

Product Data Sheet

Product Datasheet

4S Rev. 2 Sulfur Dioxide CiTiceL[®]

Document Purpose

The purpose of this document is to present the performance specification of the 4S Rev. 2 sulfur dioxide sensor.

This document should be used in conjunction with the 4S Rev. 2 Characterisation Note, Operating Principles (OP08) and the Product Safety Datasheet (PSDS 11).

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. For guidance on sensor performance outside of these limits, please refer to the 4S Rev. 2 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.

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Key Features & Benefits:

- Industry leading reliability
- Improved performance variability

Technical Specifications

MEASUREMENT

Operating Principle	3-electrode electrochemical
Measurement Range	0-20 ppm SO ₂
Maximum Overload	150 ppm SO ₂
Filter	To remove H ₂ S
Filter Capacity	1000 ppm hrs @ 25 ppm H ₂ S
Sensitivity*	0.5 ± 0.1 µA/ppm
Response Time (T₉₀)*	< 25 Seconds at 20°C
Baseline Offset (clean air)*	-0.2 to +0.5 ppm equivalent
Zero Shift (+20°C to +40°C)	< 0.1 ppm equivalent
Repeatability	< ±2% of signal
Linearity	Linear over measurement range 0-20 ppm and within ±5%

ELECTRICAL

Recommended Load Resistor	10 Ω
Bias Voltage	Not required
Resolution	Dependent on electronics. (0.1 ppm when using recommended electronics)

MECHANICAL

Housing Material	Noryl 110
Weight	Approx. 4.5 g
Orientation	Any

ENVIRONMENTAL

Typical Applications	Portable life safety
Operating Temperature Range:	
Continuous	-20°C to +50°C
Intermittent	-40°C to +55°C
	Lifetime will be reduced if regularly exposed to extremes of temperature
Recommended Storage Temp	0 - 20°C
Operating Pressure Range	1 atm ± 20%
Operating Humidity Range	15% to 90%RH non-condensing. Extended exposure to extreme humidity conditions will degrade sensor performance.

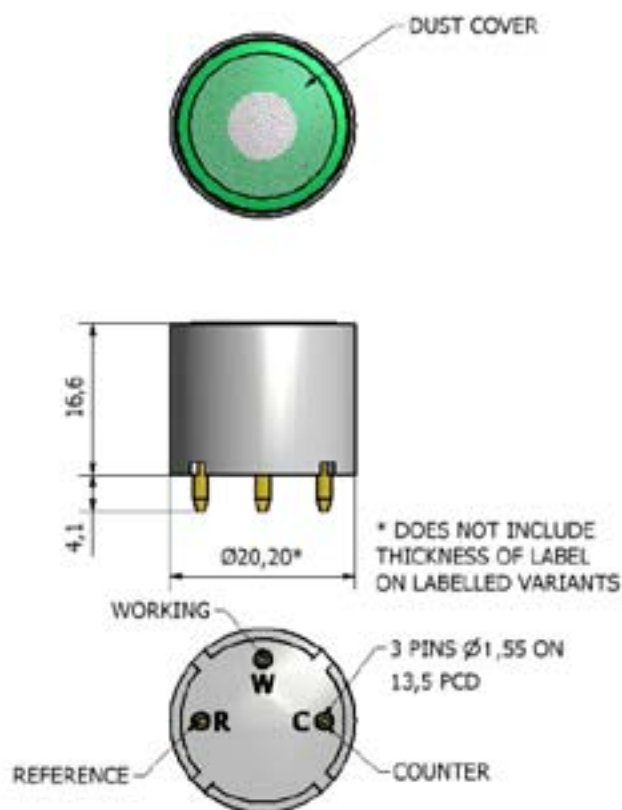
INTRINSIC SAFETY DATA

Maximum current at 150 ppm	0.1 mA
Maximum o/c Voltage	< 0.75 V
Maximum s/c Current	< 1.0 A

LIFETIME

Long Term Output Drift*	< 10% per annum
Expected Operating Life	2 years in clean air
Storage Life	6 months in original packaging
Standard Warranty	12 months from date of despatch

Product Dimensions



All dimensions in mm
All tolerances ±0.15 mm
unless otherwise stated

IMPORTANT NOTE: All performance data is based on conditions at 20°C, 50%RH and 1 atm, using City Technology recommended circuitry. For sensor performance data under other conditions, please contact City Technology Ltd.

*** 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.

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Poisoning

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	Formula	Concentration Used (ppm)	Reading (ppm SO ₂)
Carbon Monoxide	CO	300	<1
Nitric Oxide	NO	50	0 - 5
Nitrogen Dioxide	NO ₂	6	<-10
Hydrogen Sulfide	H ₂ S	25	<0.1
Chlorine	Cl ₂	5	<-2
Ammonia	NH ₃	20	0
Hydrogen	H ₂	400	<1
Hydrogen Cyanide	HCN	10	<5
Acetylene	C ₂ H ₂	10	<30
Ethene	C ₂ H ₄	50	<45

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.