



- MxDisplay+ or MxDisplay+ Outdoor
- Sealing
- RFID card (administrator)
- Screwdriver
- Allen wrench 2.5 mm

Note: The information in this document applies to both the MxDisplay+ and the MxDisplay+ Outdoor. Where technical specifications are concerned, the differences are denoted accordingly.

MxDisplay+ MxDisplay+ Outdoor

IP-based intercom with touchscreen for
MOBOTIX door stations

More information:
www.mobotix.com > Products > Home Automation > MxDisplay+

MX-DISPLAY3 / MX-DISPLAY3-EXT
32.524-003_EN_11/2016

MOBOTIX

Available Accessories for the Single Frame

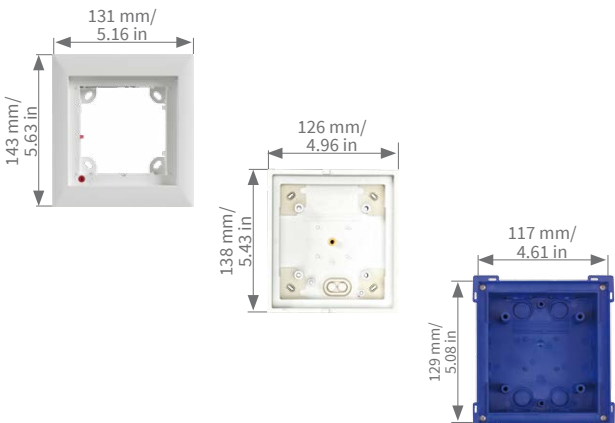
When installing the MxDisplay+, you can choose between the single frame and the FlatMount Frame. Using the single frame, you have the choice between on-wall and in-wall mounting for the MxDisplay+. Note that the space is quite limited when using on-wall mounting.

1. Single frame

Order No.: MX-OPT-Frame-1-EXT-PW (white)
Order No.: MX-OPT-Frame-1-EXT-BL (black)

2. Single on-wall and in-wall housings

- **On-wall housing**
Order No.: MX-OPT-Box-1-EXT-ON-PW (white)
Order No.: MX-OPT-Box-1-EXT-ON-BL (black)
- **In-wall housing**
Order No.: MX-OPT-Box-1-EXT-IN



Available Accessories for the FlatMount Frame

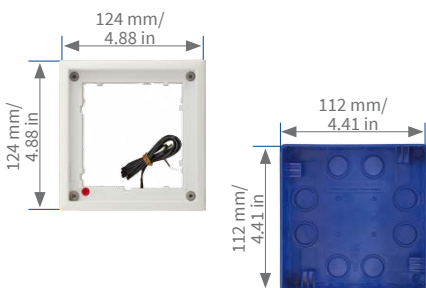
When using the FlatMount Frame, the MxDisplay+ can be installed in-wall either with an in-wall housing or without (cavity installation).

1. FlatMount Frame

Order No.: MX-OPT-FlatMount-EXT-PW (white)
Order No.: MX-OPT-FlatMount-EXT-BL (black)

2. In-wall housing

Order No.: MX-OPT-FlatMount-Box-EXT-IN



Technical Specifications

Technical Specifications	
Controls	Touch screen with three soft-touch function keys (context-sensitive functions)
Interfaces	Ethernet, WiFi (access point, client)
Display size	3.5", 320 x 240 pixels (CIF)
Inputs	3 galvanically separated inputs (AC/DC, self-powered, up to 48 V), temperature sensor
Outputs	1 isolated relay output (power for each pin: max. 60 W or max. 1 A or max. 48 V AC/DC)
Power Supply	PoE or 12 to 48 V DC
Power consumption	Typ. 3.5 W

Technical Specifications	
Operating Conditions	• MxDisplay+: Indoor, operating temperature 0 to +40 °C/+32 to +104 °F • MxDisplay+ Outdoor: IP66, operating temperature -30 to +60 °C/-22 to +140 °F
Cross-sectional area of wires at the terminals	0.14 mm ² to 0.5 mm ²
RFID	Mifare DESFire EV1
WiFi	• MxDisplay+: IEEE 802.11b/g/n, 2.4 GHz band • MxDisplay+ Outdoor: IEEE 802.11b/g/n, 2.4 GHz and 5 GHz bands
Ethernet	PoE (IEEE 802.3af, Class 2)

Power Supply and Network Connection

Power Supply

To supply power to the MxDisplay+, the following options exist:

- PoE (Power over Ethernet) using a CAT 5 to CAT 7 installation cable.
- Using an external power supply (12 to 48 V DC) that is connected to the MxDisplay+ by a two-wire cable.

When supplying power via PoE, the network connection is established at the same time. All you need for this purpose is a PoE switch or a MOBOTIX NPA PoE Adapter. When integrating the device into an existing network, using a PoE switch with several PoE ports is recommended – especially when several PoE-supplied end devices are to be connected. When connecting MxBus devices, you need to use either PoE or an external 48 V DC power supply.

Network Connection

To connect the MxDisplay+ to a network, the following options exist:

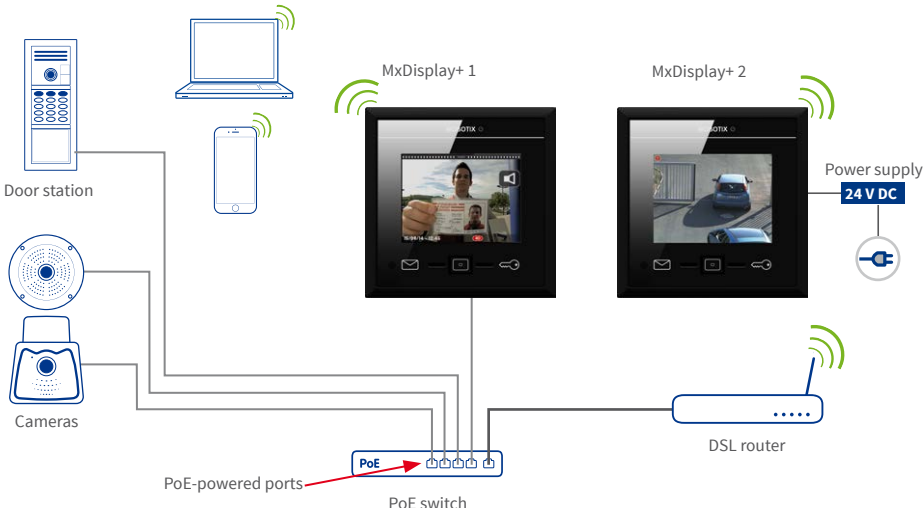
- together with power supply via PoE (see above)
- with Ethernet installation cable, but without PoE power supply
- using an existing WiFi network

Recommendation

The easiest and, more importantly, most reliable network connection for the MxDisplay+ is to use the network cabling for power supply and network connectivity (PoE). By nature, WiFi networks are bound to experience temporary disruptions. Therefore, it is **not** recommended to use a WiFi network connection for the MxDisplay+ if you need a reliable and permanently available door station intercom.

Installation Example With Two MxDisplay+ Units

MxDisplay+ 1 is connected via a failsafe PoE connection and serves as remote station for the door station as well as WiFi access point for additional remote stations (iPhone, iPad). MxDisplay+ 2 is farther away and uses the WiFi network of the DSL router. It is used primarily as video management system to monitor and configure the installed cameras.



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Installing the Single Frame With On-Wall or In-Wall Housing

1. Lead Cable into Housing

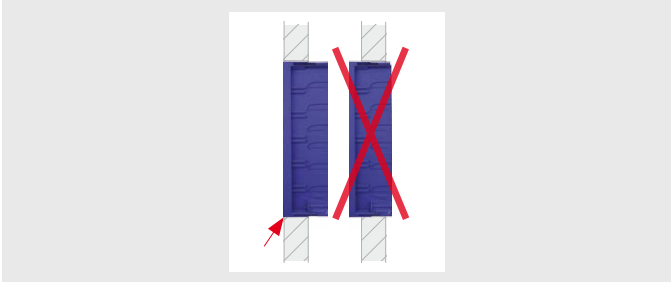
On-wall/in-wall: The housing has two cable inlets for an on-wall housing and several inlets for an in-wall housing. Pierce through the required inlet with, for example, a screwdriver. When using the on-wall housing, lead the cable into the housing. When using the in-wall housing, make sure that you pierce through the inlet that is closest to the required cable connection, i.e., use the upper inlet for a two-wire cable and the lower for an installation cable.



2. Insert Housing

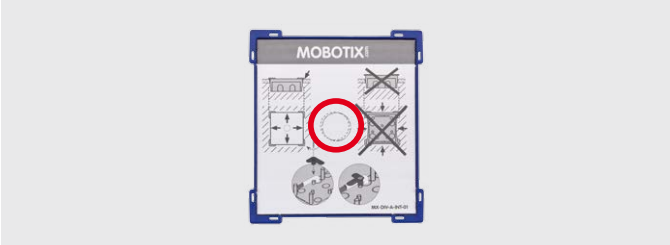
On-wall: Drill four holes and insert dowels, if necessary (use the on-wall housing as a template to mark the holes). Screw on the housing.

In-wall: Prepare the opening for the in-wall housing (W x H x D: **117 x 129 x min. 52 mm**). You can use the reverted housing as a template to mark the opening. Lead the cable into the housing. Make sure that the cable is long enough (about 40 cm/16 in), so that the wires can be connected easily to the MxDisplay later on. Excess cable can be stored in the housing by winding it up in a spiral. Insert the housing. Connect the in-wall housing in such a way with the underground that the bars attached to the corners of the housing (see fig.) are still visible and that the front edge of the housing lines up precisely with the wall.



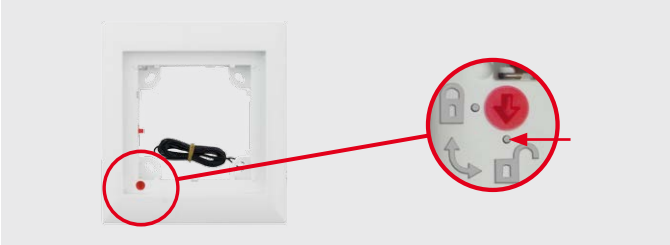
Set the protective cardboard cover (included with the delivered parts) into the housing before pushing it into the wall cavity. This prevents cement from entering the interior of the housing. After you have installed the housing

into the wall, you can easily remove the carton by pushing through the pre-cut opening and pulling it out.



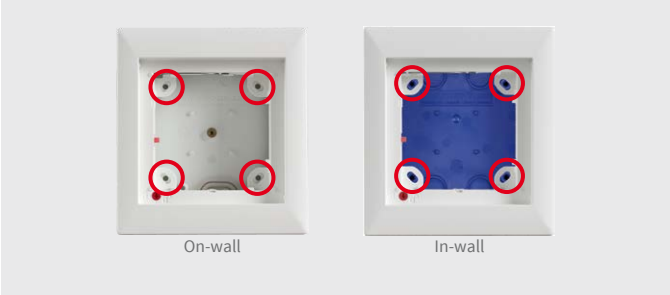
3. Attach Single Frame

On-wall/in-wall: When attaching the frame, make sure that the arrow on the red knob (theft protection) points at the “open lock” icon and that the frame is positioned in such a way that the red knob is on the bottom left corner of the frame.



Caution: In situations, in which a theft protection is not necessary, e.g., indoor installations, **do not** activate the theft protection (the red knob remains in the “open lock” position). If you twist the knob by mistake, you have to be able to attach a battery (9 V DC) to the theft protection wires! Otherwise, you will not be able to remove the module from the frame any more.

Secure the frame with the on-wall or the in-wall housing and make sure that you do not overtighten the screws included with the FlatMount Frame.



1. Lead Cable into Housing

See «*Lead Cable into Housing*» on the front page. Since several cable inlets are possible here as well, make sure that you pierce the inlet that is closest to the required cable connection.

2. Install Housing

See «*Insert Housing*» (In-wall) on the front page. Measurements for the installation opening (W x H x D): **112 x 112 x 60 mm**.

Set the protective cardboard cover (included with the delivered parts) into the housing before pushing it into the wall cavity. This prevents cement from entering the interior of the housing.

3. Attach FlatMount Frame

When attaching the FlatMount Frame, make sure that the arrow on the red knob points at the “open lock” icon and that the red knob is on the bottom left corner of the frame.

Position the clamping brackets at the ends of the screws in such a way that the screws are easily led past the notches of the housing when you attach the FlatMount Frame. After attaching the FlatMount Frame, tighten the screws. Make sure that you do not overtighten the screws. By tightening the screws, the clamping brackets automatically engage into the notches of the housing.



Cavity Installation of the FlatMount Frame (Without In-Wall Housing)

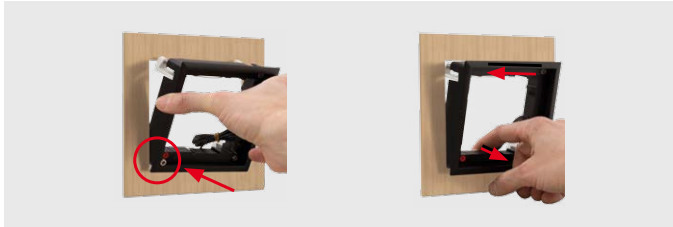
Installations in cavity walls without in-wall housings are possible in materials that have a thickness of 3 to 25 mm/0.18 to 1 in.

1. Prepare the opening for the FlatMount Frame (W x H: **107 x 107 mm**). Measure the thickness of the material. Cut the long clamping brackets that are included with the FlatMount Frame to the correct length according to the thickness of the material.



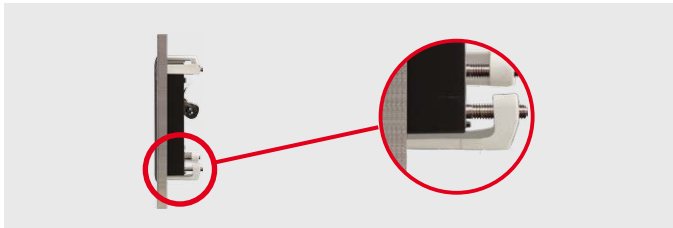
Replace the short clamping brackets that are attached to the FlatMount Frame by the ones you just shortened.

2. To facilitate the installation, there are notches for the clamping brackets on three corners of the FlatMount Frame. After you have attached the long clamping brackets to the FlatMount Frame, turn three of the clamping brackets so that they fit into the notches. Turn the fourth clamping bracket (on the corner without notch) downwards.
3. Insert the FlatMount Frame into the opening. Make sure that the red knob is on the lower left corner and that the arrow on the red knob points at the “open lock” icon. Insert the lower left edge of the frame first, then follow with the lower right edge. After that, slightly pull the lower part of the FlatMount Frame back out. This causes the upper part of the FlatMount Frame to “fall” into the opening.



Caution: In situations, in which a theft protection is not necessary, e.g., indoor installations, **do not** activate the theft protection (the red knob remains in the “open lock” position). If you twist the knob by mistake, you have to be able to attach a battery (9 V DC) to the theft protection wires! Otherwise, you will not be able to remove the module from the frame any more.

4. Tighten the screws. Make sure that you do not overtighten the screws. The ends of the clamping brackets hold the FlatMount Frame to the surface.



Connecting and Inserting the MxDisplay+ into the Frame

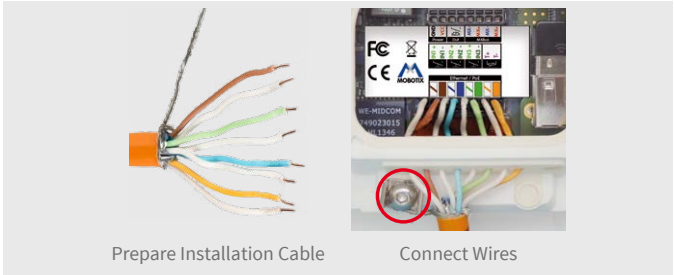
Power Supply and Network Connection With Installation Cable

1. Prepare Installation Cable

Cut the installation cable to length, strip it and separate the twisted wire pairs into eight individual wires. Make sure that you can still identify the wire pairs later on. Cut the wire ends to length and strip the insulation, pull the shield mesh together and twist it so that you can attach it onto the contact surface later on (see figure below).

2. Connect Wires

Open the cover on the back of the MxDisplay+. Push the individual wires through the holes and insert them into the terminals of the lower row according to the color codes on the sticker (see fig.). Fasten the shield mesh onto the contact surface (red circle in fig.) and close the cover.



Note: To release a wire, unlock the terminal by pressing with the screwdriver (included with delivery) into the opening above the wire. Then pull out the wire.

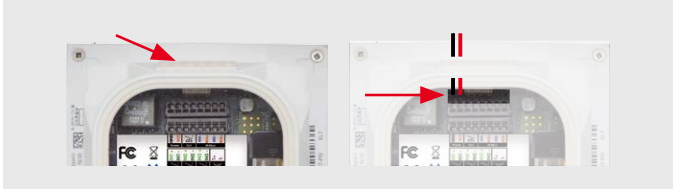
3. Connect Installation Cable

Connect the installation cable to a patch cable and to the PoE switch and establish the power supply.

WiFi Network Connection, External Two-Wire Power Supply

1. Connect Two-Wire Cable

Cut the wire ends to length. Open the cover on the back of the MxDisplay+ and push the wire ends through two of the openings of the single-wire sealing. Then insert the wire ends into the holes of the power terminal (GND and VCC, see fig.). Close the cover.

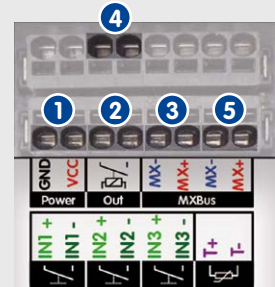


2. Set up MxDisplay+ as WiFi Client

Once the MxDisplay+ is running, it has to be set up as a WiFi client (**Installation > Display Configuration > WiFi**).

Connecting Signal Inputs/Outputs and Temperature Sensor

If someone rings the doorbell, you can activate the intercom or open the door using the MxDisplay+. To be able to do so, the doorbell and the door opener need to be connected to the signal outputs of MxDisplay+ and – optionally – a door sensor and a door lock sensor can be connected to the signal inputs. Open the cover on the back of the MxDisplay+ and push the wire ends through the openings of the single-wire sealing. Then insert the wire ends into the corresponding holes in the two upper rows of the terminal (see figure).



- 1 Doorbell, input 1
- 2 Door sensor, input 2
- 3 Door lock sensor, input 3
- 4 Door opener, output 1
- 5 Temperature sensor

Note that the signal inputs and outputs still need to be assigned in the MxDisplay+ (see «*Initial Operation*» further below).

Notes on Connecting: The signal output is potential-free (i.e., it does not carry current) and needs to be connected to the door opener together with an external power supply. You can connect potential-free wires (e.g., door sensor) as well as live wires (e.g., doorbell) to the galvanically separated signal inputs. When connecting a contact with DC power supply (e.g., doorbell), you need to respect the polarity. Note that the "+" and "-" labels on the signal inputs of older MxDisplay+ devices had been swapped by accident. Regardless of the labeling, the actual polarity corresponds to the figure above.

In addition, you can connect a temperature sensor to the MxDisplay+. The two wires are connected to the terminals labeled "T+/T-" (see fig. above). Please note that you can only use specific temperature sensors at the moment. To find a list of supported temperature sensors, please open **www.mobotix.com > Support > Manuals > Network Technology / Home Automation > MxDisplay**. Once you have connected all the wires you need, you can close the cover on the back of the MxDisplay+.

Note: In order to use the signal inputs/outputs and the temperature sensor, please make sure that the MxDisplay is running software release 2.1 or higher.

Inserting the MxDisplay+ Into a Frame

Make sure that the seal has been positioned properly on the back of the MxDisplay+ and that the protective foil on the front has been removed. Insert the MxDisplay+ into the frame with its right side first (this applies for both the single frame and the FlatMount Frame). Then push the MxDisplay+ on the left side into the frame until it clicks into place.

Releasing the MxDisplay+ From a Frame

1. Single Frame

Insert the key (included with the delivery of the single frame) into the two slots on the lower left corner of the frame and push upwards. The MxDisplay+ is released on the left side, so you can pull it from the frame.

2. FlatMount Frame

Insert the ruler (included with the FlatMount Frame) into the slit on the lower left in such a way that the upper part of the ruler is on the same level as the lower part of the MxDisplay+ image area. Push the outer end of the ruler downwards (see fig. on the right). The MxDisplay+ is released on the left side, so you can pull it from the frame.



Initial Operation

Make sure that all cameras you want to use with the MxDisplay+ are running firmware version 4.2.3 or higher. For updating the firmware on door stations, please see the *Compact Guide: Firmware Update* (**www.mobotix.com > Support > Manuals > Software > Compact Guides**).

To update the firmware, start a browser and go to **www.mobotix.com**. Log in with the **admin** user (user **admin**, password **meinsm**) and select **Update System Software** from the menu. By factory default, the MxDisplay+ has been set to run as a DHCP client with an additional local IP address in the 10.x range (see label on the back of the device) with a network mask of 255.0.0.0.

Starting Up Door Station(s) and Setting Up MxDisplay+ as Remote Station

The complete startup using only MxDisplay+ will be possible with a later software version. Until this is the case, you need to follow the same steps as outlined in Chapters 2 to 4 of the *T25 System Manual Part 2* (**www.mobotix.com > Support > Manuals > IP Video Door Station**).

1. **Power:** All devices need a network connection and a power supply.
2. **Auto configuration:** Carry out the auto configuration at the door station (see *Section 2.1.3, «Start the Auto Configuration»* in the afore-mentioned manual). When using several door stations, choose one door station as a master and then carry out the auto configuration on that door station. The auto configuration is completed by entering the Super PIN at the access modules (KeypadRFID or BellRFID).
3. **Access modules:** The access modules used will now be set up one by one. This includes training the RFID cards, entering the contact/people/PIN numbers of KeypadRFID modules and configuring the bell buttons on the BellRFID modules (see *Sections 2.2, «Set Up the KeypadRFID Access Module»* and 2.3, «*Set Up the BellRFID Access Module*»).

MxDisplay+: Reboot the MxDisplay+ by simultaneously holding the Envelope, Home and Key buttons until a beep sounds five times in a row. Start the Installation Wizard via **Settings > Installation > Installation Wizard** to change the language, the camera access password and all desired bells. You can keep all other settings.

Important: You have to enter the Super PIN as the password for the door stations. The Super PIN is the number you entered during auto configuration. After this, you should assign any existing door sensors and door lock sensors for each door station, deactivate the auto configuration and activate the **Super PIN** (see *Section 2.1.3, «Start the Auto Configuration»*). If you have connected signal inputs or outputs, you also need to assign the doorbell and any sensors at the apartment door in **Settings > Installation > Door Configuration > Floor Call**. If a temperature sensor has been attached, you need to set its model in the **Settings > MxDisplay Settings > Temperature Sensor** dialog. **Caution:** Note that you will not be able to get sensible temperature readings if the sensor is not in the list of supported sensors. When using several MxDisplay+ units, you can set the parameters that you want to be the same on all devices (e.g., lock specific functions). After you have set these parameters, you can apply the configuration to all other MxDisplay+ units (**Settings > Installation > Display Configuration > Manage Settings**). Reboot all other MxDisplay+ units (as described above) and, if applicable, configure individual settings. This also includes e.g., doorbells that are supposed to trigger a signal at the device.

Note: Other cameras besides door station cameras can be integrated into the system using the auto configuration. Make sure that the cameras are running as DHCP client (this is the factory default of camera software releases **4.2.3** and higher) and that the factory default password **meinsm** is still valid for the **admin** user.

Integrating MxDisplay+ into an Existing Door System

1. Integrate the MxDisplay+ into the network with the MOBOTIX door stations and MOBOTIX cameras as well as the supplied MxDisplay+ Quick Install. Then establish the power supply (using PoE or an external power supply).
2. After the MxDisplay+ has been connected, it shows the date and time (stand-by mode). Start the Installation Wizard (tap on the screen and select Installation Wizard). Then follow the steps and assign the desired bells to the MxDisplay+. This can be changed later on in **Settings > Installation > Display Configuration > Assign Door Bells**.

Important Notes

- The MxDisplay+ is only to be used in combination with the original MOBOTIX frame as well as the on-wall or in-wall housings.
- The MxDisplay+ must not be installed in metallic frames, since this can hamper the RFID function and – at worst – can even destroy the RFID chip.
- Electrical installation: 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.
- Network security: MOBOTIX products include all of the necessary configuration options for operation in Ethernet networks in compliance with data protection laws. The operator is responsible for the data protection concept across the entire system. The basic settings required to prevent

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

- This product must not be used in locations exposed to the dangers of explosion.
- Only install this product in or on suitable, solid materials that provide for a sturdy installation of the fixing elements used.
- When connecting MxBus devices, you need to use either PoE or an external 48 V DC power supply.
- Always observe the allowed operating temperature range of 0 to +40 °C/+32 to +104 °F for the MxDisplay+ and –30 to +60 °C/–22 to +140 °F for the MxDisplay+ Outdoor.
- To get proper temperature readings, you should not install an external temperature sensor in close proximity to the MxDisplay+.