

4-H₂S 1000 GAS SENSOR

002859

Issue 3

Classic Line Hydrogen Sulfide (H₂S) Gas Sensor



Hydrogen Sulfide (H₂S) Sensor:
4-H₂S 1000
Part Number: CLE-0113-400

DESCRIPTION

CiTiceL[®] 4 Series gas sensors are the industry standard for portable gas detectors. The range includes sensors which detect oxygen and toxic gases and fully certified pellistors for combustible gas detection.

DOCUMENT PURPOSE

The purpose of this document is to present the performance specification of the 4-H₂S 1000 hydrogen sulfide gas sensor.

This document should be used in conjunction with the Operating Principles (OP08) and the Product Safety Datasheet (SDS toxic gas sensors).

The data provided in this document are valid at 20°C, 50 %RH, and 1013 mBar for three months from the date of sensor manufacture.

Output signal can drift below the lower limit over time. For guidance on the safe use of the sensor, please refer to the Operating Principles (OP08).

APPLICATIONS

- Manufacturing factories
- Refineries
- Food processing
- Drainage and sewage areas
- Mining processes

PORTFOLIO

The 4 Series CiTiceL[®] sensor family is part of the extensive line of Honeywell gas sensors. To learn more about the product, or the many other gas sensors in this series, [click here](#).

FEATURES AND BENEFITS



Industry-leading reliability



Improved performance variability



Long warranty period



High operating measurement range

CLASSIC LINE GAS SENSORS

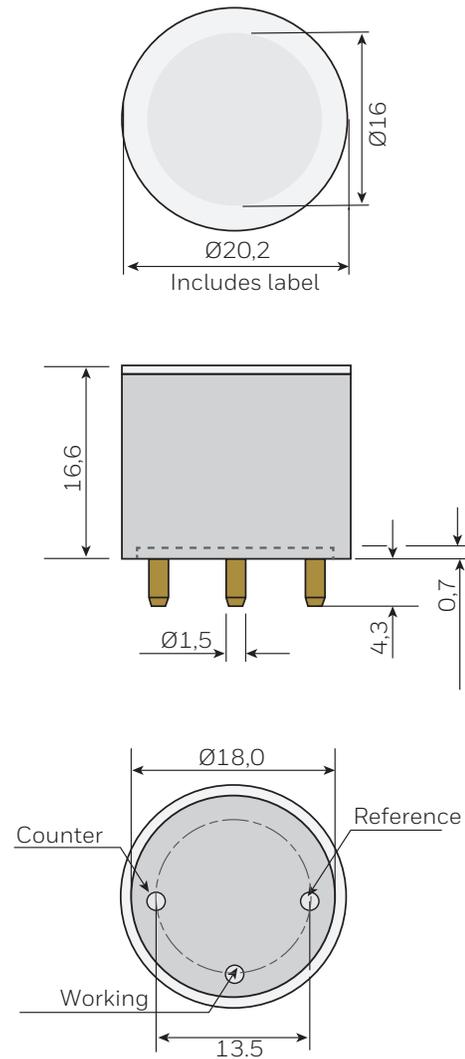
4-H2S 1000 SERIES

TABLE 1. TECHNICAL SPECIFICATIONS

MEASUREMENT	
Operating Principle	3-electrode electrochemical
Nominal Range	0 ppm to 1000 ppm
Maximum Overload	2000 ppm
Resolution (electronics dependent)	1 ppm
Sensitivity	0.105 $\mu\text{A/ppm}$ ± 0.055 $\mu\text{A/ppm}$
T90* Response Time	≤ 45 seconds
Baseline (20°C)	$< \pm 0.4$ μA
Baseline Drift (-20°C to 50°C)	0 ppm to 10 ppm equivalent
Linearity	Linear
ELECTRICAL	
Bias Potential	0 mV
MECHANICAL	
Weight	5 g (approx.)
Orientation Sensitivity	None
ENVIRONMENTAL	
Temperature Range	-20°C to 50°C
Pressure Range	90 kPa to 110 kPa
Operating Humidity Range	15 %RH to 90 %RH non-condensing
LIFETIME	
Long-Term Output Drift	< 2 % signal drift/month
Storage Temperature	0°C to 20°C
Expected Operating Life	2 years in air

*Specifications are valid at 20°C, 50%RH, and 1013 mBar using Honeywell recommended circuitry. Performance characteristics outline the performance of sensors supplied within the first three months. Output signal can drift below the lower limit over time.

Product Dimensions



All dimensions in mm

Important Note: Connection should be made via PCB sockets only. Soldering to the pins will seriously damage the sensor.

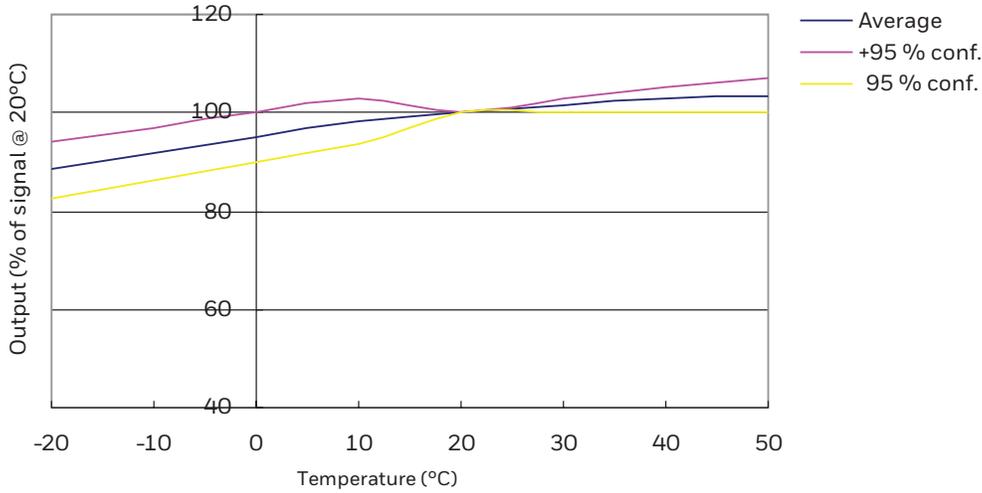
CLASSIC LINE GAS SENSORS

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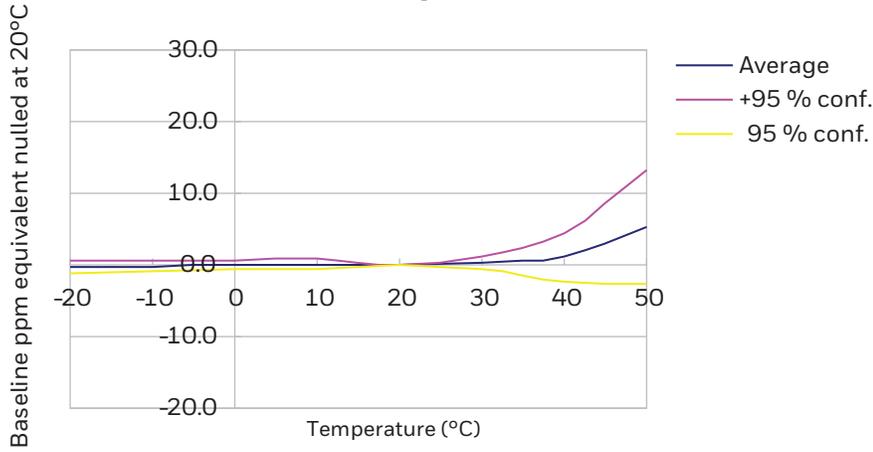
Temperature Dependence

(Graphs are 4 sigma [95% confidence]. Honeywell is a six sigma company.)

Output vs. Temperature



Baseline vs. Temperature



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Poisoning

CiTiceLs are designed for operation in a wide range of environments and harsh conditions. However, it is important that exposure to high concentrations of solvent vapours is avoided, both during storage, fitting into instruments, and operation. When using sensors with printed circuit boards (PCBs), degreasing agents should be used before the sensor is fitted. Do not glue directly on or near the CiTiceL as the solvent may cause crazing of the plastic

Cross Sensitivity Data

Whilst CiTiceLs are designed to be highly specific to the gas they are intended to measure, they will still respond to some degree to various other gases. The table below is not exclusive and other gases not included in the table may still cause a sensor to react.

IMPORTANT NOTE : The cross sensitivity data shown below does not form part of the product specification and is supplied for guidance only. Values quoted are based on tests conducted on a small number of sensors and any batch may show significant variation. For the most accurate measurements, an instrument should be calibrated using the gas under investigation.

TABLE 2. CROSS SENSITIVITY

Gas	Concentration Used (ppm)	Output Signal (ppm H ₂ S equivalent)
Carbon Monoxide, CO	300	0
Sulfur Dioxide, SO ₂	5	0
Nitric Oxide, NO	35	≤ 3
Nitrogen Dioxide, NO ₂	5	0
Hydrogen, H ₂	1000	0
Isobutylene, C ₄ H ₈	100	0

1. All performance specifications are based upon the following environment conditions: 20°C, 50% relative humidity and 1 atmospheric pressure (100 kPa or ambient pressure).
2. Recommend calibration with target gas. If calibration with a cross sensitivity gas, we cannot ensure the accuracy of calibration and measurement.
3. The cross sensitivity may fluctuate between ±30% and may differ from batch to batch or from sensor's life time.
4. The cross sensitivities are including but not limited to the above gases. It may also respond to other gases.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is buyer's sole responsibility to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Honeywell assumes no responsibility for its use.

For more information

Honeywell Sensing & Safety Technologies services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing, or the nearest Authorized Distributor, visit sps.honeywell.com/ast or call:

USA/Canada	+302 613 4491
Latin America	+1 305 805 8188
Europe	+44 1344 238258
Japan	+81 (0) 3-6730-7152
Singapore	+65 6355 2828
Greater China	+86 4006396841

Honeywell Sensing & Safety Technologies

830 East Arapaho Road
Richardson, TX 75081
www.honeywell.com

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WARNING MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

SAFETY NOTE

This sensor is designed to be used in safety critical applications. To ensure that the sensor and/or instrument in which it is used, are operating properly, it is a requirement that the function of the device is confirmed by exposure to target gas (bump check) before each use of the sensor and/or instrument. Failure to carry out such tests may jeopardize the safety of people and property.

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