

MicroSENS CO₂ 0-20% 180-HS- PFAS-free gas sensor

CO₂**Art. no. 7213.01-A**

NDIR gas sensor for CO₂ measurement in incubators, heat sterilizable at 180 °C.

This MicroSENS CO₂ 0-20% 180-HS is a PFAS-free NDIR CO₂ gas sensor with a robust metal filter, designed for precise CO₂ control in cell incubators. The heat-resistant sensor head enables reliable 180 °C sterilization and minimum of 1000 cycles according to DIN EN ISO 20857:2013. Temperature, pressure, and humidity compensation ensure stable measurements, while digital and analog interfaces simplify integration. A 15-point calibration matrix (five gas concentrations at three temperatures each) delivers superior linearity and accuracy across the full 0-20% range.

Applications

- Medical diagnostics - in-vitro diagnostics
- Tests in cellular processes
- Biotechnology
- Pharmaceutical industry and research

Product benefits

- High reliability
- Long service life
- Easy decontamination through high temperature sterilization cycle
- Low maintenance and minimal follow-up costs thanks to high-quality components

Features

- IR dual-beam technology
- Temperature and pressure compensated
- Heat sterilizable at typ. 180 °C (maximum up to 190 °C)
- Humidity compensation
- Digital and analog interface
- Application-specific core components and electronic modules manufactured in-house
- Sensor head made of resistant and durable metal



PRODUCT DATA SHEET

Gas Sensors / MicroSENS 180-HS 0-20% CO₂ gas sensor PFAS free



Technical data

Measurement performance

Technical parameter	Value	Unit
Measuring gas	CO ₂	
Measuring range	0 ... 20	Vol.-%
Start-up time	< 10	s
Warm-up time	< 5	min
IP protection class	IP54 ¹ (Zone A); IP30 (all other areas). Refer to sensor drawing on page 4.	
Repeatability	<0.005	% FS
Accuracy	± (2 % of reading + 0.2 Vol.-%)	
Response time t90 with filter	< 45	s
Digital resolution	0.001	Vol.-%
Temperature influence	0.155	% FS / 10 K
Pressure influence	0.004	% FS / 10 hPa
Long-term stability	≤ ± 0.2 Vol.-% at 5 Vol.-% / year	

Inputs and outputs

Operating voltage analog connection	15 ... 24	V DC
Operating voltage digital connection	12 ... 24	V DC
Nominal power consumption	< 2	W
Digital output signal	RS232	
Analog output signal	4-20	mA



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Operating environment

Technical parameter	Value	Unit
Operating temperature	0 ... 60	°C
Storage temperature	-20 ... 85	°C
Max. sterilization temperature ²	190	°C
Humidity ²	0 ... 95 % relative humidity (non condensing)	
Air pressure	500 ... 1200	hPa
Chemical tolerance	H ₂ O ₂ (3000 ppm, non-condensing, temporary exposure during cleaning)	

¹ Exposure to water spray shall not exceed 1 minute and shall be followed by a minimum drainage period of 1 hour.

² Applies to Zone A only. Refer to sensor drawing on page 4.



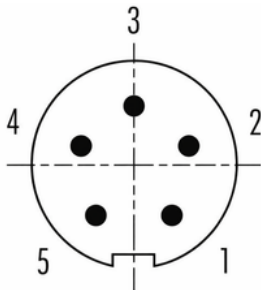
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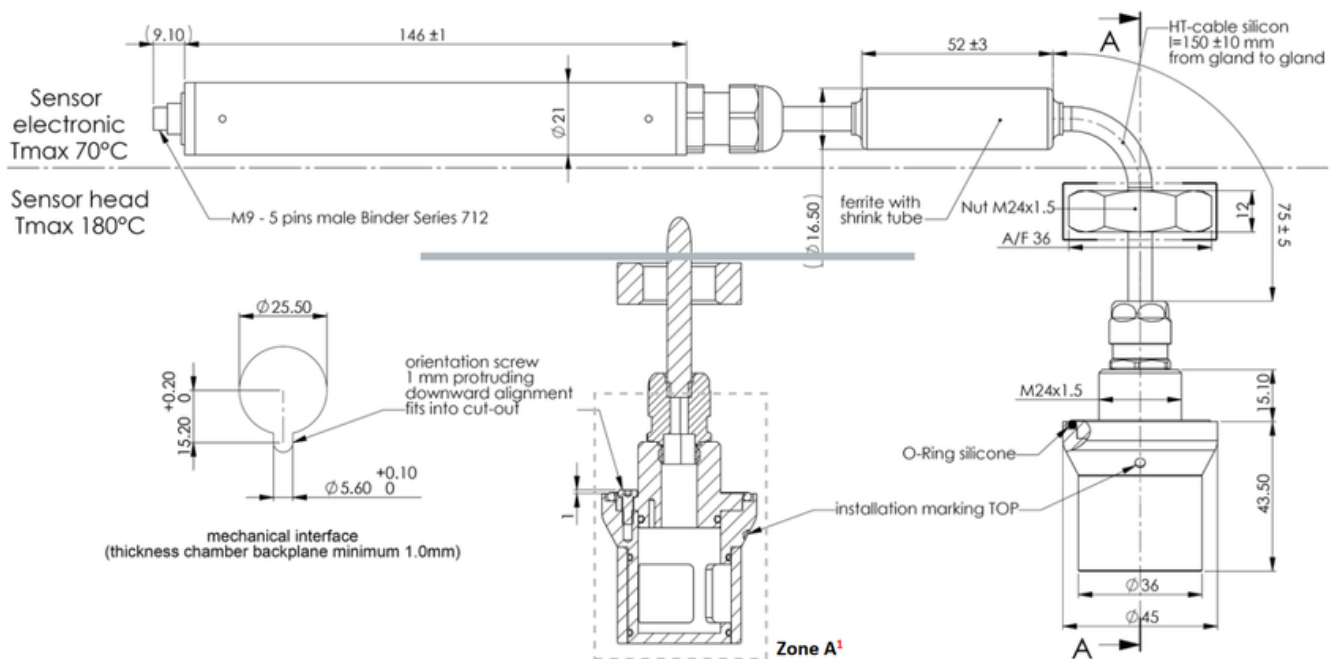
Typical operating characteristics

Pin out



- Pin 1 – 24 V
- Pin 2 – RX
- Pin 3 – TX
- Pin 4 – GND
- Pin 5 – Current out

Sensor overview



Panel cut out

All geometrical dimensions in mm

Disclaimer

All rights reserved. All information in this data sheet is based on latest knowledge, results of practical experience and tests carried out. Earlier specifications are hereby invalid. All specifications – technical included – are subject to change without notice. It is the customer's responsibility to ensure that the performance of the product is suitable for customer's specific application. No liability is accepted for indirect damage, in particular for the use or inability to use the product. Any liability we may have is limited to the value of the product itself.

