



Instruction manual

Machine Mounted Displays

MMD9016



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-iit.com in the Download Center.

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1 General information about documentation

1.1 General information

This instruction manual is intended to ensure safe and efficient handling of MMD9016 industrial monitors – referred to below as "device".

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.

All users must read this instruction manual and have access to it at all times.

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.

1.2 Explanation of safety instructions

1.2.1 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

1.2.2 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.

1.3 Relevant device documentation

The following documents are decisive to device setup and operation:

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

1.4 Symbols

Symbol	Meaning
	Label on batteries. The 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.
	Label on 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 functional earth connection (FE)

1.5 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.

1.6 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.

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

All other third-party trademarks used are hereby acknowledged.

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

1.7 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 General device information

2.1 Manufacturer and contact details

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

ads-tec Industrial IT GmbH
Heinrich-Hertz-Str. 1
72622 Nürtingen
Germany

Phone: +49 7022 2522-0

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Web: www.ads-tec-iit.com

2.2 Intended use

The control system is designed for use in the pharmaceutical, food, beverage and chemical industries. It has been specifically designed to meet strict hygiene conditions according to **EHEDG** (European Hygienic Engineering & Design Group) and **GMP** (Good Manufacturing Practice) guidelines.

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 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 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.

If the device is opened up by an unauthorised person, the user may be subject to hazards and the warranty is invalidated.

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

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!

2.4 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 environment in which it is located, condensation can form.

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

The device can be operated under the environmental conditions specified in the technical data. 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 device was developed in accordance with the directives of the European Hygienic Engineering & Design Group (EHEDG):

- easy to clean
- easy to maintain
- high durability of the materials used

If, however, the device is to be **used in aseptic environments**, a **suitability test** must be conducted and, where necessary, the manufacturer consulted.

2.5 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
- 2014/35/EU Low Voltage Directive



The device is a class A device (industrial sector). Class A may cause interference when used in residential environments.

The EU conformity declaration can be downloaded at <https://www.ads-tec-iit.com/en/support/eu-conformity>.

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.

2.6 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.

2.7 Limitation of liability

ADS-TEC 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, 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.

3 Scope of delivery

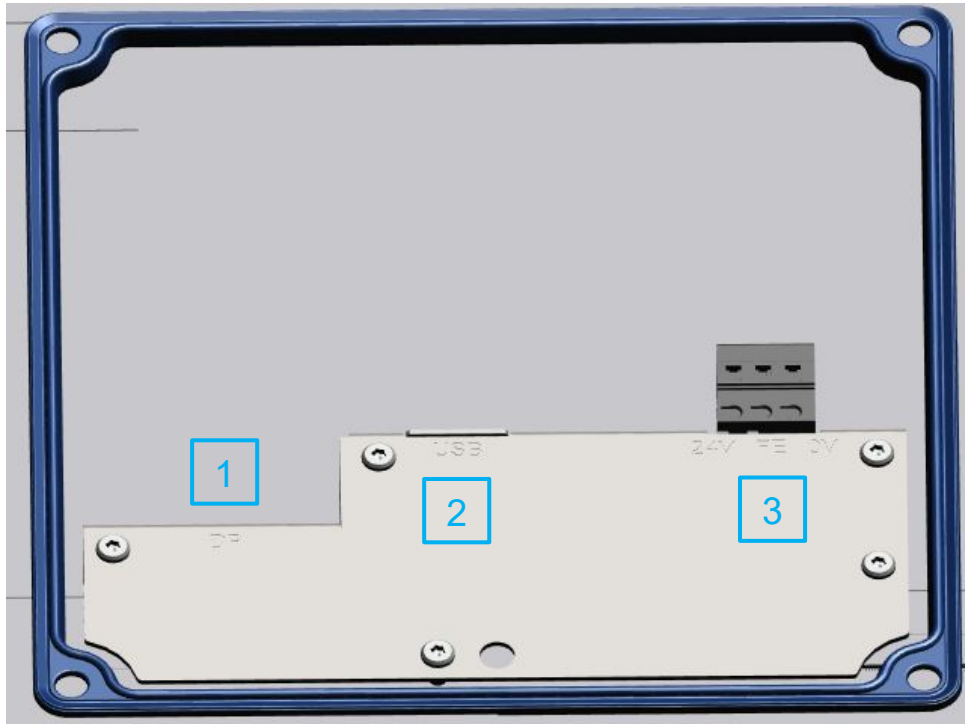
Check that the contents of the package are intact: If there are signs of damage, please contact the manufacturer immediately. The device must not be put into operation.

Check that the contents of the package are complete and match your order:

- 1 x device
- 1 x 3-pin plug for power supply in service slot
- Accessories according to order/delivery note


4 Interfaces

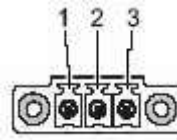
4.1 Interface overview



- | | |
|---|---|
| 1 | Display port – <i>or</i> – HDMI
for transmitting the image signal |
| 2 | USB 2.0 type B (slave)
for transmitting the signals from the touchscreen |
| 3 | Power supply and functional earth |

4.1.1 Power supply

Pin	Signal	
1	Reference potential 0 V	
2	Functional earth (FE)	
3	+24 VDC \pm 20 %	



(The figure shows the socket inside the device)

The electronics are electrically isolated from the housing.

Conductor cross sections:

- AWG 18 (\triangleq 1 mm²) or AWG 16 (\triangleq 1.5 mm²).
- With cable lengths > 5 m, the larger of the two cross sections must be selected.

4.1.2 Earthing concept

ATTENTION

Risk of radio interference

The functional earth connection (FE) is necessary in order to meet the statutory EMC requirements.

- Connect the device to a central earthing rail.
- The colour of the cable used here must not be green-yellow. This colour combination is reserved for protective earthing.

5 Mechanical installation

5.1 Requirements

Requirement regarding installation location:

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.

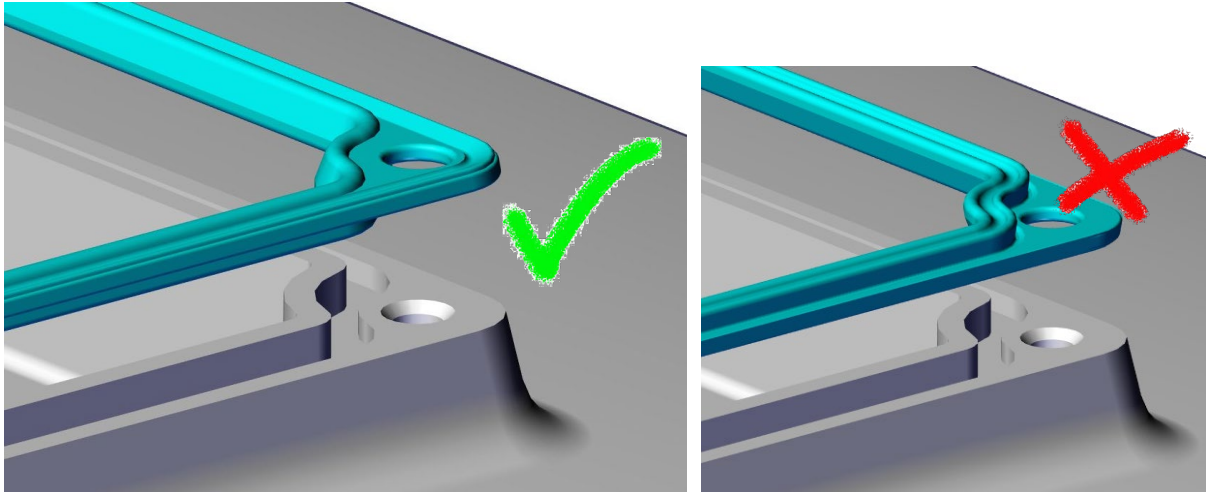
- Do not expose the device to direct radiation by sunlight or any other light or heat source!

5.2 Attaching flange seal

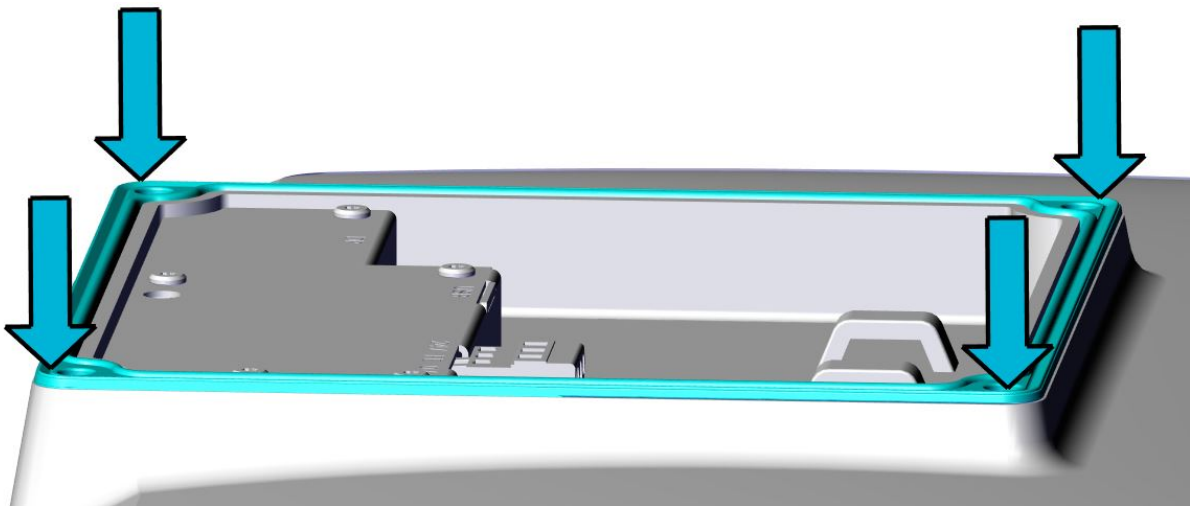
ATTENTION

To maintain the IP protection class: Insert the flange seal the right way round

- Fit the seal with the orientation shown in the left-hand image.



Press in the seal **at the corners first**. Then press in **evenly** along each edge from the outside to the inside in order to avoid rippling.



ATTENTION

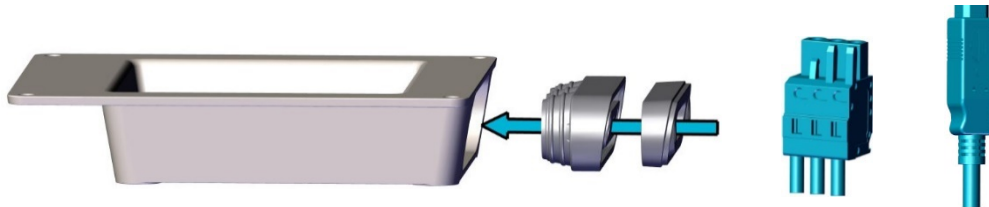
To maintain the IP protection class: Avoid crushing the seal!

- Tighten all flange and cover screws in a **crosswise sequence** and in **two stages**.

5.3 Securing to VESA interface

The rear cover has a combined interface for VESA 75 and VESA 100.

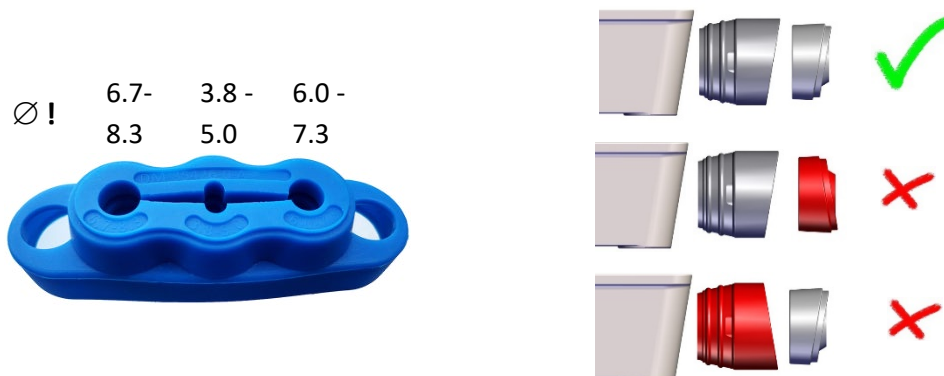
1. Press the **flange seal** evenly into the groove on the housing side (cf. 5.2).
2. Guide all **cables** through the openings in the seal, flange and rear cover and plug in all connectors.



ATTENTION

To maintain the IP protection class:

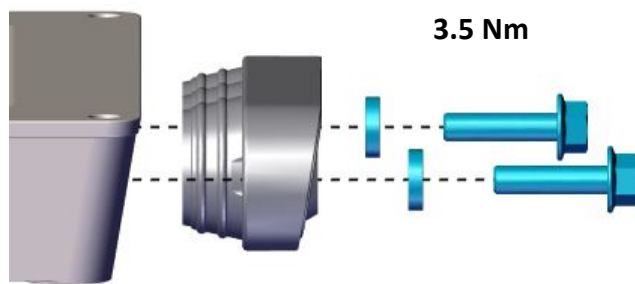
- Note the different hole diameters of the cable glands!



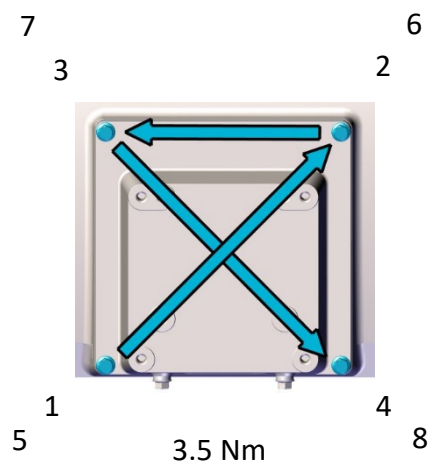
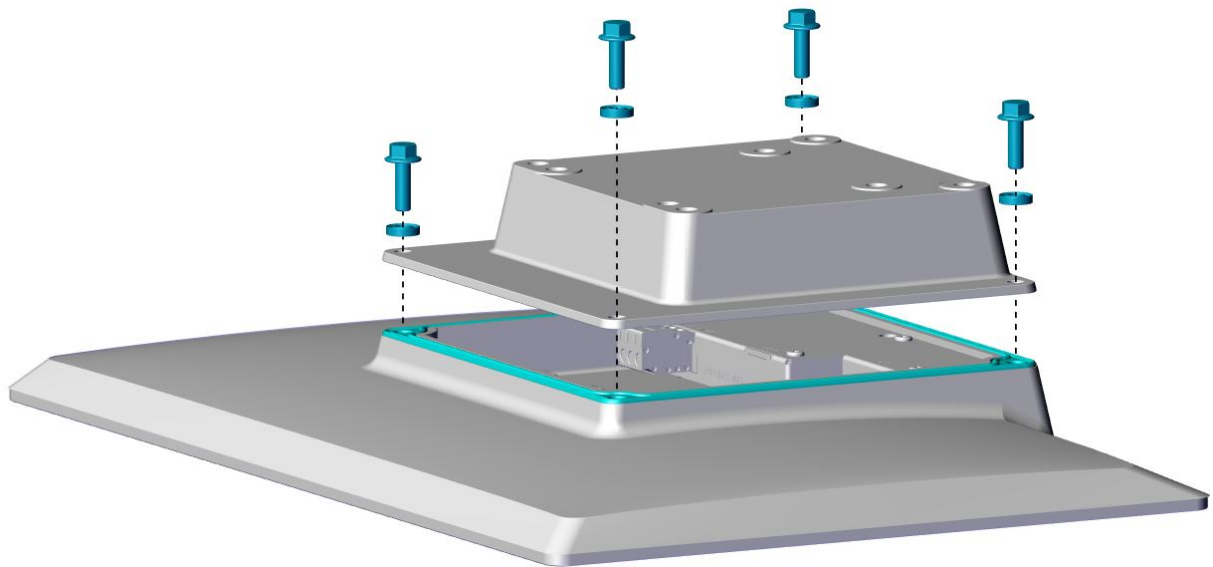
3. Use **cable ties** for strain relief.



4. Screw down the **seal**.



5. Screw on the **rear cover** in a crosswise sequence in two stages.



5.4 Securing using tube adapter

5.4.1 Attachment variants

The tube adapter is designed for a tube diameter of **48.3 mm** and can be mounted in four orientations:



WARNING

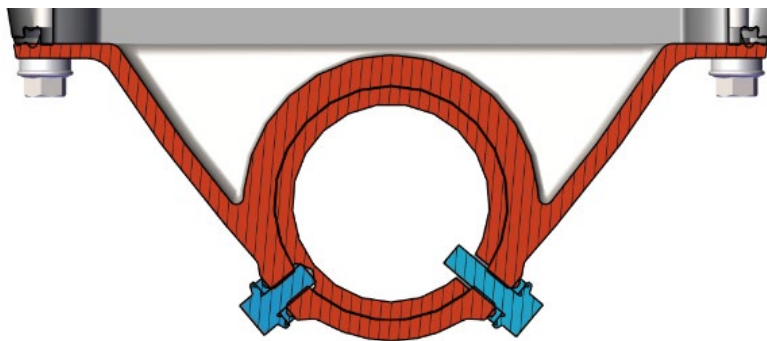


Risk of injury caused by the device slipping off a top-mounted retaining tube

With a top-mounted tube, the operating company is responsible for ensuring that the device cannot slip off the tube.

- For example by screwing the retaining screws or threaded pins into the tube so that they lock positively in it (make drill holes or countersinks).
- To prevent the screws/threaded pins from loosening due to vibrations and so on: Consider using liquid thread lock.

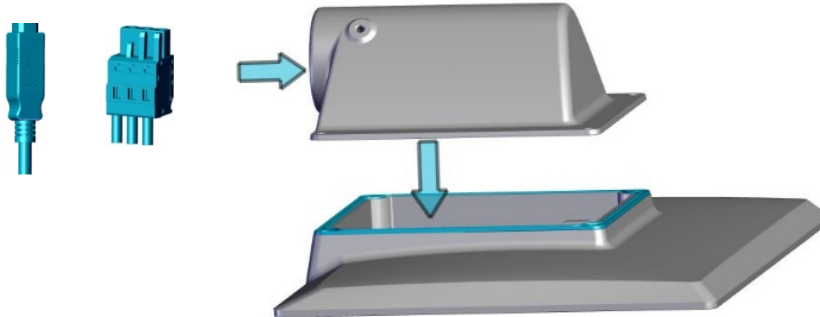
The mounting method shown in the following picture was subjected to a vibration-shock test by ADS-TEC and found to be safe:



Here, a screw presses on a blind hole in the tube. Another screw sits in a through hole in the tube. Both screws have a polyamide coating on the thread.

5.4.2 Attaching tube adapter

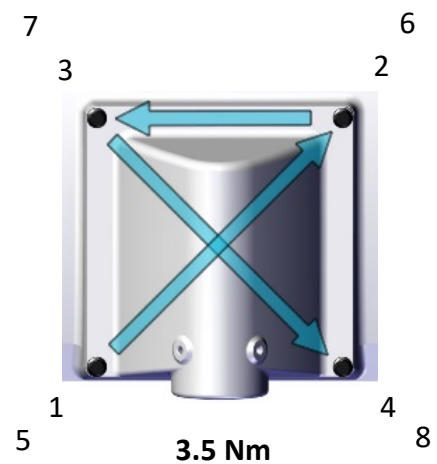
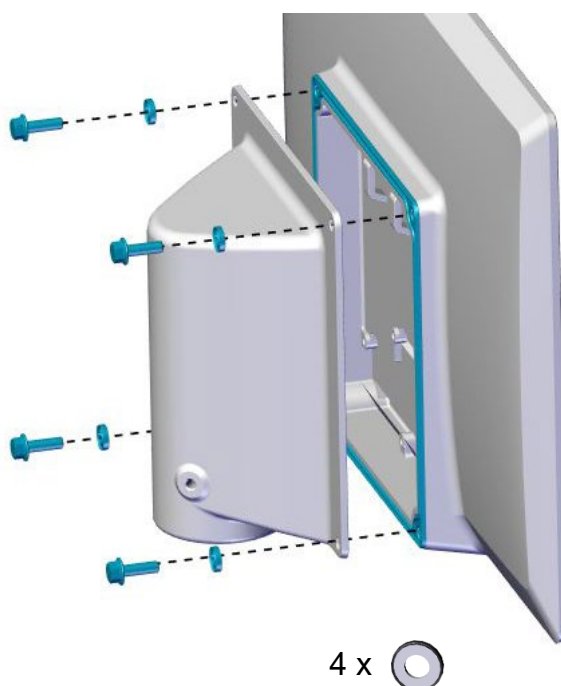
1. Press the flange seal into the groove on the housing side (cf. 5.2).
2. Guide all cables through the opening of the adapter and plug in all connectors.



3. Secure the cables using a **cable tie** at the fixtures provided.

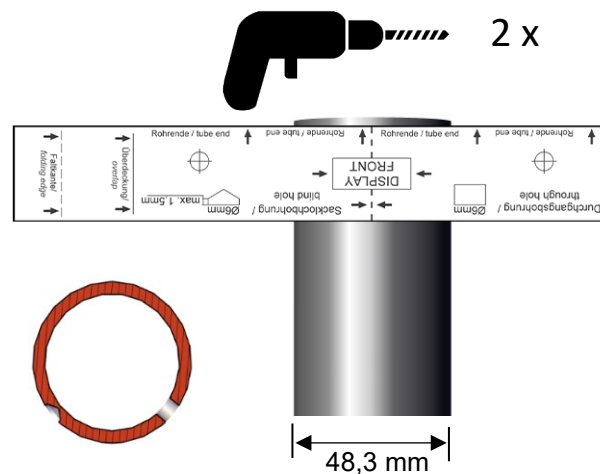


4. Screw on the adapter.



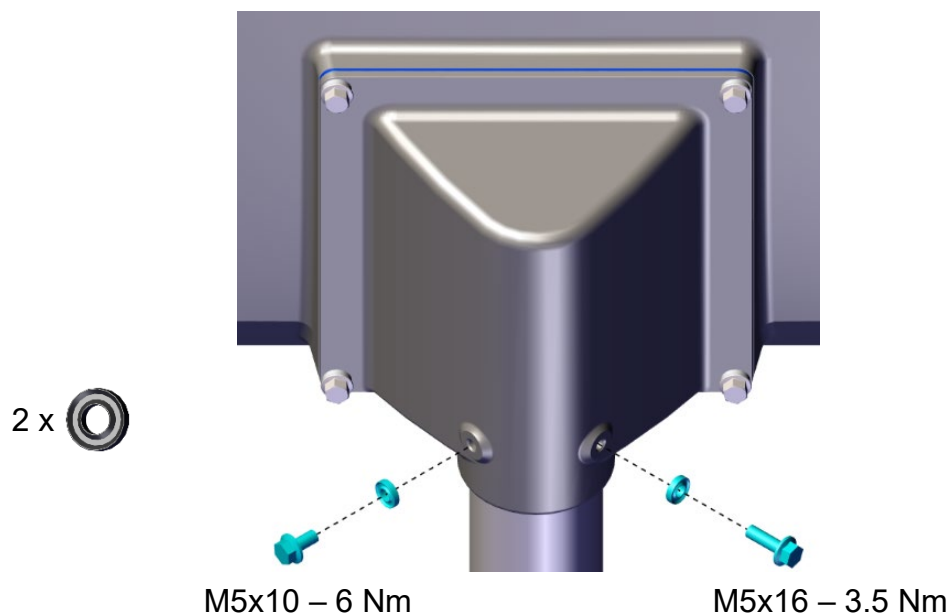
5.4.3 Screwing adapter to retaining tube

Holes can be drilled into the retaining tube using the supplied **drilling template**. The exact procedure is described in the drilling template instructions also supplied.



The screws included in the scope of delivery may be used for fastening (hexagon head screws similar to DIN 6921 M5x10 and M5x16).

However, depending on the condition and type of retaining tube provided by the customer and depending on the load situation in the specific application, the operating company is responsible for ensuring that the device cannot slip off the retaining tube. In this regard, refer also to the information in section 5.4.1.



ATTENTION

Loss of the self-locking effect

The self-locking effect of the fasteners supplied is provided by a polyamide layer on the thread. This layer is damaged during reassembly.

- Use these parts only once.

6 Commissioning

ATTENTION

Hazard due to condensation

Damage to electronic components caused by condensation resulting from temperature fluctuations.

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

ATTENTION

Damage due to electrostatic discharge!

Damage to the device can be caused by electrostatic discharge.

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

ATTENTION

Damage to the electronics!

The electronics can be damaged if connectors are connected or disconnected while power is still being applied.

- Make sure that no power is being applied when connecting and disconnecting connectors.

Check for operational readiness

➔ Make sure that the screw connections between a) the device and support arm adapter and b) the support arm adapter and connecting tube are secured to the specified torques or specifications.

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 strain relief fixtures in the service slot.

➔ Make sure that the 24 V power supply complies with NEC Class 2.

➔ Connect the device to the power supply.

7 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.

Cleaning agents and disinfectants

We recommend cleaning the devices using commercially available glass cleaning agents on a soft cloth.

The following cleaning agents have also been successfully tested:

Ethanol and isopropanol based

- Deconex Solarsept
- Bacillol
- Meliseptol

Neutral cleaning agents

- P3-cosa Foam 40
- P3-cosa PUR 80

Quarternary ammonium compounds

- Klerdice-CR Biocide A
- Deconex Surface AF

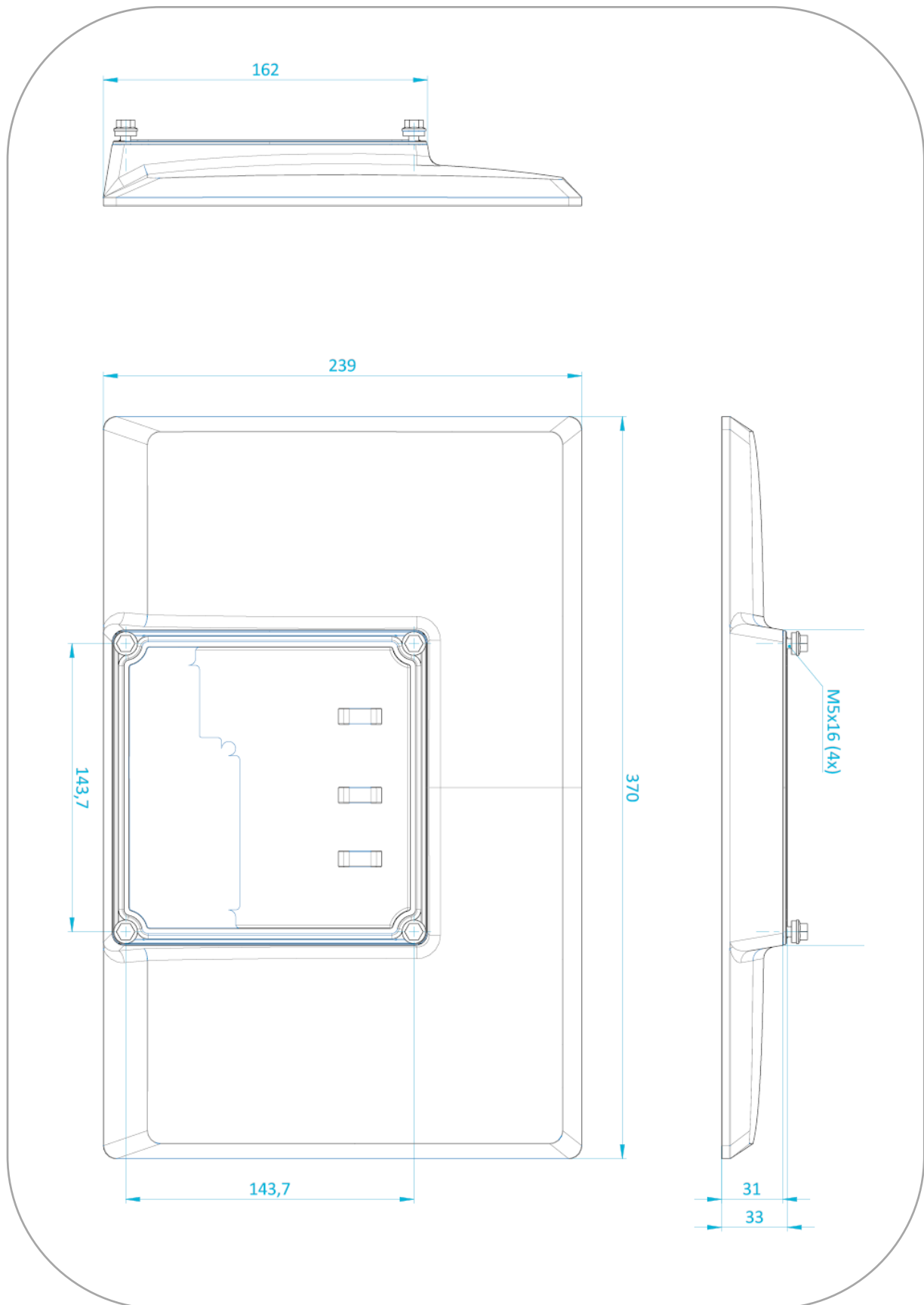
Disinfectants

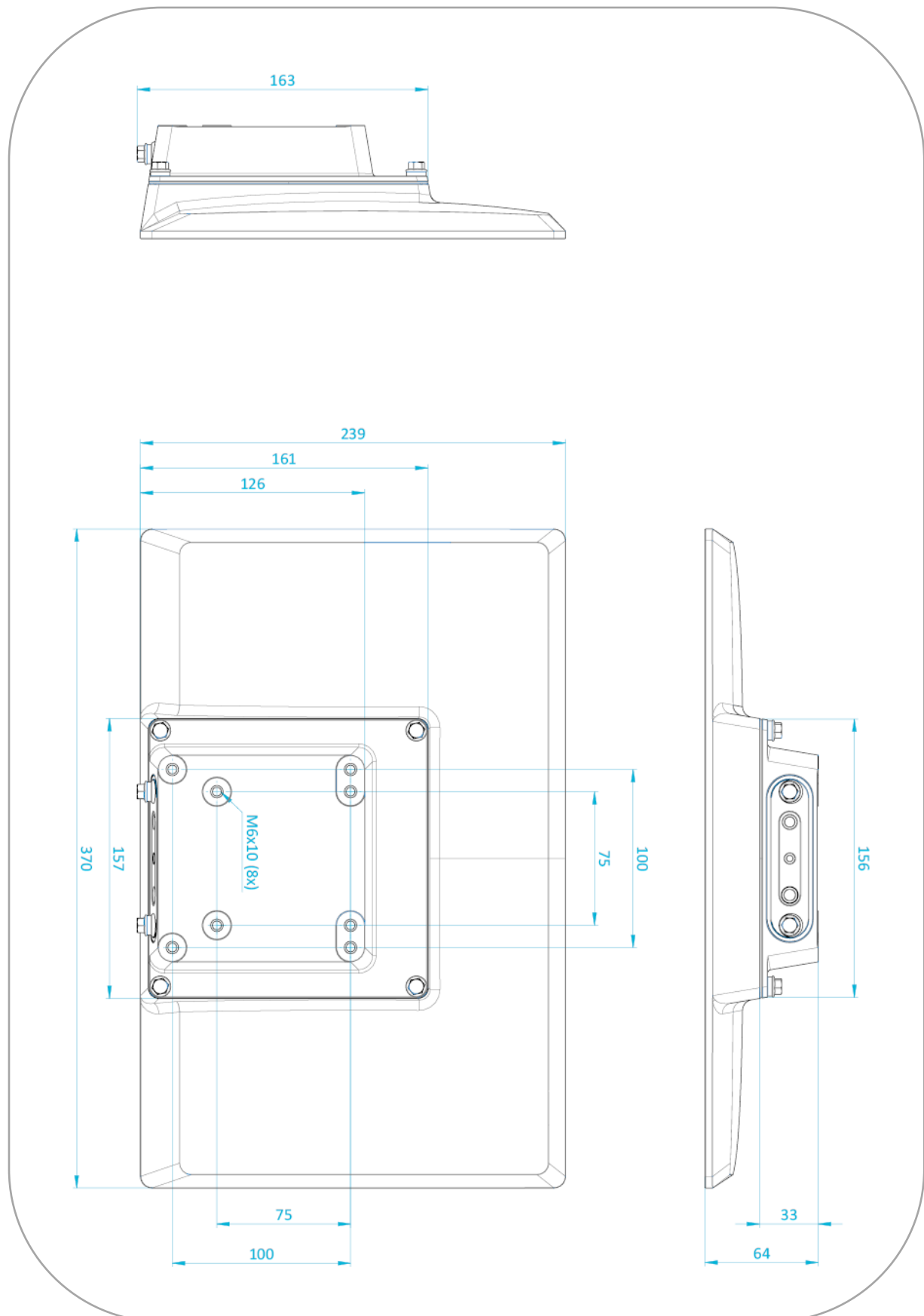
- Hydrogen peroxide $\leq 3\%$ (Recommendation: Wipe off all traces of the liquid, otherwise water marks can form)

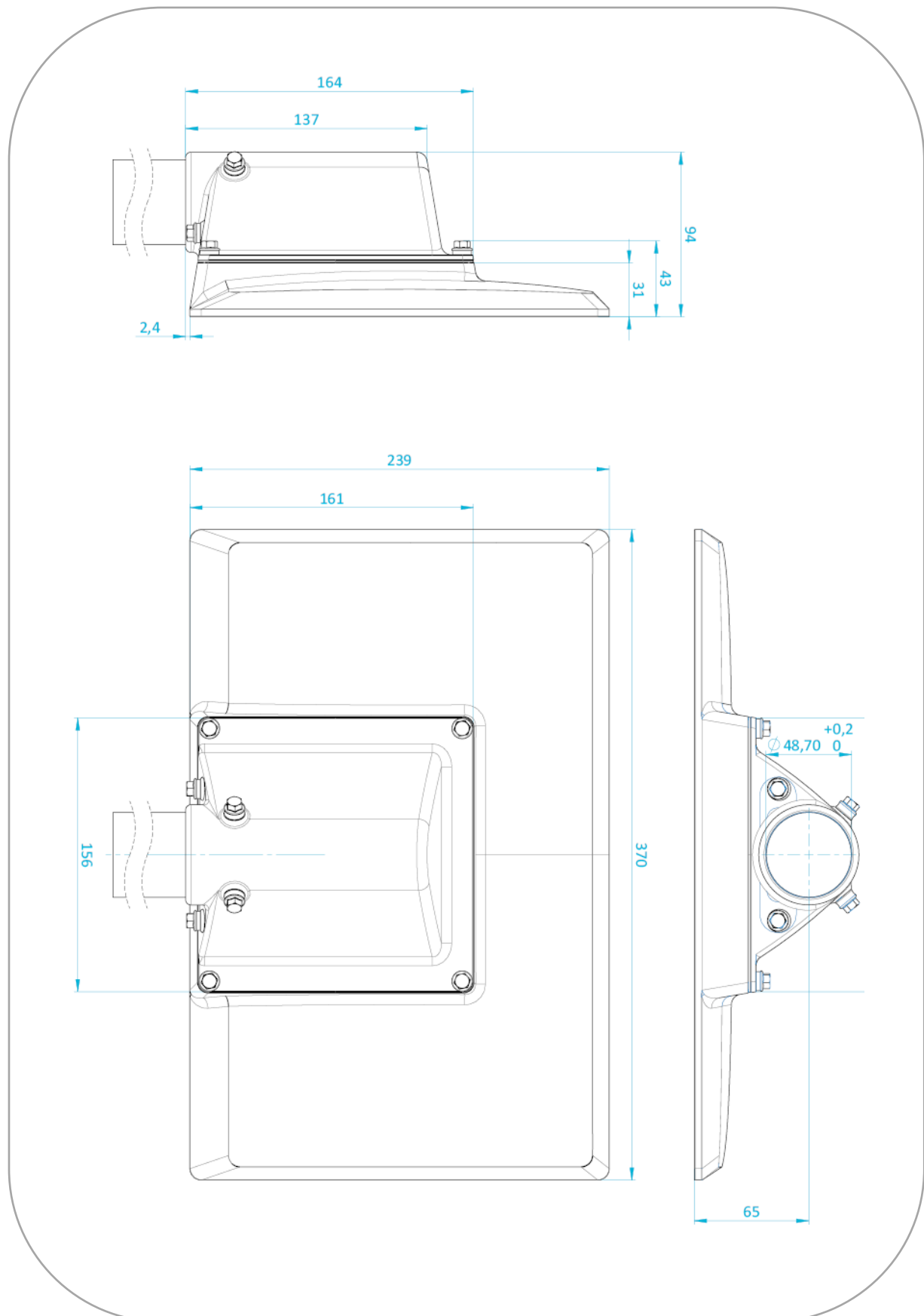
8 Disposal

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.

9 Dimensional drawings







10 Technical data

Housing	Fully enclosed stainless steel housing	
Display	Type	15.6" TFT display
	Aspect ratio	16:9
	Resolution	1920 x 1080 pixels
	Colours	16.2 million
	Brightness	Typ. 400 cd/qm, LED backlight
	LED service life	50,000 hours up to half brightness
	Viewing angle	89° / 89° / 89° / 89° CR = 10
Touch screen	Type	PCAP multi-touch
	Front panel	1.1 mm toughened glass / 5H
	Touch surface	346.3 mm x 195.8 mm
	Controller	EETI 3200
	Impact resistance	IK06
Splinter protection	Optional: protective film	
Power supply	Voltage: 24 VDC \pm 20 % (19...29 VDC)	
	Current: max. 0.5 A	
	Power: max. 9 W	
Protection class	IP69K (tested by ADS-TEC)	
Interfaces	USB 2.0	1 x type B (slave)
	Graphical input Display port DP 8.1 Gbps or HDMI	
Temperatures	Operation	0°C ... +50°C
	Storage	-20°C ... +60°C
Environment	Humidity	5...95% non-condensing
	Protection class	IP69K
Vibration/shock	DIN EN 60068-2-6:2008 (10...500 Hz; 30 m/s ²)	
	DIN EN 60068-2-27:2008 (500 m/s ²)	
Dimensions	See section 9 "Dimensional drawing"	
Weight	MMD9016:	approx. 4.8 kg
	VESA standard:	approx. 1.4 kg
	Tube holder:	approx. 1.6 kg

11 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 these specific configurations and software installations, please contact them 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.

11.1 ADS-TEC support

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

The support team can be reached via phone 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 The EU conformity declaration can be downloaded at www.ads-tec-iit.com.

Our Support team will then get in touch with you as soon as possible.

11.2 Company address

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