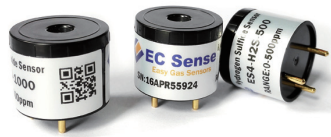


Easy Gas Sensor

ES4-AG1-200 - All Gas

Technical Specification



Solid Polymer Technology



Features

- High sensitivity
- Low cost alternative to PID
- No electrolyte leakage
- Low cost at large volumes
- Individually calibrated including test report
- Detect to most VOC Gases
- Strong signal to noise
- Smallest EC Sensor in the world
- Fast Response time

Typical applications

- Consumer Market
- General Gas Detection
- VOC Gas Detection
- Low Power Nose
- Mobile Phone Nose
- Indoor Air Quality
- Outdoor Air Quality
- Breath Alcohol Detector

Performance

Sensitivity	55 ± 15 nA / ppm
Zero current	± 100 nA
Response time	
-T ₅₀	< 10 s
-T ₉₀	< 30 s
Range	200 ppm
Repeatability	1%
Lower Detectable Limit (LDL)	≤ 2 ppm
Resolution (16Bit ADC)	0.1 ppm
Maximum overload	1000 ppm
Linear range	1000 ppm

Environment

Temperature Range	-20 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

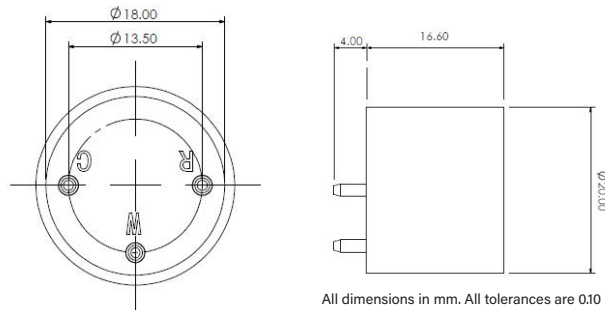
Lifetime

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

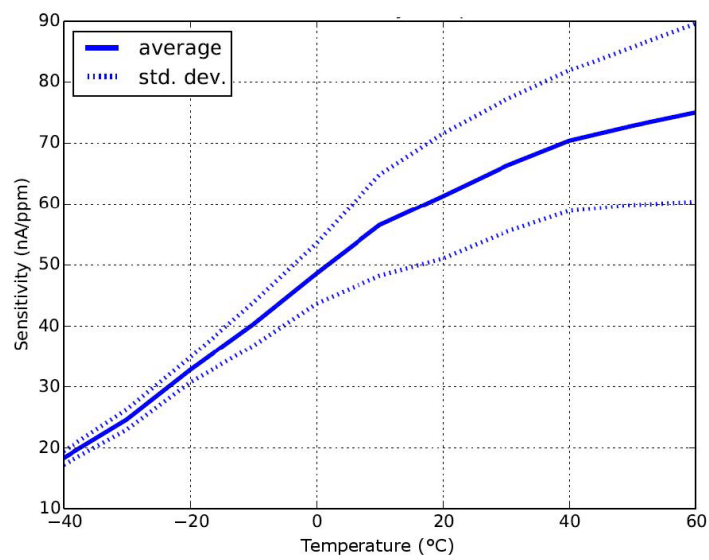
Housing material	ABS
Weight	< 6 g

Dimensions



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

Temperature curve



Cross sensitivity

Gas	Formula	Test concentration (ppm)	Sensor reading (ppm)
Ammonia	NH ₃	50	0.1
Carbon Dioxide	CO ₂	1000	0
Carbon Monoxide	CO	100	100
Chlorine	Cl ₂	1.0	-6
Dichlormethane	CH ₂ Cl ₂	30	0
Ethanol	C ₂ H ₅ Cl ₂	104	100
Ethylene oxide	C ₂ H ₅ OH	14	7
Ethyne	C ₂ H ₂	80	250
Hydrogen	H ₂	100	20
Hydrogen Sulphide	H ₂ S	10	400
Hydrogen Cyanide	HCN	10	9
Isopropanol	C ₃ H ₇ OH	< 4000	>750
Methan	CH ₄	30000	0
Methanal	HCHO		ok
Methanol	CH ₃ OH		ok
Methylpropene	C ₄ H ₈	15	18
Nitric Oxide	NO	25	n.e.
Nitrogen Dioxide	NO ₂	10	-5
Ozone	O ₃	0.5	0
Sulphur Dioxide	SO ₂		ok
Toluene	C ₇ H ₈		ok with bias
Xylene	C ₈ H ₁₀		ok
Gasoline			ok

Sensor reading in ppm after calibration to CO. Cross sensitivities indicated with ok showed a signal response under a bump test.

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