

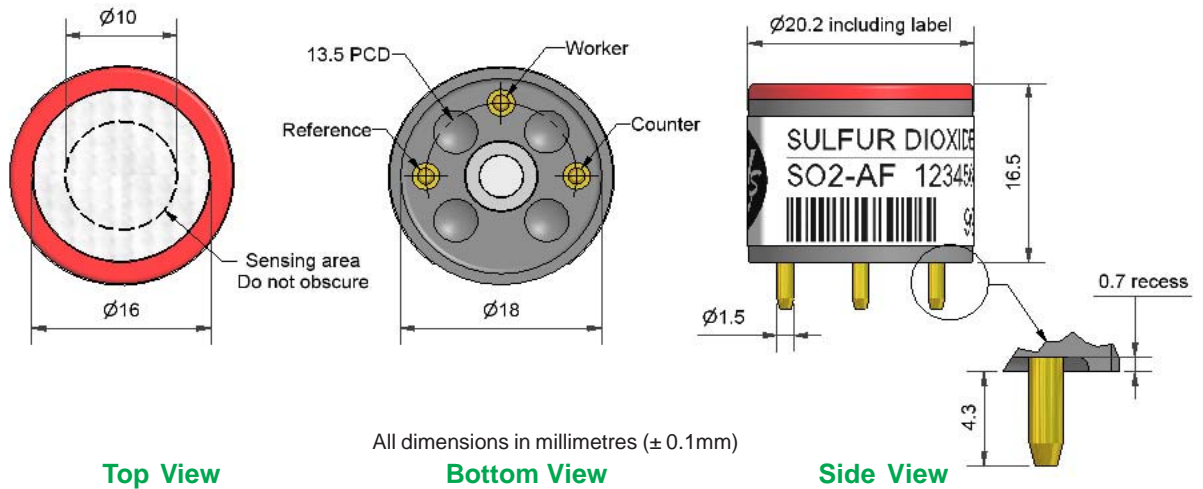


SO2-AF Sulfur Dioxide Sensor



PATENTED

Figure 1 SO2-AF Schematic Diagram



All dimensions in millimetres (± 0.1 mm)

Top View

Bottom View

Side View

Technical Specification

PERFORMANCE	Sensitivity	nA/ppm in 10ppm SO ₂	400 to 650
	Response time	t ₉₀ (s) from zero to 10ppm SO ₂	< 25
	Zero current	ppm equivalent in zero air	< ± 0.5
	Resolution	RMS noise (ppm equivalent)	< 0.1
	Range	ppm limit of performance warranty	50
	Linearity	ppm error at full scale, linear at zero and 10ppm	< ± 0.3
	Overgas limit	maximum ppm for stable response to gas pulse	75
LIFETIME	Zero drift	ppm equivalent change/year in lab air	< 0.1
	Sensitivity drift	% change/year in lab air, monthly test	< 4
	Operating life	months until 80% original signal (24 month warranted)	> 24
ENVIRONMENTAL	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 10ppm	72 to 90
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 10ppm	92 to 102
	Zero @ -20°C	ppm equivalent change from 20°C	< ± 0.5
	Zero @ 40°C	ppm equivalent change from 20°C	< ± 0.5
CROSS SENSITIVITY	Filter capacity	ppm-hrs	H ₂ S 1000
	H ₂ S sensitivity	% measured gas @ 20ppm	H ₂ S < 0.1
	NO ₂ sensitivity	% measured gas @ 10ppm	NO ₂ < -130
	Cl ₂ sensitivity	% measured gas @ 10ppm	Cl ₂ < -40
	NO sensitivity	% measured gas @ 50ppm	NO < ± 2
	CO sensitivity	% measured gas @ 400ppm	CO < 1.6
	H ₂ sensitivity	% measured gas @ 400ppm	H ₂ < 0.3
	C ₂ H ₄ sensitivity	% measured gas @ 400ppm	C ₂ H ₄ < 40
NH ₃ sensitivity	% measured gas @ 20ppm	NH ₃ < 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	Ω (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.



SO2-AF Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

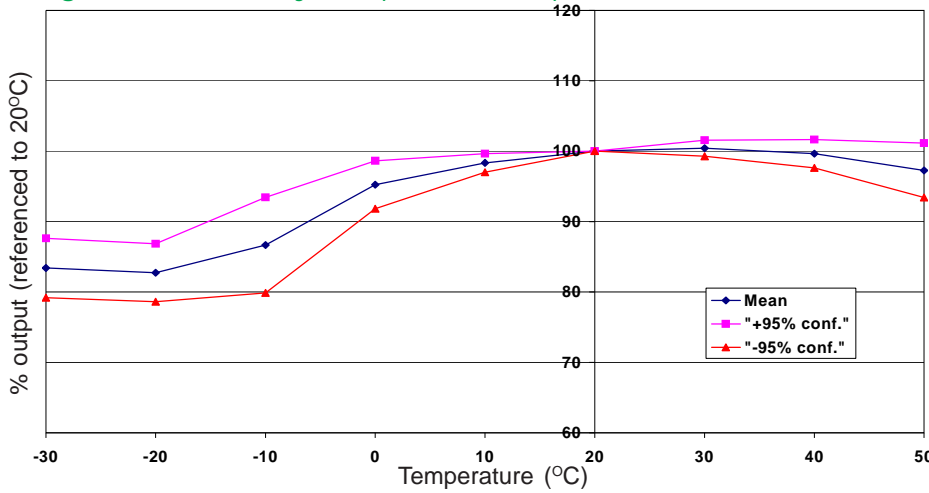


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Temperature Dependence

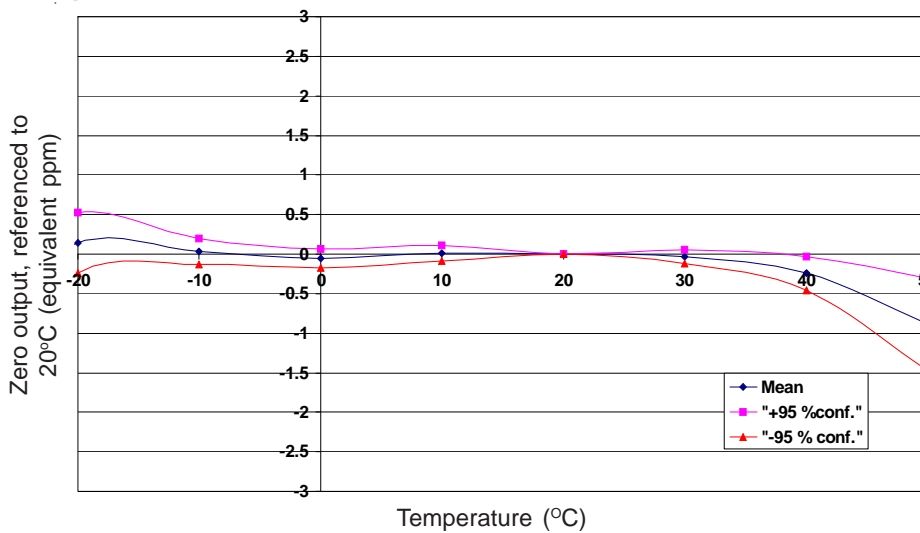
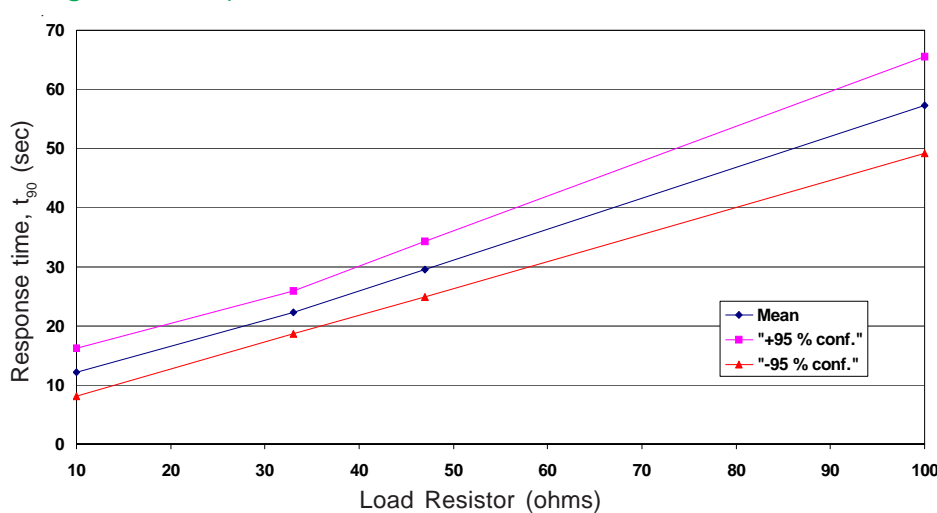


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent.

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

Figure 4 Response Time vs. Load Resistor



As with all Alphasense toxic gas sensors, increasing the load resistor slows the response time; it also reduces noise for better resolution.

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".

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.SO2AF/JUN11