

Installation Instructions

Memosens CAS41E

Wear parts



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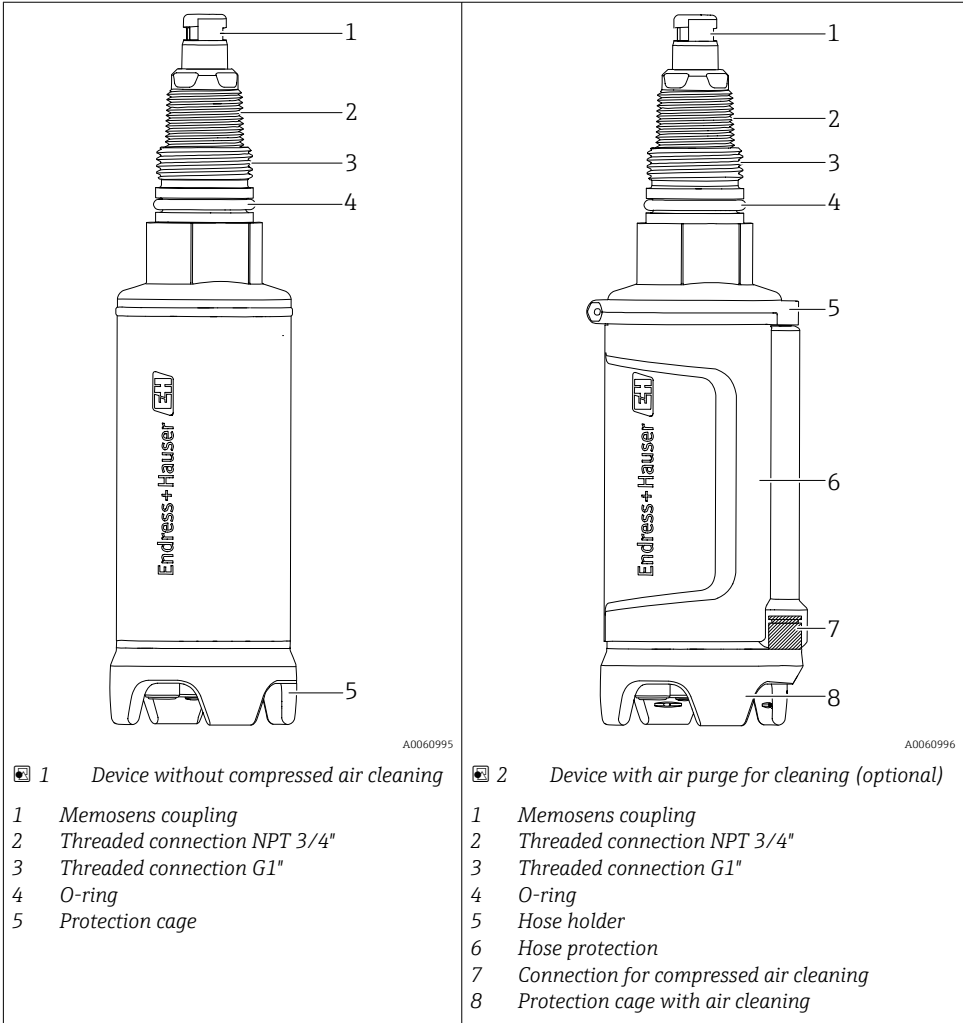
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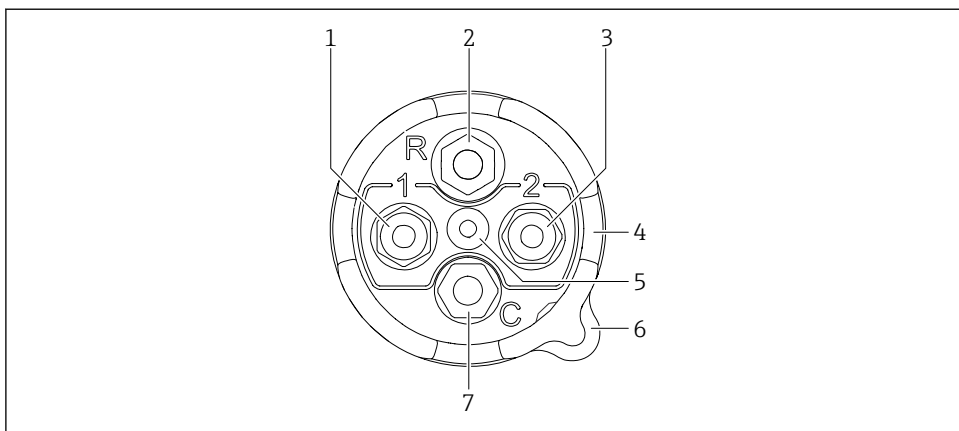
1 Overview

1.1 Product structure

XPC0033-	Product		
	11	CAS41E	
		Accessories enclosed	
		RA	Ammonium half-cell
		RB	Nitrate half-cell
		RC	Potassium half-cell
		RD	Chloride half-cell (incl. maintenance kit)
		RE	Reference electrode
		RF	Separate chloride maintenance kit
		RG	Dummy electrode
XPC0033-	xx	xx	xx
			Complete order code

1.2 Device and component overview

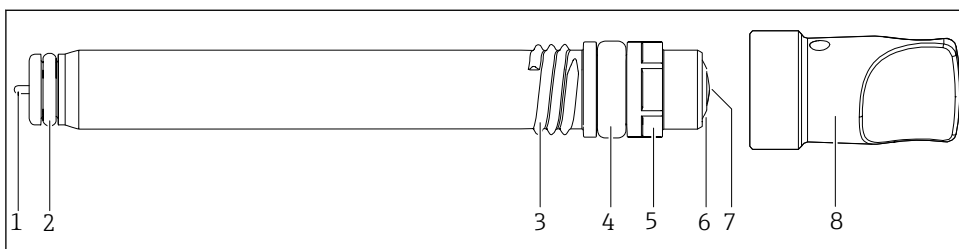




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3 View from below

- 1 Slot 1: Nitrate or ammonium electrode
- 2 Slot R: Reference electrode
- 3 Slot 2: Nitrate or ammonium electrode
- 4 Protection cage (optionally with nozzles for compressed air cleaning)
- 5 Counter electrode with integrated temperature sensor
- 6 Connection for compressed air cleaning (optional)
- 7 Slot C: Potassium or chloride electrode



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4 Structure of an electrode

- 1 Contact pin
- 2 O-ring
- 3 Threaded connection
- 4 O-ring
- 5 Hexagon socket
- 6 Color coding (see table)
- 7 Membrane (for nitrate, ammonium and potassium electrodes) or crystal (for chloride electrodes). For nitrate electrodes, the membrane is covered by a grid.
- 8 Protective cap

The electrodes are color-coded.

Electrode	Color code
Ammonium electrode	Red
Nitrate electrode	Blue
Potassium electrode	Yellow
Chloride electrode	Black

2 Intended use

- The parts from the kits must only be used as retrofit parts and spare parts for the Memosens CAS41E sensors. Any other use is not permitted!
- Use only original parts from Endress+Hauser.
- Use only original parts from the manufacturer.
- In the Device Viewer, check if the spare part is suitable for the device in question.

3 Authorized installation 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 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.
- Measuring point faults may be repaired only by authorized and specially trained personnel.
- In the case of Ex-certified devices, the technical staff 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

Risk to health due to contact with reagents (chemicals) or process solutions!

- ▶ Wear chemical-resistant protective gloves, protective goggles and protective clothing,
- ▶ Immediately rinse splashes with plenty of water and a 1% sodium bicarbonate solution (NaHCO_3 , baking soda).
- ▶ In case of eye contact, rinse the affected area with plenty of water and then seek medical advice. Show the relevant safety data sheet to the physician.
- ▶ Note the nationally applicable workplace safety regulations for the work area when handling toxic or corrosive chemicals.

CAUTION

Risk of infection when working with wastewater!

- ▶ Wear protective gloves, protective goggles and protective clothing.
- ▶ Observe applicable workplace safety regulations.
- ▶ In case of eye contact, rinse the affected area with plenty of water and then seek medical advice.

NOTICE

Irreversible damage to the sensor body due to the use of unsuitable cleaning agents!

- ▶ The sensor body must not be cleaned with oxidizing acids. Oxidizing acids lead to corrosion (formation of rust), which stops the sensor from working properly and reduces its service life.
- ▶ Only use the cleaning agents and disinfectants approved for the sensor body in accordance with the manufacturer's specifications.

NOTICE

Material damage due to solvents!

- ▶ Do not use any halogen-containing organic solvents or acetone. These solvents could destroy plastic components of the assembly.



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 Scope of delivery

The scope of delivery is stored in the Spare Parts Finder (SFT) as a components sheet. The QR code below enables access to the scope of delivery including an overview of devices with the item numbers of the maintenance parts. The order code, product root or serial number of the device must be entered for this purpose.



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<https://sft-p.cdn.endress.com/>

6 Use of maintenance parts

6.1 Replacing the ISE half-cells

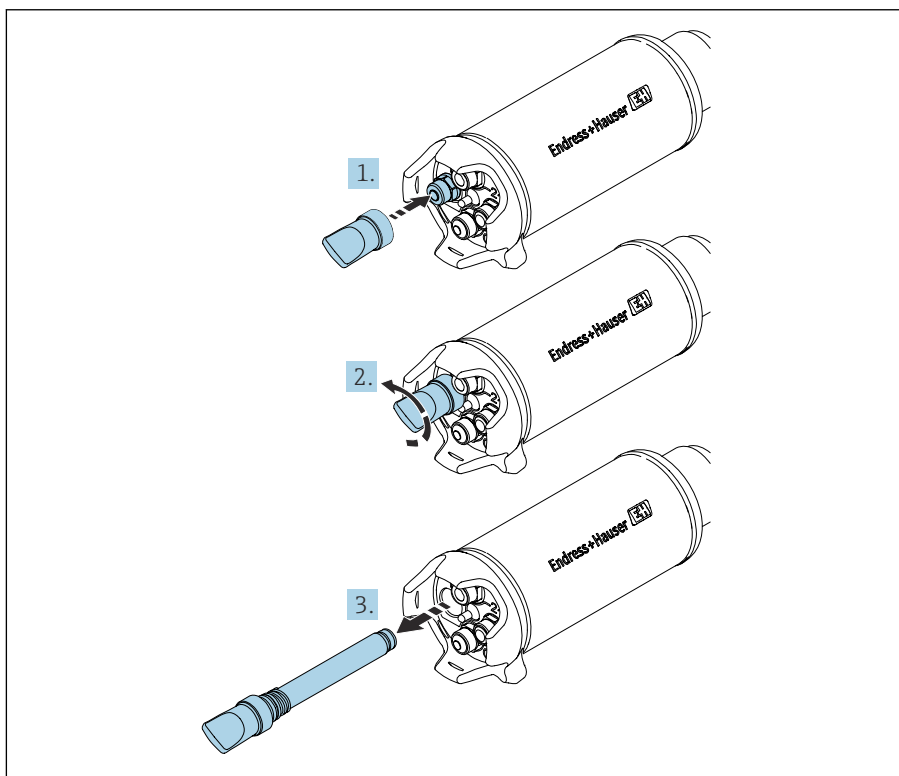
The half-cells of the Memosens CAS41E sensor are replaced as a whole. It is not necessary to change the membrane separately.

No additional tools are required to replace the half-cells. It is not necessary to remove the half-cells from the CYA112 assembly.

Removing the ISE half-cells

1. On the transmitter, under **Menu → Setup → Inputs → CHx: ISE → Extended Setup → Slot x: Parameter → Electrode Setup → Replace electrode**, launch the wizard for replacing the electrode.

2.



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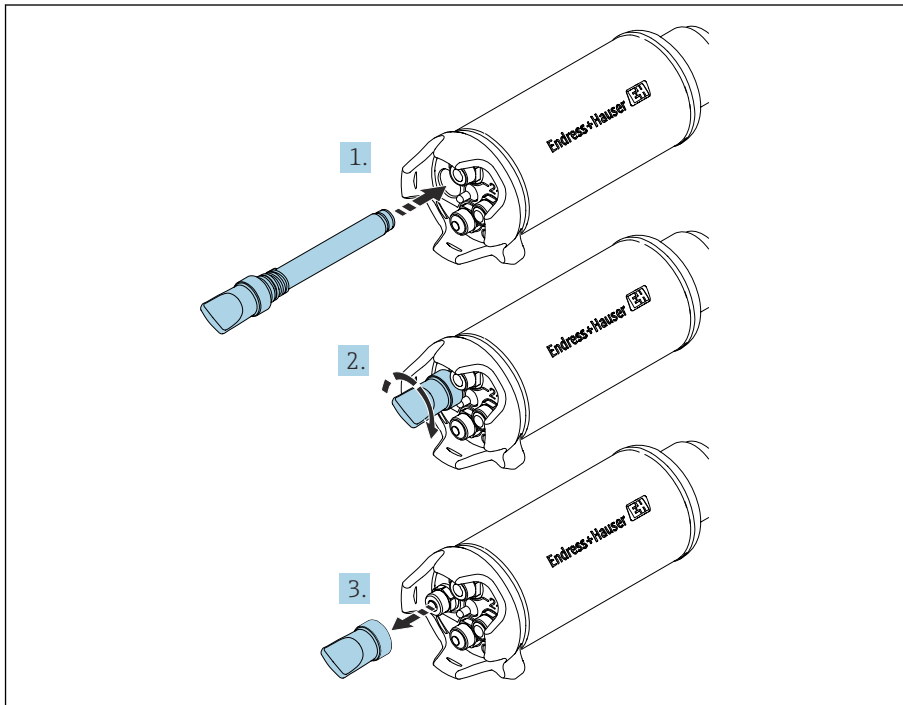
Attach the protective cap to a half-cell. The protective cap functions as a hexagon socket wrench.

3. Unscrew the half-cell from the thread using the protective cap.
4. Pull the half-cell out of the housing.

5. Remove the remaining half-cells in the same way.
6. Ensure that no moisture or foreign bodies get into the shaft.

Installing new ISE half-cells

1.



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Insert the new half-cell into the half-cell shaft using the protective cap.

2. Screw the half-cell in using the protective cap.
3. Pull the protective cap off (do not turn it!).
4. Install the remaining half-cells in the same way.

Putting the electrode into operation

1. Continue the wizard.
2. Immerse the sensor in the medium again when you are prompted to do so.
3. Continue the wizard.
 - ↳ The electrode is started up and hold is deactivated.
4. Calibrate the electrode → 11.

NOTICE**Risk of injury from electrolyte!**

- ▶ The protective cap contains electrolyte, which must not come into contact with open wounds or eyes.

NOTICE**Material damage due to mechanical cleaning of the half-cell membrane!**

- ▶ Only ever use running water or a damp cloth to clean the membrane of the ISE half-cells. Do not use abrasive media. Exception: Chloride compensation half-cell.

6.2 Maintenance of the chloride compensation half-cell

The chloride maintenance kit (option **RD** or **RF**) can be used to perform regular maintenance on the chloride compensation electrode by itself to extend the service life of the half-cell.

1. Take the sensor out of the process and thoroughly clean it with fresh water and a cloth or similar. It is not necessary to remove the sensor from the CYA112 assembly.
2. Moisten the sandpaper with some electrolyte or tap water and use it to gently polish the chloride crystal.
3. Clean the crystal with a damp cloth.



Maintenance can be performed as long as the crystal protrudes from its holder.

7 Calibration



The Memosens CAS41E sensor can be adjusted either while the process is taking place (in-process calibration) or separately (for example in a laboratory) (out-of-process calibration).

7.1 In-process calibration

In the case of in-process calibration, the sensor remains in the process medium and is therefore optimally adapted to the individual composition.

1. To record a new calibration point, go to **Menu → Calibration → CHx: ISE → Slot x: Parameter → In process calibration → Set new calibration point** and follow the steps in the wizard.
2. A reference sample of the medium is taken for each calibration point (MRP) and the concentration of the substance to be measured is determined in a laboratory.



Ensure that the MRP is taken in the direct vicinity of the sensor!

The concentration of the MRP can be entered either straight after or at a later point.

- 3. Go to **Menu → Calibration → CHx: ISE → Slot x: Parameter → In process calibration → Complete calibration point** and enter the MRP received later.
- 4. As soon as there are more than two calibration points, follow the steps in the wizard under **Menu → Calibration → CHx: ISE → Slot x: Parameter → In process calibration → Perform adjustment**.

Overview calibration point OK

Reference data has been saved.

ID	1
Temperature	20.0 °C
Raw value	30.0 mV
Reference concentration	12.20 mg/l

✓

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Calibration point select C

ID	Date/Time	Ref.conc.	Plausi.	
1	09.06.2026 05:21	12.2 mg/l	84 %	☐
3	09.06.2026 05:25	3.2 mg/l	99 %	☒
5	09.06.2026 05:28	6.8 mg/l	97 %	☐

X

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5 Excerpts from the calibration wizard for in-process calibration

i We recommend recording the calibration points when events of high and low concentration occur to make the adjustment as accurate as possible.

7.2 Out-of-process calibration

The sensor can also be adjusted in a laboratory according to the standard Memosens functionality. Calibration is performed using calibration solutions with different concentrations. The concentration is increased for each calibration point by adding stock solution. The wizard indicates the volume of stock solution required for each point in ml.

- 1. Take the sensor out of the process, remove it from the assembly and clean it thoroughly.
- i** Use a damp cloth and running water to clean it. Do not allow pressure or abrasive media to come into contact with the electrode membranes.
- 2. Fill a 2 L container with 1 L of drinking water and secure the sensor inside it. Ensure constant mixing and complete the measuring point.
- 3. Record a reference point (MRP) of the drinking water and enter the value as a manual offset. Otherwise, leave the entry at 0.0 mg/l (see menu below).
- 4. Start the calibration wizard via **Menu → Calibration → CHx: ISE → Slot x: Parameter → Out of process calibration** and enter the MRP as the zero point.

Select concentration zero sam...

C

Enter the measurement value offset of your zero sample. If the offset is not known, the value 0 can be entered instead. However, specifying the offset is recommended, as this improves the accuracy of the adjustment.

Manual offset

0.0 mg/l

X

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5. Follow calibration wizard and record five calibration points one after the other.

Measuring point 1

C

Please clean sensor before immersing in the calibration solution.

Zero-sample volume: 1.00 l

Add required stock solution volume: 0.07 ml to achieve the reference concentration: 1.0 mg/l + 0.0 mg/l zero sample offset

X

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Overview calibration point

C

Calibration point count

1

Reference concentration

1.1 mg/l

Temperature

20.0 °C

Raw value

-74.0 mV

X

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The number of calibration points, the concentration of the stock solution and the sample volume can be changed individually (see Operating Instructions BA02619C).

6. Once the adjustment parameters have been automatically calculated, confirm the adjustment and carry it out.

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Once the adjustment parameters have been automatically calculated, the **Show details** option provides more information about the deviation of the individual calibration points from the mathematical model.

Only change the adjustment parameters in consultation with a specialist from Endress+Hauser.

7. Perform the adjustment for other parameters if necessary. Start with fresh drinking water each time.
8. Add the sensor back into the process.

8 Additional documentation

Detailed information on the devices shown here can be found in the Operating Instructions for each device and in the other documentation, available at:

- Product page: <https://www.endress.com/>
- Spare parts finder: <https://sft-p.cdn.endress.com/>
- Device Viewer: www.endress.com/device-viewer
- Smartphone/tablet: Endress+Hauser Operations app

9 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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