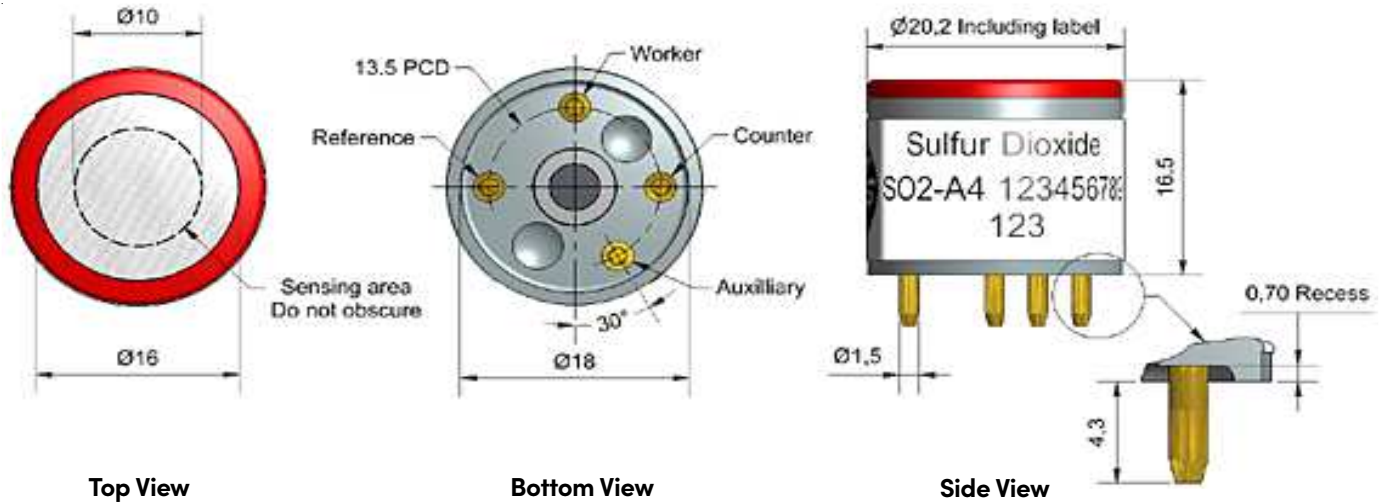


SO2-A4 Sulfur Dioxide Sensor – 4-Electrode



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 ₂ S sensitivity	% measured gas @ 5ppm	H ₂ S		< 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 ₂ H ₄ sensitivity	% measured gas @ 100ppm	C ₂ H 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

Figure 1 Sensitivity Temperature Dependence

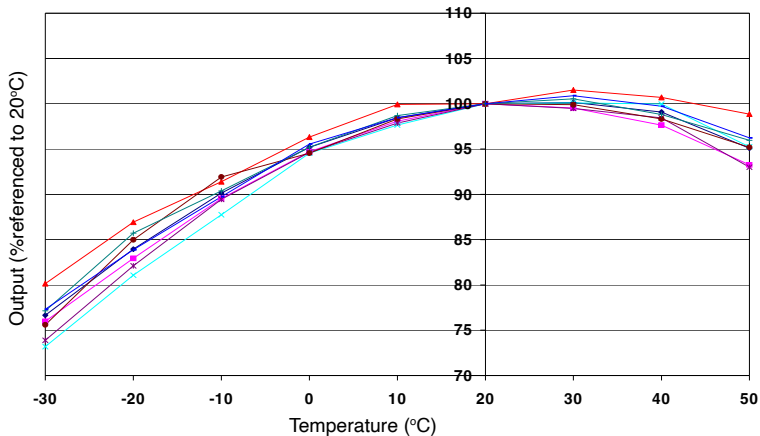


Figure 1 shows the temperature dependence of sensitivity at 2ppm SO₂.
This data is taken from a typical batch of sensors.

Figure 2 Zero Temperature Dependence

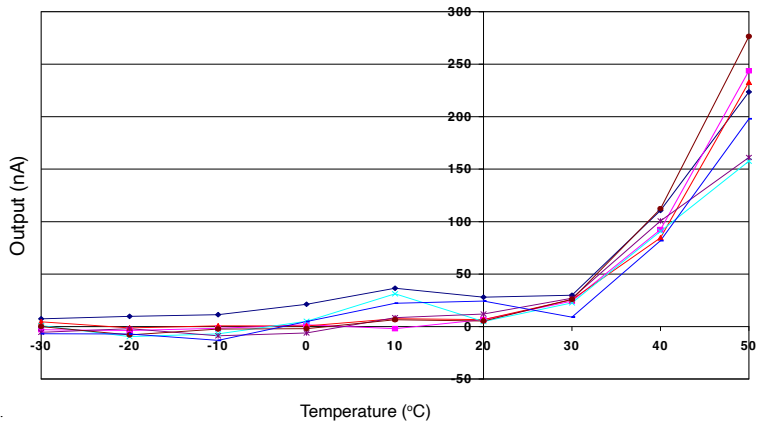


Figure 2 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.
This data is taken from a typical batch of sensors.
Contact Alphasense for further information on zero current correction.

Figure 3 Response to 200ppb SO₂

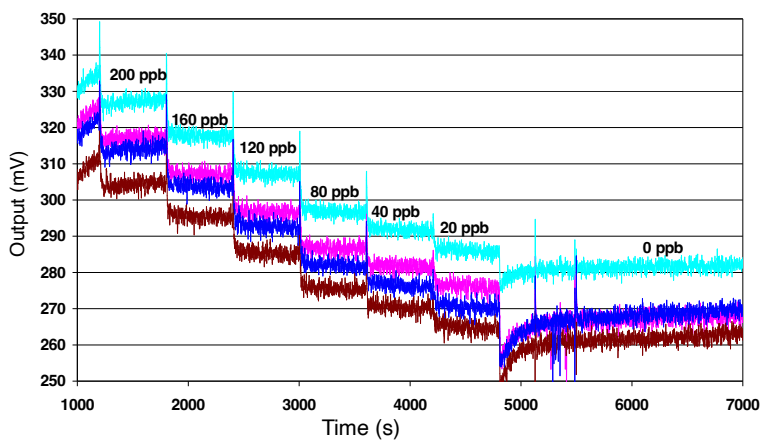


Figure 3 shows response from 20 to 200ppb SO₂.
Use of Alphasense AFE circuit reduces noise to 15ppb, with the opportunity of digital smoothing to reduce noise even further.

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.

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