

4S Rev. 2 CiTiceL[®]

Sulfur Dioxide (SO₂) Gas Sensor

Part Number: 2112B2015R

Patent : US7794779

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.

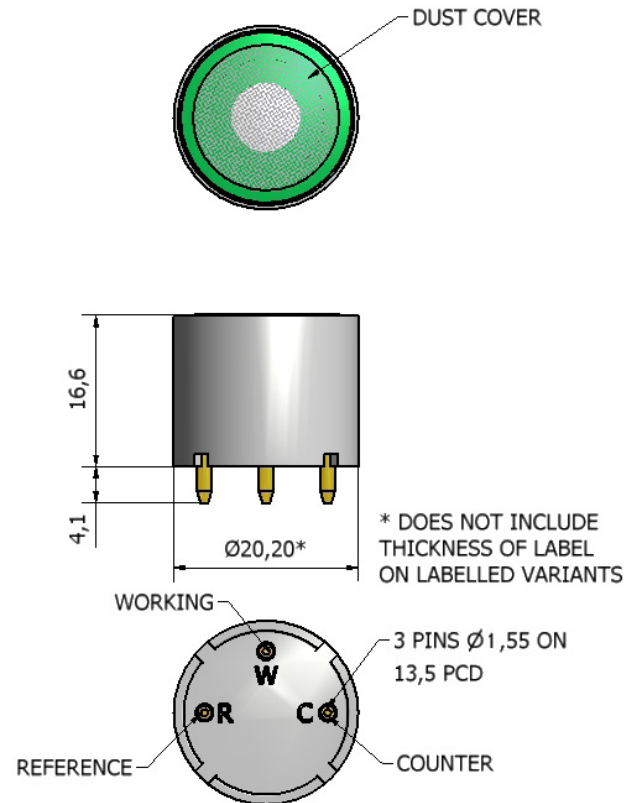
INTRINSIC SAFETY DATA

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

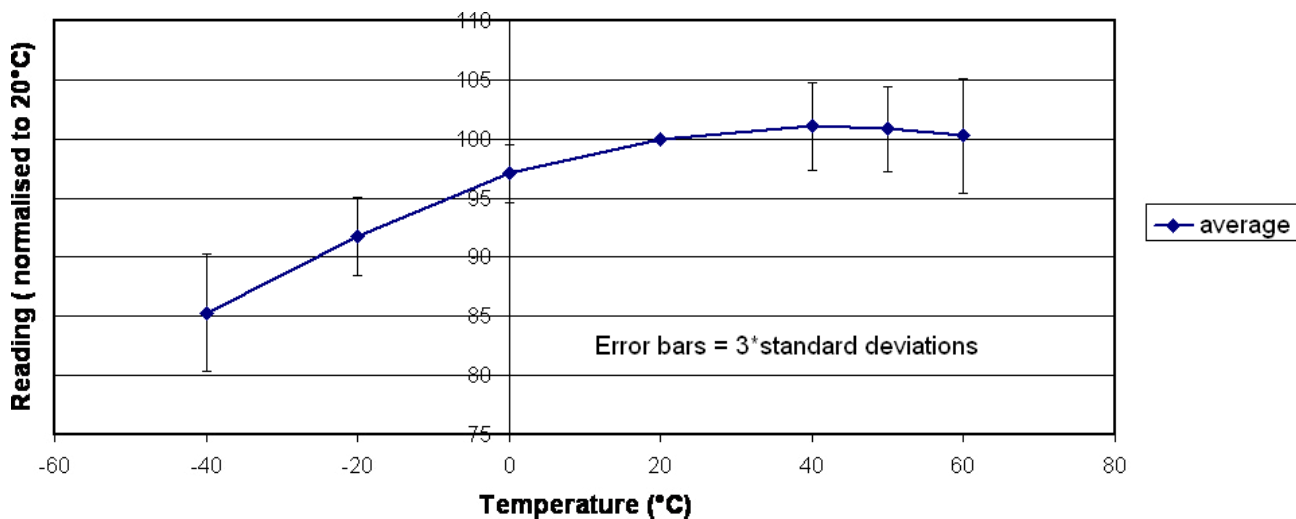
Product Dimensions



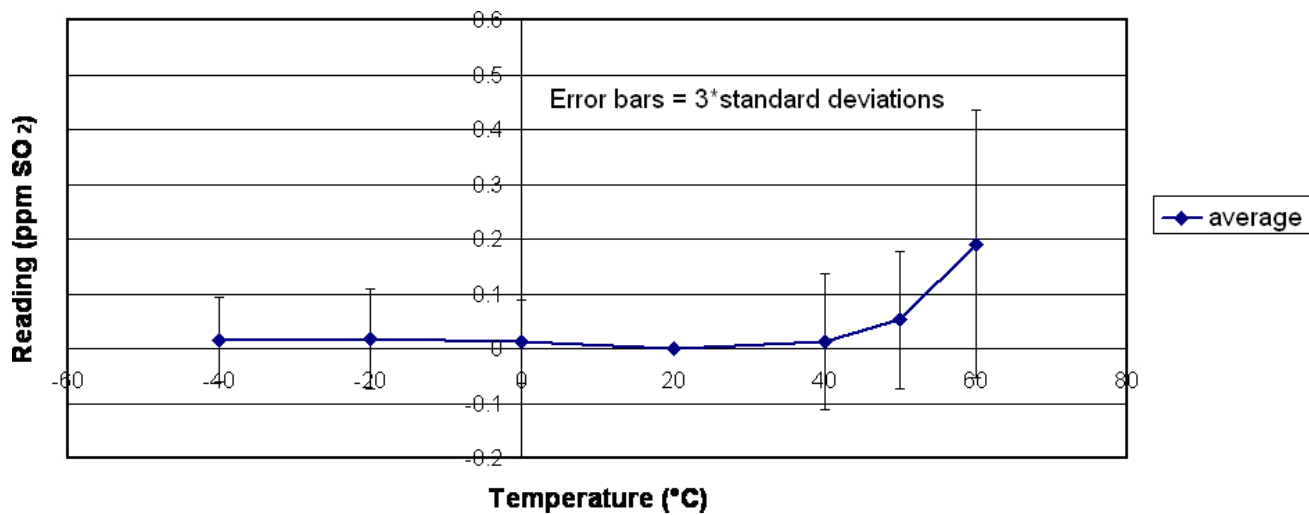
All dimensions in mm
All tolerances ±0.15 mm
unless otherwise stated

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.

4S Rev. 2 Sulfur Dioxide Cell - Output vs. Temperature



4S Rev. 2 Sulfur Dioxide Cell - Baseline vs. Temperature



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 gases. The table below is not exclusive and other gases not included in the table may still cause a sensor to react.

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

Note: The figures in this table are typical values and should not be used as a basis for cross calibration. Cross sensitivities may not be linear and should not be scaled. All data based on a 5 minute gassing. For some cross interferences break through will occur if gas is applied for a longer time period.

The cross-sensitivity values quoted are based on tests conducted on a small number of sensors. They are intended to indicate sensor response to gases other than the target gas. Sensors may behave differently with changes in ambient conditions and any batch may show significant variation from the values quoted.

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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