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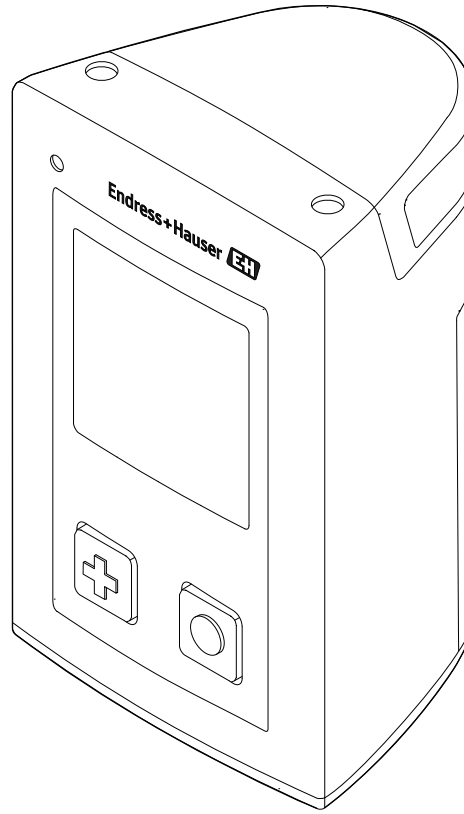
Operating Instructions
Liquiline Mobile CML18

Multiparameter mobile device



Endress+Hauser
People for Process Automation

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1 About this document

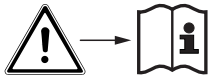
1.1 Warnings

Structure of information	Meaning
DANGER **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **will** result in a fatal or serious injury.
WARNING **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation **can** result in a fatal or serious injury.
CAUTION **Causes (/consequences)** If necessary, Consequences of non-compliance (if applicable) ▶ Corrective action	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or more serious injuries.
NOTICE **Cause/situation** If necessary, Consequences of non-compliance (if applicable) ▶ Action/note	This symbol alerts you to situations which may result in damage to property.

1.2 Symbols

Symbol	Meaning
	Additional information, tips
	Permitted or recommended
	Not permitted or not recommended
	Reference to device documentation
	Reference to page
	Reference to graphic
	Result of a step

1.3 Symbols on the device

Symbol	Meaning
	Reference to device documentation

2 Basic safety instructions

2.1 Requirements for personnel

- Installation, commissioning, operation and maintenance of the measuring system may be carried out only by specially trained technical personnel.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The electrical connection may be performed only by an electrical technician.
- The technical personnel must have read and understood these Operating Instructions and must follow the instructions contained therein.
- Faults at the measuring point may only be rectified by authorized and specially trained personnel.

Repairs not described in the Operating Instructions provided must be carried out only directly at the manufacturer's site or by the service organization.

The battery may only be changed directly at the manufacturer's premises or by the service organization.

2.2 Designated use

The Liquiline Mobile CML18 is a multiparameter mobile device for the connection of digital sensors with Memosens technology and optional operation by smartphone or other mobile devices via Bluetooth.

The device is designed for use in the following industries:
- Life science
- Chemical industry
- Water and wastewater
- Food and beverages
- Power stations
- Other industrial applications

The device contains a lithium ion battery. For this reason, the device may only be exposed to the operating and storage temperatures indicated.

The device may not be exposed to mechanical shocks of any kind.

The device may not be operated under water.

2.3 Workplace safety

As the user, you are responsible for complying with the following safety conditions:
- Installation guidelines
- Local standards and regulations

2.4 Operational safety

Before commissioning the entire measuring point:

1. Verify that all connections are correct.

2. Ensure that electrical cables and hose connections are undamaged.
3. Do not operate damaged products, and protect them against unintentional operation.
4. Label damaged products as defective.

During operation:

- If faults cannot be rectified:
  products must be taken out of service and protected against unintentional operation.

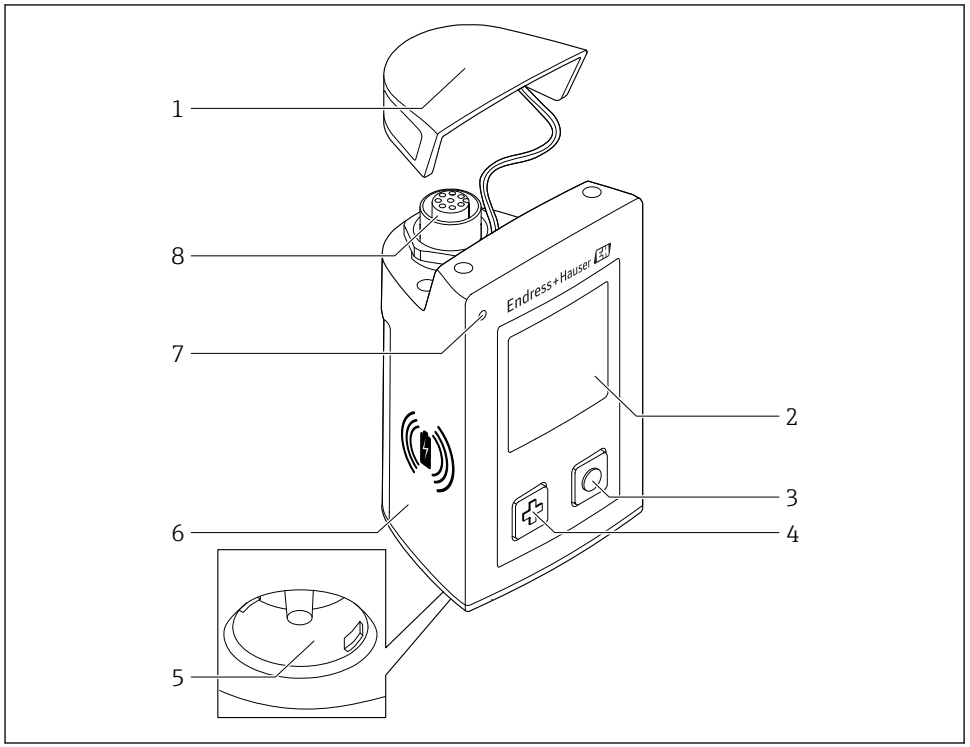
2.5 Product safety

2.5.1 State-of-the-art technology

The product is designed to meet state-of-the-art safety requirements, has been tested, and left the factory in a condition in which it is safe to operate. The relevant regulations and international standards have been observed.

3 Product description

3.1 Product design



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1 CML18

1 *Protection cap*
2 *Display screen with automatic screen rotation*
3 *"Select" button*
4 *"Next" button*
5 *Memosens connection*
6 *Area for wireless charging*
7 *Status LED*
8 *M12 connection*

3.1.1 Measuring parameters

The mobile device is designed for digital Memosens sensors with an inductive plug-in head and fixed cable sensors with the Memosens protocol and no external power supply:

- pH
- ORP
- pH/ORP combination sensors
- Conductive conductivity
- Inductive conductivity
- Dissolved oxygen (optical/amperometric)
- Temperature

The measuring range is adapted to the individual sensor type.

4 Incoming acceptance and product identification

4.1 Incoming acceptance

1. Verify that the packaging is undamaged.
   ↳ Notify the supplier of any damage to the packaging.
   Keep the damaged packaging until the issue has been resolved.
2. Verify that the contents are undamaged.
   ↳ Notify the supplier of any damage to the delivery contents.
   Keep the damaged goods until the issue has been resolved.
3. Check that the delivery is complete and nothing is missing.
   ↳ Compare the shipping documents with your order.
4. Pack the product for storage and transportation in such a way that it is protected against impact and moisture.
   ↳ The original packaging offers the best protection.
   Make sure to comply with the permitted ambient conditions.

If you have any questions, please contact your supplier or your local Sales Center.

4.2 Product identification

4.2.1 Nameplate

The nameplate contains the following information:
- Manufacturer identification
- Device name
- Order code
- Serial number
- Protection class
- Ambient and process conditions
- Input and output values
- Certificate information
- Approvals as per order version

▶ Compare the information on the nameplate with the order.

4.2.2 Identifying the product

Product page

www.endress.com/CML18

Interpreting the order code

The order code and serial number of your product can be found in the following locations:
- On the nameplate
- In the delivery papers

Obtaining information on the product

1. Go to www.endress.com.
2. Call up the site search (magnifying glass).
3. Enter a valid serial number.
4. Search.
   ↳ The product structure is displayed in a popup window.
5. Click on the product image in the popup window.
   ↳ A new window (**Device Viewer**) opens. All of the information relating to your device is displayed in this window as well as the product documentation.

Manufacturer's address

Endress+Hauser Conducta GmbH+Co. KG
Dieselstraße 24
D-70839 Gerlingen

4.3 Scope of delivery

The scope of delivery comprises:
- 1 Liquiline Mobile CML18
- 1 set of Operating Instructions in German
- 1 set of Operating Instructions in English

Inductive charger and power unit are available separately.

► If you have any queries:
Please contact your supplier or local sales center.

4.4 Certificates and approvals

4.4.1 CE mark

The product meets the requirements defined in the legal provisions of the applicable EU directives. The product complies with the applicable harmonized European standards. The manufacturer confirms successful testing of the product by affixing to it the CE mark.

4.4.2 FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This device has been designed and complies with the safety requirements for portable RF exposure in accordance with FCC rule part §2.1093 and KDB 447498 D01.

4.4.3 ISED Canada

This device complies with ISED's license-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

This device complies with the safety requirements for RF exposure in accordance with RSS-102 Issue 5 for portable use conditions.

Cet appareil est conforme aux RSS exemptés de licence d'ISED. Le fonctionnement est soumis aux deux conditions suivantes:

(1) Cet appareil ne doit pas causer d'interférences; et

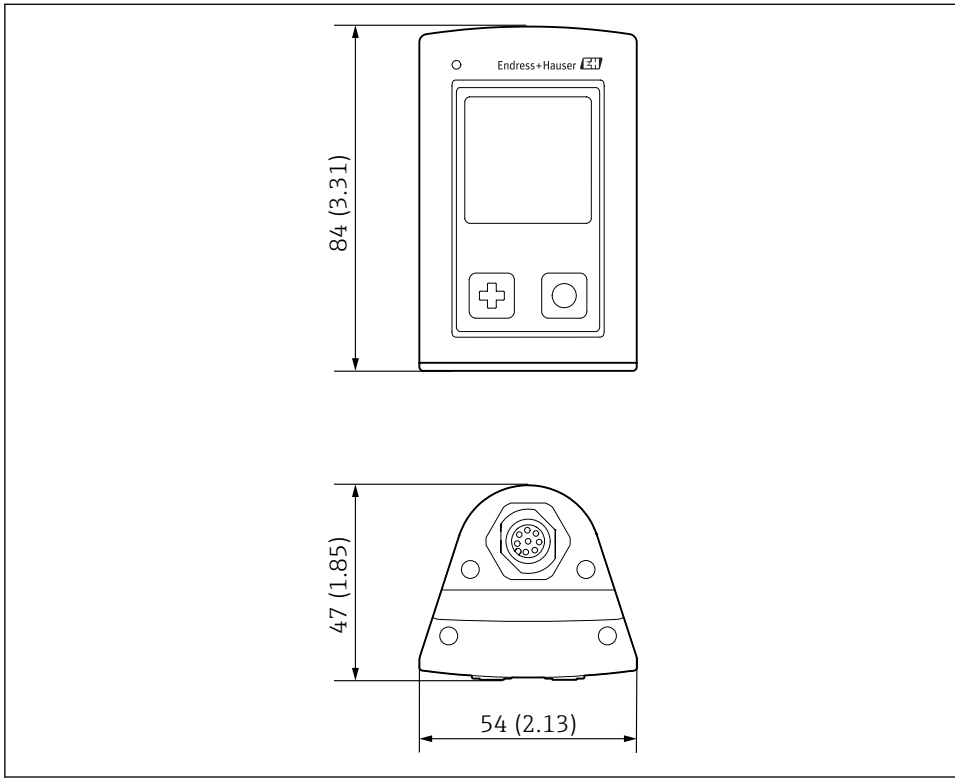
(2) Cet appareil doit accepter toute interférence, y compris Interférences pouvant provoquer un fonctionnement indésirable de l'appareil

Cet appareil est conforme aux exigences de sécurité relatives à l'exposition RF conformément à la norme RSS-102 Édition 5 pour les conditions d'utilisation portables.

5 Installation

5.1 Installation conditions

5.1.1 Dimensions

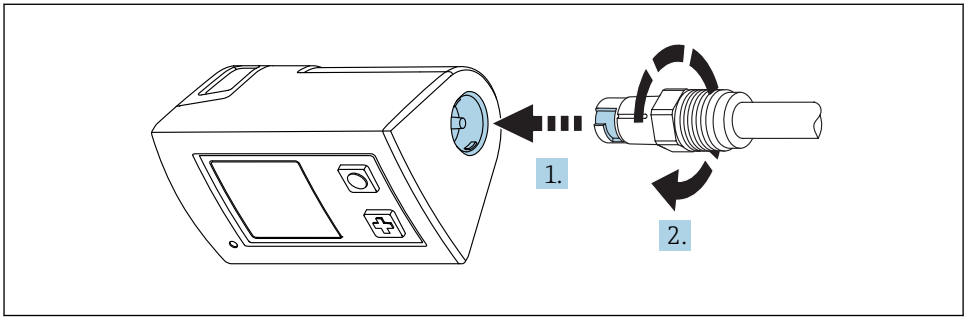


2 Dimensions: mm (in)

6 Electrical connection

6.1 Connecting the sensor

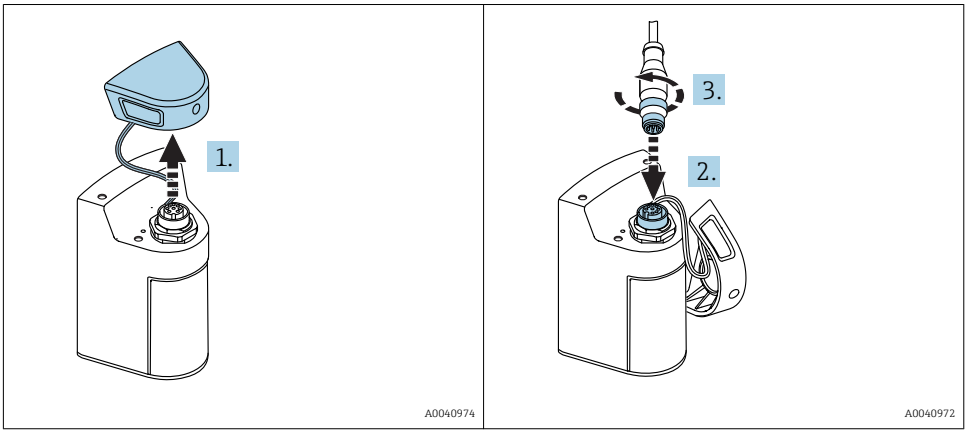
6.1.1 Connecting the Memosens sensor directly



3 Sensor connection

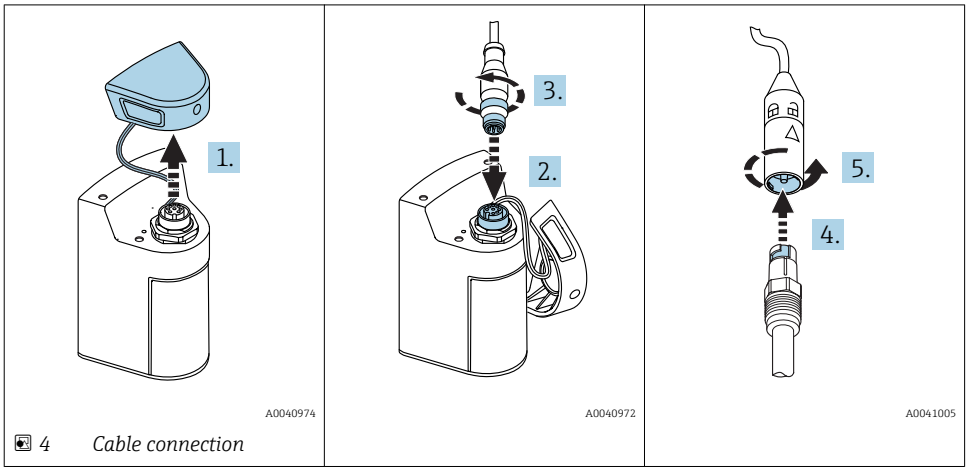
1. Insert the sensor into the Memosens connection.
2. Click the Memosens connection into place.

6.1.2 Connecting the Memosens sensor with the M12 fixed cable connection



1. Remove the protection cap.
2. Insert the M12 fixed cable.
3. Screw on the M12 fixed cable.

6.1.3 Connecting the sensor via the Memosens M12 cable

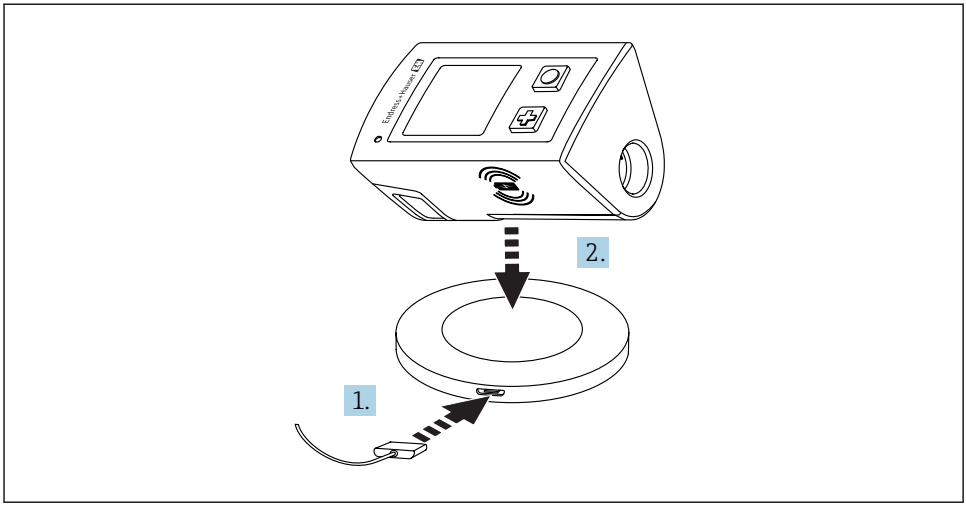


4 *Cable connection*

1. Remove the protection cap.
2. Attach the M12 cable.
3. Screw on the M12 cable.
4. Insert the sensor into the Memosens connection.
5. Click the Memosens connection into place.

6.2 Charging the device

Only use Qi-certified chargers (Baseline Power)!
For more information, visit: www.wirelesspowerconsortium.com



5 Inductive charging

1. Connect the charger to the power source.
2. Place the device with the charging side on the charger.

Charging begins and the charging state is indicated on the display.

6.3 Ensuring the degree of protection

Only the mechanical and electrical connections which are described in these instructions and which are necessary for the required, designated use, may be carried out on the device delivered.

▶ Exercise care when carrying out the work.

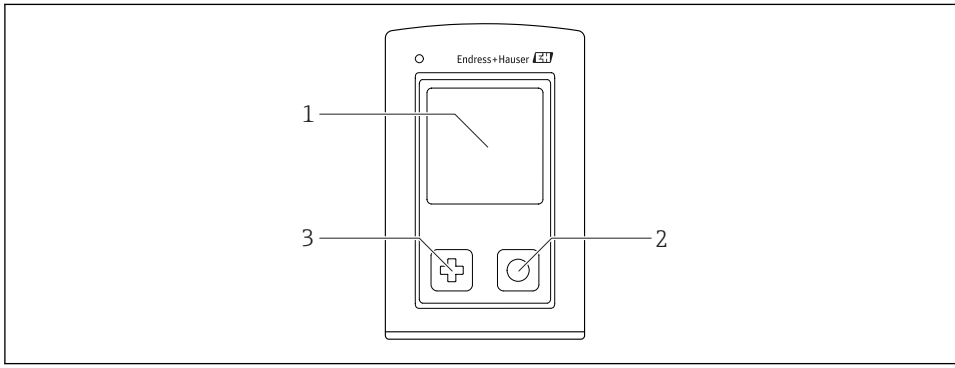
Otherwise, the individual types of protection (Ingress Protection (IP), electrical safety, EMC interference immunity) agreed for this product can no longer be guaranteed due, for example to covers being left off or cable (ends) that are loose or insufficiently secured.

7 Operation options

7.1 Overview of operation options

Operation and settings via:
- Internal operating menu with keys
- SmartBlue App → 20

7.1.1 Display and operating elements



6 Overview of display and operating elements

1 Display
2 "Select" button
3 "Next" button

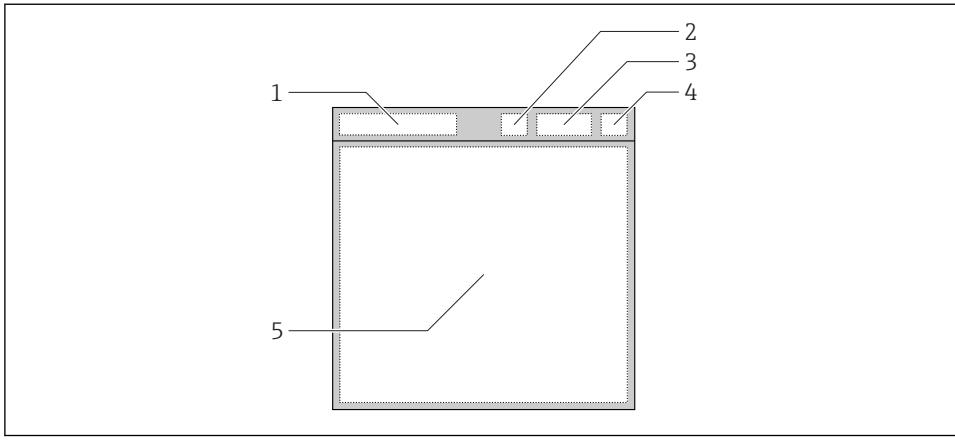
Button functions

Button	Device switched off	On measuring screen	In the menu
⊞	Switch on	Scroll through measuring screens	Scroll down
⊙	Switch on	Save current measured values (Grab Sample)	Confirm/select
⊞ + ⊙ (pressed briefly)	-	Open the menu	Switch to previous menu level/measuring screen
⊞ + ⊙ (pressed for longer than 7 seconds)	Forced hardware reset	Forced hardware reset	Forced hardware reset

7.1.2 Structure and function of the operating menu

Menu level 1	Menu level 2	Menu level 3	Menu level 4
Power-off ▶|			
Application ▷	Data logger ▷	Data logger ▶|	
		Log interval ▶|	
		GrabSample ID ▷	GrabSample ID ▶|
			Increment ▶|
			Decrement ▶|
		Erase data ▷	Erase continuous logs ▶|
			Erase grab values ▶|
Diagnostics ▷	Diagnostics list ▶|		
	Data logger entries ▶|		
	Display test ▶|		
	Device info ▷	Manufacturer ▶|	
		Software version ▶|	
		Serial number ▶|	
		Designation ▶|	
		Extended order code ▶|	
System ▷	Display language ▶|		
	Bluetooth ▶|		
	Display brightness ▶|		
	Signal sounds ▶|		
	Power management ▷	Power save w. charger ▶|	
		Power save w/o charger ▶|	
		Power-off w. charger ▶|	
		Power-off w/o charger ▶|	
	Regulatory information ▶|		

Display structure



7 *Schematic representation of the display structure*

1 Menu path/title of measuring screen
2 Bluetooth status
3 Battery level, charging information
*4 NAMUR indicator **
5 Measuring screen

1)

NAMUR indicator	Status
OK	The device and sensor are working reliably.
F	Failure of device or sensor. F status signal as per NAMUR NE107
M	Device or sensor requires maintenance. M status signal as per NAMUR NE107
C	Device or sensor undergoing function check. C status signal as per NAMUR NE107
S	Device or sensor being operated out of specification. S status as per NAMUR NE107

1) * Status according to NAMUR NE107 categories:

Structure of the measurement window

The measurement window has 3 measuring screens, which the user can scroll through:

Measuring screen (1 of 3)	Measuring screen (2 of 3)	Measuring screen (3 of 3)
Main value	Main and secondary measured value	All measured values of the sensor input

7.1.3 LED status indicator

The status LED is used for the quick visualization of the sensor status.

LED behavior	Status
Solid green	Sensor working correctly
Solid red	No sensor connected
Flashes red	Sensor error

7.1.4 Operation via SmartBlue App

SmartBlue is available for download from the Google Play Store for Android devices and from the Apple App Store for iOS devices.

Download the SmartBlue App.

▶ Use the QR codes to download the app.

8 Download links

System requirements

- iOS devices: iPhone 4S or higher from iOS9.0; iPad2 or higher from iOS9.0; iPod Touch 5th Generation or higher from iOS9.0
- Devices with Android: from Android 4.4 KitKat and Bluetooth® 4.0
- Internet access

▶ Open the SmartBlue App.

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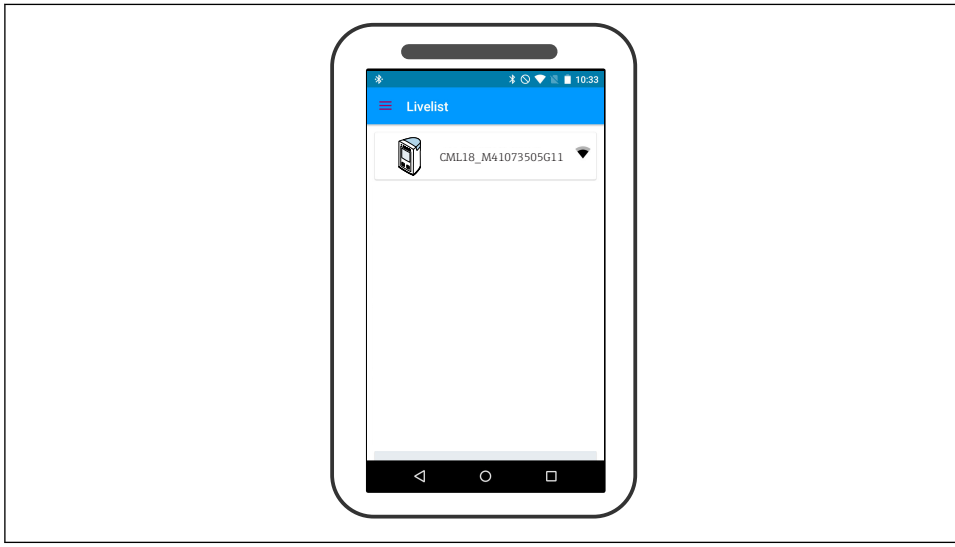
9 *SmartBlue App icon*

Bluetooth must be enabled on both devices.
Enable Bluetooth → 25



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10 *SmartBlue App Livelist*

The Livelist displays all of the devices that are within range.

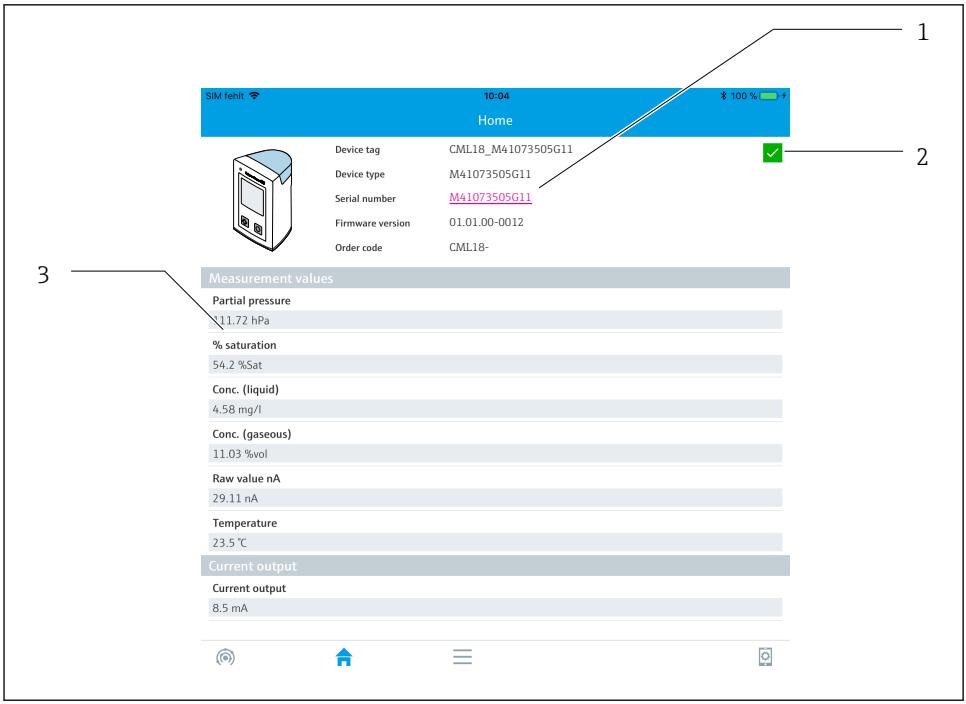
▶ Tap the device to select it.

To be able to use the device with SmartBlue, the Bluetooth connection must be confirmed by entering a user name and password.

1. User name >> **admin**
2. Initial password >> **device serial number**

Change the user name and password after logging in for the first time.

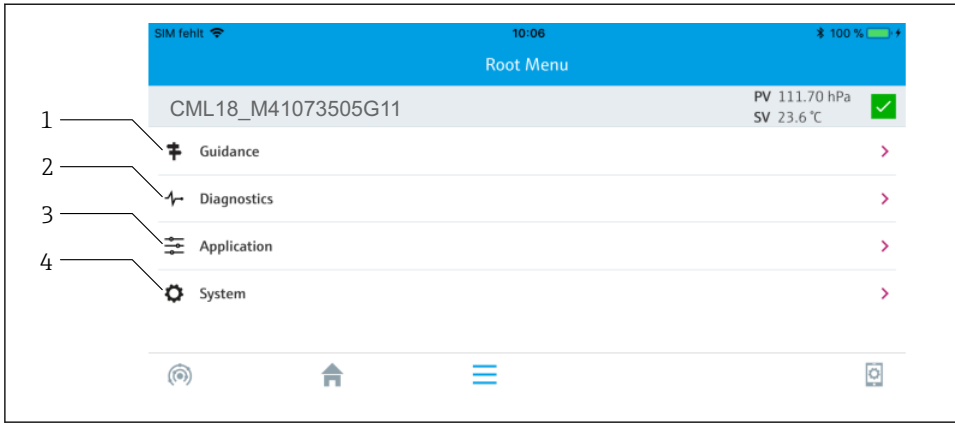
The current measured values are displayed in the Home view. The device information (device tag, serial number, firmware version, order code) is also displayed.



11 Home view of SmartBlue App with current measured values

1 *CML18 system and device information*
2 *Shortcut to diagnostic list*
3 *Overview of measured values of connected sensor*

Operation is via 4 main menus:



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12 *Main menus of the SmartBlue App*

1 *Guidance*
2 *Diagnostics*
3 *Application*
4 *System*

Menu	Function
Guidance	Contains functions involving a self-contained sequence of activities, e.g. for calibration (= "Wizard", guided operation).
Diagnostics	Contains information regarding operation, diagnostics and troubleshooting, as well as the configuration of the diagnostic behavior.
Application	Sensor data for specific optimization and for detailed process adjustment. Adjustment of measuring point to the application.
System	These menus contain parameters for configuring the overall system.

8 Commissioning

8.1 Preparatory steps

Charge the device.→ 14

Connect the sensor.→ 14

8.2 Function check

WARNING

Connection errors

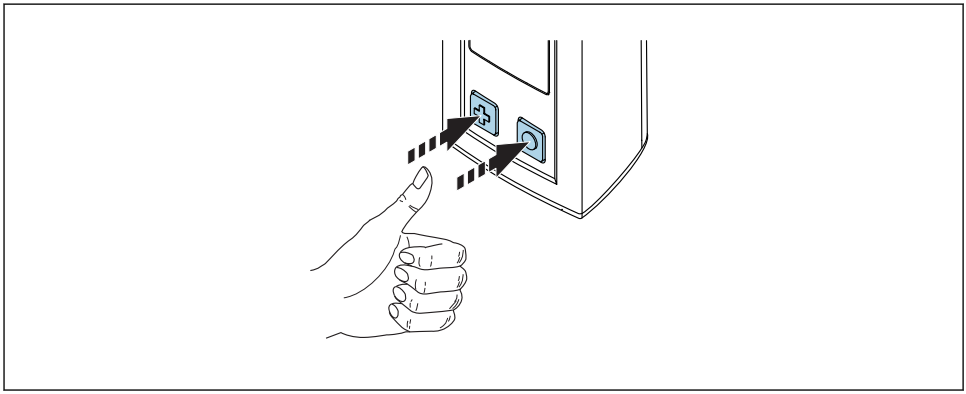
The safety of people and of the measuring point is at risk!

- Put the device into operation only if you can answer **yes** to **all** the following questions.

Device condition and specifications

- Are the device and all the cables free from damage on the outside?
- Are the mounted cables strain relieved?
- Are the cables routed without loops and cross-overs?

8.3 Switching on the device



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13 *Switching on the device*

- Press ⊞ or ⊙.
  - The device starts up.

A connected sensor is recognized automatically.

The time required before a measured value is displayed depends on the sensor type and measuring principle and can vary.

8.4 Setting the display language

1. Navigate to: **Display language**
   ↳ **Main menu** >> **System** >> **Display language**
2. Press ⊙ to scroll through the predefined values.

Description of setting	Configuration options
Change the language of the operating menu.	▪ Deutsch ▪ English

8.5 Configuring the measuring device

8.5.1 Bluetooth connection

1. Navigate to: **Bluetooth**
   ↳ **Main menu** >> **System** >> **Bluetooth**
2. Press ⊙ to scroll through the predefined values.

Description of setting	Configuration options
Switch Bluetooth connection on/off	▪ Enabled ▪ Disabled

If the Bluetooth connection is disabled, operation via the SmartBlue App is not possible.

8.6 Advanced settings

8.6.1 Displaying device information

1. Navigate to: **Device info**
   ↳ **Main menu** >> **Diagnostics** >> **Device info**
2. Press ⊙ to scroll through the **Device info**.

The following information about the device is shown on the display:
- Manufacturer identification
- Software version
- Serial number
- Designation
- Extended order code

8.6.2 Adjusting the energy settings

A maximum battery life of 48 h can be achieved with the energy settings.

1. Navigate to: **Power management**
   ↳ **Main menu** >> **System** >> **Power management**

2. Press ⊙ to scroll through the predefined values.

The following energy settings are available:
- **Power save w. charger** (power saving with charger)
- **Power save w/o charger** (power saving without charger)
- **Power-off w. charger** (power off with charger)
- **Power-off w/o charger** (power off without charger)

The power save mode is activated after the set time if there is no user interaction.

In the power save mode, the display is switched off and the device remains on standby.

There are 2 power save settings:

Power save w. charger *(power saving with charger)*

Description of setting	Configuration options
Set the time until the power save mode is activated if the device is connected to the mains.	▪ 1 min ▪ 5 min ▪ 15 min ▪ 30 min ▪ 1 h ▪ 2 h ▪ Never

Power save w/o charger *(power saving without charger)*

Description of setting	Configuration options
Set the time until the power save mode is activated if the device is running on the battery.	▪ 1 min ▪ 5 min ▪ 15 min ▪ 30 min ▪ 1 h

The device is automatically switched off after the selected time.

The device is not switched off automatically if the Bluetooth connection is enabled.

There are 2 power-off settings:

Power-off w. charger *(power off with charger)*

Function description	Configuration options
Set the time until the device switches off automatically if it is connected to the mains.	▪ 1 min ▪ 5 min ▪ 15 min ▪ 30 min ▪ 1 h ▪ 2 h ▪ Never

Power-off w/o charger *(power off without charger)*

Function description	Configuration options
Set the time until the device switches off automatically if it is running on the battery.	▪ 1 min ▪ 5 min ▪ 15 min ▪ 30 min ▪ 1 h ▪ 2 h ▪ Never

8.6.3 Signal sounds

1. Navigate to: **Signal sounds**
   ↳ **Main menu** >> **System** >> **Signal sounds**
2. Press ⊙ to scroll through the predefined values.

Description of setting	Configuration options
Switch signal sounds on/off	▪ Enabled ▪ Disabled

8.6.4 Adjusting the display brightness

1. Navigate to: **Display brightness**
   ↳ **Main menu** >> **System** >> **Display brightness**
2. Press ⊙ to adjust the display brightness.

Description of setting	Configuration options
Set the display brightness	▪ Low ▪ Medium ▪ High ▪ Maximum

8.6.5 Reboot

▶ Press and hold ⊙ and ⊕ simultaneously for at least 7 seconds.
↳ The device restarts.

8.6.6 Displaying regulatory information and approvals

1. Navigate to: **Regulatory information**
   ↳ **Main menu** >> **System** >> **Regulatory information**
2. Press ⊙ to display regulatory information and approvals.

8.6.7 Data logger

Defining the log interval

The log interval can only be changed if the data logger is deactivated.

1. Navigate to: **Log interval**
   ↳ **Main menu** >> **Application** >> **Data logger** >> **Log interval**
2. Press ⊙ to scroll through the predefined values.

Description of setting	Configuration options
Set the time until the next measured value is saved automatically.	▪ 1 s ▪ 2 s ▪ 10 s ▪ 20 s ▪ 30 s ▪ 1 min ▪ 5 min ▪ 30 min ▪ 1 h

Enabling/disabling the data logger

1. Navigate to: **Data logger**
   ↳ **Main menu** >> **Application** >> **Data logger** >> **Data logger**
2. Press ⊙ to scroll through the predefined values.

Description of setting	Configuration options
Enable/disable automatic data logger	▪ On ▪ Off

3. Exit the menu.
   ↳ Once activated, the data logger automatically starts recording the measured values.

When the data logger is activated, the message *Logging... 1/3* *Logging... 2/3* *Logging... 3/3* flashes on the start screen. The message changes depending on the active measuring window.

4. Use ⊕ to change the active measuring window.

9 Operation

9.1 Reading measured values

Measuring screens are shown on the display when a sensor is connected.

For each sensor, there are 3 measuring screens with different measured variables→ 20.

To scroll through the measuring screens:

▶ Press ⊕.

After the last measuring screen, the display returns to the first measuring screen.

9.1.1 Saving the individual measured value (Grab Sample)

▶ In the measurement window, press ⊙.

↳ The current measured values are saved in the internal memory.
Successful saving of the measured values is acknowledged with the message *Data record saved* on the display.

9.1.2 Saving measured values automatically (Data logger)

Configure the data logger → 28.

9.1.3 Displaying saved measured values

▶ Navigate to: **Log entries**

↳ **Main menu** >> **Diagnostics** >> **Log entries**

The saved log entries are organized according to the logging process.

9.1.4 Exporting saved measured values

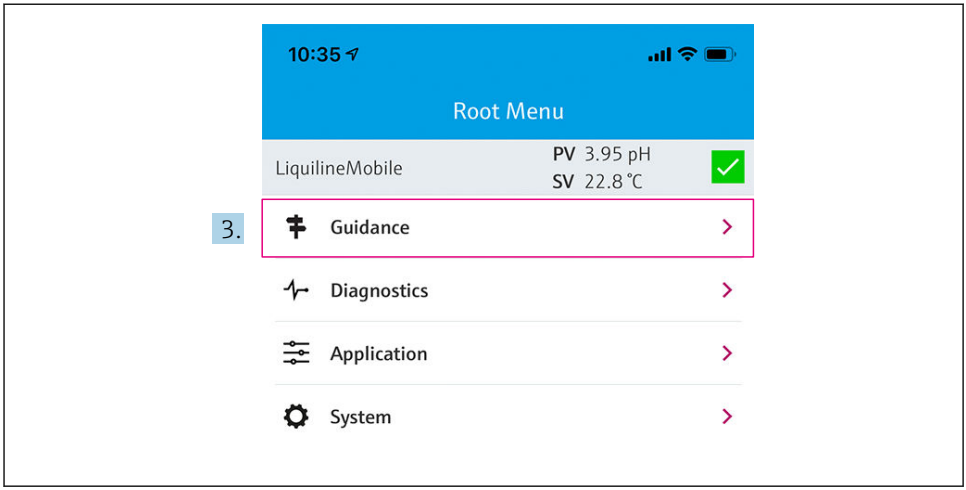
Saved data can be transmitted from the internal device memory to mobile end devices.

Preparatory steps

1. Enable Bluetooth. → 25
2. Link the device to a mobile end device via the SmartBlue App. → 20

Transferring the data

1. Select the device in the SmartBlue App.
2. Select ☰ in the SmartBlue App.



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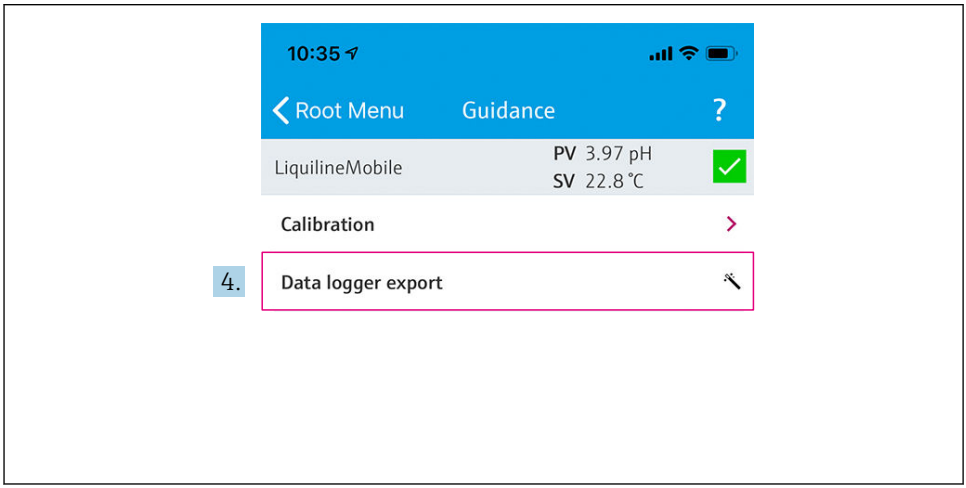
3. Select **Guidance**.



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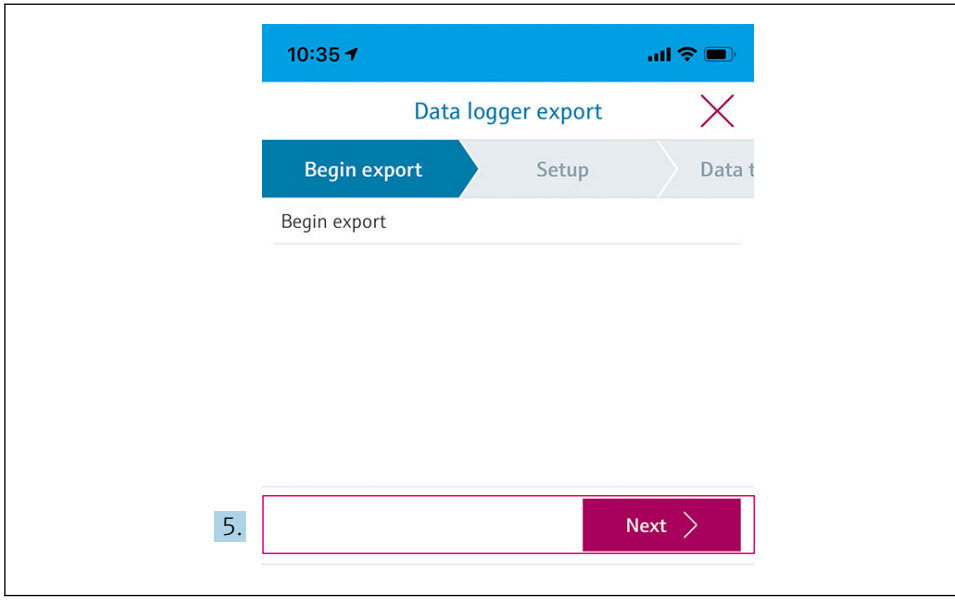
4. Select **Data transfer**.



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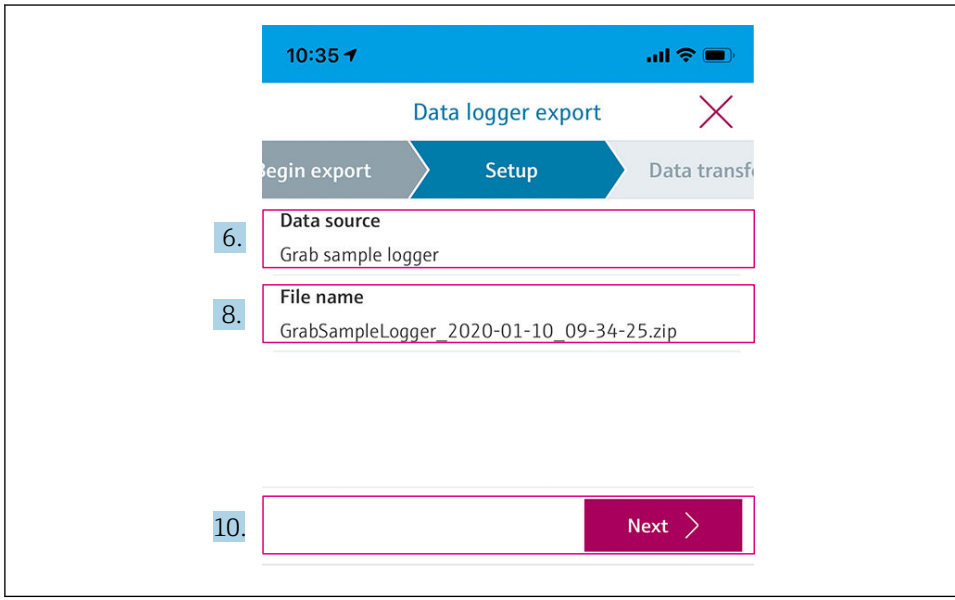
5. Select **Next** to continue.



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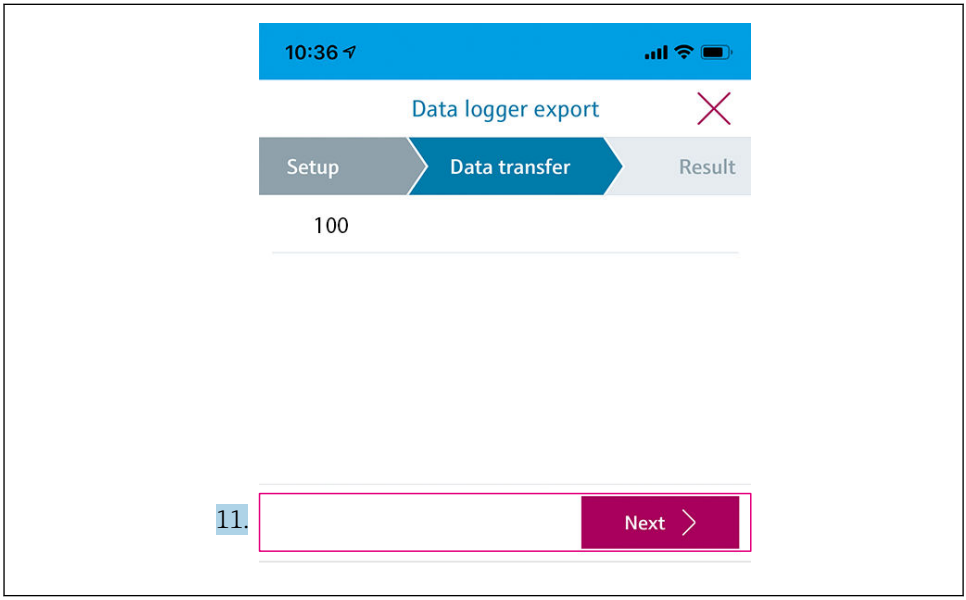
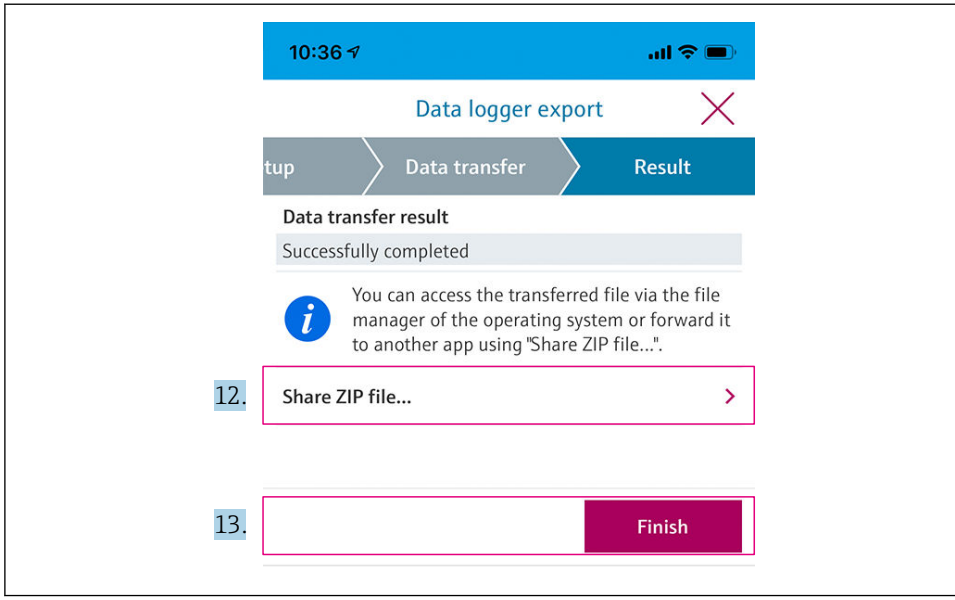
6. Select **Data source**.
   ↳ Select **Grab sample logger** for saved individual measured values.
   Select **Cont. data logger** for data records of the data logger.
7. Press **Ok** to confirm.
   ↳ Select ← to discard changes and close the selection menu.
8. Select **File name**.
   ↳ Click the text line to enter an individual name for the generated data package.
9. Press **Ok** to confirm.
   ↳ Select ← to discard changes and close the selection menu.
10. Select **Next** to continue.
    ↳ Data transfer starts.
    A progress bar indicates the progress percentage.



11. After data transfer, click **Next** to continue.
    ↳ The result of the data transfer is displayed.



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12. Use **Share ZIP file...** to save the exported data records locally or to send them.
13. Select **Finish** to complete the export.

9.1.5 Deleting saved measured values

▶ Navigate to: **Erase data**
↳ **Main menu** >> **Application** >> **Data logger** >> **Erase data**

The data are divided into 2 categories:
- Erase continuous logs
  Selects all data logger entries for deletion.
- Erase grab values
  Selects all grab values (individual measured values) for deletion.

NOTICE

Data are deleted immediately!
Once data are deleted, they cannot be restored. A "confirm deletion" message is not displayed.
▶ Save data before deletion.

1. Use ⊕ to navigate to the desired category.
2. Use ⊙ to delete all the recorded data in the selected category from the device.

9.1.6 Switching off the device

1. Navigate to: **Power-off**
   ↳ **Main menu** >> **Power-off**
2. Press ⏻ to switch off the device.

10 Diagnostics and troubleshooting

10.1 General troubleshooting

10.1.1 Service interface

The service interface may only be used by the manufacturer's service staff.

The device can be connected to a computer for service purposes via the M12 connection.

This enables data transmission and wired device charging.

10.2 Diagnostics information via the onsite display

10.2.1 Opening the diagnostics list

1. Navigate to: **Diagnostics list**
   ↳ **Main menu** >> **Diagnostics** >> **Diagnostics list**
2. Press ⊙ to open the diagnostics list.

10.2.2 Display testing

1. Navigate to: **Display test**
   ↳ **Main menu** >> **Diagnostics** >> **Display test**
2. Press ⊙ to invoke the screen test.
3. Press ⊙ to scroll through the test windows and check the display for damage.

11 Maintenance

11.1 Maintenance tasks

11.1.1 Cleaning

▶ Only clean with a damp cloth and commercially available cleaning agents.

The device is resistant to:
- Ethanol (for a short time)
- Soap-based household cleaning agents
- Dishwashing detergent

NOTICE

Cleaning agents not permitted

Damage to the housing surface or housing seal
- ▶ Do not use concentrated mineral acids or alkaline solutions for cleaning.
- ▶ Do not use organic cleaners such as acetone, benzyl alcohol, methanol, methylene chloride, xylene or concentrated glycerol cleaner for cleaning.
- ▶ Do not use high-pressure steam for cleaning.

11.2 Measuring and test equipment

Calibrated and adjusted sensors with Memosens technology save their calibration data directly in the sensor.

The sensors can be used as testing equipment thanks to this functionality.

The device can be used to display the measured values of such test equipment. Each connected sensor uses its own calibration data.

Using the SmartBlue App, a sensor can be calibrated, recalibrated and adjusted in a suitable testing medium directly at the device.

12 Repair

12.1 Return

The product must be returned if repairs or a factory calibration are required, or if the wrong product was ordered or delivered. As an ISO-certified company and also due to legal regulations, Endress+Hauser is obliged to follow certain procedures when handling any returned products that have been in contact with medium.

To ensure the swift, safe and professional return of the device:

- Refer to the website www.endress.com/support/return-material for information on the procedure and conditions for returning devices.

12.2 Disposal

The device contains electronic components. The product must be disposed of as electronic waste.

- Observe the local regulations.

The battery cannot be removed or replaced by the end customer!

The battery may only be disposed of by properly trained staff. For this, the 4 screws on the top of the device must be untightened in order to remove the device interior, along with the accumulator battery, from the housing.

13 Accessories

The latest list of all the compatible Memosens sensors is provided on the product page:

www.endress.com/CML18

14 Technical data

14.1 Input

14.1.1 Input power

Wireless charging	5 W
M12 connection	5 V; 0.6 A

14.1.2 Measured variables

- pH
- ORP
- pH/ORP
- Oxygen
- Conductivity
- Temperature

14.1.3 Measuring range

→ Documentation of the connected sensor

14.1.4 Type of input

Memosens connection for sensors with Memosens technology

M12 connection for digital measuring cables for sensors with Memosens technology

Memosens sensors CLS50D and CLS54D

14.2 Output

14.2.1 Output signal

Memosens M12 (maximum 80 mA)

14.3 Power supply

14.3.1 Supply voltage

Inductive charging via Qi: Baseline Power (use Qi-certified devices)

5 W output power (5 V/1500 mA input)

14.3.2 Battery rated capacity

1 000 mAh (min. 950 mAh)

14.3.3 Battery life

Max. 48 h

14.3.4 Overvoltage protection

IEC 61 000-4-4 with 0.6 kV

IEC 61 000-4-5 with 2.0 kV

14.3.5 Sensor connection

Sensors with Memosens technology

14.3.6 Cable specification

Digital measuring cable CYK10-Axx2+x

Digital measuring cable CYK20-AAxxC1

14.4 Environment

14.4.1 Ambient temperature range

Charging: 0 to +45 °C (32 to 113 °F)

Operation: –10 to +60 °C (14 to 140 °F)

The maximum ambient temperature depends on the process temperature and the installation position.

14.4.2 Storage temperature

–20 to +45 °C (–4 to 113 °F)

Elevated storage temperatures reduce the battery capacity.

14.4.3 Humidity

0 to 95 %

14.4.4 Degree of protection

IP66

14.4.5 Electrical safety

EN 61010-1

14.4.6 Pollution degree

Complete device:	Pollution level 4
Internal:	Pollution level 2

14.4.7 Radio standards

- EN 300 328 (Europe)
- 47 CFR 15.247 (United States)
- RSS-247 Issue 2 (Canada)
- RSS-GEN Issue 5 (Canada)

14.5 Mechanical construction

14.5.1 Materials

Components	Material
Housing	PBT
Display window, light guide	PMMA
Buttons, cap	TPE
M12 connection	CuZn, nickel-plated

14.5.2 Impact loads

The product is designed for mechanical impact loads of 1 J (IK06) as per the requirements of EN61010-1.

14.5.3 Weight

Liquiline Mobile CML18	155 g (5.5 oz)

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