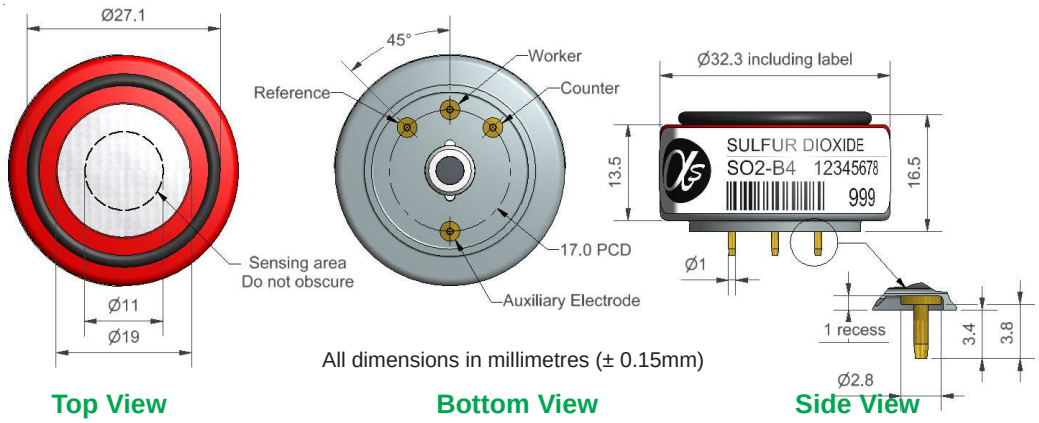
SO2-B4 Sulfur Dioxide Sensor
4-Electrode

Technical Specification

Figure 1 SO2-B4 Schematic Diagram



PERFORMANCE	Sensitivity	nA/ppm at 2ppm SO_2	275 to 500
	Response time	t_{90} (s) from zero to 2ppm SO_2	< 60
	Zero current	nA in zero air at 20°C	-100 to +100
	Noise*	±2 standard deviations (ppb equivalent)	5
	Range	ppm limit of performance warranty	100
	Linearity	ppb error at 100ppm SO_2, linear at zero and 10ppm SO_2	0 to -2
	Overgas limit	maximum ppm for stable response to gas pulse	200

*** Tested with Alphasense ISB low noise circuit**

LIFETIME	Zero drift	ppb equivalent change/year in lab air	< ±20
	Sensitivity drift	% change/year in lab air, monthly test	< ±15
	Operating life	months until 50% original signal (24 month warranted)	> 36

ENVIRONMENTAL	Sensitivity @ -20°C	(% output @ -20°C/output @ 20°C) @ 2ppm SO_2	70 to 90
	Sensitivity @ 50°C	(% output @ 50°C/output @ 20°C) @ 2ppm SO_2	90 to 110
	Zero @ -20°C	nA change from 20°C	0 to -10
	Zero @ 50°C	nA change from 20°C	10 to 30

CROSS SENSITIVITY	Filter capacity	ppm·hrs			450
	H_2S sensitivity	% measured gas @ 5ppm	H_2S		< 2
	NO_2 sensitivity	% measured gas @ 5ppm	NO_2		< -120
	Cl_2 sensitivity	% measured gas @ 5ppm	Cl_2		< -80
	NO sensitivity	% measured gas @ 5ppm	NO		< 4
	CO sensitivity	% measured gas @ 5ppm	CO		< 3
	H_2 sensitivity	% measured gas @ 100ppm	H_2		< 0.5
	C_2H_4 sensitivity	% measured gas @ 100ppm	C_2H_4		< 1
	NH_3 sensitivity	% measured gas @ 20ppm	NH_3		< 0.1
	CO_2 sensitivity	% measured gas @ 5%	CO_2		< 0.1
	O_3 sensitivity	% measured gas @ 0.5ppm	O_3		< -120

KEY SPECIFICATIONS	Temperature range	°C	-30 to 50
	Pressure range	kPa	80 to 120
	Humidity range	% rh continuous (see note below)	15 to 90
	Storage period	months @ 3 to 20°C (stored in sealed pot)	6
	Load Resistor	Ω (ISB circuit is recommended)	33 to 100
	Weight	g	< 13

Note: Above 85% rh and 40°C a maximum continuous exposure period of 10 days is warranted. Where such exposure occurs the sensor will recover normal electrolyte volumes when allowed to rest at lower % rh and temperature levels for several days.

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 47 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.

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SO2-B4 Perfomance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

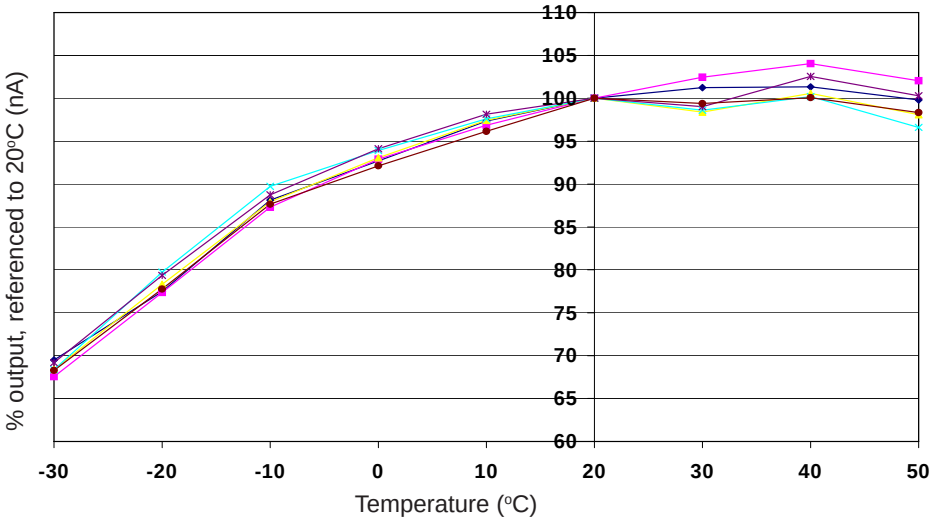

Figure 2 shows the temperature dependence of sensitivity at 2ppm SO_2.

This data is taken from a typical batch of sensors.

Figure 3 Zero Temperature Dependence

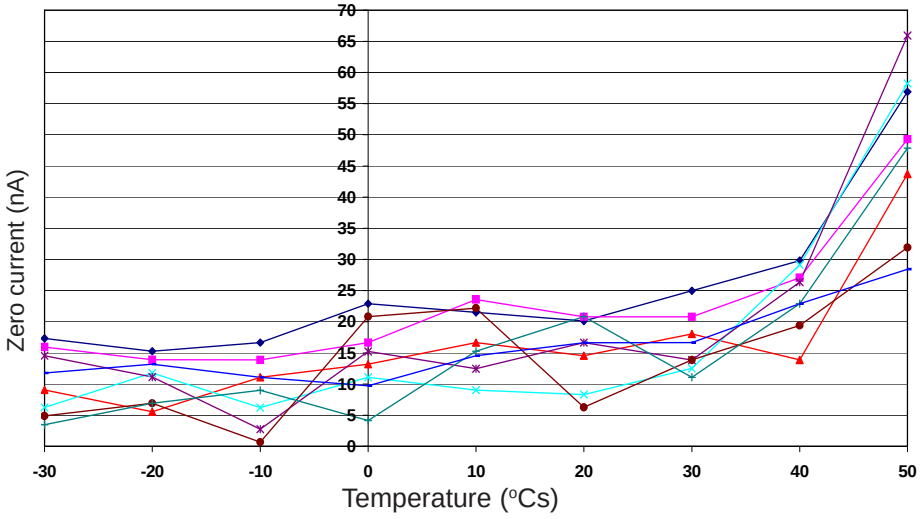

Figure 3 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.

This data is taken from a typical batch of sensors.

Contact Alphasense for futher information on zero current correction.

Figure 4 Response to 200ppb SO_2

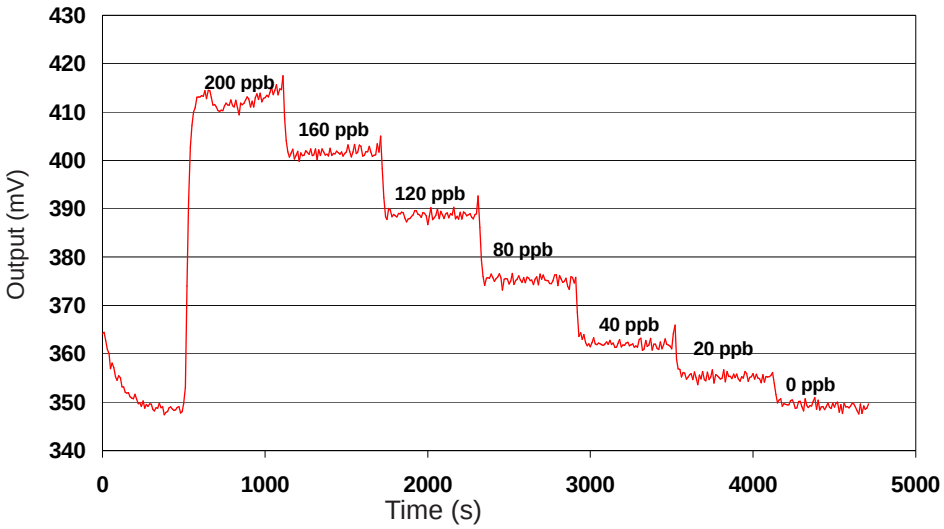

Figure 4 shows response from 20 to 200ppb SO_2.

Use of Alphasense ISB circuit reduces noise to 5ppb, with the opportunity of digital smoothing to reduce noise even further.

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".