



Instruction manual

Machine Mounted Terminals / Machine Mounted Displays

MMT8000 series / MMD8000 series



Read these instructions carefully before using and store for future reference.

These instructions contain important information about the product, in particular about its intended use, safety, installation, utilisation, maintenance and disposal.

Hand over the instructions to the user following installation of the product, and pass the manual on to the new user if the product is resold.

These instructions can be downloaded from: www.ads-tec.com in the Download area.

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1 Device description

The **M**achine **M**ounted **T**erminal (MMT) and **M**achine **M**ounted **D**isplay (MMD) are designed for the control and visualisation of production processes in the pharmaceutical, foodstuff, beverage and chemical industry. In the case of the MMT, the processing unit is integrated in the housing, making an external PC unnecessary for control (Fig. 1: Use of MMT and MMD). The MMD is a display which can be controlled by an external computer, e.g. from the existing industrial computer environment. With the MMD, cables can be used for distances of up to 15 m between the display and computer. The optional HDBaseT™ Extender Kit has been developed to bridge greater distances of up to 100 m. MMT and MMD are both available in the 17 and 24 inch format.

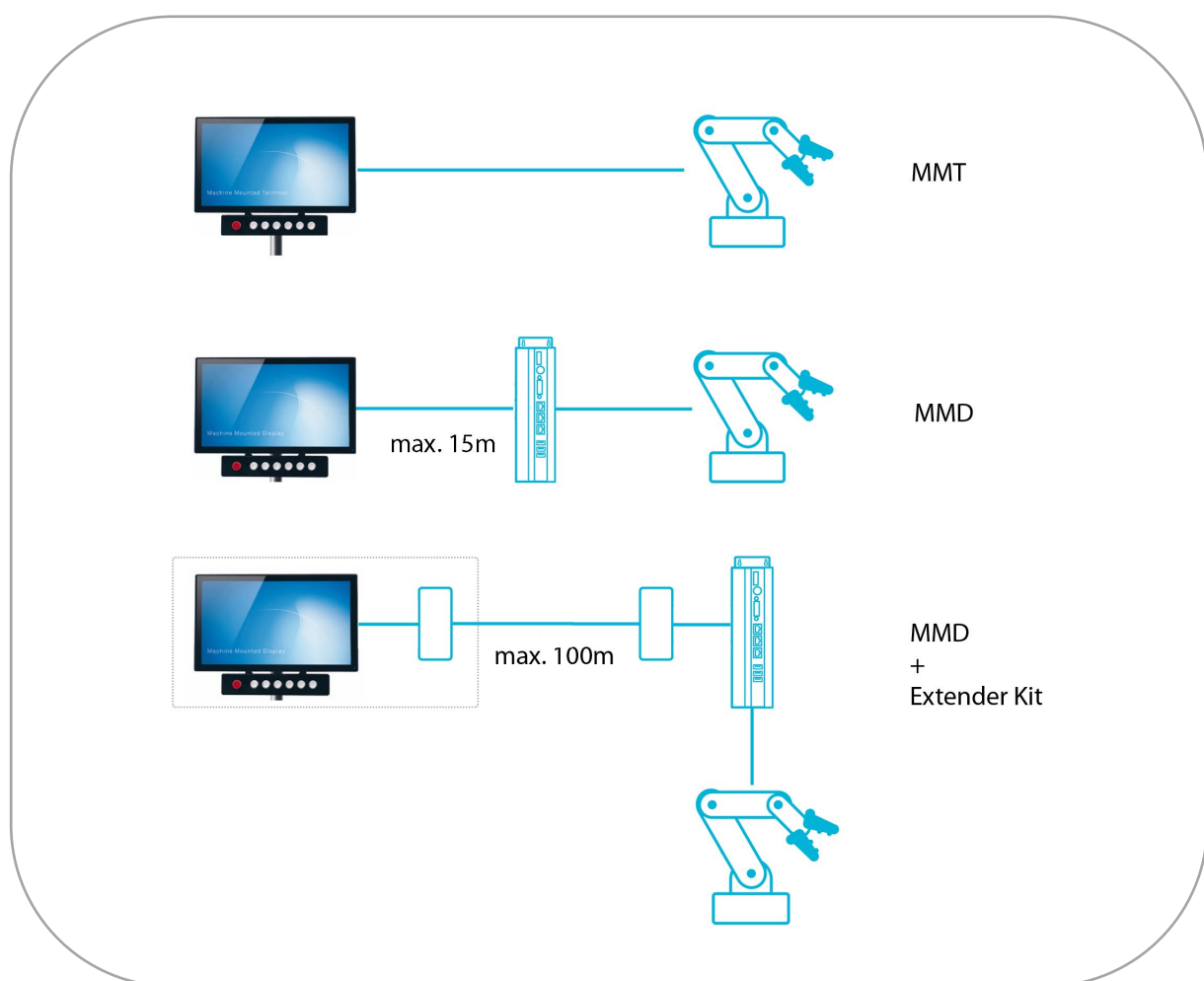


Figure 1: Use of MMT and MMD

The MMT/MMD8000 series has been specifically designed to meet strict hygiene conditions according to **EHEDG** (European Hygienic Engineering & Design Group) and **GMP** (Good Manufacturing Practice) guidelines.

This is achieved by the stainless steel housing of the device being completely closed, having rounded edges and no external screws. This allows the device to be cleaned simply and effectively. The device has no fan, which means that the primary source of contamination is not present. Due to its robust, compact design, the device can also be operated under demanding environmental conditions. All necessary cables are routed to the device through the connecting tube so that there are no exposed cables in the operating room.

Thanks to the very latest multi-touch technology, the full-HD display with a maximum resolution of 1920x1080 pixels can be operated conveniently by touching and also by means of swiping and dragging movements. Operation with special gloves is also possible. Additionally, a freely configurable key module is available which enables e.g. individual production processes to be started and stopped by simply pressing keys or by operating a switch. An emergency-stop switch can also be integrated in this module.

Both the MMT and MMD can be mounted either on a stand or on a support arm, i.e. stand or suspended mounting.

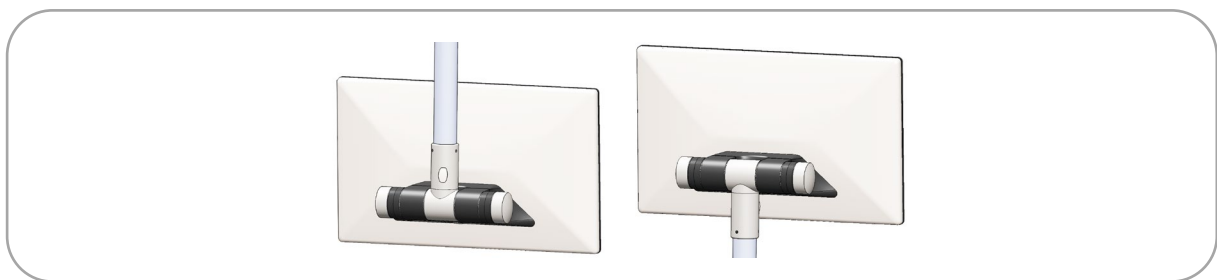


Figure 2: Mounting on support arm and stand

In addition to the T-piece support arm adapter, a crosspiece support arm adapter is also available (Fig. 3). This allows two monitors to be mounted one above the other.



Figure 3: Crosspiece adapter

By simply turning and tilting the device and the key module, each device can be adjusted during operation so that the user can view it at the optimum angle (Fig. 4).

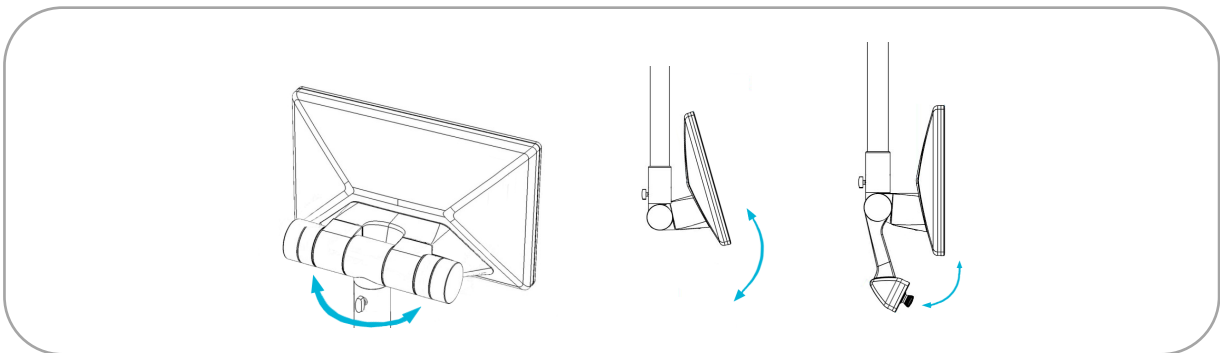


Figure 4: Turning and tilting

Alternatively, ADS-TEC also offers a VESA adapter which can be used to connect the device to a VESA 75 mounting system (Fig. 5).



Figure 5: VESA adapter

For applications with increased IP protection requirements, ADS-TEC offers variants with IP69K:



Figure 6: Variants with IP69K

2 General safety instructions

2.1 Information about documentation

2.1.1 General remark

This instruction manual is intended to ensure safe and efficient handling and operation of IT Infrastructure products.

The instruction manuals must be read carefully by personnel before commencing any type of work.

All of the safety instructions and handling instructions given in the manual must be obeyed in order to ensure that work is carried out safely.

Operation of the system is subject to the laws and regulations which are applicable in the respective country at national, federal, European and international level.

The generally accepted rules of technology, usually in the form of standards, directives, regulations, conditions and technical rules specified by national and federal organisations as well as trade associations and committees for the field of specialisation concerned, shall apply.

Figures used in this instruction manual are provided for basic understanding and may differ from the actual design.

The operator/operating company is independently responsible for compliance with and observance of any subsequently introduced technical innovations or new legal requirements, as well as for all usual obligations of the operator/operating company.

The original version of this instruction manual was written in German. All non-German versions of this instruction manual are translations of the German instruction manual.

2.1.2 Limitation of liability

ads-tec Industrial IT GmbH shall not be liable for personal injury, property damage or damage caused to the device as well as consequential damage that is/was the result of non-compliance with this instruction manual, improper use of the device, repairs and other actions on the device by unqualified electricians and electricians not certified by ads-tec Industrial IT GmbH, or that is/was the result of using unapproved replacement parts. Failure to observe the maintenance intervals shall also result in exclusion from liability. Furthermore, it is strictly forbidden to make any unauthorised alterations or technical modifications to the device.

2.1.3 Manufacturer and contact details

The manufacturer of the product is ads-tec Industrial IT GmbH. The company is referred to in the following as ADS-TEC.

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2.1.4 Relevant device documentation

The following documents are decisive to device setup and operation:

- **Instruction manual:**
Contains information for installation, commissioning and operation of the device along with technical data of the device hardware.
- **Website:**
You can download the instruction manual as well as drivers, software, user manuals, leaflets and flyers from the Download area of our website www.ads-tec.com

2.1.5 Symbols

| Symbol | Meaning |
|---|---|
|  | Designation of batteries. Batteries may not be disposed of with household waste, but must rather be disposed of separately. Used batteries must be returned to the point of sale or a disposal system. |
|  | Labelling of electrical and electronic devices. Electrical and electronic devices must not be disposed of with household waste, but must rather be taken to a collection point for waste electrical equipment. Such a collection point is generally operated by public waste management authorities, i.e., by municipalities. |
|  | Symbol for the protection earth (PE) connection |
|  | Symbol for the functional earth (FE) connection |

2.1.6 Data, figures and modifications

All data, text and figures were prepared to the best of our knowledge. They do not represent any assurance for the properties themselves. Despite taking utmost care, no liability can be assumed for accuracy, completeness and actuality of the information. Subject to changes.

2.1.7 Trademarks

It is noted that any software and/or hardware trademarks and any company brand names mentioned in this documentation are all subject to the general trademark protection rights.

StoraXe®, Big-LinX® and X-Remote are registered trademarks of ADS-TEC.

All other used third-party trademarks are hereby acknowledged.

In the case of trademark infringement, ADS-TEC reserves the right to exercise all rights.

2.1.8 Copyright

This instruction manual is protected by copyright. For the authorised user, simple usage rights are granted within the scope of the intent of the contract. Any modified use or exploitation of the provided content, particularly duplication, modification or publishing in whatever form is permitted only with the prior consent of ADS-TEC.

In the case of copyright infringement, ADS-TEC reserves the right to exercise all rights.

2.1.9 Standards and conformity

The manufacturer hereby declares that the product described in this instruction manual complies with all relevant stipulations of the following European directives:

- 2011/65/EU RoHS Directive
- 2014/30/EU EMC Directive
- 2014/53/EU RED Directive
- 2014/35/EU Low Voltage Directive



The EU conformity declaration can be requested on our website www.ads-tec.com and downloaded in the Download area.

The product is a class A device (industry).

Note: For full compliance with the EMC legislation, all components and cables used for device connection must also be compliant with these requirements. It is therefore necessary to employ BUS and LAN cables with shielded connectors and these must be installed as per the instructions contained in the instruction manual.

Cleanroom requirements

The devices were tested by the Fraunhofer Institute for Manufacturing Engineering and Automation (IPA) for their suitability for cleanroom production. The result according to the criteria of the "EU Guidelines for Good Manufacturing Practice" (GMP) is:

- Suitable for Cleanliness Classes A and B.

This assessment concerns the unit in a resting state. The final assessment must be made on site in the actual manufacturing process.

Devices with UL certification (Underwriter Laboratories / USA)

Variants with a UL symbol on their label also comply with the following UL standards:

- UL 61010-1 Programmable Controllers
- UL 61010-2-201 UL file number E343358
- CAN/CSA-C22.2 No. 61010-1
- CAN/CSA-C22.2 No. 61010-2-201

2.2 Explanation of safety instructions

2.2.1 Structure of safety instructions

The signal word classifies the hazard.

Reference to the type/consequences and source of the hazard is made underneath the signal word.

Information on how to avoid the hazard is indicated by an arrow (➡).

DANGER



Type and source of the hazard!

Possible consequences if the hazard is disregarded

➡ Measures for avoiding the hazard

2.2.2 Explanation of signal words

DANGER



Indicates an imminent danger.
If not avoided, death or severe injury will result.

WARNING



Indicates a possible danger.
If not avoided, death or severe injury could result.

CAUTION



Indicates a possible danger.
If not avoided, light or minor injuries could result.

ATTENTION

Indicates a possibly damaging situation.
If not avoided, the system or something in its surroundings could be damaged.



Recommendation for use:

Indicates terms and/or conditions that strictly need to be observed to ensure optimised and/or zero-defect operation. Tips and suggestions for the efficient use of the device and software optimisation are also provided.

2.3 Safety instructions

2.3.1 Basic safety instructions

- All users must read this manual and have access to it at all times.
- The safety notices and the manual itself must be observed by all persons who work with this device.
- The manual contains the most important instructions on how to use this device in a safe way.
- Intervention by the user is required only for performing the actions described in this document. Should any further modifications be required, it is necessary to consult either with the manufacturer directly or with service personnel authorised by the manufacturer.
- The device must be de-energised during work. Appropriate measures must be taken to prevent electrostatic discharges on components.
- If the device is opened up by an unauthorised person, the user may be subject to hazards and the warranty is invalidated.
- Installation, commissioning and operation may only be performed by qualified and trained personnel.
- At the installation site the valid guidelines and regulations for accident prevention must be observed.
- Appropriate storage, proper transport, installation and commissioning, as well as careful operation are prerequisites for ensuring safe and proper operation of the device.
- The device can be cleaned using cleaning agents specified in chapter 9.

2.3.2 Environmental conditions

ATTENTION

Damage caused by heat!

If the device is exposed to sunlight or any other light or heat source, it can overheat and suffer damage.

➔ Do not expose the device to direct radiation by sunlight or any other light or heat source!

ATTENTION**Damage caused by heat!**

If the device is installed in a panel, casing or similar, heat accumulation can occur.

➔ Make sure that heat can be dissipated from the device!

ATTENTION**Damage caused by condensation!**

If the temperature of the device is different to that of the room in which it is located, condensation can form.

➔ Switch on the device only if it has acclimated to the ambient temperature!

Use of the device is only permitted

- in enclosed buildings
- in non-explosive atmospheres
- at altitudes below 2000 m
- in environments with maximum contamination grade 2 (IEC/EN 61131-2)

The device can be operated under the environmental conditions (temperature, humidity, vibration and shock) which are specified in the data sheet in chapter 11.1.1. Failure to observe any one of these conditions will invalidate the warranty of the device. ADS-TEC cannot be held liable for any damages arising from improper use and handling.

The climatic conditions were tested according to:

- IEC/EN 60068-2-1
- IEC/EN 60068-2-2
- IEC/EN 60068-2-14
- Protection class depending on the variant: IP65 or IP69K according to DIN EN 60529 / ISO 20653

2.3.3 Intended use

The control system is designed for use in the pharmaceutical, food, beverage and chemical industries. It was specially developed for the hygiene sector. The device is used for the visualisation and control of a wide range of processes on systems and machines in various application environments.

The device is only to be assembled, installed and operated within the permissible specifications. Use in non-specified environments is prohibited.

2.3.4 Improper use

Operation other than or beyond that described for the device shall be deemed improper use.

The device is not allowed to be used to control vehicles or for applications for which further approvals beyond the manufacturer's declaration are necessary, e.g. applications with explosion hazard, medical technology and shipping industry.

The device must not be put into operation in the case of transport damage or nonconformity with the specifications and, if necessary, must be taken out of operation in the case of changing conditions.

In the case of improper use, ADS-TEC shall not accept responsibility or liability for injury or damage that is directly or indirectly attributable to the handling of the device.

2.3.5 Damage due to improper use

ATTENTION

Risk of mechanical damage!

The device can be damaged as a result of unauthorised mechanical modifications.

➔ Make sure that the device is not drilled, chiselled or perforated and its exterior shape and design is not modified in any way!

Should the control system have evident signs of damages caused, e.g., by transport, nonconformity with the specifications, improper operation and storage conditions or due to improper use or handling, the device must be shut down immediately. Ensure that it is secured against being started up accidentally.

2.3.6 Warranty / repairs

During the device warranty period, any repairs must only be performed by the manufacturer or by service personnel that has been authorised by the manufacturer.

2.3.7 Treatment and disposal of lithium batteries

WARNING

**Hazard due to explosion**

Danger of explosion if using incorrect battery types.

➔ Use the battery type recommended by the manufacturer!

ATTENTION

Hazard due to thermal loads

The more the battery is exposed to higher temperatures, the faster it ages.

➔ Operate the device within its specifications!

ATTENTION

Damage to the battery

Incorrect handling of the battery can cause it to be damaged or destroyed

➔ Lithium batteries should not be exposed to fire, soldered, recharged, opened, short-circuited, reversed or heated above 100 °C and they should be disposed of properly as well as protected against sunlight, humidity and condensation!

This device contains a lithium battery for supplying the system clock with power as long as the supply voltage is not connected. The battery has a life cycle of 3-5 years depending on which load is applied.

The battery type to be used is:

- Lithium battery CR2032 230 mAh
- ADS-TEC part number: DZ-SONS-04075-1

The used lithium battery should be disposed of in accordance with local legal regulations.

2.3.8 Electrostatically sensitive components

ATTENTION

Damage due to electrostatically sensitive components

Damage to the device can be caused by electrostatic discharges.

➔ All installation and service work performed on the device must be performed only under safe, secure and de-energised conditions!



Recommendation for use:

Always adhere to the safety measures applicable when handling components at risk of being damaged by electrostatic discharges.

The provisions of DIN EN 61340-5-1 / DIN EN 61340-5-2 apply.

3 Scope of delivery

ATTENTION

Damage to components containing soft parts!

If the soft material is subjected to a concentrated load, e.g., by placing it on a grating, irreversible impressions will form after some time.

➔ Make sure that a suitable surface is provided when setting down the device on its display side, e.g. a clean, plane surface!

➔ Please check that all of the following components are contained in the packaging.

MMT8000 series

| | |
|---|----------------------------|
| Device | DVG-MMT8017 or DVG-MMT8024 |
| 4-pin plug (power supply) | DZ-SONS-01222-3/A |
| Instructions for drilling template | DZ-HAND-91053-0/* |
| Drilling template (for support arm adapter) | DZ-MECH-32444-0/* |
| Installation aid (M3 Allen key) | DZ-MECH-33703-0/* |

MMD8000 series

| | |
|---|----------------------------|
| Device | DVG-MMD8017 or DVG-MMD8024 |
| 3-pole plug | DZ-SONS-00994-2 |
| Instructions for drilling template | DZ-HAND-91053-0/* |
| Drilling template (for support arm adapter) | DZ-MECH-32444-0/* |
| Installation aid (M3 Allen key) | DZ-MECH-33703-0/* |

3.1 Optional scope of delivery

Operating system (only with MMT)

Key module and additional elements (for non-premounted key module)

| | |
|---------------------------------|-------------------|
| Front coversheet for key module | DZ-MECH-32391-0/* |
| Insert strip (silver) | DZ-MECH-32396-0/* |
| Insert strip (black) | DZ-MECH-32396-1/* |

Variants with HDBaseT™ (only with MMD)

| | |
|------------------------|-------------------------|
| Transmitter module | DV-MMDEXT-TX |
| Receiver module | (integrated in the MMD) |
| USB cable | DZ-SONS-05647-0/* |
| HDMI cable | DZ-SONS-05646-0/* |
| Cable for power supply | DZ-SONS-09796-0/* |

4 Installation

ATTENTION

Damage caused by heat!

If the device is exposed to sunlight or any other light or heat source, it can overheat and suffer damage.

➔ Do not expose the device to direct radiation by sunlight or any other light or heat source!

**Recommendation for use:**

At least 2 persons are required to install the device at the installation location.

**Recommendation for use:**

Before installing, make sure that all mechanical connections are fixed in place in the connecting tube system at the installation location.

The following tools are needed for installation:

Installation with support arm adapter

- 4 mm Allen key (1 x straight and 1 x angled)
- 2.5 mm Allen key
- 3 mm Allen key
- 5 mm Allen key or Torx TX10
- 2 mm flap-tip screwdriver
- Wrench (spanner) 17 mm

Installation with VESA 75 adapter

- 4 mm Allen key
- 5 mm Allen key or Torx TX10
- 5.5 mm Allen key

Installation with adapter for MMD with IP69K

- Spanner 8 mm

4.1 Inclination angles

Inclination angles at support arm adapter or crosspiece adapter

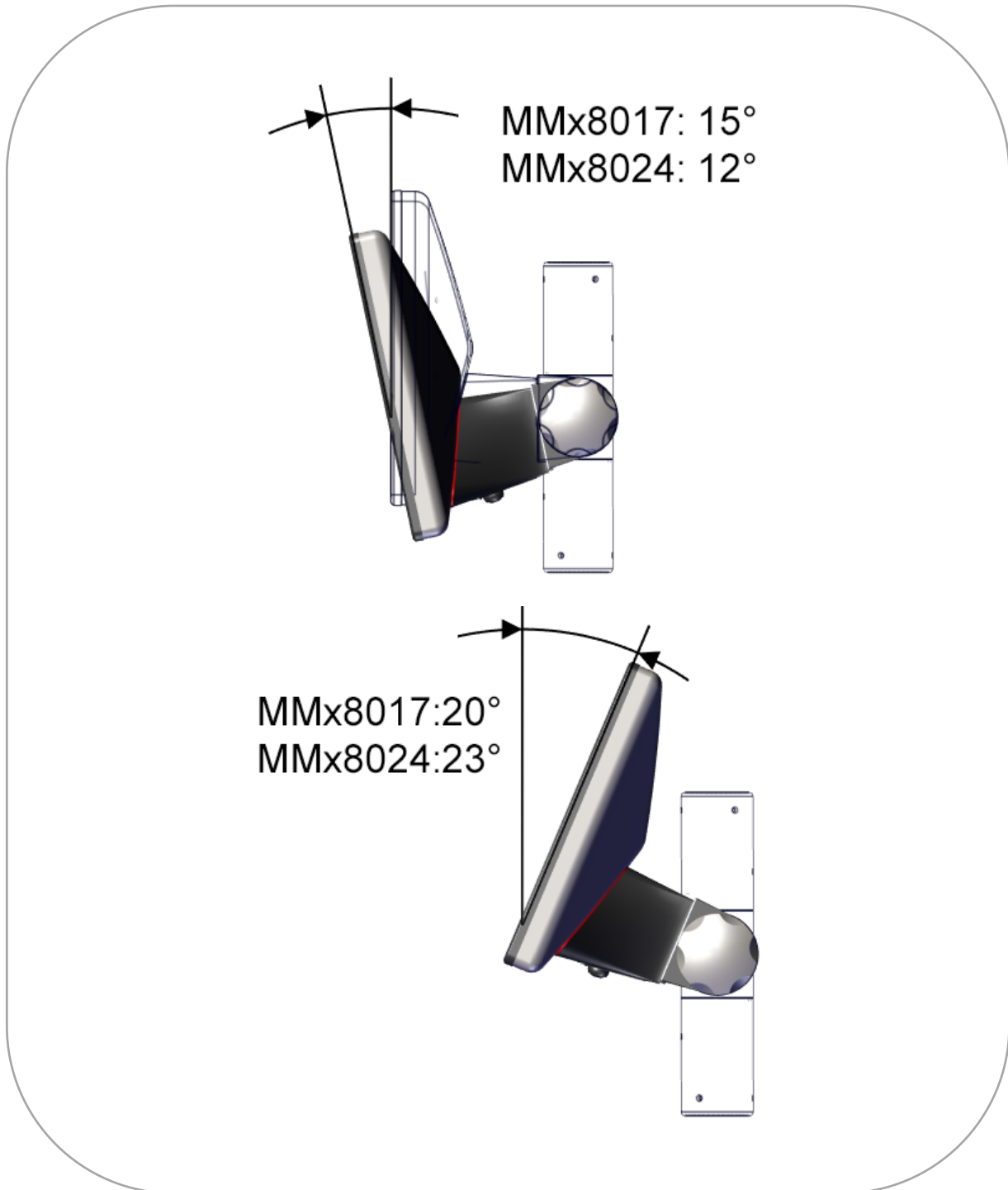


Figure 7: Inclination angles at support arm adapter or crosspiece adapter

4.2 Overview of installation components

4.2.1 Designations

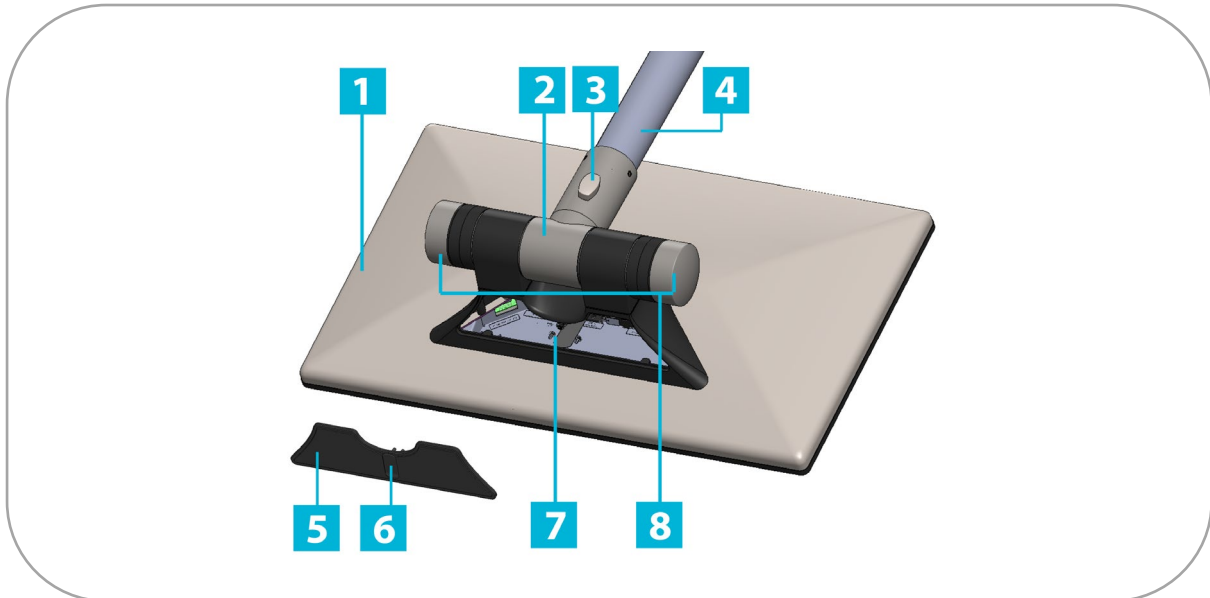


Figure 8: Designations

| | |
|---|---------------------|
| 1 | Device |
| 2 | Support arm adapter |
| 3 | Wing screw |
| 4 | Connecting tube |
| 5 | Service slot cover |
| 6 | USB flap |
| 7 | Service slot |
| 8 | Fastening screws |

4.2.2 Service slot – MMT

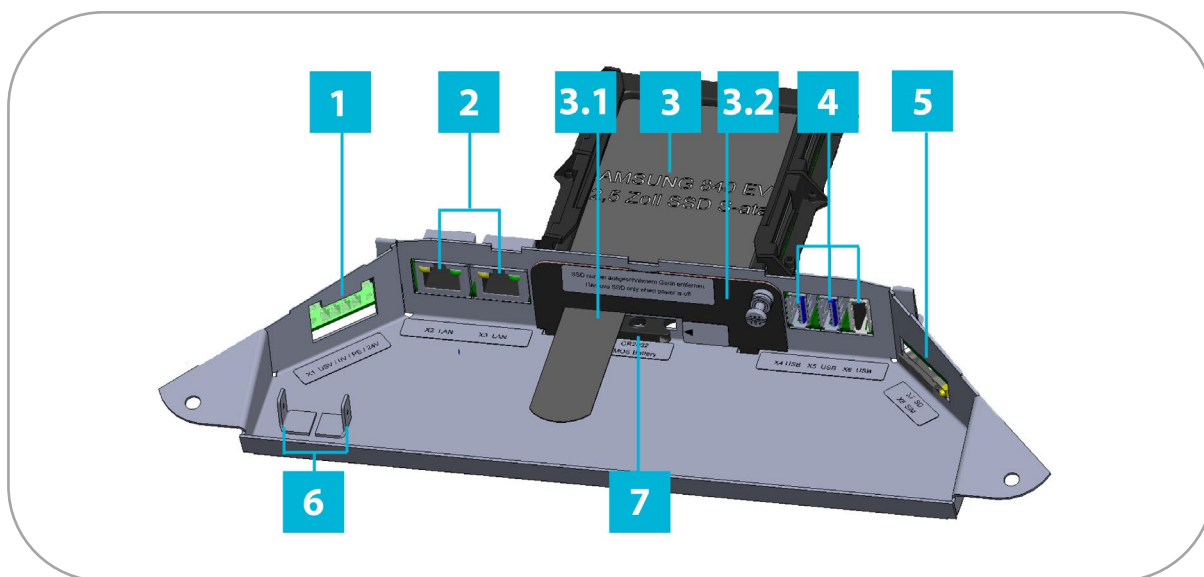


Figure 9: Service slot – MMT 8000 series

| | |
|-----|----------------------------------|
| 1 | Power supply |
| 2 | 2 x LAN RJ45 |
| 3 | 1 x 2.5" SSD mass storage |
| 3.1 | Removal aid |
| 3.2 | Cover plate with screw fastening |
| 4 | 2 x USB 3.0 1 x USB 2.0 |
| 5 | 1 x SD-Card Slot |
| 6 | 2 x FE connection |
| 7 | Battery |

4.2.3 Service slot – MMD

The new installation-space-optimised variant of the industrial monitors has the following interfaces:

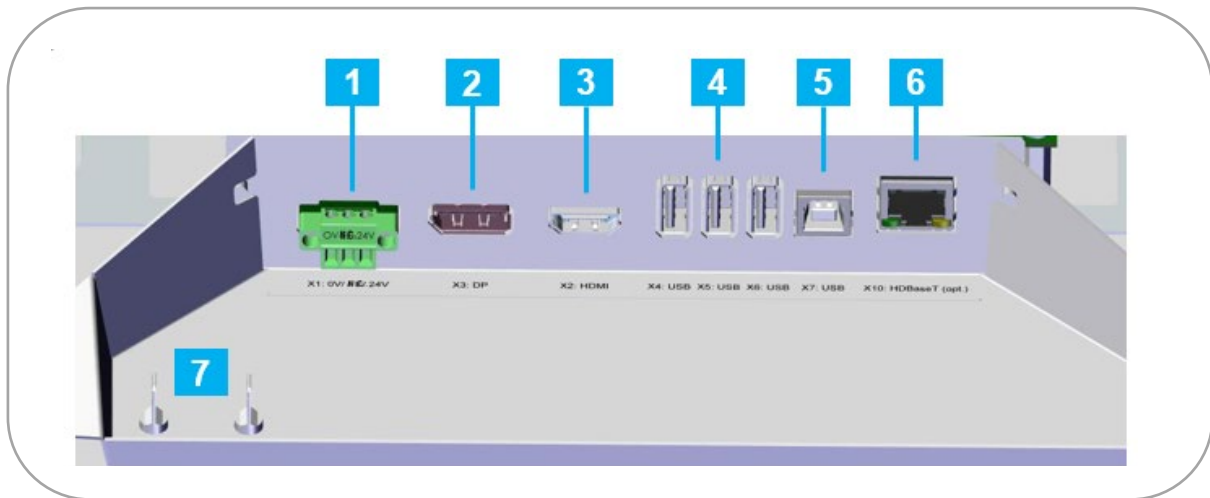


Figure 10: Service slot – MMD8000 series

| | |
|---|-----------------------------------|
| 1 | Power supply |
| 2 | DisplayPort |
| 3 | HDMI |
| 4 | 3 x USB 2.0 type A |
| 5 | 1 x USB 2.0 type B |
| 6 | Optional: HDBaseT extender (RJ45) |
| 7 | 2 x PE connection |

4.3 Order of installation

Installation with support arm adapter

1. Make sure that the device and all cables are disconnected from the power supply.
2. Remove the support arm adapter from the device.
3. *Optional:* Assemble and install the key module, chap. 4.4.2.
4. *Optional:* Adjust the support arm adapter to the installation position you require, chap.4.4.3.
5. Countersink the connecting tube, chap. 4.4.4.
6. Guide all necessary cables through the connecting tube and support arm adapter, chap. 4.4.5.
7. Mount the support arm adapter on the connecting tube (to 6 Nm), chap. 4.4.6.
8. *Optional:* Slide the extender kit into the mounting slot and connect the cables, chap.6.
9. Mount the device on the support arm adapter, chap. 4.4.8.
10. Connect all cables to the interfaces in the service slot, chap. 5.
11. Connect the device to the power supply (only after all of the above steps have been performed).

Installation with VESA 75 adapter

1. Make sure that the device and all cables are disconnected from the power supply.
2. Screw the VESA adapter to the device.
3. Guide the cables through the VESA adapter, chap. 4.6.
4. Mount the VESA adapter on your connection system.
5. Connect all cables to the interfaces in the service slot, chap. 5.
6. Connect the device to the power supply (only after all of the above steps have been performed).

4.4 Installation with support arm adapter

If you do not intend to use a support arm adapter, you can skip chapter 4.4.

4.4.1 Detaching support arm adapter from device

**Recommendation for use:**

If the support arm adapter is already attached to the device when delivered, remove it. This will make subsequent installation easier.

- ➔ Loosen the four threaded pins (A) and remove the two screws (B).
- ➔ Pull the support arm adapter off the device.

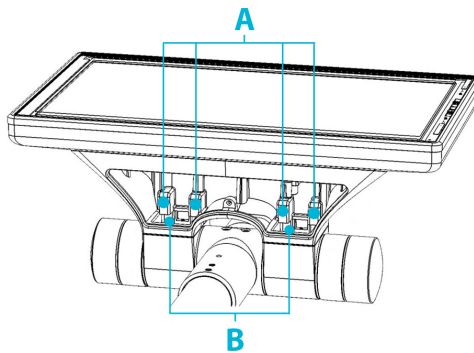


Figure 11: Screw connection of adapter to device

A 4 x M5 x 12 threaded pins (4 mm Allen key)

B 2 x M5 x 16 screws (4 mm Allen key)

4.4.2 Key module

- ➔ If you do not intend to use a key module or if your key module has already been installed by ADS-TEC, you can skip chapter 4.4.2.

ATTENTION

Damage to key module

Opening the key module incorrectly can cause damage.

- ➔ Open the key module on the right side (as viewed from the front)!

Switches, buttons and illuminated emergency-stop switches from various switch ranges can be installed on the key module for a hole diameter of 22.5 mm.

- ➔ Determine the exact dimensions from the technical drawing.
- ➔ Assemble and install the key module as described below:
- ➔ Open the key module on the right side (as viewed from the front) using a wide, blunt object.

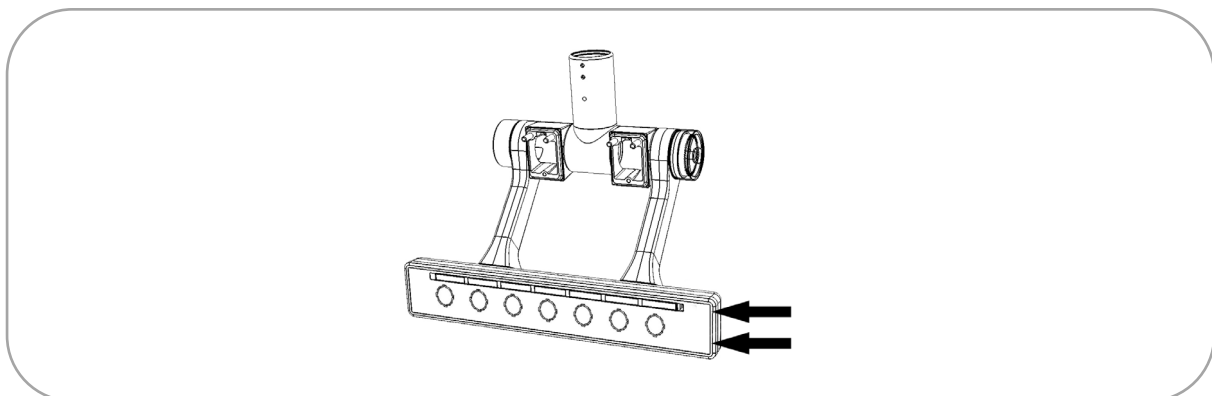


Figure 12: Opening key module

- ➔ Break the prepunched openings out of the key front as required. You can install up to seven switches/keys.

- ➔ Punch the required Ø 22.5 mm openings in the front coversheet from behind, or cut them out. The openings are highlighted in Fig. 13.

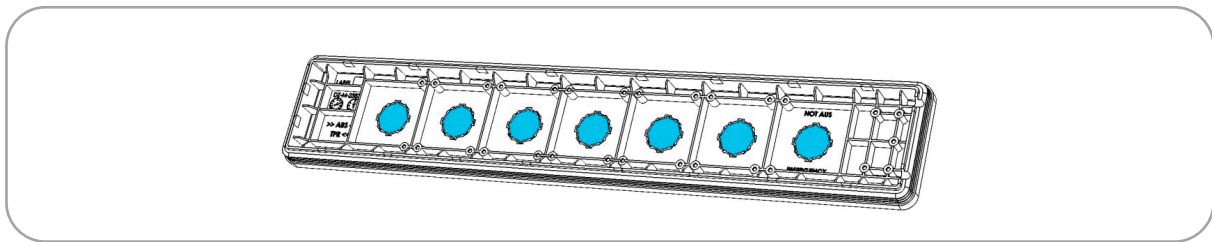


Figure 13: Prepunched openings in key module

- ➔ Print or write the appropriate labelling on the insert strip.
 - The dimensions (given in mm) are shown in Fig. 14. There are seven printable areas each measuring 6.5 mm in height and 40 mm in length. The gap on the left side is 11 mm and the gaps between the areas are 8.3 mm.

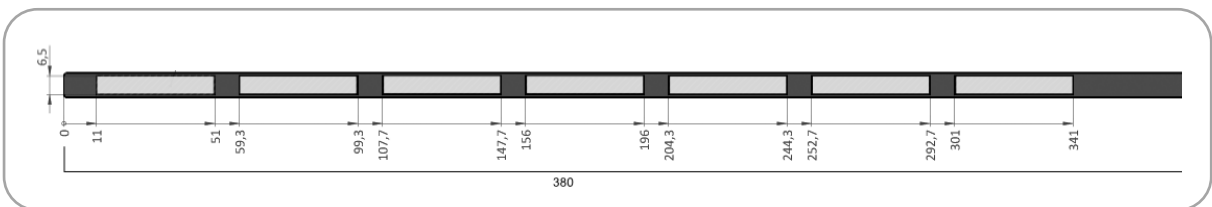


Figure 14: Labelling strip

- ➔ Slide the labelling strip from behind into the key front.

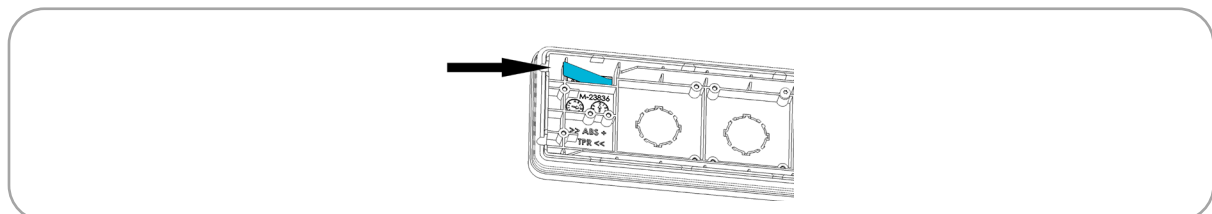


Figure 15: Inserting labelling strip

- ➔ Mount your keys on the key front.
- ➔ Install all necessary cables at the front keys.
- ➔ Guide the cables through the arms of the mounting bracket.

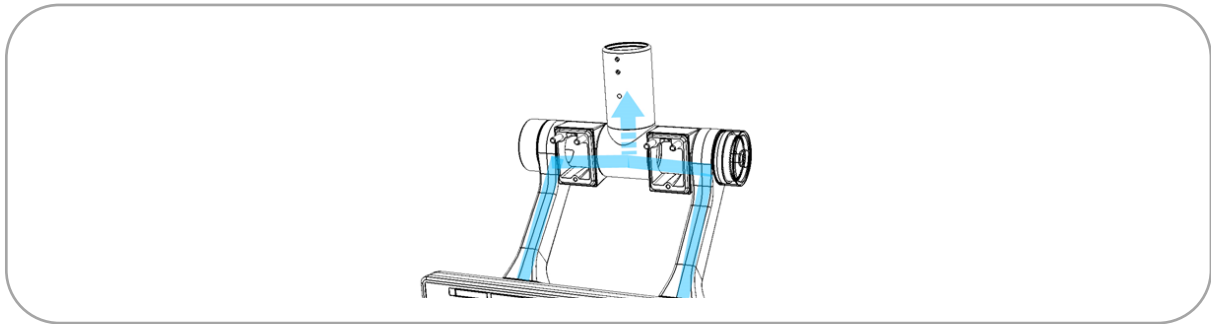


Figure 16: Cables of key module

- ➔ Make sure that the key module electronics are earthed via the device.

Close the key module:

- ➔ Position the front of the key module on the housing so that the panel lies against the left edge (as viewed from the front).
- ➔ Press the front of the key module into the housing of the key module.
 - Make sure that the front is also properly pressed down at the middle of the housing.

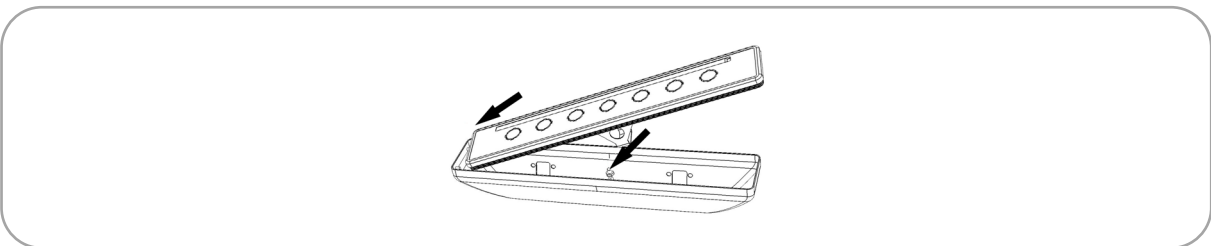


Figure 17: Closing key module

4.4.3 Adjusting position of support arm adapter

You can install the device both in the support arm position and in the stand position.

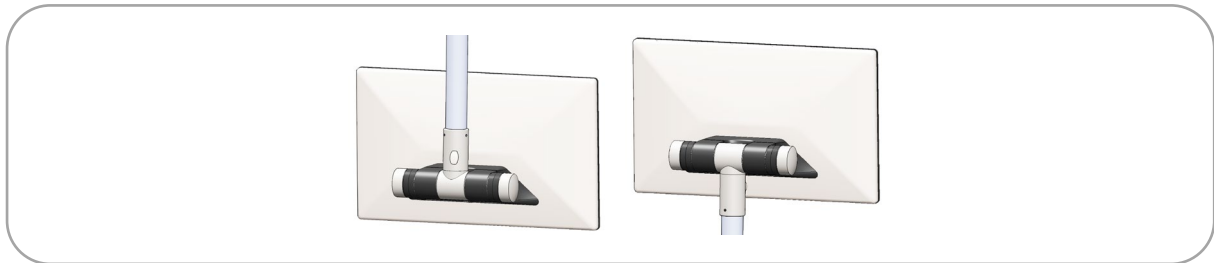


Figure 18: Mounting on support arm and stand

If the support arm adapter is not already set to the desired position, adjust it as required. In order to do this, it is advantageous if the support arm is not connected to the device.

- ➔ Loosen the screws marked in the drawing (4 mm Allen key).
- ➔ Remove the screws and the clamping block from the support arm adapter, e.g. using a magnetic screwdriver. If the clamping block is jammed, turn in the installation aid (hexagonal rod with 3 mm grub screw, included in the scope of delivery).

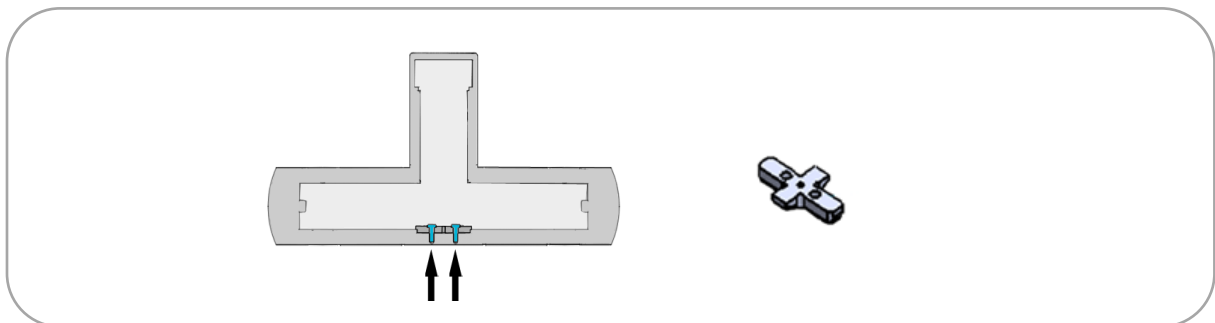


Figure 19: Screws in support arm adapter and clamping block

- ➔ Grip the T-piece at one of the black areas and turn the metal tube to the other position. The support arm position (suspended mounting) is shown on the left and the stand position (stand mounting) is shown on the right:

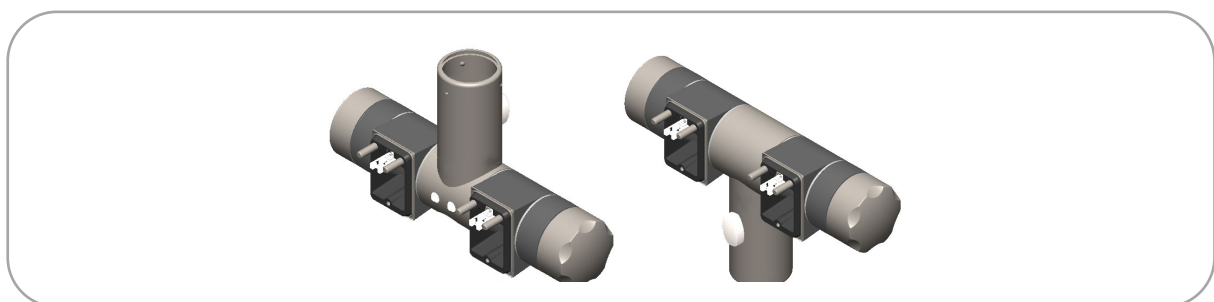


Figure 20: Support arm and stand position

- ➔ Loosely screw the rubberized side of the installation aid (rod with 3 mm threaded pins at the end) into the clamping block.
- ➔ Insert the screws into the clamping block.
- ➔ Guide the clamping block into the support arm adapter.

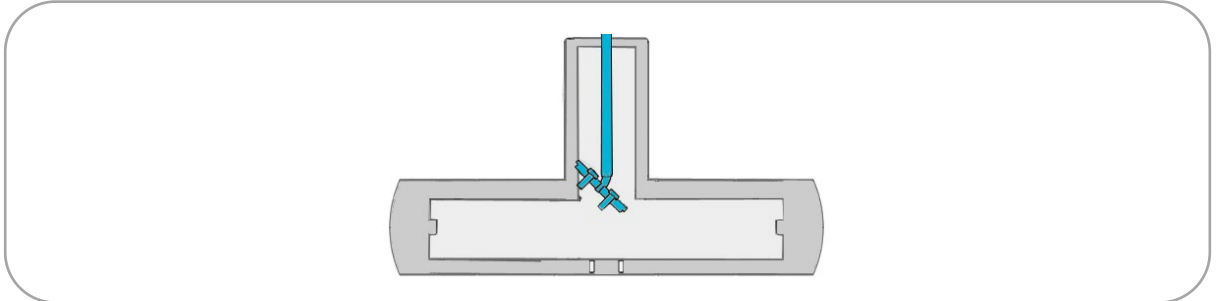


Figure 21: Inserting screws in adapter

- ➔ Remove the installation aid.
- ➔ Tighten the screws to a torque of 6.5 Nm (4 mm Allen key).

4.4.4 Preparing the connecting tube

WARNING



Risk of injury!

If the connecting tube is too thin, the device can work loose in the support arm position and fall to the ground.

➔ Make sure that the connecting tube meets the specifications!

The connecting tube must have a diameter of 48.3 mm with a maximum tolerance of +/- 0.3 mm.

Support arm mounting

- ➔ Attach the self-adhesive installation template to the end of the connecting tube.
 - The "Display front" marking must be **on the side** on which the display will later be.
 - The arrows must point to the end of the connecting tube.
 - Attach the template to the connecting tube as far as the "Overlap" marking.
 - Fold over the template at the "Folding edge" marking so that the end sticks to the back of the "Overlap" area.

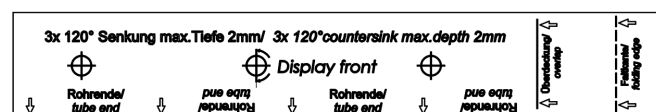


Figure 22: Installation template

- ➔ Countersink the connecting tube at the three marked points (min. M6 drill bit with 120° drill tip).
 - Drill max. 2 mm deep.

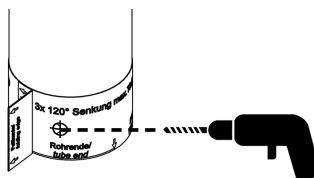


Figure 23: Countersinking connecting tube (support arm)

- ➔ Remove the template.

Stand mounting

- ➔ Attach the self-adhesive installation template to the end of the connecting tube.
 - The "Display front" marking must be **opposite** the side on which the display will later be.
 - The arrows must point to the end of the connecting tube.
 - Attach the template to the connecting tube as far as the "Overlap" marking.
 - Fold over the template at the "Folding edge" marking so that the end sticks to the back of the "Overlap" area.

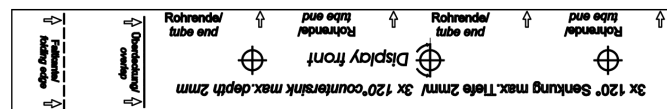


Figure 24: Installation template

- ➔ Countersink the connecting tube at the three marked points (min. M6 drill bit with 120° drill tip).
 - Drill max. 2 mm deep.

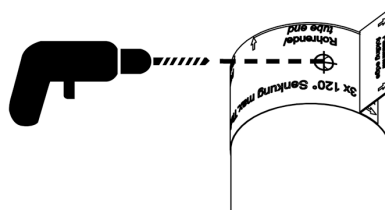


Figure 25: Countersinking connecting tube (stand)

- ➔ Remove the template.

4.4.5 Cable routing

**Recommendation for use:**

Use cables long enough so that they hang out of the connecting tube by min. 30–35 cm.

**Recommendation for use:**

Route the cables according to the interface positions in the service slot.

Support arm mounting

- ➔ Guide all cables out of the connecting tube and through the support arm adapter:
- Guide the USB cables through opening **A**.
 - Guide the power supply cable, earth cable and LAN cable through opening **B**.

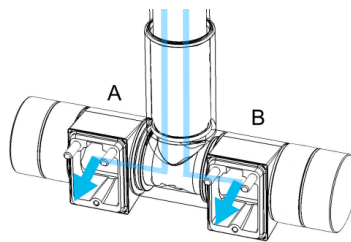


Figure 26: Cable routing for support arm mounting

Stand mounting

- ➔ Guide all cables out of the connecting tube and through the support arm adapter:
- Guide the USB cables through opening **A**.
 - Guide the power supply cable, earth cable and LAN cable through opening **B**.

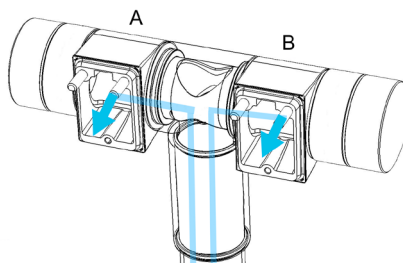


Figure 27: Cable routing for stand mounting

4.4.6 Mounting support arm adapter on connecting tube

WARNING

**Risk of injury!**

If the support arm adapter is attached too loosely, the device can work loose and fall to the ground.

➔ Observe the specified torques!

- ➔ **Support arm mounting:** Turn the foot of the support arm adapter so that the wing screw is **opposite** the connection openings.
- ➔ **Stand mounting:** Turn the foot of the support arm adapter so that the wing screw is **on the same side** as the connection openings.
- ➔ Attach the support arm adapter to the tube.

The connection openings must be on the side to which the display is to point.

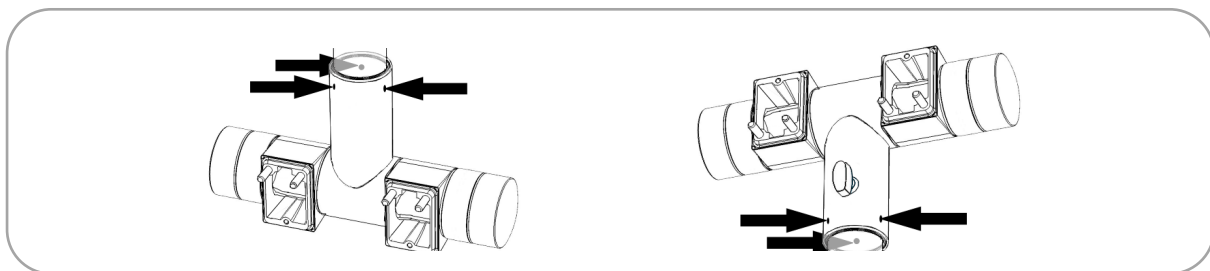


Figure 28: Screwing adapter to tube (left: support arm; right: stand mounting)

Fasten the support arm adapter as follows:

Older version of the fastening elements:

- 3 x threaded pin with tip ISO4027 M6x5 Allen A2 with PA thread lock:
Tighten with **6 Nm** (Allen 3 mm).

Newer version of the fastening elements:

- 3 x threaded pin with tip ISO4027 M6x10 Allen A2 with PA thread lock:
Tighten with **5 Nm** (Allen 3 mm)

The threaded pins are secured with one of the following:

- 3 x cap nuts with PA clamping part DIN986 M6 A2: Tighten with 2.5 Nm
- 3 x flat nut ISO4035 M6 A2: Tighten with 2.5 Nm
- At the end, the nuts must fit **evenly** against the tube.

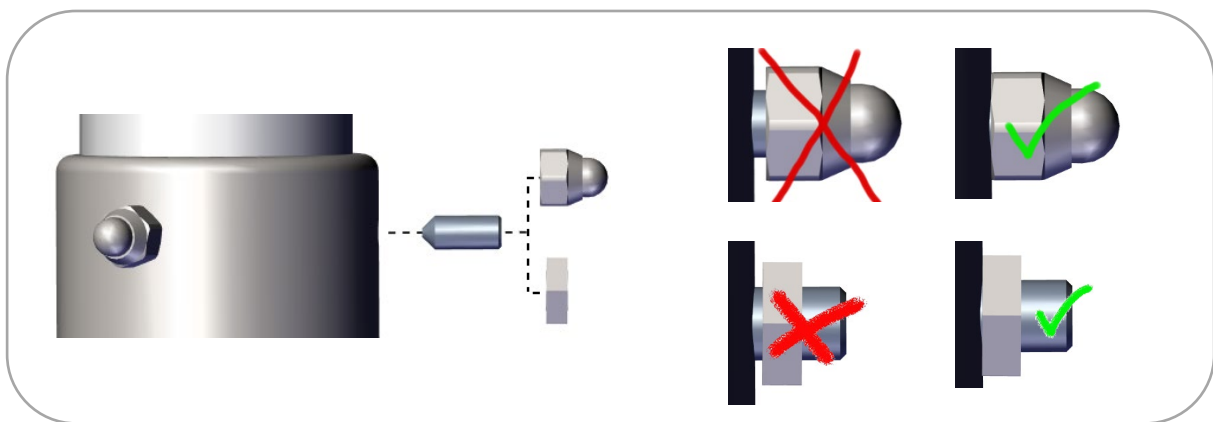


Figure 29: Newer version of fastening with threaded pins and nuts

4.4.7 Detaching and attaching service slot cover

ATTENTION

Risk of dirt and moisture penetration!

If the USB flap is not closed completely, dirt or moisture can enter the device.

➔ Close the USB flap completely before commissioning!

Removing service slot cover

- ➔ Open the USB flap
- ➔ Undo the screw underneath (5 mm Allen key or Torx TX10).

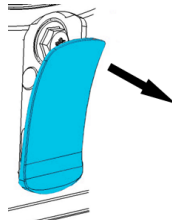


Figure 30: USB flap

- ➔ Remove the service slot cover.

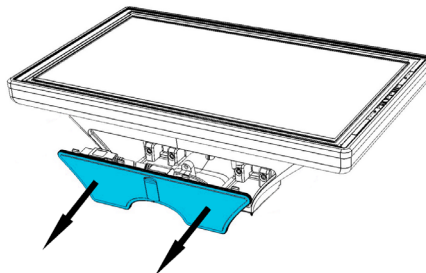


Figure 31: Removing service slot cover

Attaching service slot cover

- ➔ If required, insert the USB cable on the back of the service slot cover into the USB socket (USB 3.0).

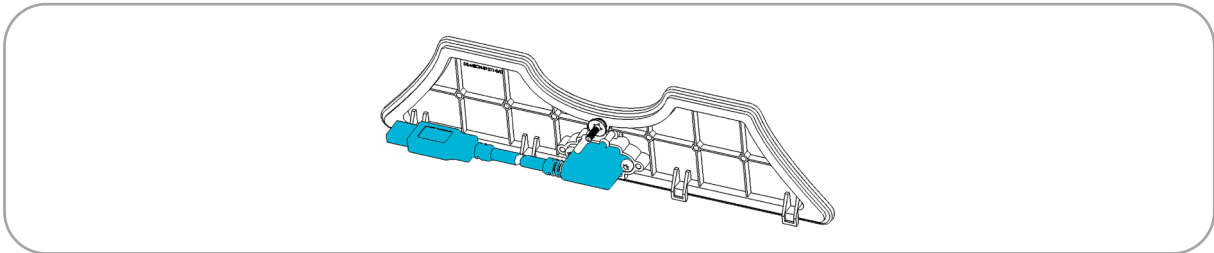


Figure 32: USB cable on service slot cover

- ➔ Position the lower edge of the service slot cover so that the retainer tabs engage in the frame.

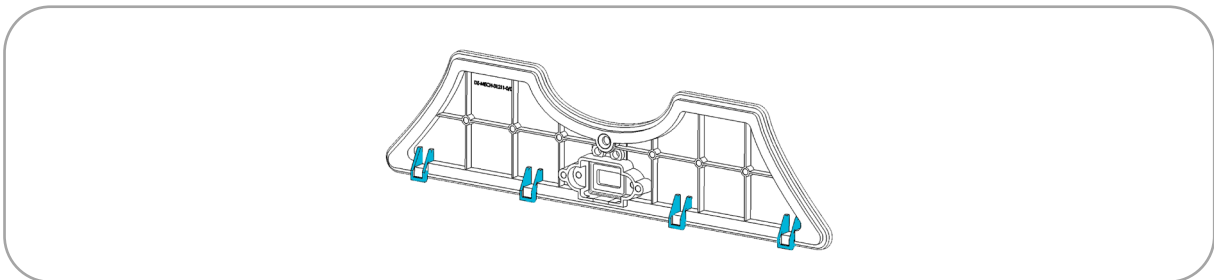


Figure 33: Retainer tabs of service slot cover

- ➔ Tighten the mounting screw
 - The service slot cover must be completely closed. The two sealing lips of the service slot cover must no longer be visible.
- ➔ Close the USB flap.

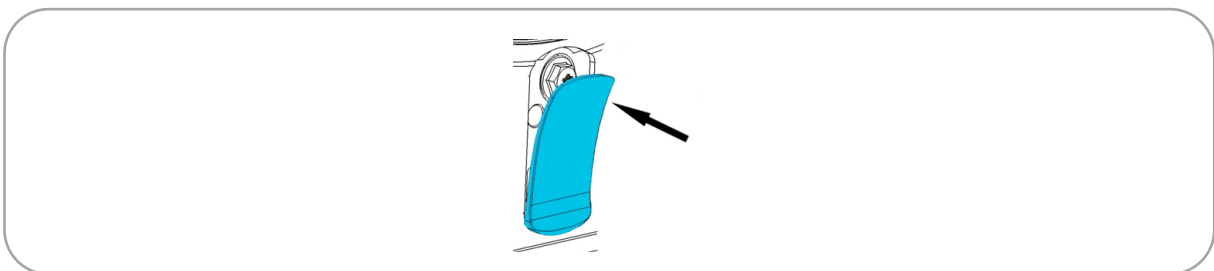


Figure 34: USB flap

4.4.8 Mounting device on support arm adapter

WARNING



Risk of injury!

If a person attempts to install the device alone, it may fall to the ground causing injury and damage.

➔ Have a second person assist in installing the device!

- ➔ Hold the device in front of the support arm adapter.
- ➔ Guide the cables out of the support arm adapter and through the service slot openings.
- ➔ Mount the device on the support arm adapter.

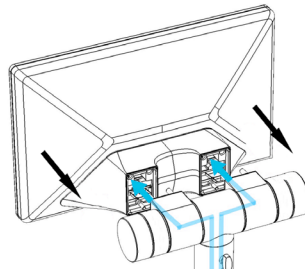


Figure 35: Mounting device on adapter

- ➔ Screw on the device securely using the two screws **B** and the four threaded pins **A**.

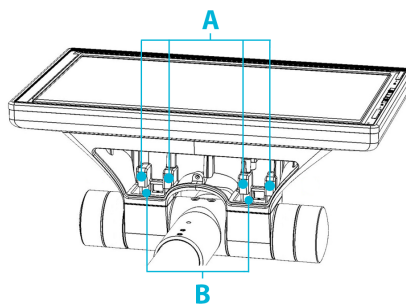


Figure 36: Screwing device to adapter

- | | |
|----------|--|
| A | 4 x M5 x 12 threaded pins (4 mm Allen key) |
| <hr/> | |
| B | 2 x M5 x 16 screws (4 mm Allen key) |

4.5 Installation with crosspiece adapter

The crosspiece adapter allows you to mount two devices one above the other.

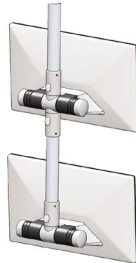


Figure 37: Installation with crosspiece adapter

- ➔ Turn the two vertical tube sections of the crosspiece adapter so that the wing screws point away from the openings.
- ➔ Countersink the connecting tube with the aid of a drill (see chap. 4.4.4).
 - You can attach the adapter to a suspended tube (support arm mounting) or to a standing tube (stand mounting).
- ➔ Guide the cables through the adapter.

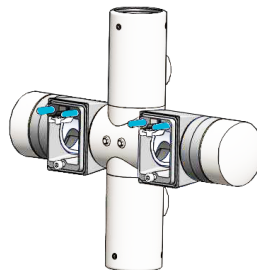


Figure 38: Crosspiece adapter

- The upper side of the crosspiece adapter is the side with the four protruding metal pins (Fig. 39).
- Route the cables according to the interface positions in the service slot (chap. 4.4.5).
- ➔ Attach the crosspiece adapter to the connecting tube (chap. 4.4.6).
- ➔ Open the service slot cover of the device (chap. 0).
- ➔ Secure the device to the crosspiece adapter (chap. 4.4.8).
- ➔ Connect the cables to the interfaces (chap. 5).

4.6 Installation with VESA 75 adapter

ATTENTION

Penetration of dirt!

If you route the cables through openings which do not match the cable diameters, dirt can enter through the opening.

➔ Route the cables to the openings according to the diameter table given below!



Recommendation for use:

Route the cables according to the interface positions in the service slot.

- ➔ Screw the VESA adapter to the device.
 - To do so, secure using the four threaded pins and the two screws (chap. 4.4.8).

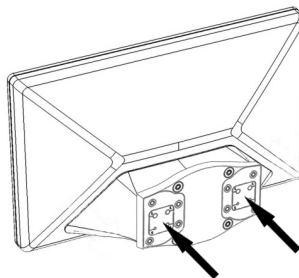


Figure 39: Device with VESA adapter

- ➔ Remove the retainer plates (8 screws, 5.5 mm Allen key)

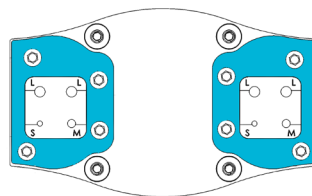


Figure 40: Retainer plates on VESA adapter

- ➔ Open the service slot cover (chap. 0).
- ➔ Push the rubber inserts upwards out of the bracket.
- ➔ Pull out the sealing plugs at all cable glands that you require.
 - To do so, pull the frame to the side (Fig. 42).
 - The sealing plugs attached to the rubber insert must NOT be cut off as they may be needed for modifications made later.

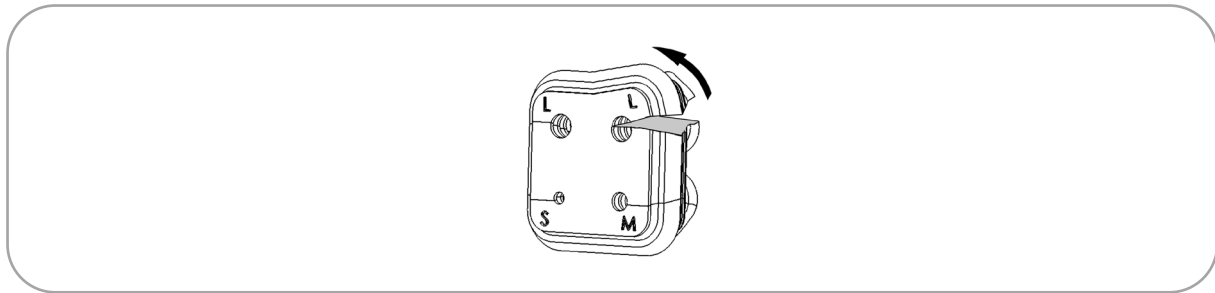


Figure 41: Rubber insert of VESA adapter

- ➔ Guide the cables through the openings.
 - For each cable, use the opening (S, M or L) which matches the cable diameter.
 - Diameter table:

| | |
|----|------------------|
| S: | Ø = 2.4 – 4.0 mm |
| M: | Ø = 4.0 – 6.0 mm |
| L: | Ø = 6.0 – 7.4 mm |
- ➔ Press the rubber inserts into the bracket.
- ➔ Screw on the retainer plates.
- ➔ Screw the bracket to your **VESA** connection system.
 - Screws M6, length depending on your system, lock washers etc.
 - Maximum screw-in depth into the blind rivet nuts: 7 mm.

ATTENTION

Damage due to excessive tightening torque

The device can be damaged if the permitted tightening torque is not observed when the VESA bracket is screwed on.

- ➔ Tighten the screws to **max. 5 Nm**.
- ➔ If necessary: also use a suitable threadlocker, e.g., low-strength liquid adhesive.

4.7 Installation with IP69K adapter

The diagram shows the arrangement of the seals:

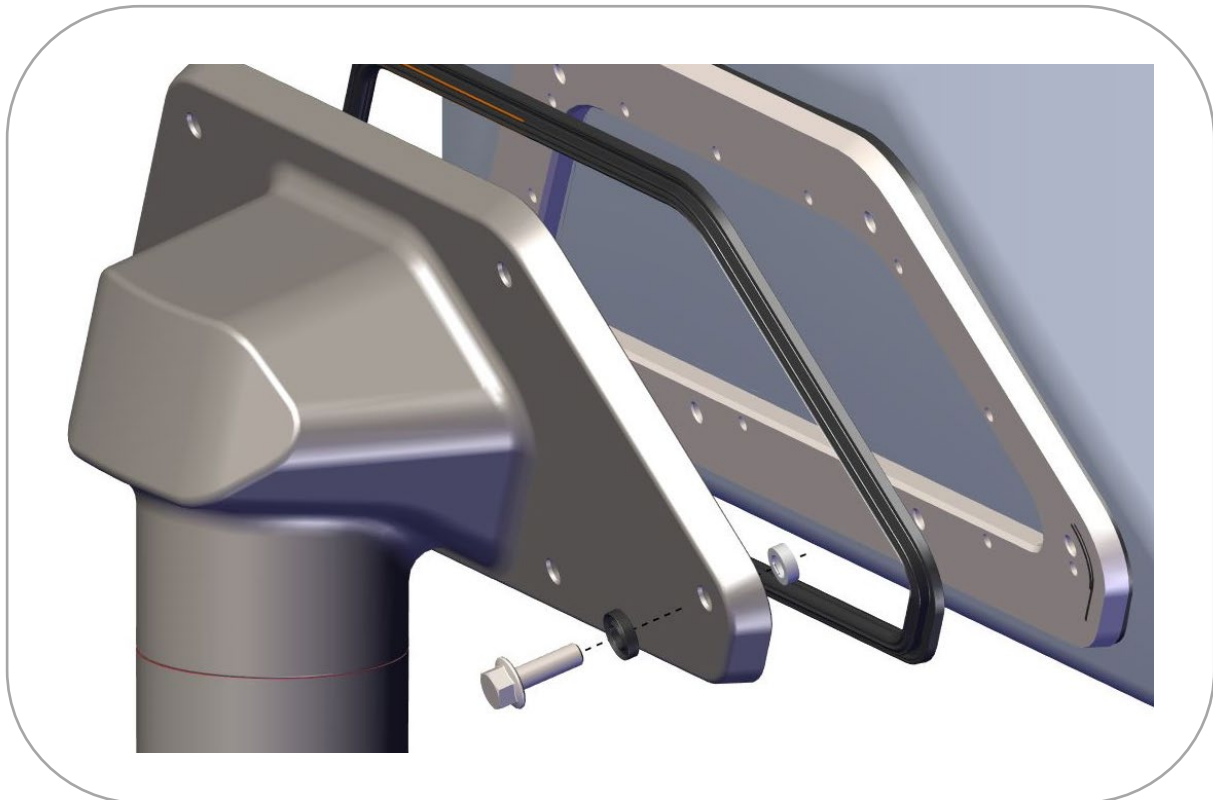


Fig. 42: Overview of seals for the variant with IP69K

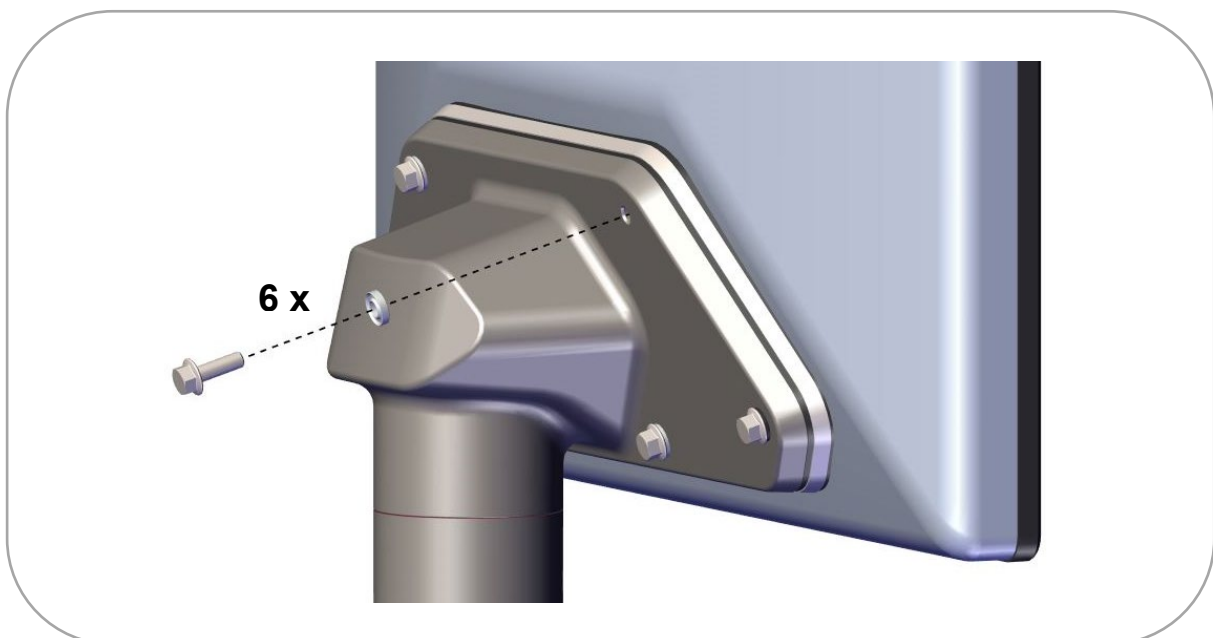


Fig. 43: Overview of screws for the variant with IP69K

Tools: Spanner 8 mm, torque: 3.5 Nm

4.8 Installation of the service slot cover IP69K

The graphic shows the fully equipped service slot cover as delivered ex factory:

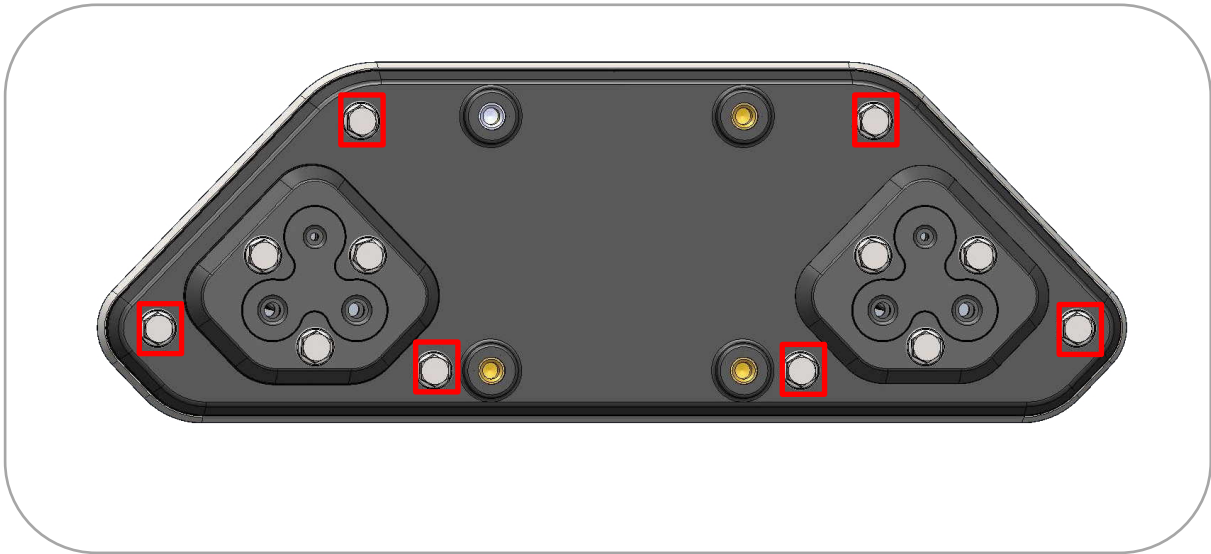


Fig. 44: Service slot cover IP69K

Remove the 6 screws and seals shown (framed red in Fig. 44) and pull the service slot cover off the housing.:

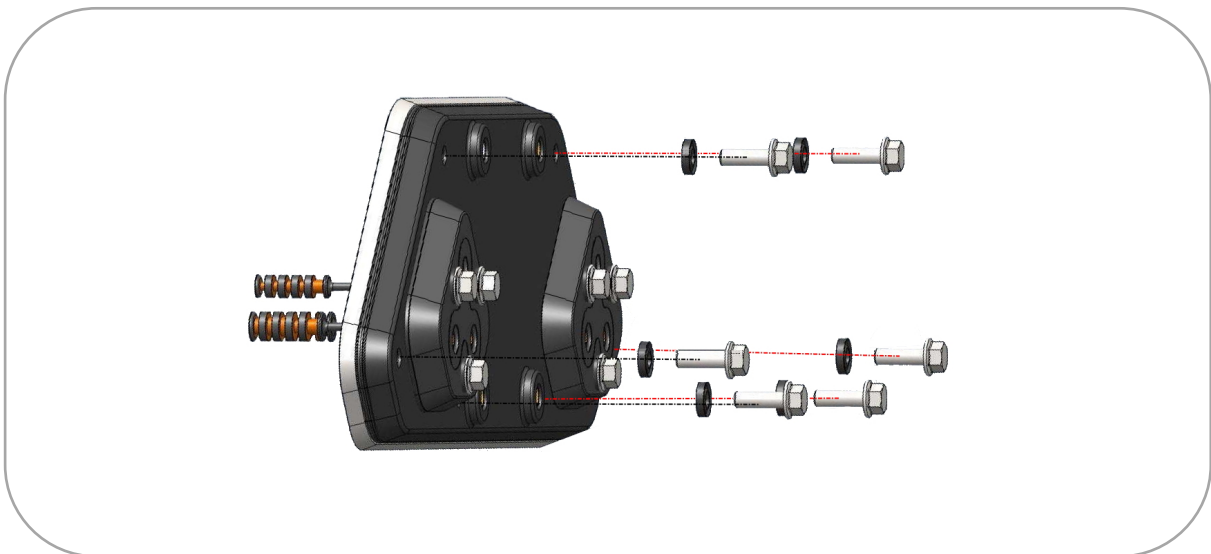


Fig. 45: Service slot cover IP69K

Loosen the screws of one or, if necessary, both cloverleaf holders and remove the cloverleaf seals (see Fig. 46). Be careful not to lose the lock washers (circled in red in the picture).

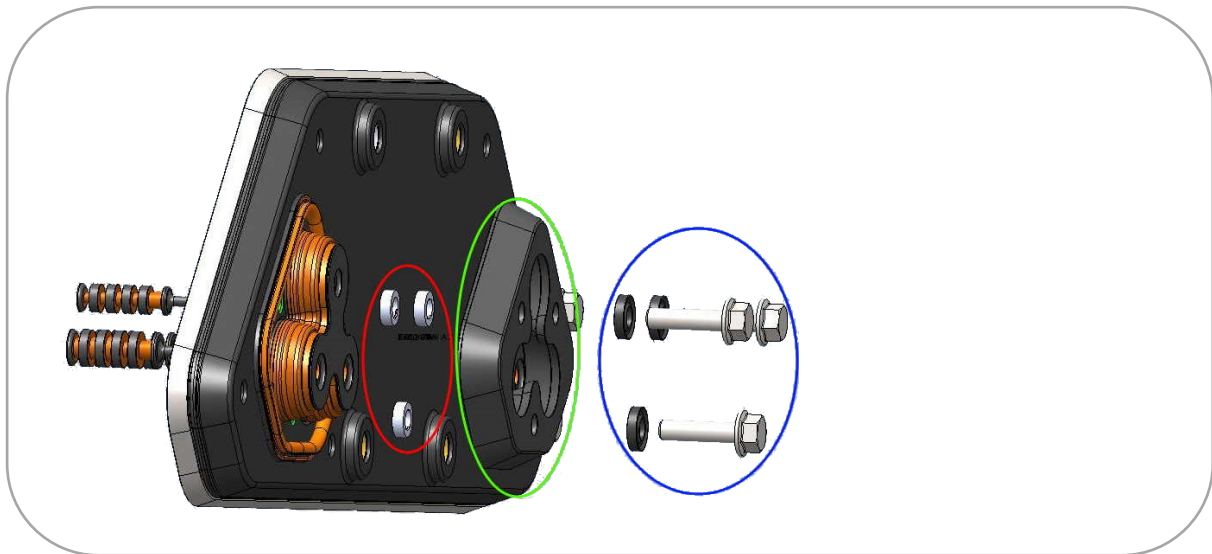


Fig. 46: Service slot cover IP69K

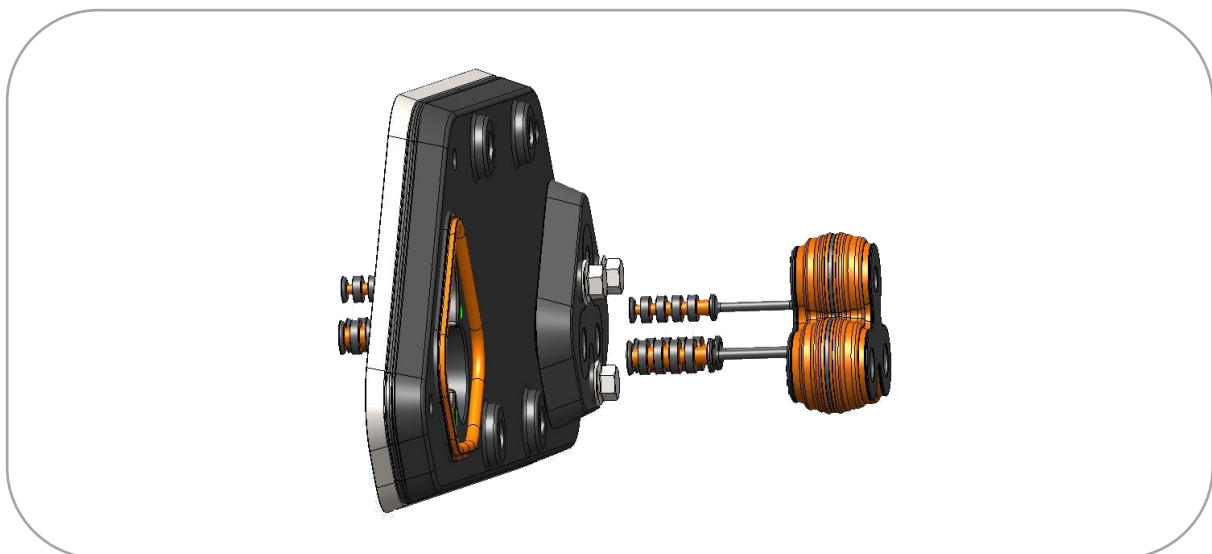


Fig. 47: Service slot cover IP69K

Make all electrical connections and feed the cables through the cloverleaf seal(s) to comply with the IP protection class:

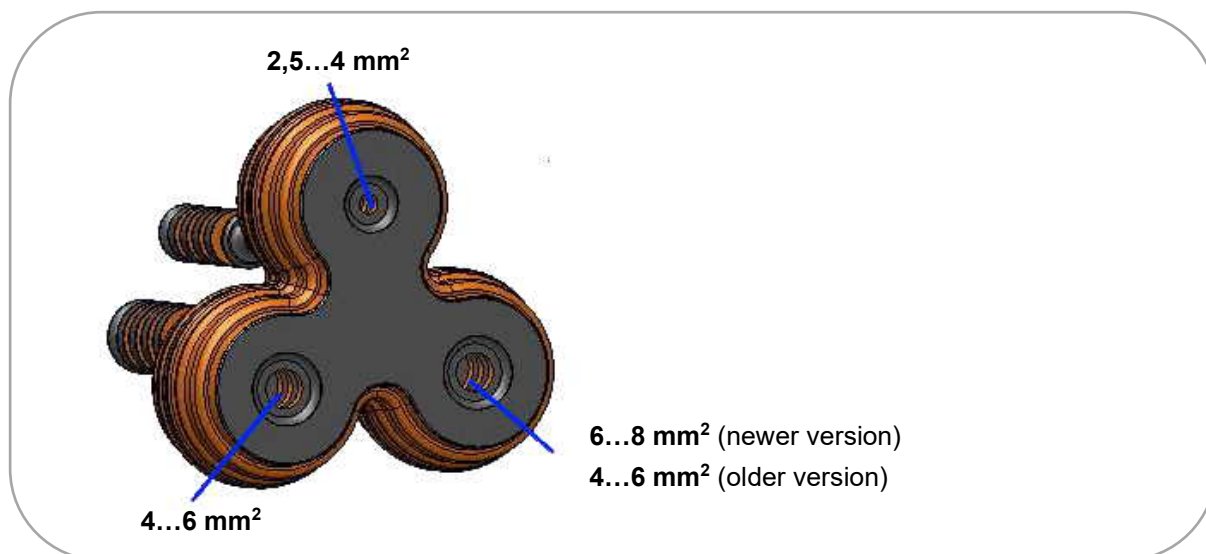


Fig. 48: Service slot cover IP69K

Assembly is done in reverse order of disassembly.

Pay particular attention that the lock washers circled in red in Fig. 46 are present.

Torque: 3.5 Nm

5 Interfaces

WARNING

**Hazard due to excessive current!**

Excessive current can cause overloading of the electronics which could then result in injury or damage.

→ Operate the device with a power supply that complies with NEC Class 2.

ATTENTION

Damage to the electronics!

The electronics can be damaged if plug-in connections are connected or disconnected while power is still being applied.

→ Make sure that no power is being applied while connecting and disconnecting cables!

5.1 Interfaces MMT

All device connections are in the service slot.

Strain relief fixtures are provided on the support arm adapter.

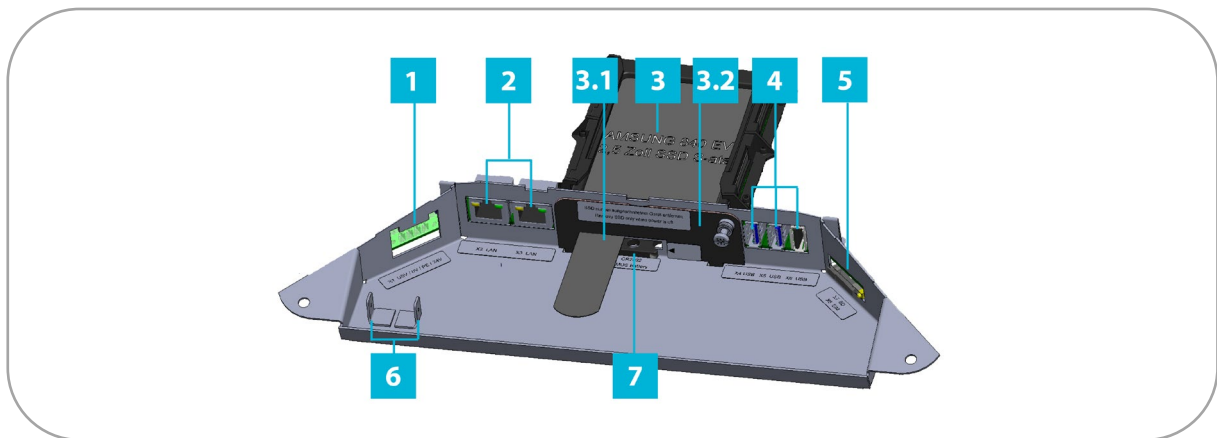


Figure 49: MMT service slot

| | |
|-----|----------------------------------|
| 1 | Power supply |
| 2 | 2 x LAN RJ45 |
| 3 | 1 x 2.5" SSD mass storage |
| 3.1 | Removal aid |
| 3.2 | Cover plate with screw fastening |
| 4 | 2 x USB 3.0 1 x USB 2.0 |
| 5 | 1 x SD-Card Slot |
| 6 | Earth connection |
| 7 | Battery |

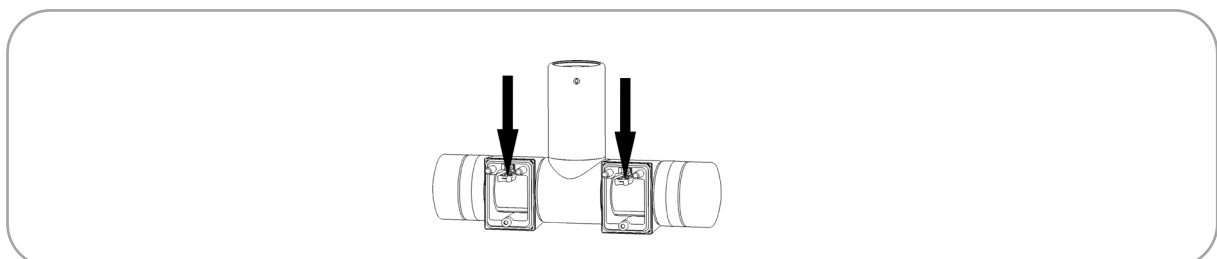


Figure 50: Strain relief fixtures on support arm adapter

Power supply MMT

You will need a power adapter with the following technical data:

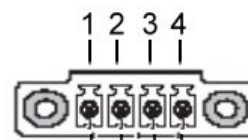
Voltage: 18...30 V $\overline{\text{---}}$ (NEC Class 2)

Current depending on the device:

| MMT... | 17" | | 24" | |
|---------------------------------------|----------|----------|----------|----------|
| Processor | Celeron | i5 | Celeron | i5 |
| Max. permanent current (incl. USB) | 3 A | 4 A | 3 A | 4 A |
| Max. switch-on current | 4 A | 4 A | 4 A | 4 A |
| Fuse (recommended) | 4 A slow | 6 A slow | 4 A slow | 6 A slow |

➔ For the power supply, use only the 4-pole plug connector included in the scope of delivery.

| | |
|---|------------------------------|
| 1 | n.c. |
| 2 | 0 V $\overline{\text{---}}$ |
| 3 | Earth connection (FE) |
| 4 | 24 V $\overline{\text{---}}$ |



(The Fig. shows the socket inside the device)

USB

The sockets comply with the USB 2.0 standard (white interface) and the USB 3.0 standard (blue interfaces). The USB 2.0 interfaces are downward compatible to USB 1.0, and the USB 3.0 interfaces are downward compatible to USB 2.0 and USB 1.0.

LAN

You can integrate the device in an Ethernet network which supports 1 Gbit/s. For this purpose, use the 1Gbit RJ45 LAN ports. If required, the necessary drivers can be downloaded at www.ads-tec.com.

The specifications for the network topology must be observed.

Mass storage**Hard disk / Flash SSD**

The following storage options are available:

1. mSATA module (permanently installed)
2. 2.5" SSD mass storage with up to 500 GB via SATA (removable, see chapter 8.5.2)

External drives

External storage media can be connected via USB interfaces.

ATTENTION**Risk of data loss!**

Data can be lost if an external data drive is connected or disconnected during operation.

➔ Switch off the device before connecting or disconnecting an external data drive!

5.2 Interfaces MMD

The new installation-space-optimised variant of the industrial monitors has the following interfaces:

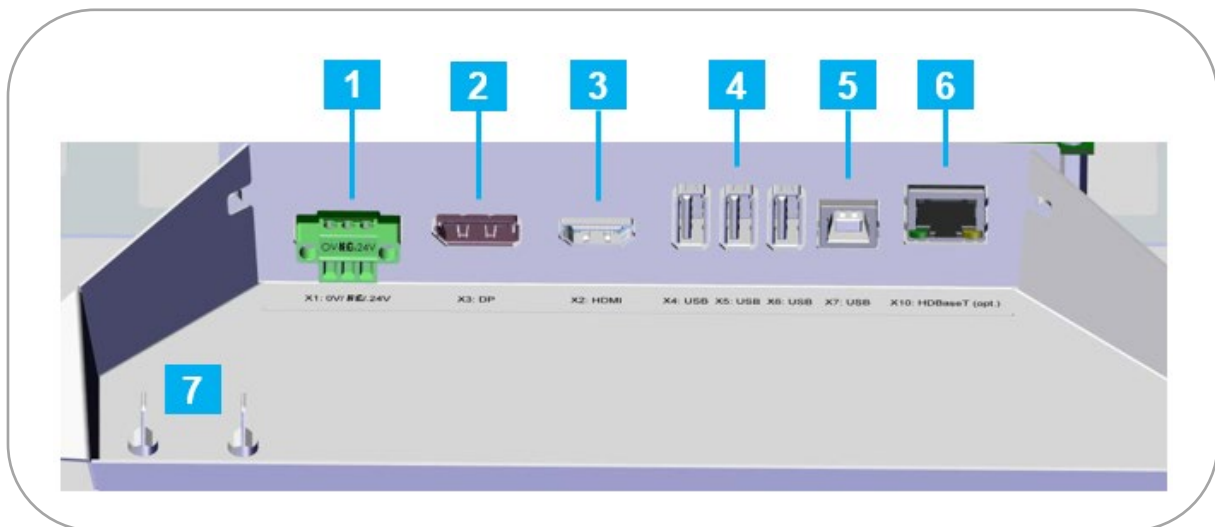


Figure 51: MMD service slot

| | |
|---|-----------------------------------|
| 1 | Power supply |
| 2 | DisplayPort |
| 3 | HDMI |
| 4 | 3 x USB 2.0 type A |
| 5 | 1 x USB 2.0 type B |
| 6 | Optional: HDBaseT extender (RJ45) |
| 7 | 2 x Earth connection |

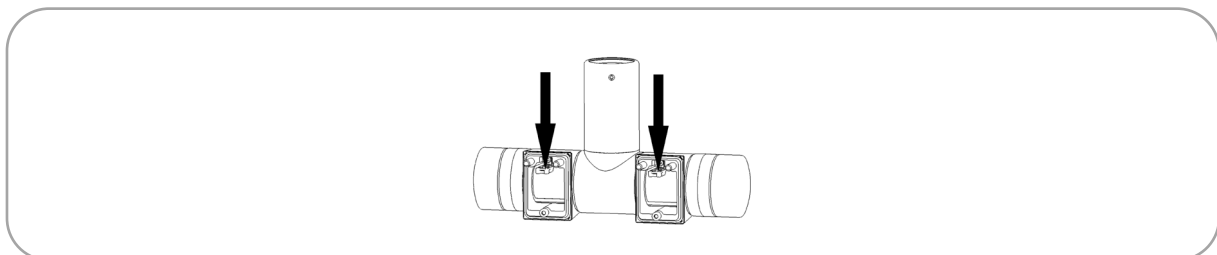


Figure 52: Strain relief fixtures on support arm adapter

Power supply MMD

You will need a power adapter with the following technical data:

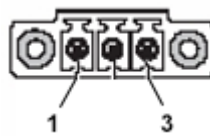
Voltage: 18...30 V $\overline{\text{---}}$ (NEC Class 2)

Current depending on the device:

| MMD... | 17" (without HDBaseT) | 24" (without HDBaseT) |
|------------------------|-----------------------|-----------------------|
| Typical current | 1,2 A | 1,2 A |
| Max. permanent current | 2 A | 2 A |
| Max. switch-on current | 3 A | 3 A |
| Fuse (recommended) | 4 A slow | 4 A slow |

➔ For the power supply, use only the 3-pole plug connector included in the scope of delivery.

| | |
|---|------------------------------|
| 1 | 0 V $\overline{\text{---}}$ |
| 2 | n.c. |
| 3 | 24 V $\overline{\text{---}}$ |



(the figure shows the socket in the device)

5.2.1 Maximum cable lengths

**Recommendation for use:**

Note the maximum cable lengths for the respective application type.

The maximum length of cables which can be used to connect the display and computer is:

- HDMI up to max. 15 m
- DisplayPort up to max. 10m
- USB 2.0 up to max. 15 m

For greater distances between the display and computer, you will require the HDBaseT™ variant of the MMD:

- HDBaseT™ up to max. 100 m

5.3 Functional earthing

5.3.1 General informations regarding functional earthing

- **Functional earth (FE):** For compliance with EMC regulations.
- **Conductor cross sections:**

0V / FE / 24V: AWG 18 ($\triangleq 1 \text{ mm}^2$) or AWG 16 ($\triangleq 1,5 \text{ mm}^2$).

With cable length > 5 m, use the larger cross section.

5.3.2 Functional earthing MMT

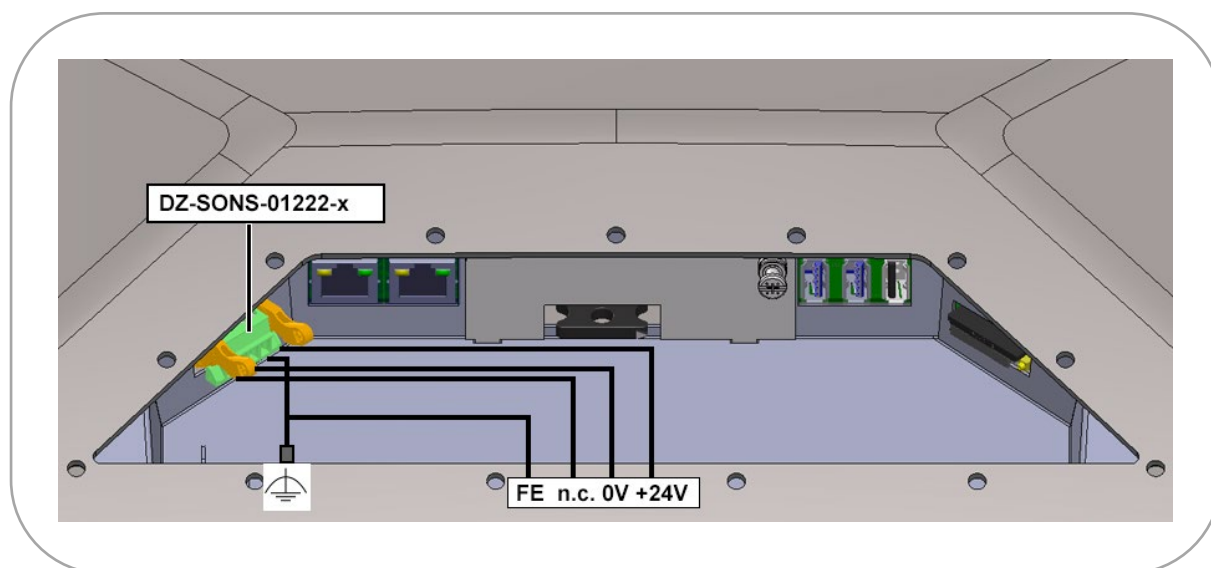


Figure 53: MMT – Functional earthing in the service slot

5.3.3 Earthing MMD

The new industrial monitors of the type MMD8017/24 are operated with extra low voltage (ELV). Nevertheless, a protective earth conductor (PE) should be connected to the housing.

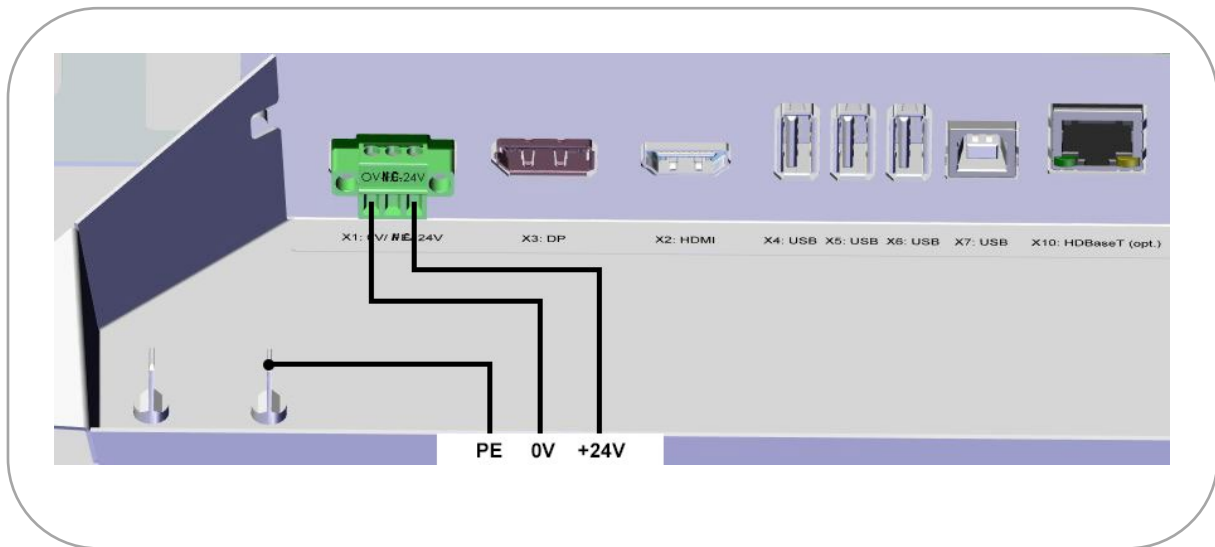


Figure 54: MMD earthing in the service slot

5.3.4 Earthing of accessories

The following applies to the earthing of accessories, e.g. the optional key module:

- The earth connections of accessories and of MMD/MMT can be connected at the double clamp in the service slot.

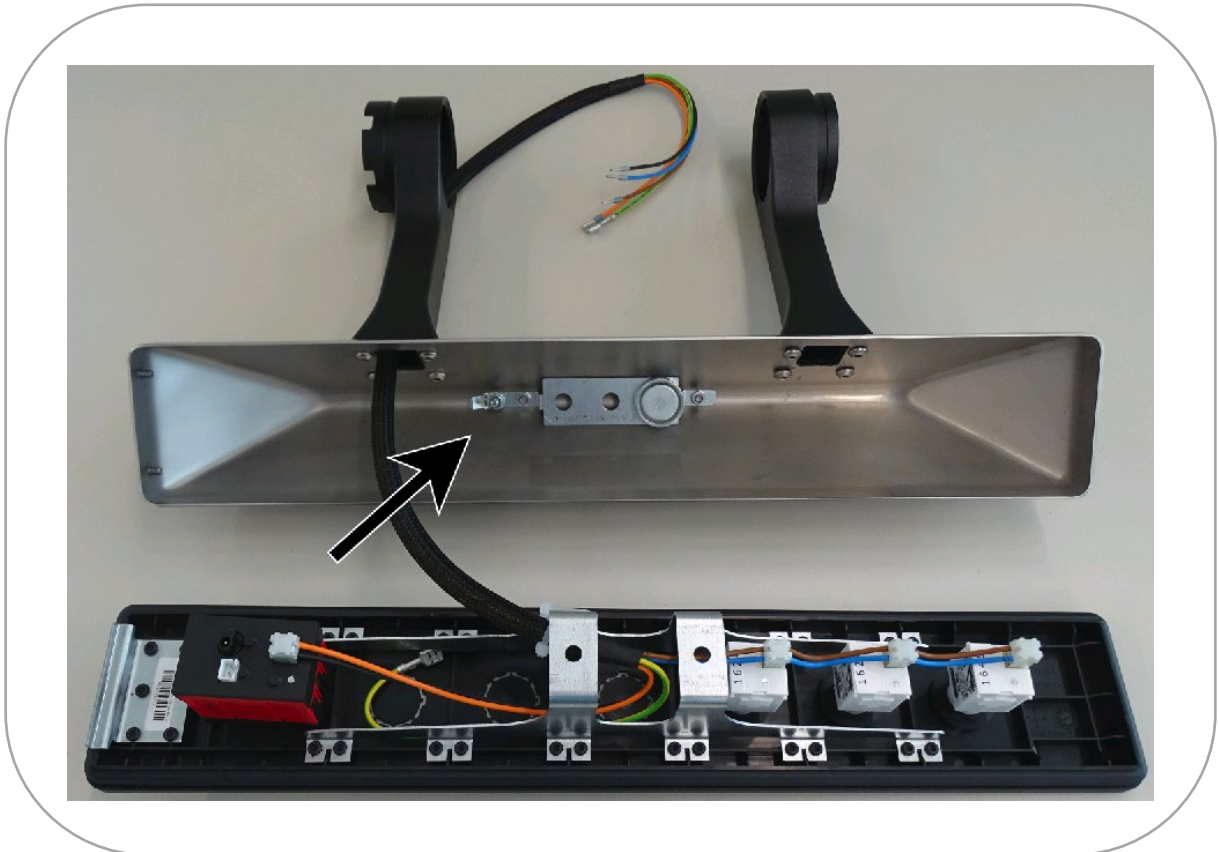


Figure 55: Example: Earth connection of the optional key module

6 HDBaseT™ variant of the MMD

The HDBaseT™ variant allows data transmission between the computer and MMD over distances of up to 100 m.



The **receiver module** is already integrated in the MMD if the corresponding variant is ordered.

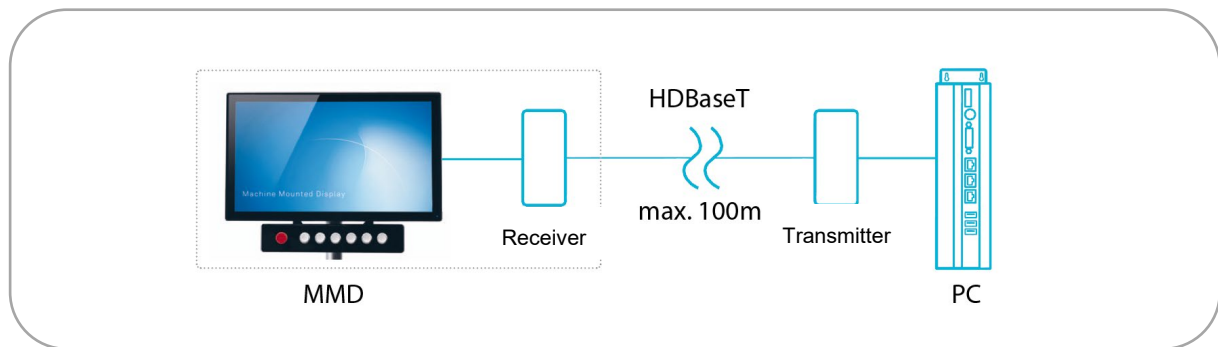


Figure 56: Use of HDBaseT™ variant

6.1 Interfaces of transmitter module

The transmitter module is intended for mounting on a top-hat rail (TS35) in the cabinet.

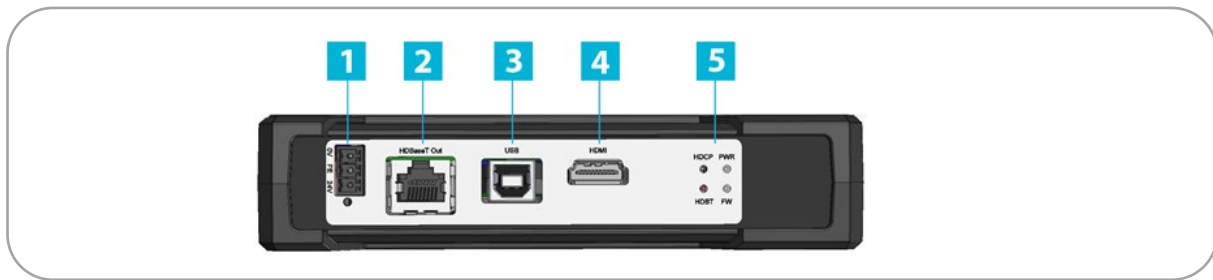


Figure 57: Interfaces of transmitter module

| | |
|---|------------------|
| 1 | 24 V |
| 2 | HDBaseT™ 100Mbit |
| 3 | USB 2.0 |
| 4 | HDMI |
| 5 | SYS LEDs |

➔ Connect the receiver module to the transmitter module via the HDBaseT™ connection.



Recommendation for use:

The following CAT cables are recommended for connecting the transmitter to the receiver module: CAT6a cable 100 m with min. 24AWG / 27AWG

Power supply

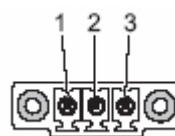
You will need a power adapter with the following technical data:

Input voltage: 18 to 30 V (NEC Class 2)

Max. switch on current: 0.6 A

For the power supply, use only the supplied 3-pole plug connector.

| PIN | Signal |
|-----|--------|
| 1 | 24 V |
| 2 | FE |
| 3 | 0 V |



The figure shows the socket inside the transmitter module.

6.2 Status indicators on transmitter module

The transmitter module has LEDs which indicate the status of the transmitter. They provide information about the graphics link (HDCP), the power supply (PWR), the firmware (FW) and the HDBaseT™ connection (HDBT).

The table below lists the various states.

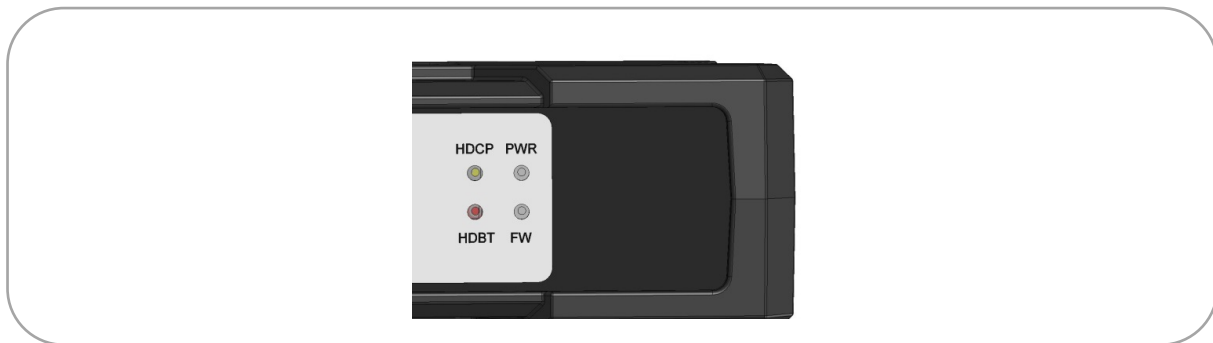












Figure 58: Status indicators on transmitter module

| | LED signal | Action |
|-------------|--|--|
| HDCP |  Flashing | Graphics link is present |
| |  Off | No graphics link |
| PWR |  On (blue) | The device is supplied with voltage via POWER and is ready for operation |
| |  Off | No power supply |
| HDBT |  On | HDBaseT™ link present |
| |  Flashing slowly | Low Power Mode |
| |  Flashing rapidly | Ethernet Fallback Mode |
| |  Off | No link |
| FW |  Flashing | Firmware is loaded and ready for operation |
| |  Off | No firmware action |

7 Commissioning

WARNING

**Hazard due to excessive current!**

Excessive current could result in injury or damage.

- Operate the device only with a power supply that complies with NEC Class 2!

ATTENTION

Hazard due to excessive voltage!

The electronics can be damaged if the permissible voltage is exceeded.

- Make sure to meet the permissible voltage for this device!

ATTENTION

Damage to the electronics!

The electronics can be damaged if plug-in connections are connected or disconnected while power is still being applied.

- Make sure that no power is being applied while connecting and disconnecting cables!

ATTENTION

Damage to the electronics!

Condensation can damage the device.

- Switch on the device only after it has acclimated to the ambient temperature!

**Recommendation for use:**

The shielding of a data cable must always be connected with the connector housing (EMC).

**Recommendation for use:**

Insofar as they are specified in the scope of delivery or in the replacement parts list, only connectors and cables offered by ADS-TEC are to be used for commissioning and during operation. All other connectors and cables which you use for commissioning and during operation must have been approved.

Check for operational readiness

- ➔ Make sure that the screw connections between
 - the device and support arm adapter
 - the support arm adapter and connecting tubeare tightened to the specified torques.
- ➔ Make sure that the service slot and the USB flap are completely closed.

Commissioning device

- ➔ When connecting and disconnecting cables, make sure that no power is being applied to the device or cables.
- ➔ Connect the cables to the interfaces in any order.
- ➔ Secure the cables to the support arm adapter using the strain relief fixtures.
- ➔ Make sure that the 24 V power supply complies with NEC Class 2.
- ➔ Connect the device to the power supply.

8 Operation

8.1 Switching on and off

ATTENTION

Damage to the electronics!

The electronics can be damaged if the device is switched off and then on again too quickly.

➔ After switching off and before switching on you must wait for at least 5 seconds!

➔ Switch on the device by connecting it to the external power supply.

If an operating system (Windows or Linux) is installed, it now starts.

When the device is on, the status LED of the monitor lights up. This LED is on the front at the bottom right.

➔ Switch off the device by shutting down the operating system.

8.2 Multifunction touch-screen



Figure 59: Touch-screen

➔ Operate the multifunction touch-screen using up to 10 fingers. It is not only possible to tap elements – swiping and dragging movements are also possible.

**Recommendation for use:**

The touch calibration data is stored independent of the operating system and requires no additional calibration by the user.

The necessary driver software is already integrated in the respective operating system.

- ➔ If you need other drivers, you can download them at <http://www.ads-tec.com> in the Download area.

**Recommendation for use:**

With older operating systems, a driver may be required for the touch-screen functionality.

8.3 Turning/tilting device and key module

Tilting the device

- ➔ Stand behind the device.
- ➔ On the left side, unscrew the end cap provided with finger recesses approx. 3 turns.
- ➔ Adjust the tilt of the device.
- ➔ Screw down the end again.

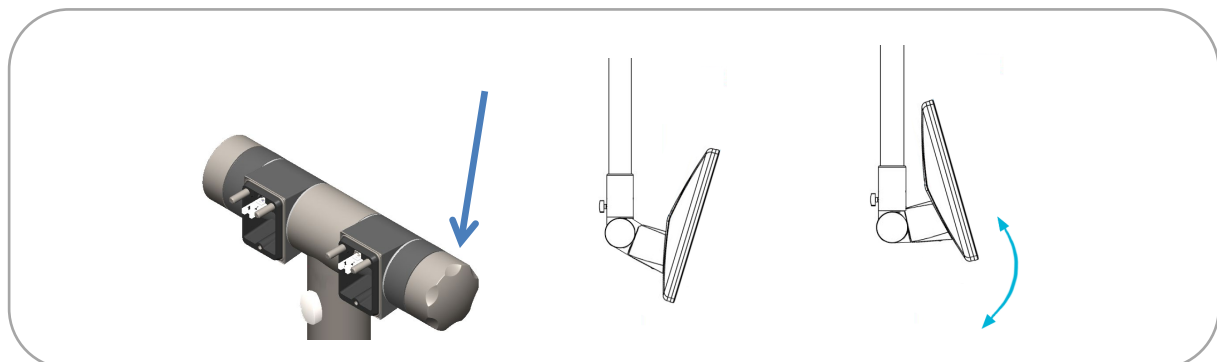


Figure 60: Tilting the device

**Recommendation for use:**

Make sure that the fastening screw of the support arm adapter is screwed out far enough so that the device moves smoothly. If rattling noises are heard when turning the device, unscrew the end further.

Tilting the key module

1. Stand behind the device.
2. Unscrew completely the end cap without finger recesses on the right side of the support arm adapter.
3. Loosen the spacer sleeve with a suitable tool (width across flats: 17 mm).
4. Adjust the angle of the key module.
5. Tighten the spacer sleeve again.
6. Screw down the end cap again.

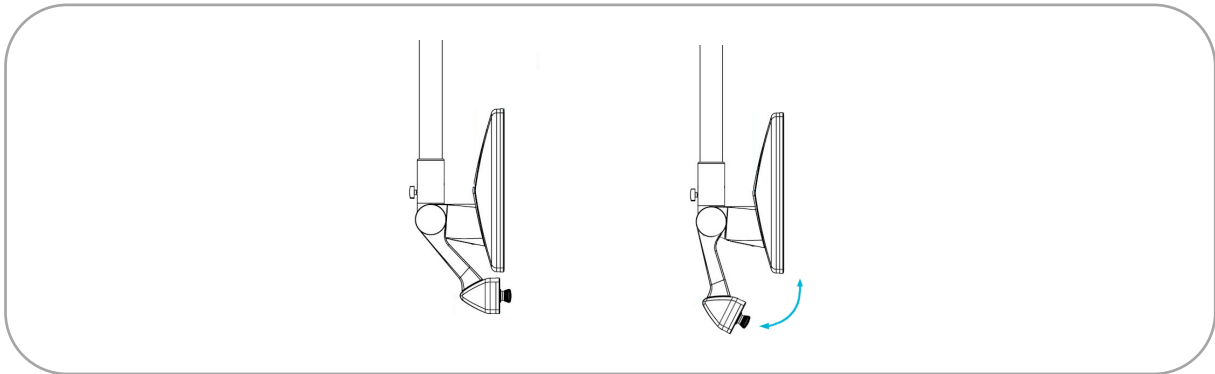


Figure 61: Tilting the key module

Turning the device

- ➔ Undo the wing screw.
- ➔ Turn the device (it can be turned through max. 340°).
- ➔ Tighten the wing screw again.

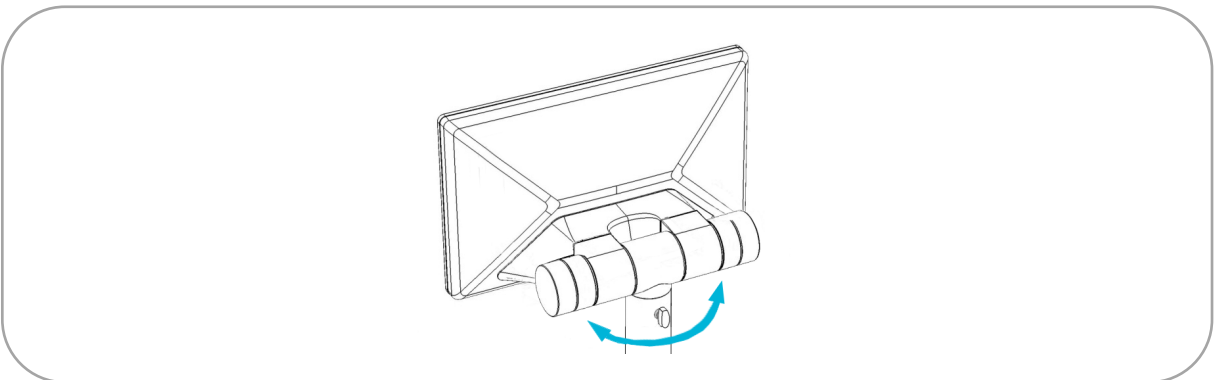


Figure 62: Turning the device

8.4 WiFi and Bluetooth

If available, these optional functions can be used with the means of the installed operating system.

8.5 Component replacement

ATTENTION

Risk of short circuit!

A short circuit can occur if components are replaced while the device is still switched on.

→ Before replacing components, disconnect the power supply from the device!

8.5.1 Replacing BIOS battery on MMT

ATTENTION

Risk of explosion!

Hazard due to overheating of the battery

→ Make sure that the battery is of the correct type and that it is inserted with the correct polarity!

**Recommendation for use:**

Avoid touching both battery poles at the same time.

The device of the MMT8000 series contains a lithium battery for supplying the system clock with power as long as the supply voltage is not connected. The battery has a life cycle of 3-5 years depending on which load is applied. It is in the service slot.

The battery type to be used is:

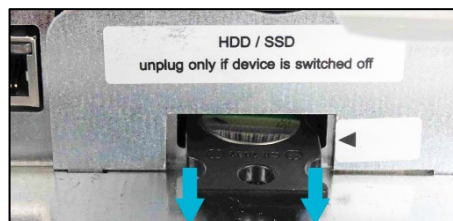
- Lithium battery type CR2032 (230 mAh / 3 V)

**Recommendation for use:**

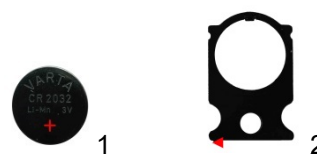
Use only the battery type recommended by ADS-TEC.

Replacing battery

- ➔ Pull out the battery drawer (pull both sides of the battery drawer at the same time).



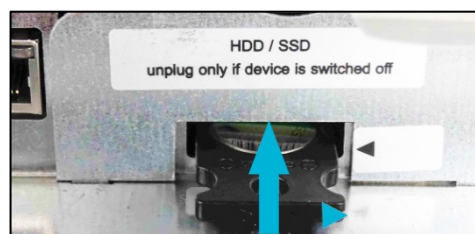
- ➔ Remove the old battery.
- ➔ Press the new battery (1) into the drawer (2); the battery must engage in the drawer.
 - The positive and negative terminal is indicated on the battery holder.



- ➔ Turn the drawer (3) over so that the negative terminal is pointing upwards.



- ➔ Insert the drawer into its slot (4); the drawer must engage in the slot.



8.5.2 Replacing mass storage device

On the MMT8000 series, there may be a mass storage device in the service slot.

Removing mass storage device

- ➔ Remove the cover plate.
 - To do so, undo the fastening screw (PH1 cross-tip screwdriver).



- ➔ Grip the mass storage device by its removal aid (white flap) and pull it carefully and parallel along its guides into the slot.



- ➔ Remove the mass storage device at an angle in an upward direction.

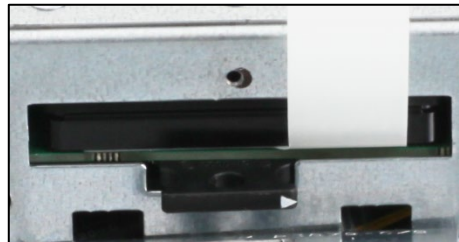


Installing mass storage device

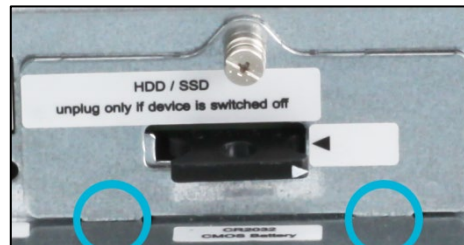
- Insert the mass storage device into the slot at an angle.



- Lower the mass storage device and push it in all the way parallel to its guides.



- Insert the retainer tabs of the cover into the guide slots and close the cover.



- Screw in the fastening screw finger-tight (PH1 cross-tip screwdriver)



8.5.3 Replacement parts list

Insofar as they are specified in the scope of delivery or in the replacement parts list, only connectors and cables offered by ADS-TEC are to be used for commissioning and during operation. All other connectors and cables which you use for commissioning and during operation must have been approved.

The following components can be ordered as replacement parts from ADS-TEC:

| Device/designation | Designation | Part number |
|----------------------------|---------------------------------------|-------------------|
| MMT | | |
| Plug | 4-pole plug with locking lever, green | DZ-SONS-01222-3/A |
| BIOS battery | Lithium battery CR2032 230mAh | DZ-SONS-04075-1 |
| MMD | | |
| Plug | 3-pole plug, green | DZ-SONS-00994-2 |
| HDBaseT transmitter | | |
| Cable | USB2.0 1 m | DZ-SONS-05642-x |
| Cable | HDMI Male-Male 1 m | DZ-SONS-05643-x |
| Cable | HDMI Male-DP Male 1 m | DZ-SONS-05644-x |
| Plug | 3-pole plug, black | DZ-SONS-01212-x |

9 Maintenance, cleaning and disposal

Maintenance and cleaning must be performed by appropriately qualified personnel.

9.1 Maintenance

The following maintenance intervals must be observed:

| Interval | Location | Activity |
|-------------------------------|-----------------------|---|
| Daily | Overall device | Visually inspect for loose objects and visible damage |
| Monthly | Fixing screws | Check that they are seated securely; tighten as necessary |
| 3 years | BIOS battery | Change |
| Optional, if installed | | |
| Daily | Emergency stop button | Check that it functions correctly |

9.2 Cleaning

How often you need to clean the system depends on your work and the operating environment. If necessary, follow the on-site cleaning plan.

- ➔ Clean and maintain your system regularly.

9.2.1 Devices with protection class IP69K

Units with protection class IP69K have been extensively tested for cleaning under high pressure.

For material-friendly and hygienic cleaning, we recommend the use of foam cleaner and subsequent rinsing of the units. The MMT/MMD series has been tested for a variety of cleaning agents, see chapter 9.3.

9.3 Cleaning agents and disinfectants

We recommend cleaning the devices using commercially available glass cleaning agents.

The following cleaning agents have also been successfully tested:

Ethanol and isopropanol based:

- Deconex Solarsept
- BacilloI
- Meliseptol

Neutral cleaning agents:

- P3-Cosa Foam 40
- P3-Cosa PUR 80

Acidic cleaning agents:

- P3-cosa CIP 72

Alkaline cleaning agents

- P-cosa CIP 92

Quarternary ammonium compounds:

- Klerdice-CR Biocide A
- Deconex Surface AF

Disinfectants:

- Hydrogen peroxide $\leq 3\%$ (Recommendation: Wipe off the product completely after use, otherwise water stains may form.)

9.4 Disposal

Electrical and electronic devices must not be disposed of with household waste, but must rather be taken to a collection point for waste electrical equipment. Such a collection point is generally operated by public waste management authorities, i.e., by municipalities.

10 Nomenclature of ADS-TEC products and accessories

10.1 Main articles

A typical ADS-TEC article number is *DVG-MMT8017 123-AB*.

Many ADS-TEC article numbers for main products follow this logic:

- Starting letters until '-':
 - DV – hardware product without software
 - DVG – hardware product with software
 - DVK – kit; a combination of several products. Single products are normally also sold as DV or DVG. Mainly used for customized bundles in large contracts.
- Three letters after '-': describe product category, e.g.
 - MMD – Machine Mounted Display
 - MMT – Machine Mounted Terminal
 - OPD – Operating Panel Display
 - OPC – Operating Panel Computer
- First two digits: series, e.g. series 8000 is 80.
- Following two digits: size of screen, e.g. 17 for 17 inch and 24 for 24 inch.
- Three digits after the blank: 123 or xxx is a continuous number between 001 and 999 and defines the system configuration.
- Last two letters: AB or yy are two varying letters depending on the operating system.

10.2 Accessory articles

10.2.1 Display and USB transmission

For distances **up to 100m**, a HDBaseT™ kit is available. It is named DVK-MMDEXT-KIT xxx-yy and contains two components:

- a receiver DV-MMDEXT-RX xxx-yy
- a transmitter DV-MMDEXT-TX xxx-yy

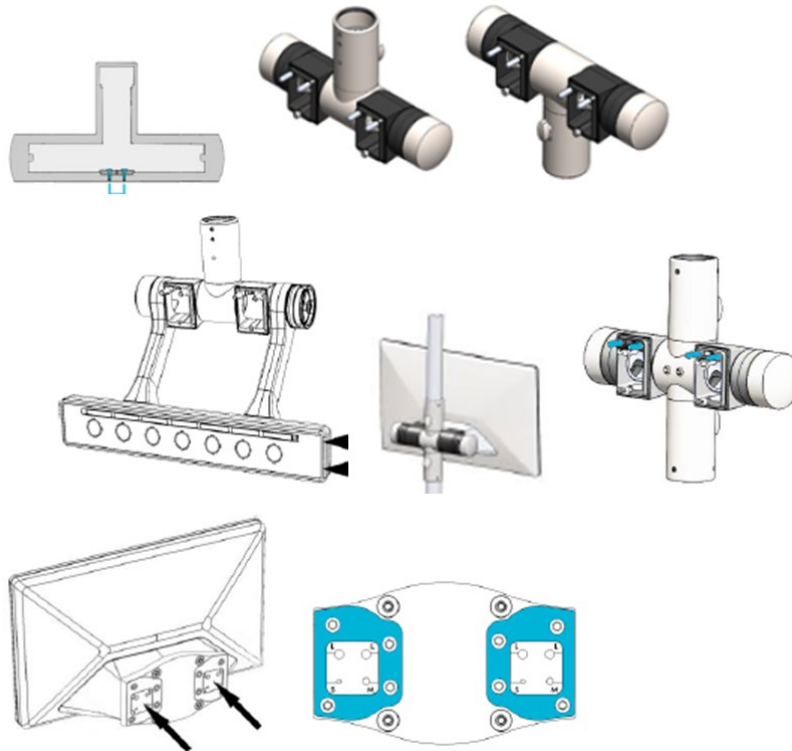


For distances **less than 15m**, HDMI and USB cables are available as an option. Their article numbers are e.g. DV-MMXOPT-04 xxx-yy.

Analogous to this, spare parts and additional small components are all named DV-MMXOPT-zz xxx-yy.

10.2.2 Support arm adapter

DVG-MMD80zz xxx-yy and DVG-MMT80zz xxx-yy can be mounted using the support arm adapter DV-MMXADAPT xxx-yy. Several versions of DV-MMXADAPT xxx-yy are available, the differences are indicated by xxx-yy. Examples for this are:



Front foils and keys can be customized, if this is done at ADS-TEC, this changes xxx-yy in the article number. Details are described in chapter 4.4.2.

10.2.3 Product kits

Combinations of several products are called kits and denoted by DVK in the article number. The single products are normally also sold as DV or DVG. This is mainly used for customized bundles in large contracts or for typical combinations that are useful for many customers.


Examples:

- DVK-MMDEXT-KIT xxx-yy contains a receiver DV-MMDEXT-RX xxx-yy and a transmitter DV-MMDEXT-TX xxx-yy.
- DVK-MMD8017 xxx.yy contains
DVG-MMD8017 xxx.yy
DV-MMDEXT-RX xxx-yy
DV-MMDEXT-TX xxx-yy
DV-MMXADAPT xxx-y
- Likewise, DVK-MMD8024, DVK-MMT8017, DVG-MMT8024, DVG-OPD8017 and DVG-OPD8024 are available.

11 Technical data

11.1 MMT/MMD technical data

11.1.1 Data sheet

| | MMT8017 | MMT8024 | MMD8017 | MMD8024 |
|---|---|---|--|---|
| Housing | Fully enclosed stainless steel housing | | | |
| Display Resolution | 17.3" LED backlight 1920 x 1080 pixels | 23.8" LED backlight 1920 x 1080 pixels | 17.3" LED backlight 1920 x 1080 pixels | 23.8" LED backlight 1920 x 1080 pixels |
| Touch | PCAP multi-touch / toughened glass | | | |
| Processor | Intel® Celeron™ 1.6 GHz (2980U) or Intel® Core™ i5 1.9 GHz (4300U) | | - | |
| RAM | to 8 GB DDR3 | | - | |
| Mass storage | SSD to 500 GB or mSATA SSD to 128 GB | | - | |
| Network | 2 x 1 Gbit/s Ethernet RJ45 | | - | |
| Wireless (optional) | WLAN: IEEE 802.11ac/a/b/g/n Bluetooth V4.2, V4.0 LE, V3.0+HS, V2.1+EDR | | - | |
| Interfaces | 1 x USB 2.0/2 x USB 3.0 (1 x accessible from outside, optional) | | 3 x USB 2.0 (1 x accessible from outside, optional) 1 x USB slave 1 x HDMI, 1 x DisplayPort | |
| Power adapter | 18 – 30 V  NEC Class 2 | | | |
| Operating system | Windows 10 IoT (64 Bit) | | - | |
| Protection class | Depending on variant IP65 or IP69K (not verified by UL, tested by ADS-TEC) | | | |
| Operating temperature | 0 °C to +50 °C | 0 °C to +45 °C | 0 °C to +50 °C | 0 °C to +45 °C |
| Dimensions (W x H x D) (without support arm and key module) | 431 x 261 x 68 mm | 578 x 347 x 67 mm | 431 x 261 x 68 mm | 578 x 347 x 67 mm |
| Weight | Approx. 5 kg (without key module) | Approx. 7.5 kg (without key module) | Approx. 5 kg (without key module) | Approx. 7.5 kg (without key module) |
| Vibration | 10 m/s²; 2 – 200 Hz (class 3M4 of standard IEC/EN 60721-3-3) | | | |
| Shock resistance | 100 m/s²; t=11 ms (class 3M4 of standard IEC/EN 60721-3-3) | | | |
| Humidity | 10 to 85% non-condensing | | | |

11.1.2 External device dimensions MMT8017

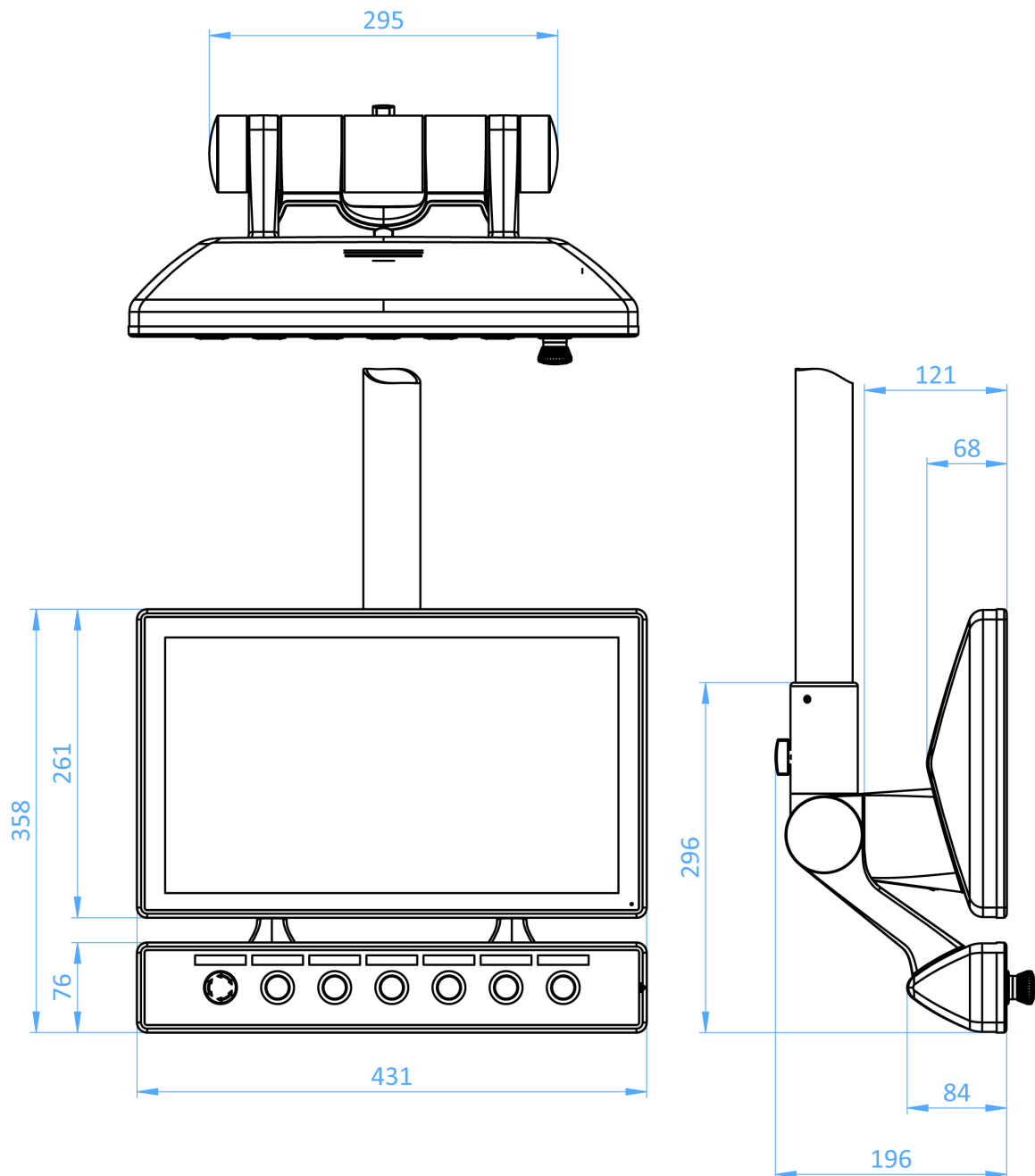


Figure 63: External device dimensions MMT8017

11.1.3 External device dimensions MMT8024

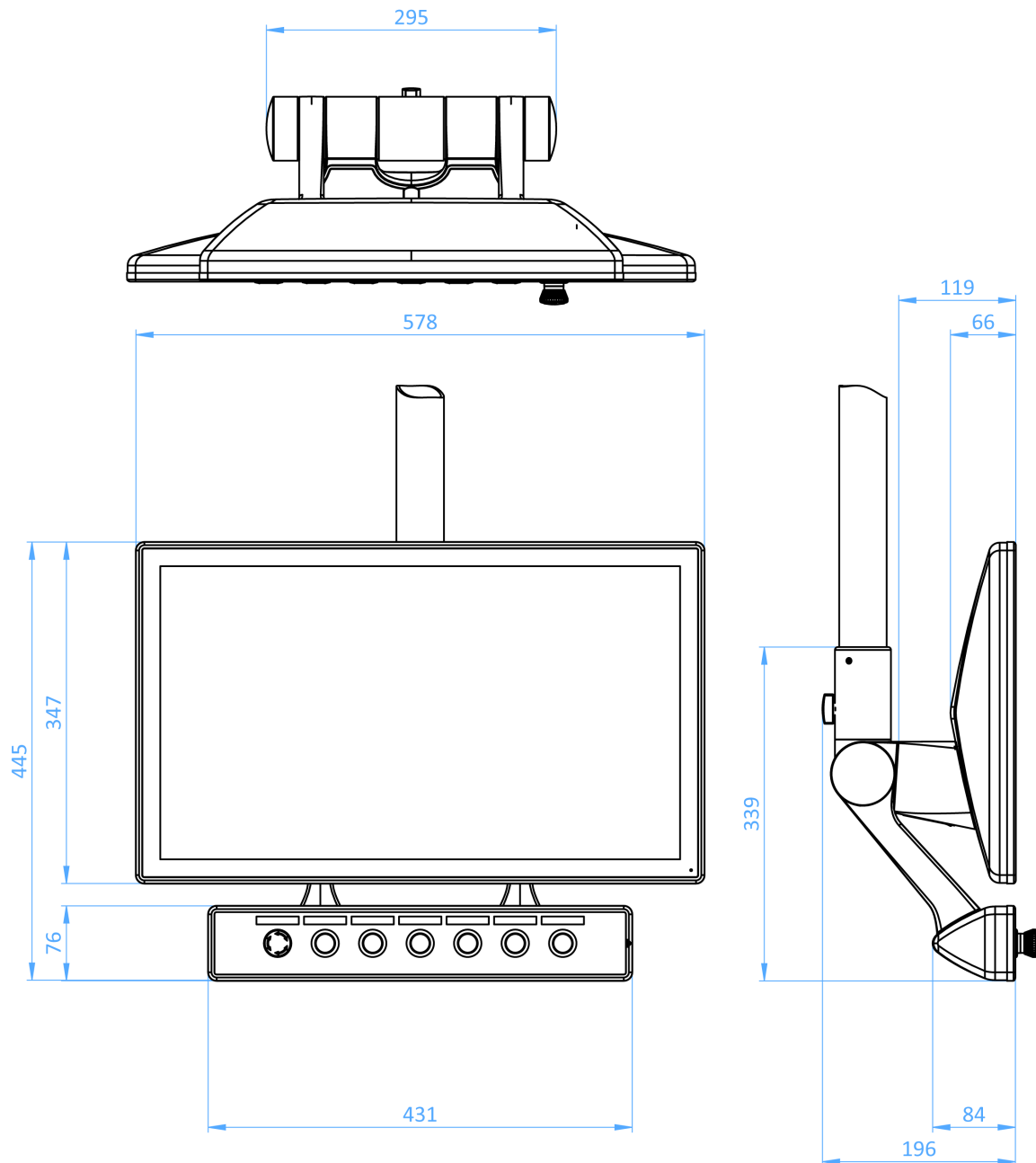


Figure 64: External device dimensions MMT8024

11.1.4 External device dimensions MMD8017

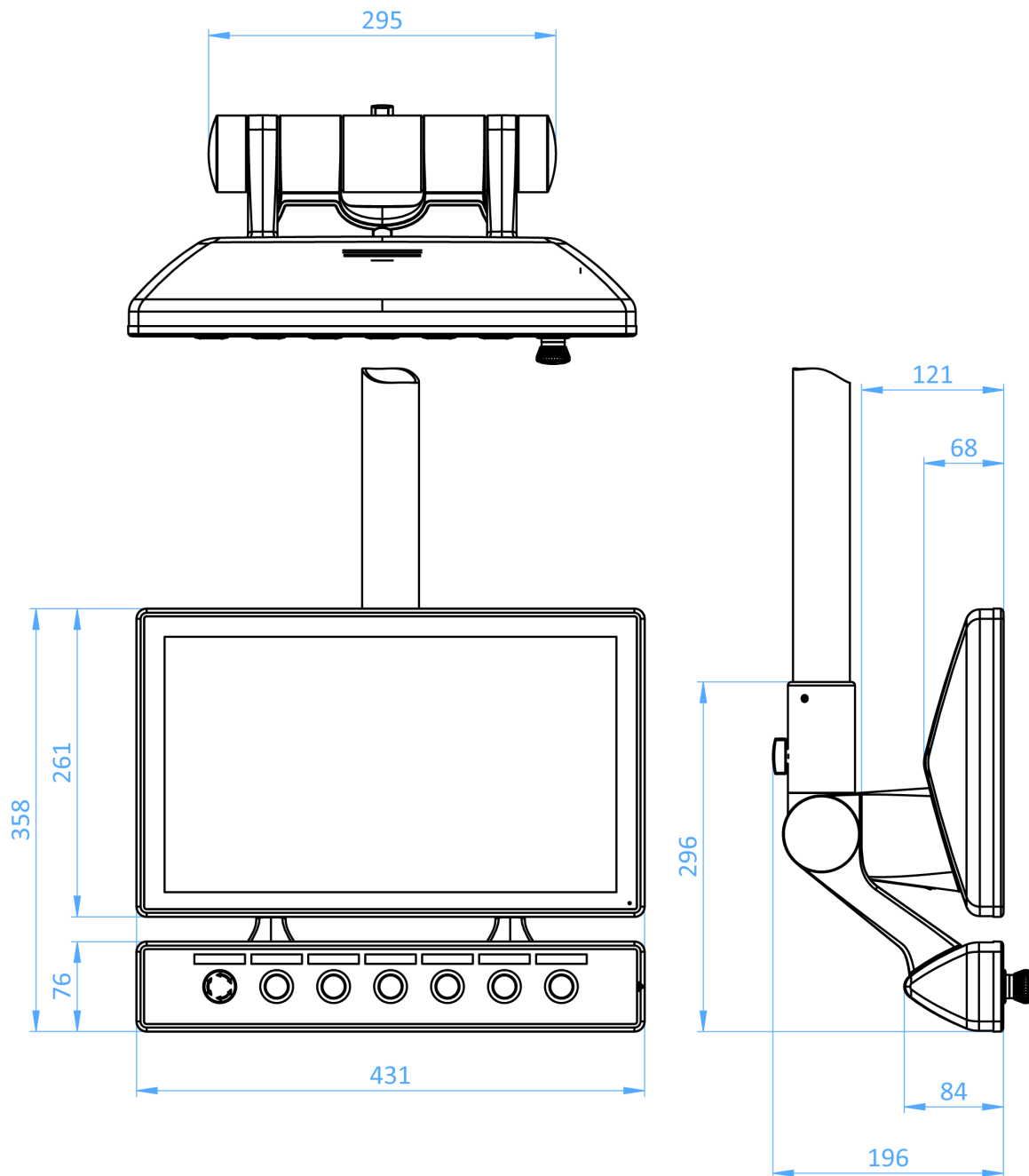


Figure 65: External device dimensions MMD8017

11.1.5 External device dimensions MMD8024

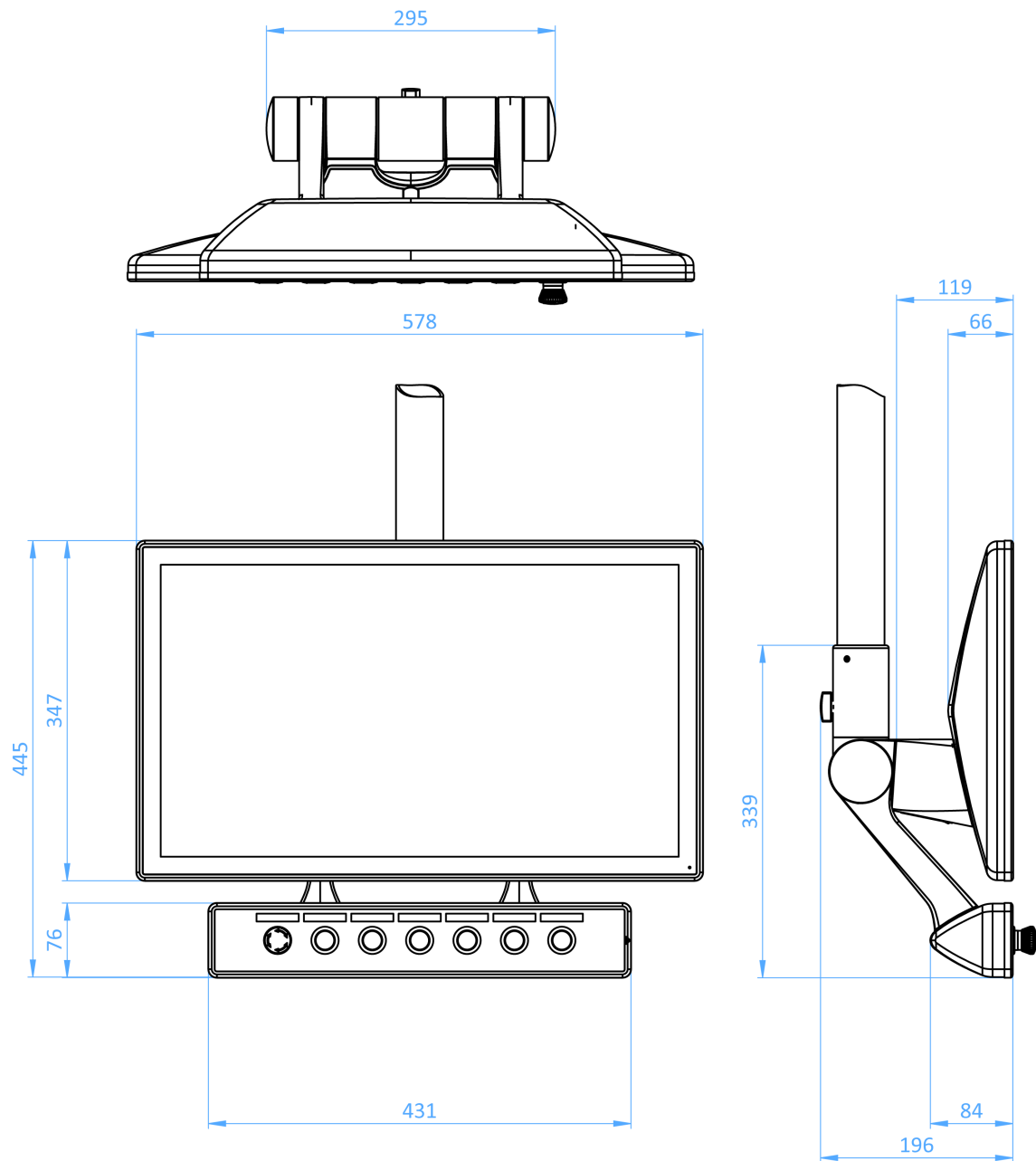


Figure 66: External device dimensions MMD8024

11.1.6 External dimensions MMD with IP69K

The dimensions of these monitors correspond to those of the standard versions, only the installation depth differs.


For the variant with service slot cover (right), the installation depth essentially depends on the design of the customer's VESA mount.



Fig. 67: External dimensions MMD with IP69K

11.2 HDBaseT™ technical data

11.2.1 Data sheet

| | Transmitter Tx |
|------------------------|---|
| Housing | Aluminium die-casting housing |
| Interfaces | 1 x USB 2.0 1 x HDMI 1 x HDBaseT™ 100Mbit |
| Power supply | 18 – 30 V  NEC Class 2 |
| Protection class | IP 20 |
| Operating temperature | 0° to 55°C |
| Dimensions (W x H x D) | 140 x 159 x 35 mm |
| Weight | 0.7 kg |
| Humidity | 10...85 %, non condensing |

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13 Service & support

ADS-TEC and its partner companies offer you comprehensive maintenance and support services, ensuring quick and competent support should you have any questions or concerns with regard to ADS-TEC products and equipment.

Because ADS-TEC products are also used by partner companies, these devices may have customised configurations. Should any questions arise with regard to such specific configurations and software installations, please contact the system supplier in question as ads-tec will not be able to answer such questions.

ADS-TEC does not provide support services for any device that was not purchased directly from ADS-TEC. In this case, maintenance and support is provided by the partner company.

13.1 ADS-TEC support

The ADS-TEC support team is available for inquiries from direct customers between 8:30am and 5:00pm, Monday to Friday

and can be reached via phone, fax or e-mail:

Phone: +49 7022 2522-202

Email: support.iit@ads-tec.de

Alternatively, you can contact us by completing a support form on our website www.ads-tec.com. Our Support team will then get in touch with you as soon as possible.