

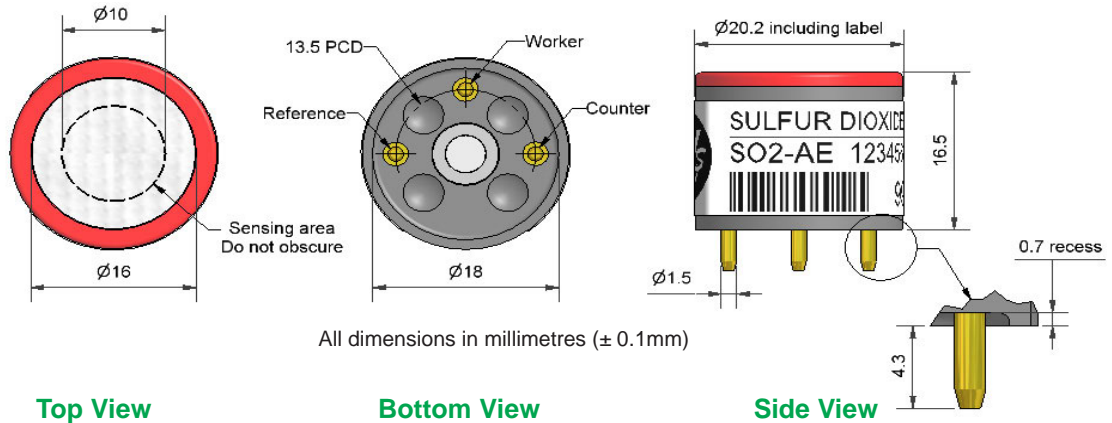
# SO2-AE Sulfur Dioxide Sensor

## High Concentration



PATENTED

Figure 1 SO2-AE Schematic Diagram



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>	< 25
	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	< $\pm 7$
	Zero @ 50°C	ppm equivalent change from 20°C	< 0 to 7

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>	0.1
	Cl <sub>2</sub> sensitivity	% measured gas @ 10ppm	Cl <sub>2</sub>	< -140
	NO sensitivity	% measured gas @ 500ppm	NO	< -140
	CO sensitivity	% measured gas @ 400ppm	CO	< 150
	H <sub>2</sub> sensitivity	% measured gas @ 400ppm	H <sub>2</sub>	< 2
	C <sub>2</sub> H <sub>4</sub> sensitivity	% measured gas @ 1000ppm	C <sub>2</sub> H <sub>4</sub>	< 0.1
	NH <sub>3</sub> sensitivity	% measured gas @ 20ppm	NH <sub>3</sub>	< 75

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

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

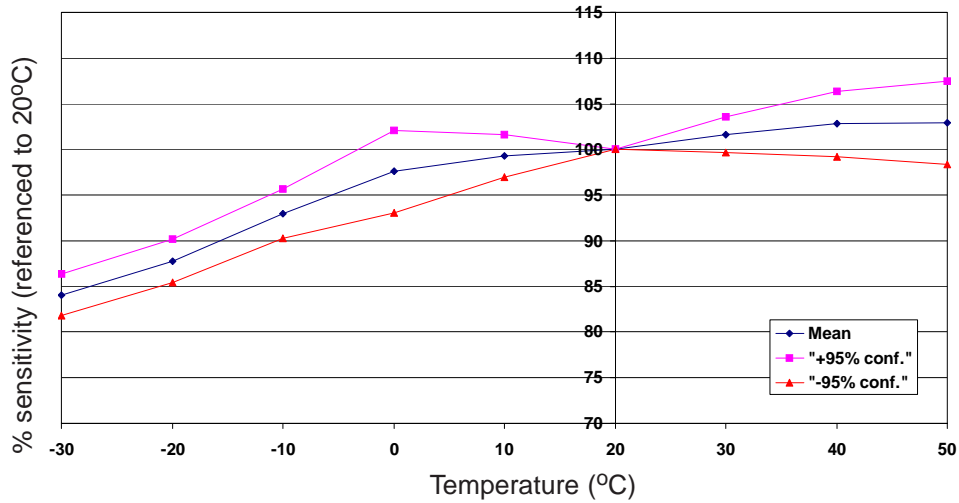


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Offset Temperature Dependence

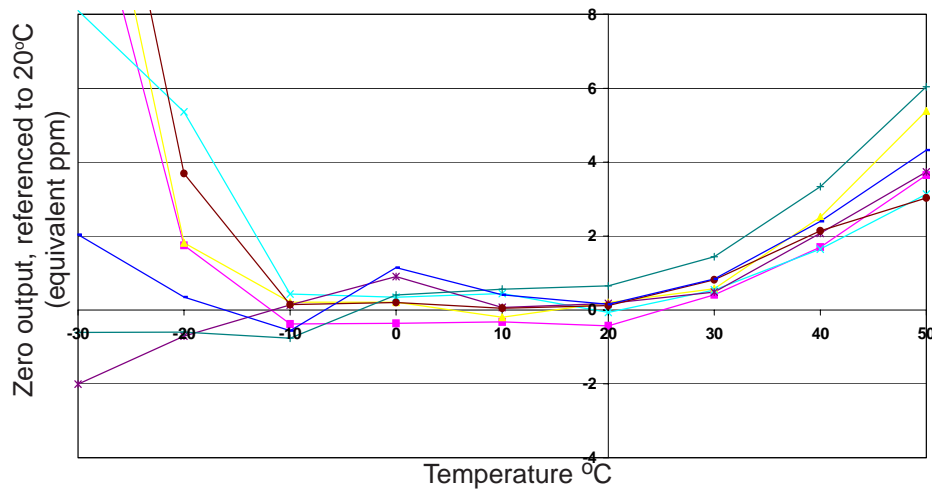


Figure 3 shows the variation of the zero current as equivalent ppm.

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

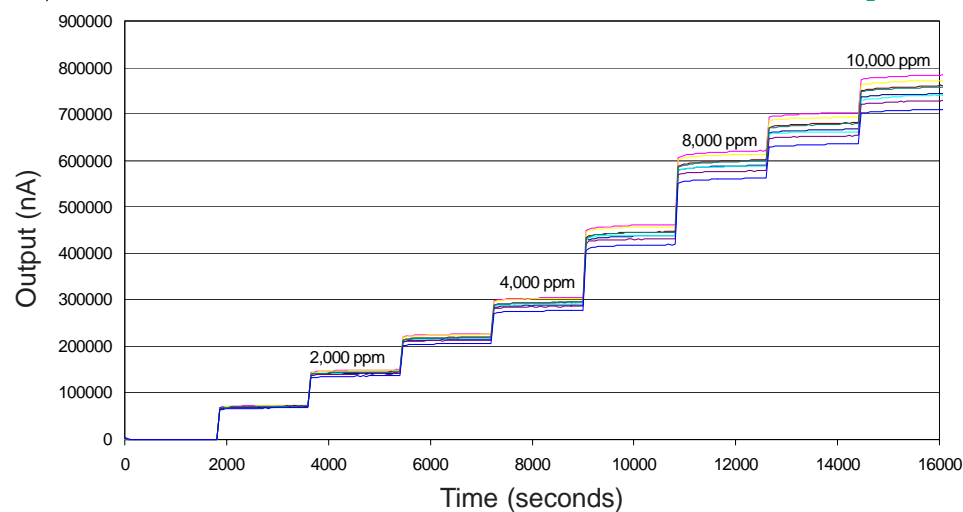


Figure 4 shows the response for a batch of sensors to high concentrations of SO<sub>2</sub> applied as sequential step increases.

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