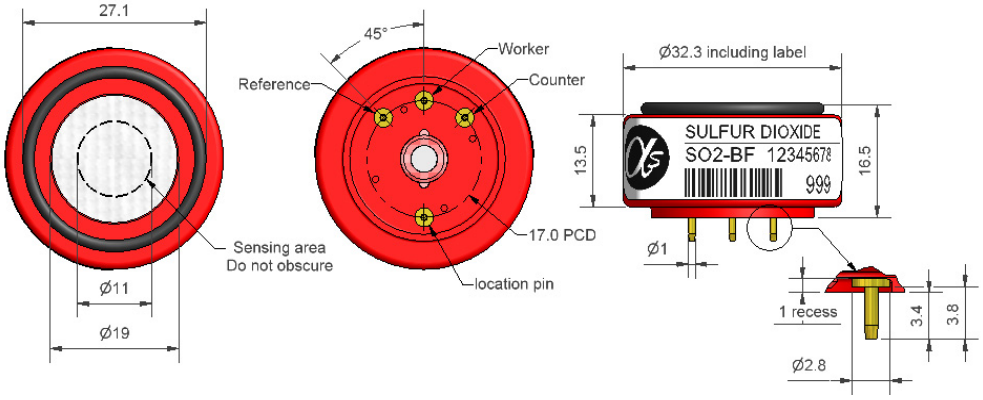
SO2-BF Sulfur Dioxide Sensor

PATENTED

Technical Specification

Figure 1 SO2-BF Schematic Diagram



All dimensions in millimetres (± 0.1mm)

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

PERFORMANCE	Sensitivity	nA/ppm in 20ppm SO_2		300 to 440
	Response time	t_{90} (s) from zero to 20ppm SO_2		< 30
	Zero current	ppm equivalent in zero air		< ± 0.5
	Resolution	RMS noise (ppm equivalent)		< 0.1
	Range	ppm limit of performance warranty		100
	Linearity	ppm error at full scale, linear at zero and 20ppm SO_2		< ± 2
	Overgas range	maximum ppm for stable response to gas pulse		500
LIFETIME	Zero drift	ppm equivalent change/year in lab air		nd
	Sensitivity drift	% change/month in lab air, twice monthly test		< 2
	Operating life	months until 80% original signal (24 month warranted)		> 24
ENVIRONMENTAL	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 20ppm		84 to 94
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 20ppm		96 to 102
	Zero @ -20°C	ppm equivalent change from 20°C		< ± 0.4
	Zero @ 50°C	ppm equivalent change from 20°C		< ± 3
CROSS SENSITIVITY	Filter capacity	ppm·hrs	H_2S	450
	NO sensitivity	% measured gas @ 50ppm	NO	< -3
	NO_2 sensitivity	% measured gas @ 10ppm	NO_2	< -120
	Cl_2 sensitivity	% measured gas @ 10ppm	Cl_2	< -50
	H_2 sensitivity	% measured gas @ 400ppm	H_2	< 0.1
	CO sensitivity	% measured gas @ 400ppm	CO	< 1
	C_2H_4 sensitivity	% measured gas @ 400ppm	C_2H_4	< 40
	NH_3 sensitivity	% measured gas @ 20ppm	NH_3	< 0.1
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 (recommended)		10 to 47
	Weight	g		< 13

Note: Above 85% rh and 40°C a miximum 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.

NOTE: all sensors tested and stored at ambient environments 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-BF Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

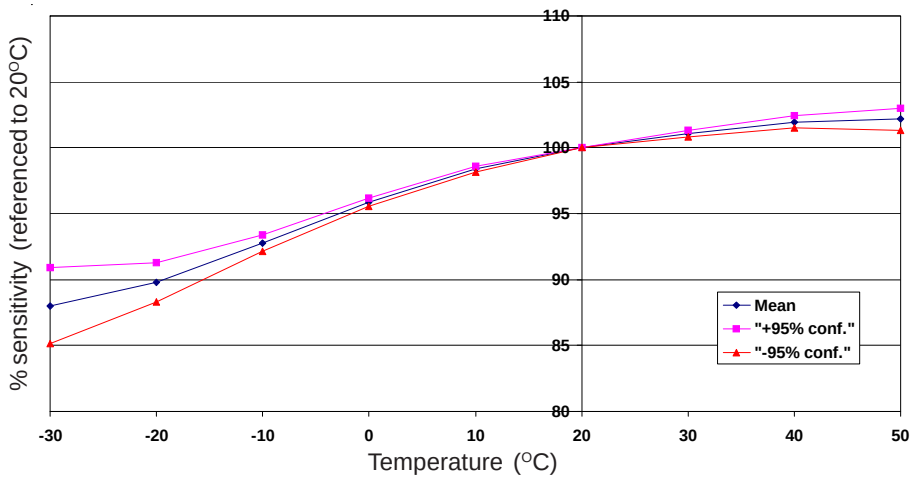

Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Temperature Dependence

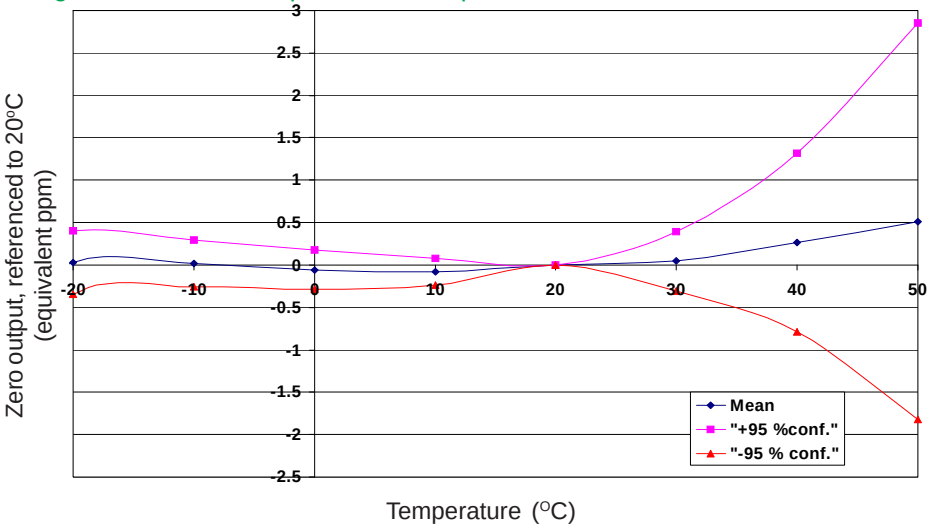

Figure 3 shows the variation in zero output caused by changes in temperature expressed as ppm gas equivalent.

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

Figure 4 Response Profile

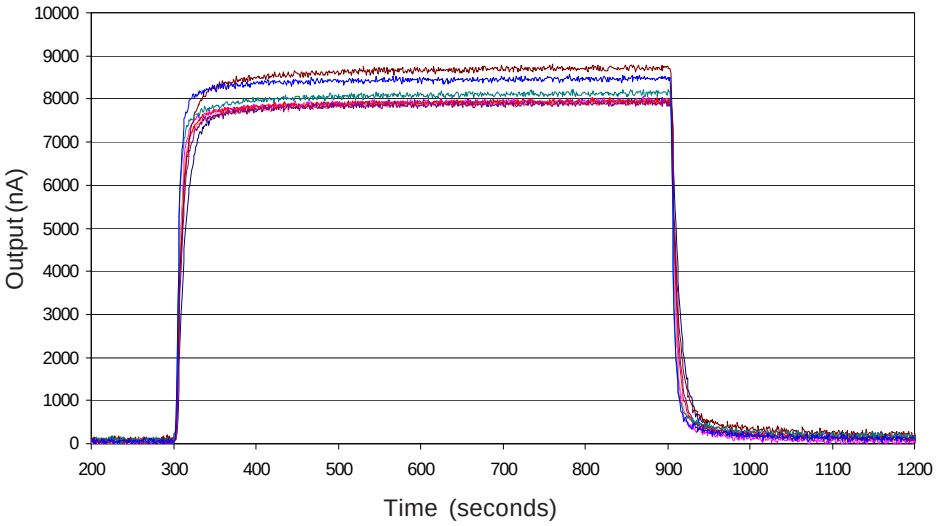

Figure 4 shows the response to 20 ppm SO2-BF.

This data is taken from a typical batch of sensors. The t_{90} response for the SO2-BF sensor is less than 30 seconds.

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".