



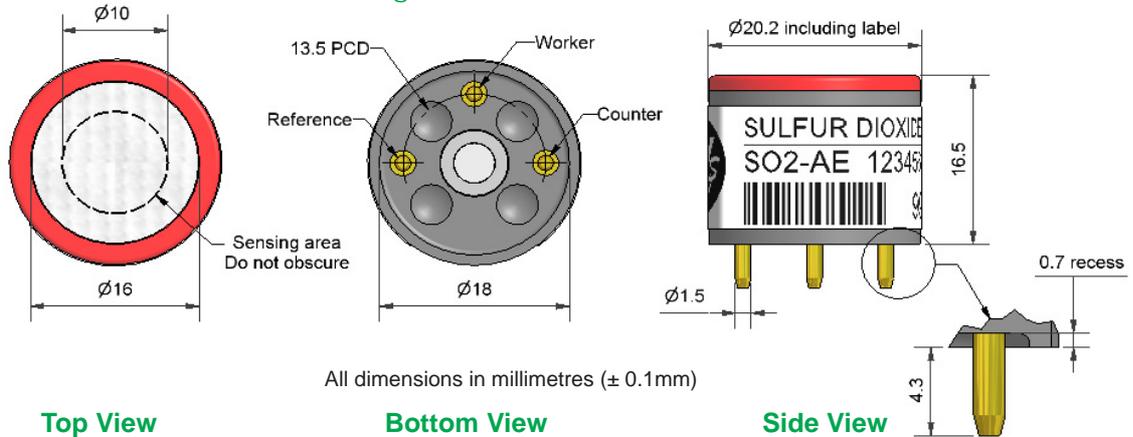
# SO<sub>2</sub>-AE Sulfur Dioxide Sensor

## High Concentration



Figure 1 SO<sub>2</sub>-AE Schematic Diagram

PATENTED



Technical Specification

PERFORMANCE	Parameter	Specification	Range
	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>	< 30
	Zero current	ppm equivalent in zero air	< $\pm 5$
	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 limit	maximum ppm for stable response to gas pulse	10,000

LIFETIME	Parameter	Specification	Range
	Zero drift	ppm equivalent change/year in lab air	< 0.2
	Sensitivity drift	% change/year in lab air, monthly test	< 4
	Operating life	months until 80% original signal (24 month warranted)	> 24

ENVIRONMENTAL	Parameter	Specification	Range
	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	< $\pm 3$
	Zero @ 50°C	ppm equivalent change from 20°C	< $\pm 4$

CROSS SENSITIVITY	Filter capacity	ppm·hrs	H <sub>2</sub> S	Range
	H <sub>2</sub> S sensitivity	% measured gas @ 20ppm	H <sub>2</sub> S	< 5,000
	NO <sub>2</sub> sensitivity	% measured gas @ 10ppm	NO <sub>2</sub>	< 2
	Cl <sub>2</sub> sensitivity	% measured gas @ 10ppm	Cl <sub>2</sub>	< -200
	NO sensitivity	% measured gas @ 500ppm	NO	< -60
	CO sensitivity	% measured gas @ 400ppm	CO	< 25
	H <sub>2</sub> sensitivity	% measured gas @ 400ppm	H <sub>2</sub>	< 10
	C <sub>2</sub> H <sub>4</sub> sensitivity	% measured gas @ 1000ppm	C <sub>2</sub> H <sub>4</sub>	< 1.5
	NH <sub>3</sub> sensitivity	% measured gas @ 20ppm	NH <sub>3</sub>	< 40

KEY SPECIFICATIONS	Parameter	Specification	Range
	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



At the end of the product's life, do not dispose of any electronic sensor, component or instrument in the domestic waste, but contact the instrument manufacturer, Alphasense or its distributor for disposal instructions.

**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.



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

# Technical Specification

Figure 2 Sensitivity Temperature Dependence

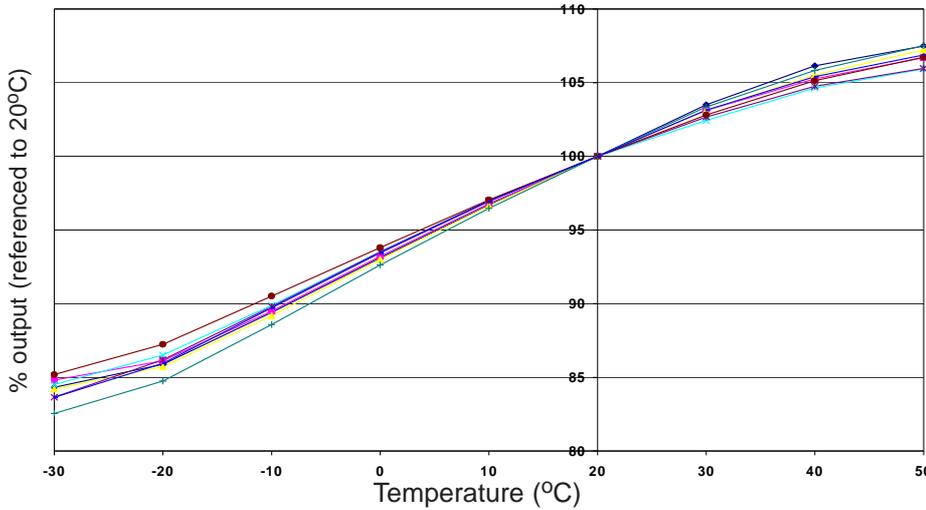


Figure 2 shows the variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of sensors.

Figure 3 Zero Temperature Dependence

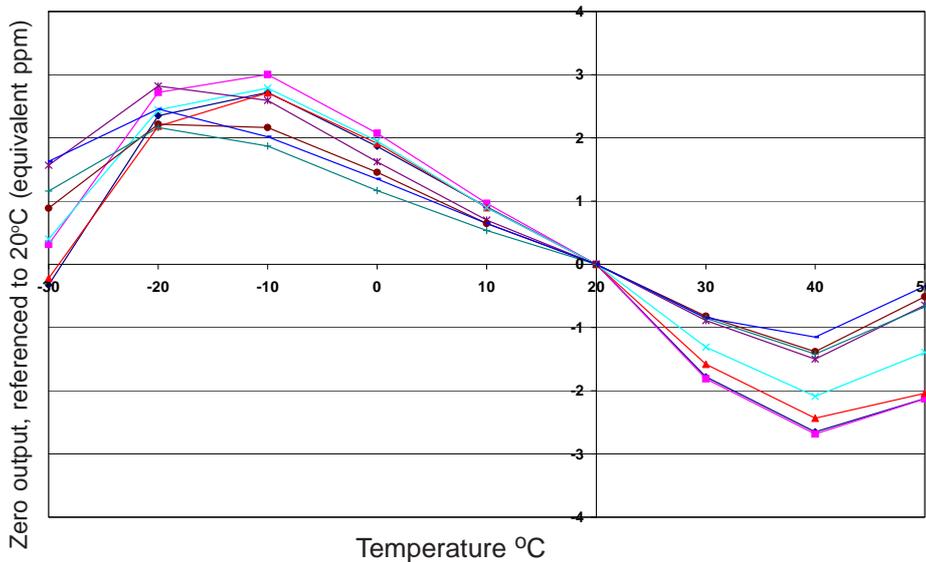


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

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

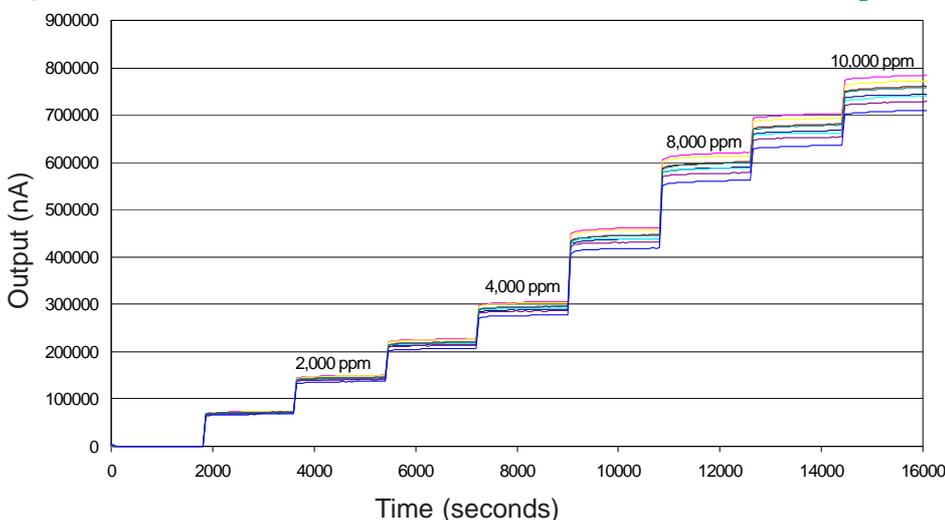


Figure 4 shows the response for a batch of sensors to high concentrations of SO<sub>2</sub> applied as sequential step increases.

The output remains 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)".

*In the interest of continued product improvement, we reserve the right to change design features and specifications without prior notification. The data contained in this document is for guidance only. Alphasense Ltd accepts no liability for any consequential losses, injury or damage resulting from the use of this document or the information contained within. (©ALPHASENSE LTD) Doc. Ref. SO2AE/NOV12*