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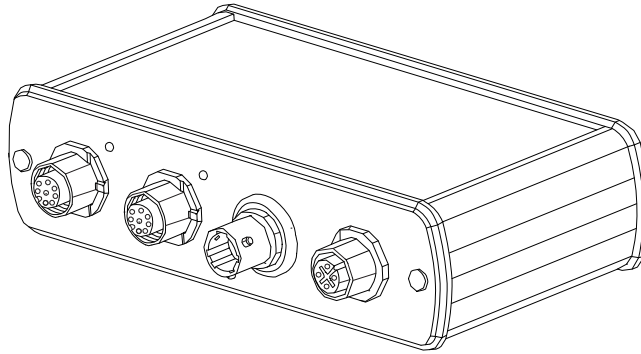
Operating Instructions
CYM17

Memosens analog converter



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 used

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

2 Basic safety instructions

2.1 Requirements for personnel

- Installation, commissioning, operation and maintenance must only be carried out by technical personnel trained to perform these tasks.
- The technical personnel must be authorized by the plant operator to carry out the specified activities.
- The technical personnel must have read and understood these Operating Instructions and must follow the instructions contained therein.
- Faults may be repaired only 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.

2.2 Designated use

CYM17 provides the main measured value and the temperature as an analog measured value. Memosens pH sensors and Memosens optical oxygen sensors can be connected to the device. The sensors can be connected to the device either individually or together at the same time.

The device is designed for use in the following applications:
- Laboratories
- Process-oriented workbench applications in non-hazardous areas

The device cannot be used to replace a process transmitter, as it does not support communication with the control system.

The device only supports Memosens sensors that are not approved for use in hazardous areas. Recommended areas of application are preferably laboratory applications for calibration and functional testing.

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-designated use.

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

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 European standards have been observed.

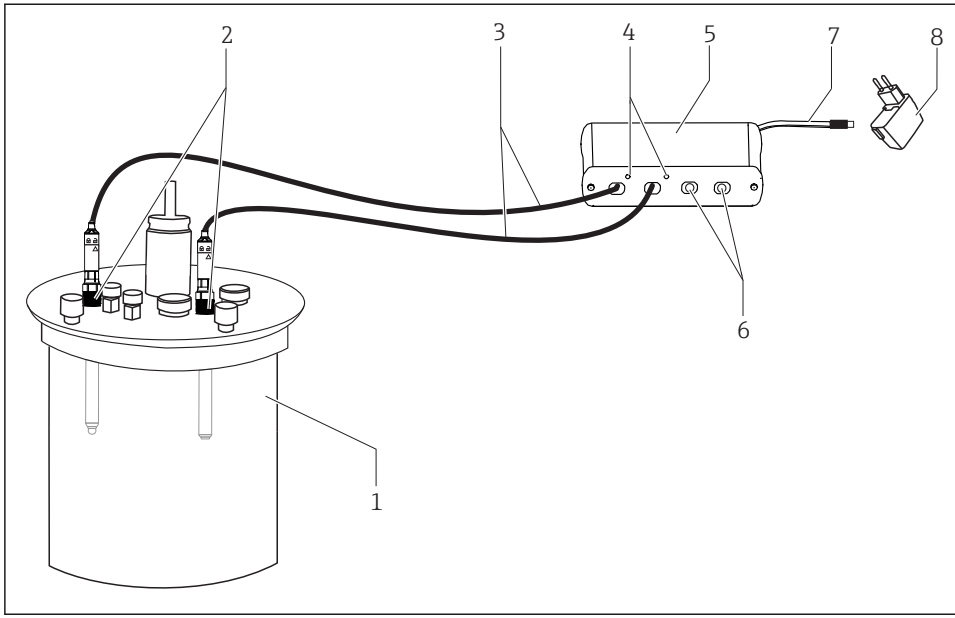
2.5.2 Electrical equipment in hazardous areas

The device must never be used in hazardous areas!

3 Product description

3.1 Product design

The following components form part of the scope of delivery:
- 1 Memosens analog converter
- 1 USB plug power adapter (only suitable for European sockets)



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1 Product design of the Memosens analog converter

1 Fermenters
2 Memosens sensors
3 Memosens cable
4 Light emitting diodes
5 Memosens analog converter
6 Analog output for adapter cable
7 USB cable
8 USB plug power adapter

The USB cable is for power supply only. Data transmission is not possible with the USB cable.

All Memosens pH sensors can be connected to the device. Preferably use the CPS171D and/or COS81D sensor for the fermentation process.

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 provides you with the following information on your device:
- Manufacturer identification
- Serial number
- Safety information and warnings

► Compare the information on the nameplate with the order.

4.2.2 Product identification

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.

4.3 Scope of delivery

The delivery comprises:
- 1 Memosens analog converter CYM17
- 1 set of Operating Instructions

4.4 Certificates and approvals

4.4.1 CE mark

The product meets the requirements of the harmonized European standards. As such, it complies with the legal specifications of the EU directives. The manufacturer confirms successful testing of the product by affixing to it the CE mark.

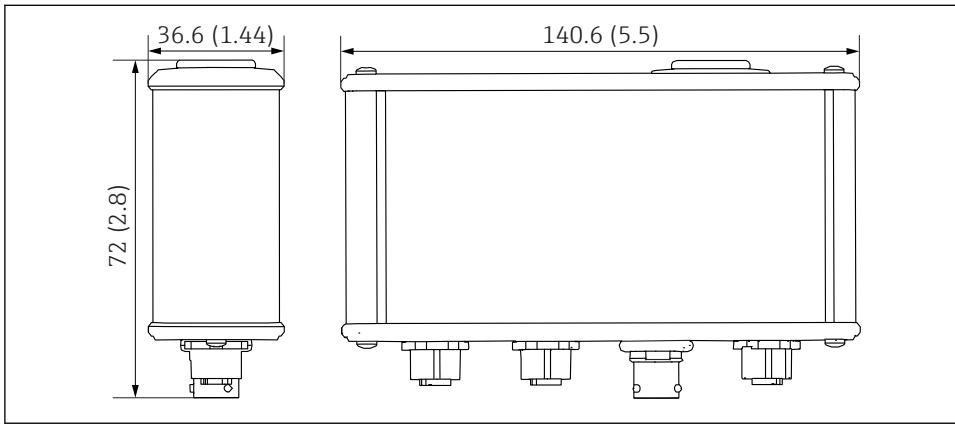
5 Installation

5.1 Installation conditions

5.1.1 Installation instructions

- Position the device in such a way that it can be easily accessed later on.
- Place the device on a firm, even surface.

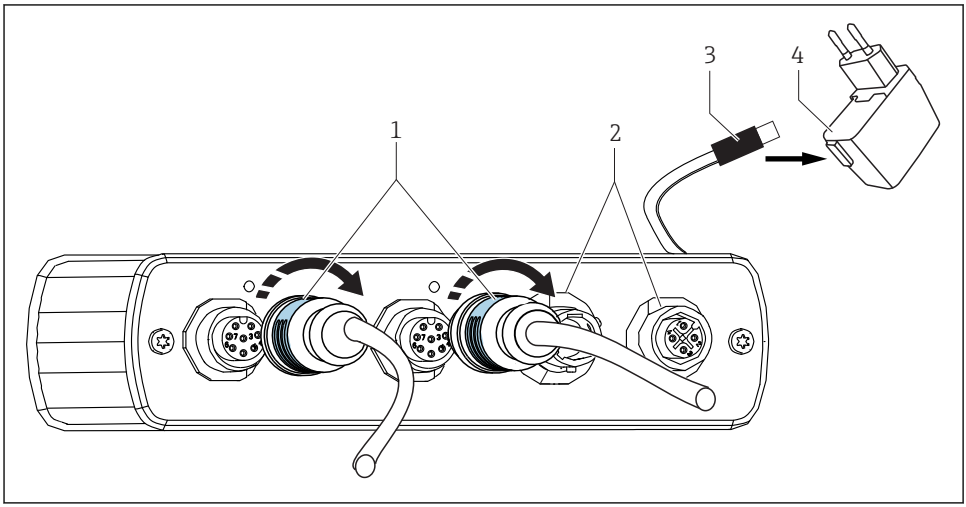
5.1.2 Dimensions



2 Dimensions of Memosens analog converter. Dimensions: mm (in)

6 Electrical connection

6.1 Connecting the device



3 Installation

1 Cable with M12 plug
2 Connections for adapter cable (if necessary)
3 USB connector for power supply
4 USB plug power adapter

1. Connect the M12 plug to the M12 socket on the device.
   ↳ Pay attention to the configuration of the connected sensor.
2. Connect the sensor with the Memosens protocol to the Memosens plug-in head of the CYK20 laboratory cable.
3. Connect the USB cable to the USB plug power adapter.
4. Plug the USB plug power adapter into a socket.

7 Diagnostics and troubleshooting

7.1 Diagnostic information via light emitting diodes (LED)

The device has a separate LED for each measuring channel. These LEDs provide information about the device and the connected sensors.

LED behavior	Status
Flashes green	Everything OK
Flashes red	Output signal error: No sensor is connected, or the sensor connected is faulty or incorrect
Flashes red and green	Output signal error: Reference calibration not performed (only applies to COS81)

7.2 Error signals

The following error signals can occur:

Error signal pH	< -750 mV	
Error signal DO	0 nA	
Error signal NTC22K	> 68.5 KOhm	corresponds to < 0 °C (32 °F)
Error signal PT1000	> 1271 Ohm	corresponds to > 70 °C (158 °F)

8 Repair

8.1 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.

8.2 Disposal

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

- Observe the local regulations.

9 Technical data

9.1 Input

9.1.1 Type of input

Memosens port: M12 socket

9.2 Output

9.2.1 Output signal

T82 socket:	0 to 200 nA (pin A cathode and pin B anode) / 4700 to 68500 Ohm (pin C and D)
M12 4-pin	-750 to 750 mV (pin 1 pH and 2 ref) / 1000 to 1400 (pin 3 and 4)

9.2.2 Voltage

Memosens M12:	2.8 to 3.3 V

9.3 Power supply

9.3.1 Power supply

5 V DC/500 mA via USB (via power unit provided)

9.3.2 Cable specification

Cable length

USB cable:	1.5 m (4.9 ft)
Memosens cable:	1.5 m (4.9 ft)
All adapter cables (on fermenter side):	1 m (3.3 ft)

Adapter cables

The following adapter cables (outlet fermenter side) are intended for the CYM17 (not supplied with the device):

pH:
- M12 4-pin/BNC + 2 banana
- M12 4-pin/K8S
- M12 4-pin/VarioPin 6-pin

DO:
T82 4-pin/VarioPin 6-pin

9.4 Performance characteristics

9.4.1 Maximum measured error

The measured error of the system depends on the calibration, the adjustment and the status of the connected sensor.

pH	± 1 % + 0.5 mV stability at -750 to 750 mV	For detailed information on the "Measured error", see the documentation for the connected pH sensor.
DO	± 1% + 40 pA stability at 0 to 120 nA	For detailed information on the "Measured error", see the documentation for the COS81D sensor.
PT1000	± 1 K at 1000 to 1271 Ohm	
NTC	± 1 K at 4700 to 68500 Ohm	

9.5 Environment

9.5.1 Ambient temperature range

−5 to 50 °C (23 to 122 °F)

9.5.2 Storage temperature

−25 to 85 °C (−13 to 185 °F)

9.5.3 Humidity

max. 85%, non-condensing

9.5.4 Degree of protection

IP54

9.5.5 Electromagnetic compatibility (EMC)

Interference emission and interference immunity as per EN 61326-1:2006, Class B (Industrial)

9.6 Mechanical construction

9.6.1 Dimensions

Installation → 9

9.6.2 Weight

0.33 kg (0.73 lbs)

9.6.3 Materials

Housing: aluminum

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