



Product Data Sheet

Product Datasheet

3SH Sulfur Dioxide Sensor

Document Purpose

The purpose of this document is to present the performance specification of the 3SH Sulfur Dioxide gas sensor.

This document should be used in conjunction with the Operating Principles (OP08) and the Product Safety Datasheet (PSDS 2).

The data provided in this document are valid at 20°C, 50% RH and 1013 mBar for 3 months from the date of sensor manufacture.

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.



Doc. Ref.: 3sh.indd ECN I 4849 Issue 6 12th June 2017 Page 1 of 3



3SH CiTiceL[®] Sulfur Dioxide (SO₂) Gas Sensor

Product Data Sheet

Key Features & Benefits:

- Robust, 3-Series packaging
- Range of accessories available

Technical Specifications

MEASUREMENT

Operating Principle 3-electrode electrochemical Nominal Range 0-20 ppm SO₂ Maximum Overload 100 ppm SO₂ Filter None $1.25 \pm 0.25 \ \mu\text{A/ppm}$ Sensitivitv* Response Time (T₉₀)* <15 Seconds Baseline Offset (clean air)* -0.1 to +0.2 ppm equivalent Zero Shift (+20°C to +40°C) 0.1 ppm equivalent **Resolution** 0.1 ppm (electronics dependant) **Repeatability** 2% of signal Output Linearity | Linear

ELECTRICAL

Recommended Load Resistor 10 Ω Bias Voltage Not Required

MECHANICAL

Weight | 22 g Orientation | Any

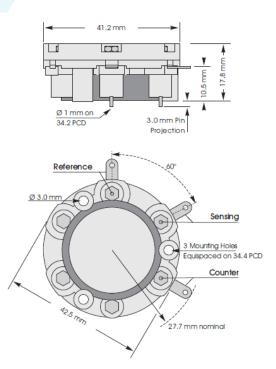
ENVIRONMENTAL

Operating Temperature Range
Recommended Storage Temp
Operating Pressure Range
Operating Humidity Range-20°C to +50°C
0°C to 20°C
Atmospheric ± 10%
15 - 90% RH non-condensing

LIFETIME

Long Term Sensitivity Drift | <2% signal loss / month Expected Operating Life | Two years in air Storage Life | 6 months in CTL container

Product Dimensions



All dimensions in mm All tolerances ±0.15 mm unless otherwise stated 3SH shown with side tags and tin pins

AVAILABLE OPTIONS

Sensor	Description	Part Number
3SH	With side tag and PCB pin connections	AD002-J00
3SH(S)	With side tag connection	AD002-000
3SH(G)	With gold plated PCB pin connection	AD002-300

IMPORTANT NOTE: Soldering to the pin connections will seriously damage the sensor and invalidate the warranty.

* 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.

Doc. Ref.: 3sh.indd ECN I 4849 Issue 6 12th June 2017 Page 2 of 3



The Right Sensor Can Save A Life



Product Data Sheet

<u>Poisoning</u>

CiTiceLs 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, 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 CiTiceL as the solvent may cause crazing of the plastic.

Cross Sensitivity Table

Whilst CiTiceLs 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.

Gas	Test Gas (ppm)	3SH (ppm SO ₂)
Carbon Monoxide, CO	300	<3
Hydrogen Sulfide, H_2S	15	20
Nitric Oxide, NO	35	0
Nitrogen Dioxide, NO ₂	5	-6
Chlorine, Cl ₂	1	-0.5
Hydrogen, H ₂	100	0
Hydrogen Cyanide, HCN	10	5
Hydrogen Chloride, HCl	5	0.5
Ethylene, C_2H_4	100	0

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 City Technology Limited 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 City Technology Limited, 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.



Doc. Ref.: 3sh.indd ECN I 4849 Issue 6 12th June 2017 Page 3 of 3

The Right Sensor Can Save A Life