

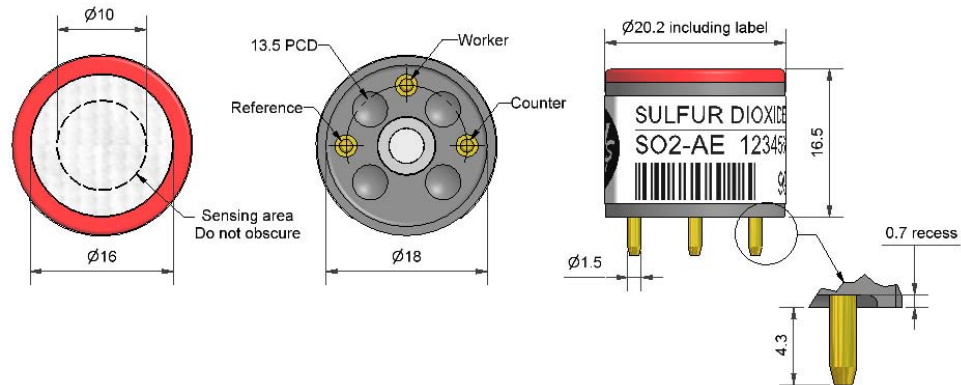


# SO2-AE Sulfur Dioxide Sensor High Concentration



PATENTED

Figure 1 SO2-AE Schematic Diagram



All dimensions in millimetres ( $\pm 0.1$ mm)

Top View

Bottom View

Side View

PERFORMANCE			
Sensitivity	nA/ppm in 400ppm SO <sub>2</sub>		55 to 80
Response time	t <sub>90</sub> (s) from zero to 400ppm SO <sub>2</sub>		< 25
Zero current	ppm equivalent in zero air		< 5
Resolution	RMS noise (ppm equivalent)		< 1.5
Range	ppm limit of performance warranty		2,000
Linearity	ppm error at full scale, linear at zero and 400ppm		0 to -80
Overgas range	maximum ppm for stable response to gas pulse		10,000

LIFETIME			
Zero drift	ppm equivalent change/year in lab air		nd
Sensitivity drift	% change/month in lab air, monthly test		< 2
Operating life	months until 80% original signal (24 month warranted)		> 24

ENVIRONMENTAL			
Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) 400ppm		80 to 92
Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) 400ppm		98 to 108
Zero @ -20°C	ppm equivalent change from 20°C		< $\pm 7$
Zero @ 50°C	ppm equivalent change from 20°C		< 0 to 7

CROSS SENSITIVITY				
Filter capacity	ppm-hrs	H <sub>2</sub> S		5,000
NO sensitivity	% measured gas @ 500ppm	NO		150
NO <sub>2</sub> sensitivity	% measured gas @ 10ppm	NO <sub>2</sub>		-140
Cl <sub>2</sub> sensitivity	% measured gas @ 10ppm	Cl <sub>2</sub>		nd
H <sub>2</sub> sensitivity	% measured gas @ 400ppm	H <sub>2</sub>		nd
CO sensitivity	% measured gas @ 400ppm	CO		nd
C <sub>2</sub> H <sub>4</sub> sensitivity	% measured gas @ 1000ppm	C <sub>2</sub> H <sub>4</sub>		75
NH <sub>3</sub> sensitivity	% measured gas @ 20ppm	NH <sub>3</sub>		< 0.1

KEY SPECIFICATIONS			
Temperature range	°C		-30 to 50
Pressure range	kPa		80 to 120
Humidity range	% rh continuous		15 to 90
Storage period	months @ 3 to 20°C (stored in sealed pot)		6
Load Resistor	$\Omega$ (recommended)		10 to 47
Weight	g		< 6

**NOTE:** all sensors are tested at ambient environmental conditions, with 10 ohm load resistor, unless otherwise stated. As applications of use are outside our control, the information provided is given without legal responsibility. Customers should test under their own conditions, to ensure that the sensors are suitable for their own requirements.

Technical Specification



# SO<sub>2</sub>-AE Performance Data

# Technical Specification

Figure 2 Sensitivity Temperature Dependence

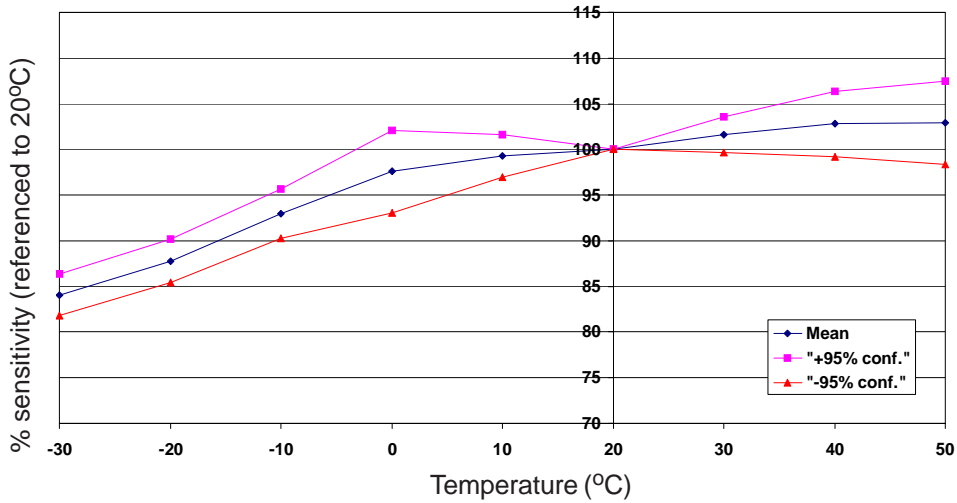
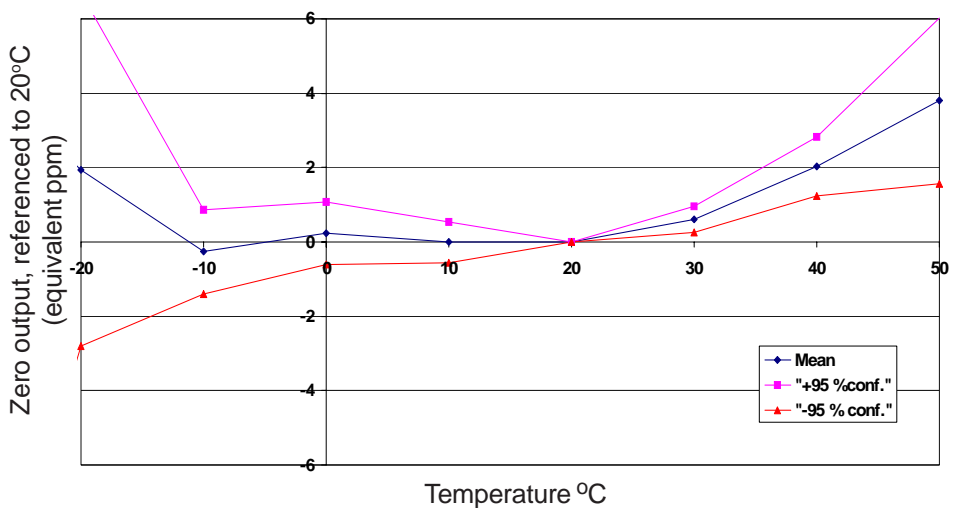


Figure 2 shows the variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of sensors. The mean and  $\pm 95\%$  confidence intervals are shown.

Figure 3 Zero Offset Temperature Dependence



The zero offset is insensitive to temperature above -10°C.

Figure 4 Response to Step Changes up to 10,000 ppm SO<sub>2</sub>

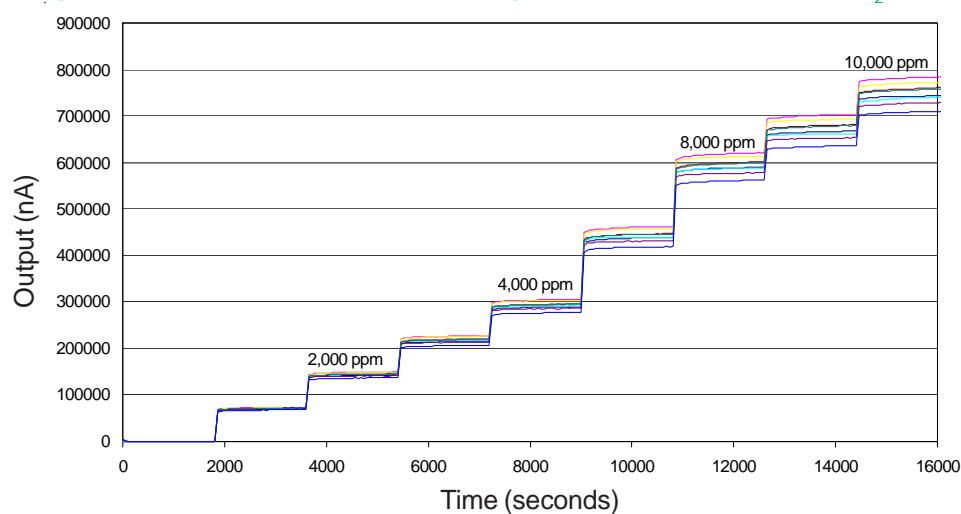


Figure 4 shows the response for a batch of sensors to high concentrations of SO<sub>2</sub> applied as sequential step increases.

The output remains substantially linear over the range 0 to 10,000 ppm.

For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. For application notes visit "[www.alphasense.com](http://www.alphasense.com)".

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