Installation Instructions
Kit CM44x/CSXxx/CA80XX

Module 485MB or 485DP
For Ethernet configuration, PROFIBUS DP, Modbus
RS485

Endress+Hauser **E+H**

People for Process Automation

1 Overview of spare part set

Order number	Original spare part kit
71575177	Kit module 485DP
71575178	Kit module 485MB

2 Intended use

The module 485DP kit and the module 485MB kit are suitable only for the upgrading and repair of CM44x, CSXxx and CA80XX.

Use of the device for any purpose other than that described poses a threat to the safety of people and of the entire measuring system, and is therefore not permitted.

The manufacturer is not liable for damage caused by improper or non-intended use.

3 Authorized installation personnel

- Installation, commissioning, operation and maintenance of the measuring system may only be carried out by qualified technical personnel specially trained for the task.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The electrical connection may only be performed by an electrical technician.
- The technical personnel must have read and understood the 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 only be carried out directly at the manufacturer's site or by the service organization.

4 Safety instructions

The following safety instructions must be observed. The Operating Instructions for the device must be followed.

4.1 Workplace safety

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

Electromagnetic compatibility
- The product has been tested for electromagnetic compatibility in accordance with the applicable international standards for industrial applications.
- The electromagnetic compatibility indicated applies only to a product that has been connected in accordance with these Operating Instructions.

4.2 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:

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

2. The display cover must be kept closed outside of service and maintenance tasks.

4.3 Product safety

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.

5 Symbols

5.1 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.

Structure of information	Meaning
⚠ 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.

5.2   Symbols used

ℹ	Additional information, tips
☑	Permitted
☑☑	Recommended
☒	Forbidden or not recommended
📖	Reference to device documentation
📄	Reference to page
🖼	Reference to graphic
↳	Result of a step

6 Scope of delivery

71575177 Kit module 485DP

Item	Description	Quantity	Base unit
a	Extension module 485DP	1	Piece
b	Module blanking cover 6 mm (0.24 in)	1	Piece
c	Wiring diagram adhesive label	1	Piece
	Service kit instructions	1	Piece

A0051245
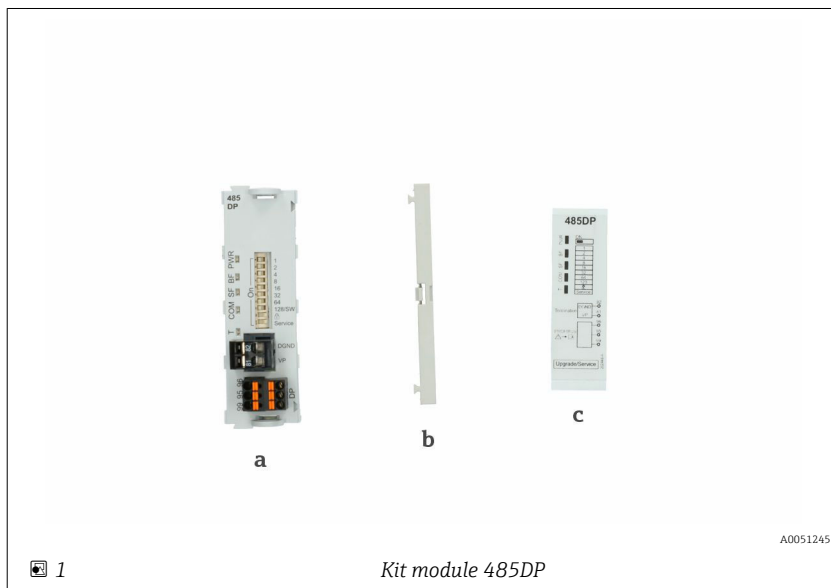
 1 *Kit module 485DP*

71575178 Kit module 485MB

Item	Description	Quantity	Base unit
a	Extension module 485MB	1	Piece
b	Module blanking cover 6 mm (0.24 in)	1	Piece
c	Wiring diagram adhesive label	1	Piece
	Service kit instructions	1	Piece

 2   *Kit module 485MB*
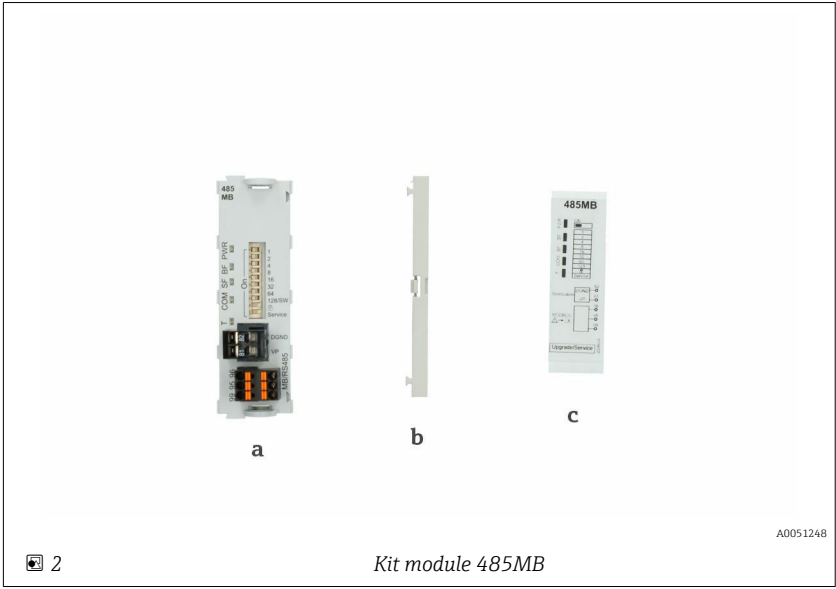
7   Tool list
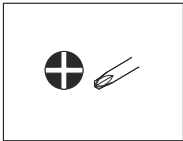
8   Additional documentation

• Operating Instructions Liquiline CM44x (BA00444C/07/EN)
• Operating Instructions Liquiline CM44xR (BA01225C/07/EN)
• Operating Instructions Liquistation CSF48 (BA00443C/07/EN)
• Operating Instructions Liquiline System CA80XX (e.g. BA01240C/07/EN)

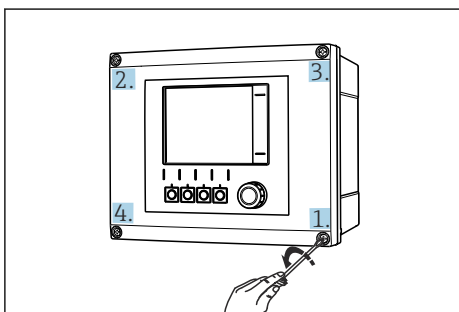# 9   Mounting

## 9.1   Opening the housing (not for CM44xR)

9.1.1   CM44x

NOTICE

Pointed or sharp tools
The use of unsuitable tools can cause scratches on the housing or damage to the seal, and therefore negatively affect the leak-tightness of the housing!
▶ Do not use any sharp or pointed objects, e.g. a knife, to open the housing.
▶ Only use a suitable Phillips screwdriver.

⊞ 3   *Slacken the housing screws crosswise with a Phillips head screwdriver*
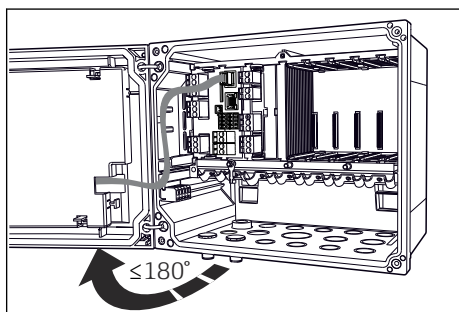
⊞ 4   *Opening display cover, max. opening angle 180˚ (depends on installation position)*

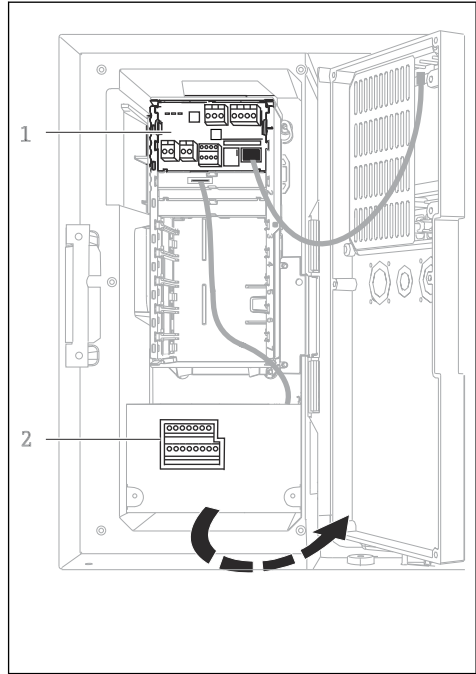1.   Slacken the housing screws crosswise.

2.   To close the housing: tighten the screws in a similar step-by-step, crosswise sequence.

9.1.2 CSFxx

The controller housing has a separate connection compartment. Loosen the six cover screws to open the connection compartment:
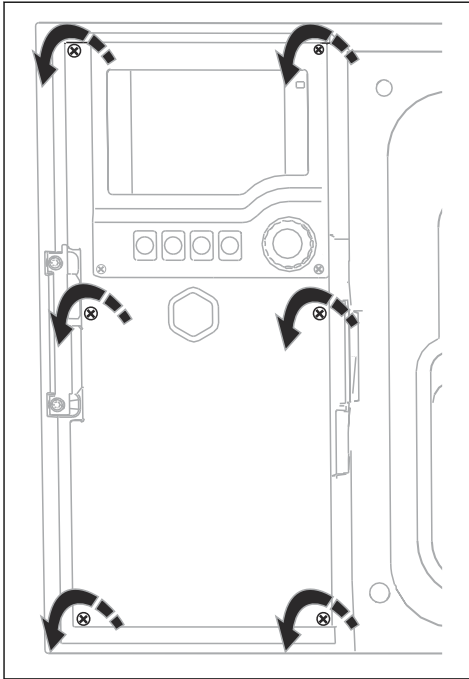
A0012843

A0051244

1   1 E base module
2   Sampler controller

▶ Release 6 cover screws with a Phillips screwdriver to open the display cover.

Display cover open, version with base module E

9.1.3 CA80XX

The controller housing has a separate connection compartment. Loosen the six cover screws to open the connection compartment.

9.2 Module installation

9.2.1 Bus termination (only module 485DP and 485MB)

If you wish to use the module's internal resistor to terminate the bus, you must configure the hardware prior to installing the module.

9.2.2   Installation conditions

▸ Prior to installation:

Ascertain the extension options for the device.

↳ Use Configurator on the product page in question, e.g.: www.products.endress.com/
cm442 or .../cm444R .../CSF48 or ...

ℹ️ ▪ You can use only one fieldbus. Example: You have had HART active up to now. After
installing module 485DP, activate PROFIBUS DP (via activation code). HART is then
deactivated!
   ▪ In the case of CM442/442R, any existing current outputs are disabled with the
installation of the 485DP or 485MB module!
   ▪ In the case of CM444/444R, CM448/448R, CSFxx or CA80XX, you can additionally
have a maximum of 2 current outputs.

9.2.3   Module installation (using the example of 485DP and 485MB)

ℹ️ The procedure for installing the module in the electronics box is the same for all
specified devices. In the diagrams in this section, however, only the Liquiline CM44x
(field housing) is shown.

You must install the module 485DP or 485MB in slot 2. With a CM442/442R, all available
slots are assigned once this is done. With all other devices, additional slots are available for
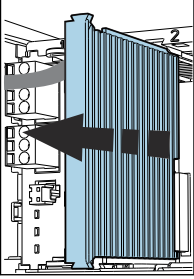you to install other electronics modules.

1.
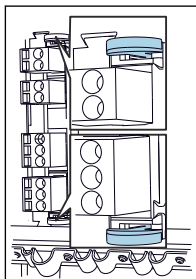
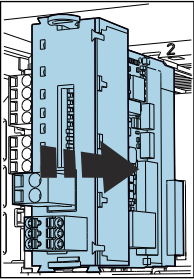If another module is already installed in slot 2:

Remove electronics module. Use the removal aids on the module to pull it out.
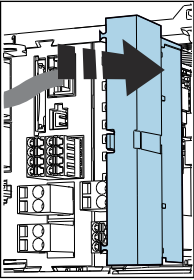
2.

If only the base module is present:
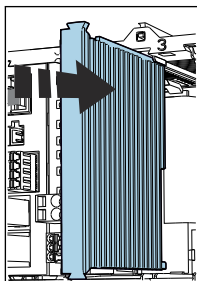
Remove module end cover.

3.

Insert the fieldbus module into the guides for slot 2 until it snaps into place.

4.

Insert the 6 mm dummy cover after the module. The dummy cover is included in the scope of delivery of this module kit.

5.

Finally, insert the module cover again.

↳ The fieldbus module is the last module in the diagram. If you wish to use additional modules, insert the end cover after the last module.

9.3 Electrical connection

⚠ WARNING

Device is live!
Incorrect connection may result in injury or death!
▶ The electrical connection may be performed only by an electrical technician.
▶ The electrical technician must have read and understood these Operating Instructions and must follow the instructions contained therein.
▶ **Prior** to commencing connection work, ensure that no voltage is present on any cable.

⚠ WARNING

Module not covered
No shock protection. Danger of electric shock!
▶ If you are modifying or extending your hardware, always fill the slots from left to right (CM44x) or from top to bottom (CSFXXxx). Do not leave any gaps.
▶ If not all slots are occupied, always insert a dummy cover or end cover after the last module (for CM44x) or below the last module (for CSFXXxx). This ensures the that unit is shock-protected.
▶ Ensure shock protection is guaranteed, particularly in the case of relay modules (2R, 4R, AOR).
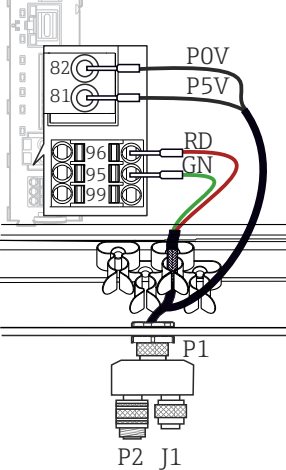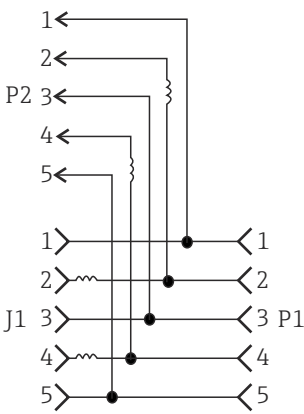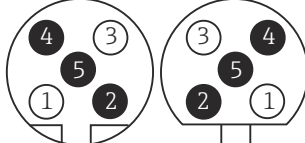
9.3.1 Connections on the module

❏ 5   *Module*

❏ 6   *Wiring diagram 485DP*

❏ 7   *Wiring diagram 485MB / RS485*
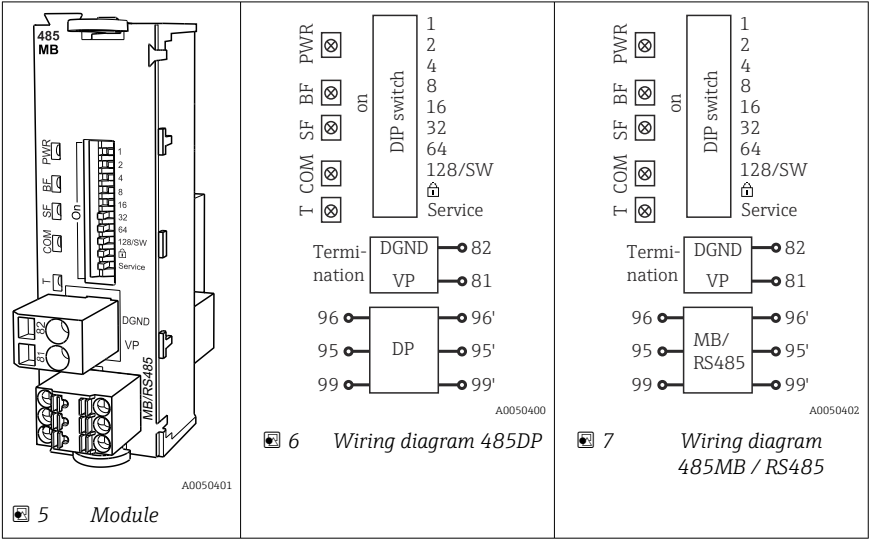
LEDs on front of module

LED	Designation	Color	Description
PWR	Power	GN	Supply voltage is applied and module is initialized
BF	Bus failure	RD	Bus failure
SF	System failure	RD	Device error
COM	Communication	YE	Modbus message sent or received
T	Bus termination	YE	• Off = No termination • On = Termination is used

DIP switches on front of module

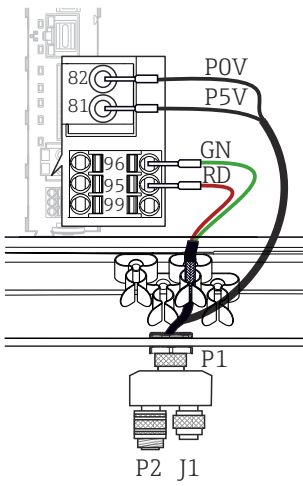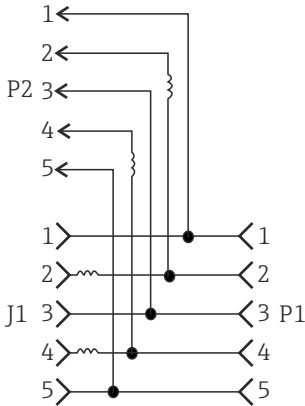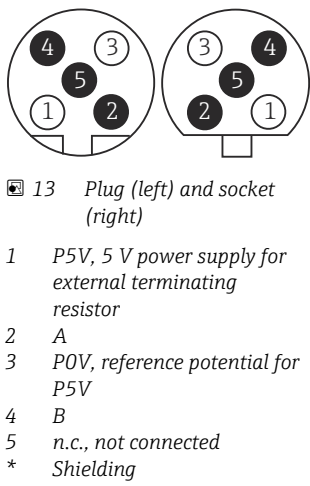| DIP	Factory setting	Assignment
1-128	ON	Bus address (→ "Commissioning/communication")
🔒	OFF	Write protection: "ON" = configuration not possible via the bus, only via local operation
Service	OFF	If the switch is set to **"ON"** , the user settings for Ethernet addressing are saved and connection settings programmed into the device at the factory are activated: IP address=192.168.1.212, Subnet mask=255.255.255.0, Gateway=0.0.0.0, DHCP=Off. If the switch is set to **"OFF"** , the saved user settings are reactivated.

9.3.2 Connection via M12 plug

PROFIBUS DP

M12 Y-section	Wiring in M12 Y section	Pin assignment in plug and socket
8 *M12 connection*	9 *Wiring*	10 *Plug (left) and socket (right)* 1 *P5V, 5 V power supply for external terminating resistor* 2 *A* 3 *P0V, reference potential for P5V* 4 *B* 5 *n.c., not connected* * *Shielding*

ℹ️ When using the M12 Y-section, the maximum data transfer rate is limited to 1.5 MBit/s. For direct wiring, the maximum data transfer rate is 12 MBit/s.

Modbus RS485

| M12 Y-section	Wiring in M12 Y section	Pin assignment in plug and socket
  ☒ 11 *M12 connection*	 ☒ 12 *Wiring*	 ☒ 13 *Plug (left) and socket (right)* *1* *P5V, 5 V power supply for external terminating resistor* *2* *A* *3* *P0V, reference potential for P5V* *4* *B* *5* *n.c., not connected* *** *Shielding*

9.3.3   Bus termination

There are 2 ways to terminate the bus:

1. Internal termination (via DIP switch on module board)
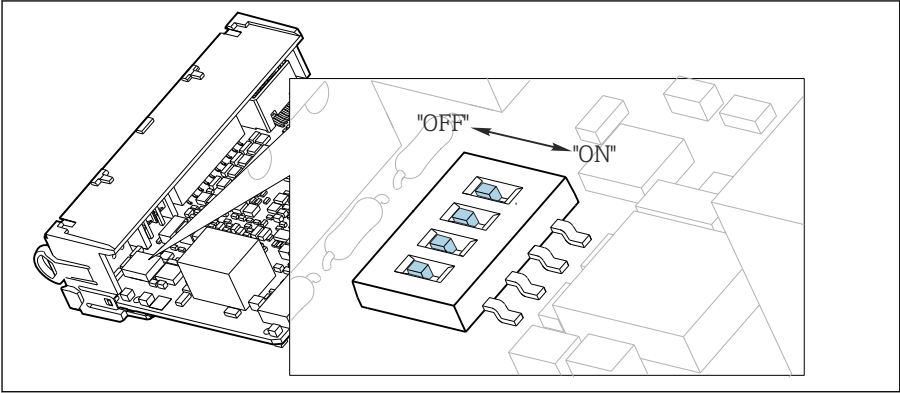
☒ 14   *DIP switch for internal termination*

▶ Using a suitable tool such as a tweezer, move all four DIP switches to the "ON" position.
    ↳ The internal termination is used.
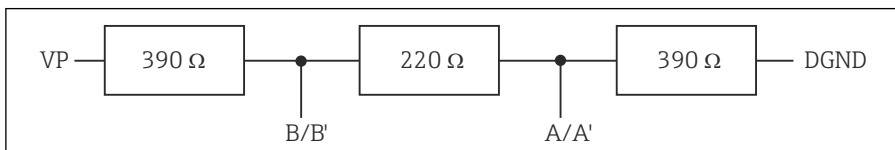
⊡ *15   Structure of internal termination*

2. External termination

Leave the DIP switches on the module board in the "OFF" position (factory setting).

▸ Connect the external termination to terminals 81 and 82 on the front of module 485DP and 485MB for 5 V power supply.
   ↳ The external termination is used.

10   Disposal

▸ Observe the local regulations.

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.

71593692

www.addresses.endress.com

Endress+Hauser

People for Process Automation