

# 1CO Sensor

Carbon Monoxide Analogue Gas Sensor

Part Number: AB010-R01A-CIT

## Document Purpose

The purpose of this document is to present the performance specification of the 1series 1CO carbon monoxide gas sensor.

This document should be used in conjunction with the 1CO Characterisation Note, the Operating Principles (OP08), and the Product Safety Datasheet (PSDS 12.1).

For guidance on sensor performance outside of these limits, please refer to the 1CO 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  
AS/NZS 4641-2007



Enhanced performance over an extended environmental range



5-year expected operating life

RoHS 

RoHS compliant

## TECHNICAL SPECIFICATIONS

### Measurement

<b>Technology</b>	Electrochemical
<b>Measurement Range</b>	0.5 ppm CO to 1000 ppm CO (EN 45544 applications)
<b>Maximum Overload</b>	2000 ppm CO
<b>Onboard Filter</b>	To remove acid gases (see note on page 3)
<b>Sensitivity*</b>	50 nA/ppm ±10 nA/ppm
<b>T50 Response Time*</b>	< 15 seconds (@ 20°C) < 20 seconds (@ -40°C to +60°C)
<b>T90 Response Time*</b>	Typically < 20 seconds
<b>Recovery Time</b> from 2000 ppm to <40 ppm from 100 ppm to <2 ppm	< 180 seconds <30 seconds
<b>Baseline Offset*</b> (in clean air)	< ±3 ppm CO equivalent
<b>Baseline Shift</b> (-40°C to 60°C)	< ±12 ppm CO equivalent
<b>Repeatability*</b>	< ±2% of measured value
<b>Linearity*</b>	Linear ± 5% (0 ppm CO to 2000 ppm CO)

### Electrical

<b>Recommended Load Resistor</b>	5 Ω to 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>	FKM75 ±5 shore A
<b>Contact Material</b>	Gold plated
<b>Orientation Sensitivity</b>	None

### Environmental

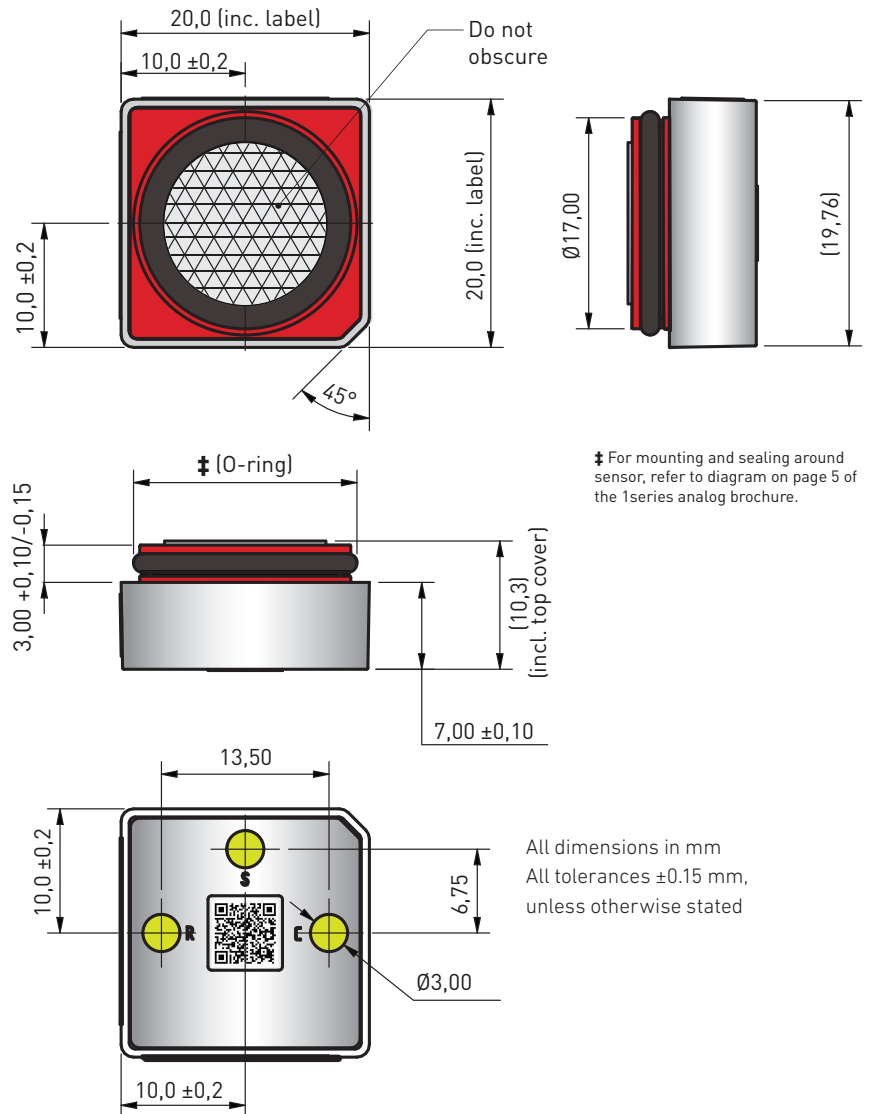
<b>Operating Temperature Range</b>	-40°C to +60°C
<b>Operating Humidity Range</b>	5% rH to 95% rH non-condensing (Refer to Characterization Note)
<b>Operating Pressure Range</b>	600 mbar to 1200 mbar

### Lifetime

<b>Long Term Output Drift*</b>	< 5% signal loss per annum
<b>Expected Operating Life</b>	5 years in air

\*Specifications are valid at 20°C, 50% RH, and 1013 mBar, using City Technology 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.

## Product Dimensions



## Pinout

Pin	Label	Description
1	S	Sensing electrode
2	R	Reference electrode
3	C	Counter electrode

## Filter Information

Activated carbon cloth filter with high surface area:

- Removes acid gases such as SO<sub>2</sub>, NO<sub>2</sub>, and H<sub>2</sub>S
- 25,000 ppm hours H<sub>2</sub>S filter capacity
- Protects from exposure to alcohol such as methanol, ethanol, and IPA (<1000 ppm hours)

## 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.

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