SURECELL™ 4HS GAS SENSOR

002826
Issue 6

Hydrogen Sulfide (H_2S) Gas Sensor

Hydrogen Sulfide (H_2S)
Sensor: **4HS**
Part Number: 2112B2027

DESCRIPTION

SureCell™ 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 SureCell™ 4HS gas sensor.

This document should be used in conjunction with Operating Principles (OP08) and the Product Safety Datasheet (PSDS 5.1).

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 sensor performance outside of these limits, please refer to the Operating Principles.

For guidance on the safe use of the sensor, please refer to the Operating Principles.

APPLICATIONS

- TVL monitoring (Threshold value level)
- Leakage detection
- Portable and fixed-point sensing for life safety applications

PORTFOLIO

The SureCell™ 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
- Improve performance variability
- Enhanced long-term stability

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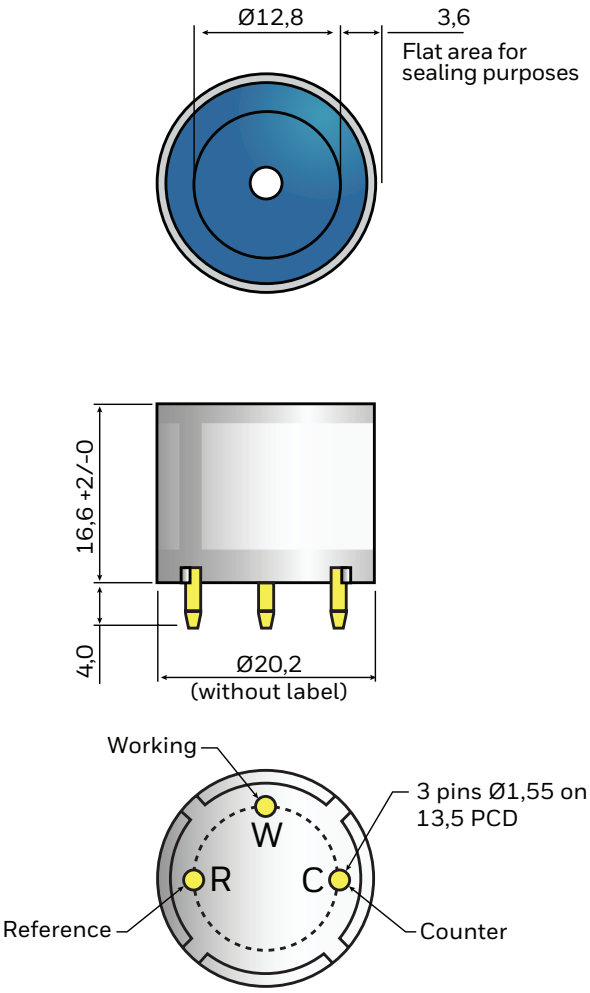
SURECELL™ GAS SENSOR
4HS SERIES

TABLE 1. TECHNICAL SPECIFICATIONS	
MEASUREMENT	
Operating principle	3-electrode electrochemical
Measurement range	0 ppm H_2S to 100 ppm H_2S
Maximum overload	500 ppm H_2S
Filter	None
Sensitivity	0.75 µA/ppm ±0.15 µA/ppm
Response time (T_{90})*	< 20 seconds
Baseline offset* (clean air)	< ±0.5 ppm equivalent
Zero shift (-40°C to 50°C)	< ±0.4 ppm equivalent
Repeatability	< ±5 %
Linearity	Linear < ±5 %
ELECTRICAL	
Recommended load resistor	5 Ohm
Bias voltage	Not required
MECHANICAL	
Housing material	Noryl N110
Weight	5 g (approx.)
Orientation	Any
ENVIRONMENTAL	
Operating temperature range	Continuous: -20°C to 40°C Intermittent: -40°C to 55°C
Operating pressure range	1 atm ±10 %
Operating humidity range	15 %RH to 90 %RH, non-condensing
INTRINSIC SAFETY DATA	
Maximum at 500 ppm	0.5 mA
Maximum o/c voltage	0.8 V
Maximum s/c current	< 1.0 A
LIFETIME	
Long-term output drift	< 2 % per month
Recommended storage temperature	10 °C to 30°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
All tolerances ±0,15 mm unless otherwise stated

IMPORTANT NOTES

Connection should be made via PCB sockets only. Soldering to the pins will seriously damage your sensor and invalidate the warranty.

Poisoning

SureCell™ is 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 SureCell sensor as the solvent may cause crazing of the plastic.

Cross-Sensitivity Table

Whilst SureCells™ 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 3. CROSS SENSITIVITY

GAS	Concentration used (ppm)	Reading equivalent (ppm H_2S)	Nature of reading	% Cross sensitivity
Ammonia, NH_3	50	0	Steady state	0
Carbon Dioxide, CO_2	5000	0	Steady state	0
Carbon Monoxide, CO	1000	< 6	Transient*	< 0.6
Chlorine, Cl_2	15	< 2.5	Steady state	< 17
Ethylene, C_2H_4	100	0	Steady state	0
Hydrogen, H_2	2000	< 2.5	Transient*	< 0.2
Nitric Oxide, NO	50	< 1.5	Transient*	< 3
Nitrogen Dioxide, NO_2	20	< 5	Steady state	< 25
Sulphur Dioxide, SO_2	20	< 3.5	Steady state	< 18
Methyl Mercaptan, CH_4S	100	< 12	Steady state	< 12

* Single gas bump at the stated concentration, after this exposure the concentration settles down to a much lower value

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.

⚠ 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.

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:

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ECN-00037042
002826-6-EN | 6 | 07/23

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