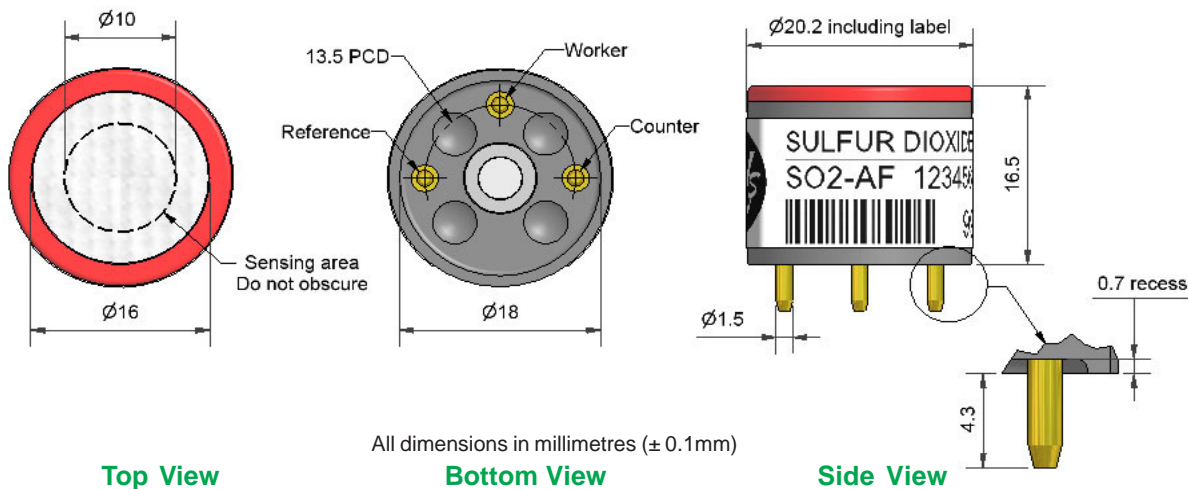


# SO2-AF Sulfur Dioxide Sensor



PATENTED

Figure 1 SO2-AF Schematic Diagram



Technical Specification

<b>PERFORMANCE</b>	Sensitivity	nA/ppm in 10ppm SO <sub>2</sub>	450 to 750
	Response time	t <sub>90</sub> (s) from zero to 10ppm SO <sub>2</sub>	< 25
	Zero current	ppm equivalent in zero air	< $\pm 0.5$
	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	< $\pm 0.3$
	Overgas limit	maximum ppm for stable response to gas pulse	75
<b>LIFETIME</b>	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
<b>ENVIRONMENTAL</b>	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	< $\pm 0.5$
	Zero @ 40°C	ppm equivalent change from 20°C	< $\pm 0.5$
<b>CROSS SENSITIVITY</b>	Filter capacity	ppm-hrs	H <sub>2</sub> S 100
	H <sub>2</sub> S sensitivity	% measured gas @ 20ppm	H <sub>2</sub> S < 0.1
	NO <sub>2</sub> sensitivity	% measured gas @ 10ppm	NO <sub>2</sub> < -100
	Cl <sub>2</sub> sensitivity	% measured gas @ 10ppm	Cl <sub>2</sub> < -70
	NO sensitivity	% measured gas @ 50ppm	NO < 4
	CO sensitivity	% measured gas @ 400ppm	CO < 4
	H <sub>2</sub> sensitivity	% measured gas @ 400ppm	H <sub>2</sub> < 0.2
	C <sub>2</sub> H <sub>4</sub> sensitivity	% measured gas @ 400ppm	C <sub>2</sub> H <sub>4</sub> < 15
NH <sub>3</sub> sensitivity	% measured gas @ 20ppm	NH <sub>3</sub> < 0.1	
<b>KEY SPECIFICATIONS</b>	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.

# SO2-AF Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

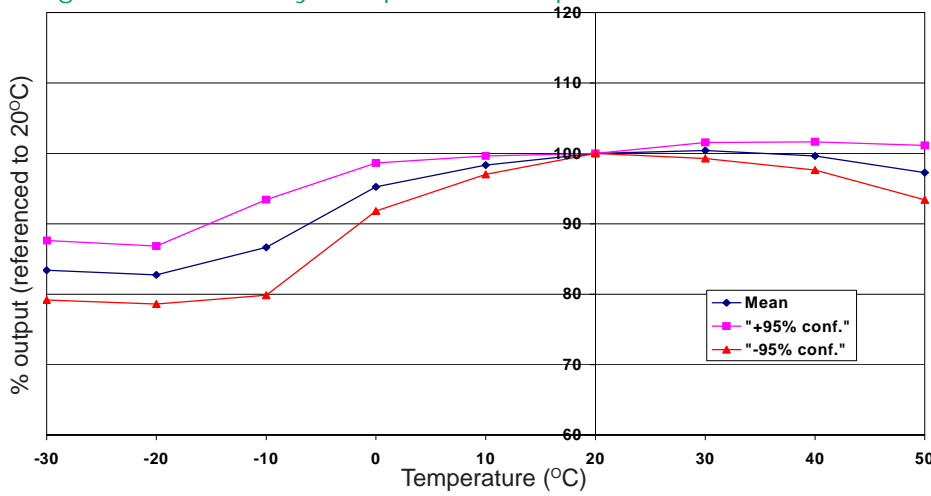


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Temperature Dependence

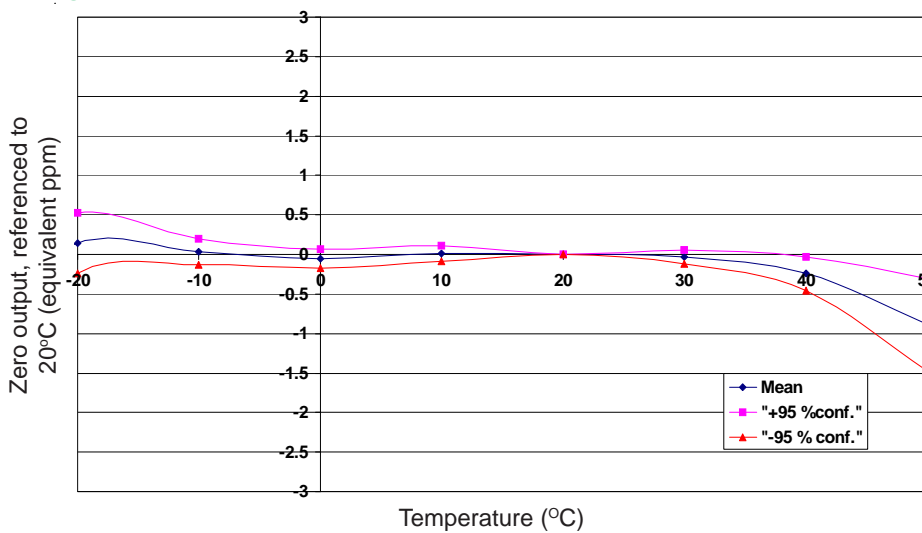
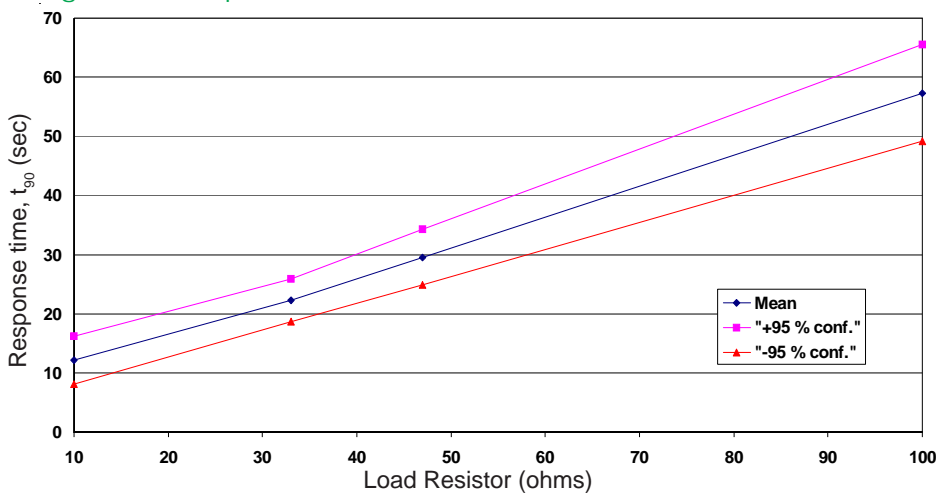


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent.

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.