

# 1SO<sub>2</sub> GAS SENSOR

002787  
Issue 2

## Sulphur Dioxide (SO<sub>2</sub>) Analogue Gas Sensor

### DOCUMENT PURPOSE

The purpose of this document is to present the performance specification of the 1series 1SO<sub>2</sub> sulphur dioxide gas sensor.

This document should be used in conjunction with the 1SO<sub>2</sub> Characterisation Note, the Operating Principles (OP08), and the Product Safety Datasheet (PSDS 11).

For guidance on sensor performance outside of these limits, please refer to the 1SO<sub>2</sub> 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)



Sulphur Dioxide (SO<sub>2</sub>)  
Sensor: **1SO<sub>2</sub>**  
Part Number: AD300-R04A-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



Enhanced performance over an extended environmental range



5-year expected operating life in clean air



RoHS compliant

# ANALOGUE GAS SENSOR (1SERIES)

## 1SO2 SERIES

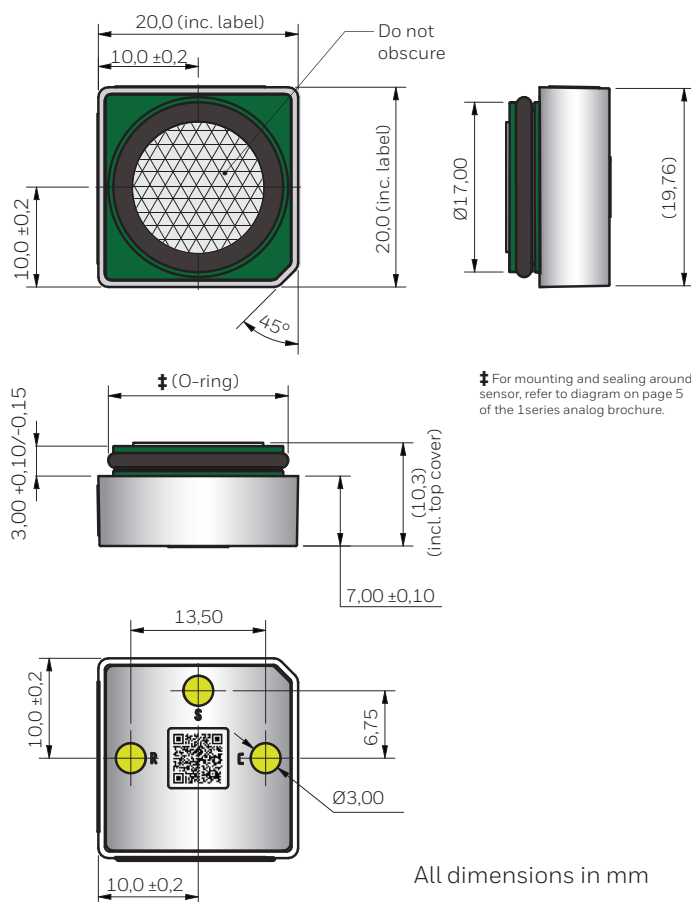
**TABLE 1. TECHNICAL SPECIFICATIONS**

MEASUREMENT	
<b>Technology</b>	Electrochemical
<b>Measurement Range</b>	0.1 ppm SO <sub>2</sub> to 20 ppm SO <sub>2</sub>
<b>Maximum Overload</b>	150 ppm SO <sub>2</sub>
<b>Filter</b>	To remove H <sub>2</sub> S
<b>Filter Capacity</b>	400 ppm hours @ 25 ppm H <sub>2</sub> S
<b>Sensitivity*</b>	160 nA/ppm ±40 nA/ppm
<b>T50 Response Time*</b>	Typically < 30 seconds
<b>T90 Response Time*</b>	< 10 seconds @ 20°C
<b>Baseline Offset*</b> (in clean air)	-0.2 ppm to 0.5 ppm equivalent
<b>Zero Shift</b> (20°C to 40°C)	< 0.2 ppm equivalent
<b>Repeatability*</b>	< ±2% of signal
<b>Linearity*</b>	Linear over measurement range 0 ppm to 20 ppm and within ±5%
ELECTRICAL	
<b>Recommended Load Resistor</b>	10 Ω
<b>Bias Voltage</b>	No bias
MECHANICAL	
<b>Weight</b>	< 5 g
<b>Outer Plastic Body Material</b>	Modified PPO
<b>O-ring Material</b>	FKM60 ±5 shore A
<b>Contact Material</b>	Gold plated
<b>Orientation Sensitivity</b>	None
ENVIRONMENTAL	
<b>Typical Applications</b>	Portable life safety
<b>Operating Temperature Range</b> (continuous)	-20°C to 50°C
<b>Operating Temperature Range</b> (intermittent)	-40°C to 55°C
<b>Operating Humidity Range</b>	15 %RH to 90 %RH non-condensing. Extended exposure to extreme humidity conditions will degrade sensor performance
<b>Operating Pressure Range</b>	600 mbar to 1200 mbar
LIFETIME	
<b>Long Term Output Drift*</b>	< 10% signal loss per annum
<b>Expected Operating Life**</b>	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.

\*\* Depends on environmental conditions

### Product Dimensions



All dimensions in mm

**Do not connect to unlabeled pins.**

**TABLE 2. PINOUT**

Pin	Label	Description
<b>1</b>	S	Sensing electrode
<b>2</b>	R	Reference electrode
<b>3</b>	C	Counter electrode

## **ANALOGUE GAS SENSOR (1SERIES)**

### **1SO2 SERIES**

#### **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.

## 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](https://sps.honeywell.com/ast) or call:

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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.