



Instruction manual

Terminals

VMT9000 series



Industrial IT

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.

Publisher

ads-tec Industrial IT GmbH

Heinrich-Hertz-Straße 1

72622 Nürtingen

Germany

Phone: +49 7022 2522-0

Internet: www.ads-tec-iit.com

E-mail: mailbox@ads-tec.de

Contents

1	General information about documentation.....	5
1.1	General information	5
1.2	Explanation of safety instructions	5
1.2.1	Structure of safety instructions	5
1.2.2	Explanation of signal words	6
1.3	Relevant device documentation	7
1.4	Symbols	7
1.5	Data, figures and modifications	7
1.6	Trademarks	8
1.7	Copyright	8
2	General device information	9
2.1	Manufacturer and contact details	9
2.2	Intended use	9
2.3	Improper use	10
2.4	Environmental conditions	11
2.5	Conformity	12
2.6	Warranty / repairs	13
2.7	Limitation of liability	13
2.8	Treatment and disposal of lithium batteries	14
3	Scope of delivery.....	15
4	Mechanical installation	16
4.1	Requirements	16
4.2	Mounting the device	17
4.2.1	VESA 75 interface	17
4.2.2	Other options	18
5	Electrical connections.....	19
5.1	Requirements	19
5.2	Opening the service slot	20
5.3	Compliance with the IP protection class	21
5.4	Interface overview	22
5.4.1	Power supply	23
5.4.2	Ignition function	23
5.4.3	Earthing concept	24
5.4.4	Autostart	25
5.4.5	Serial interface COM1 (RS232)	26
5.4.6	Optional: serial interface COM2 (RS232)	26
5.5	Closing the service slot	27
6	Commissioning.....	28
6.1	Requirements	28
6.2	User interfaces	29
6.2.1	Front	29

6.2.2	Functions of the front keys ex factory	30
6.2.3	Rear side	30
6.3	Switching on and configuring device	31
6.4	Configuration options in IGEL Linux	32
6.4.1	IGN function	33
6.4.2	Switching between an internal and external WiFi antenna	34
6.4.3	Power supply for hand-held scanners	34
6.4.4	Front key assignment	35
7	Features.....	37
7.1	MicroSD card	37
7.2	RFID reader (optional)	38
7.3	WLAN (optional)	38
7.4	Bluetooth (optional)	38
7.5	Mobile communications (optional)	39
7.6	GPS (optional)	40
7.7	CAN FD (optional)	40
7.8	Big-LinX®	40
7.9	UPS - Uninterruptible Power Supply (optional)	41
7.9.1	Configuring behaviour for low/critical battery level	42
7.9.2	Setting the screen brightness	44
7.9.3	Activating battery saving mode	45
7.9.4	Installing or removing the UPS battery	46
8	Software / driver installation.....	47
8.1	Initial installation of the operating system	47
8.2	Write protection	47
9	Cleaning.....	47
10	Dimensional drawings	48
10.1	VMT9010	48
10.2	VMT9012	49
10.3	VMT9112	50
10.4	VMT9015	51
11	Technical data.....	52
11.1	Technical data VMT9	52
11.2	Technical data – UPS	53
12	Service & support.....	54
12.1	ADS-TEC support	54
12.2	Company address	54

1 General information about documentation

1.1 General information

This instruction manual is intended to ensure safe and efficient handling of the VMT9000, referred to in the following 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 and on electrical and electronic devices. These may not be disposed of with household waste, but must rather be disposed of separately. They must be returned to the point of sale or a disposal system.
	Symbol for the protective earth connection (PE)
	Symbol for the functional earth connection (FE)
	The device supports an integrable UPS ("uninterruptible power supply"). This is an additional optional battery integrated into the service slot cover.

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.

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.

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

Email: mailbox@ads-tec.de

Web: www.ads-tec-iit.com

2.2 Intended use

The device is used in **logistics** for data collection on vehicles, e.g. on forklifts or in-house conveyor vehicles.

A further application area is in the production environment where the device is used for **stationary** visualisation, control and operating/machine data collection.

The operator alone shall be responsible for ensuring that all **operator obligations** are observed and for complying with any technical or statutory amendments that may arise.

Installation, commissioning and operation may only be performed by **qualified and trained personnel**.

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 service work. Appropriate measures must be taken to prevent **electrostatic discharges** on components.

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.

Vibration and shock resistance

The device complies with class 5M3 as defined in EN 60721-3-5 (environmental conditions in the case of devices for ground vehicles).

Tests were conducted in accordance with the following test standards:

- EN 60068-2-6 – Sinusoidal vibration (2...500 Hz, 30 m/s² peak, 2 h per axis)
- EN 60068-2-27 – Shock resistance (400 m/s², 6 ms, 1000 shocks per direction and axis)

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
- 2014/53/EU, RED Directive
- 2014/35/EU, Low Voltage Directive



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

The EU conformity declaration is available for download at:

<https://www.ads-tec-iit.com/en/support/eu-conformity>



Recommendation for use:

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.

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.

2.8 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!

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.

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!

The battery type to be used is:

- Lithium battery CR2032
- ADS-TEC part number: DZ-SONS-09946-1/A

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

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 4-pin plug for power supply in service slot
- Accessories according to order/delivery note

4 Mechanical installation

- Dimensional drawings of the device: see chapter *Dimensional drawings*.

4.1 Requirements

Requirement regarding installation location:

ATTENTION

Damage caused by heat!

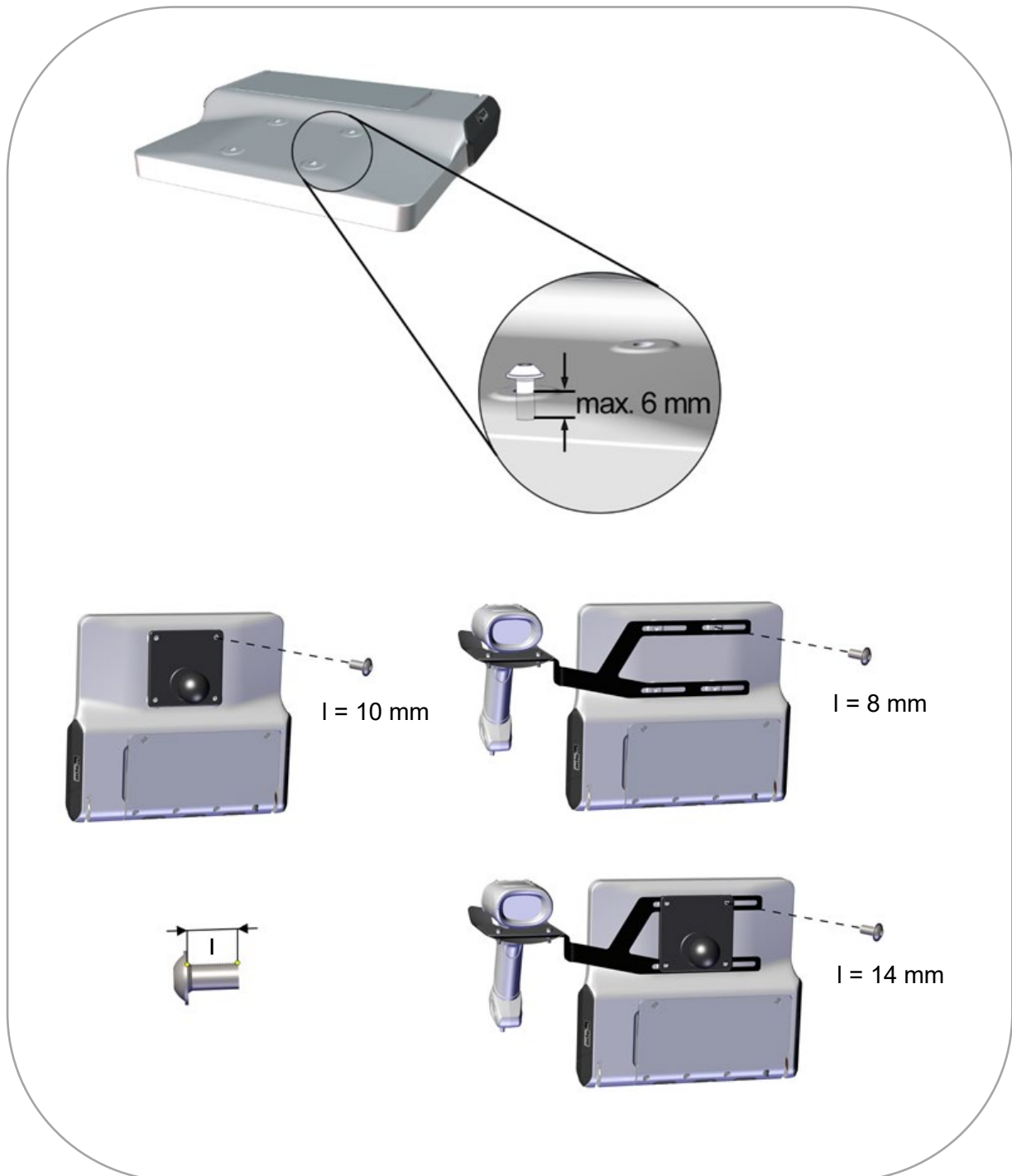
If the device is exposed to sunlight or any other light or heat source, it can overheat and suffer damage.

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

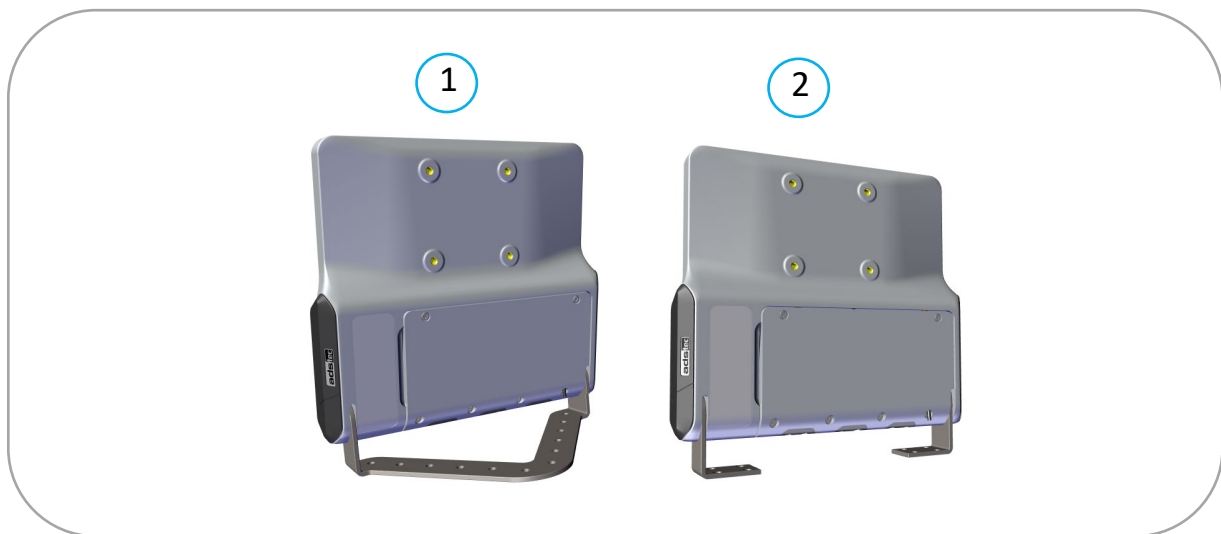
4.2 Mounting the device

4.2.1 VESA 75 interface

- Horizontal and vertical distance between the screw holes: 75 mm
- Thread: M6, torque: 8 Nm (recommended)
- Screw-in depth in the threaded bushings: max. 6 mm
- The images show typical screw lengths when using the RAM mount and/or optional scanner holder.



4.2.2 Other options

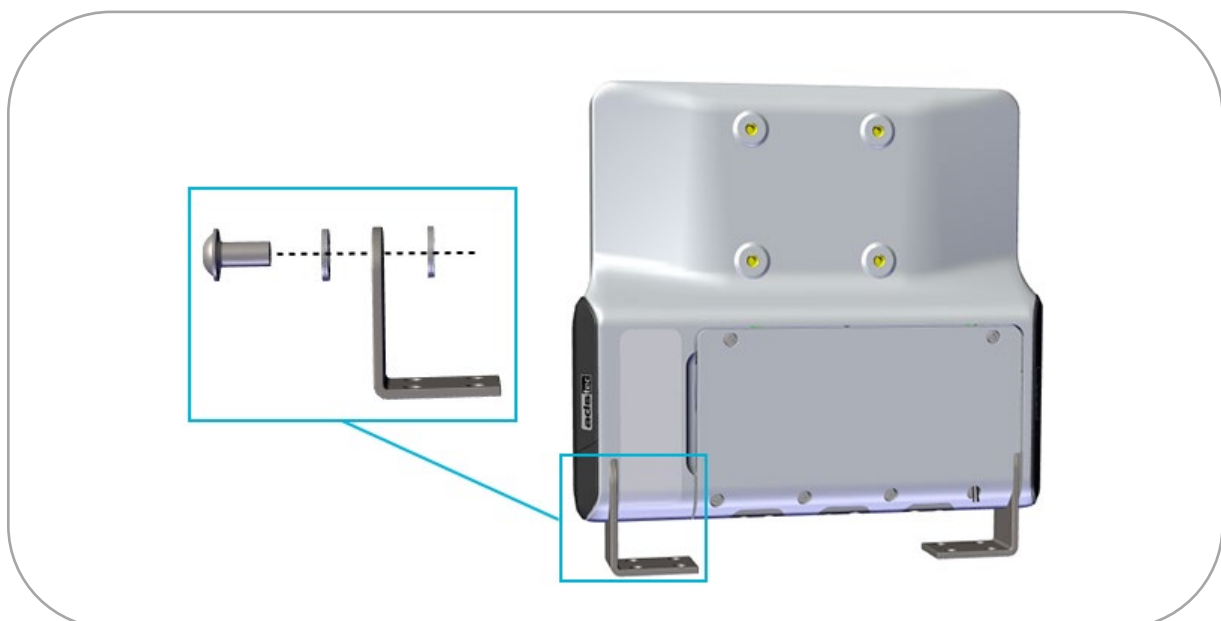


No.	Description
1	Table/vehicle bracket
2	Mounting bracket left/right

Sequence (each from the inside to the outside):

Nord-Lock washer ⇒ Bracket ⇒ Nord-Lock washer ⇒ Allen screw (WAF 6 mm) ⇒ Protective cover

Allen screw torque: 40 Nm (recommended)



- Further information and dimensional drawings can be found on our website in the section "Accessories" for the respective device.

5 Electrical connections

5.1 Requirements

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

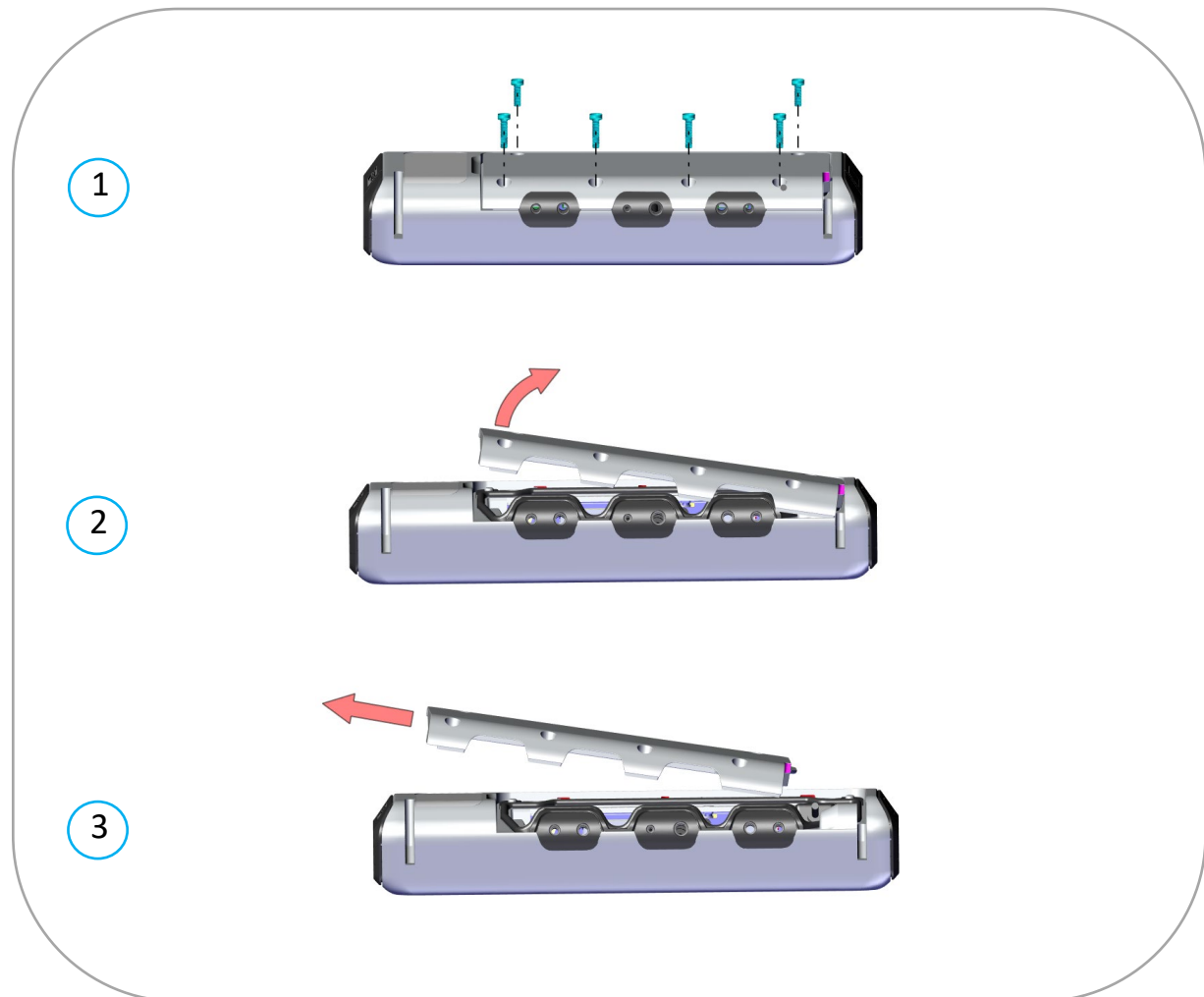
Damage to the electronics!

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.

5.2 Opening the service slot

1. Loosen screws (Tx20)
2. Lift cover at left
3. Pull cover off to left



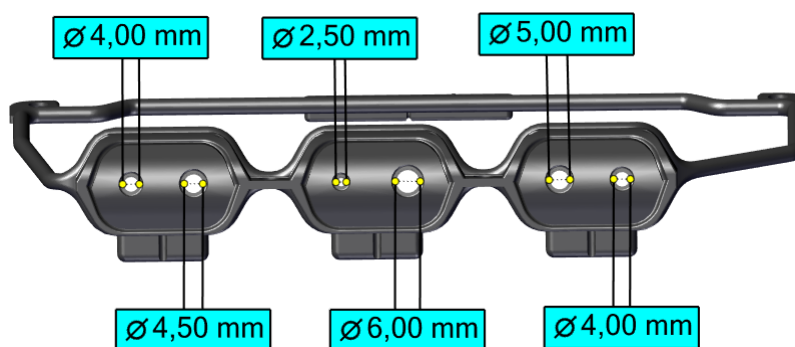
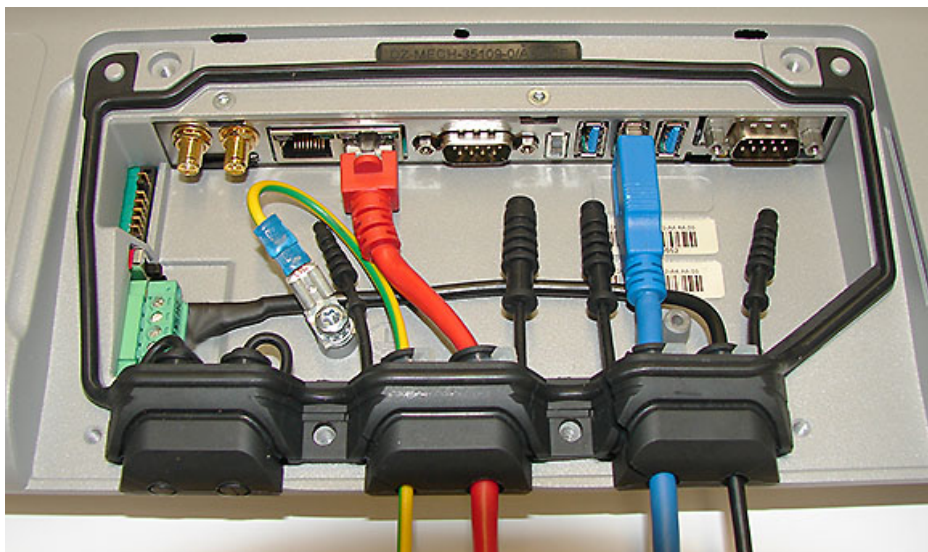
5.3 Compliance with the IP protection class

ATTENTION

To maintain the IP protection class:

- Insert a plug in all unused bushings.
- Insert seal correctly.
- After connecting the cable lines: close service slot as described in chapter 5.5.

Example of cable routing:

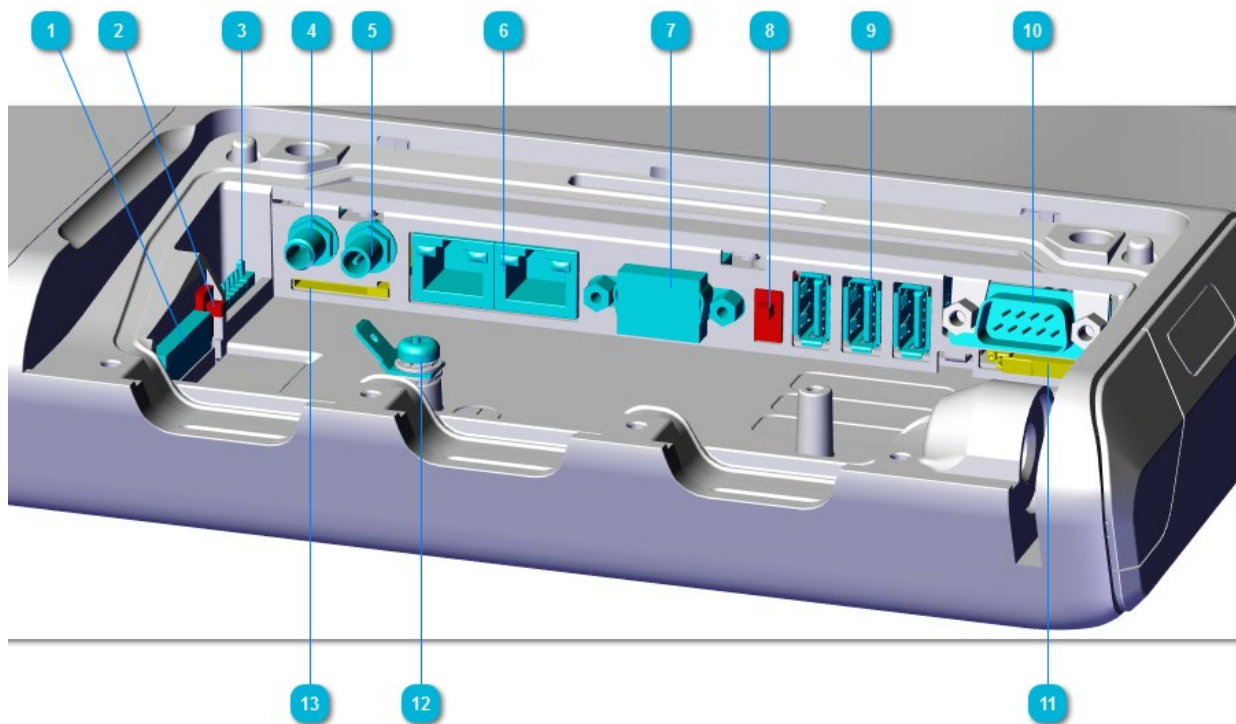


Recommendation for use:

On the inner side, attach cable ties for strain relief.



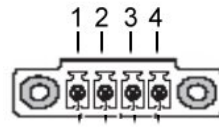
5.4 Interface overview



No.	Description
1	Power supply ⇒ see section 5.4.1
2	Switch for auto start ⇒ see section 5.4.4
3	Optional: Connection for UPS (uninterruptible power supply)
4	Optional: Connection socket (SMA female) for external GPS antenna
5	Optional: Connection socket (RP-SMA male) for external WLAN antenna
6	LAN (RJ45)
7	COM1 (RS232) ⇒ see section 5.4.5
8	Switch for power supply for hand-held scanner ⇒ see section 5.4.5
9	3 x USB 3.0 *)
10	Optional: COM2 (RS232) or CAN FD ⇒ see section 7.7
11	Slot for Big-LinX® smart card ⇒ see section 7.8
12	Earthing (PE) ⇒ see section 5.4.3
13	Slot for Nano SIM card ⇒ see section 7.5 and MicroSD card ⇒ see section 7.1
*) The USB interfaces can be disabled individually in the Configuration Center.	

5.4.1 Power supply

Pin	Signal
1	FE ⇒ see section 5.3.4
2	0 VDC
3	IGN ⇒ see section 5.4.2
4	DC+ ⇒ see technical data



(The figure shows the socket inside the device)

5.4.2 Ignition function

With the ignition function activated, the device starts as soon as the ignition is switched on. When the ignition is switched off, the device is disabled or shuts down. The supply voltage must remain constant.

The permissible voltage at the IGN input corresponds to the supply voltage of the device.

- This function can be activated and configured in the **Configuration Center**.



Recommendation for use:

Generally, the autostart and ignition functions should not be used together because these functions partly overlap.

5.4.3 Earthing concept

The earthing concept depends essentially on the conditions at the installation site and must be planned and implemented by a specialist electrical engineer.

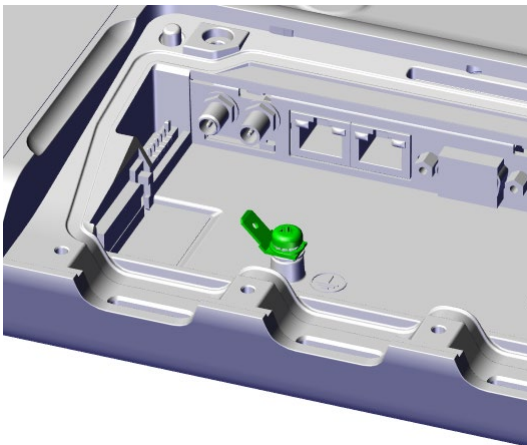
The following are provided on the device:

- **FE** connection in the power supply connector as **reference potential for the EMC filters**

ATTENTION

This connection is necessary in order to comply with **EMC** requirements.

- **PE** earthing lug in the service slot for earthing the device **housing**



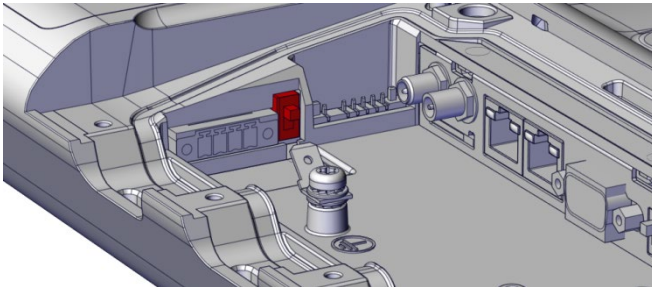
Recommendation

If possible, FE and PE should be connected via **separate** cables to the vehicle ground or respectively to the main earthing.

5.4.4 Autostart

With autostart activated, the device starts as soon as a supply voltage is applied.

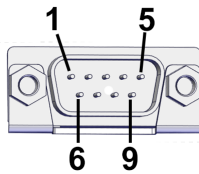
The autostart function is activated using the switch (shown) in the service slot.

**Recommendation for use:**

Generally, the autostart and ignition functions should not be used together because these functions partly overlap.

5.4.5 Serial interface COM1 (RS232)

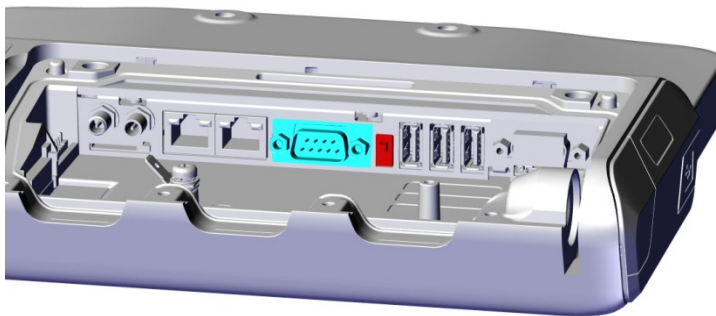
Interface	IRQ	Address
COM1	5	3F8h



(The figure shows the socket inside the device)

5 V voltage supply

The hardware switch marked **red** in the picture is used to apply a voltage of +5 VDC at pin 9 (e.g. for supplying power to serial bar code scanners).



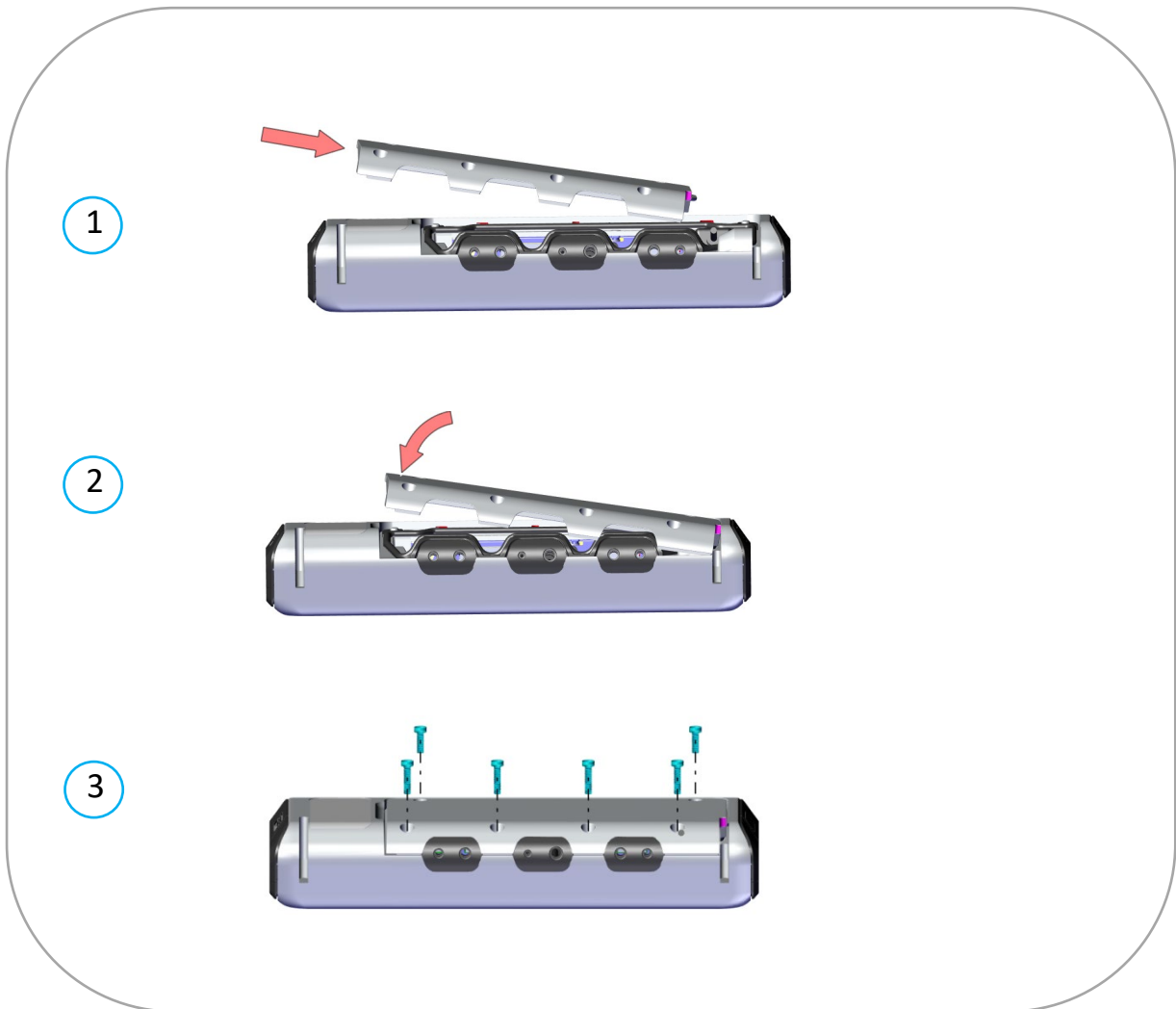
Please note: In addition, the corresponding software switch in the **Configuration Center** must be set to **ON**, see module *Serial port data forwarding*.

5.4.6 Optional: serial interface COM2 (RS232)

Interface	IRQ	Address
COM2	6	2F8h

5.5 Closing the service slot

1. Insert the cover on the right side into the groove
2. Press down the cover on the left side
3. Tighten screws crosswise with **2 Nm**



See chapter 7.9.4 for mounting a cover with integrated UPS.

6 Commissioning

6.1 Requirements

ATTENTION

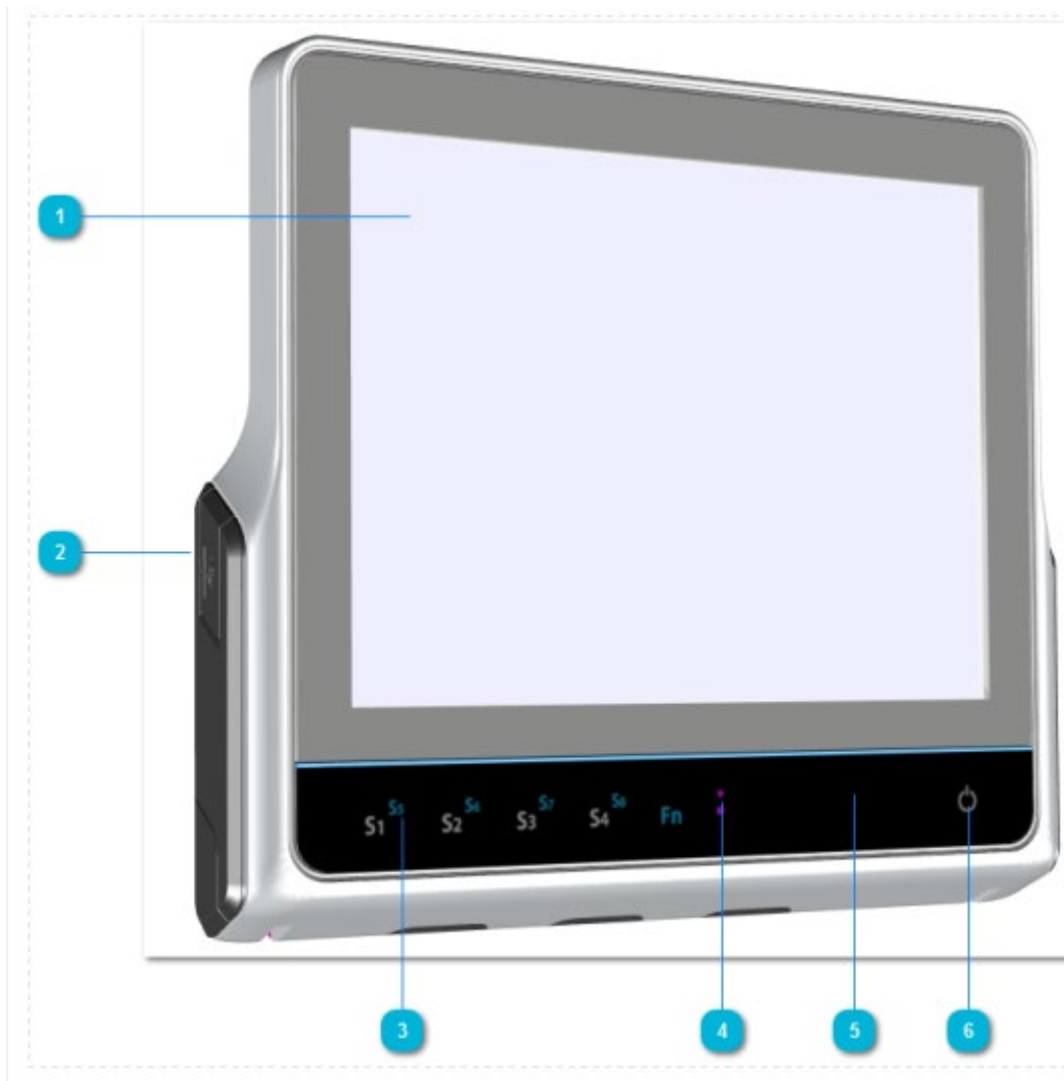
Hazard due to condensation

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

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

6.2 User interfaces

6.2.1 Front



No.	Description
1	Touch-screen: resistive (single-touch) or capacitive (multi-touch).
2	Lateral USB interface *)
3	Front keys **) (ex factory key assignment: see the following section)
4	Brightness and proximity sensor
5	Optional: RFID reader (not visible)
6	ON/OFF pushbutton **)

*) The USB interfaces can be disabled individually in the Configuration Center.

**) Functionality can be configured in the Configuration Center.

6.2.2 Functions of the front keys ex factory

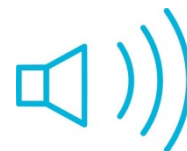
The front keys can be individually configured in the Configuration Center. They have the following functions ex factory.



S1	Calls up the soft keyboard
S2	-
S3	-
S4	-
Fn	Shift key (SHIFT) for the second keyboard level. This key must be pressed simultaneously with the desired function key.
S5	Reduce brightness
S6	Increase brightness
S7	Reduce volume
S8	Increase volume

6.2.3 Rear side

Speakers are located at the shown positions.



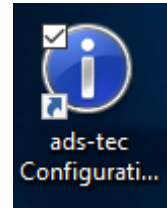
6.3 Switching on and configuring device

After the power supply has been connected, the device can be started using the ON/OFF pushbutton on the front of the device.

In its delivery state, a soft keyboard can be displayed by pressing the function key **S1**.

The **Configuration Center** from ADS-TEC can be used to make a number of settings, e.g.:

- Assignment of functions to the front keys
- Behaviour of the ON/OFF pushbutton
- Configuration of COM interfaces
- Disabling of the USB interfaces
- Configuration of the ignition function (key switch)
- Write-protection of the mass storage or parts of it
- Soft keyboard
- Wireless devices
- Many other modules are in preparation



You can start the Configuration Center by selecting the appropriate item in the start menu or using the icon on the desktop.

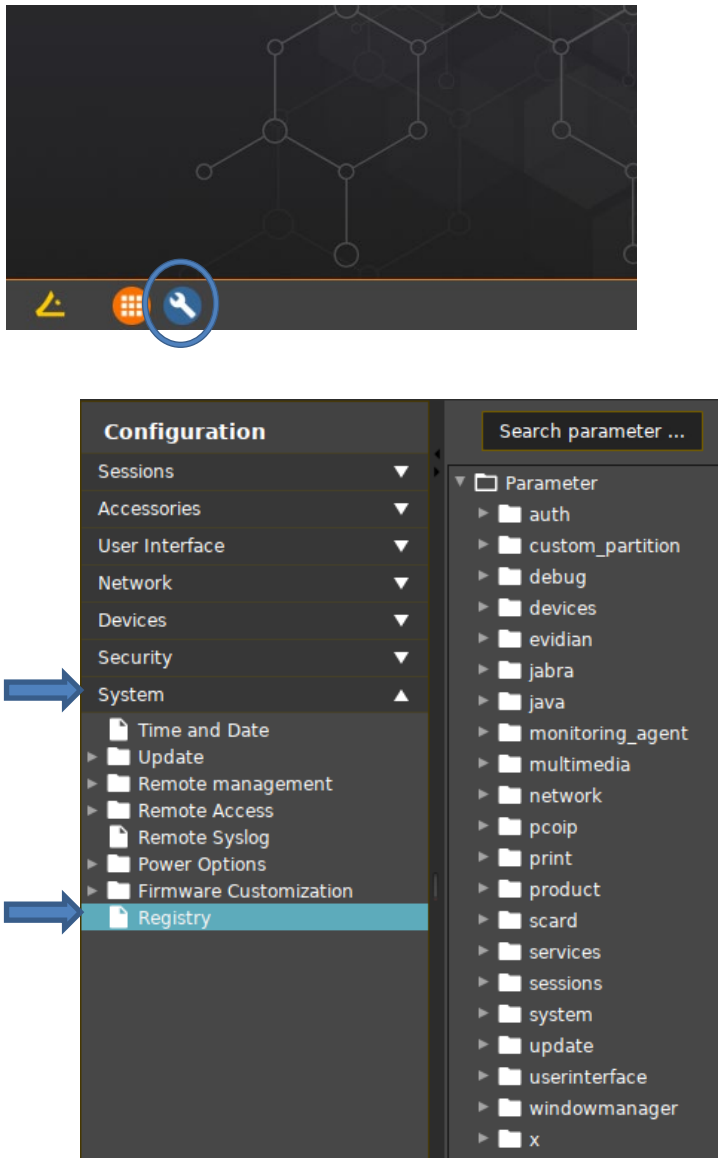


With **IGEL Linux** as the operating system, you can make many of the Configuration Center settings in the Registry (see chapter 6.4).

6.4 Configuration options in IGEL Linux

With IGEL Linux as the operating system, you can make many of the settings of the Configuration Center in the registry.

Start the registry as follows:

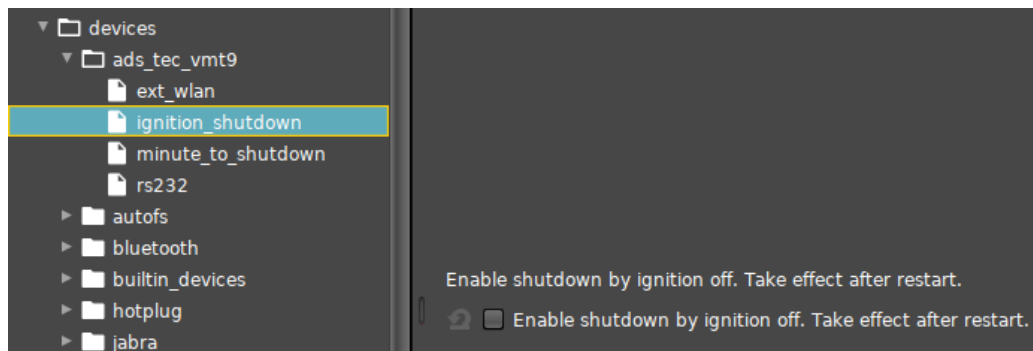


6.4.1 IGN function

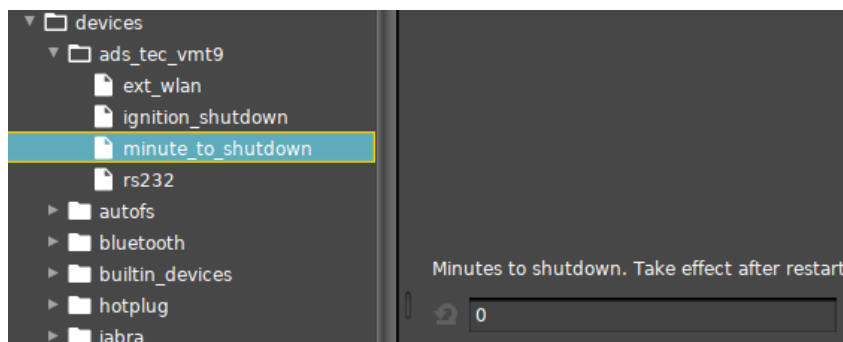
Note: The basic operation of the IGN function is described in section 5.4.2.

The following applies to devices with IGEL Linux:

- a) The device always starts with a rising edge at the IGN input.
- b) Optional: the device shuts down in the case of a falling edge; see registry key
Registry/Parameter/devices/ads_tec_vmt9/ignition_shutdown



- c) Optionally, you can parametrize a waiting period between a falling IGN edge and the shutting down of the device: *Registry/Parameter/devices/ads_tec_vmt9/minute_to_shutdown*



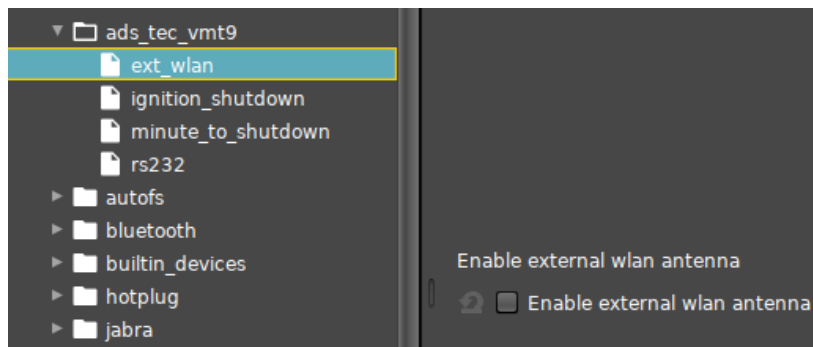
Note: Only enter whole minutes; decimal places will be ignored.

Note: A waiting time of 5 s must be complied with prior to a restart after shutdown so that the IGN input reliably detects a new rising edge.

6.4.2 Switching between an internal and external WiFi antenna

If available, you can switch between the internal and an external antenna by parametrizing the relevant registry key:

Registry/Parameter/devices/ads_tec_vmt9/ext_wlan

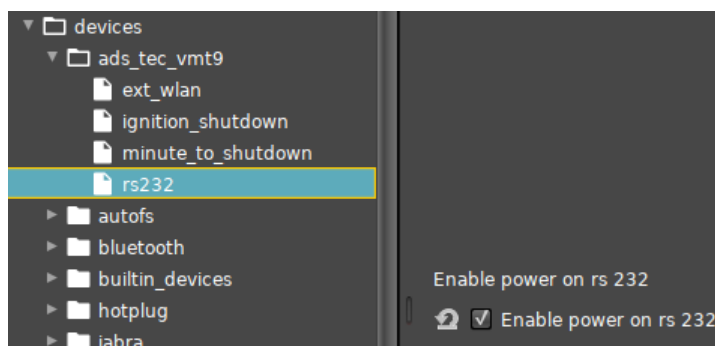


6.4.3 Power supply for hand-held scanners

If required, a voltage of +5 V can be supplied to pin 9 of the RS232 interface COM1.

For the pin assignment and the position of this connection: see the section 5.4.5.

Registry/Parameter/devices/ads_tec_vmt9/rs232



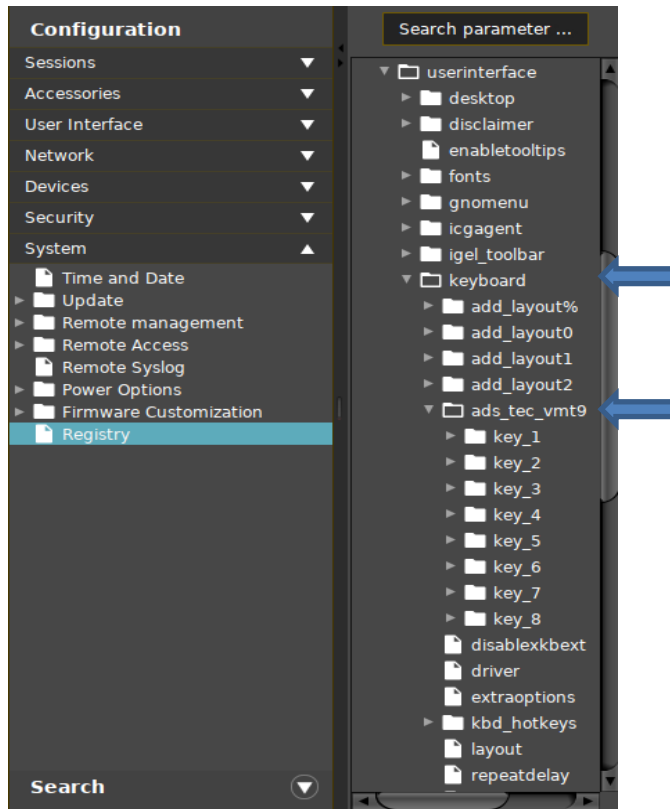
Note: In addition, the relevant switch in the service slot must be actuated; see section 5.4.5.

6.4.4 Front key assignment

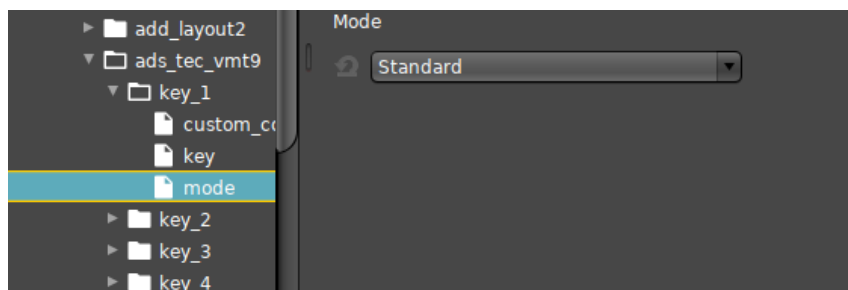
For the factory assignment of the front keys S1–S8, see section 6.2.2.

The front keys can be assigned functions in a customer-specific manner in the registry:

Registry/Parameter/userinterface/keyboard/ads_tec_vmt9/



Under *mode*, an entry can be selected from the drop-down menu for each front key individually:

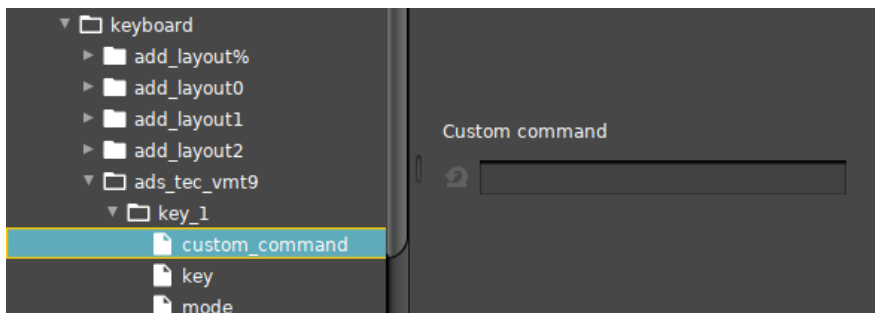


- **Standard:** Button has the factory-preset assignment.
- **Inactive:** Button is deactivated.
- **User-defined command:** See the *custom command* registry key (below).
- **Key sequence:** See the *key* registry key (below).

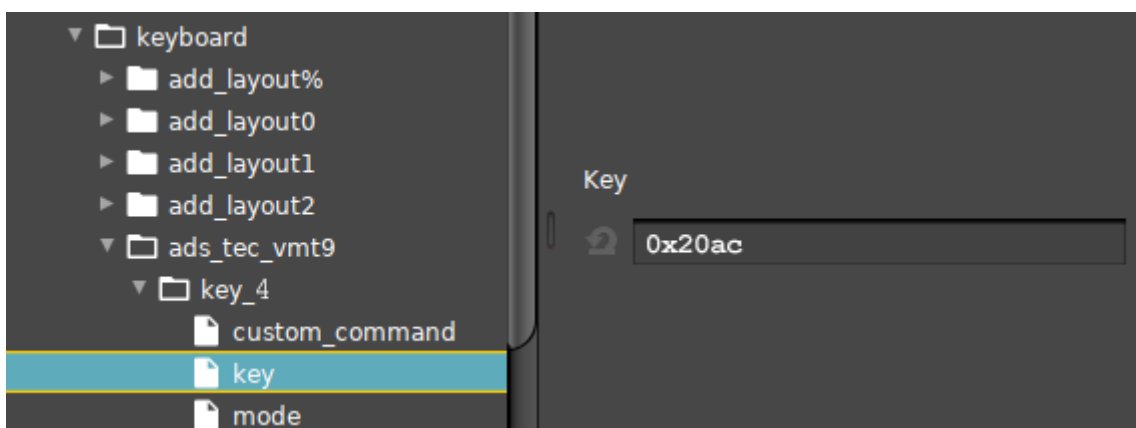
custom command (user-defined command)

You can enter shell commands here.

For example: "firefox" opens the browser of the same name (if installed).

**key (button)**

Here you can enter which character should be produced by pressing the relevant front key. In the example shown, the code `0x20ac` produces the condition where pressing the button S4 will insert a euro symbol "€" into a previously selected text input line.



Please note: To be able to use this function, the entry "Key sequence" must be selected under *mode*.

If several characters are to be inserted, it is sufficient to string them together.

Example: `0x0034 0x002c 0x002d 0x0020 0x20ac` generates „4,- €“.

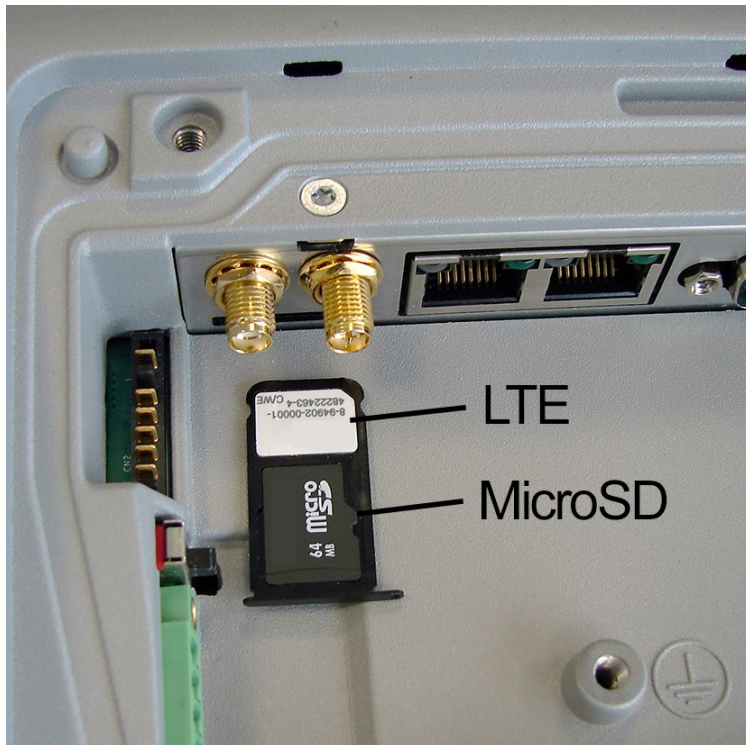
You can find an extensive list of key codes here, for example:

<https://gitlab.com/cunidev/gestures/-/wikis/xdotool-list-of-key-codes>

7 Features

7.1 MicroSD card

A MicroSD card can be inserted in the mobile phone card drawer as a memory expansion and for backups.



ATTENTION

Data loss

If you pull the drawer with a MicroSD card inserted while the computer is running, data may be lost.

- Shut down the computer before pulling out the drawer.

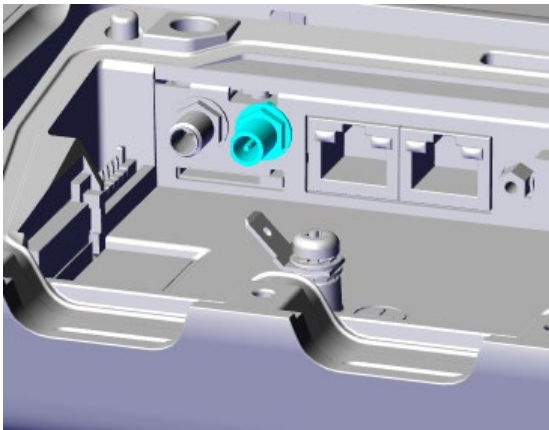
7.2 RFID reader (optional)

The supported transponders (RFID tags) are given in the chapter *Technical data*.

7.3 WLAN (optional)

This function uses the resources provided by the operating system.

An external WLAN antenna can be connected to the connection socket (RP-SMA male) in the service slot.



In the **Configuration Center**, it is possible to set whether the internal or an external WLAN antenna is to be used.

7.4 Bluetooth (optional)

Devices with WLAN also have Bluetooth.

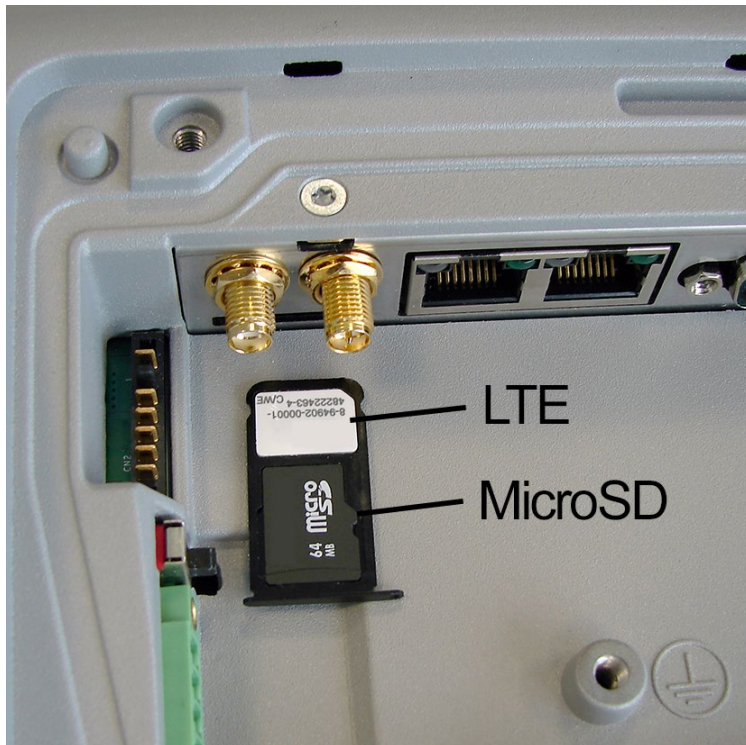
This function uses the resources provided by the operating system.

7.5 Mobile communications (optional)

This function uses the resources provided by the operating system.

Initial commissioning - Inserting a nano-SIM card

Pull out the card drawer with a small screwdriver (or the like) and insert the card as shown:



Changing the mobile phone card

ATTENTION

Data loss

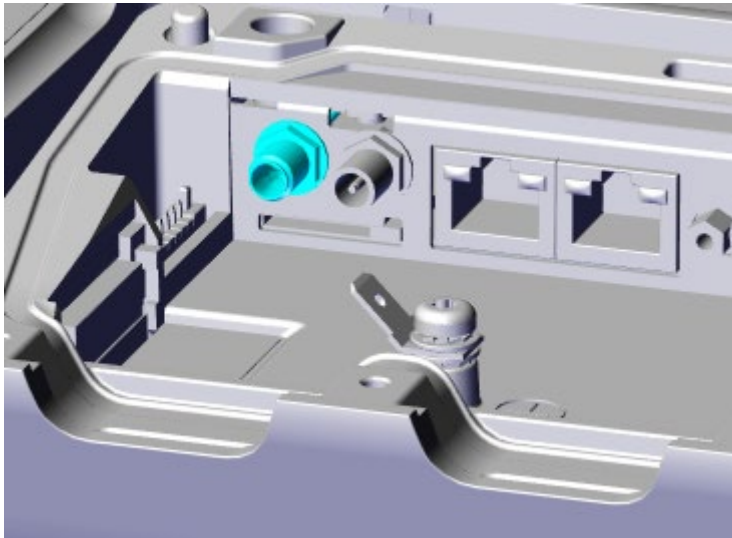
If you pull the drawer with a SIM card inserted while the computer is running, data may be lost.

- Shut down the computer before pulling out the drawer.

7.6 GPS (optional)

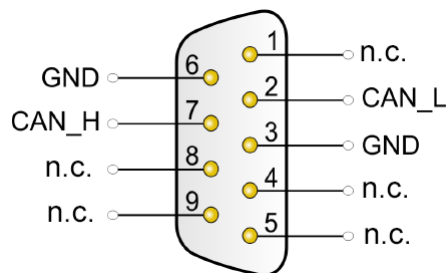
Devices with mobile communications functionality also have GPS. This function uses the resources provided by the operating system.

A GPS antenna can be connected to the connection socket (SMA female) in the service slot.



7.7 CAN FD (optional)

This function uses the resources provided by the operating system.



Other connectors can be provided here at the request of the customer.

7.8 Big-LinX®

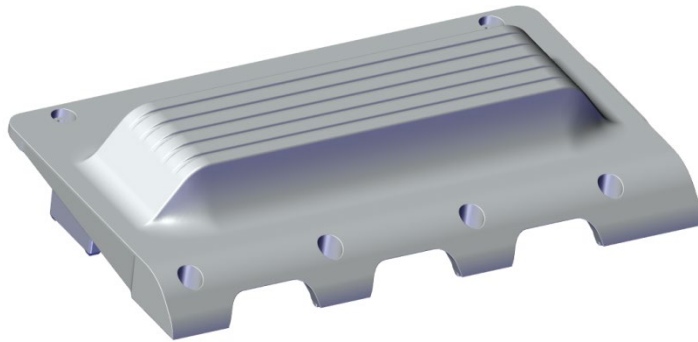
Big-LinX is a versatile and scalable platform for different IoT applications. The secure connection of decentralised systems, the management of distributed gateways as well as comprehensive services for data collection, forwarding and monitoring make a major contribution to the implementation of complex Industry 4.0 projects.

- To establish a connection to the Big-LinX cloud, insert the Big-LinX smart card into the slot labelled SCM. To pull the drawer out: press the yellow button with a ballpoint pen or the like.

You can obtain Big-LinX here: <https://www.ads-tec-iit.com/en/reliable-remote-access/biglinx>

7.9 UPS - Uninterruptible Power Supply (optional)

On request, the devices can be delivered with a backup battery integrated in the service slot cover.



This backup battery ensures that the system continues to operate normally in the event of brief power failures. With longer power failures, the system can be shut down automatically after the data has been saved.



Owing to its limited capacity, the UPS battery is suitable for bridging only brief power failures. It is therefore always important to keep power requirements in battery mode to a minimum.

The computer can only be restarted when the power supply unit is connected.

Recommendations:

- CPU-intensive operations should only be performed in mains mode.
- Peripherals with a high power requirement (e.g. external USB hard drives) should be used in mains mode only. Mouse, keyboard and USB sticks, however, do not present a significant load.

ATTENTION

Power failures during system updates can damage the operating system

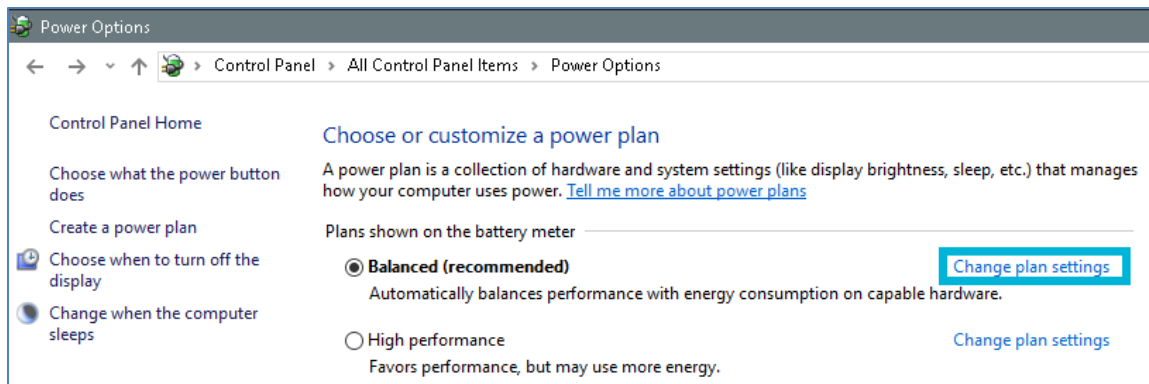
It is strongly recommended not to install programme updates or system updates in battery mode. Even if the system shuts down at a critical battery capacity, it cannot be guaranteed that updates prior to the shutdown have been fully installed.

- Do not start updates in battery mode!

The following sections show examples of configuration options for battery mode under Windows 10. The examples apply accordingly to other operating systems.

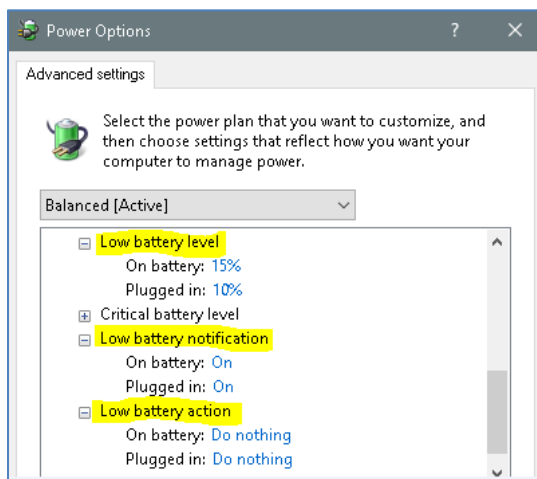
7.9.1 Configuring behaviour for low/critical battery level

Under "Power Options" of Windows 10, critical thresholds and associated actions can be configured for each power plan.

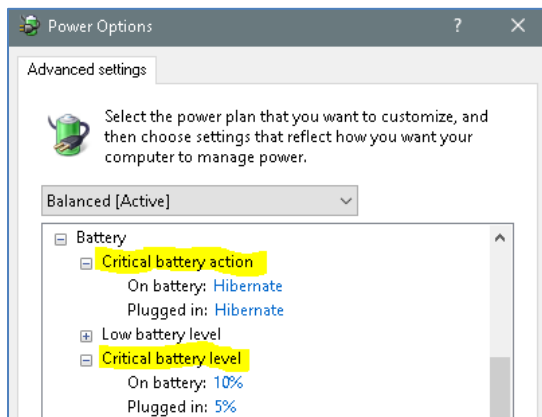


Recommendations:

- A warning should be output at the latest when a low battery level of 15 % is reached.



- The system should enter "Hibernate" mode or shut down at the latest when a critical battery level of 10 % is reached.



The options have the following meaning:

- **"Sleep"** – The computer interrupts all activities. The data remains in main storage (RAM). The reawakening procedure takes only a short time.
Attention: If no mains voltage is present and the UPS battery is empty, the data will be lost.
- **"Hibernate"** – The data is stored on the hard disk and then the computer ends all activities. The reawakening procedure takes a longer time.
The data is retained even if there is no mains voltage and the UPS battery is empty.

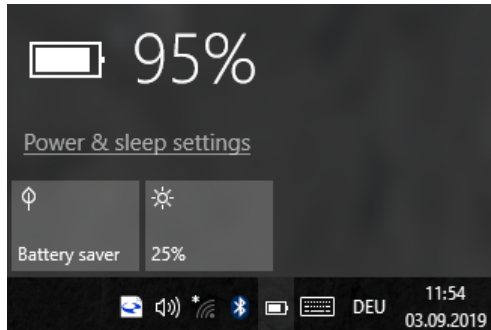
Note: To reawaken the device, the power-on button must be pressed.

7.9.2 Setting the screen brightness

The screen brightness can be set separately for mains and battery mode.

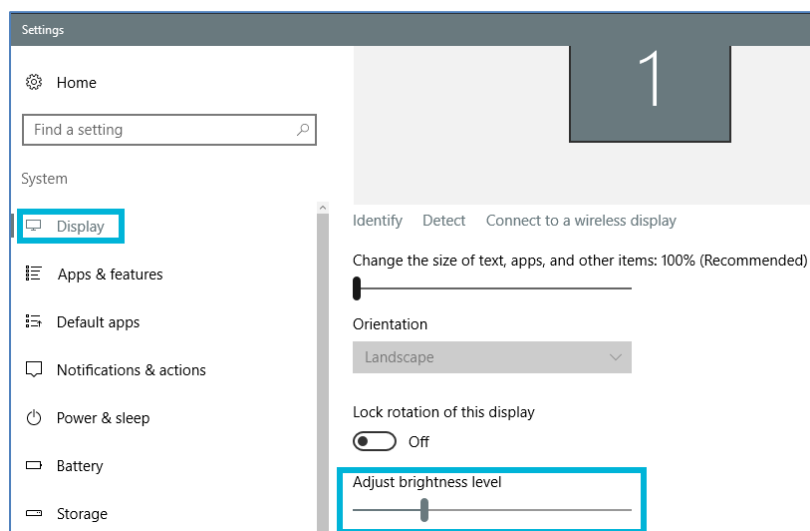
The setting can be made in the following ways:

- Click/tap the battery icon in the toolbar to open the following dialogue window:



Then click/tap the rectangle containing the sun icon and the percentage in order to change the value.

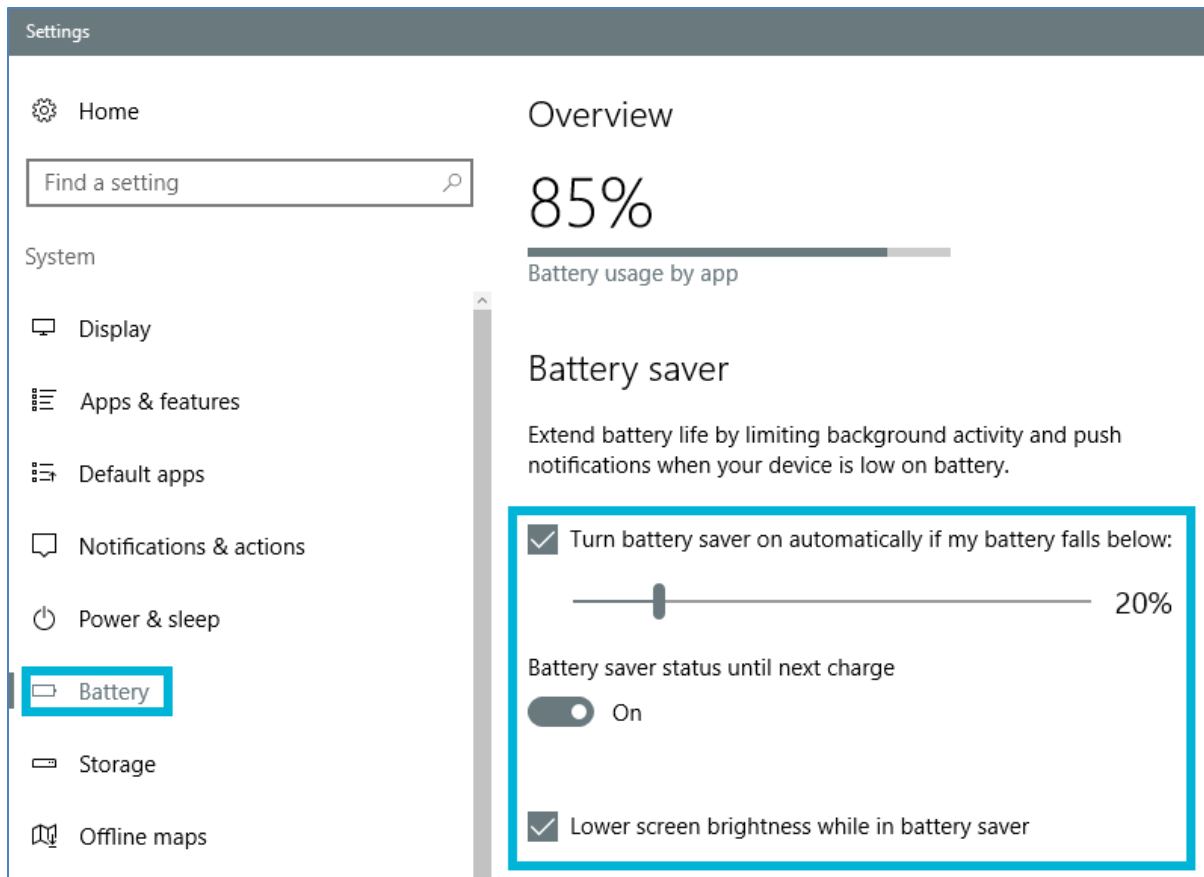
- Right-click the desktop background, then select "Display / Adjust brightness level" in the context menu:



- Set the screen brightness **for mains mode** to the desired value, e.g. to **100 %**.
- Interrupt the mains power supply. The operating system detects failure of the mains power and **switches to battery mode**.
Set the screen brightness, e.g. **25 %**.
- If you now switch between mains and battery mode, the screen brightness will switch between the two set values.

7.9.3 Activating battery saving mode

Under "Settings" of Windows 10, the power saving mode can be activated under the item "Battery". You can also determine the battery level at which this mode is to become active and whether the screen brightness is also to be reduced when power saving mode is active.



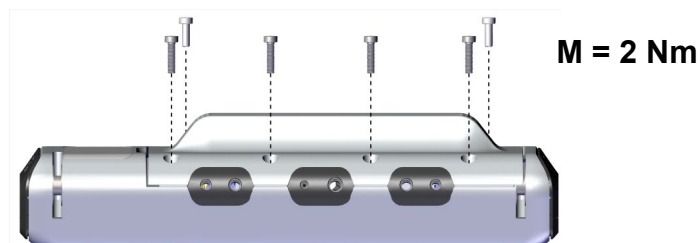
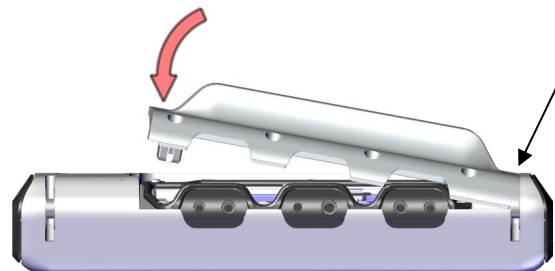
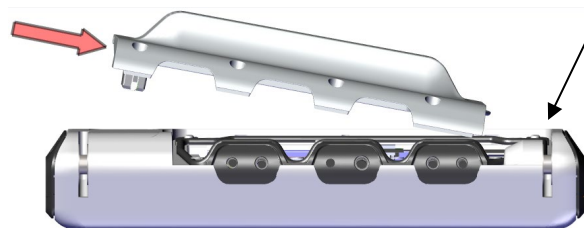
7.9.4 Installing or removing the UPS battery



The UPS battery is detected by the operating system only when the device is being switched on.

- Switch the device off and disconnect it from the power supply before installing or removing the UPS battery.

1. Remove the old cover according to section 5.2.
2. Observe the instructions for IP protection according to section 5.3.
3. Install the new cover including UPS as follows:



8 Software / driver installation

8.1 Initial installation of the operating system

The device will be delivered with a pre-installed operating system depending on what the customer wants. If the mass storage has been reformatted, the operating system can be reinstalled by using one of the existing interfaces.

Installing operating system via a USB interface

1. Connect an external USB drive and a keyboard.
2. Restart the device and press the ESC key to call up the boot menu.
3. Insert an operating system CD into the external drive.
4. In the boot menu, select booting from the external drive and start.
5. Installation of the operating system and configuration of the basic data.
6. With devices with touch-screens, the touch-screen driver as well as the soft keyboard should be installed in order to ensure full functionality.

Installing the operating system using PXE

Alternatively, the operating system can also be installed via a network using the PXE functionality (PXE = Preboot Execution Environment). To do so, the appropriate BootROM Extension must first be activated in the BIOS and then selected in the boot menu. The steps to be taken next depend on the network environment and the operating system to be installed.



The calibration data of the touch-screen is retained when the mass storage is formatted.

8.2 Write protection

Important: If the mass storage or parts of it have been write-protected in the **Configuration Center**, this write protection must be removed again before changes are made to the software installation. ⇒ Unified Write Filter

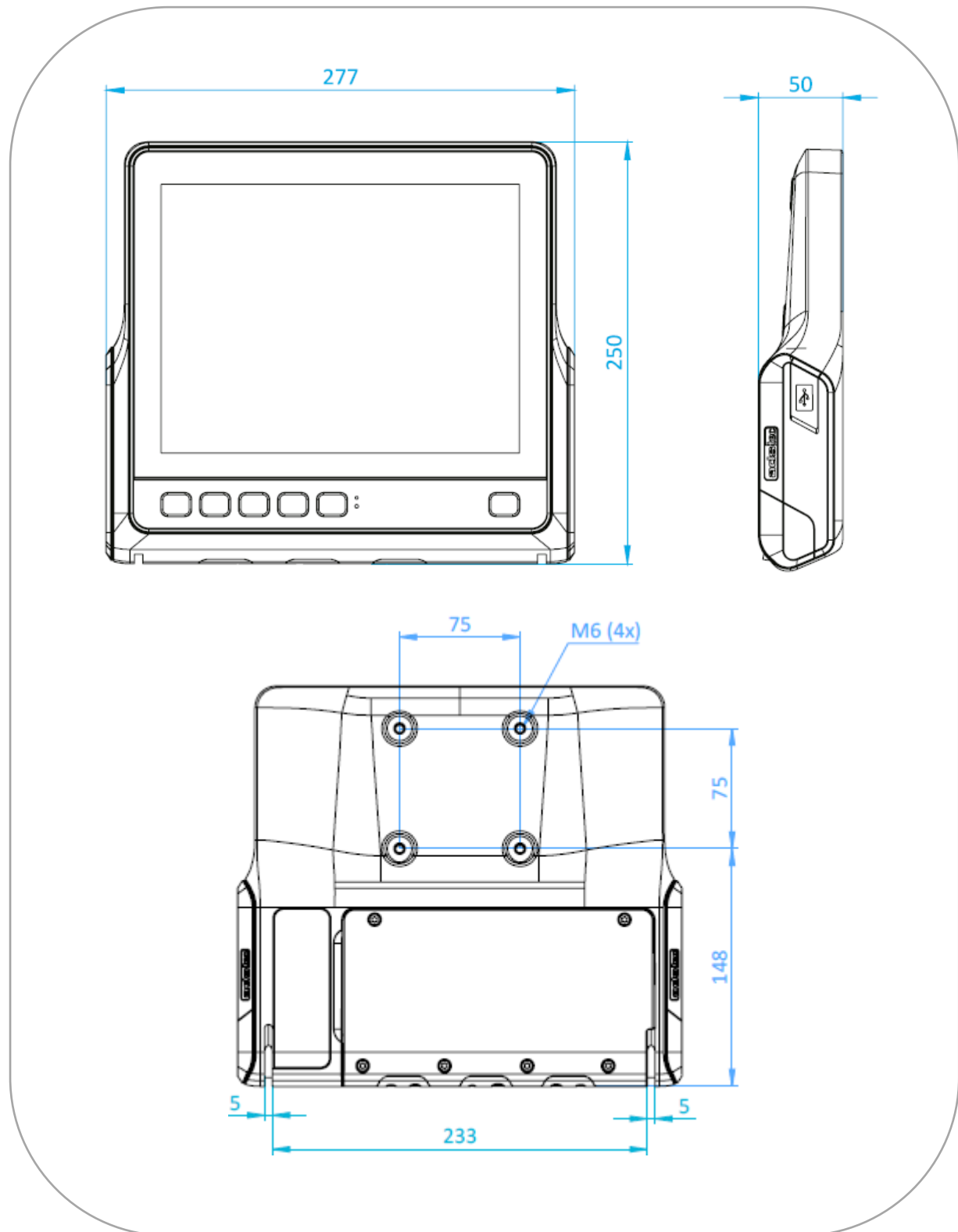
After the software installation has been changed, the write protection must be set again and the device restarted.

9 Cleaning

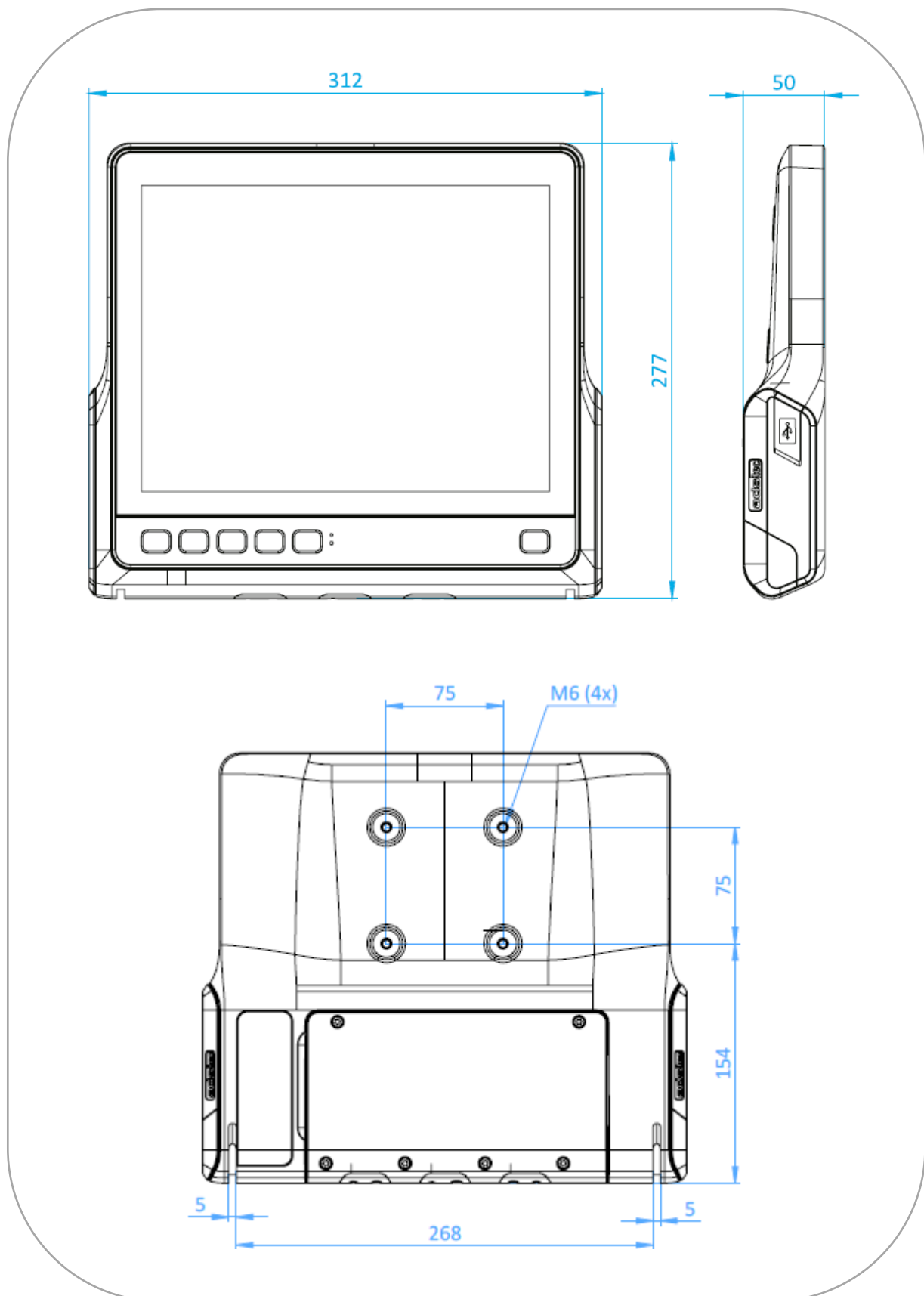
Clean the device using some glass cleaner on a soft cloth.

10 Dimensional drawings

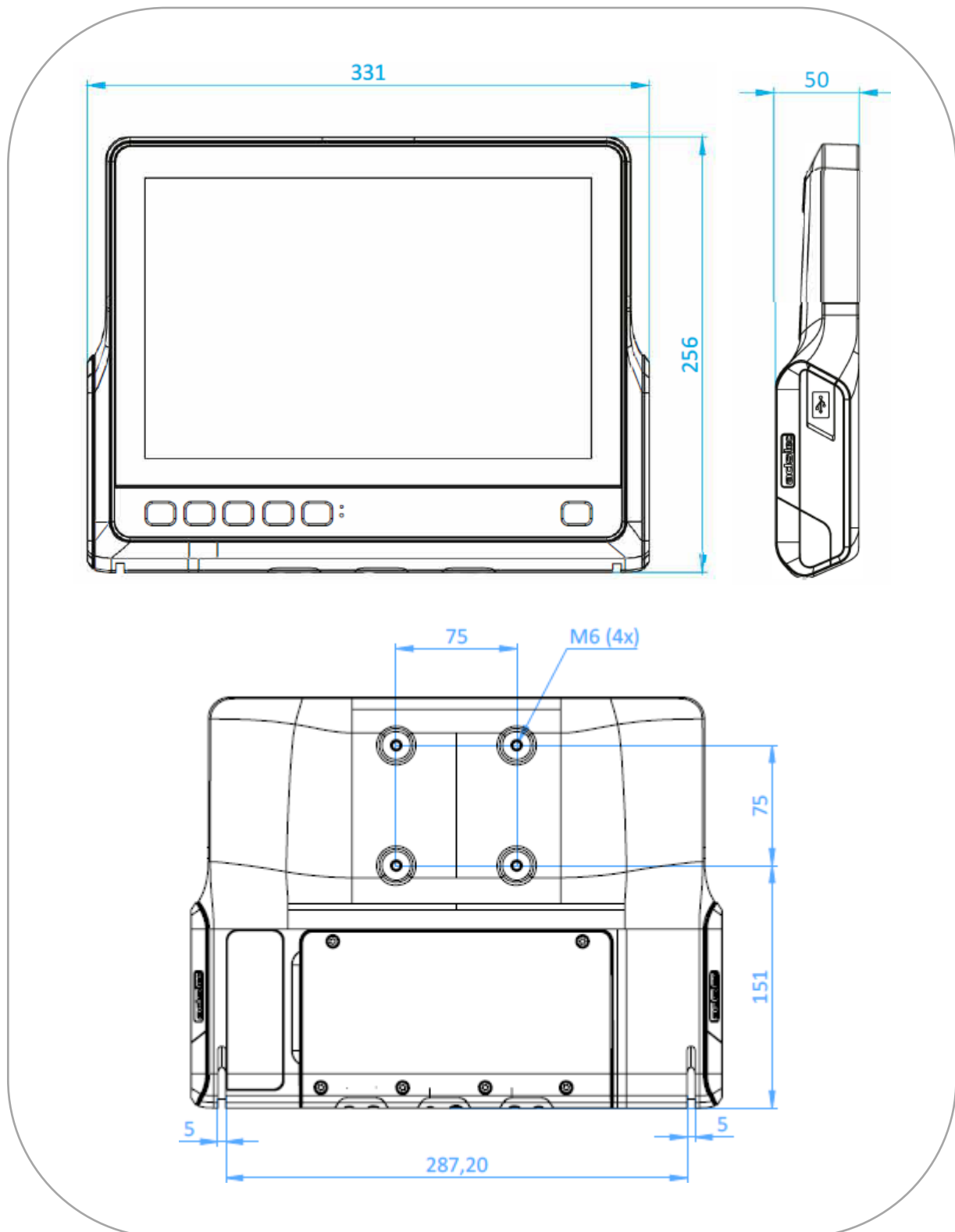
10.1 VMT9010



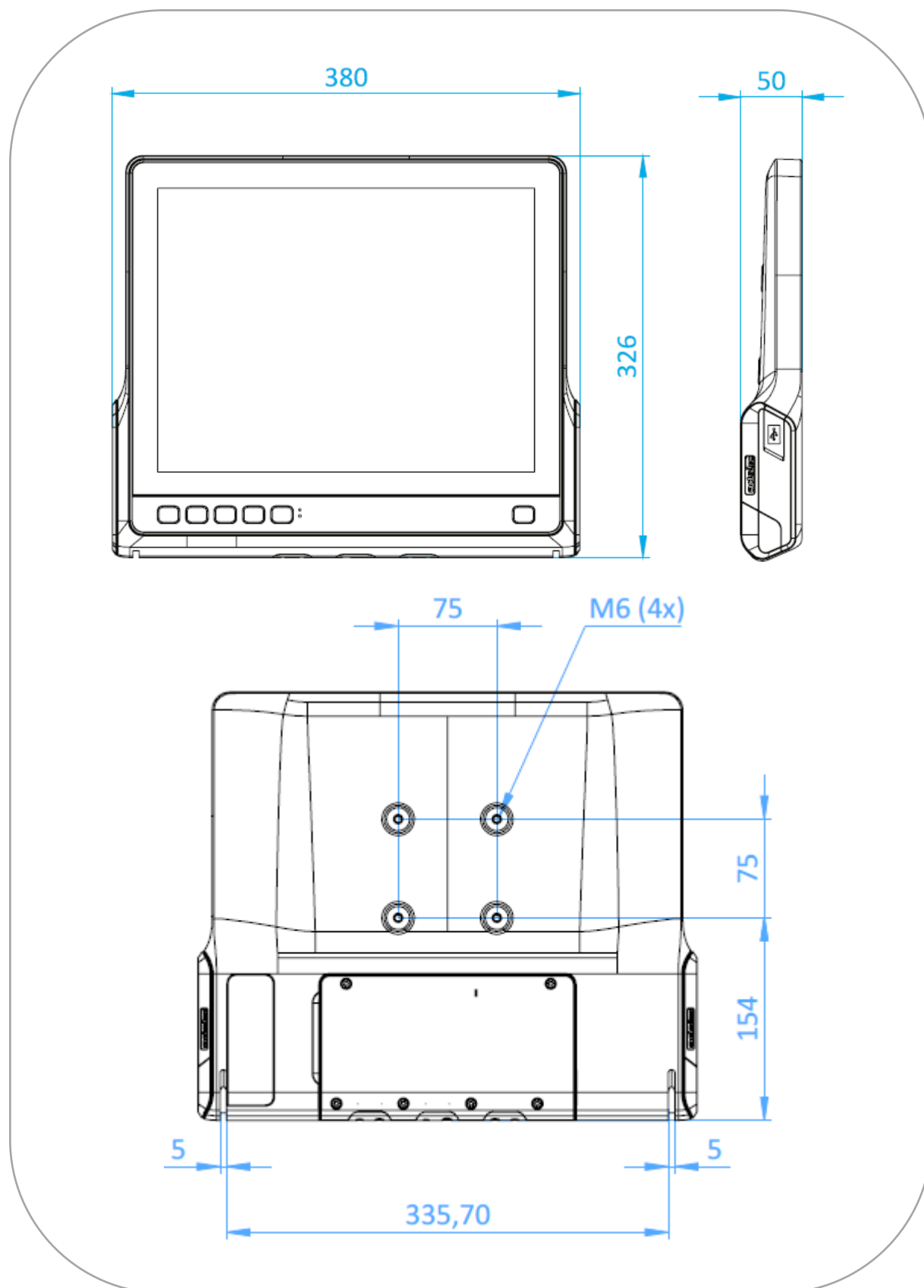
10.2 VMT9012



10.3 VMT9112



10.4 VMT9015



11 Technical data

11.1 Technical data VMT9

	VMT9010	VMT9012	VMT9112	VMT9015	
Housing	Fanless die-casting aluminium housing, powder-coated				
Touch screen	Break- and abrasion-resistant front sides				
	Resistant touch-screen		-	Resistant touch-screen	
	PCAP multi-touch				
Display	LED backlight Resolution Colours	10" TFT XGA 1024 x 768 px Max. 16.2 million	12.1" TFT XGA 1024 x 768 px Max. 16.2 million	12.1" TFT (widescreen) WXGA 1280 x 800 px Max. 16.2 million	15" TFT XGA 1024 x 768 px Max. 16.2 million
Front keys	Four freely configurable front keys				
System versions	Intel Atom® x5-E3930 1.8 GHz + 4GB LPDDR4 RAM Intel Atom® x7-E3950 2.0 GHz + 8GB LPDDR4 RAM				
Mass storage	64 GB eMMC / Optional: additional 128 GB SSD. Please note: Due to e.g. additionally implemented security functions of the SSD manufacturer, the freely available capacity of the mass storage may be slightly reduced.				
Interfaces	USB: 1 x USB 3.0 in side cover, 3 x USB 3.0 in service slot Serial: COM1 (RS232, 5-V supply can be switched in), optional: COM2 (RS232) CAN: optional				
Network	2 x 1 Gbit/s Ethernet RJ45				
Wireless (optional)	WLAN: IEEE 802.11a/b/g/n/ac/ax (depending on WiFi card), incl. connection for ext. antenna WWAN: GPRS, EDGE, HSPA+, LTE WPAN: Bluetooth V5.2 or V5.0 (depending on WiFi card)				
Position monitoring (optional)	GPS through the connection of an external antenna				
Sound	Integrated speaker				
RFID (optional)	Supported transponders: LEGIC advant ATC, LEGIC card-in-card solution AFS, LEGIC prime MIM, NXP MIFARE DESFire, NXP MIFARE plus, NXP MIFARE Smart MX, Texas Instruments Tag-It, EM Microelectronics EM4035, Infineon my-d, NFC Forum Tag 2/3/4 Typen, NXP Ultralight, NXP MIFARE Classic (UID), Sony Felica (plain text), Inside Contactless (UID), HID iClass (UID)				
Power consumption	Typically: approx. 20 W; maximum: 50 W				
Power adapter	12/24/48 VDC (9...60 VDC) Ignition function via vehicle ignition Optional: uninterruptible power supply (UPS)				
Operating systems	Windows® 10 IoT Enterprise, Linux, IGEL Linux				
Weight	Approx. 3.2 kg	Approx. 3.65 kg	Approx. 3.7 kg	Approx. 4.7 kg	
Environment	IP protection: IP66 all-round protection; Impact-resistant front: IK08 acc. to EN 62262 Operating temperature: -30...+60 °C*); Storage temperature: -40...+85 °C*) Humidity: 95%, non-condensing Vibration and impact: Class 5M3 acc. to EN 60721-3-5 *) If accessories (e.g. a UPS) are used, the narrower value range applies.				
Accessories (optional)	Brackets: various mounting adapters and RAM mounting solutions Power adapter: table power adapter 230 VAC at 24 VDC Connection cables: cable kit for connection to forklifts Antenna: external antenna with WLAN magnetic base				
Dimensions	277 x 249 x 50 mm	312 x 277 x 50 mm	331 x 256 x 50 mm	380 x 326 x 50 mm	

11.2 Technical data – UPS

UPS battery	
Operating temperature	Charging: 0...50 °C *) Discharging: 0...60 °C **)
Storage temperature	-20...+45 °C
Backup power time (typical)	Depending on the load, at 40 W and 0 °C: <ul style="list-style-type: none"> • Version with 6240 mAh***): 20...30 min • Version with 3120 mAh***): 10...15 min
Max. power	40 W **)
Weight	<ul style="list-style-type: none"> • Version with 6240 mAh***): 0,52 kg • Version with 3120 mAh***): 0,42 kg

*) The batteries cannot be charged at cell temperatures below 0 °C.

**) At ambient temperatures of 60°C, it is recommended to remain below a load of 30 W where possible, otherwise accelerated ageing of the cells is to be expected.

***) Capacity: see label of the UPS battery.



The various configuration options for battery mode are described in section 7.9.

12 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.

12.1 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, 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-iit.com. Our Support team will then get in touch with you as soon as possible.

12.2 Company address

ads-tec Industrial IT GmbH

Heinrich-Hertz-Str.1

72622 Nürtingen

Germany

Phone: +49 7022 2522-0

Email: mailbox@ads-tec.de

Web: www.ads-tec-iit.com