

# 1SO<sub>2</sub> Sensor

Sulphur Dioxide (SO<sub>2</sub>) Analogue Gas Sensor  
Part Number: AD300-R04A-CIT

## 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).



## KEY FEATURES & 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** 

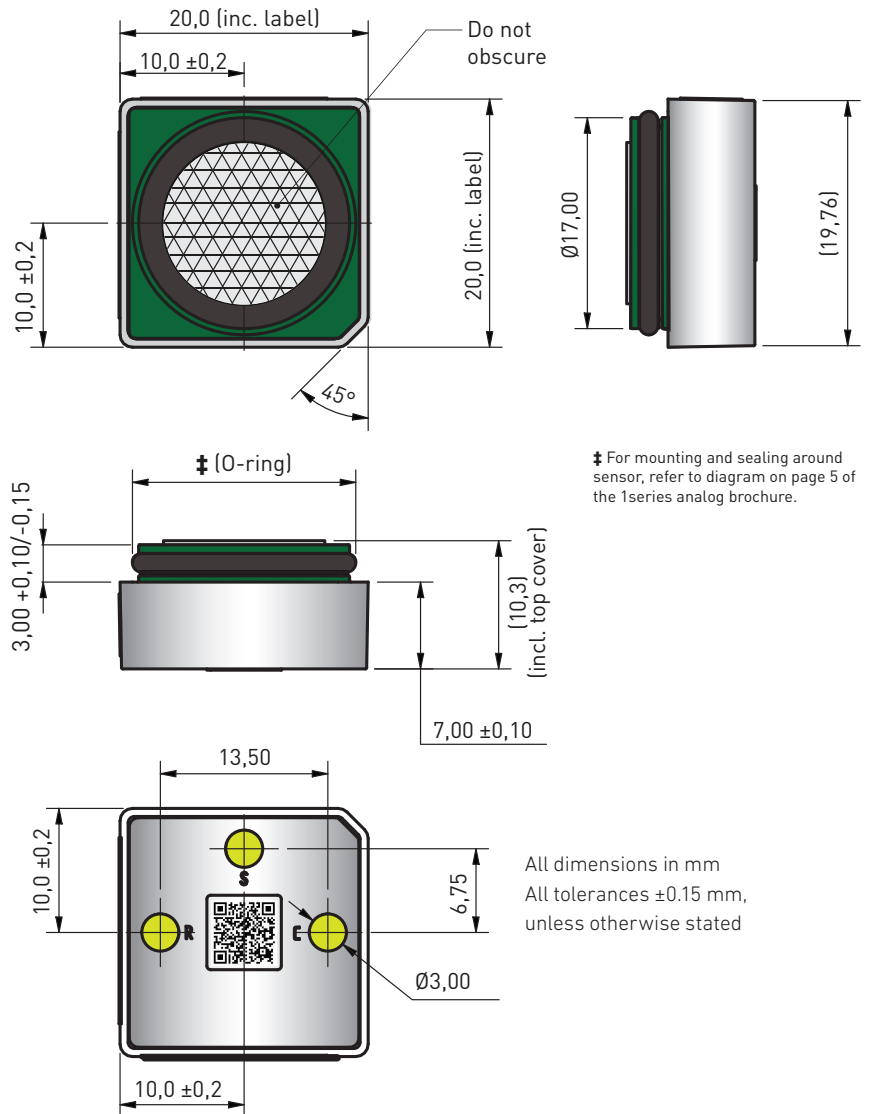
RoHS compliant

TECHNICAL SPECIFICATIONS	
<b>Measurement</b>	
<b>Technology</b>	3 electrode 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>T90 Response Time*</b>	Typically < 30 seconds
<b>T50 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%
<b>Electrical</b>	
<b>Recommended Load Resistor</b>	10 Ω
<b>Bias Voltage</b>	No bias
<b>Mechanical</b>	
<b>Weight</b>	< 5 g
<b>Outer Plastic Body Mat'l</b>	Modified PPO
<b>O-ring Material</b>	FKM75 ±5 shore A
<b>Contact Material</b>	Gold plated
<b>Orientation Sensitivity</b>	None
<b>Environmental</b>	
<b>Typical Applications</b>	Portable life safety
<b>Operating Temperature Range (Continuous)</b>	-20°C to 50°C
<b>Operating Temperature Range (Intermittent)</b>	-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
<b>Lifetime</b>	
<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 manufacturer recommended circuitry. Performance characteristics outline the performance of sensors supplied within the first 3 months. Output signal can drift below the lower limit over time.

\*\* Depends on environmental conditions

## Product Dimensions



## 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.

## 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.

Every effort has been made to ensure the accuracy of this document at the time of printing. In accordance with the company's policy of continued product improvement the manufacturer reserves the right to make product changes without notice. The products are always subject to a programme of improvement and testing which may result in some changes in the characteristics quoted. As the products may be used by the client in circumstances beyond the knowledge and control of the manufacturer we cannot give any warranty as to the relevance of these particulars to an application. It is the clients' responsibility to carry out the necessary tests to determine the usefulness of the products and to ensure their safety of operation in a particular application.