

# Easy Gas Sensor

## ES4-CO-10000 - Carbon Monoxide

### Technical Specification



Solid Polymer Technology



#### Features

- Extreme linear response up to high concentration
- Low noise
- No electrolyte leakage
- Low cost at large volumes
- Fast response
- Individually calibrated including test report

#### Typical applications

- TLV-monitoring, leakage detection
- Oil & Petrochemical Industry
- Steel Industry
- Parking garages

#### Performance

Sensitivity	10nA ± 3nA
Zero current	± 100 nA
Response time	
-T <sub>50</sub>	<10s
-T <sub>90</sub>	<30s
Range	10000 ppm
Repeatability	<1%
Lower Detectable Limit (LDL)	≤10 ppm
Resolution (16Bit ADC)	1 ppm
Maximum overload	30000 ppm
Linear range	30000 ppm

#### Environment

Temperature Range	-40°C to 50°C
Humidity Range (non condensing)	10 to 95 % r.H
Pressure Range	800 to 1200 hPa

#### Operation

Operating principle	amperometric, 3-electrode
Bias voltage	0 mV
Recommended load resistor	100 Ω
Warm up time	< 60 s

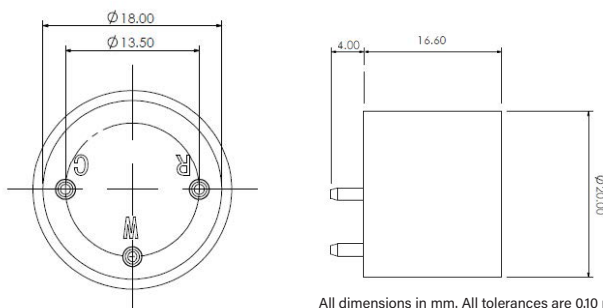
#### Lifetime

Long Term Sensitivity Drift	< 1 %/month
Zero Drift in clean air	< 2 ppm
Storage conditions	0-20 °C
Storage life	6 month
Expected Life Time	> 3 years
Warranty	24 month

#### Housing

Housing material	ABS
Weight	< 6g

## Dimensions



All dimensions in mm. All tolerances are 0.10 mm unless otherwise stated

## Cross sensitivity

Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH <sub>3</sub>	50	0
Carbon Dioxide	CO <sub>2</sub>	1000	0
Chlorine	Cl <sub>2</sub>	1.0	0
Hydrocarbons (unsaturated)	-		
Hydrogen	H <sub>2</sub>	100	80
Hydrogen Sulphide	H <sub>2</sub> S	50	0
Hydrogen Cyanide	HCN	50	0
Isopropanol	C <sub>3</sub> H <sub>7</sub> OH	1000	0
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO <sub>2</sub>	100	0

**DISCLAIMER:** Sensor performance is temperature dependent. Performance data stated is based on test conditions with new sensors at 23°C, 50%RH and 1 atm, flow rate >150qcm/min using EC-Sense recommended circuitry. Cross sensitivity gases are not target gases. Relations and performance can change, also with ageing of the sensor. In the interest of continued product improvement, EC-Sense reserves the right to change design features and specifications without prior notification. We do not accept any legal responsibility for customer applications of our sensors. EC-Sense accepts no liability for any consequential losses, injury or damage resulting from the use of this document, the information contained within or from any omissions or errors herein. This document does not constitute an offer for sale and the data contained is for guidance only and may not be taken as warranty. Any use of the given data must be assessed and determined by the user thereof to be in accordance with federal, state and local laws and regulations. All specifications outlined are subject to change without notice.

**WARNING:** EC-Sense sensors are designed to operate in a wide range of harsh conditions. It is nevertheless essential to prevent exposure to high concentrations of solvent vapours during storage, assembly and operation. When using sensors on printed circuit boards (PCB's), degreasing agents should be used prior to the sensor being fitted. Please note that gluing or soldering direct to the pins of EC-Sense gas sensors will void any warranty. Please use PCB sockets when connecting EC-Sense sensors. Any electrochemical EC-Sense gas sensor can potentially fail to meet specification without warning. Despite the high reliability of our products, we recommend checking all sensors and instruments for response to gas before use, especially where life safety is a performance requirement of the product. At the end of the product's life, do not dispose of any electronic sensor, component or instrument in the domestic waste but contact EC-Sense or their distributor for disposal instructions. Customers should test under their own conditions to ensure that the sensors are suitable for their specific requirements.

Headquarter Switzerland:  
Angst+Pfister Sensors and Power AG

Thurgauerstrasse 66  
CH-8050 Zurich  
Phone +41 44 877 35 00  
sensorsandpower@angst-pfister.com

Office Germany:  
Angst+Pfister Sensors and Power  
Deutschland GmbH  
Edisonstraße 16  
D-85716 Unterschleißheim  
Phone +49 89 374 288 87 0  
sensorsandpower.de@angst-pfister.com



## We are here for you. Addresses and Contacts.

### Sales Germany & Austria

Geometrical sensors  
Other products

Kurt Stritzelberger  
Phone +49 89 374 288 87 22  
kurt.stritzelberger@angst-pfister.com

Pressure sensors  
Other products

Gerhard Vetter  
Phone +49 89 374 288 87 26  
gerhard.vetter@angst-pfister.com

Gas sensors and modules

Peter Felder  
Phone +41 44 877 35 05  
peter.felder@angst-pfister.com

### Sales Switzerland & Liechtenstein

Postcode 3000 – 9999

Basil Frei  
Phone +41 44 877 35 18  
basil.frei@angst-pfister.com

Postcode 1000 – 2999

Christian Mohrenstecher  
Phone +41 76 444 57 93  
christian.mohrenstecher@angst-pfister.com

### Sales International Key Accounts

Peter Felder  
Phone +41 44 877 35 05  
peter.felder@angst-pfister.com

### Sales Other Countries / Product Management

Pressure Sensors  
Load Cells

Philipp Kistler  
Phone +41 44 877 35 03  
philipp.kistler@angst-pfister.com

Gas sensors  
Gas sensor modules

Dr. Thomas Clausen  
Phone +49 89 374 288 87 24  
thomas.clausen@angst-pfister.com

Flow / Level / Medical products

Dr. Adriano Pittarelli  
Phone +49 89 374 288 87 67  
adriano.pittarelli@angst-pfister.com

Power supplies

Sebastiano Leggio  
Phone +41 44 877 35 06  
sebastiano.leggio@angst-pfister.com

Linear position sensors  
Angle sensors

Eric Letsch  
Phone +41 44 877 35 14  
eric.letsch@angst-pfister.com

Accelerometers  
Sensor elements

Christoph Kleye  
Phone +49 89 374 288 87 61  
christoph.kleye@angst-pfister.com

Drive technology  
CH Postcode 5000 – 9999 / DE

Roman Homa  
Phone +41 76 444 00 86  
roman.homa@angst-pfister.com

Drive technology  
CH Postcode 1000 – 4999 / AT / IT / FR

Christian Mohrenstecher  
Phone +41 76 444 57 93  
christian.mohrenstecher@angst-pfister.com

Harald Thomas  
Phone +49 89 374 288 87 23  
harald.thomas@angst-pfister.com