

USER MANUAL

HPM5000 DATALOGGERS



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About this Operating Manual



This Operating Manual is a component part of The HPM5000 Data Logger and contains important information on the intended use, safety, operation and maintenance of the device described.

Subject to change without prior notice.

- ▶ Before each step, read the corresponding information carefully and adhere to the sequence of steps described.
- ▶ Pay particular attention to Chapter  „Notation and Symbols“ and follow the instructions.



INFORMATION

This Operating Manual describes the technical state of the device at the time of publication.

Some illustrations and descriptions may refer to additional options that are not part of a standard configuration.


Some of the components, functional processes or options described may be at a development stage that differs from the device actually delivered.

1. Notation and Symbols



INFORMATION

This information shows additional information and useful tips.

-  This symbol indicates a reference to other sections, documents or sources.
- This symbol indicates lists of information.
- This symbol indicates further information.
- 1 This symbol indicates working instructions to be completed in a specific sequence.
- ☑ This symbol indicates the results of working instructions completed.
- bar** Display texts (buttons, units of measure, etc.) and hardware buttons are shown in **bold print**.

1.1 Safety Levels

The following safety levels are used in this operating manual. The hazard levels are based on the standard DIN EN 82079-1.

DANGER

Risk of fatal or severe personal injury.
Probability of occurrence: **very high**.

WARNING

Risk of fatal or severe personal injury.
Probability of occurrence: **possible**.

CAUTION

Risk of minor to moderate personal injury.
Probability of occurrence: **possible**.

IMPORTANT

Risk of property damage.
Probability of occurrence: **possible**.

1.1.1 Structure of Warnings

The warnings are structured as follows in this operating manual:



DANGER

Type and source of the risk
Consequences of failure to observe the warning
► Measures to avoid the risk



WARNING

Type and source of the risk
Consequences of failure to observe the warning
► Measures to avoid the risk



CAUTION

Type and source of the risk
Consequences of failure to observe the warning
► Measures to avoid the risk



IMPORTANT

Type and source of the risk
Consequences of failure to observe the warning
► Measures to avoid the risk

2. Product Description

The HPM5000 Data Logger is intended for recording the measured values of the sensors connected. The sensors must be connected at the inputs available according to the model version.

Sensors with automatic sensor detection parameterize the unit and measuring range automatically. In addition, sensors can also be connected to analog AUX inputs.

The HPM5000 Data Logger is operated basically by using the touch-sensitive touchscreen. Alternatively, the main functions can be selected via the six hardware keys on the device.

The USB-C port is used to connect the HPM5000 Data Logger to a PC and thus enables measured value evaluation to be completed. In addition, the USB-C port is also used to charge the device.

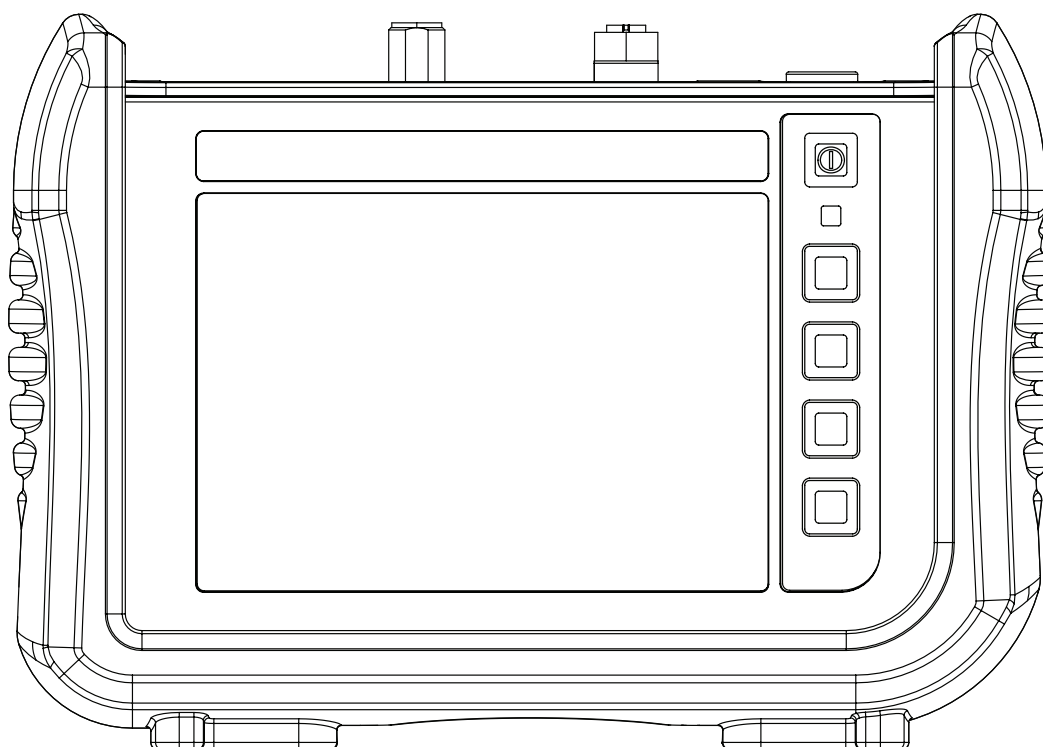


Fig. 1 The HPM5000 Data Logger

2.1 Intended Use

The HPM5000 Data Logger, subsequently referred to as "device", enables access to sensors used in hydraulic applications in machines and vehicles. The various connections can be used to detect, save, monitor and evaluate digital or analog sensor signals for pressure, temperature, volume flow, speed, volumes and performance, for example.

The device is exclusively designed for commercial use in mobile and stationary systems.

- The device does not comply with Directive 94/9/EC and, therefore, must not be used in potentially explosive atmospheres.

2.2 Unintended Use

All usage and conditions of use which are contrary to those described in Section "Intended Use" are deemed to be unintended use and lead to loss of all rights to claims under the terms of guarantee, warranty and liability in respect of the manufacturer.

2.3 Conformity

The device fulfills the requirements of the following standards and legal regulations:



CE conformity

The device complies with the directives, standards and standard-related documents specified in the Declaration of conformity.

2.4 Equipment Supplied

Check the parts included in the supply package prior to starting up the device. If anything is missing, please contact your sales outlet.

- The HPM5000 Data Logger
- USB stick
- USB cable (type A on type C)
- Quick reference guide



INFORMATION

The full operating manual is available as a download. Use the QR code on the device's rating plate for this.

3. Safety Information

This chapter contains important information on preventing the risk of life-threatening situations, injuries and property damage.

Before starting to work with the pressure switch, read this operating manual and observe the instructions. Failure to observe the instructions provided, particularly those related to safety, can lead to risks to human beings, the environment, equipment and systems.

The device has been produced according to state-of-the-art technology with regard to accuracy, principles of operation and safe operation of the equipment.



INFORMATION

Throughout this operating manual, warnings which relate to specific, individual functional processes or activities are provided directly preceding the corresponding instructions.

3.1 Basic Warnings



DANGER

Risk of explosion through operating electronic devices in potentially explosive atmospheres.

Risk of fatal or severe personal injury.

- ▶ Observe the provisions and precautionary measures applicable for potentially explosive atmospheres. The device has no approval for use in potentially explosive atmospheres.



IMPORTANT

Risk of property damage.

- ▶ The device must be connected and put into operation by properly trained technical personnel.
- ▶ Avoid using any forms of force on the device.
- ▶ Never expose the device to direct sunlight over an extended period of time.
- ▶ Never immerse the device in water or other liquids.
- ▶ Never attempt to repair the device yourself. The device may only be repaired by Webtec.
- ▶ Never clean the device with substances containing solvents. The device may only be cleaned in the way described in Section **Cleaning**.

3.2 Technical Personnel

This operating manual is intended for properly trained technical personnel who are familiar with the applicable regulations and standards regarding the area of use.

Technical personnel entrusted with starting up and operating the device must produce evidence of the necessary qualification. Qualification can be obtained through participation in a relevant training course or receiving applicable instruction.

Technical personnel must have read and understood the operating manual. Technical personnel must have access to the content of the operating manual at all times.

4. Design and Function

This chapter contains information on the design of the device and the functions provided.

► Further information is available in Chapter  „Device Models“

The inputs, pin assignments and interfaces available on the device are described.



INFORMATION

This Operating Manual describes the technical state of the device at the time of publication.

Some illustrations and descriptions may refer to additional options that are not part of a standard configuration of the device.

Some of the components, functional processes or options described may be at a development stage that differs from the device actually delivered.

4.1 Overview

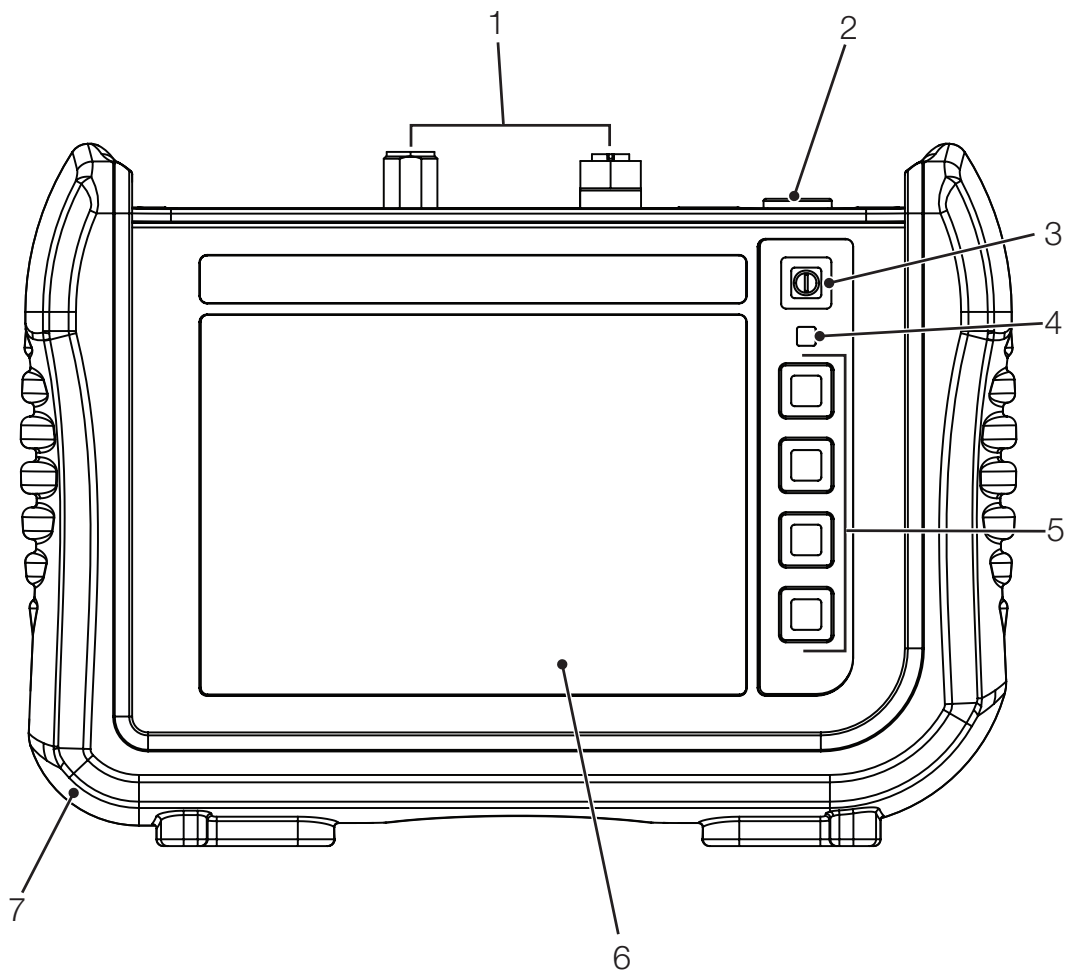


Fig. 2 Overview of The HPM5000 Data Logger

| Pos. | Designation |
|------|---------------------------------|
| 1 | Inputs |
| 2 | 1 × USB-A, 1 × USB-C |
| 3 | On/Off key |
| 3 | Status LED |
| 5 | Context-sensitive function keys |
| 6 | Display (touchscreen) |
| 7 | Shock protection |

4.2 Functions and Features

The device is equipped with the following functions:

- Inputs for the connection of sensors.
- Measuring e.g. pressure, temperature, volume flow, speed, volumes and performance
- For recording, saving and analyzing measured data
- Various measuring methods and their representation
- Fold-out stand
- VESA standard for wall installation
- USB flash drive to save measurements, templates, screenshots

4.3 Connections

The following illustrations show the device connections. Detailed information on the connections and specifications is available in the following chapters.

CAN + AUX model version

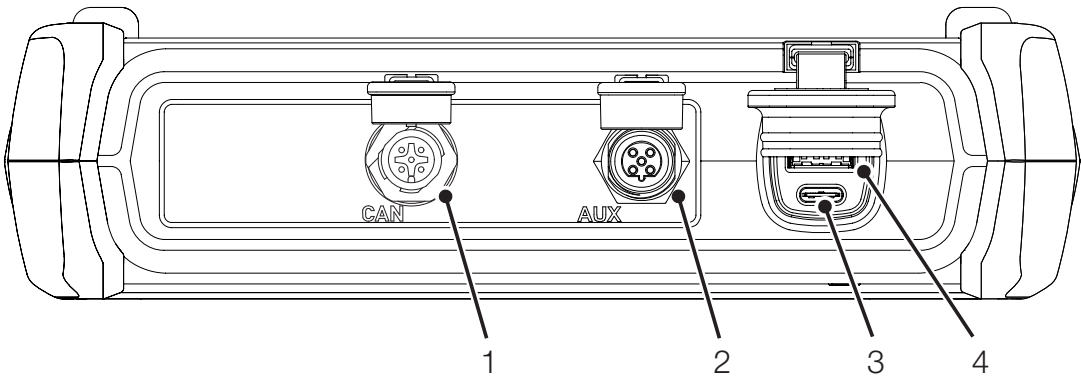
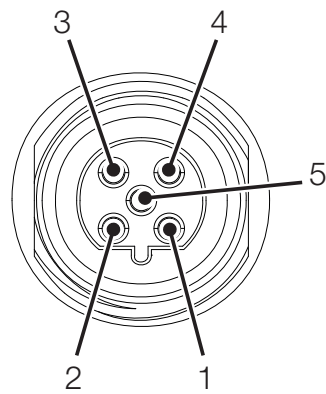


Fig. 3 Connections, CAN + AUX model version

4.3.1 AUX

The AUX connection is an M12 connection (female) with 5 pins for connecting analog auxiliary sensors without automatic sensor detection with standard output signals of 20 mA or 10 V.

Refer to the following overview for the PIN assignment:



| PIN | Designation |
|-----|----------------------------|
| 1 | +Ub (+24 V _{DC}) |
| 2 | AUX-1 |
| 3 | GND |
| 4 | AUX-2 |
| 5 | GND |

Fig. 4 Connection, AUX

Other external sensors without automatic sensor detection can also be connected to one of the analog connections or the CAN bus via an adapter (current/voltage converter).



INFORMATION

Further information on connecting sensors without sensor detection via an adapter is available in the manual supplied with the respective adapter.

After connecting the sensors without sensor detection, complete the necessary settings for the electrical connection and expected signal according to the properties of the sensors connected.

5. Starting Up

This chapter contains information on the steps necessary to put the device into operation.

5.1 Charging the Battery

Charge the battery prior to starting up the device.

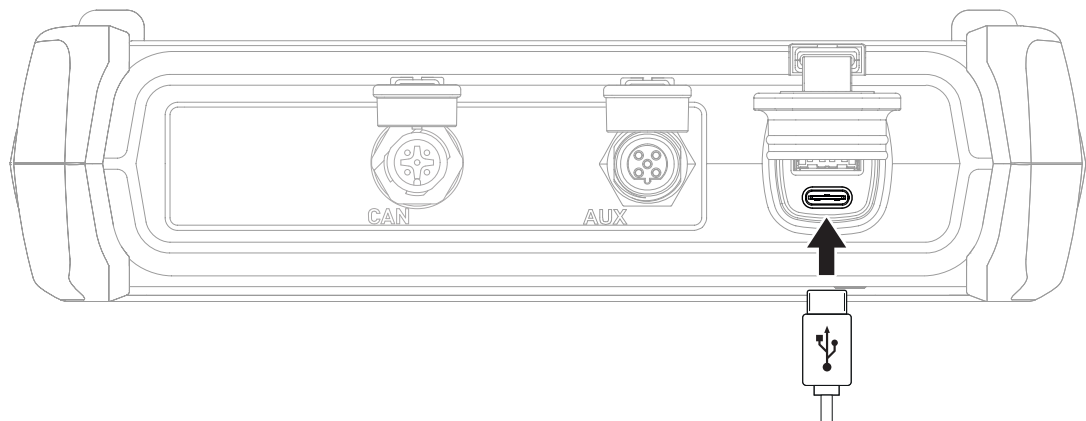



Fig. 5 Connecting USB-C power supply cable

The status LED on the device flashes while the device is being charged.



IMPORTANT

Risk of property damage.

- ▶ Do not store the device with a low battery charge status in order to prevent a total discharge.
- ▶ Avoid fully charging or total discharge of the battery to increase the service life of the battery.
- ▶ Only use the device within the temperature range permitted.
Refer to Chapter  „Mechanical Data“.



INFORMATION

Observe this information regarding use of the integrated battery:

- ▶ The battery is only charged in the temperature range of 0 - 45° C. In the temperature range of 0 - 10° C, the battery is charged with half the charging current.
- ▶ If the charge status of the battery drops below a specific value, the measurement in progress is stopped. The measured values and user parameters are saved. The device switches off automatically.

5.2 Switching the Device On and Off

Switching the Device On

- 1 Press the **On/Off button** when the device is switched off.

↳ The device starts up.

After switching on, the firmware version and serial number are displayed on the start screen.

Switching the Device Off

- 1 Press the **On/Off button** when the device is switched on.

↳ The **Power Off menu** appears.

- 2 Tap on the  button.

↳ The device is switched off.

Alternatively:

- 1 When switched on, press and hold the **On/Off button** for at least 5 seconds.

↳ The device is switched off.

5.3 Connecting Sensors

Before the device can be used to take measurements, the sensors required for the measurement must be connected.

5.3.1 Connecting CAN Sensors

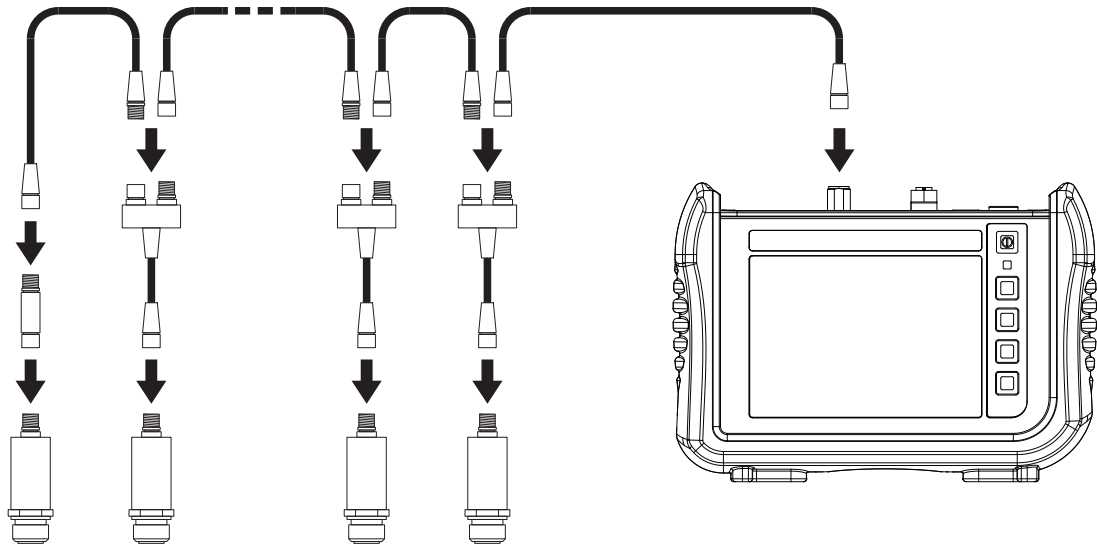


Fig. 6 Connecting CAN sensors

Connect the sensors in the following sequence:

- 1 Connect the sensors on the application side (e.g. hydraulic connection).
- 2 Connect the sensors to a bus cable or a Y-junction (refer to figure). Use a terminating resistor before the last sensor.
- 3 Connect a bus cable to the corresponding port on the device.



IMPORTANT

The device does not record data from sensors which are connected while a measurement is in progress.

Restart the measurements in order to record data from sensors just connected. Measuring data from sensors which are disconnected while a measurement is in progress is recorded by the device to the moment of disconnection.

5.4 Using the Fold-Out Stand

You can set up the device with the fold-out stand on the rear side. The stand can be folded out to a maximum angle of 90°.



INFORMATION

Only use the stand to set up the device on a level surface.

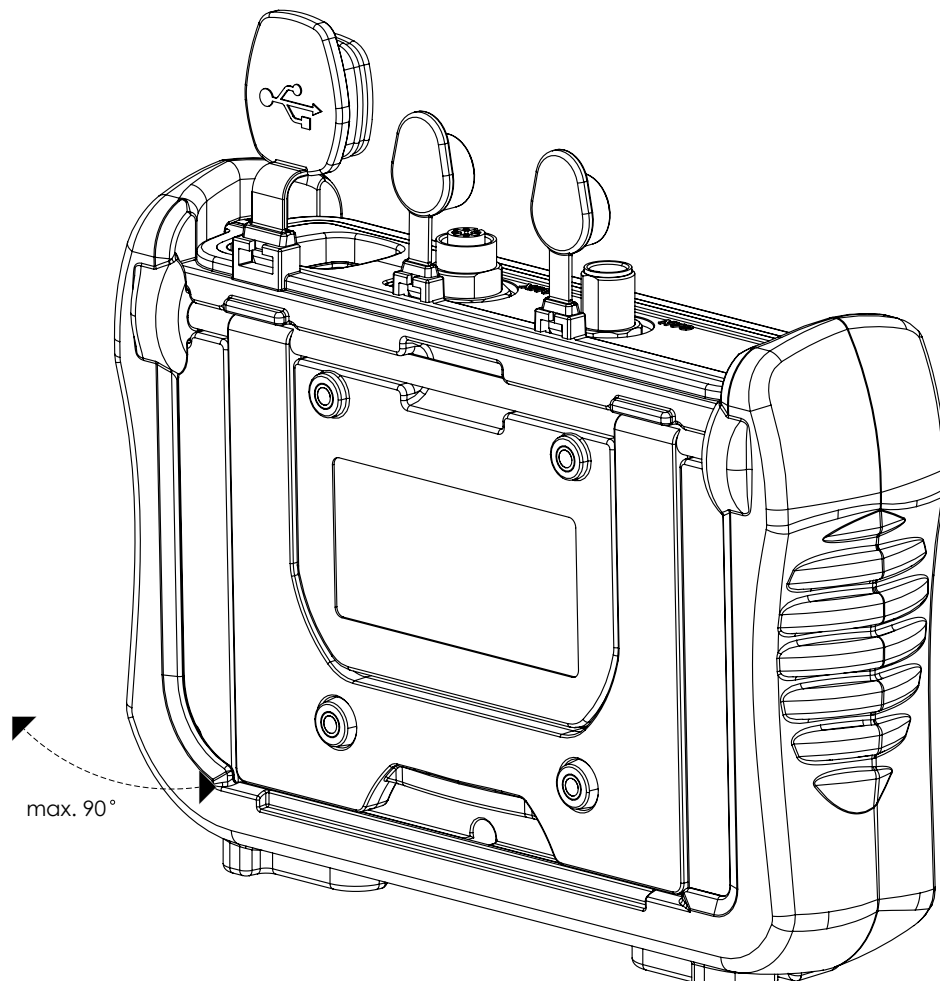


Fig. 7 Using fold-out stand

- 1 Pull the fold-out stand on the rear side of the device to the required position.
- 2 Set the device down on a level surface.

5.5 Mounting Device on VESA Holder

You can mount the device using the VESA holder (75 mm × 75 mm) on the rear side.

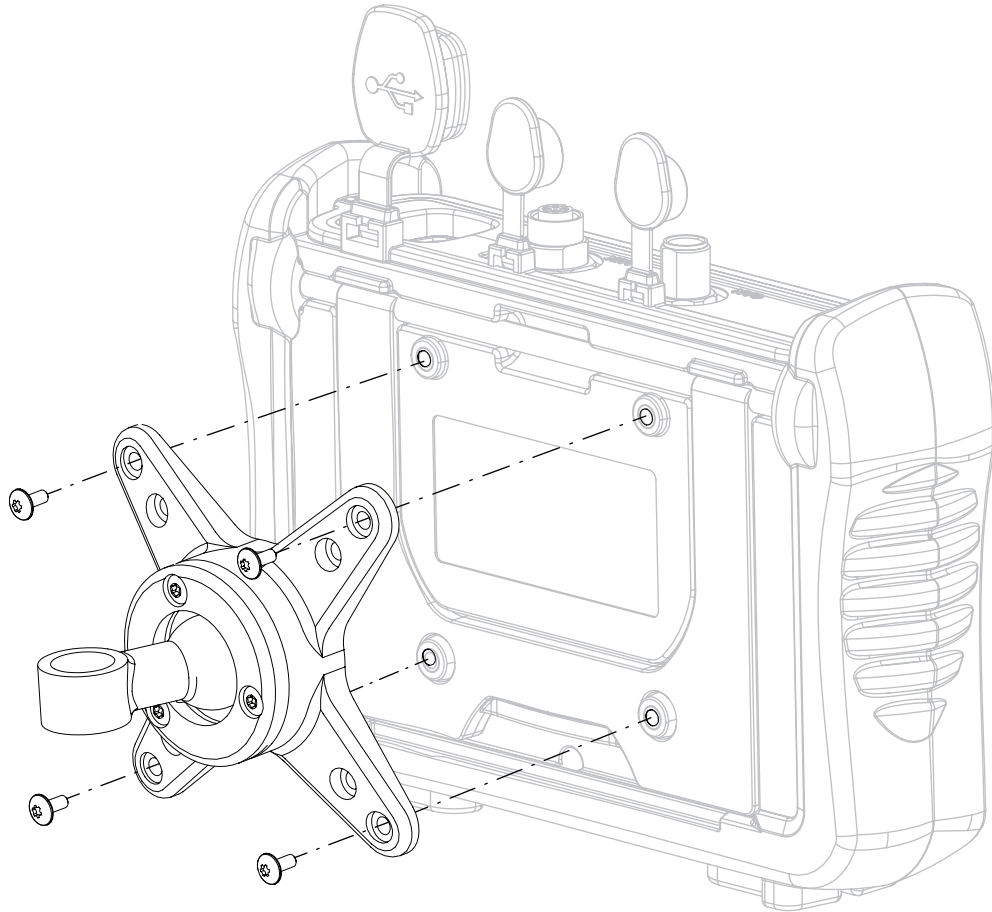


Fig. 8 Mounting device on VESA holder

Mount the device in the following sequence:

- 1 Assemble the VESA holder at the installation location.
 - Observe the information in the manual supplied with the VESA holder.
- 2 Mount the device on the VESA holder.
- 3 Screw the device using four retaining screws and an appropriate tool.
 - 🔧 The device is mounted.



INFORMATION

The maximum screw-in depth for the retaining screws is 6 mm. The VESA holder and screws necessary for assembly (M4 metric) are included in the supply package.

6. Operation

This chapter contains information on the basic operation of the device.

6.1 Basic Principles of Operation

The device is immediately ready for use after being started up. The sensors connected are normally displayed in the 4-tile view.

The measurement view can be selected from three display versions.

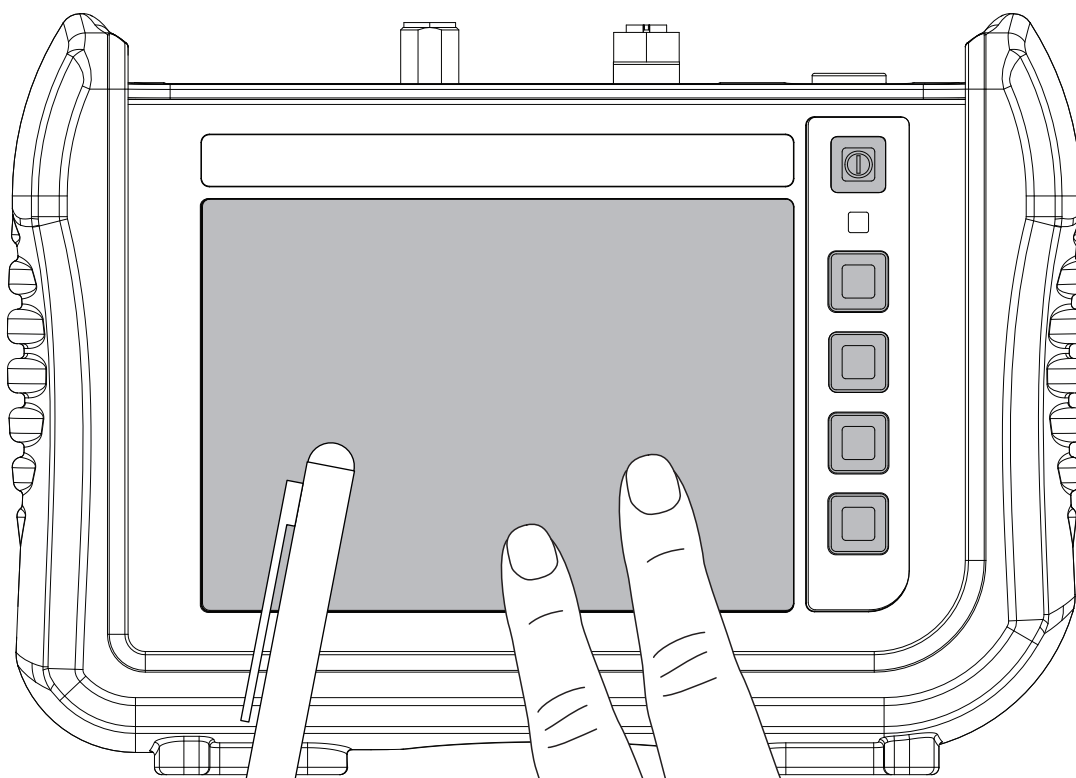


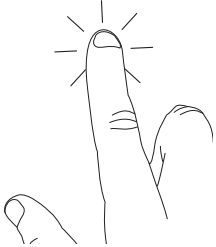
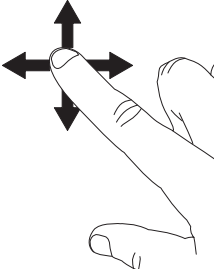
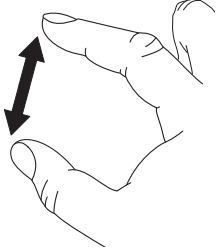
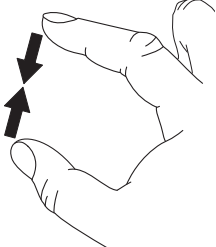
Fig. 9 Basic Principles of Operation

The device is mainly operated by using the buttons provided on the touch-screen.

Alternatively, you can start the main functions using the context-sensitive function keys provided on the device.

Operation By Touch

The following overview shows the possible finger movements and their functions:

| Finger move-ments | Function |
|---|--|
|  | Tap your finger on the respective button or element to initiate a function. |
|  | Swipe your finger through lists and views to scroll. |
|  | Draw two fingers apart on an element or view to zoom in. This function is not available for all views. |
|  | Draw two fingers towards each other on an element or view to zoom out. This function is not available for all views. |





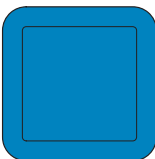
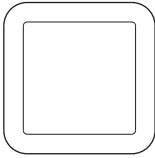


INFORMATION

It is also possible to use the touchscreen when wearing gloves appropriate for the purpose.

Operation Using Function Keys

The device is equipped with 5 function eyes:

| Key | Function |
|--|--|
|  | <p>Press key briefly: Open the Power Off menu</p> <p>The following functions are available for selection in the menu:</p> <ul style="list-style-type: none"> ■ Switch device off  ■ Deactivate touch function  ■ Switch off back-lit display  <p>Press the key for 5 sec.: Switch on/off</p> |
|  | Function key to start and stop measurements |
|  | 3 context-sensitive function keys to initiate functions according to the corresponding buttons in the menu area of the touch-screen |

6.2 Display Layout

This chapter contains information on the basic display layout and the positions of all display elements.

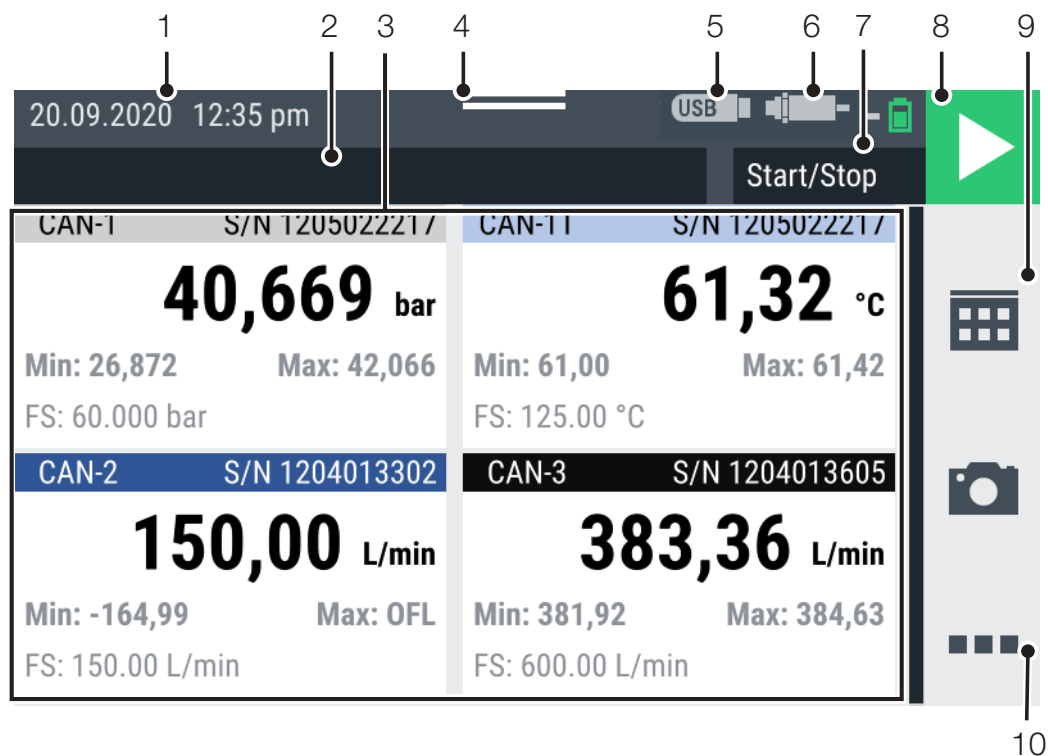


Fig. 10 Display layout

| Pos. | Element | Description |
|------|-----------------------------|--|
| 1 | Status bar | Display for system information |
| 2 | Information line | Current menu position, name and duration of the current measurement recording |
| 3 | Main view | Display of the current function |
| 4 | Button Top-Down menu | Opens the Top-Down menu |
| 5 | USB stick symbol | USB stick is connected |
| 6 | Sensors symbol | Sensor(s) connected, number of connected channels |
| 7 | Measuring methods menu area | Selects Measuring methods |
| 8 | Button, Start/Stop | To start/stop measurements |
| 9 | Menu Area | To initiate the main functions |
| 10 | Options/Info button | Measurement inactive: Display/hide Options menu Measurement active: Displays sensor information |

6.2.1 Buttons

Tap your fingers directly on the buttons displayed on the screen to navigate through the device's menus and select the respective functions.

Buttons are either symbols or display texts that are shown in black. Displays can also be buttons for accessing additional submenus. The text of these buttons is shown in black. The text in displays is shown in gray.

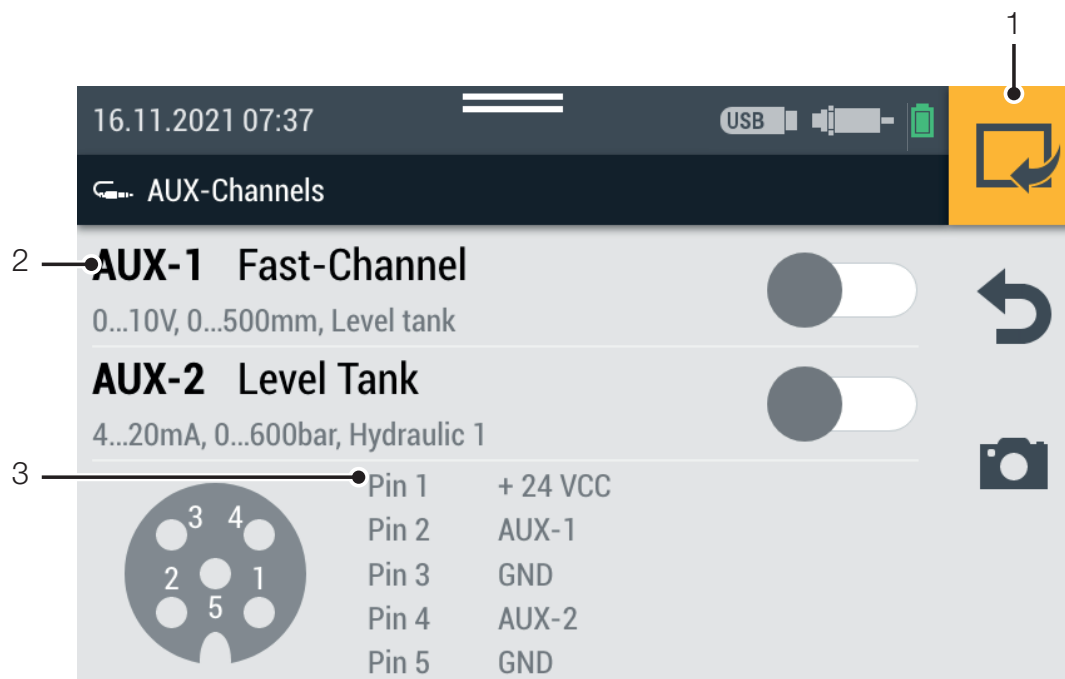


Fig. 11 Buttons

| Pos. | Element | Description |
|------|-----------------------|-----------------------------------|
| 1 | Symbol | Button for carrying out an action |
| 2 | Symbol and black text | Button for carrying out an action |
| 3 | Symbol and gray text | A display element for information |

- Further information on the buttons available is provided in Chapter „Display Layout“


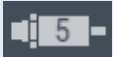


A display keyboard for entering numbers and letters appears when you tap an input field.

- Further information on the display keyboard available is provided in Chapter „Display Keyboards“.

6.2.2 Status Bar

The status bar displays various symbols to indicate certain system states and general information such as date and time.

The table below indicates the possible symbols:

| Symbol | Function |
|---|---|
|  | Connecting a storage medium to the USB port |
|  | Number of active channels |
|  | Battery charge status as an icon |
|  | Ongoing online measurement via HPMComm |

6.2.3 Top-Down Menu

You can access the top-down menu via the status bar.

The top-down menu enables you to carry out settings.

- 1 Drag your finger from top to bottom on the status bar to open the top-down menu.
- 2 Scroll vertically to access further menu items.

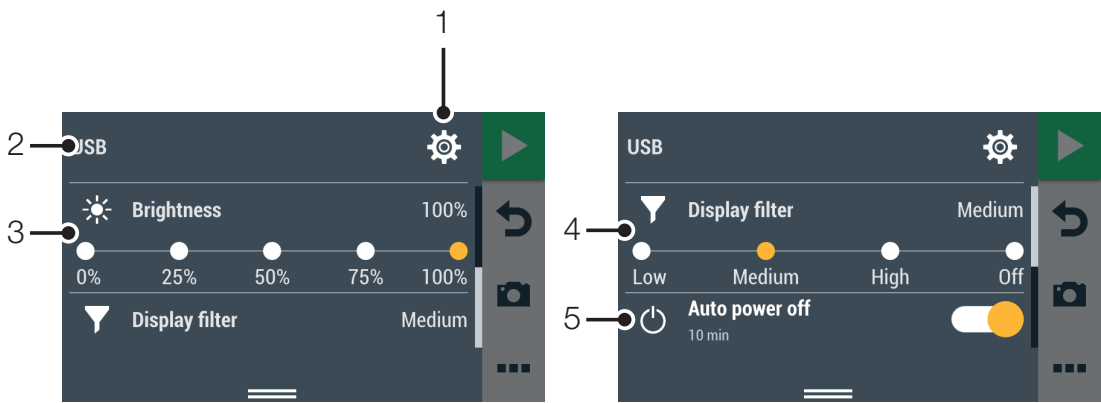


Fig. 12 Top-Down Menu

| Pos. | Description |
|------|---|
| 1 | Switches to the Device settings menu. ► Refer to Chapter „Device Settings“. |
| 2 | Shows the memory used (internal or USB) |
| 3 | Adjust display brightness in 5 steps |
| 4 | Adjust display filter in 4 steps |
| 5 | Switches the device on/off automatically |



INFORMATION

Drag your finger on the top-down menu from bottom to top to close the top-down menu.

6.2.4 Display Keyboards

A display keyboard appears in the display for entering texts and numbers.

The display keyboard automatically appears when you select the corresponding input field.

The following keyboard is available to enter texts and digits:



Fig. 13 Display keyboard, characters and numbers



INFORMATION

The layout of the keyboard can be set.

► Refer to Chapter  „Selecting Keyboard“.

The following keyboard is available for entering numerical values:
















Fig. 14 Display keyboard, numerical values

6.2.5 Menu Area

The menu area displays various buttons with functions, depending on the current view. Alternatively, these functions can be operated using the context-sensitive function keys on the device.

Not all the functions are always available.

The table below indicates the possible buttons:

| Symbol | Function |
|---|--|
|  | Switch to the main view |
|  | Switch to the last menu option |
|  | Create a screenshot of the current view |
|  | Switch to the main menu |
|  | Display/hide the context-sensitive options (this button is not visible during an ongoing measurement) |
|  | Display information on the current measurement |
|  | Add an entry |
|  | Edit a setting |
|  | Confirm current selection or adjusted settings |
|  | Discard current selection or adjusted settings |
|  | Switching the Device Off |
|  | Deactivate touch function |
|  | Switch off back-lit display |

6.3 Measurement Views

The device can provide 3 different views to represent measurements.

You can edit the channels before carrying out a measurement.

- Further information on adjusting channels is available in Chapter [„Options: Edit Channels in the Measurement View \(Edit Channels\)“](#).

Changing the measurement view

You can switch between the individual measurement views:

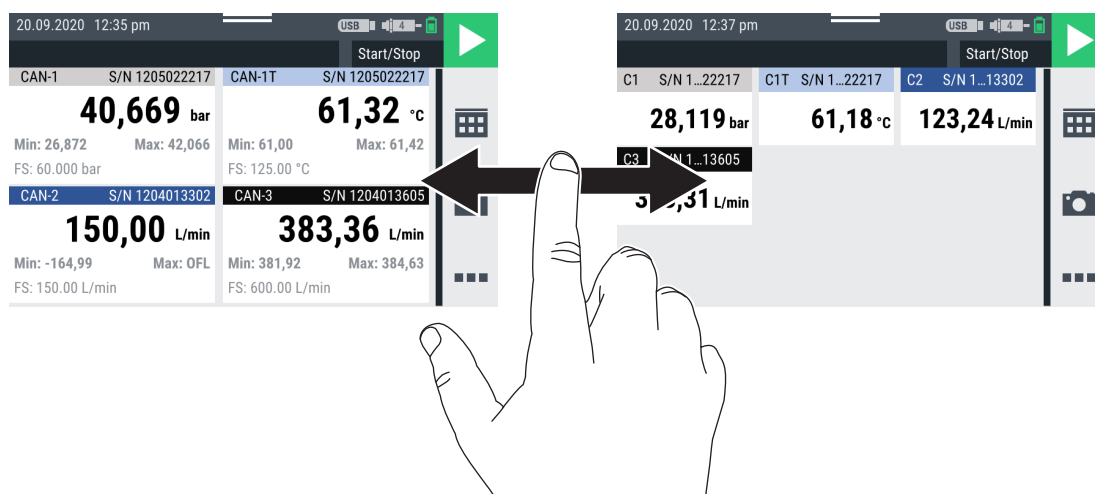


Fig. 15 Changing the measurement view

- 1 Swipe from right to left across the display.

➡ The next measurement view appears.

It is possible to switch between the individual measurement views while a measurement is in progress.

6.3.1 4-Tile View

The **4-tile view** provides a detailed view of the channels. A maximum of 4 channels are shown on the display.

If more than 4 channels are active, you can scroll through the list vertically.

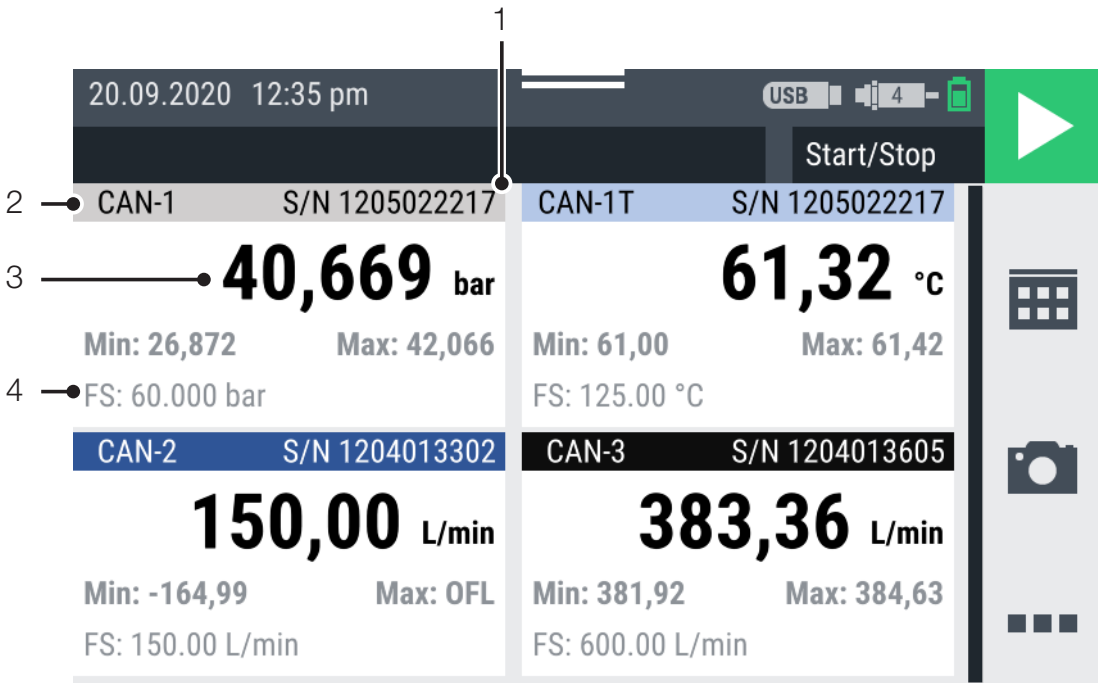


Fig. 16 4-Tile View

| Pos. | Description |
|------|---|
| 1 | Name of the active channel |
| 2 | Designations of the active channel. The channels are automatically named by the device according to the connections used (e.g. CAN-1 to 4) |
| 3 | Current measured value of the channel |
| 4 | Shows the maximum and minimum measured values and the measuring range full scale value (FS) |

Edit the details of the individual channels if necessary:

- 1 Tap on a channel to open the channel editing function (Edit channels).

6.3.2 9-Tile View

The **9-tile** view provides a simpler view of the channels. A maximum of 9 channels are shown on the display.

If more than 9 channels are active, you can scroll through the list vertically.

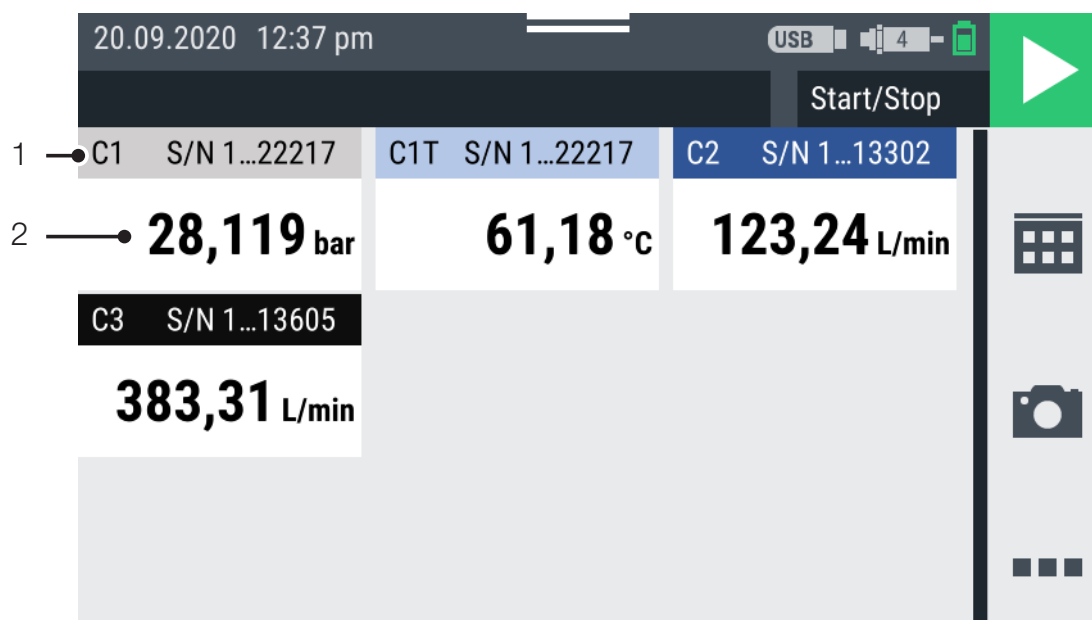


Fig. 17 9-tile view

| Pos. | Description |
|------|---|
| 1 | Designation and name of the active channel as an abbreviation |
| 2 | Current measured value of the channel |

Edit the details of the individual channels if necessary:

- 1 Tap on a channel to open the channel editing function (Edit channels).

6.3.3 Trend Graph View

The trend graph view can display up to 4 channels in the form of trend curves on a graph. The trend graph view displays the current measured values.

If more than 4 channels are active, you can scroll through the list horizontally.

- 1 Tap on a channel from the list to select the channel.

↳ The line of the corresponding channel is displayed in bold print.



INFORMATION

Save the measurement to analyze the measured values.

Refer to Chapter „Analyzing the Measurements“.

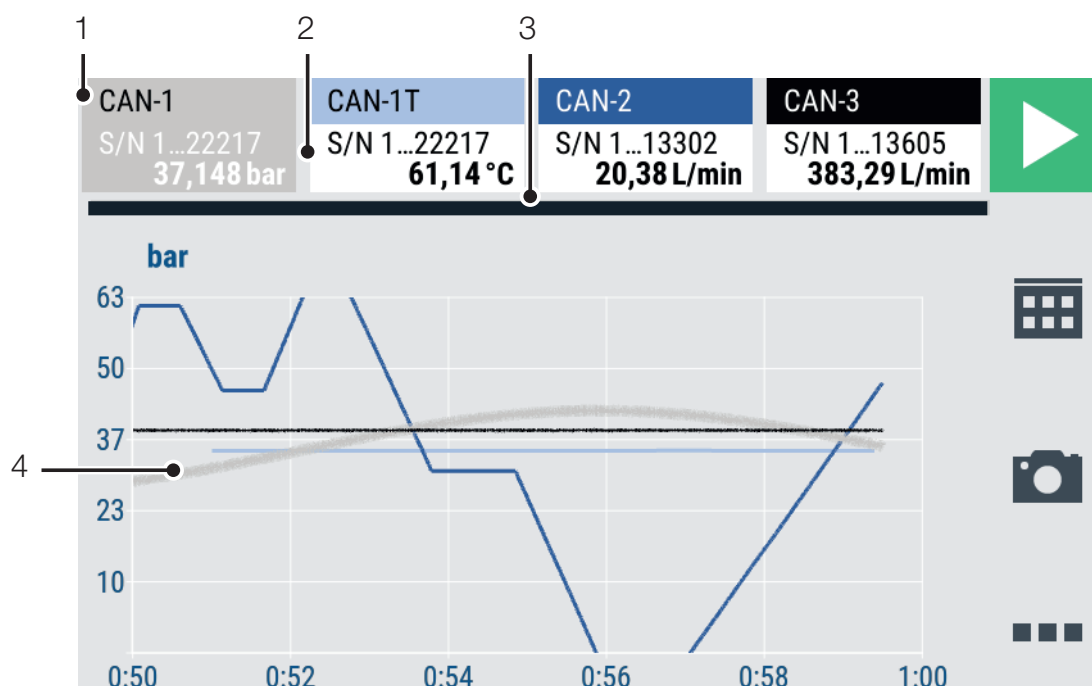


Fig. 18 Trend graph view

| Pos. | Description |
|------|---|
| 1 | Name of the channel |
| 2 | Selected channel (increased line thickness) |
| 3 | Current measured value of the channel |
| 4 | Trend graph line of the selected channel |


6.3.4 Options: Edit Channels in the Measurement View (Edit Channels)

You can use the options to edit the channels in the measurement view.



INFORMATION

It is not possible to display the options while a measurement is in progress.

- 1 Tap the **Stop**  button to stop the current measurement.

↳ The  button is shown.

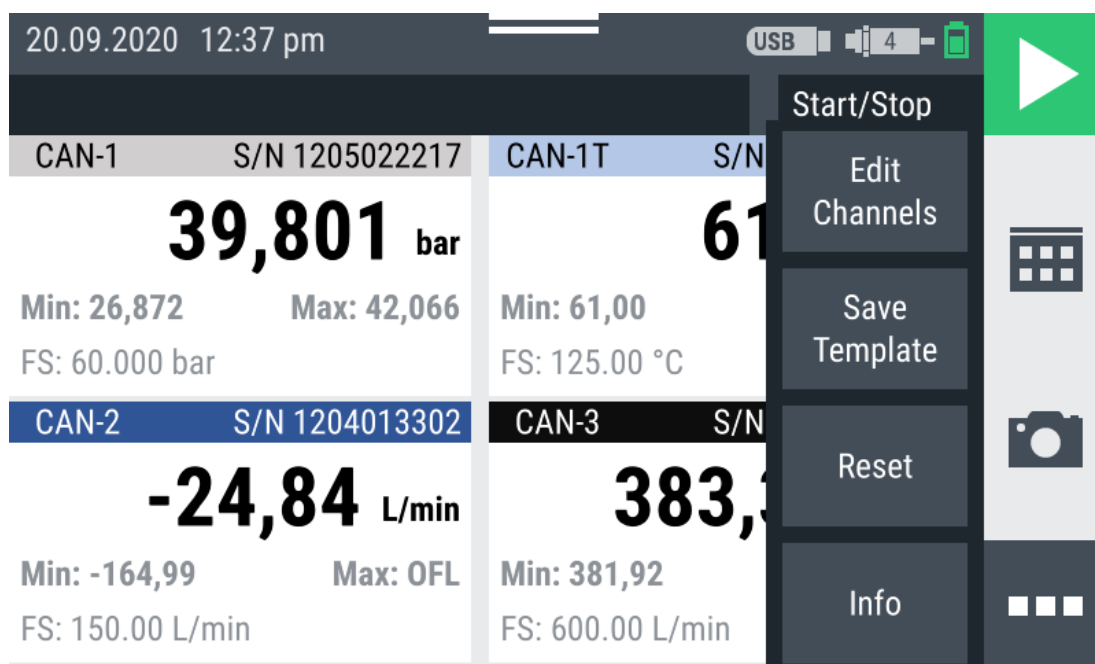



Fig. 19 Options menu

- 2 Tap on the  button.
- 3 Tap on the **Edit channels** button.
↳ The window for editing the channels opens.

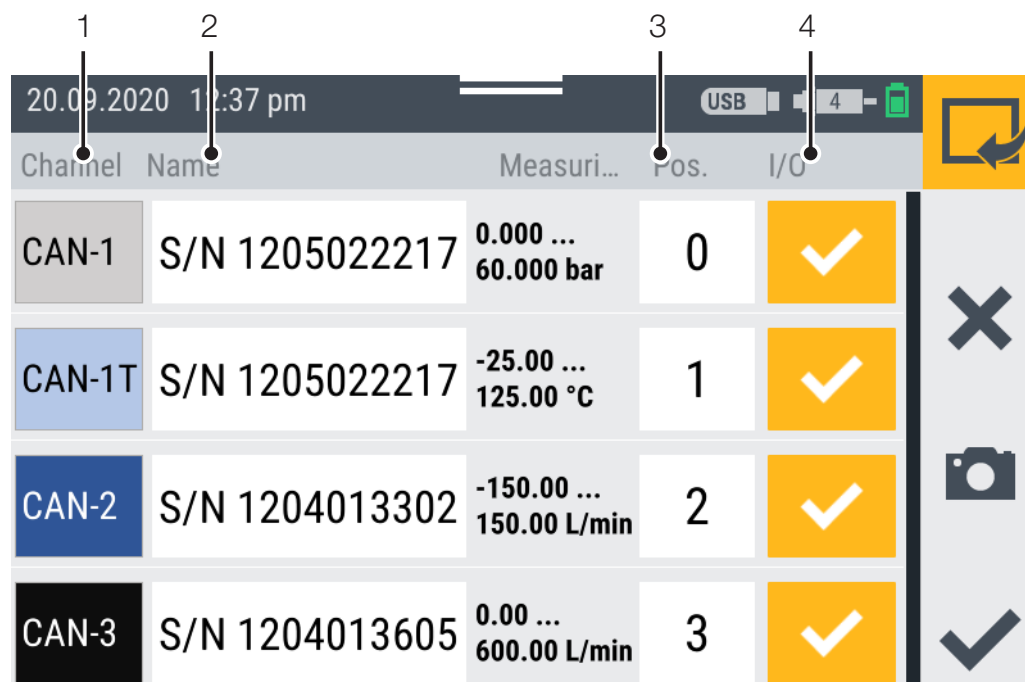


Fig. 20 Edit channels

| Pos. | Description |
|------|--|
| 1 | Edit the colors of the channels |
| 2 | Enter/Edit the names of the channels |
| 3 | Edit the list positions of the channels (by entering the position or with manual movement) |
| 4 | Activate/Deactivate channels (measured values of deactivated channels are not saved) |

6.3.5 Options: Save Template

You can use the options to save the current channels and settings as a template for further measurements. The following settings are saved in the template:

- Channels currently used
- Channel designations
- Channel names
- Channel colors
- Position
- Information on the connected sensors
- Measuring method with settings



INFORMATION

It is not possible to display the options while a measurement is in progress.

- 1 Tap the **Stop**  button to stop the current measurement.

↳ The  button is shown.

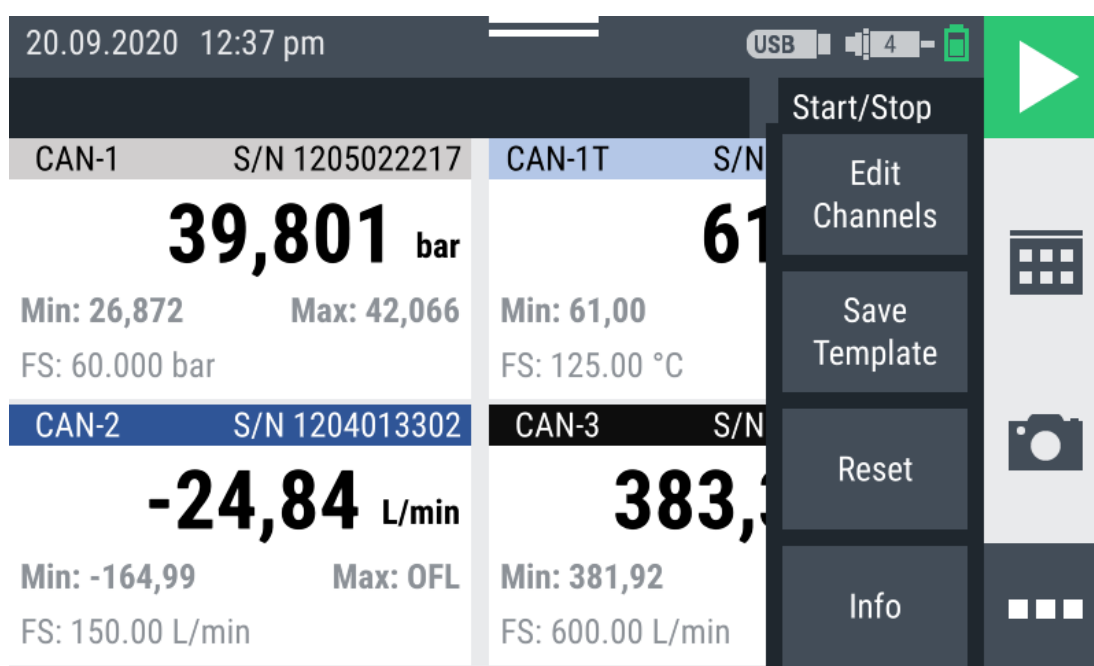


Fig. 21 Context-related options menu

- 2 Tap on the  button.
 - 3 Tap on the **Save template** button.
- ↳ The window for saving the measurement view as a template is displayed.

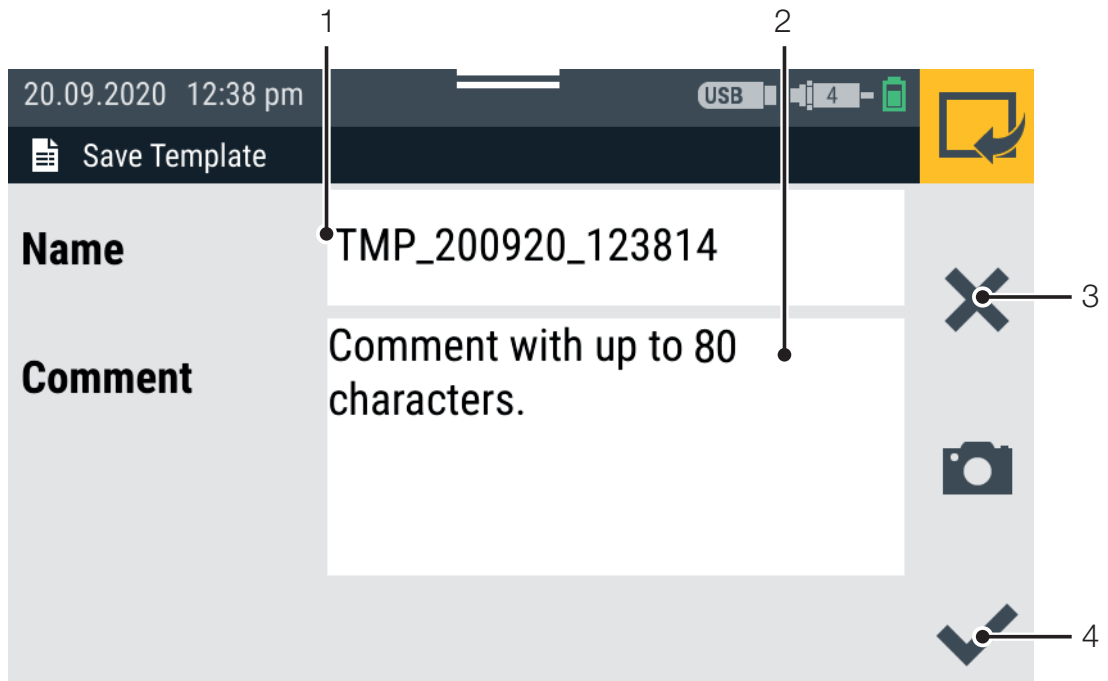


Fig. 22 Save measurement view as template (Save Template)

| Pos. | Description |
|------|-------------------------------|
| 1 | Enter name of template |
| 2 | Enter description of template |
| 3 | Cancel operation |
| 4 | Save template |

- To load an existing measurement template, refer to Chapter „Loading Measuring Templates“.

6.3.6 Options: Reset Values of the Measurement View (Reset)

You can use the options to reset individual values of the current measurement view.



INFORMATION

It is not possible to display the options while a measurement is in progress.

- 1 Tap the **Stop**  button to stop the current measurement.

↳ The  button is shown.

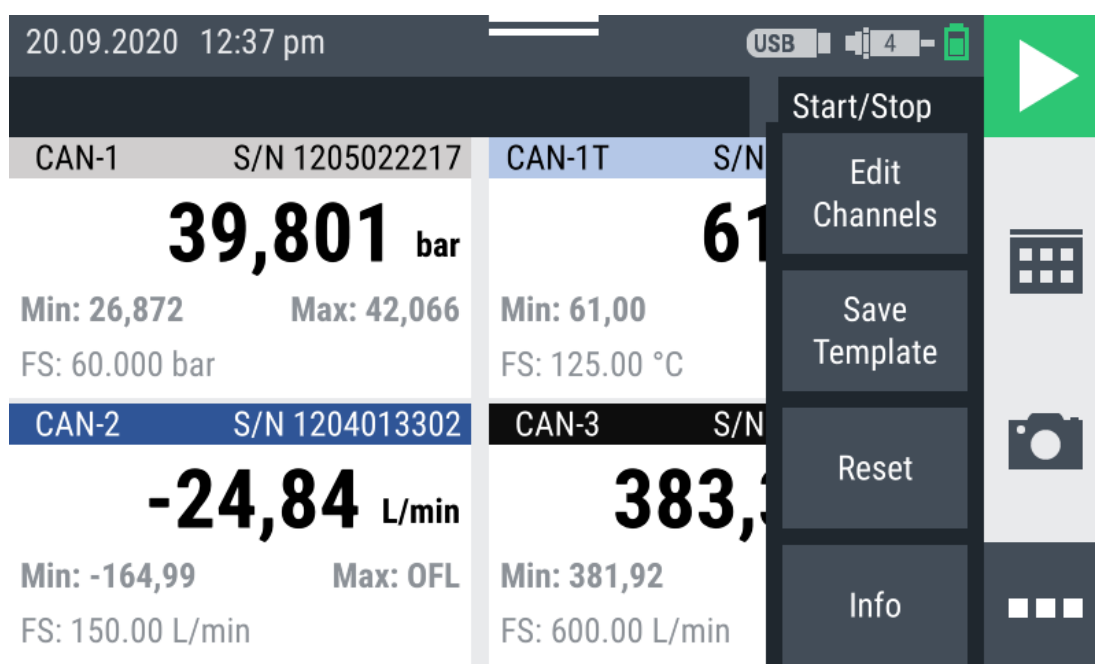



Fig. 23 Context-related options menu

- 2 Tap on the  button.
- 3 Tap on the **Reset** button.
↳ Another menu with options is displayed.

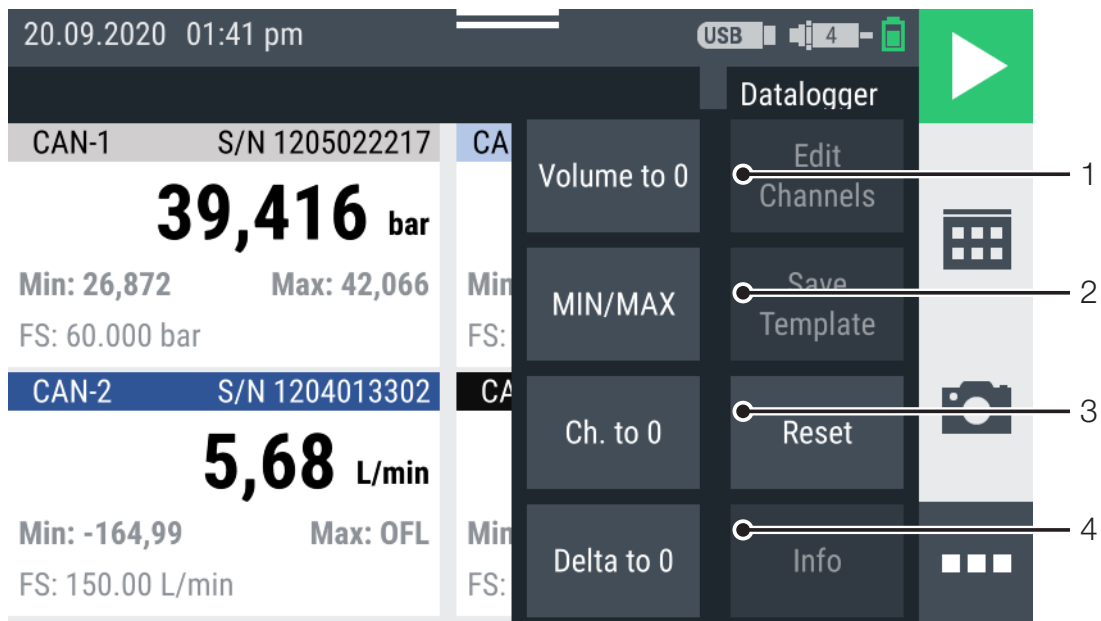


Fig. 24 Reset values of measurement view (Reset)

| Pos. | Designation | Description |
|------|--------------------|--|
| 1 | Volume to 0 | Reset volume to zero (when the corresponding calculation channel is activated) |
| 2 | MIN/MAX | Reset minimum and maximum values of all channels |
| 3 | CH. to 0 | Reset the channel offset to zero (to max. 2% FS) |
| 4 | Delta to 0 | Reset delta to zero (when the corresponding calculation channel is activated) |


6.3.7 Options: Display Information on Sensors (Info)

You can use the options to display information on the sensors for the current measurement.



INFORMATION

It is not possible to display the options while a measurement is in progress.

- 1 Tap the **Stop**  button to stop the current measurement.

↳ The  button is shown.

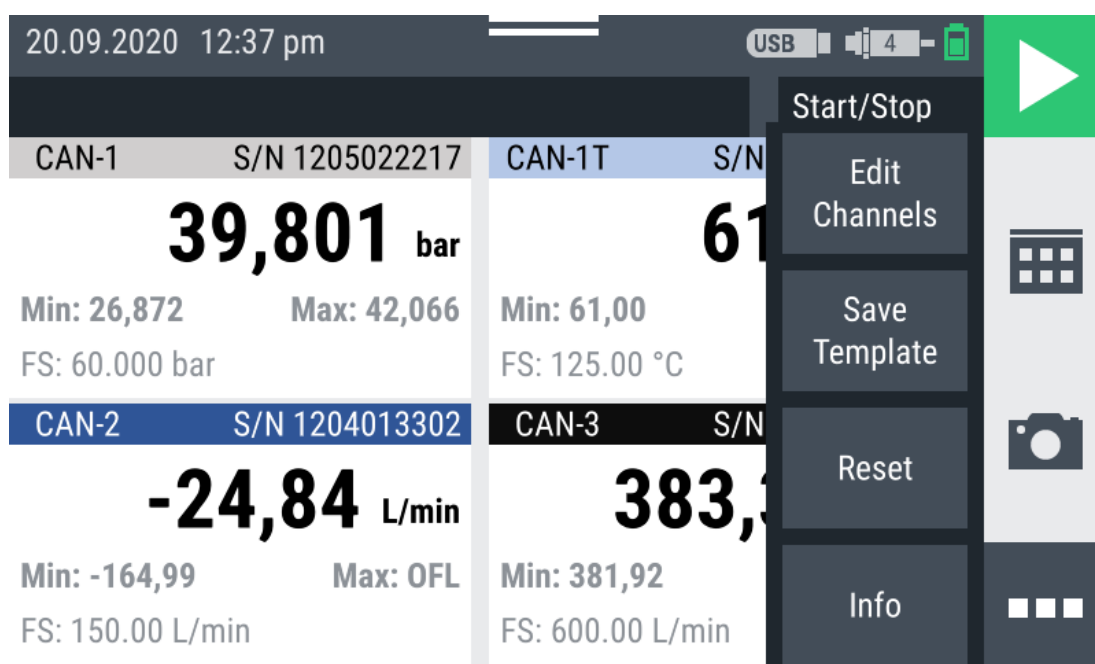



Fig. 25 Context-related options menu

- 2 Tap on the  button.
- 3 Tap on the **Info** button.
↳ Information on the sensors of the current measurement is displayed.

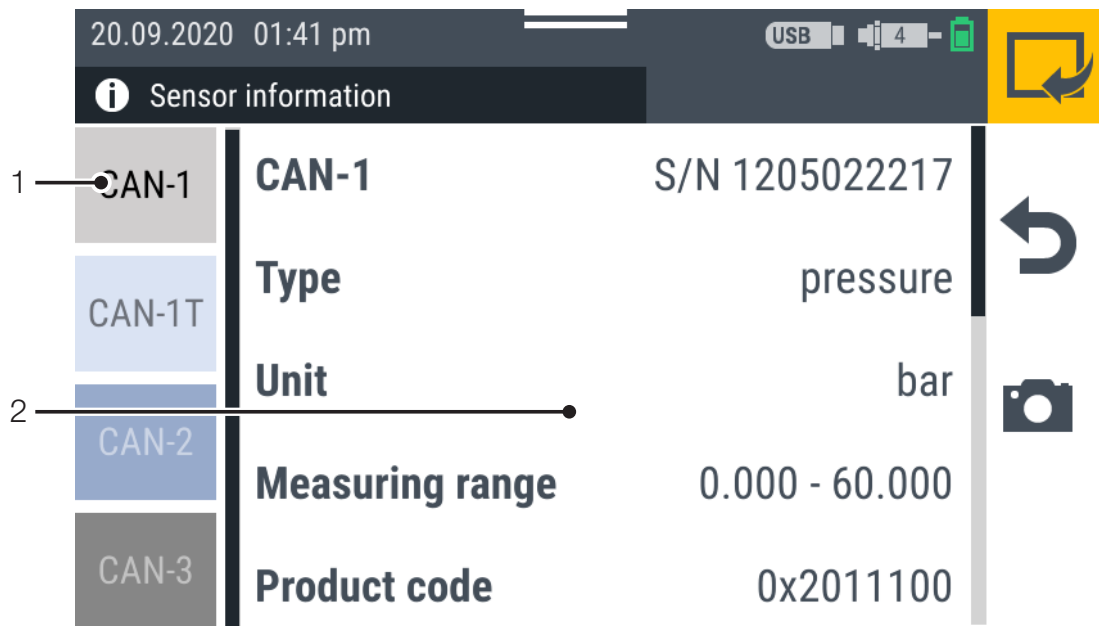


Fig. 26 Sensor information (Info)




| Pos. | Description |
|------|---|
| 1 | Select sensor |
| 2 | <div>The following information is displayed:</div> <div><div>■ Interface and channel name</div><div>■ Sensor type</div><div>■ Unit of measure</div><div>■ Measured value range</div></div> <div>The following information is only displayed for CAN sensors:</div> <div><div>■ Product ID</div><div>■ Revision number</div><div>■ Serial number</div><div>■ Baud rate</div><div>■ SW version</div><div>■ Hardware version</div><div>■ Vendor ID</div><div>■ Message ID</div><div>■ Note ID</div><div>■ PTS ID</div></div> |


6.4 Measurement Status

A measurement is started and stopped using the **Start/Stop** button or the yellow function key on the device.

The **Start/Stop** button indicates the current status of a measurement.

The following statuses are available:

| Status | Description |
|---|---|
|  | Measurement has not yet been started, adjustments can be made. |
|  | Measurement is activated, the device is waiting for the defined trigger to be triggered in order to record the measured data. |
|  | Measurement is started and measured data is recorded. |

- 1 Tap on the **Start**  button.
↳ The measurement starts up.



INFORMATION

Alternatively, press the yellow function key on the device.

Recording of the measured data begins according to the measurement method selected, either immediately or after triggering one or several triggers.

The current running time of the measurement is displayed in the info line.

- 2 Tap on the **Stop**  button.
↳ The measurement is stopped.

6.5 Measuring Methods

The device is provided with the following measuring methods:

■ Start/Stop

■ Datalogger

Measured values are buffered in the working memory and stored in a USB stick/the device's memory. The ACT, MIN and MAX values are saved.

You can switch between the measuring methods.

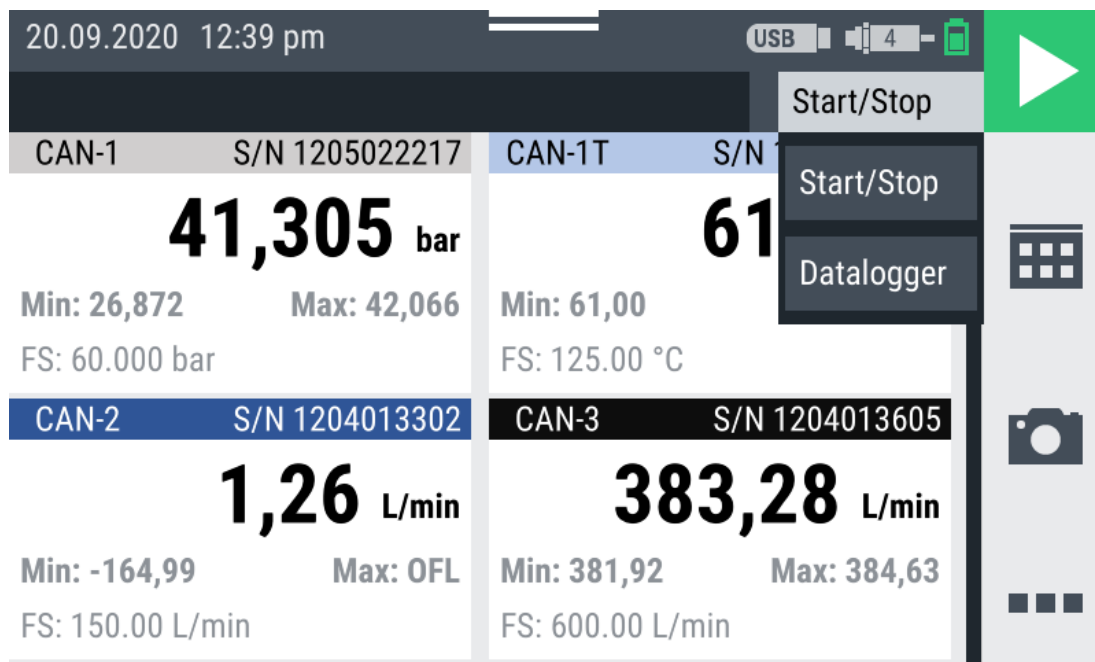


Fig. 27 Measuring Methods

- 1 Tap on the **Measuring method** button.



INFORMATION

The button shows the currently selected measurement method.

- 2 Tap on the desired measurement method (**Start/Stop**, **Datalogger**).
↳ The selected measurement method is used.



INFORMATION

If the **Datalogger** measurement method is selected, the settings are displayed.

6.5.1 Start/Stop

The **Start/Stop** measurement method implements an automatic data compression feature and requires no further settings.

In addition to the current measured value, the Min and Max values are also saved.



The measurement is completed independent of the current storage rate at a scanning rate of 1 ms.

If the predefined memory area is full, the data compression is activated. The storage rate is doubled and every second measured value is deleted. In this case, the Min and Max values are also compared and the highest and lowest measured value are transferred to the Min and Max value respectively.



INFORMATION

The Min and Max values are not lost but are saved, even in the case of long-term measurements.

- 1 Tap on the **Start**  button to start a measurement.
- 2 Tap the **Stop**  button to stop the measurement.
- 3 Alternatively, the Start/Stop measurement ends automatically after 7 days.

6.5.2 Datalogger

After selecting the **Datalogger** measurement method, the settings for carrying out the measurement are displayed.

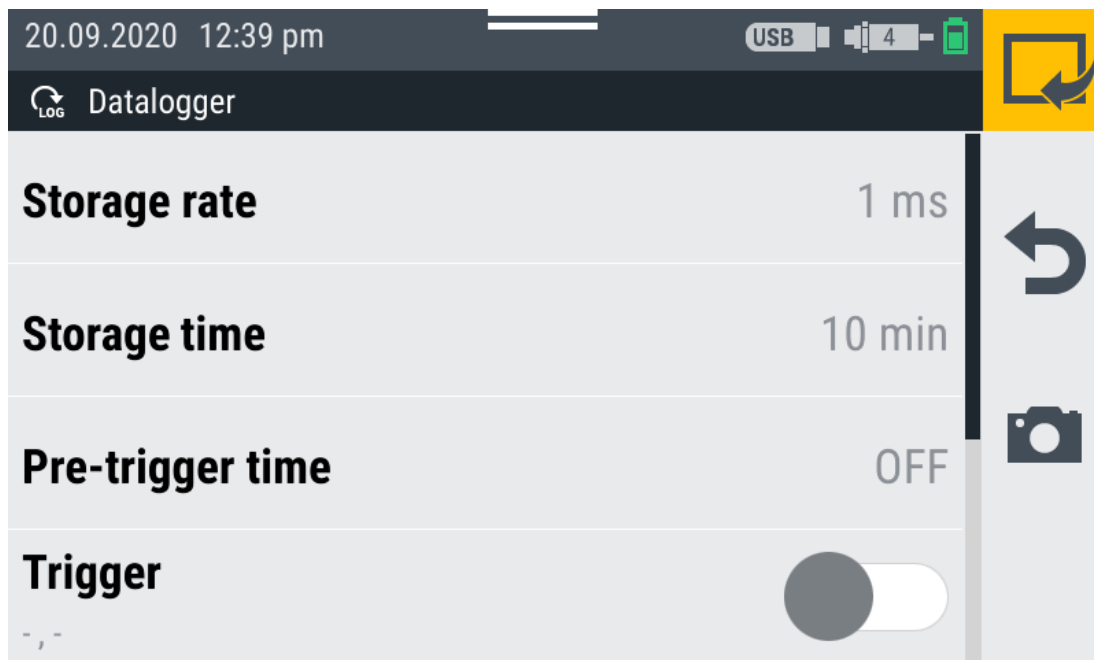



Fig. 28 Datalogger measurement method, settings

- 1 Specify the settings according to your application.
- 2 Tap on the **Start**  button to start a measurement.



INFORMATION

When the **Trigger** is activated, the measurement only starts when a defined measurement signal threshold is triggered.


- 3 Tap the **Stop**  button to stop the measurement.



INFORMATION

Alternatively, the measurement stops after the defined storage time has elapsed (**Storage time**).

The following settings are available:

| Designation | Description |
|-------------------------|---|
| Storage rate | Select storage interval of the measurement (0.1 ms* , 1 ms , 5 ms , 10 ms , 100 ms , 500 ms , 1 s , 5 s , 10 s , 30 s , 1 min , 5 min , 10 min , 30 min) |
| Storage time | Select storage time for the measurement (10 s , 30 s , 1 min , 5 min , 10 min , 30 min , 1 h , 12 h , 24 h , 3 d , 7 d). When the storage time has expired, the measurement stops automatically |
| Pre-Trigger time | Select the period in which the measured values are already recorded before the trigger is activated (OFF , 5 s , 10 s , 30 s , 1 min , 10 min , 30 min) |
| Trigger | Activate the Trigger function and define settings for the trigger signal. ► Further information is available in Chapter  „Set trigger“. |
| Ring buffer | If this option is activated, the defined memory area is continuously overwritten by current measured data |
| Auto repeat | When the option is activated, the measurement is started again the next time the trigger is triggered after automatic storage of the previous measurement |
| File name | Name of the measurement recording |

*only applies to AUX 1; all other channels continue to be sampled at 1 ms.

Set trigger

With the **Trigger** function, the measurement waits for a defined measurement signal threshold to be triggered. The prerequisite is that the **Trigger** function in the Datalogger measurement method has been set according to your application:

- 1 Tap on the **Datalogger** measurement method.
↳ The settings for carrying out the measurement are displayed.
- 2 Tap on the **Trigger** button to activate the function.
↳ The **Trigger** settings are displayed.

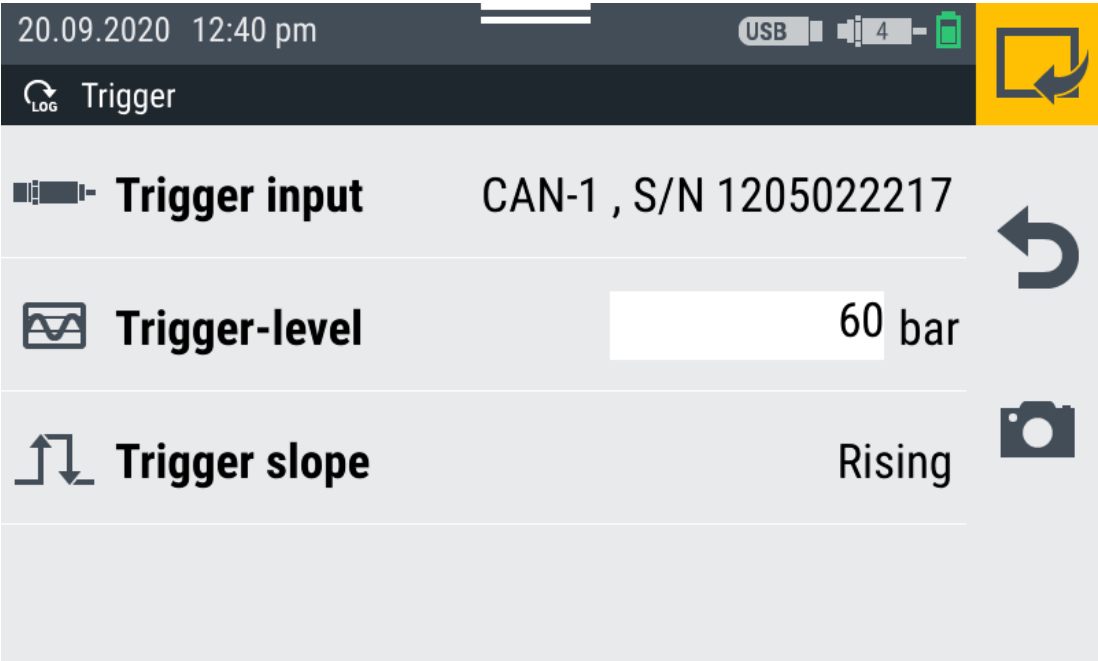








Fig. 29 Trigger, settings

The following settings are available:

| Designation | Description |
|---------------|--|
| Trigger input | Select the channel that serves as the trigger (only the channels of connected sensors are displayed) |
| Trigger-level | Specify the measured value that serves as the trigger |
| Trigger-slope | Select whether the trigger is triggered on a rising edge (Rising) of the measured value or on a falling edge (Falling) |

6.6 Completing a Measurement

The description below explains how to complete a measurement according to an example:

- 1 Switch the device on.
 - ▶ Further information is available in Chapter  „Switching the Device On and Off“.
- 2 Connect the sensors to the device according to your application.
 - ▶ Further information is available in Chapter  „Connecting Sensors“.
- 3 Setup the channels displayed according to your application.
 - ▶ Further information is available in Chapter  „Options: Edit Channels in the Measurement View (Edit Channels)“.
- 4 Select a measurement method.
 - ▶ Further information is available in Chapter  „Measuring Methods“.
- 5 Tap the **Start**  button to start a measurement. Alternatively, wait until the defined trigger is triggered.
 - ↳ The measurement starts up.
- 6 Tap the **Stop**  button to stop a measurement. Alternatively, wait for the defined storage time to expire.
 - ↳ The measurement is stopped.

After the measurement is stopped, the data is saved in the device memory or on a connected USB data carrier.


You can access the data via the File Manager in order to carry out evaluations.

- ▶ Further information is available in Chapter  „File Manager“

7. Settings

This chapter contains information about the menus and setting options for the device and the connected sensors.

7.1 Menu

The **Menu** can be opened by tapping the  button.

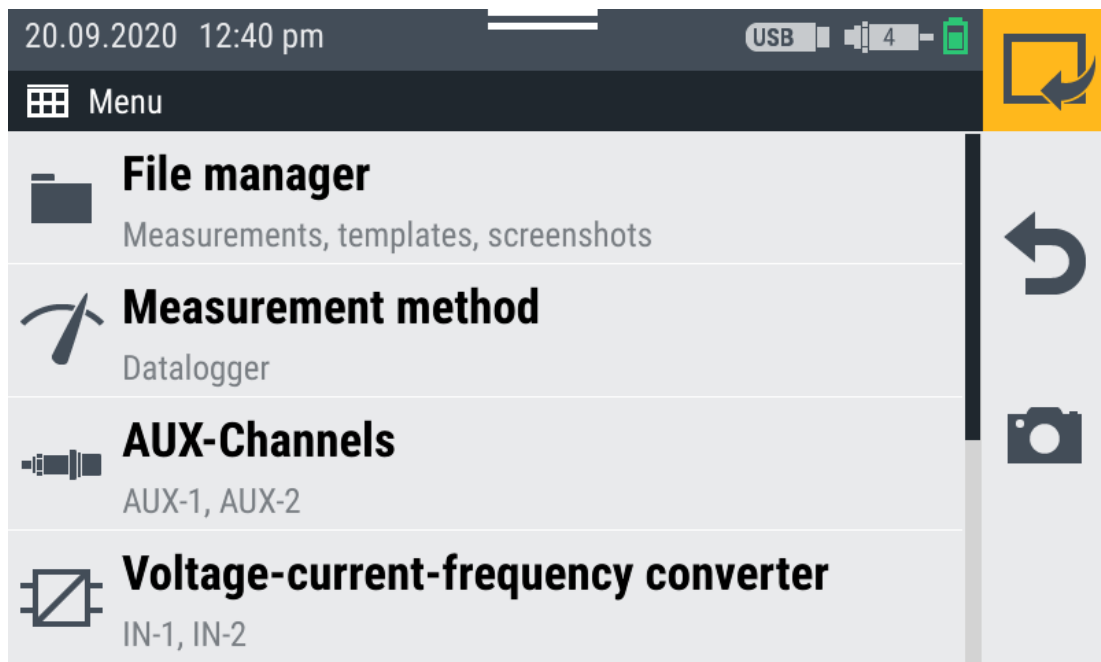









Fig. 30 Menu

The **Menu** enables access to the following submenus:

| Designation | Description |
|--|---|
| File manager | Manage files saved on the device. ► Refer to Chapter  „File Manager“. |
| Measurement method | Set measuring methods. ► Refer to Chapter  „Measurement Method“. |
| AUX-Channels | Set AUX channels. ► Refer to Chapter  „AUX-Channels*“. |
| Voltage-current-frequency converter | Set channels for VADC converters. ► Refer to Chapter  „VADC (Voltage-Current-Frequency-Converter) Channels“. |
| CALC-Channels | Set calculation channels. ► Refer to Chapter  „CALC-Channels“. |
| Device Settings | Set device. ► Refer to Chapter  „Device Settings“. |
| Device Information | Information about the device (serial number, firmware version, etc.). ► Refer to Chapter  „Device Information“. |

7.2 File Manager

In the **File manager** menu, you can manage the files saved on the device or a connected USB storage medium.



INFORMATION

If a USB storage medium is connected to your device, all data will be saved there. The internal device memory is not used.

Tapping on the respective category opens the corresponding submenu. The values after the categories indicate the current and available entries.

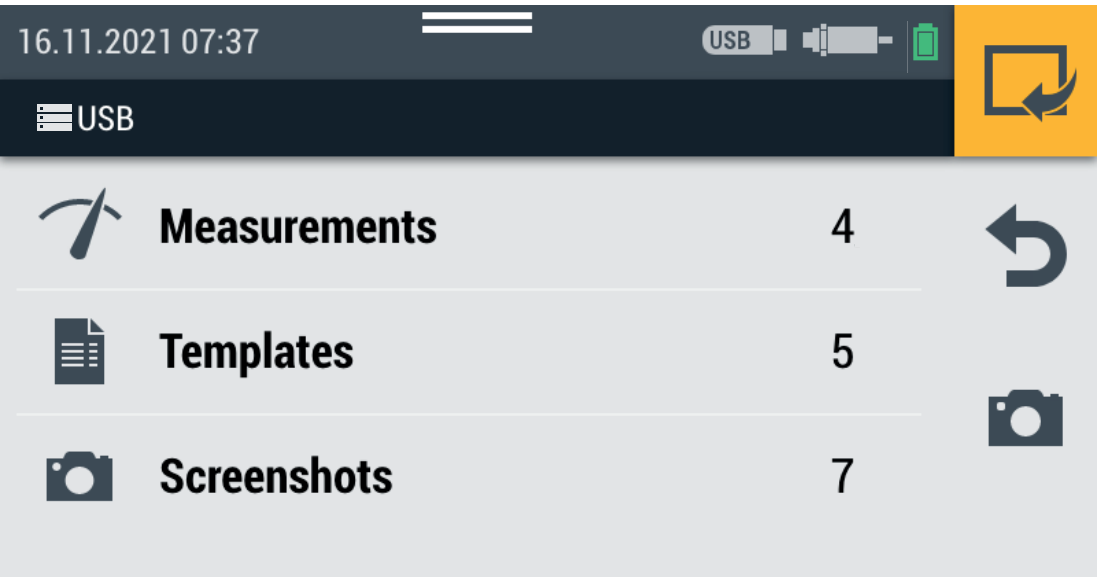


Fig. 31 File Manager

The following submenus are available:

| Designation | Description |
|--------------|--|
| Measurements | Recorded measurements (File format *.scco) |
| Templates | Saved templates for measurements (File format *.scct) |
| Screenshots | Display recordings (File format *.jpg) |

7.2.1 Delete/Rename Files/CSV Export

The management of files is independent of the category or file type.

- 1 Tap on a category (e.g. **Measurements**).

↳ All files in this category are displayed.

- 2 Tap and hold a file.

↳ The multiple selection is displayed.

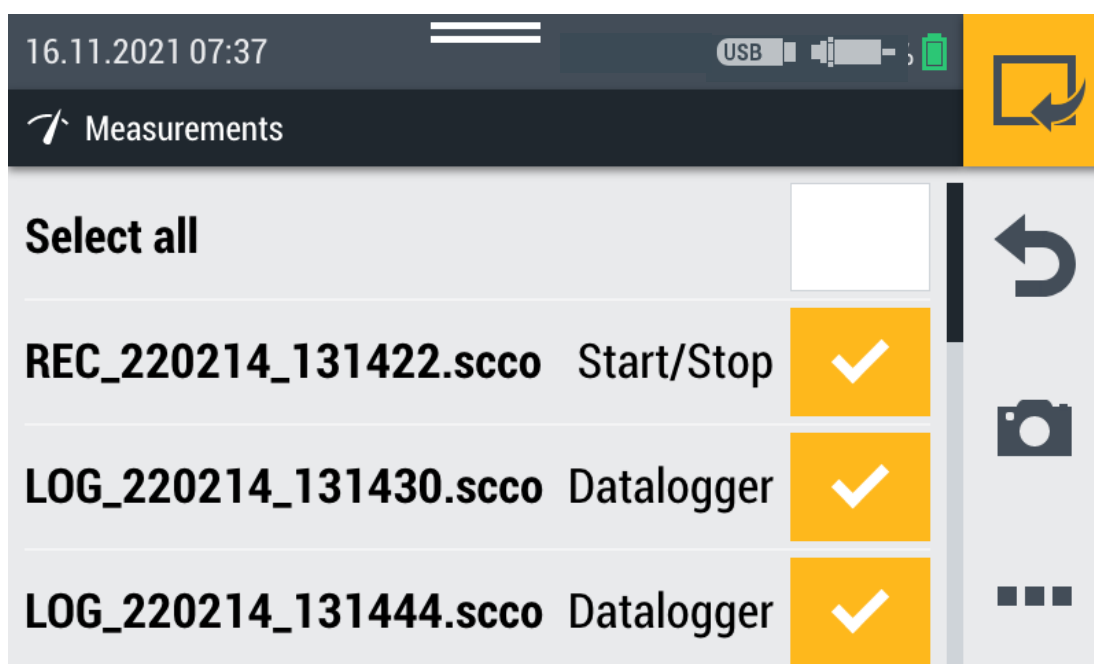


Fig. 32 File manager, multiple selection

- 3 Tap on additional files to select them.

↳ The symbol  is displayed on the selected files.

- 4 Tap on the  button.

↳ The options are displayed.

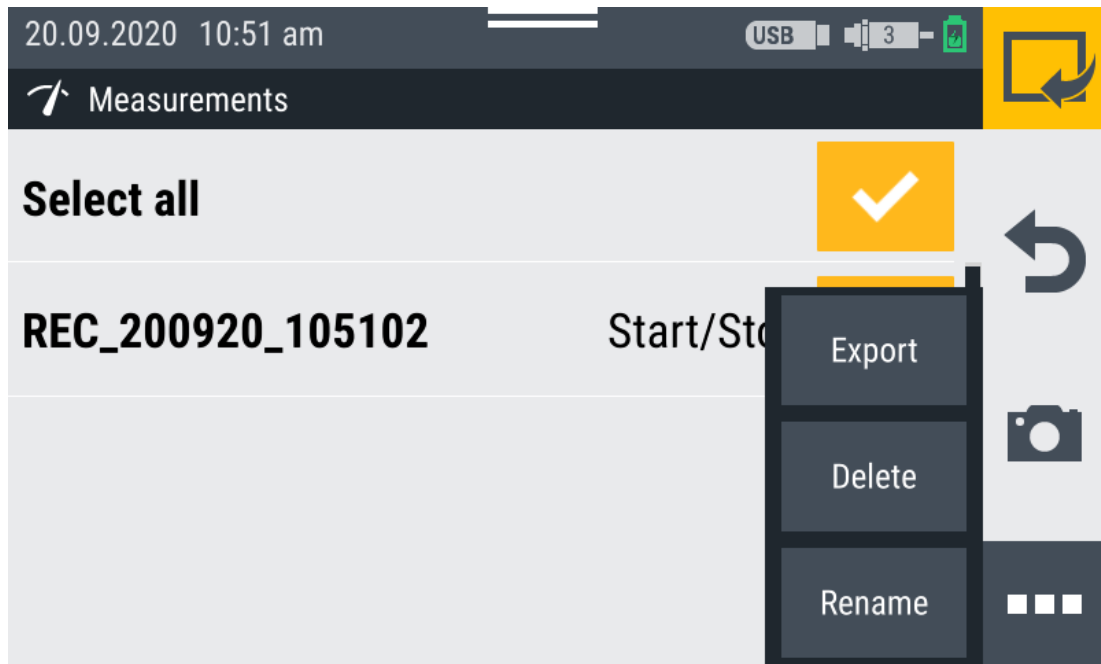


Fig. 33 File manager, delete/rename files

- 5 Tap on the desired option **Export**, **Delete** or **Rename**.
- 6 **Export**: Export the data in the CSV format (this option is only available in the Measurements folder (**Measurements**)).
- 7 **Delete**: Confirm the request.
- 8 **Rename**: Use the display keyboard to rename the files.

7.2.2 Analyzing the Measurements

Saved measurements (**Measurements**) can be loaded in the **File manager** and then analyzed.

- 1 Tap on the **Measurements** category.

↳ All recorded measurements are displayed.

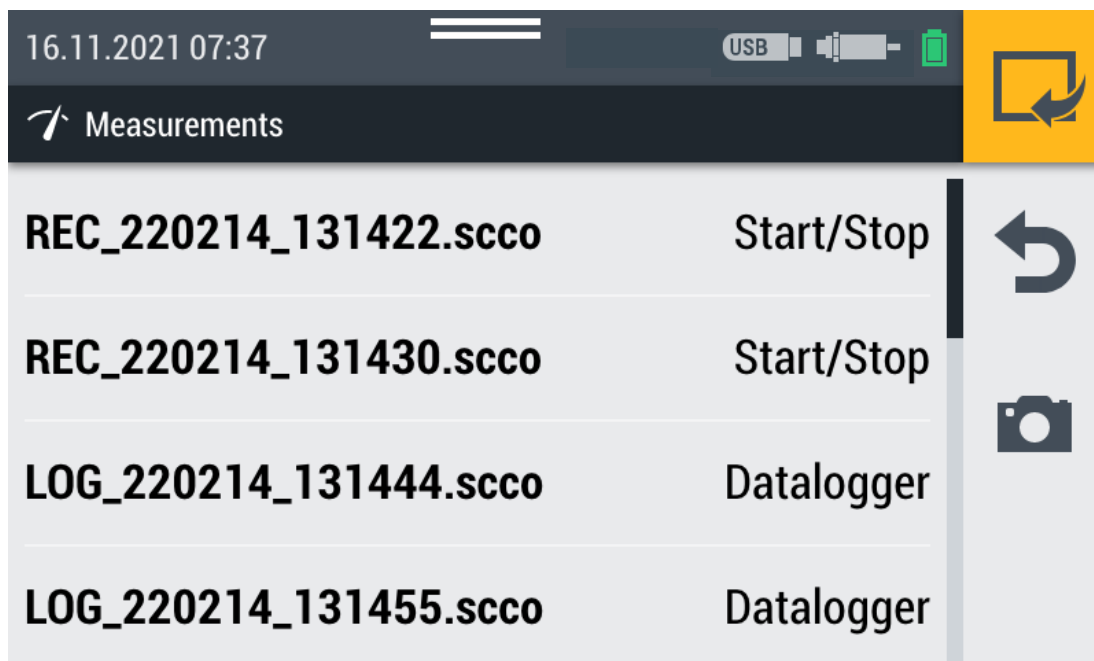


Fig. 34 File manager, Measurements

- 2 Tap on the desired measurement.

↳ Measurements are displayed

- 3 Tap on the checkmark.

↳ The measurement is displayed. Use the cursor to display the measured values of the channels at the corresponding time.

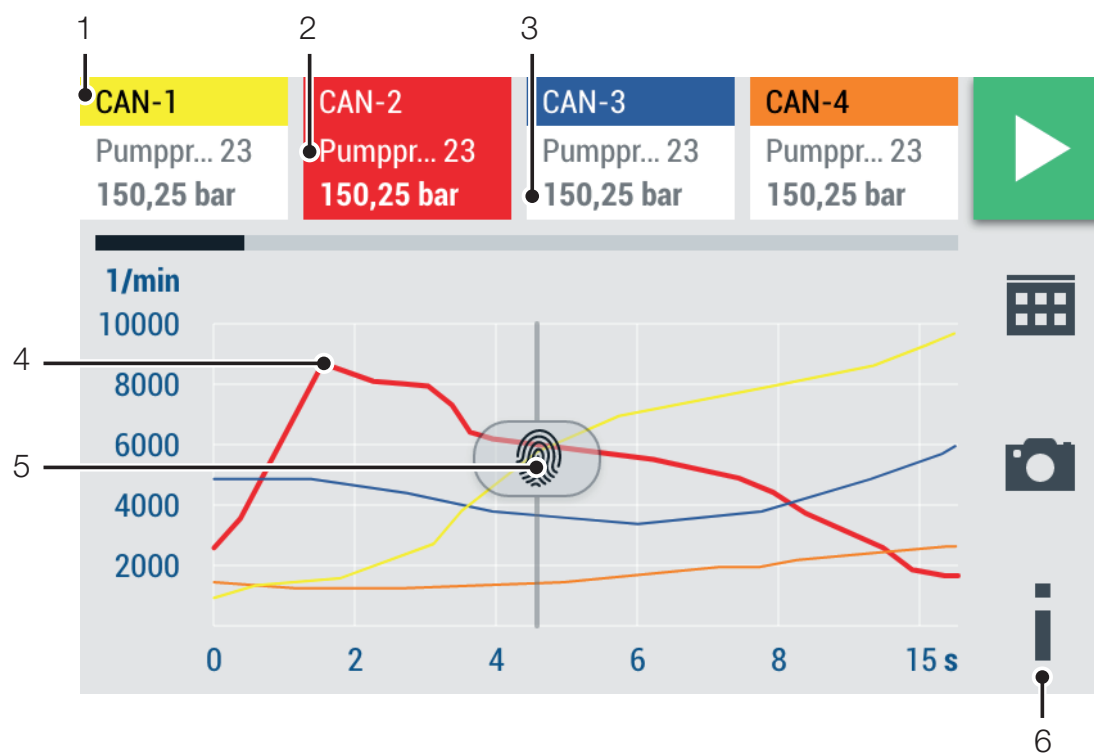


Fig. 35 File manager, analyze measurement

| Pos. | Description |
|------|--|
| 1 | Name of the channel |
| 2 | Selected channel (increased line thickness) |
| 3 | Measured value of the channel at the cursor position |
| 4 | Trend graph line of the selected channel |
| 5 | Cursor |
| 6 | Measurement information |

Further information on analyzing saved measurements is available via the button  :

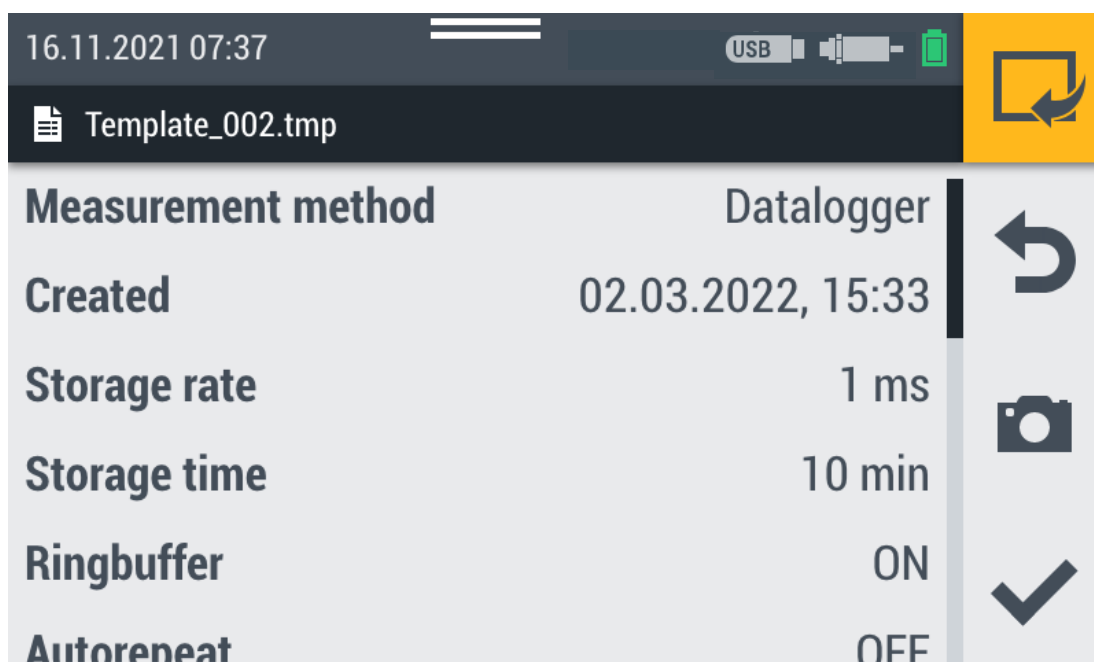


Fig. 36 Analyze measurement, information



INFORMATION

The amount of information displayed depends on the measurement method (**Start/Stop**, **Datalogger**) and the channels and sensors used in the template.

7.2.3 Loading Measuring Templates

Saved templates (**Templates**) can be selected and loaded in the **File manager**.

- 1 Tap on the **Templates** category.
↳ All saved measuring templates are displayed.

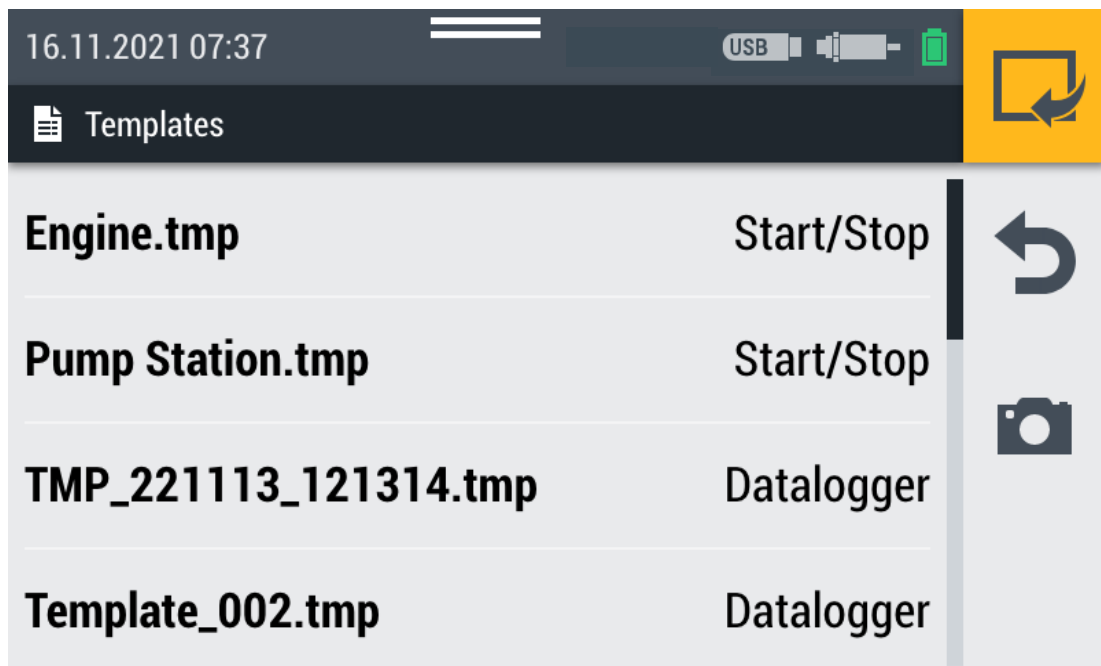


Fig. 37 File manager, Templates

- 2 Tap on the desired template.
- ↳ Further information on the template is displayed.



INFORMATION

The amount of information displayed depends on the measurement method (**Start/Stop**, **Datalogger**) and the channels and sensors used in the template.

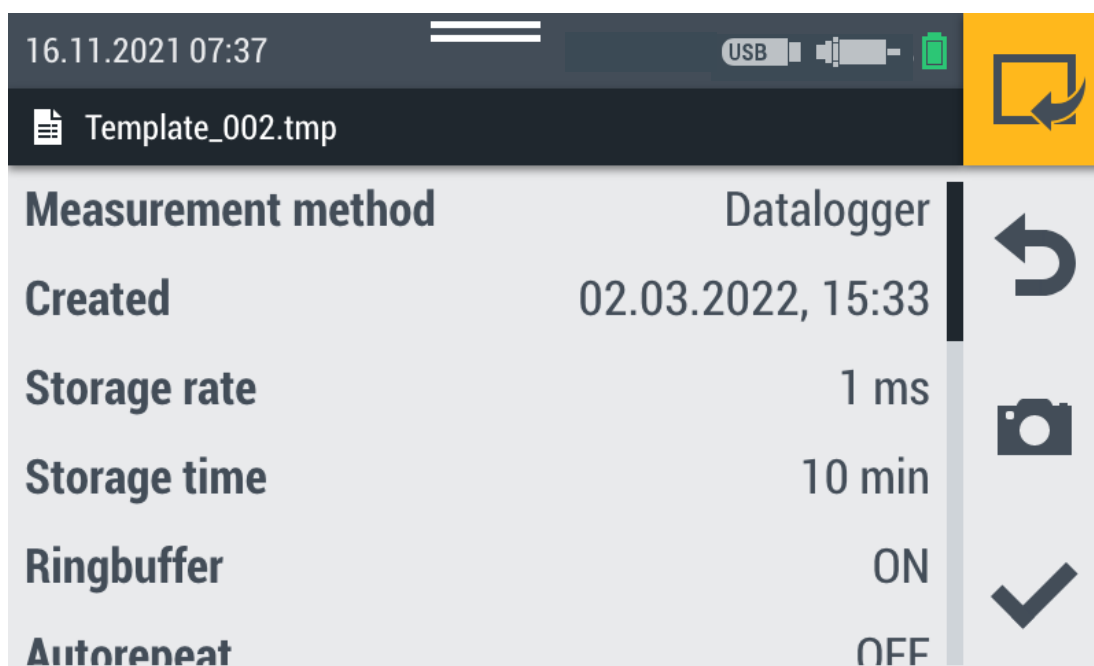
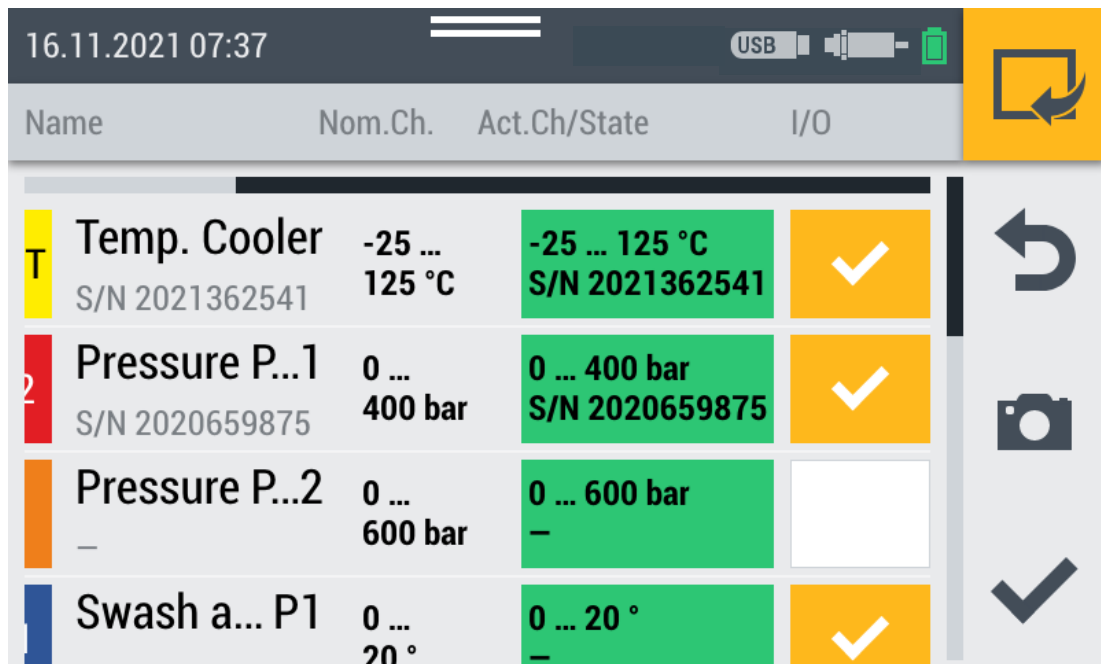


Fig. 38 Templates, information

- 3 Tap on the ☒ button to load the template.
- ↳ The sensors currently connected are compared with the measuring template and the status is displayed in color:
 - Red:** The connected sensor does not match the loaded sensor (e.g. incorrect physical unit, measuring range exceeded, CAN identity field does not match)
 - Green:** The connected sensor matches the loaded sensor (e.g. unit and range match)
 - Gray:** A channel is connected that is not saved in the measuring template













| Name | Nom.Ch. | Act.Ch/State | I/O |
|--|-------------------|----------------------------------|---|
|  Temp. Cooler S/N 2021362541 | -25 ... 125 °C | -25 ... 125 °C S/N 2021362541 |  |
|  Pressure P...1 S/N 2020659875 | 0 ... 400 bar | 0 ... 400 bar S/N 2020659875 |  |
|  Pressure P...2 — | 0 ... 600 bar | 0 ... 600 bar — |  |
|  Swash a... P1 | 0 ... 20 ° | 0 ... 20 ° — |  |

Fig. 39 File manager, edit template

- 4 Tap on the  button to adopt the template for the next measurement.
 - ↳ The measuring template is adopted regardless of the status of the individual sensors.
 - If the status of a sensor is red, this channel is not loaded.
 - If the status of a sensor is gray (new sensor), this sensor is placed at the end of the channel list and switched to inactive.
 - Activate the sensor in the **Edit Channels** menu if necessary, refer to Chapter  „Options: Edit Channels in the Measurement View (Edit Channels)“.

7.2.4 Showing Screenshots

Saved display images (**Screenshots**) can be shown in the **File manager**.

- 1 Tap on the **Screenshots** category.

↳ All saved display images are displayed.

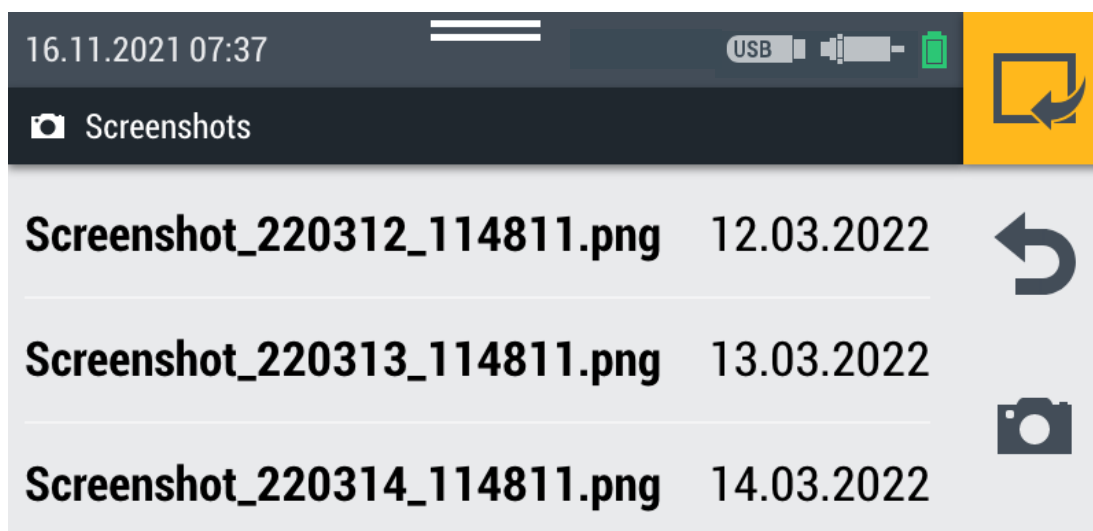


Fig. 40 File manager, Screenshots

- 2 Tap on the desired screenshot.

↳ The screenshot is displayed.

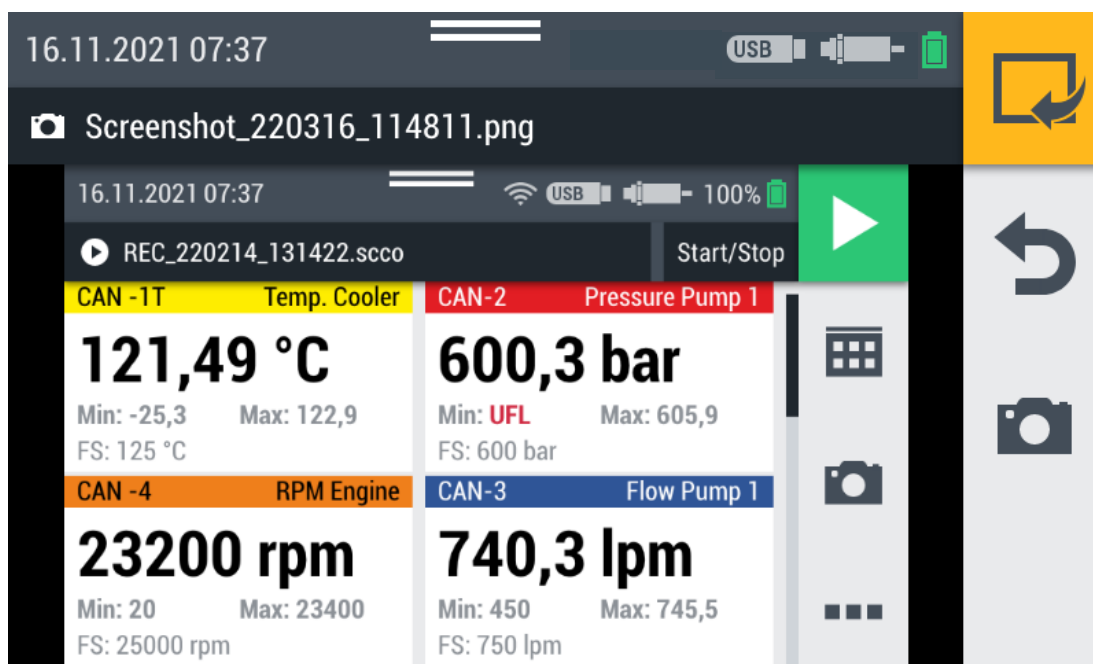


Fig. 41 Screenshot

7.3 Measurement Method

Set the corresponding measurement parameters in the **Measurement Method** menu.



INFORMATION

The **Start/Stop** measurement method requires no settings.

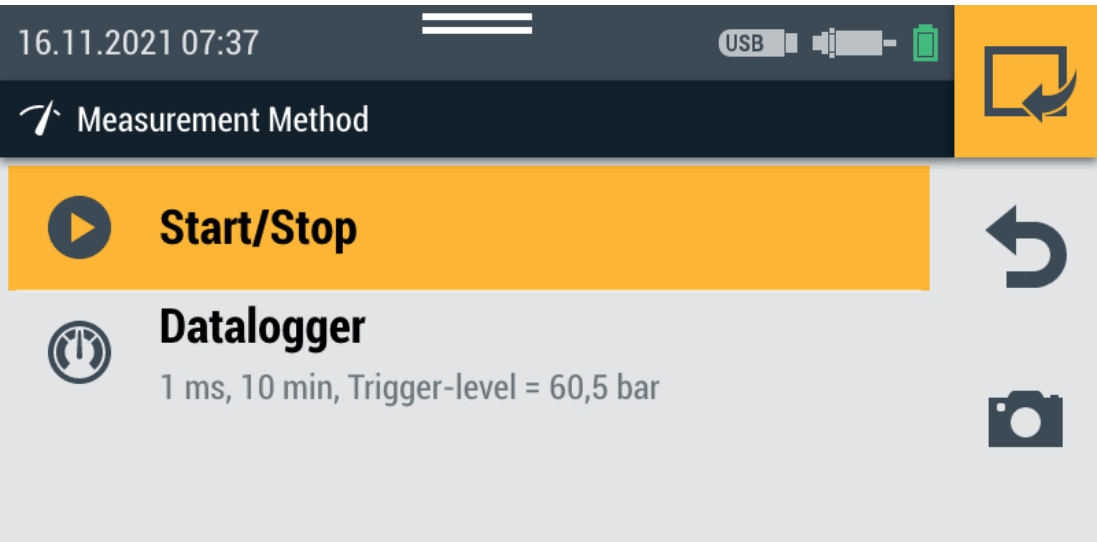


Fig. 42 Measurement Method

The following functions are available:

| Designation | Description |
|-------------|--|
| Start/Stop | Simple measuring method, no settings. ▶ Refer to Chapter „Start/Stop“. |
| Datalogger | Measuring method with optional trigger function and other settings. ▶ Refer to Chapter „Datalogger“. |

7.4 AUX-Channels*

In the **AUX-Channel** menu, you will find settings for parameterizing the AUX channels of the device.

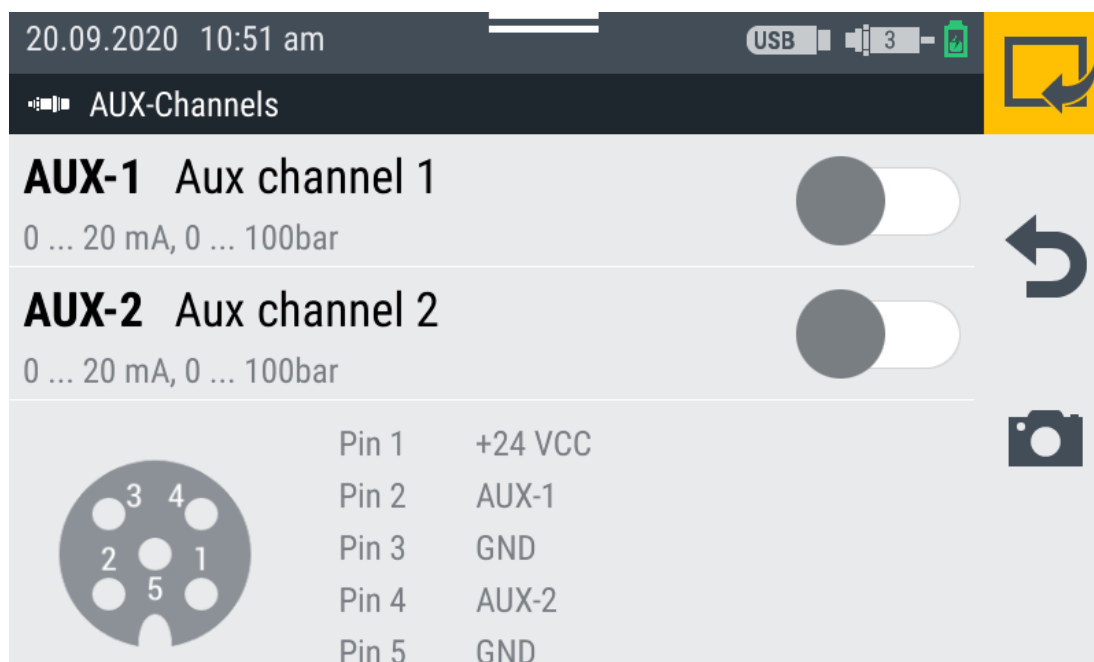



Fig. 43 AUX-Channels

The following functions are available:

| Designation | Description |
|--------------|--|
| AUX-1 | Activate channel, further settings can be carried out in the submenus. |
| AUX-2 | Activate channel, further settings can be carried out in the submenus. |

- 1 Tap on the  button to activate the corresponding channel.
- 2 Tap on the channel name to set further parameters in the submenus.



INFORMATION

If the storage rate 0.1 ms is selected for the **Datalogger** measuring method, the sampling rate for both AUX channels is 0.1 ms.

7.4.1 Setting AUX Channel

In the **AUX** menu, you will find settings for parameterizing the respective AUX channel of the device.



INFORMATION

The following settings are possible for both AUX channels.

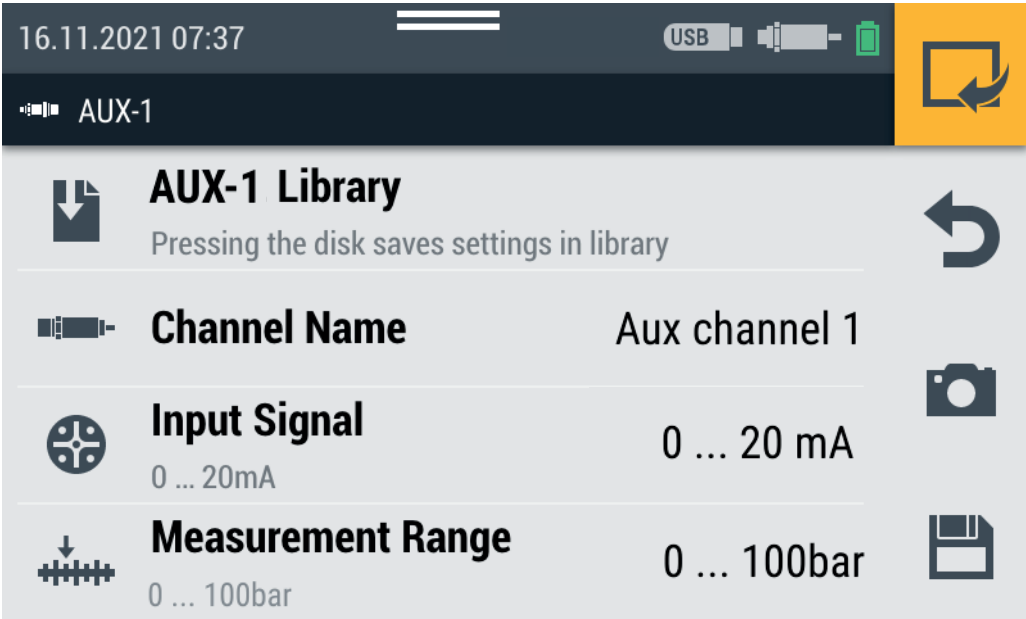


Fig. 44 Set AUX channels

The following functions are available:

| Designation | Description |
|-------------------|---|
| AUX Library | Load presets from the database |
| Channel Name | Enter the channel name |
| Input Signal | Set the input signal (0 - 20 mA, 4 - 20 mA, 0 - 10 V) |
| Measurement Range | Set the start/end and units of the measurement range: User specific, Pressure (bar), Temperature (°C), Flow (L/min), Rotational speed (1/min), Volume (L), Power (kW) |

- 1 Tap the button to save the settings as a template in a database (AUX Library).

7.5 VADC (Voltage-Current-Frequency-Converter) Channels

In the **Voltage-Current-Frequency-Converter** menu, you will find settings for parameterizing the channels when using the SR-VADC-710 Voltage-Current-Frequency-Converter.

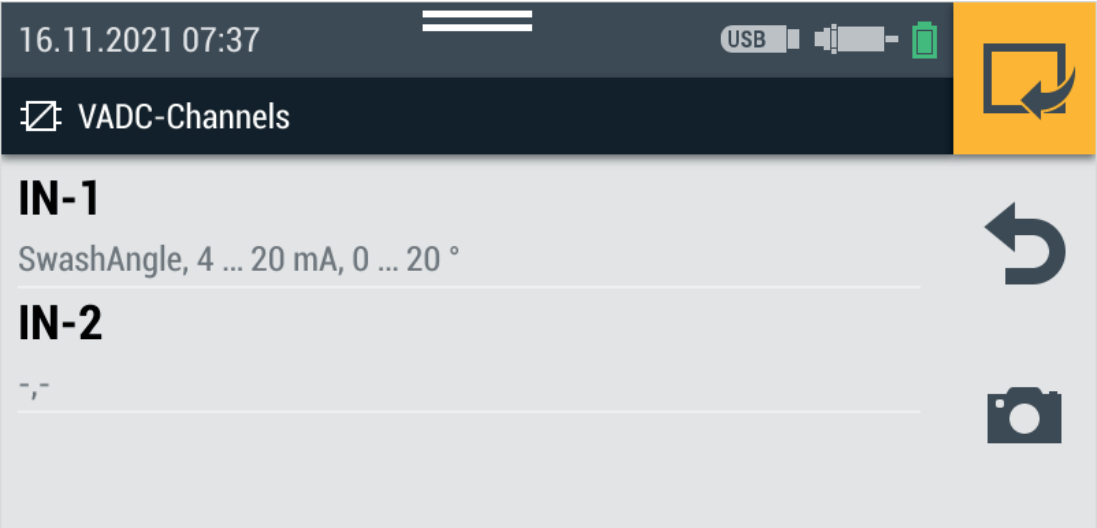


Fig. 45 VADC-Channels

The following functions are available:

| Designation | Description |
|------------------------------------|---|
| CAN-1 ... CAN-6 (HPM5140-CAN-A) | Further settings are possible in the submenus |

7.5.1 Setting VADC Channels

In the menus **IN-1** ... **IN-2** or **CAN-1** ... **CAN-6** you will find settings for parameterizing the input channels of the device.



INFORMATION

Each input channel has its own submenu with setting options. You can set the channels independently of each other.

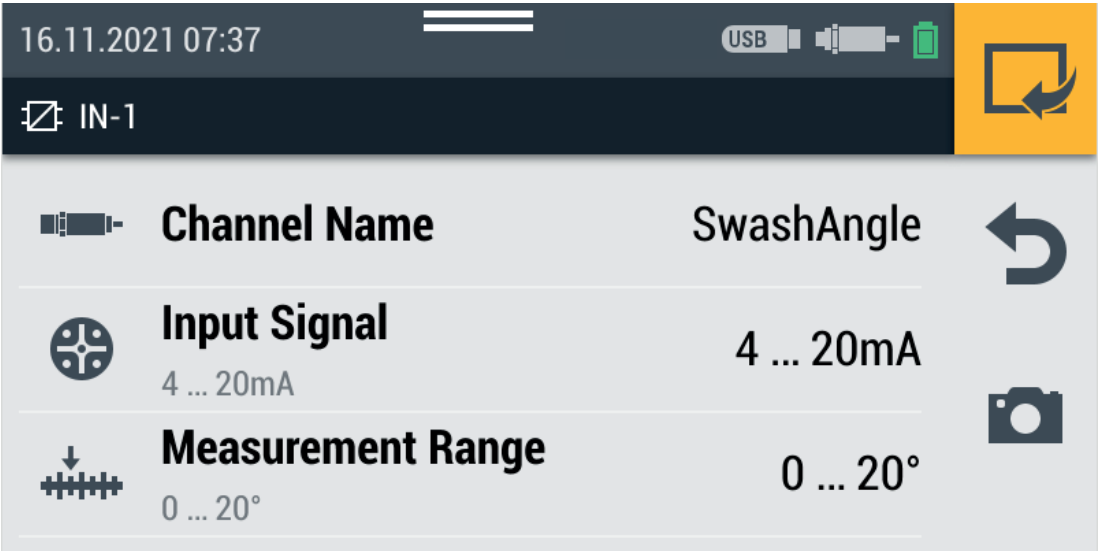


Fig. 46 Setting VADC Channels

The following functions are available:

| Designation | Description |
|-------------------|---|
| Channel Name | Enter the channel name |
| Input Signal | Set the input signal (0 ... 20 mA, 4 ... 20 mA, 0 ... 48 V, -48 ... 48 V, 0 ... 4 A, -4 ... 4 A, 0 ... 5 kHz) |
| Measurement Range | Set the start/end and units of the measurement range to be displayed: User specific, Pressure (bar), Temperature (°C), Flow (L/min), Rotational speed (1/min), Volume (L), Power (kW) |

7.6 CALC-Channels

In the **CALC-Channels** menu, you will find settings for parameterizing the device's calculation channels.

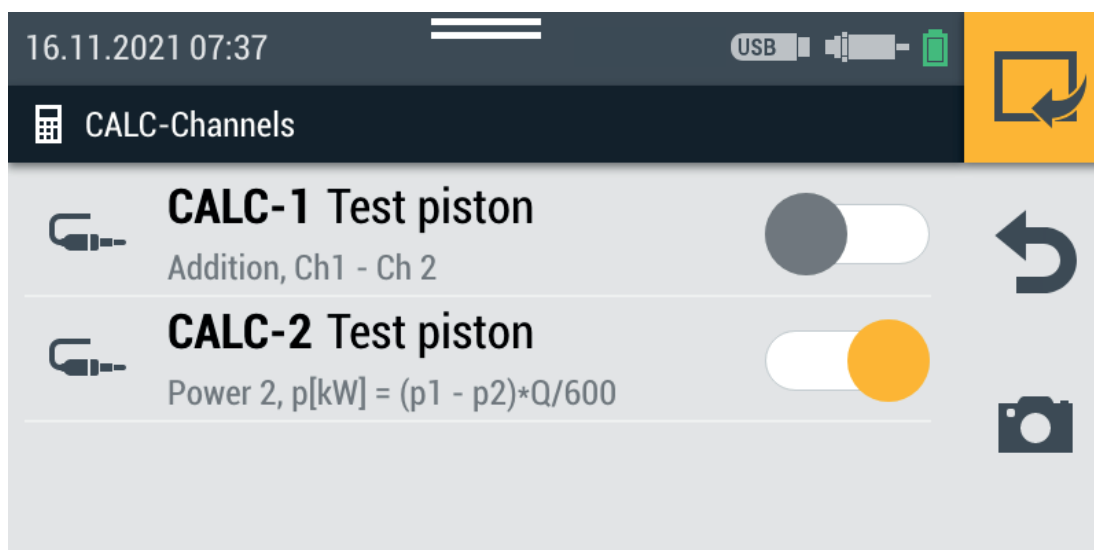



Fig. 47 CALC-Channels

The following functions are available:

| Designation | Description |
|---------------|---|
| CALC-1 | Activate channel, further settings can be carried out in the submenus |
| CALC-2 | Activate channel, further settings can be carried out in the submenus |

- 1 Tap on the  button to activate the corresponding channel.
- 2 Tap on the channel designation to set further parameters.

7.6.1 Setting Calculation Channels

In the **CALC-1** and **CALC-2** menus you will find settings for parameterizing the IN-2 channel of the device.

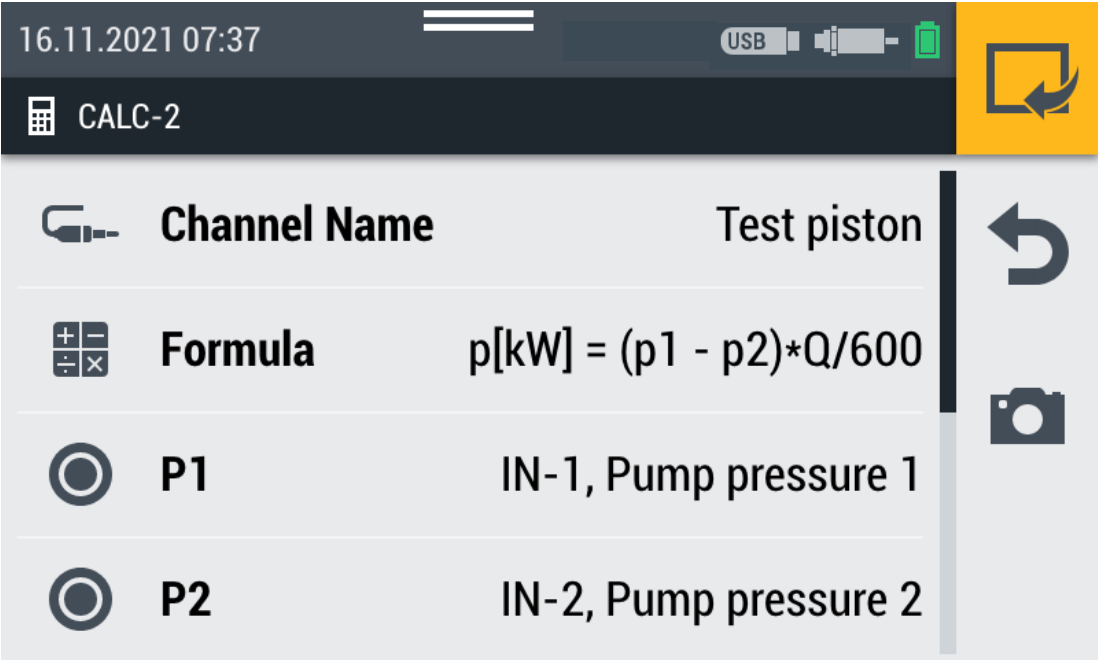


Fig. 48 Set calculation channels

The following functions are available:

| Designation | Description |
|--------------|--|
| Channel Name | Enter the channel name |
| Formula | Set the calculation type or formula: Subtraction, Addition, Power 1, Power 2, Volume, Multiply |
| P1 | Select the input signal (depending on the formula selected) |
| P2 | Select the input signal (depending on the formula selected) |
| Q | Select the input signal (depending on the formula selected) |

7.7 Device Settings

In the **Device Settings** menu, you can make basic settings.

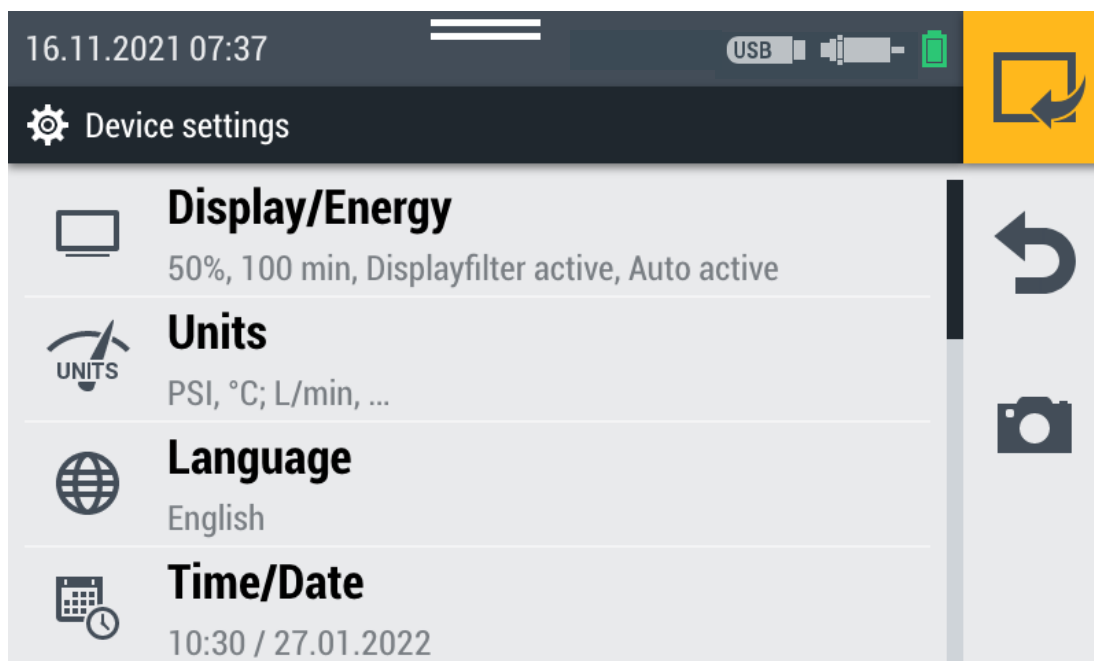


Fig. 49 Device Settings

The following settings are available:

| Designation | Description |
|-----------------------|--|
| Display/Energy | Display brightness, display timeout, display filter |
| Units | Select measurement units for measured values |
| Language | Select user interface language and install additional languages via USB |
| Time/Date | Time and date |
| Keyboard | Representation of display keyboard (QWERTZ , QWERTY , AZERTY) |
| CSV-Format | Select CSV format |

7.7.1 Setting Display (Display/Energy)

In the **Display/Energy** menu, you will find settings for the display and reducing the device's energy consumption.

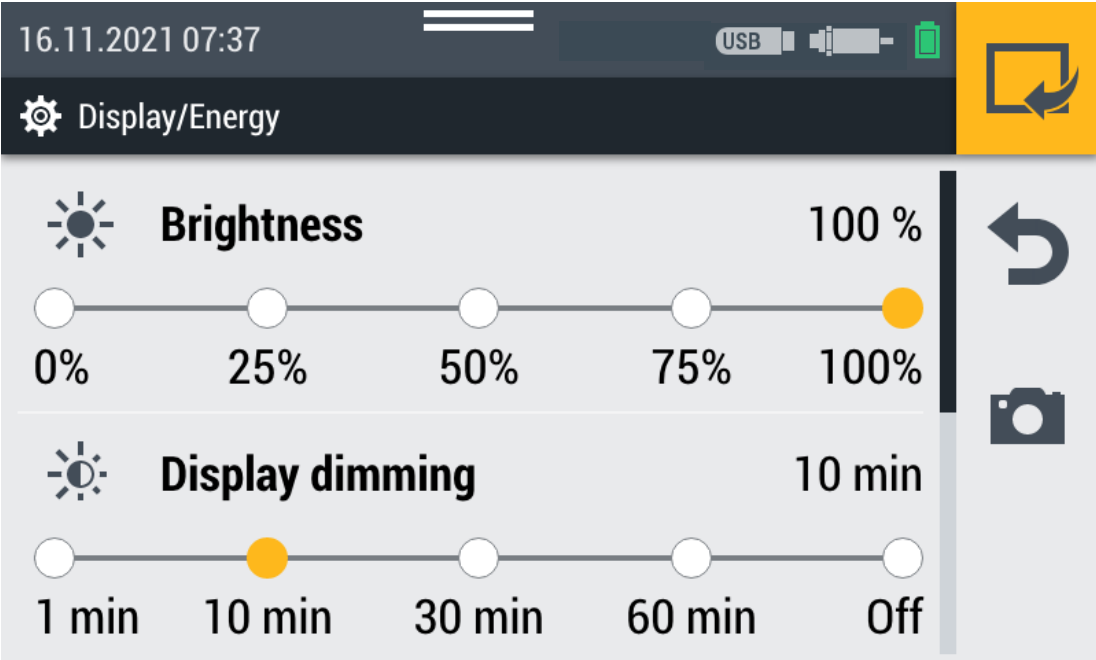


Fig. 50 Display (Device/Energy)

The following settings are available:

| Designation | Description |
|------------------------|--|
| Brightness | Adjust the display brightness in 5 steps (0 %, 25 %, 50 %, 75 %, 100 %) |
| Display dimming | Adjust the period for dimming the display in 5 steps (1 min, 10 min, 30 min, 60 min, Off) |
| Display filter | Adjust display filter in 4 steps (Low, Medium, High, Off) |
| Auto power off | Switches the device on/off automatically. If this function is activated, the device switches off after 10 minutes without input. This function is automatically deactivated during an ongoing measurement. |



| INFORMATION |
|--|
| The display filter only affects the displayed measured values. Recorded measurements are not affected. |

7.7.2 Units

In the **Units** menu, you will find settings for the measurement units of the various measured values.

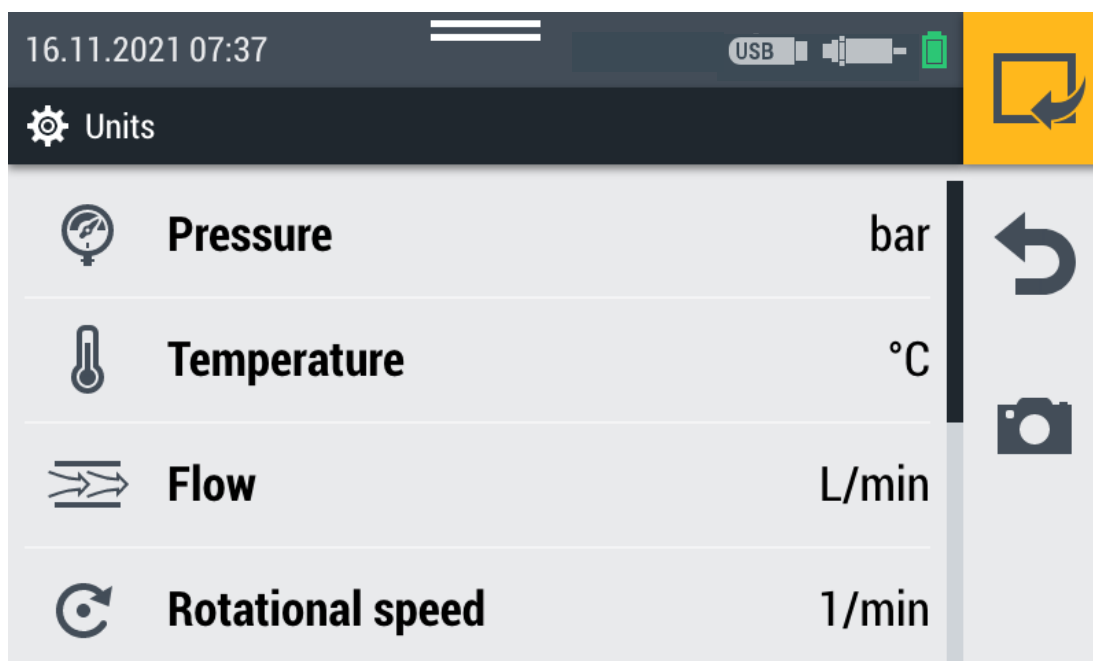


Fig. 51 Units

The following settings are available:

| Designation | Description |
|-------------------------|--|
| Pressure | Select unit of measure (bar , MPa , kPa , psi , mbar) |
| Temperature | Select unit of measure (°C , °F) |
| Flow | Select unit of measure (L/min , G/min) |
| Rotational speed | Select unit of measure (1/min , Rpm) |
| Volume | Select unit of measure (L , gal) |
| Power | Select unit of measure (kw , HP) |

7.7.3 Changing Language

In the **Language** menu, you can change the language of the display texts (menus, buttons) on the device.

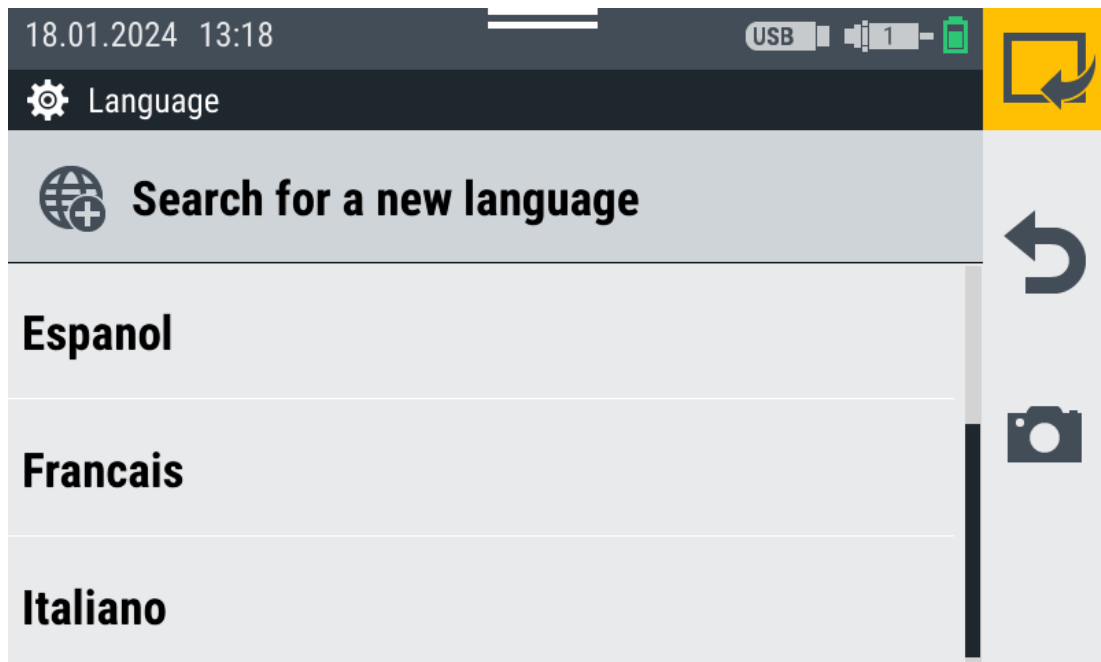


Fig. 52 Language

The following languages are available:

- English
- French
- Italian
- Spanish



INFORMATION

Additional languages can be installed via a USB storage medium. The device recognizes the voice data automatically. The prerequisite is that the voice data is available in the root directory of the USB storage medium.

- 1 Tap on the desired language.
- 2 Tap on the ☒ button to confirm your selection.
 ↳ The language of the display texts has been changed.

7.7.4 Setting Time/Date

The **Time/Date** menu contains settings for the time and date.

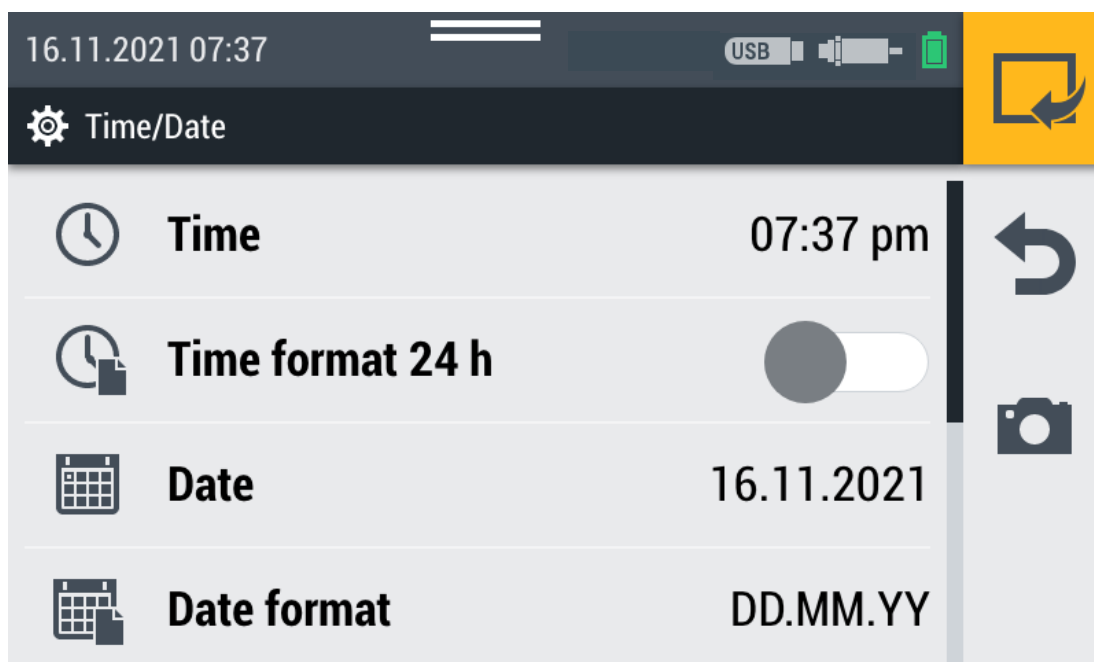


Fig. 53 Time/Date

The following settings are available:

| Designation | Description |
|-------------------------|--|
| Time | Set time |
| Time format 24 h | Switch 24 h time format on/off |
| Date | Set date |
| Date format | Set date format (DD.MM.YY , MM.DD.YY) |
| Auto-sync PC | Synchronize time and date automatically when connected to a PC |

7.7.5 Selecting Keyboard

In the **Keyboard** menu, you can select a keyboard layout.

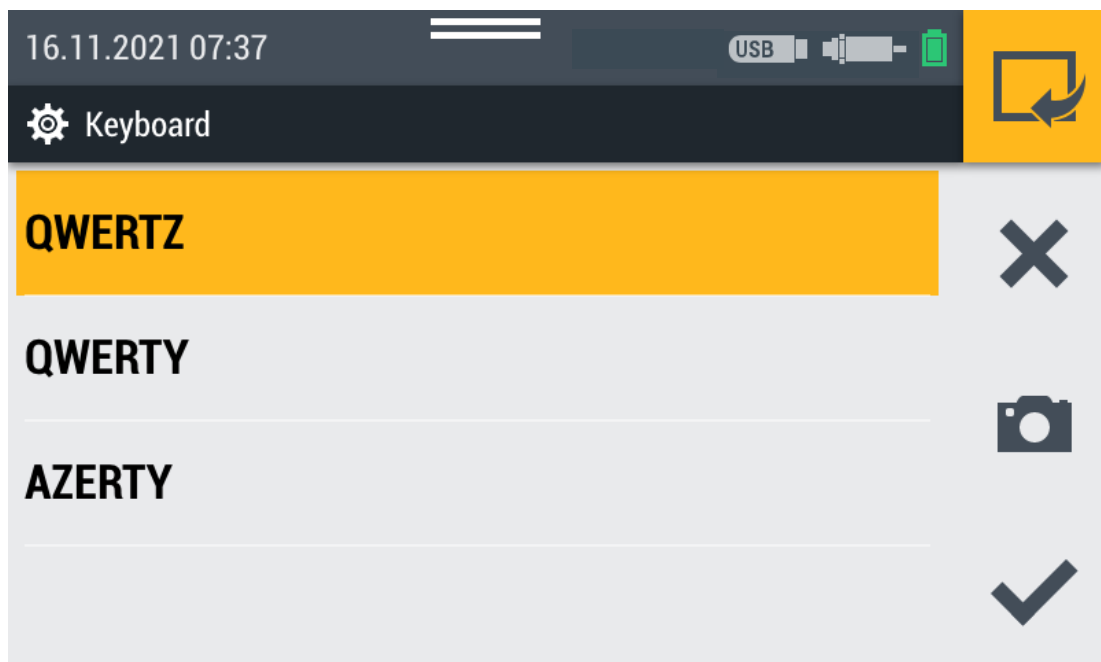



Fig. 54 Keyboard

The following keyboard layouts are available:

- QWERTZ
 - QWERTY
 - AZERTY
- 1 Tap on the desired keyboard layout.
 - 2 Tap on the  button to confirm your selection.
 - ↳ The keyboard layout has been selected.

7.7.6 Selecting CSV Format

Select a CSV size in the **CSV-Format** menu.

Depending on the selection, the data within the CSV file is separated with a comma or a dot (point).



INFORMATION

A CSV file is a text file in which the measurement data can be saved and exchanged in a structured manner.

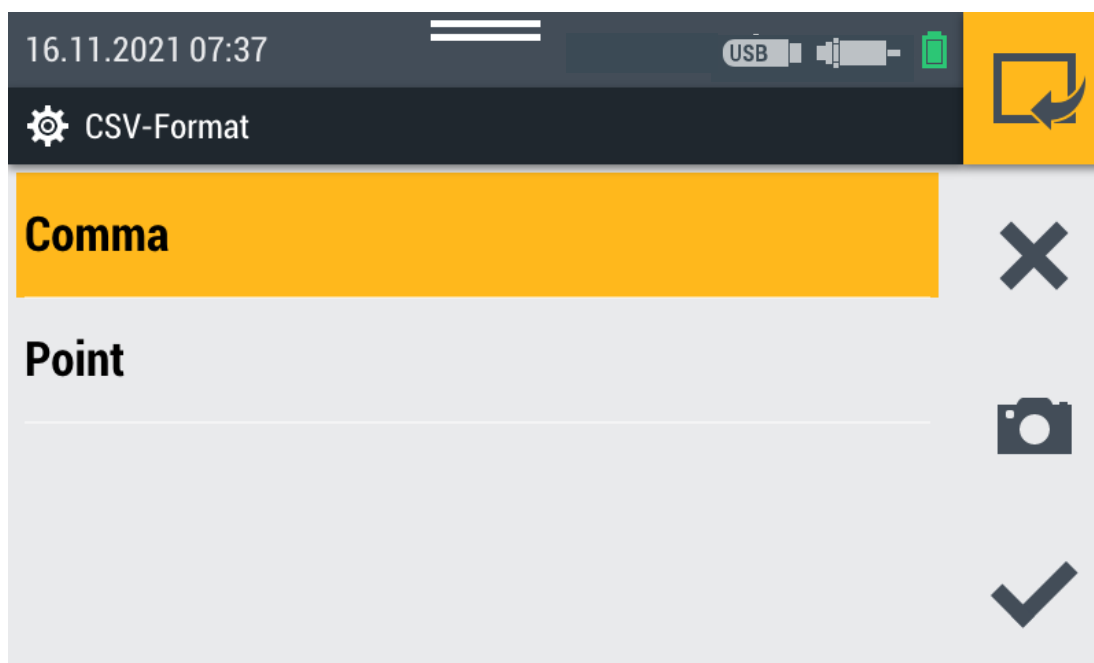



Fig. 55 CSV-Format

The following CSV formats are available:

- Separated by a comma (**Comma**)
- Separated by a dot (**Point**)
 - 1 Tap on the desired CSV format.
 - 2 Tap on the  button to confirm your selection.
 - ↳ The CSV format has been selected.

7.7.7 CAN Database

The channel information for CAN sensors already in use is stored in the **CAN Database**.

Based on the serial number of a CAN sensor, the last channel name, color and position used are saved and automatically reused when the CAN sensor is re-connected.

The use of the CAN database can be switched on or off via the **CAN Database** menu item.



INFORMATION

The CAN database can only be used as a memory when using a USB stick.

7.8 Device Information

The **Device Information** menu displays information about the device's software and hardware.

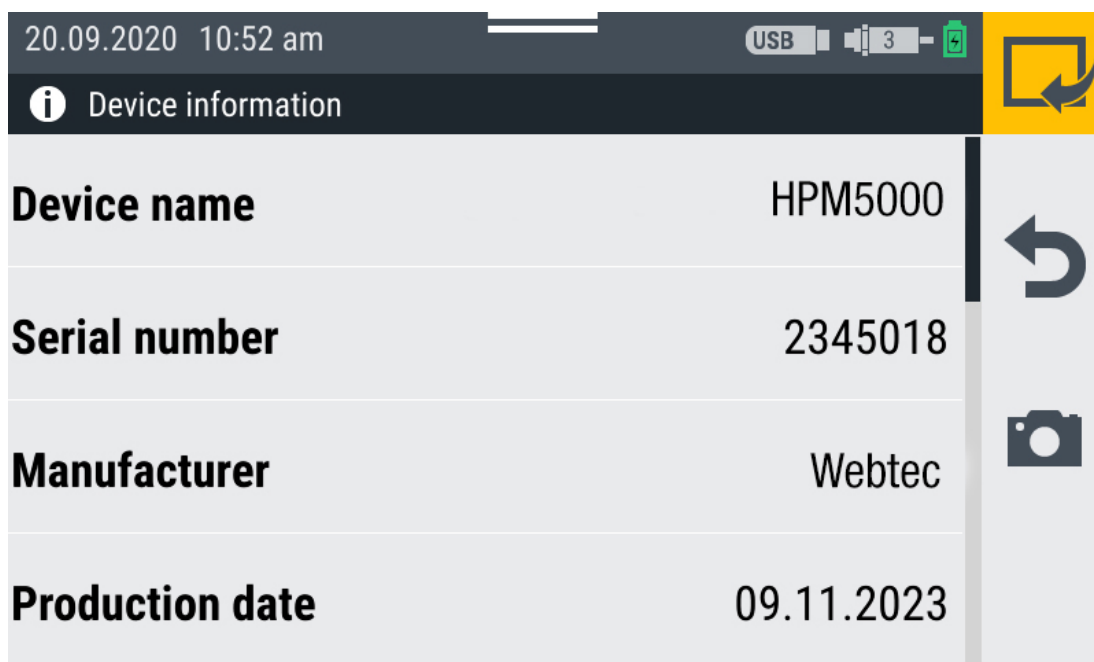



Fig. 56 Device Information

The following information is available:


| Designation | Description |
|-------------------------|--------------------------------|
| Device name | Name |
| Serial number | Serial number |
| Manufacturer | Manufacturer |
| Production date | Production date |
| Last calibration | Date of last calibration |
| FW version | Firmware version |
| Hardware version | Hardware version |
| FP App Version | FP App version |
| FP BTLD-Version | FP Build version |
| Battery | Battery type |
| USB-Charger | Power supply unit |
| LAN IP Address | Network address (if available) |

8. Troubleshooting

This chapter contains information on dealing with faults and errors.

| Problem | Possible solution |
|------------------------------|---|
| Device cannot be switched on | ▶ Charge the battery in the device |
| Device does not respond | ▶ Reset the device (Reset) |
| Sensors are not displayed | <ul style="list-style-type: none">▶ Check whether the channels are de-activated, refer to  „Options: Edit Channels in the Measurement View (Edit Channels)“▶ Check the cabling is correct▶ Check the connections for soiling |

Always ensure that the latest version of the firmware is installed on the device.

- ▶ Further information on updating the firmware is available in Chapter  „Updating the Firmware“.

If you find no solution to your problem in this user manual, contact the relevant sales outlet.



IMPORTANT

Risk of material damage through improperly performed repair work.

- ▶ Never open the device!
- ▶ Never attempt to perform repair work yourself!
- ▶ In the event of defects, return the device to the manufacturer!

8.1 Resetting Device (Reset)

If the device no longer responds, it must be reset.

- 1 Press the **On/Off button** and the **yellow function button** simultaneously for approx. 5 seconds.
 ↳ The device is switched off.
- 2 Press the **On/Off button**.
 ↳ The device starts up again.

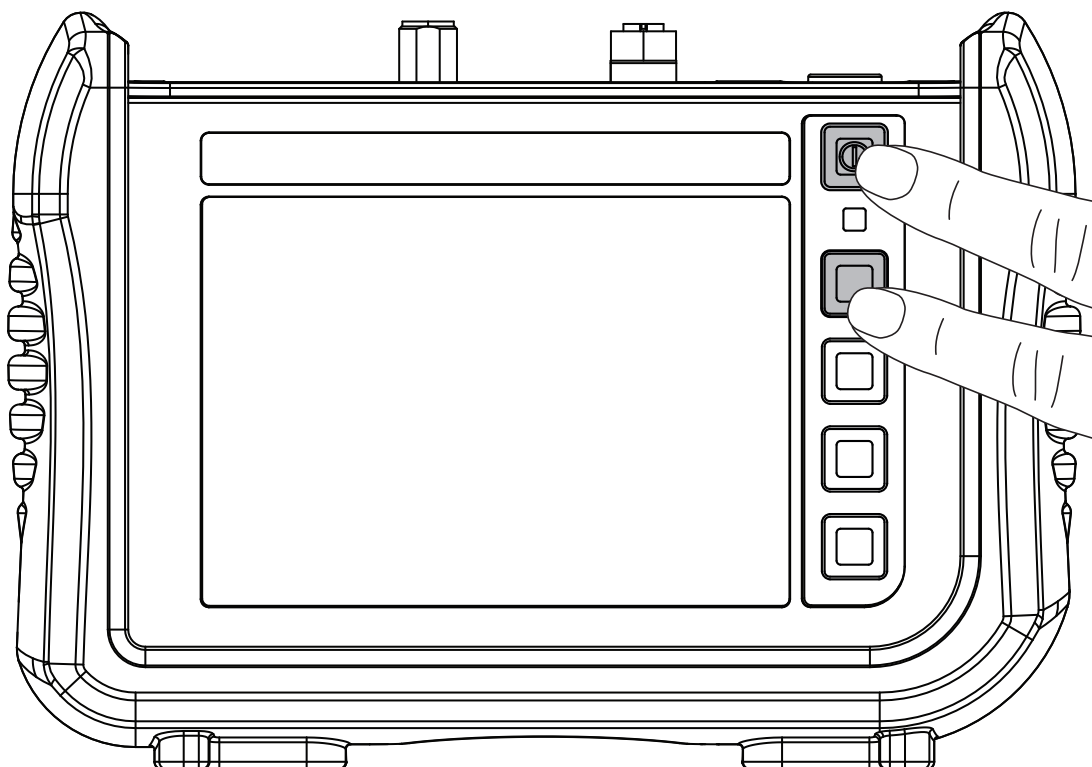


Fig. 57 Reset device (Reset)

8.2 Updating the Firmware

You can update the firmware on the device using an external USB storage medium.



INFORMATION

Please note that the file with the new firmware must be located on the USB storage medium in the root directory.

- 1 Press the **On/Off button** to switch off the device.
- 2 Connect the USB storage medium to the USB port.
- 3 Press the **On/Off button** to switch on the device.
 - ↳ During start-up, the device searches for a more current firmware version.
 - ↳ If there is no firmware update available, a system message appears.

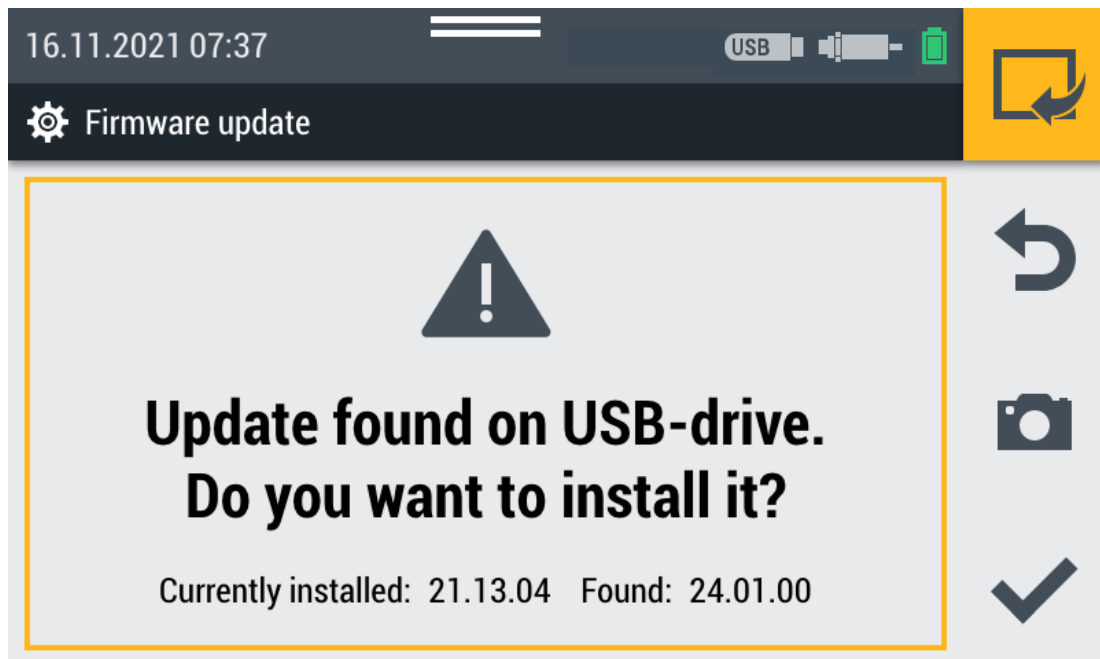



Fig. 58 Updating the Firmware



IMPORTANT

Risk of property damage if the update process is stopped.
If the update process is stopped, the file system of the device could be damaged.

- Before starting the update process, ensure that the battery is charged to at least 50% or the device is connected to the main power via the power adapter.

- 4 Tap on the  button to start updating the firmware.
 - ↳ The firmware on the device is updated.
 - ↳ A progress bar indicates the status of the updating process.

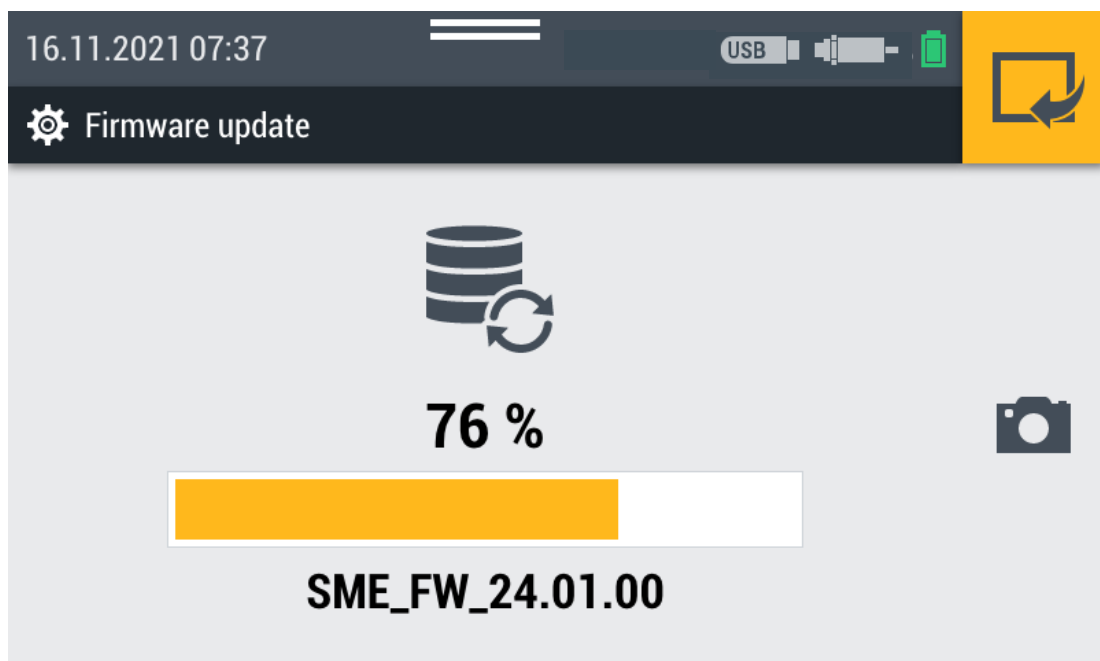


Fig. 59 Update firmware, progress bar

5 Wait until the process has finished.

↳ The device may restart several times during the process.

↳ When the process has been completed, the corresponding message appears in the display.

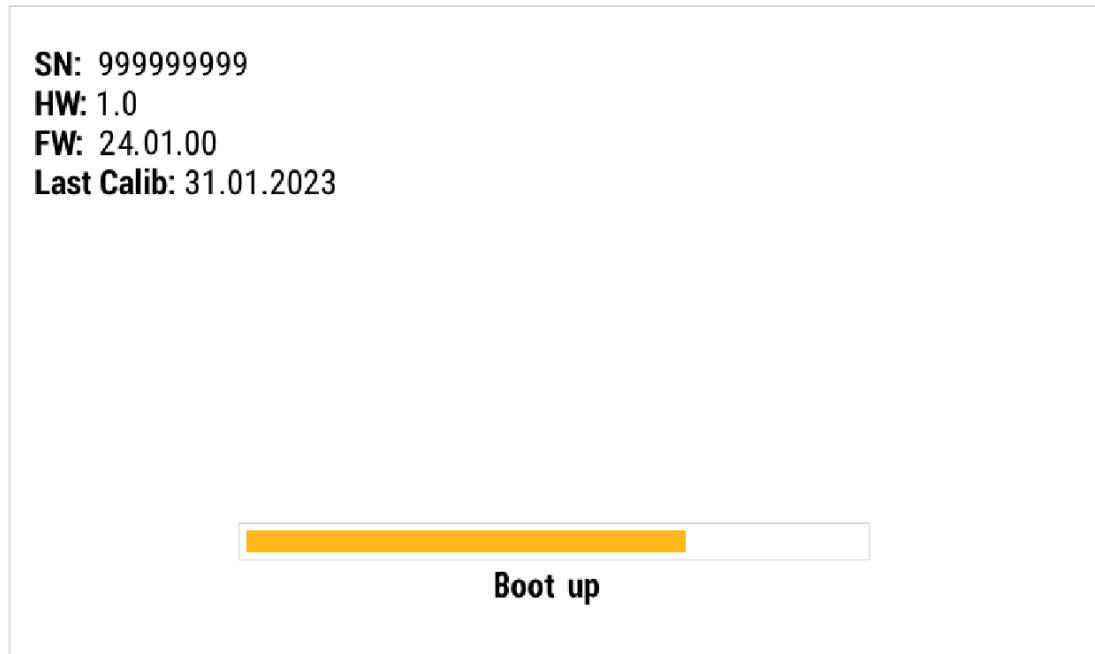


Fig. 60 Update firmware, system message

↳ The latest version of the firmware is now installed on the device.

9. Packaging and Transporting

This chapter contains information on packaging and transporting.



IMPORTANT

Risk of property damage through improper storage and transportation.

- ▶ Do not store the device with a low battery charge status in order to prevent a total discharge.
- ▶ Avoid fully charging or total discharge of the battery to increase the service life of the battery.
- ▶ Only use the device within the temperature range permitted. Refer to Chapter „Mechanical Data“.



IMPORTANT

Risk of property damage.

- ▶ Fit all the screw-in connections on the device with sensors or protective caps provided in order to ensure type of protection IP65.
- ▶ Never expose the device to direct sunlight over an extended period of time.



IMPORTANT

Risk of environmental pollution through lithium-ion battery.

According to the currently applicable transport regulations regarding lithium-ion batteries, the respective devices or their packaging must be specially identified for transport.

- ▶ Contact your sales outlet prior to dispatch.
- ▶ Only dispatch the device in packaging which has been appropriately identified on the outside.

10. Cleaning and Maintenance

This chapter contains information on cleaning, servicing and repairing the device.

10.1 Cleaning

Clean the touchscreen and surfaces of the device with a dry or slightly dampened, lint-free cloth.



IMPORTANT

Risk of material damage through aggressive and corrosive substances.

- ▶ Never use abrasives or volatile cleaners!
- ▶ Never use any aggressive or corrosive cleaning agents!

10.2 Maintenance

The device is maintenance-free for the user and must not be serviced by the user.

Maintenance work is not necessary on the device within the scope of the intended use.

The device must be recalibrated after a longer time in use. Contact your sales outlet in this case.

- ▶ Refer to Chapter  „Customer Service“.

10.3 Repairing

If a defect becomes apparent on the device, please contact your sales outlet.

► Refer to Chapter  „Customer Service“.

Have the following information available:

- Company name
- Department
- Contact partner
- Telephone and fax numbers
- Email address
- Article number of the corresponding device part, firmware version and serial number if available
- Detailed description of the fault



IMPORTANT

Risk of material damage through improperly performed repair work.

- Never open the device!
- Never attempt to perform repair work yourself.
- In the event of defects, return the device to Webtec!

11. Disposal



The adjacent symbol indicates that old electrical and electronic devices must be disposed of separately from household waste, in accordance with legal regulations. The device contains a lithium-ion battery, which can contain toxic, environmentally harmful heavy metals. Dispose of your device at collection points provided by your local waste management authority.



The packaging is comprised of environmentally friendly materials which can be disposed of via a local recycling center. Contact your local authorities for information on the options available for correct disposal.

What can we do for you?

We can provide you with the option of returning your old device to us for disposal at no extra cost. We then initiate recycling and disposal according to the applicable legal framework.

What do you have to do?

After your device has reached the end of its service life, simply send it (packed in a box) via a parcel service to the sales outlet which provides your support.

We then carry out any recycling and disposal measures required. This is easy and free of charge for you.



IMPORTANT

Risk of environmental pollution through lithium-ion battery.

According to the currently applicable transport regulations regarding lithium-ion batteries, the respective devices or their packaging must be specially identified for transport.

- ▶ Contact your sales outlet prior to dispatch.
- ▶ Only dispatch the device in packaging which has been appropriately identified on the outside.

12. Technical Data

This chapter provides information on the technical data of the device.

12.1 Device Model

| Device | |
|---------------|--|
| HPM5140-CAN-A | Interface for up to 6 Webtec CAN sensors 2 inputs for standard analogue sensors |

It will include USB memory stick and USB cable (USB-C to USB-A).

12.2 Mechanical Data

| Designation | Property |
|---------------------------|---|
| Dimensions (W × H × D) | 215 × 60 × 154 mm |
| Weight | Approx. 850 g |
| Type of protection | IP 65 (EN 60529:1989 + A1:1999 + A2:2013), all screw connections must be provided with sensors or protective caps |
| Ambient temperature | -20...+50° C |
| Storage temperature | -30...+80°C |
| Relative humidity | max. 95 %, non-condensing |
| Environmental impact test | Drop test 1 m (EN 60068-2-31:2008) |
| Housing | ABS/PC |
| Protective casing | TPE, thermoplastic elastomer |
| VESA holder | 75 mm × 75 mm |

12.3 Display Data

| Designation | Property |
|-------------|------------------|
| Resolution | 800 × 480 pixels |
| Size | 4.3" |
| Brightness | 700 cd |

Electrical Data

12.3.1 Power Supply (Internal)

| Designation | Property |
|--------------|---------------------|
| Battery type | Lithium-ion battery |
| Voltage | 7.2 V _{DC} |
| Capacity | 3500 mAh / 25.44 Wh |

12.4 Interfaces

12.4.1 USB-A (Host)

| Designation | Property |
|-----------------------|-----------------------------|
| Plug | USB, port, shielded, type A |
| Standard | 2.0, full speed |
| Memory stick capacity | 128 GB |
| Transmission rate | 12 MBit/s |

12.4.2 USB-C (communication and power supply)

| Designation | Property |
|---------------------|---|
| Plug | According to IEC 62680-1-3 |
| Standard | PD 3.0, 5 V, 12 V, 20 V |
| Current consumption | max. 2.5 A at 5 V, 1.8 A at 12 V, 1.2 A at 20 V, a USB-C compatible charger with min. 45 W is required for fast charging, alternatively via USB-A/C cable (included) 5 V max. 2 A |

12.5 Inputs

12.5.1 CAN

| Designation | Properties |
|---------------|---|
| Plug | 5-pin, M12×1, panel connector, terminating resistor permanently installed |
| sensors | Max. 6 Webtec CAN sensors with sensor detection |
| Scanning rate | Up to 4 sensors: 1 ms, 5-6 sensors: 2 ms |

12.5.2 AUX

| Designation | Properties |
|-------------------------|--|
| Plug | M12×1, 5 pin socket |
| sensors | 1 connection with 2 inputs (analog) for external sensors for measuring current and voltage |
| Voltage measuring range | -10...+10 V _{DC} |
| Current measuring range | 0/4...20 mA |
| Supply of ext. sensors | +24...+24 V _{DC} /max. 100 mA (for both inputs) |
| Scanning rate | 1 ms = 1,000 measured values/s FAST-MODE 0.1 ms = 10,000 measured values/s |

12.5.3 Calculation Channels

| Designation | Properties |
|-------------|--|
| Number | 2 |
| Connection | Virtual |
| Functions | Subtraction, Addition, Multiplication, Power, Volume |

13. Appendix

This chapter provides information on the device model available, technical data and certificates.

13.1 Kits

| HPM5140-CAN-A-KIT | | |
|----------------------|----------------------------------|-----|
| MODEL NUMBER | DESCRIPTION | QTY |
| HPM-5000-CASE | Case with foam inserts | 1 |
| HPM-5000-DATA LOGGER | HPM5140 data logger | 1 |
| SR-CBL-02-MF-CAN | Cable 2m | 1 |
| SR-CBL-0.05-Y-CAN | Connector 'Y' | 1 |
| SR-CBL-000-R-CAN | Terminating resistor | 1 |
| SR-PTN-600-05-0C-CAN | Pressure transducer 0 to 600 bar | 1 |

| HPM5140-CAN-A-KIT-MAX | | |
|-----------------------|----------------------------------|-----|
| MODEL NUMBER | DESCRIPTION | QTY |
| HPM-5000-CASE | Case with foam inserts | 1 |
| HPM-5000-DATA LOGGER | HPM5140 data logger | 1 |
| SR-CBL-02-MF-CAN | Cable 2m | 1 |
| SR-CBL-05-MF-CAN | Cable 5m | 2 |
| SR-CBL-0.05-Y-CAN | Connector 'Y' | 2 |
| SR-CBL-000-R-CAN | Terminating resistor | 1 |
| SR-PTN-060-05-0C-CAN | Pressure transducer 0 to 60 bar | 1 |
| SR-PTN-600-05-0C-CAN | Pressure transducer 0 to 600 bar | 2 |

13.2 Technical Standards

| | Standard |
|---------------------------|------------------------------------|
| EMC | EN IEC 61326-1:2021 |
| RoHS | EN IEC 63000:2019-05 |
| Environmental impact test | Drop test 1 m (EN 60068-2-31:2008) |
| Vibration resistance | DIN EN 60068-2-9:2008-10 |
| Type of protection | EN 60529:1989 + A1:1999 + A2:2013 |

13.3 Rating Plate

The rating plate is located on the rear of the device.



INFORMATION

The information on the rating plate is required in the case of queries addressed to your sales outlet.

13.4 Certificates

The basic certificates and Declaration of Conformity are provided for the device in the area **Menu > Device information**.



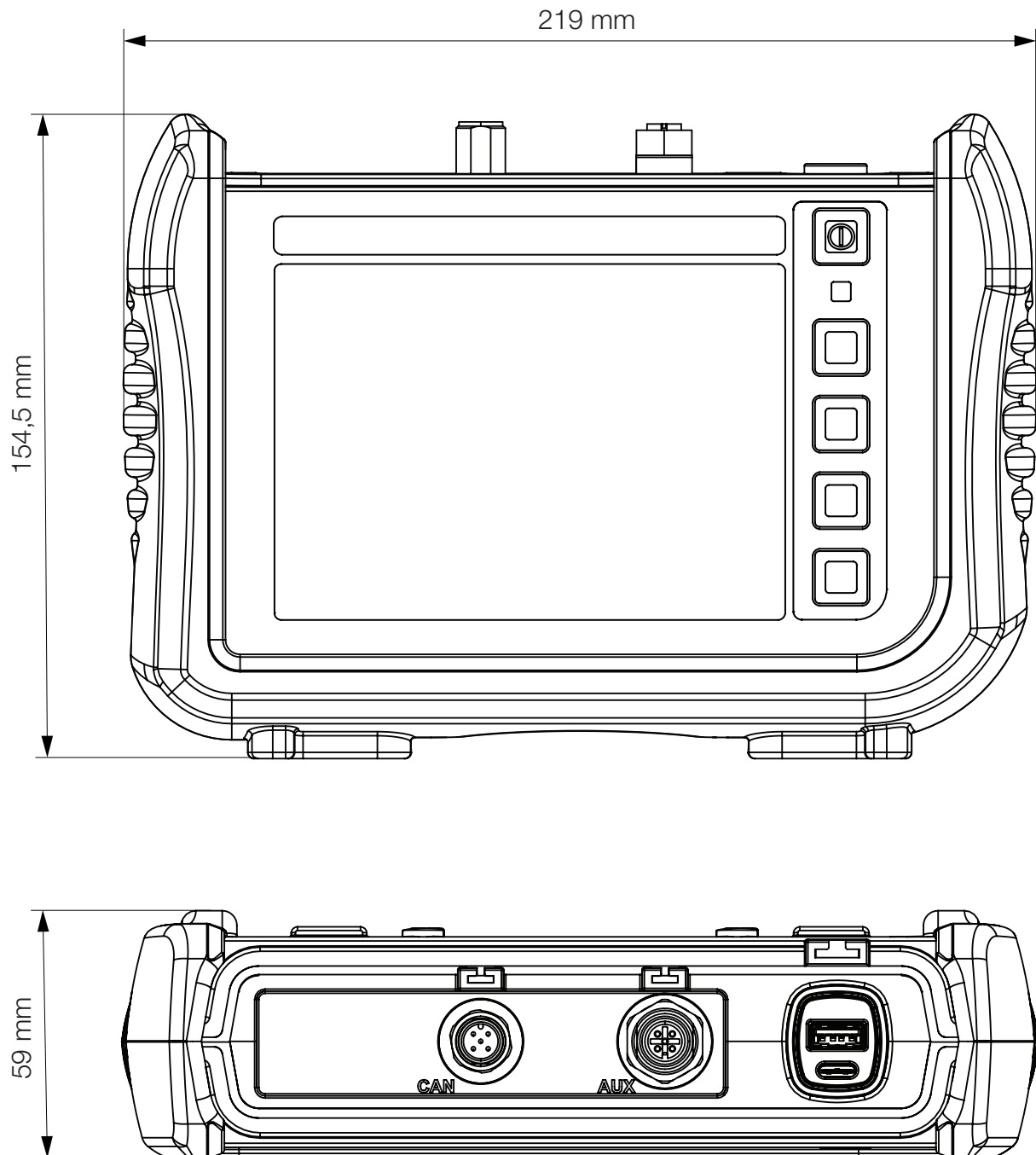
INFORMATION

Information on the approval tests can be obtained from your sales outlet.

13.5 Customer Service

In the event of problems with the device, please contact your sales outlet.

13.6 Dimensional Drawings



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HYDRAULIC MEASUREMENT AND CONTROL

Webtec reserve the right to make improvements and changes to the specification without notice.

Your local distributor

HPM5000-MA-MUL-4294.pdf - Version 1.0 - 06/24

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