB device and NAS, different streams for live image and recording, MxFFS with archive function, pre-alarm an post-alarm images, monitoring recording with failure reporting	
Camera and data security	User and group management, SSL connections, IP-based access control, IEEE802.1x, intrusion detection, digital image signature	
MxMessageSystem: Sending and receiving of MxMessages	Yes	
<hr/>		
Video Analysis	M16B Day	M16B Day & Night
Video motion detector	Yes	
MxActivitySensor	Yes	
<hr/>		
Video Management Software	M16B Day	M16B Day & Night
MxManagementCenter	Yes	
Mobile MOBOTIX App	Yes	

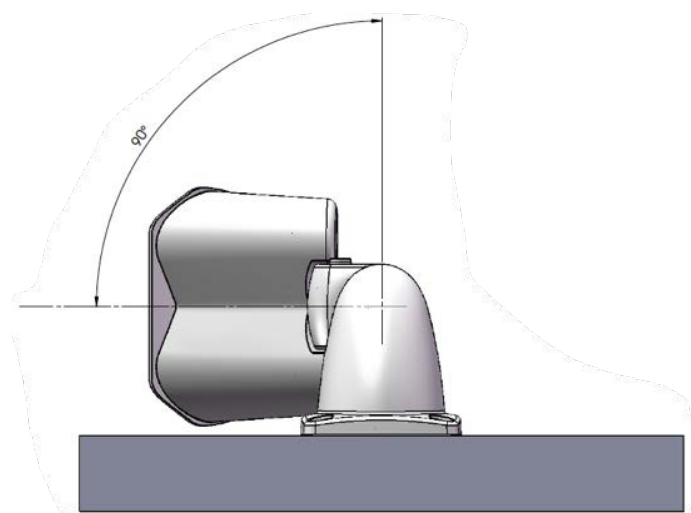




Dimensions in mm









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