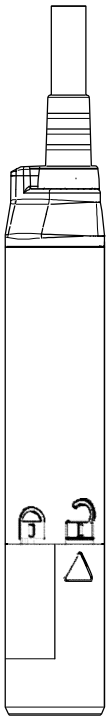
Operating Instructions
CM82 Compact Transmitter

Compact Transmitter for Memosens sensors from the Liquiline series



Endress+Hauser
People for Process Automation

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1 Document information

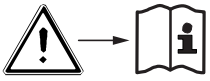
1.1 Warnings

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 at the device

Symbol	Meaning
	Reference to device documentation

1.4 Documentation

The following manuals which complement these Operating Instructions can be found on the product pages on the Internet:

- Operating Instructions Memosens, BA01245C
  - Software description for Memosens inputs
  - Calibration of Memosens sensors
  - Sensor-specific diagnostics and troubleshooting
- Operating Instructions for HART communication, BA00486C
  - Onsite settings and installation instructions for HART
  - Description of HART driver

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.

2.2 Designated use

Liquiline CM82 is a controller for the connection of digital sensors with Memosens technology.

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

2.3 Occupational 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 European standards for industrial applications.
- The electromagnetic compatibility indicated applies only to a product that has been connected in accordance with these Operating Instructions.

2.4 Operational safety

1. Before commissioning the entire measuring point, verify that all connections are correct. Ensure that electrical cables and hose connections are undamaged.
2. Do not operate damaged products, and safeguard them to ensure that they are not operated inadvertently. Label the damaged product as defective.
3. If faults cannot be rectified:
   Take the products out of operation and safeguard them to ensure that they are not operated inadvertently.

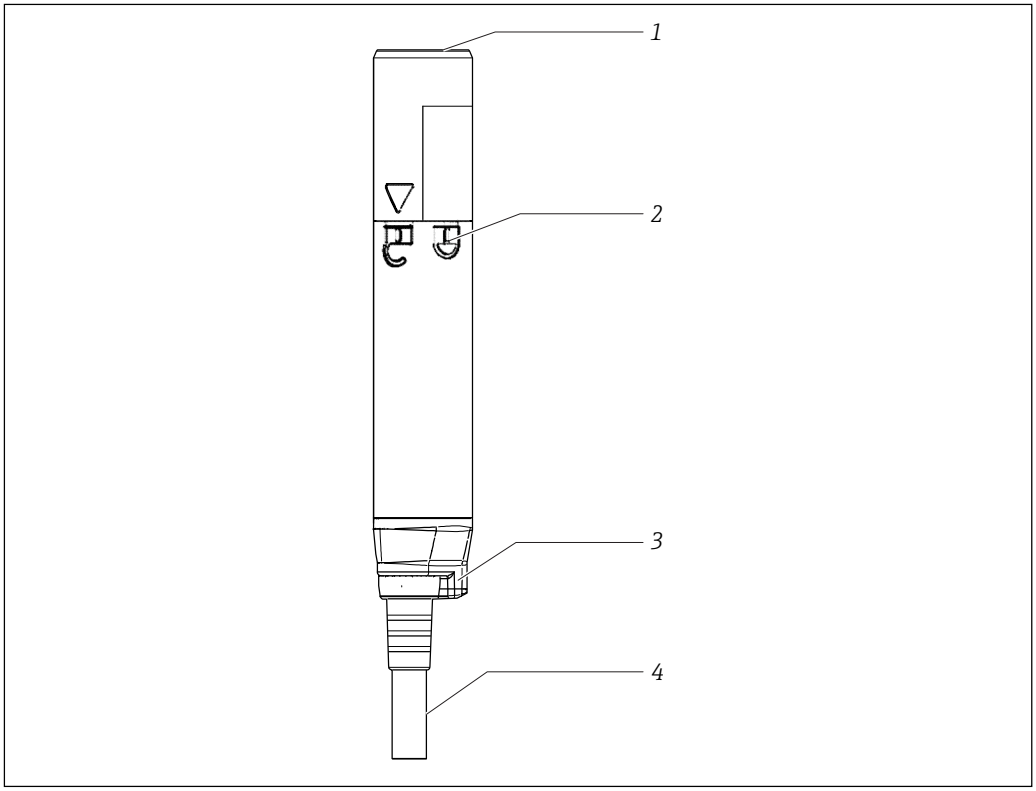
CAUTION

Cleaning not switched off during calibration or maintenance activities

Risk of injury due to medium or cleaning agent

- If a cleaning system is connected, switch if off before removing a sensor from the medium.
- If you wish to check the cleaning function and have therefore not switched off the cleaning system, please wear protective clothing, goggles and gloves or take other appropriate measures.

3 Device description



1 *Memosens connection*
2 *Housing*
3 *LED*
4 *Cable*

4 Incoming acceptance and product identification

4.1 Incoming acceptance

1. Verify that the packaging is undamaged.
   ↳ Notify your supplier of any damage to the packaging.
   Keep the damaged packaging until the matter has been settled.
2. Verify that the contents are undamaged.
   ↳ Notify your supplier of any damage to the delivery contents.
   Keep the damaged products until the matter has been settled.
3. Check the delivery for completeness.
   ↳ Check it against the delivery papers and 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.
   The permitted ambient conditions must be observed (see "Technical data").

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
- Order code
- Extended order code
- Serial number
- Ambient and process conditions
- Input and output values
- Activation codes
- Safety information and warnings

▶ Compare the data on the nameplate with your order.

4.2.2 Product identification

Product page

www.endress.com/CM82

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 the product page for your product on the Internet.
2. At the bottom of the page, click the link **Online Tools** and then select **Access device specific information**.
   ↳ An additional window opens.

3. Enter the order code from the nameplate into the search field and then select **Show details**.
   ↳ You will receive information on each feature (selected option) of the order code.

4.3 Scope of delivery

The scope of delivery includes:
- Compact transmitter
- Operating Instructions

If you have any questions, please contact your supplier or your local sales center.

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.

4.4.2 FCC/IC

This device complies with Part 15 of the FCC Rules [and with Industry Canada license-exempt RSS standard(s)]. 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.

Any changes or modifications made to this equipment not expressly approved by Endress+Hauser may void the FCC authorization to operate this equipment.

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions:
- this device may not cause harmful interference, and
- this device must accept any interference received, including interference that may cause undesired operation.

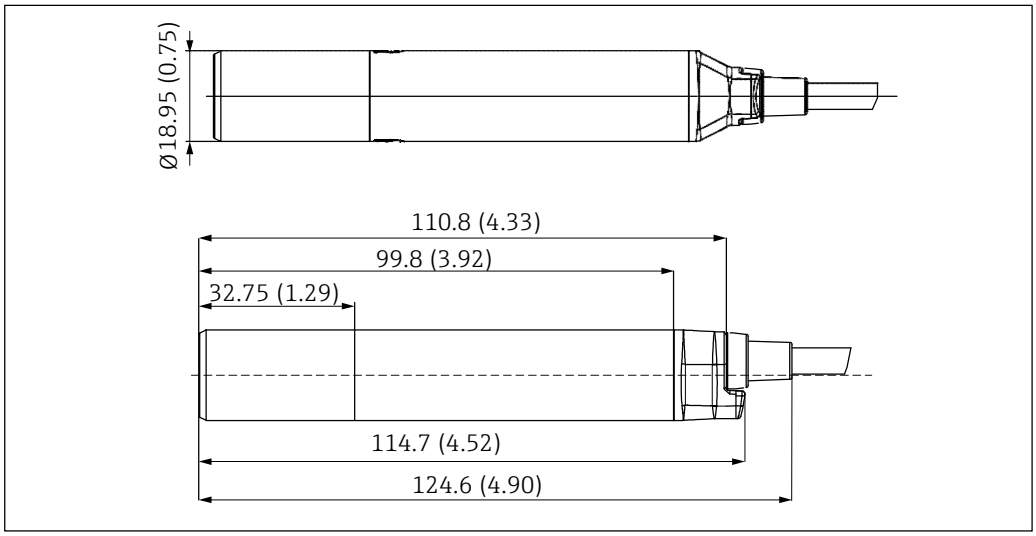
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:
- l'appareil ne doit pas produire de brouillage, et
- l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Increase the separation between the equipment and receiver.
—Consult the dealer or an experienced radio technician for help.

5 Installation

5.1 Dimensions



1 *Dimensions in mm (inch)*

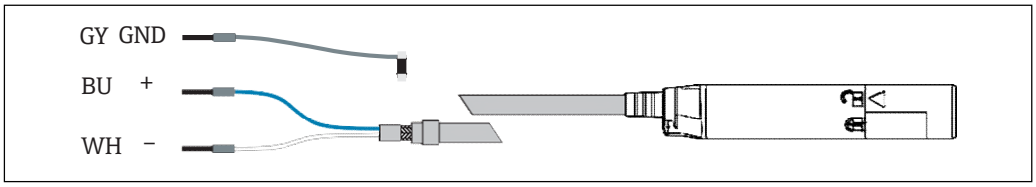
6 Electrical connection

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.



2 Electrical connection, ferrules

The "GND" cable is used for grounding.

7 Commissioning

7.1 Function check

WARNING

Incorrect connection, incorrect supply voltage
Safety risks for staff and device malfunctions

- Check that all connections have been established correctly in accordance with the wiring diagram.
- Ensure that the supply voltage matches the voltage indicated on the nameplate.

Familiarize yourself with the operation of the device before it is first switched on. In particular please read the "Basic safety instructions" sections. After power-up, the device performs a self-test and then goes to the measuring mode.

8 Maintenance

Effects on process and process control

- ▶ Take all the necessary precautions in time to ensure the operational safety and reliability of the entire measuring point.

The maintenance of the measuring point comprises:

- Calibration
- Cleaning the controller, assembly and sensor
- Checking the cables and connections.

WARNING

Process pressure and temperature, contamination, electrical voltage

Risk of serious or fatal injury

- ▶ If the sensor has to be removed during maintenance work, avoid hazards posed by pressure, temperature and contamination.
- ▶ Make sure the device is de-energized before you open it.
- ▶ Power can be supplied to switching contacts from separate circuits. De-energize these circuits before working on the terminals.

NOTICE

Electrostatic discharge (ESD)

Risk of damaging the electronic components

- ▶ Take personal protective measures to avoid ESD, such as discharging beforehand at PE or permanent grounding with a wrist strap.
- ▶ For your own safety, only use genuine spare parts. With genuine parts, the function, accuracy and reliability are also ensured after maintenance work.

9 Repairs

9.1 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 swift, safe and professional device returns, please read the return procedures and conditions at www.endress.com/support/return-material.

9.2 Disposal

The device contains electronic components and must therefore be disposed of in accordance with regulations on the disposal of electronic waste.

Observe the local regulations.

10 Technical data

10.1 Input

Measured values	→ Documentation of the connected sensor
Measuring ranges	→ Documentation of the connected sensor
Types of input	Digital sensor inputs for Memosens-sensors
Cable specification	**Cable length:** ▪ Max. 3 m (10 ft) ▪ Max. 7 m (23 ft) ▪ Max. 15 m (49 ft)

10.2 Output

Output signal	4 … 20 mA, galvanically isolated from the sensor circuits
Linearization/transmission behavior	Linear

10.3 Power supply

Supply voltage	12,5….30 VDC (maximum values) NOTICE **The device does not have a power switch** ▶ The customer must provide a protected circuit breaker in the vicinity of the device. ▶ The circuit breaker must be a switch or power switch, and you must label it as the circuit breaker for the device. ▶ At the supply point, the power supply must be isolated from dangerous live cables by double or reinforced insulation in the case of devices with a 24 V supply voltage.
Overvoltage protection	IEC 61 000-4-4 and IEC 61 000-4-5 with +/- 1 kV
Sensor connection	*Sensors with Memosens protocol*

Sensor types	Sensors
Digital sensors **without** additional internal power supply	▪ pH sensors ▪ ORP sensors ▪ Combined sensors ▪ Oxygen sensors (amperometric and optical) ▪ Conductivity sensors with conductive measurement of conductivity ▪ Chlorine sensors

10.4 Environment

Ambient temperature range	-20 to +85 °C (0 to 185 °F)
Storage temperature	-40 … +80 °C (-40 … 175 °F)
Humidity	5 to 95 %
Degree of protection	IP 67/68
Electromagnetic compatibility	▪ EN 61326-1 ▪ EN 61326-2-3 ▪ EN 61326-2-5 ▪ EN 301489-1 ▪ EN 301489-17 ▪ NAMUR NE 21
Electrical safety	EN 61010-1
Degree of contamination	The product is suitable for pollution degree 2.
Wireless standards	▪ EN 300 328 (Europe) ▪ 47 CFR 15.247 (USA) ▪ RSS-247 Issue 1 (Canada) ▪ RSS-GEN Issue 4

10.5 Mechanical construction

Materials

Components	Material
Housing	PEEK
Mounted parts	PEEK

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