1H2S GAS SENSOR

002788
Issue 2

Hydrogen Sulfide (H2S) Analogue Gas Sensor

DOCUMENT PURPOSE

The purpose of this document is to present the performance specification of the 1series $1H_2S$ hydrogen sulfide gas sensor.

This document should be used in conjunction with the $1H_2S$ Characterisation Note, the Operating Principles (OP08), and the Product Safety Datasheet (PSDS 5).

For guidance on sensor performance outside of these limits, please refer to the $1H_2S$ Characterisation Note.

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).

PORTFOLIO

The 1series gas sensor is a small sensor that enables slim profile gas detector design. With the 1series low-profile design, the sensors have turrets to mount into the front of the instrument in order to minimize instrument height. This revolutionary design also simplifies target-gas access to the sensor face and features an option for a replaceable external membrane.

2 YEAR WARRANTY

(24 months from date of despatch)

Hydrogen Sulfide (H_2S)
Sensor: **1H2S**
Part Number: AC400-R00A-CIT

DESCRIPTION

The 1series analogue gas sensor is compact low profile sensor utilizing the trusted Honeywell Technology. These sensors have an extended operating life of five years along with extended temperature and humidity ranges.

FEATURES AND BENEFITS

- Enables smaller instruments
- Designed to meet global performance standards:
  ANSI/ISA 92.00.01-2010
  BS EN 45544-1:2015
  AS/NZS 4641-2007
- Enhanced performance over an extended environmental range
- 5 YEARS — 5-year expected operating life in clean air
- RoHS compliant

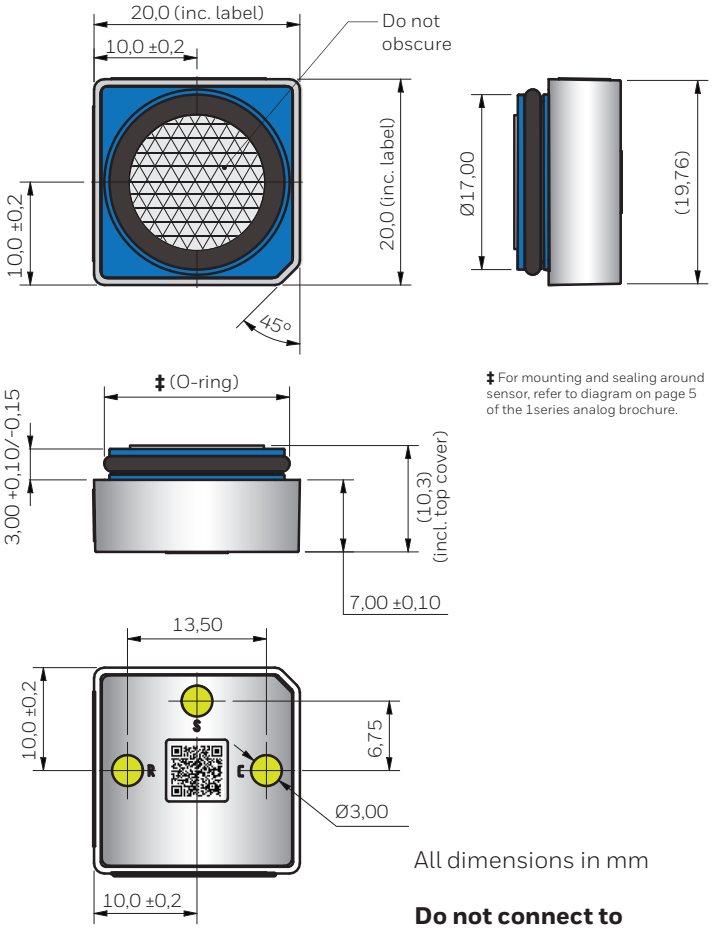
Honeywell

ANALOGUE GAS SENSOR (1SERIES)
1H2S SERIES

TABLE 1. TECHNICAL SPECIFICATIONS	
MEASUREMENT	
Technology	Electrochemical
Measurement Range	0.5 ppm H_2S to 200 ppm H_2S
Maximum Overload	500 ppm
Onboard Filter	None
Sensitivity*	175 nA/ppm ±35 nA/ppm
T50 Response Time*	< 15 seconds @ 20°C < 30 seconds @ -40°C to 60°C
T90 Response Time*	Typically < 30 seconds
Recovery Time* (from 200 ppm to <4 ppm)	< 180 seconds
Baseline Offset* (in clean air)	< ±0.5 ppm H_2S equivalent
Baseline Shift (-40°C to 60°C)	< ±3 ppm H_2S equivalent
Repeatability*	< ±5% of measured value
Linearity* (0 ppm H_2S to 200 ppm H_2S)	Linear ±5%
ELECTRICAL	
Recommended Load Resistor	5 Ω to 10 Ω
Bias Voltage	No bias
MECHANICAL	
Weight	< 5 g
Outer Plastic Body Material	Modified PPO
O-ring Material	FKM60 ±5 shore A
Contact Material	Gold plated
Orientation Sensitivity	None
ENVIRONMENTAL	
Typical Applications	Portable life safety
Operating Temperature Range	-40°C to 60°C
Operating Humidity Range	5% rH to 95% rH non-condensing (Refer to Characterization Note)
Operating Pressure Range	600 mbar to 1200 mbar
LIFETIME	
Long Term Output Drift*	< 10% signal loss per annum
Expected Operating Life	5 years in clean 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



‡ For mounting and sealing around sensor, refer to diagram on page 5 of the 1series analog brochure.

All dimensions in mm

Do not connect to unlabeled pins.

TABLE 2. PINOUT		
Pin	**Label**	**Description**
1	S	Sensing electrode
2	R	Reference electrode
3	C	Counter electrode

Poisoning

Gas sensors 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 during 1) storage, 2) fitting into instruments and 3) 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 sensor as the solvent may cause crazing of the plastic.

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 Advanced Sensing 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
Advanced Sensing Technologies
830 East Arapaho Road
Richardson, TX 75081
sps.honeywell.com/ast

002788-2-EN | 2 | 11/21
ECN-00007663

Honeywell