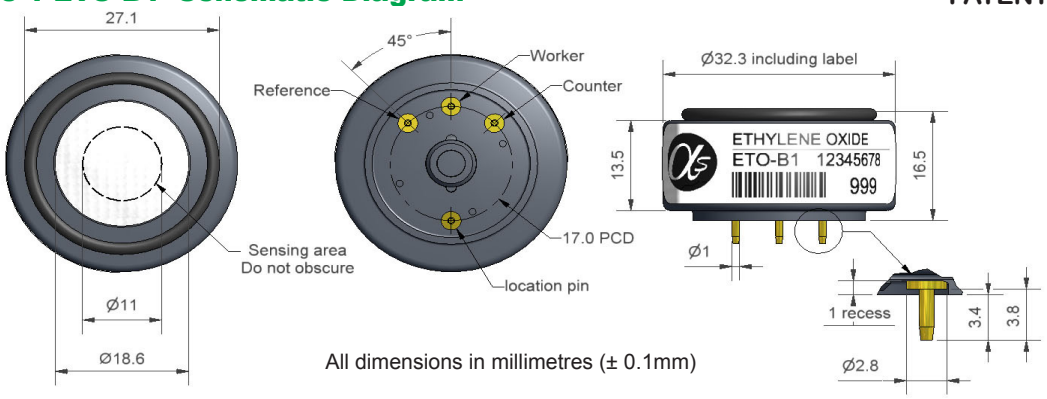
ETO-B1 Ethylene Oxide Sensor

Technical Specification

Figure 1 ETO-B1 Schematic Diagram

PATENTED



All dimensions in millimetres (± 0.1mm)

Top View | Bottom View | Side View

PERFORMANCE	Sensitivity	nA/ppm in 20ppm EtO	2000 to 3200
	Response time	t_{90} (s) from zero to 20ppm EtO	< 200
	Zero current	ppm equivalent in zero air	< -0.6 to +0.75
	Resolution	RMS noise (ppm equivalent)	< 0.1
	Range	ppm EtO limit of performance warranty	100
	Linearity	ppm error at full scale, linear at zero, 40ppm EtO	5 to 10
	Overgas limit	maximum ppm for stable response to gas pulse	500
LIFETIME	Zero drift	ppm equivalent change/year in lab air	nd
	Sensitivity drift	% change/year in lab air, twice monthly test	nd
	Operating life	months until 80% original signal (24 month warranted)	> 24
ENVIRONMENTAL			
	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 40ppm EtO	30 to 50
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 40ppm EtO	115 to 145
	Zero @ -20°C	ppm equivalent change from 20°C	< ±0.5
	Zero @ 50°C	ppm equivalent change from 20°C	< +2 to +5

CROSS SENSITIVITY	H_2S sensitivity	% measured gas @ 20ppm	H_2S	< 200
	NO_2 sensitivity	% measured gas @ 10ppm	NO_2	< 35
	Cl_2 sensitivity	% measured gas @ 10ppm	Cl_2	< -3
	NO sensitivity	% measured gas @ 50ppm	NO	< 80
	SO_2 sensitivity	% measured gas @ 20ppm	SO_2	< 40
	CO sensitivity	% measured gas @ 40ppm	CO	< 25
	H_2 sensitivity	% measured gas @ 400ppm	H_2	< 0.5
	C_2H_4 sensitivity	% measured gas @ 80ppm	C_2H_4	< 100
	NH_3 sensitivity	% measured gas @ 25ppm	NH_3	< 0.1
	HCHO sensitivity	% measured gas @ 4ppm	HCHO	90
	CO_2 sensitivity	% measured gas @ 5% volume	CO_2	< 0.1

KEY SPECIFICATIONS	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 original container)	6
	Load resistor	Ω (recommended)	10 to 33
	Bias voltage	mV (working electrode potential is above reference electrode potential)	300
	Weight	g	< 13

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 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.

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ETO-B1 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

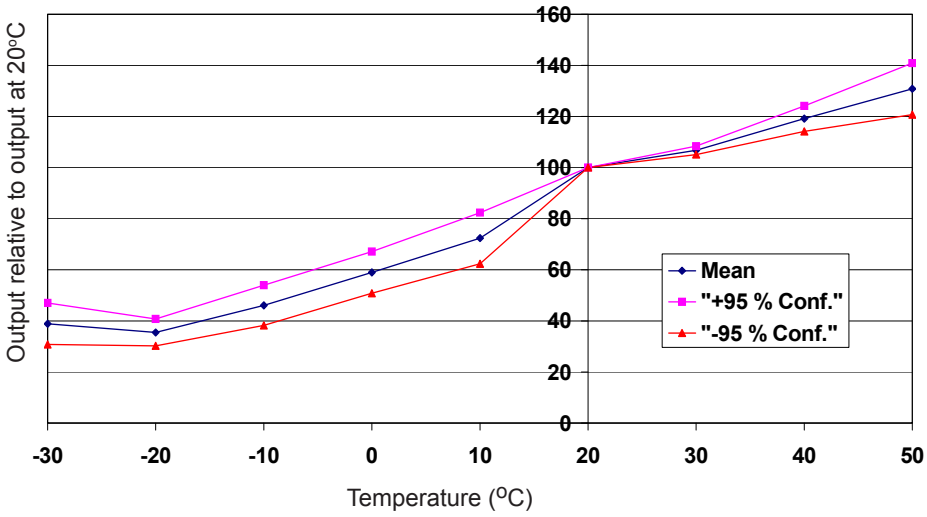


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Temperature Dependence

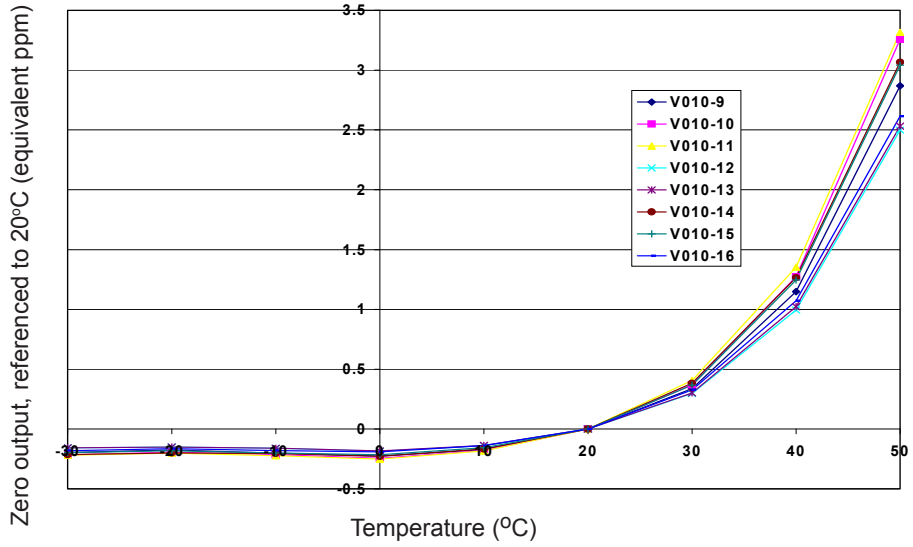
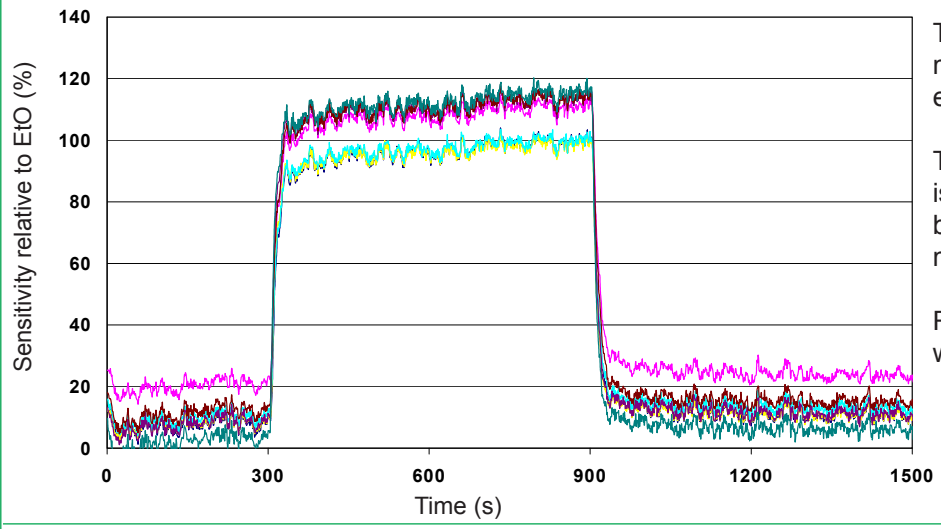


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 4 Cross Sensitivity Study to 3.8 ppm Formaldehyde



The ETO-B1 responds to most VOCs that are electrochemically active.

The bias voltage of +300mV is optimum for Ethylene Oxide but needs adjusting when measuring other VOCs.

Response to formaldehyde with +300mV bias is shown.

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