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Operating instructions

CAPBs[®] sens CO



Read instructions before using device!

Observe all safety information!

Keep instructions for future use!

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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 Type and source of the hazard are shown here.

WORD ►



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

These measuring instruments are intended for detection carbon monoxide (CO) 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 product.

- ▶ 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.

**DANGER****POISONING HAZARD**

- ▶ Do not use the CAPBs sens CO30 as a device for determining and/or monitoring CO concentrations that are hazardous to persons.

Failure to follow these instructions will result in death or serious injury.

Information on carbon monoxide

Carbon monoxide is an extremely hazardous gas which is highly toxic even at very low concentrations. It is invisible, tasteless and odourless. The table below provides a general overview of the effects of specific CO concentrations on humans.

Concentration in air	Symptoms*
30 ppm	Maximum CO concentration at the workplace, during eight hours of work (limit value in Germany)
60 ppm	Short-term limit value (15-minutes mean value, limit value in Germany)
200 ppm	Headache within 2 to 3 hours
800 ppm	Dizziness, nausea, jactation within 45 minutes, unconsciousness within 2 hours
1600 ppm	Headache, dizziness, nausea within 45 minutes, unconsciousness within 2 hours
3200 ppm	Headache, dizziness, nausea within 5 to 10 minutes, death within 30 minutes
6400 ppm	Headache, dizziness, nausea within 1 to 2 minutes, death within 10 to 15 minutes
12800 ppm	Death within 1 to 3 minutes

* Depending on body height, age, sex and health, persons react differently to CO concentrations.



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 CO: Carbon monoxide



Parameter	CO30
Use	CAPBs sens sensor module for detection of carbon monoxide (CO)
Measuring range	0 ... 2000 ppm CO
Measuring principle	Electro-chemical cell
Measuring accuracy	±5 ppm (up to 50 ppm) ±5 % (more than 50 ppm)
Resolution	1 ppm
Units	ppm
Operating temperature	0 °C to 40 °C
Storage temperature	-20 °C to +60 °C
Atmospheric pressure (operation)	800 to 1,200 mbar
Humidity (operation)	15 to 95 % rh, non-condensing
Cross sensitivities	Gases such as acetylene, ethylene, hydrogen, nitrogen oxide or chlorine can generate a positive signal
Dimensions W x H x D [mm]	64 x 42 x 35



CAPBs STm hours of operation	Up to 45 hours of battery operation
Application programs	CO ambient measurement

4 Operation

When the CAPBs is switched on, the measuring instrument performs zero calibration. Zero calibration must be performed in COfree air. If you want to take a measurement, verify that you only switch on the measuring instrument in CO-free air.

If zero calibration is performed in air with a CO concentration of > 50 ppm, the sensor does not yield measured values, but generates an error message. New zero calibration in CO-free air clears this error.

WARNING INCORRECT MEASURED VALUES



- ▶ Perform zero calibration immediately after switching on in COfree fresh air.

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



DANGER**INCORRECT MEASURED VALUES AFTER EXCEEDING OF MEASURING RANGE**

- ▶ If a CO concentration above the maximum value of the measuring range was measured, the sensor requires a recovery time before it can deliver precise measured values again.
- ▶ If the maximum value of the measuring range was exceeded, immediately leave the area where the measured CO concentration occurred.
- ▶ If the maximum value of the measuring range was exceeded, perform a function test by taking a measurement at a point with a known, safe CO concentration and verifying that the known CO concentration is correctly displayed.
- ▶ Do not perform further measurements unless you have verified that the sensor delivers correct measured values.

Failure to follow these instructions will result in death or serious injury.

5 Storage

Store the device in a dry location away from solvents.

6 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.



7 Troubleshooting

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

Problem	Possible reason	Repair
Display device shows sensor error during zero calibration in fresh air, no measured values	Sensor inoperative	▶ Send the measuring instrument to the manufacturer
Other malfunctions	–	▶ Send the measuring instrument to the manufacturer

8 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.

9 Warranty

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

10 Addresses

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



11 Declaration of Conformity



EG-Konformitätserklärung

Messtechnik für Industrie und Umwelt

SYSTRONIK

Messtechnologie

*EC Declaration of Conformity * Certificat de conformité CE * Dichiarazione di conformità CE*

Als Hersteller erklären wir hiermit, dass unser Produkt
*We declare that our product * Nous déclarons que notre produit * Dichiariamo che nostro prodotto*

CAPBs®

**TK10_TK11_TK20_TK30_TK35_TK40_TK50_FP10_AQ20_AQ21_PT70
PS10_PS20_PS22_PS33_PS35_PS40_PS41_PS42_PS60_PS61_PS62
GS10_RH80_CO30_FT20 (FlowTemp ST) & ST/STm (BG10)**

mit den Vorschriften folgender europäischer Richtlinien übereinstimmt
*conforms to * conforme avec * conforma a*

2014/30/EU
2014/30/EU

Elektromagnetische Verträglichkeit
EC directive electromagnetic compatibility

EN 301 489-17 V2.2.1
EN 60950-1:2006 +A11:2009 +A12:2011 +A1:2010 +A2:2013
EN 62479:2010
EN 61000-6-1
EN 61000-6-3:2007+A1:2011 +AC:2012
EN 50270-1

2011/65/EU
2011/65/EU

Beschränkung der Verwendung gefährlicher Stoffe (RoHS)
Restriction of the use of certain hazardous substances (RoHS)

2012/19/EU
2012/19/EU

Elektro- und Elektronik-Altgeräte (WEEE)
Waste Electrical and Electronic Equipment (WEEE)

CAPBs®

ST/STm (BG10)

2014/53/EU
2014/53/EU

ETSI EN 300 328 V.1.9.1
ETSI EN 300 328 V.1.9.1

Funkgeräte-Richtlinie (RED)
Radio Equipment Directive (RED)

Illmensee, den 21.02.2017

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