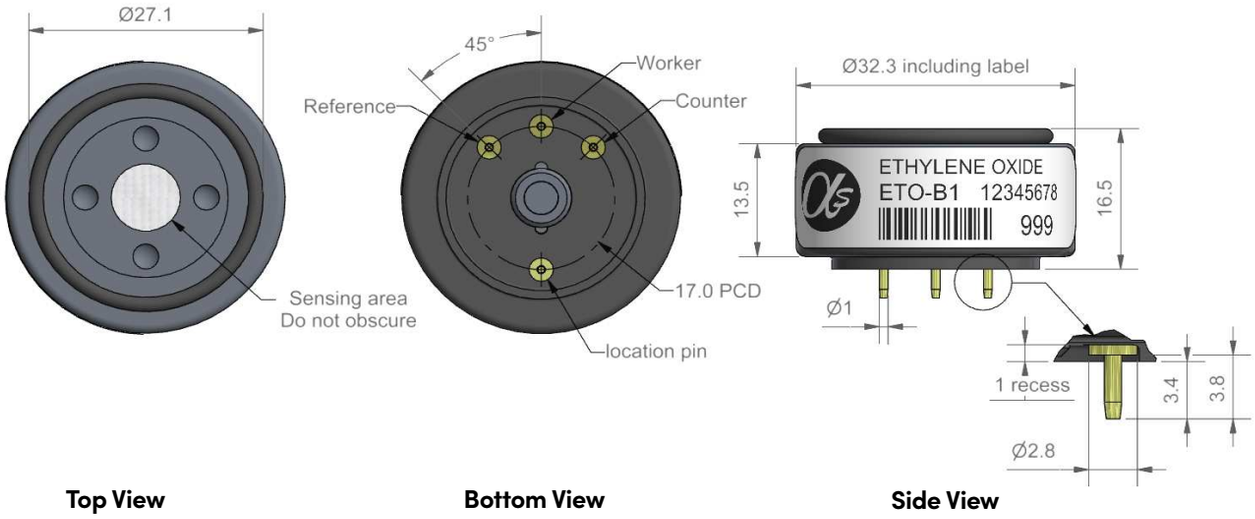
alphasense
AMETEK

Technical specifications Version 1.0

ETO-B1 Ethylene Oxide Sensor



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

Dimensions are in millimetres (± 0.1 mm).

Performance	Sensitivity	nA/ppm in 20ppm EtO		2,000 to 3,400
	Response time	t90 (s) from zero to 20ppm EtO		< 200
	Zero current	ppm equivalent in zero air		< -0.6 to +1
	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) @ 50ppm CO		20 to 50
	Sensitivity @ 50°C	(% output @ 50°C/output @ 20°C) @ 50ppm CO		120 to 160
	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 above reference electrode potential)		300
	Weight	g		< 13

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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

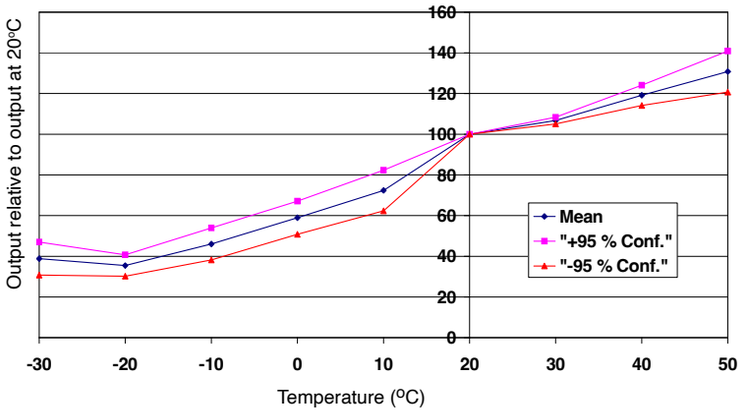


Figure 1 shows the variation in sensitivity caused by changes in temperature.

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

Figure 2 Zero Temperature Dependence

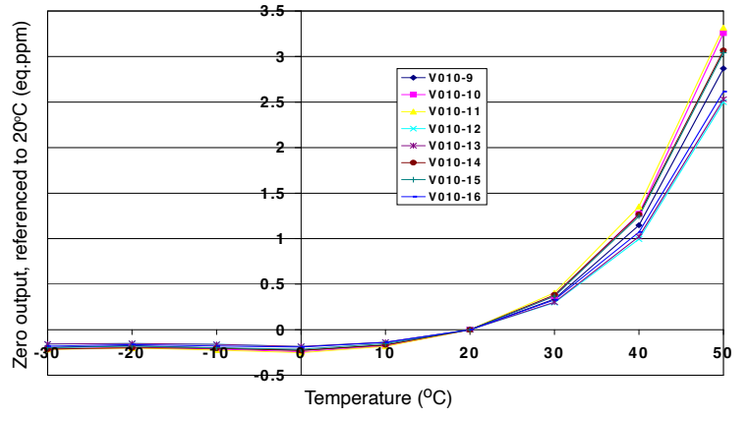
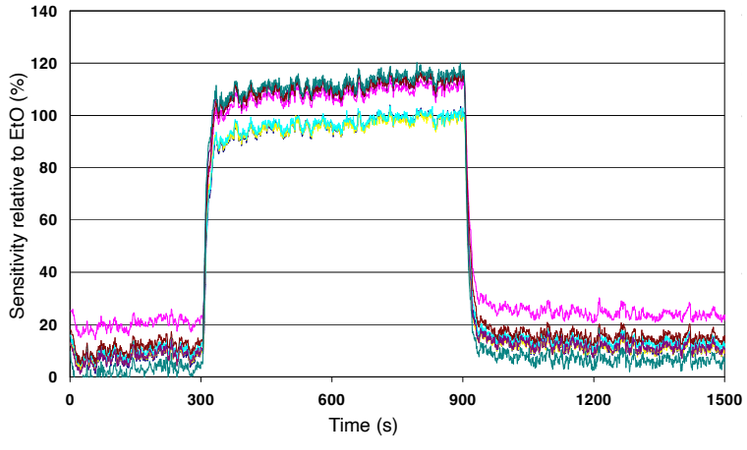


Figure 2 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 3 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.