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Operating instructions

CAPBs® sens AT10



Read instructions before using device!



Observe all safety information!



Keep instructions for future use!

1 About these operating instructions

These operating instructions describe the CAPBs sens sensor module. A CAPBs sens cannot be operated without a CAPBs handle. The CAPBs handle and a plugged in CAPBs sens sensor module form a measuring instrument (also referred to as "CAPBs" in these operating instructions). Read and understand the operating instructions for the CAPBs handle which you use together with the sensor module. These operating instructions are part of CAPBs sens sensor module.

- ▶ You may only use the measuring instrument if you have fully read and understood these operating instructions.
- ▶ Verify that these operating instructions are always accessible for any type of work performed on or with the measuring instrument.
- ▶ Pass these operating instructions as well as all other related documents on to all owners of the measuring instrument.
- ▶ If you feel that these operating instructions contain errors, inconsistencies, ambiguities or other issues, contact the manufacturer prior to using the measuring instrument.

These operating instructions are protected by copyright and may only be used as provided for by the corresponding copyright legislation. We reserve the right to modifications.

The manufacturer shall not be liable in any form whatsoever for direct or consequential damage resulting from failure to observe these operating instructions or from failure to comply with directives, regulations and standards and any other statutory requirements applicable at the installation site of the measuring instrument.

2 Information on safety

2.1 Safety messages and hazard categories

These operating instructions contain safety messages to alert you to potential hazards and risks. In addition to the instructions provided in these operating instructions, you must comply with all directives, standards and safety regulations applicable at the installation site of the measuring instrument.

Verify that you are familiar with all directives, standards and safety regulations and ensure compliance with them prior to using the measuring instrument.

Safety messages in these operating instructions are highlighted with warning symbols and warning words. Depending on the severity of a hazard, the safety messages are classified according to different hazard categories.



**WARNING
WORD**

Type and source of the hazard are shown here.

► Precautions to take in order to avoid the hazard are shown here.
Consequences of failure to observe the instructions are shown here.

2.2 Intended use

This measuring instrument is intended for measuring in the area of heating, ventilation, air conditioning (HVAC) or for equivalent applications.

When using the measuring instrument, perform all work and all other activities in conjunction with the product in compliance with the conditions specified in the operating instructions, as well as with all directives, standards and safety regulations applicable at the installation site of the product

2.3 Predictable incorrect application

These measuring instruments must never be used in the following cases and for the following purposes:

- Unprotected outdoor use
- Usage in hazardous area/potentially explosive atmosphere:
If the product is operated in hazardous areas, sparks may cause deflagrations, fires or explosions.
- Use outside of the technical specifications and limit values
- Applications covered by the European Measuring Instruments Directive MID
- Applications which involve hazardous substances unless all applicable safety directive, standards and regulations are met
- Applications which involve special hygienic requirements, such as, but not limited to, the food and beverages industries, pharmaceutical industry, biotechnology industry
- Applications which are used for health-saving or life-saving purposes, such a medical technology

2.4 Qualification of personnel

Only appropriately trained persons who are familiar with and understand the contents of these operating instructions and all other pertinent documentation concerning the measuring instrument are authorized to work on and with this measuring instrument. These persons must have sufficient technical training, knowledge and experience and be able to foresee and detect potential hazards that may

be caused by using the measuring instrument. All persons working on and with the measuring instrument must be fully familiar with all directives, standards and safety regulations that must be observed for performing such work.

2.5 Modifications to the CAPBs

Only perform work on and with the measuring instrument which is explicitly described in these operating instructions.

Do not make any modifications to the product which are not described in these operating instructions.

2.6 Usage of spare parts and accessories

Usage of unsuitable spare parts and accessories may cause damage to the CAPBs.

- ▶ Use only genuine spare parts and accessories of the manufacturer.

2.7 Specific safety information

WARNING



INCORRECT USE OF THE MEASURING INSTRUMENT

- ▶ Perform a risk assessment in view of the planned application, according to an approved risk assessment method.
- ▶ Implement the appropriate safety measures, based on the results of the risk assessment.
- ▶ Implement all safety measures in compliance with the conditions specified in the operating instructions as well as with all directives, standards and safety regulations applicable at the operation site of the measuring instrument and verify that all risks resulting from hazardous substances and all other hazards are excluded when using the measuring instrument.

Failure to follow these instructions can result in death, serious injury and equipment damage.



3 Technical specifications

3.1 Approvals, conformities

- EMC Directive - 2014/30/EU
- RoHS Directive - 2011/65/EU
- WEEE Directive 2012/19/EU

3.2 CAPBs sens AT: Anode tester

Parameter	AT10
Use	Evaluation and display of the measured anode protective current
Measuring range	0 ... 60 mA
Measuring principle	Protective current measurement
Accuracy	1% reading + 1 Digit
Resolution	0,01 mA
Connections	2 x Test leads with isolated clamps
Unit	mA
Max. Voltage	1 V
Operating temperature	0 °C to +50 °C
Storage temperature	-20 °C to +50 °C
Dimensions W x H x D [mm]	58 x 42 x 35
CAPBs module hours of operation	Up to 32 hours of battery operation
CAPBs device hours of operation	Up to 12 hours
Application program	Anode test

4 Operation

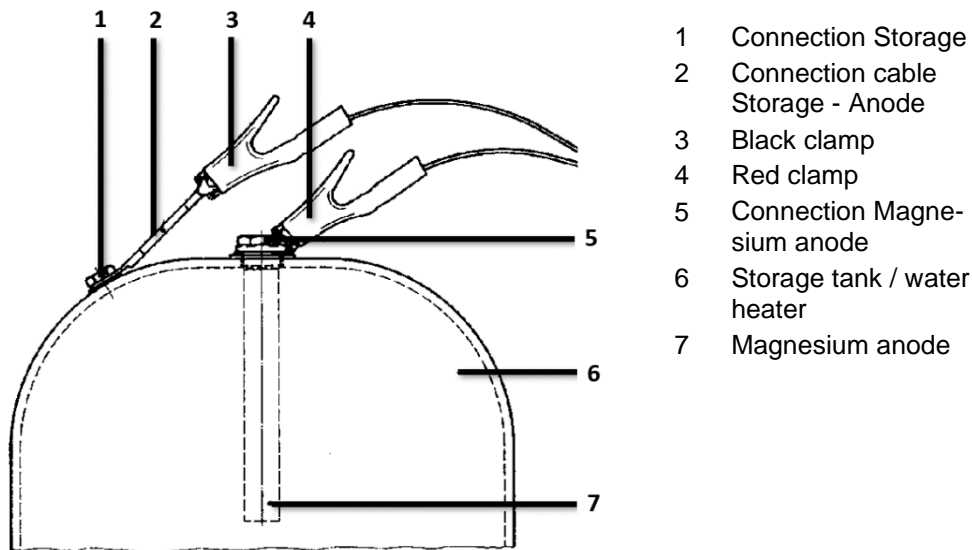
The CAPBs sens AT10 is used to check the function and consumption status of magnesium anodes (sacrificial anodes) in enameled storage tanks/water heaters. According to DIN 4753-6, the anodes must be checked after an operating period of two years and can be done with the product without interrupting operation and without opening the storage tank.

A requirement for the use of the product is the insulated installation of the magnesium anode in the storage tank/water heater. In this installation, the connection between the anode and the tank is made through an available cable outside the tank.

To check the anode function, this connection is interrupted when the storage tank/water heater is full and the product is connected in between by connecting the two measuring cables.

By measuring the flowing anode protective current and displaying it, the product can be used to determine the consumption state of the anode. A protective current ≤ 0.3 mA indicates a used magnesium anode which must be replaced.

4.1 Procedure Anode Test





Make sure that the storage tank is filled with water. This is the only way to check the anode.

1. Disconnect the connecting cable between the anode and the reservoir at a connection point.
2. Clamp the red measuring cable of the product to the anode.
3. Clamp the black measuring cable of the product to the storage tank.
4. Make sure that the contact is electrically conductive and remove any insulating oxide layer.
5. read the measured value
 - a. If the value is ≤ 0.3 mA, the anode is used up or inactive due to deposits and must be replaced.
 - b. If the value is > 0.3 mA, the anode is OK.

The amount of anode current depends on the conductivity of the water and the anode/storage geometry.

6. Disconnect the product and reconnect the connecting cable between the anode and the accumulator.

5 Maintenance

The measuring instrument does not contain any parts that can be serviced or repaired by the customer.

Prior to performing a measurement, perform a visual inspection of the CAPBs for visible damage. Do not use damaged measuring instruments.

- Clean the measuring instrument after each use. Use a dry, lint-free cloth for cleaning.
- Use a slightly wetted cloth to remove pollution that cannot be removed with a dry cloth.
- Do not use cleaning agents for cleaning.

The CAPBs measuring instrument must be serviced by the manufacturer or an authorised service point at regular intervals. The service intervals depend, among other things, on the legal requirements and regulations.

6 Troubleshooting

Repairs may only be performed by specially trained, qualified staff.



Problem	Possible reason	Repair
Very small measured value (<0.3 mA) when checking a magnesium anode in new condition	Storage empty	► Fill up the tank
	The anode is insulated Mounted	► Remove existing insulating oxide layer
	The connection between anode and accumulator is interrupted	► Make a connection between the anode and the tank
	The polarity of the test leads is reversed	► Change the polarity
Other malfunctions	No conductive contact at the clamp points	► Check the clamping points
	–	► Send the measuring device to the manufacturer

7 Decommissioning, disposal



Dispose of the product in compliance with all applicable directives, standards and safety regulations.

Electronic components and batteries must not be disposed of together with the normal household waste.

8 Warranty

See our terms and conditions at www.afriso.com or your purchase contract for information on warranty.

9 Addresses

The addresses of our worldwide representations and offices can be found on the Internet at www.systronik.com.