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71697042
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Installation Instructions
Spare parts kits for Liquiline CM42B

Electronic and mechanical components

Endress+Hauser
People for Process Automation

Table of contents

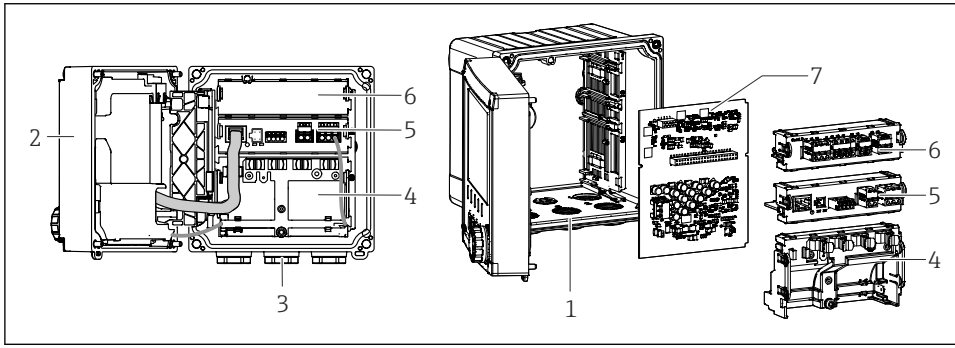
1 Overview

1.1 Spare parts kits

These Installation Instructions apply to the following spare parts kits:

Order number / Order code root	Designation	Page
XPC0028	CM42B mainboard	→ 🖹 6
XPC0029	CM42B cover + display (incl. hinge)	→ 🖹 7
XPC0030	CM42B lower housing part + cable glands	→ 🖹 9
71667901	CM42B base module VICO1	→ 🖹 12
71667903	CM42B analog input module, conductivity contacting VSLC1	→ 🖹 12
71667904	CM42B analog input module, conductivity inductive VSLI1	→ 🖹 13
71667905	CM42B analog input module, pH/ORP VSPH1	→ 🖹 13
71693056	CM42B cable management module	→ 🖹 14

1.2 Overview of the components



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1 Structure of the CM42B

1 *Lower housing part*
2 *Cover with display*
3 *Cable entry*
4 *Cable management module*
5 *Base module*
6 *Extension module (e.g. analog input module or blind cover)*
7 *Mainboard*

2 Designated use

- The parts of the kits must be used exclusively as spare parts for the CM42B two-wire transmitter. Any other use is not permitted!
- Use only original parts from Endress+Hauser.
- In the W@M Device Viewer, check if the spare part is suitable for the existing device.

3 Personnel authorized to carry out conversion

- Installation, commissioning, operation and repair 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 perform the stated tasks.
- The electrical connection may only be established by an electrical technician.
- The technical personnel must have read and understood these Installation Instructions and must follow the instructions they contain.
- Faults at the measuring point may only be rectified by authorized and specially trained personnel.
- In the case of Ex-certified devices, the technical personnel must also be trained in explosion protection.

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

4 Safety instructions

⚠ CAUTION

Electronic assemblies are sensitive to electrostatic discharges (ESD)!

▶ Before removing an assembly from the antistatic packaging, it must be discharged, e.g. at a protective ground. Continuous grounding, e.g. with an ESD wristband, is recommended.

NOTICE

Material damage due to solvents!

▶ Solvents can destroy plastic parts of the device. The Operating Instructions for the device must be observed before using solvents.

- Observe the Operating Instructions for the device.
- Comply with national regulations regarding mounting, electrical installation, commissioning, maintenance and repair.
- For devices intended for use in hazardous areas, please observe the instructions in the Ex documentation (XA).

Potential impact on the process

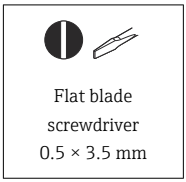
Before decommissioning an active device, the potential impact on the overall process must be taken into account! This applies in particular when using the switching contacts, the analog signal outputs or the communication interface of the associated measuring instrument to control process variables. Coordinate service tasks with the operator!

Contact Endress+Hauser Service if you have questions: www.addresses.endress.com

5 Symbols

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.

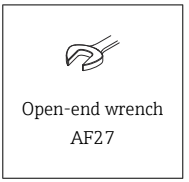
6 Tools list


Flat blade screwdriver 0.5 × 3.5 mm


Phillips head screwdriver PH2


Torx screwdriver T20


Open-end wrench AF24


Open-end wrench AF27

7 Scope of delivery

7.1 XPC0028 Kit CM42B Mainboard

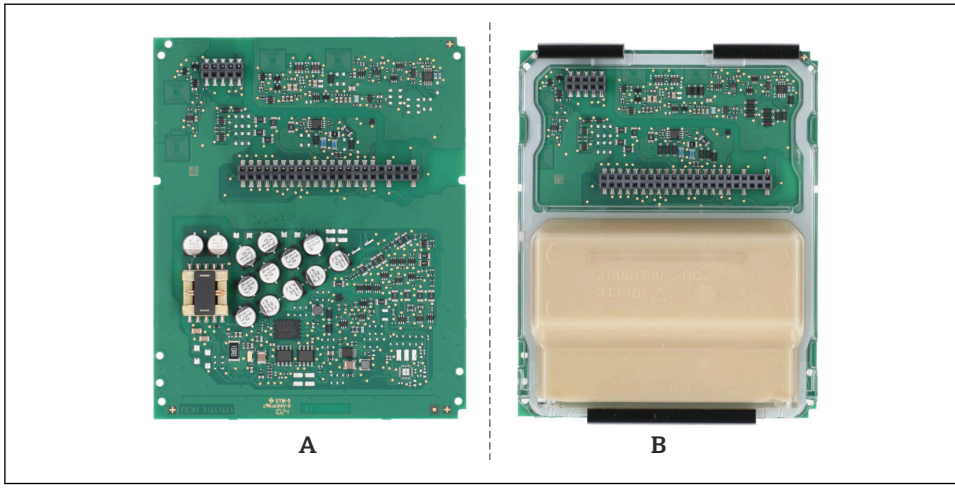
When ordering the mainboard, you must select the approval that the device has for which the spare part is used ("Approval" feature).

The mainboard can be reordered for a specific serial number (preconfigured) or as a generic spare part (not preconfigured). This is selected in the "Device identity" feature. If the mainboard is ordered in the preconfigured version, input of the serial number is required via an automatic query during the ordering process.

Kit CM42B Mainboard	**Approval**			
	AA	Non-hazardous area		
	BA	ATEX II 1G Ex ia IIC T6/T4 Ga		
	CA	C/US General Purpose		
	CB	C/US IS Cl. I Div. 1 Gr. A–D		
	IA	IECEx Ex ia IIC T6/T4 Ga		
	NA	NEPSI Ex ia IIC T6/T4 Ga		
		Device identity		
		11	Preconfigured (with serial number)	
		12	Configurable (without serial number)	
			Output	
			AA	Current output

The kit contains the following parts → 2, 7:

1 x	Mainboard (version as ordered)
1 x	Kit instructions



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2 *Mainboard VXCM1*

A Mainboard in the non-Ex version, XPC0028-AA and XPC0028-CA**
B Mainboard in the Ex version, XPC0028-BA, -CB*, -IA*, -NA**

NOTICE

Damage to property due to the installation of non-Ex components in Ex devices

- Devices with Ex approval may only be repaired with an Ex mainboard. Ordering generic mainboard kits for repairing Ex devices is not possible.

7.2 XPC0029 Kit CM42B Cover + Display (incl. hinge)

With this kit, the display of the CM42B can be ordered as a spare part. The display is supplied including cover, hinge and cable. You can choose between the plastic and stainless steel material versions, as well as between the field housing and external display for the railmount transmitter. For the external display, you can choose to get either the standard mounting plate or the panel version with DIN rail.

Kit CM42B Cover + Display	Device with approval	
	AA	Non-hazardous area
	BA	ATEX II 1G Ex ia IIC T6/T4 Ga
	CA	C/US General Purpose
	CB	C/US IS Cl. I Div. 1 Gr. A–D
	IA	IECEx Ex ia IIC T6/T4 Ga
	NA	NEPSI Ex ia IIC T6/T4 Ga
	Cover housing design	

		11	Plastic Field Housing	
		12	Stainless Steel 1.4404/316L Field Housing	
		21	External/panel display, plastic	
		22	External/panel display, stainless steel 1.4404/316L	
			Mounting device (external display)	
			NA	Not applicable
			MS	Mounting kit standard
			MH	Mounting kit with top-hat DIN rail

The kit contains the following parts → 3, 8:

1 x Cover with display (version as ordered)

1 x Hinge fitted (only field housing, for order code XPC0029-**11NA and XPC0029-**12NA)

1 x Mounting plate in selected version (XPC0029-**21** and XPC0029-**22**)

1 x Display cable in appropriate version (always)

1 x Kit instructions

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3 Cover with display (incl. hinge)

7.3 XPC0030 Kit CM42B Lower Housing Part + Cable glands

With this kit, the lower housing part and/or the appropriate cable glands for the CM42B can be ordered as spare parts. To get the appropriate parts, it is essential for the kit to be configured for the correct device version here. When ordering the cable glands, you always get one set for one device (as for the main product). The appropriate adapters are also included. A nameplate replacement must be ordered separately via the XPC0016-* order root.

Kit CM42B Housing/Cable glands	Device with approval						
	AA	Non-hazardous area					
	BA	ATEX II 1G Ex ia IIC T6/T4 Ga					
	CA	C/US General Purpose					
	CB	C/US IS Cl. I Div. 1 Gr. A–D					
	IA	IECEx Ex ia IIC T6/T4 Ga					
	NA	NEPSI Ex ia IIC T6/T4 Ga					
		Sensor type					
		11	Memosens				
		21	pH/ORP, analog				
		22	Conductivity contacting, analog				
		23	Conductivity inductive, analog				
			Cable entry				
			AA	Metric M20 x 1.5			
			AB	NPT ½"			
			AC	G ½"			
				Housing material			
				11	Field housing, plastic (PC)		
				12	Field housing, stainless steel 1.4408/316		
				21	Use with plastic housing		
				22	Use with stainless steel housing		
					Kit version		
					GK	Lower housing part; cable glands	
					GU	Lower housing part	
					KV	Cable glands	
					GC	Lower housing part, conduit adapter	
					KC	Conduit adapter	

The kit contains the following parts → 4, 10:

1 x	Lower housing part (version as ordered) Only for the following order codes: XPC0030-******11GK/XPC0030-******11GU/XPC0030-******11GC/XPC0030-******12GK/ XPC0030-******12GU/XPC0030-******12GC
One set	Cable glands Only for the following order codes: XPC0030-********GK/XPC0030-********KV
One set	Conduit adapter Only for the following order codes: XPC0030-********GC/XPC0030-********KC
1 x	Kit instructions

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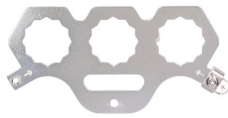
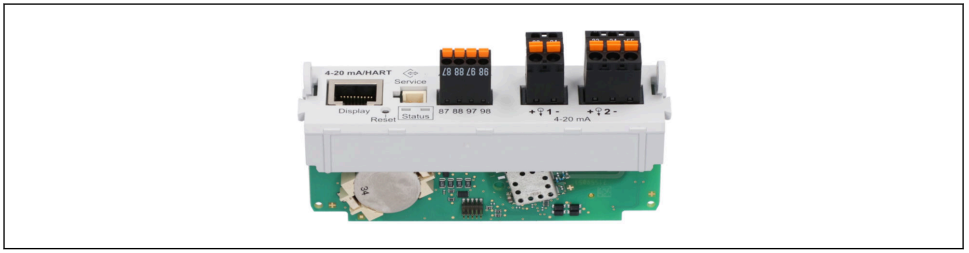
4 *Lower housing part with blind plug, plastic version*

Cable glands	Adapter	Scope of delivery	Order code
 A0057601	-	2 x cable gland, metric M20 x 1.5	XPC0030-****AA**GK XPC0030-****AA**KV
 A0057602	 A0057777	2 x cable gland, NPT ½" 2 x adapter, metric/NPT (plastic or stainless steel, depending on housing material)	XPC0030-****AB11GK XPC0030-****AB21KV
	 A0057778		XPC0030-****AB12GK XPC0030-****AB22KV
 A0057779	 A0057780	2 x cable gland, G ½" 2 x adapter, metric/G (plastic or stainless steel, depending on housing material)	XPC0030-****AC11GK XPC0030-****AC21KV
	 A0057781		XPC0030-****AC12GK XPC0030-****AC22KV
Conduit adapter support	**Adapter**	**Scope of delivery**	**Order code**
 A0057782	 A0057783	1 x conduit adapter support 4 x adapter, M/NPT or M/G in VA (for plastic and stainless steel housing)	XPC0030-****AB**GC XPC0030-****AB**KC
	 A0057784		XPC0030-****AC**GC XPC0030-****AC**KC

7.4 71667901 Kit CM42B Base module VICO1

The kit contains the following parts → 5, 12:

1 x	Base module VICO1 (including terminal connectors)
1 x	Kit instructions



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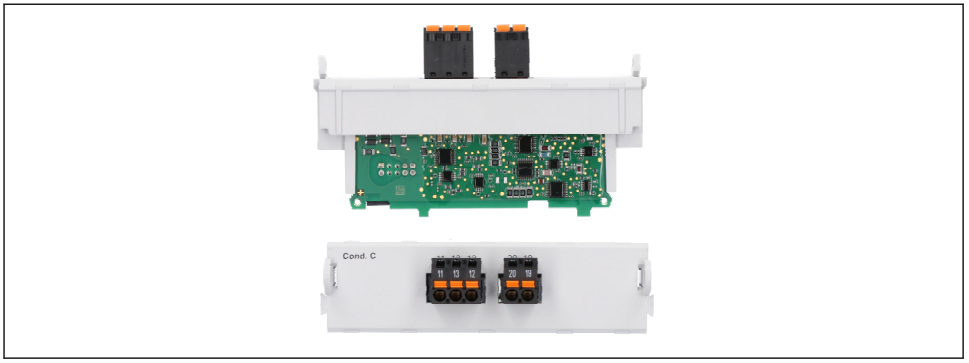
5 *Base module VICO1*

7.5 71667903 Kit CM42B Input module analog, conductivity contacting VSLC1

The kit contains the following parts → 6, 12:

1 x	Input module analog, conductivity contacting VSLC1 (including terminal connectors)
1 x	Kit instructions



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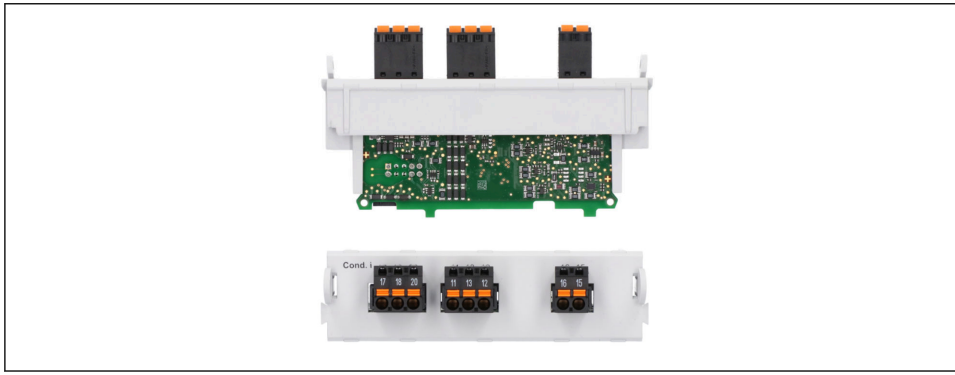
6 *Input module analog, conductivity contacting VSLC1*

7.6 71667904 Kit CM42B Input module analog, conductivity inductive VSLI1

The kit contains the following parts → 7, 13:

1 x	Input module analog, conductivity inductive VSLI1 (including terminal connectors)
1 x	Kit instructions



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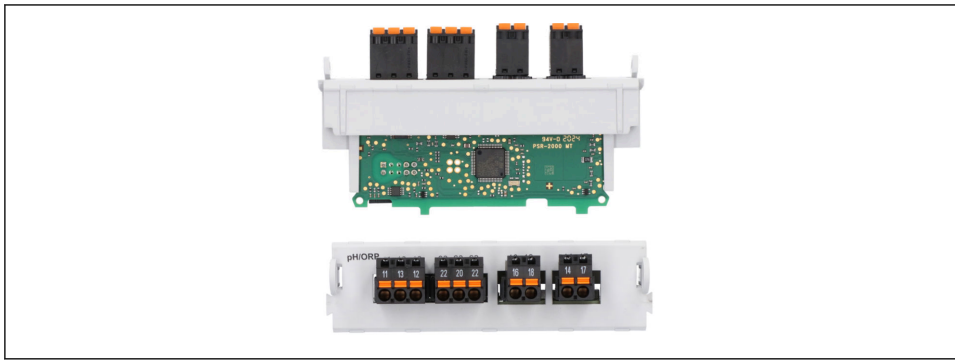
7 *Input module analog, conductivity inductive VSLI1*

7.7 71667905 Kit CM42B Input module analog, pH/ORP VSPH1

The kit contains the following parts → 8, 13:

1 x	Input module analog, pH/ORP VSPH1 (including terminal connectors)
1 x	Kit instructions



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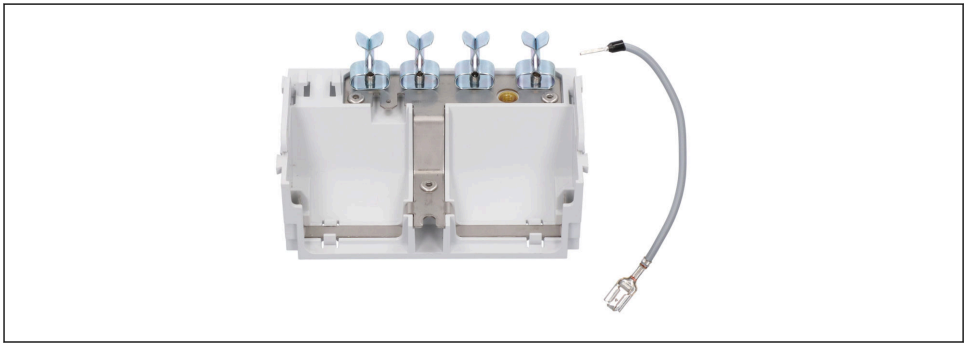
8 *Input module analog, pH/ORP VSPH1*

7.8 71693056 Kit CM42B Cable management module

The kit contains the following parts → 9, 14:

1 x	Cable management module	1 x	Kit instructions
1 x	Internal grounding cable, pre-assembled		



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9 *Cable management module and internal grounding cable*

8 Additional documentation

Detailed information on the device can be found in the Operating Instructions for the Liquiline CM42B transmitter and in the other documentation available via:

- www.endress.com/device-viewer
- Smartphone/tablet: Endress+Hauser Operations app

9 Replacing the electronic components

9.1 Removing the components

The following section describes the removal of the electronic components from the **field housing** device version. Certain work steps are omitted for the **railmount** device version.

9.1.1 Preparatory steps

WARNING

Device is live!

- The electrical connection may only be established by an electrical technician.
- **Prior** to commencing connection work, ensure that no voltage is present on any cable.

Opening the housing

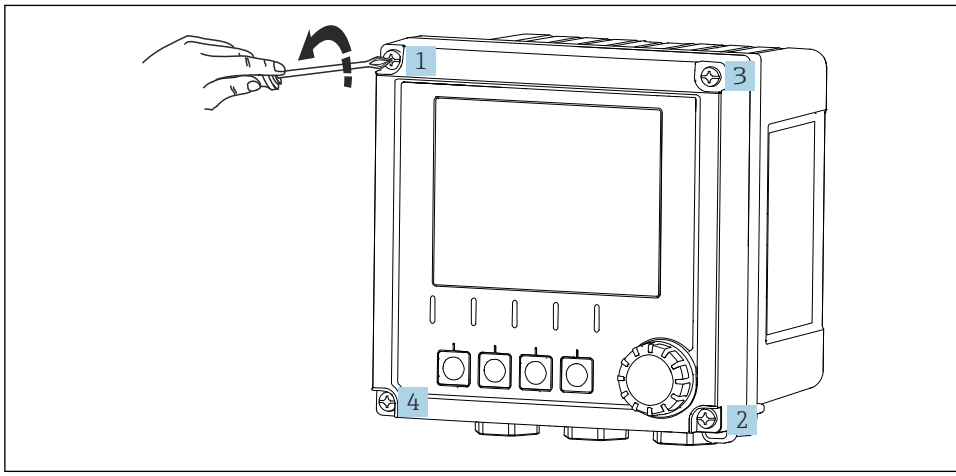
NOTICE

Cordless screwdriver, screw driller, pointed or sharp tools

The use of a cordless screwdriver or screw driller can cause damage to the threads and impair the leak-tightness of the housing. If unsuitable tools are used, they can scratch the housing or damage the seal, and thus have a negative impact on the leak-tightness of the housing.

- ▶ Do not use a cordless screwdriver or screw driller to release and tighten the housing screws.
- ▶ Do not use any sharp or pointed objects, e.g. a knife, to open the housing.
- ▶ Use only the Phillips head screwdriver.

1. Slacken the housing screws crosswise.



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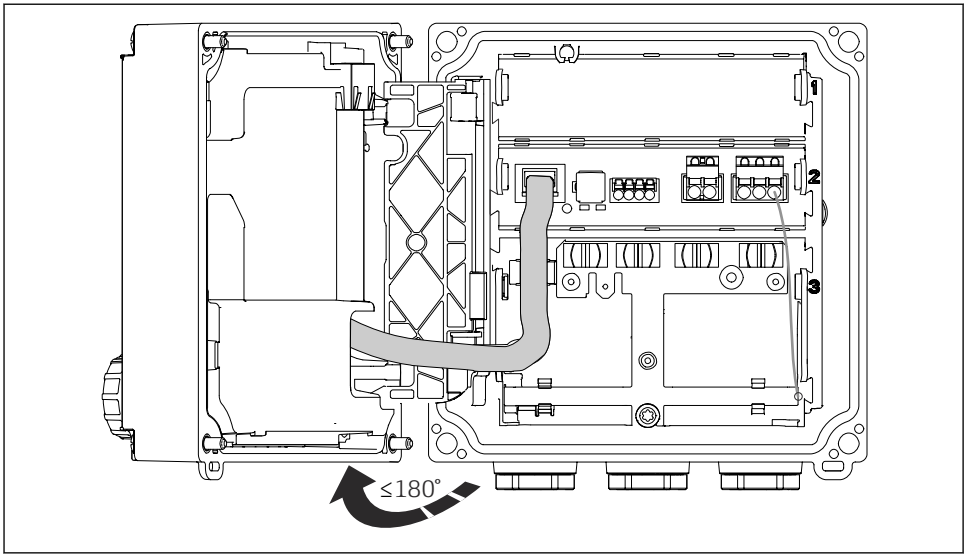
2. Open the cover by a maximum of 180° (depending on the orientation).



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3. When closing the housing: Tighten the housing screws gradually and crosswise. Tightening torque 1 Nm

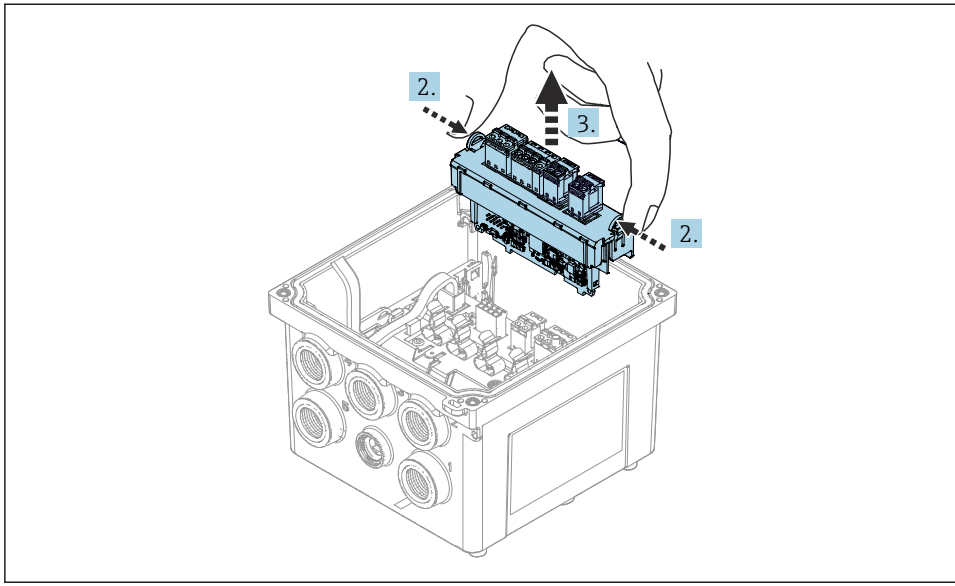
Disconnecting the terminal connectors/cables

Disconnect the terminal connectors from all modules that are to be replaced. In the event of a faulty terminal connector, disconnect the cables from the terminal connector and replace the terminal connector.

9.1.2 Removing the extension module

The extension module can be designed as an analog input module or as a blind cover.

1. Carry out preparatory steps (→ 14).
2. Press the locking elements of the extension module fully together.
3. Pull the extension module up and out of the locking elements.



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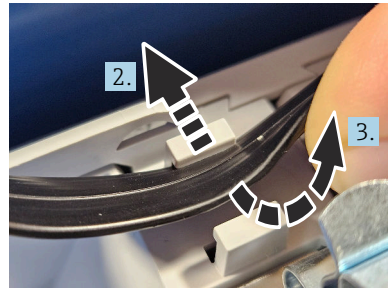
9.1.3 Removing the base module

Carefully release the display cable from the cable clamp, as it can easily cause damage to the cable insulation here.

1. Carry out preparatory steps (→ 14).
2. Push the display cable in the cable clamp to the side as far as it goes.
3. Release the display cable from the cable clamp.



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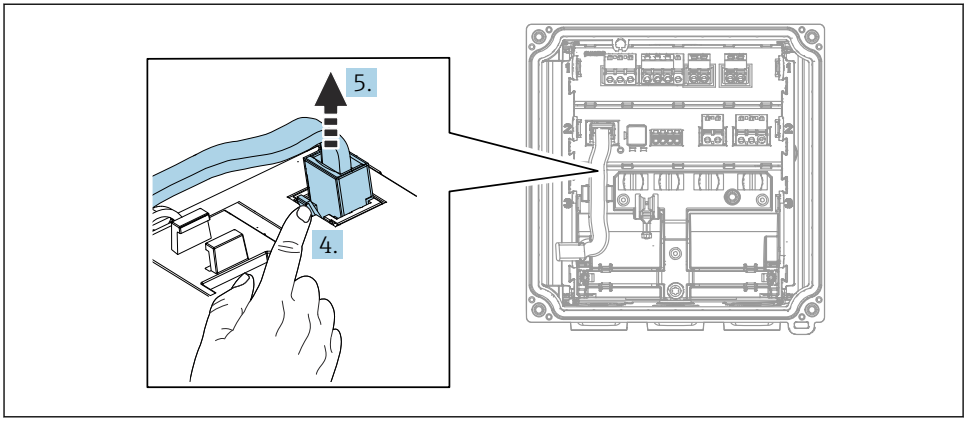
4. Release the lock of the RJ50 connector on the socket of the base module.
5. Disconnect the connector of the display cable.



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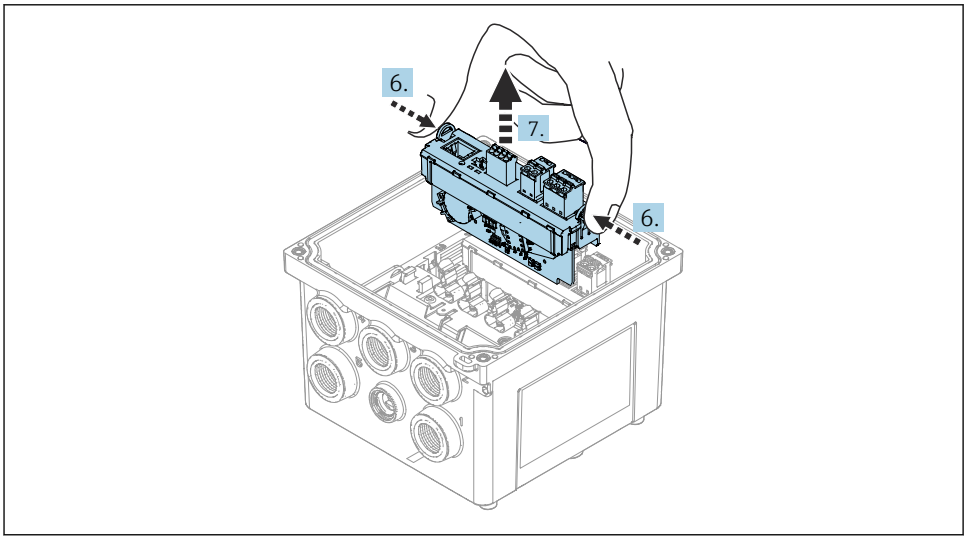
6. Press the locking elements fully together.
7. Pull the base module up and out of the locking elements.



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9.1.4 Removing the cable management module

CAUTION

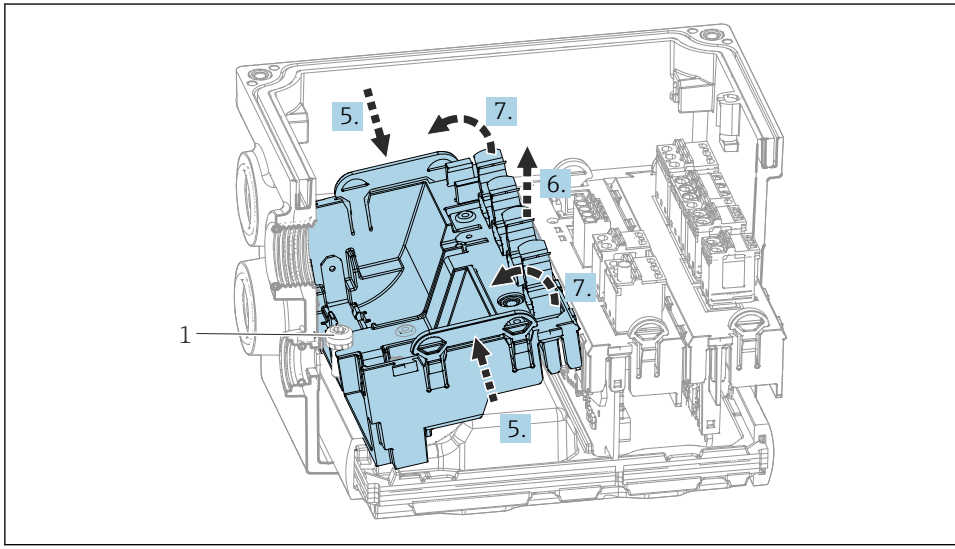
There is a risk of injury or a danger of damage to property due to incorrect grounding!

- When installing or removing the cable management module, the grounding screw on the grounding bolt of the housing must be released by a few rotations. In conjunction with the external grounding connection, this screw ensures potential equalization at the device. **Proper potential equalization is a prerequisite for the operational safety of the device in a hazardous area!**

1. Carry out preparatory steps (→ 14).
2. Release all cables from the clamps on the cable mounting rail.
3. Release the cable glands and pull the cables far enough out of the housing that the cable management module can be pulled up and out without any obstacles.
4. Release the grounding screw (1) by ten rotations.

So that the screw-in angle ensured ex works doesn't change, the grounding screw should not be completely removed. The screw ensures proper grounding, which is a prerequisite for operating the transmitter in hazardous areas.

5. Press the locking elements fully together.
6. Pull the cable management module up and out of the locking elements.
7. Slightly tilt the cable management module while lifting out, so that the module is pulled away from the grounding screw (1).



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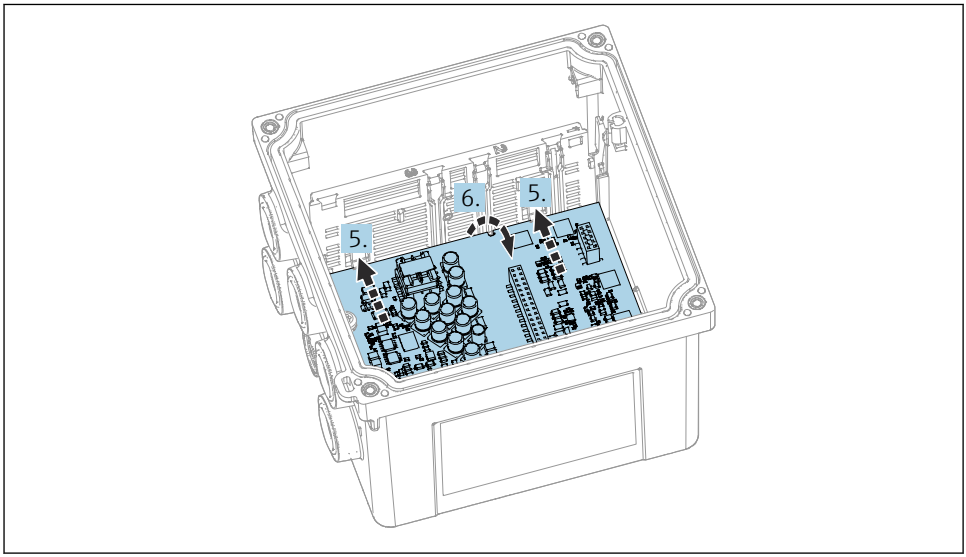
9.1.5 Removing the mainboard

1. Carry out preparatory steps (→ 14).
2. Remove the extension module (→ 16).
3. Remove the base module (→ 17).
4. Remove the cable management module (→ 19).
5. Completely press in the locking elements on one side.
6. Tilt the mainboard slightly and pull it up and out.



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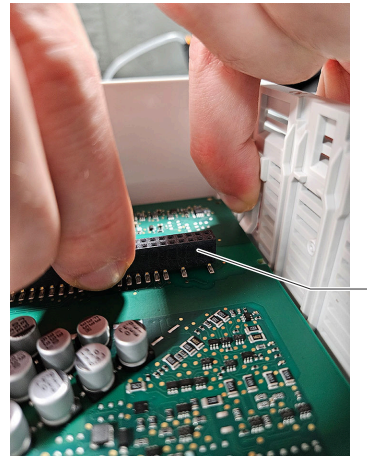
When removing a defective component, the mainboard can be held carefully at the connectors (1).

Caution: If the force exerted during removal is too high, an intact mainboard can be damaged.



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9.2 Installing the components

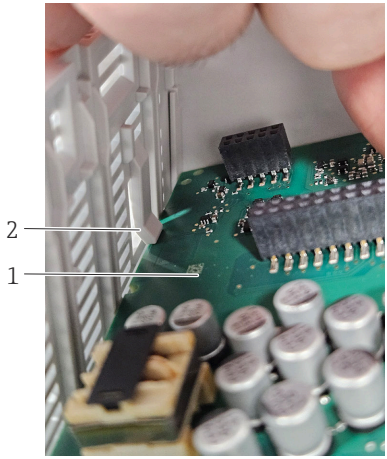
9.2.1 Installing the mainboard

NOTICE

Damage to property due to the installation of non-Ex components in Ex devices

- Devices with Ex approval may only be repaired with an Ex mainboard. Ordering generic mainboard kits for repairing Ex devices is not possible.

1. Position the mainboard (1) of one side of the housing base under the two locking elements (2).



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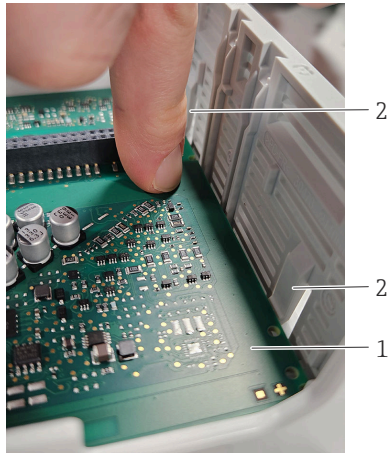
2. Carefully press down the mainboard (1) on the opposite side of the housing base until the two locking elements (2) engage on this side.



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3. Install the cable management module (→ 🖹 23).
4. Install the base module (→ 🖹 25).
5. Install the extension module (→ 🖹 26).
6. Carry out final tasks (→ 🖹 26).

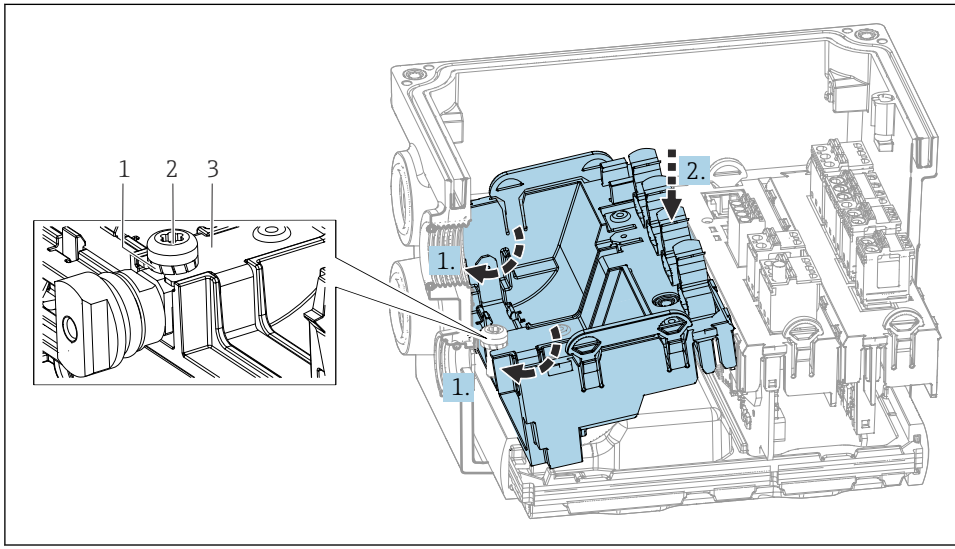
9.2.2 Installing the cable management module

⚠ CAUTION

There is a risk of injury or a danger of damage to property due to incorrect grounding!

- When installing or removing the cable management module, the grounding screw on the grounding bolt of the housing must be released by a few rotations. In conjunction with the external grounding connection, this screw ensures potential equalization at the device. **Proper potential equalization is a prerequisite for the operational safety of the device in a hazardous area!**
- Tighten the grounding screw to a torque of 1.3 Nm.
- **For the Ex version:** Perform a continuity test.

1. Loosen the grounding screw (2) as described in the "Removing the cable management module" → 19 chapter.
2. Insert the cable management module (3) into the housing from above. When doing so, slightly tilt the module so that the grounding screw is positioned in the protrusion of the module. The securing disk must be positioned above the cable management module here.
3. Carefully press the cable management module down until the locking elements engage fully.
4. Make sure that the securing disk (1) is positioned between the grounding screw (2) and the cable management module (3).



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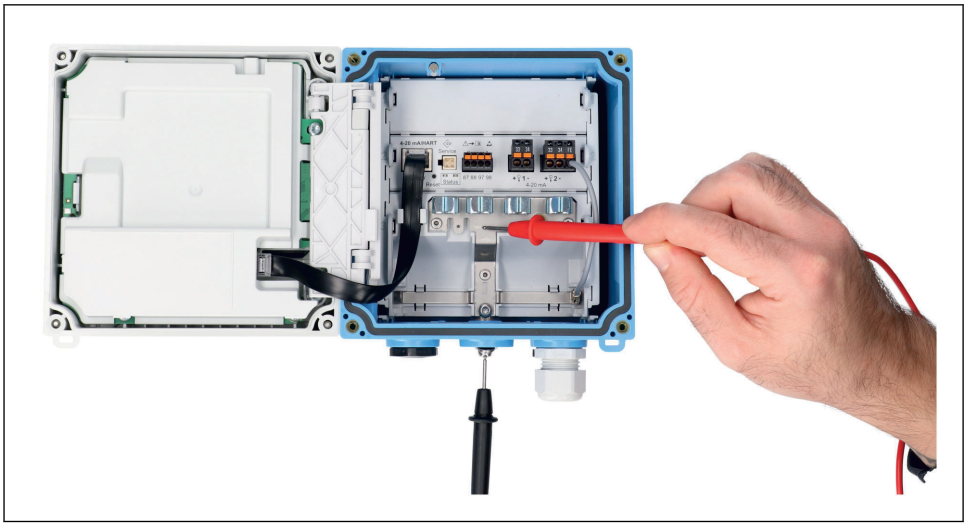
5. Tighten the grounding screw to a torque of 1.3 Nm.

6. **For the Ex version:** Using a multimeter, perform a continuity test between the external grounding connection and grounding bar in the device.



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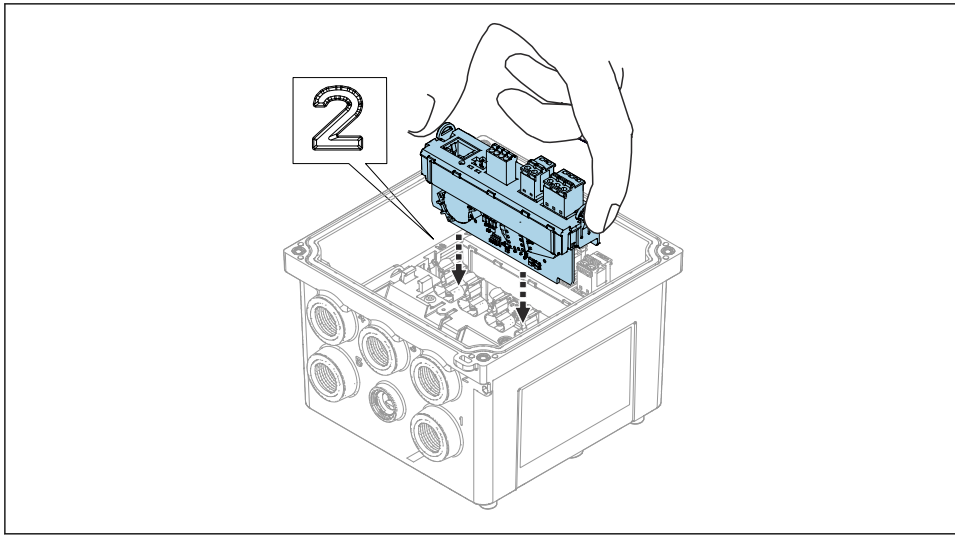
9.2.3 Installing the base module

1. Insert the base module into the housing and press down in slot 2 until the locking elements engage fully.

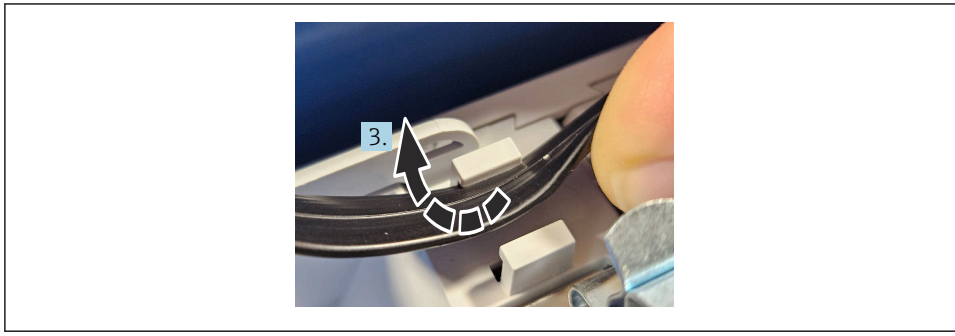


A0057191

2. Plug the connector of the display cable into the RJ50 socket on the base module.

Carefully insert the display cable into the cable clamp, as it can easily cause damage to the cable insulation here.

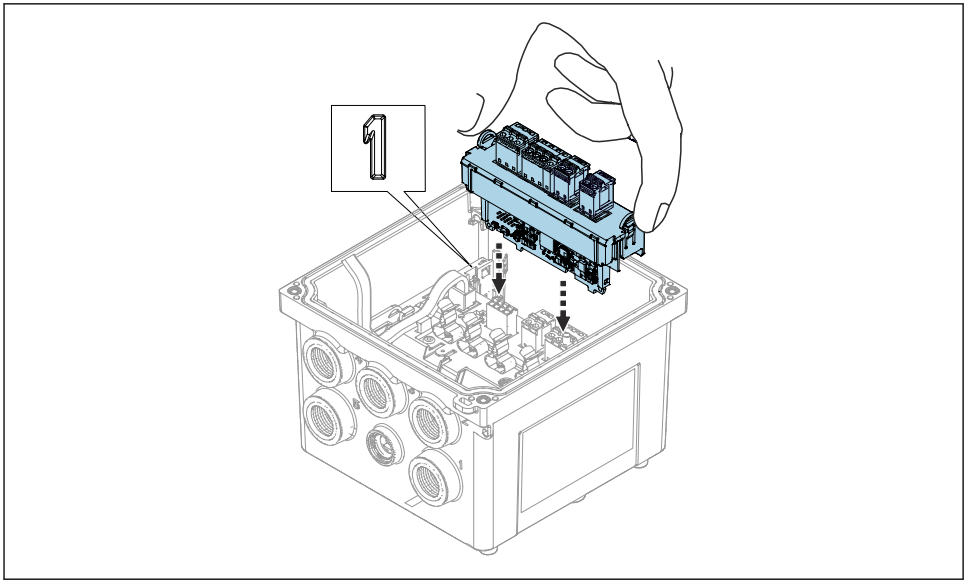
3. Slightly twist the display cable and insert it into the cable clamp, while pressing the display cable into the cable clamp as far as it goes.



A0057305

9.2.4 Installing the extension module

▶ Insert the extension module into the housing and press down in slot 1 until the locking elements engage fully.



A0057306

9.3 Final tasks

1. Restore and check all cable connections, shielding and grounding.
2. Close the housing.
3. Connect the device to a voltage supply and wait for the device to start.
4. **Only for generic kits:** When a request is displayed for the serial number to be entered, enter the original serial number of the transmitter.

Only for generic kits: The default password of the admin account for Bluetooth has changed, and is now the module serial number of the mainboard rather than the device serial number. (The module serial number can be displayed in the menu)

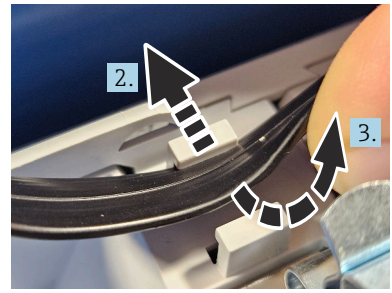
5. Import a saved data backup of the configuration via Bluetooth beforehand, if this exists.

10 Replacing the display

10.1 Removing the display

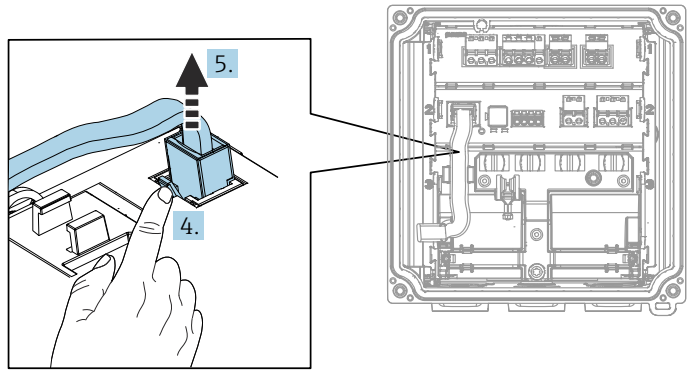
Carefully release the display cable from the cable clamp, as it can easily cause damage to the cable insulation here.

1. Carry out preparatory steps (→ 14).
2. Push the display cable in the cable clamp to the side as far as it goes.
3. Release the display cable from the cable clamp.



A0057294

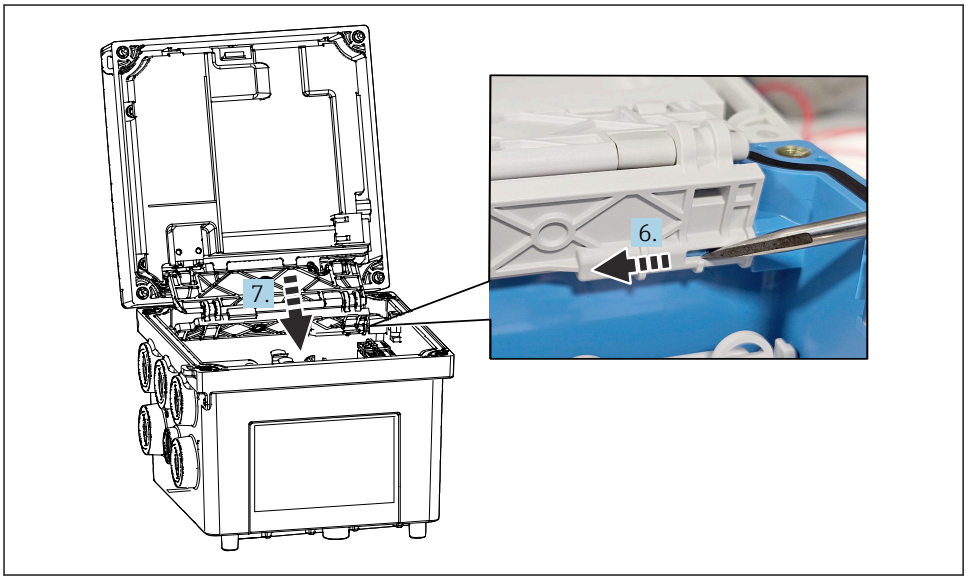
4. Release the lock of the RJ50 connector on the socket of the base module.
5. Disconnect the connector of the display cable.



A0057615

6. Push the locking bolt of the display hinge to the side with a flat blade screwdriver.

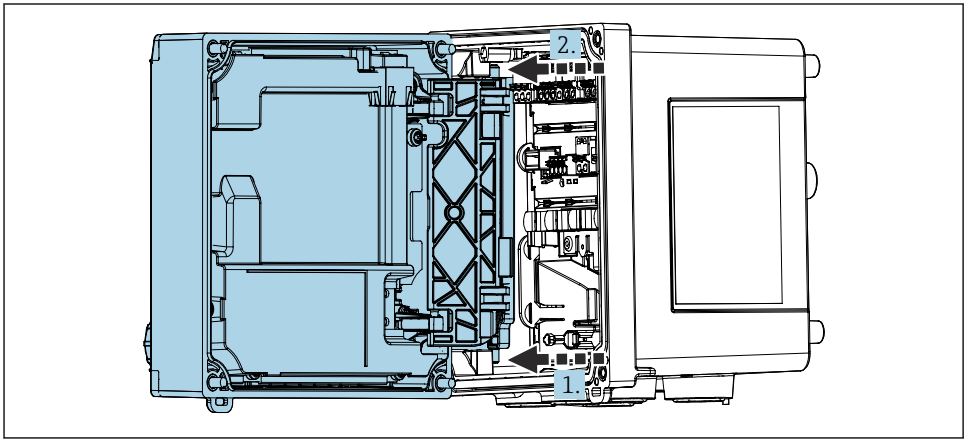
7. Push the display hinge incl. display down and remove from the guides.



A0057310

10.2 Installing the display

1. Insert the lower (gray-colored) bolt of the hinge into the lower guide rail of the housing base.
2. Insert the upper (blue-colored) locking bolt of the hinge into the upper guide rail of the housing base until the bolt engages.

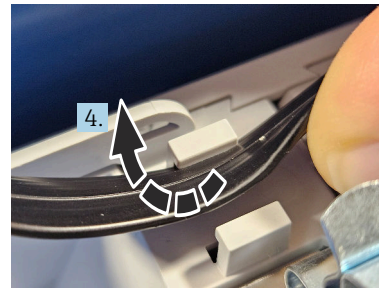


A0057311

3. Plug the connector of the display cable into the RJ50 socket on the base module.

Carefully insert the display cable into the cable clamp, as it can easily cause damage to the cable insulation here.

4. Slightly twist the display cable and insert it into the cable clamp, while pressing the display cable into the cable clamp as far as it goes.



A0057616

11 Replacing the lower housing part

11.1 Removing the lower housing part

1. Carry out preparatory steps (→ 14).
2. Remove the extension module (→ 16).
3. Remove the base module (→ 17).
4. Remove the cable management module (→ 19).
5. Remove the mainboard (→ 20).
6. Remove the display incl. hinge (→ 27).

Cable glands can be ordered with the XPC0030 kit (together with the lower housing part) or individually. If the lower housing part is replaced, it is recommended to also replace the cable glands. These must be installed according to the Operating Instructions of the Liquiline CM42B.

11.2 Installing the lower housing part

1. Install the display incl. hinge (→ 28).
2. Install the mainboard (→ 21).
3. Install the cable management module (→ 23).
4. Install the base module (→ 25).
5. Install the extension module (→ 26).

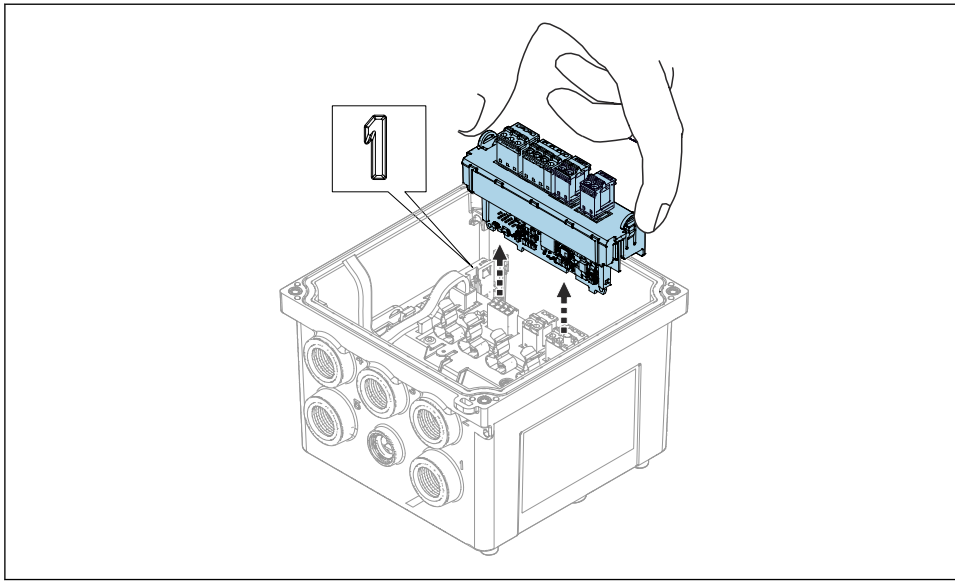
The nameplate must also be replaced after replacing the lower housing part.

The nameplate can be reordered via the **XPC0016 nameplate reprint** order root.

12 Converting the device from an analog version to Memosens

The Memosens activation code must be ordered for the conversion of the device from analog to digital. The blind cover and the activation code for Memosens are included in this kit.

1. Remove the analog sensor cable.
2. Remove the analog extension module from slot 1 (→ 16).



A0057303

3. Insert the blind cover into slot 1.
4. Connect the digital sensor cable.
5. Enter the activation code for Memosens.
6. Either replace the nameplate of the device or document the measuring parameter change on the device. In both cases, also document the change in Asset Central Viewer.

13 Disposal

If required by the Directive 2012/19/EU on waste electrical and electronic equipment (WEEE), the product is marked with the depicted symbol in order to minimize the disposal of WEEE as unsorted municipal waste. Do not dispose of products bearing this marking as unsorted municipal waste. Instead, return them to the manufacturer for disposal under the applicable conditions.

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