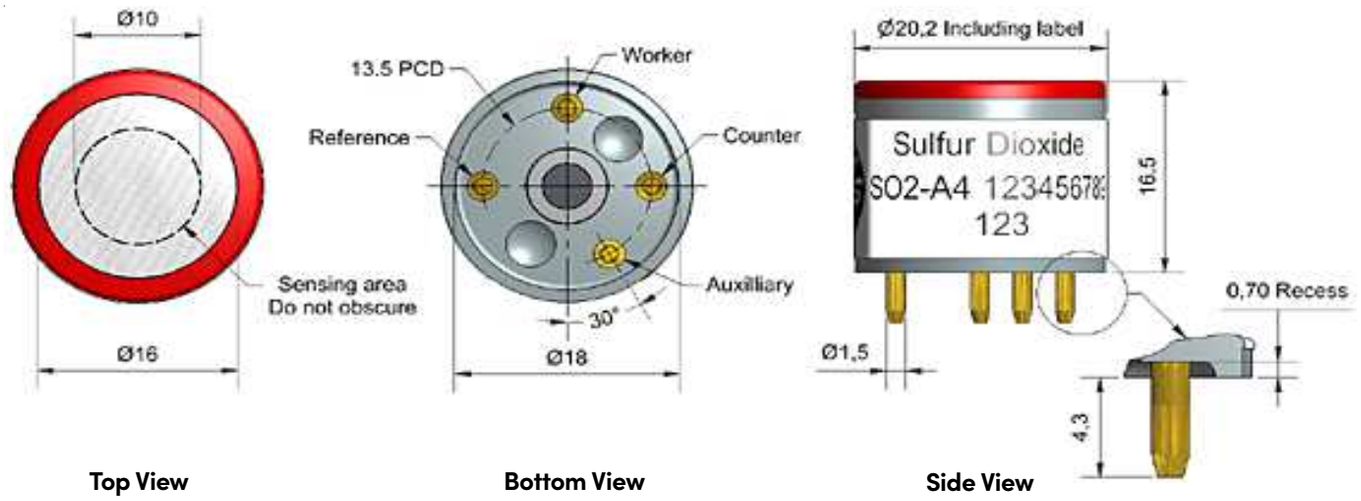
SO2-A4 Sulfur Dioxide Sensor – 4-Electrode



Top View **Bottom View** **Side View**

Dimensions are in millimetres (± 0.15 mm).

Performance	Sensitivity	nA/ppm at 2ppm SO_2		320 to 500
	Response time	t90 (s) from zero to 2ppm SO_2		< 20
	Zero current	nA in zero air at 20°C		-80 to +80
	Noise*	±2 standard deviations (ppb equivalent)		15
	Range	ppm limit of performance warranty		50
	Linearity	ppb error at 20ppm SO_2, linear at zero and 2ppm SO_2		0 to -5
	Overgas limit	maximum ppm for stable response to gas pulse		100
	*Tested with Alphasense AFE 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		80 to 95
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 2ppm SO_2		90 to 110
	Zero @ -20°C	nA change from 20°C		< ± 25
	Zero @ 50°C	nA change from 20°C		150 to 300
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	< 1
	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 (AFE circuit is recommended)		33 to 100
	Weight	g		< 6

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For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. or visit our website at "www.alphasense.com".

Figure 1 Sensitivity Temperature Dependence

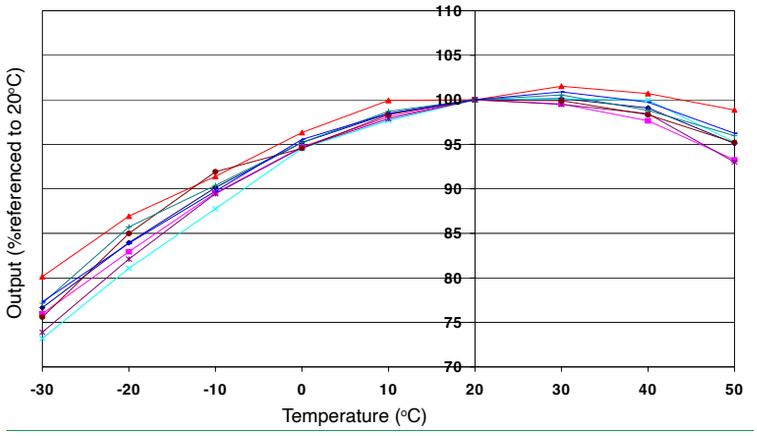

Figure 1 shows the temperature dependence of sensitivity at 2ppm SO_2.

This data is taken from a typical batch of sensors.

Figure 2 Zero Temperature Dependence

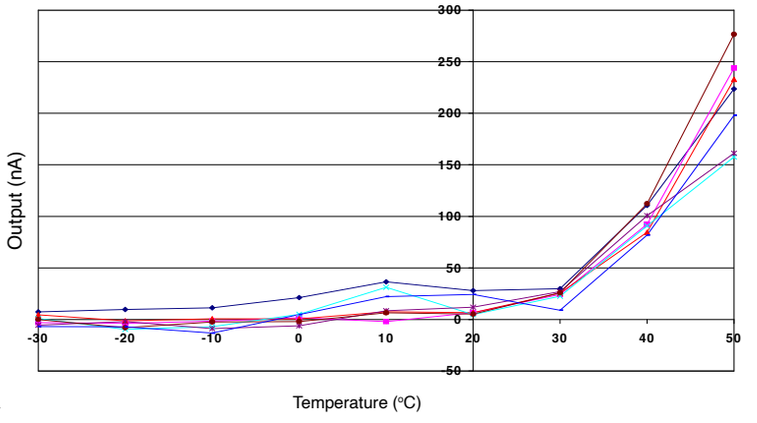

Figure 2 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.

This data is taken from a typical batch of sensors.

Contact Alphasense for futher information on zero current correction.

Figure 3 Response to 200ppb SO_2

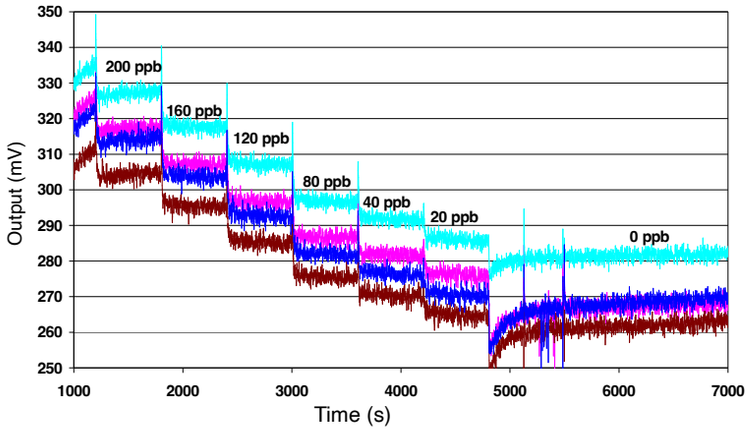

Figure 3 shows response from 20 to 200ppb SO_2.

Use of Alphasense AFE circuit reduces noise to 15ppb, with the opportunity of digital smoothing to reduce noise even further.

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 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.