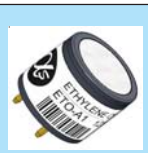
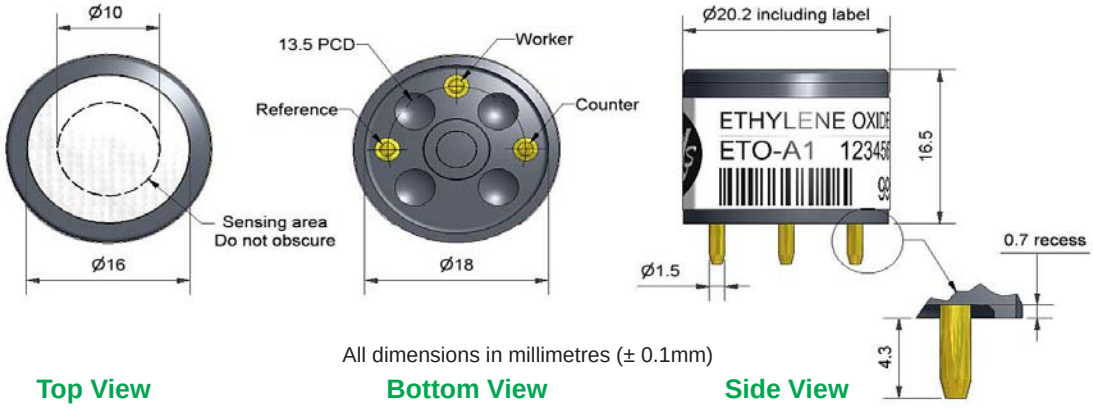
ETO-A1 Ethylene Oxide Sensor



Technical Specification

Figure 1 ETO-A1 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	< 150
	Zero current	ppm equivalent in zero air	± 0.6
	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	200
LIFETIME	Zero drift	ppm equivalent change/year in lab air	nd
	Sensitivity drift	% change/month in lab air, twice monthly test	nd
	Operating life	months until 80% original signal (12 month warranted)	> 24
ENVIRONMENTAL	Sensitivity @ -20°C% (output @ -20°C/output @ 20°C) @ 40ppm EtO		35 to 65
	Sensitivity @ 50°C% (output @ 50°C/output @ 20°C) @ 40ppm EtO		110 to 140
	Zero @ -20°C	ppm equivalent change from 20°C	< ± 0.5
	Zero @ 50°C	ppm equivalent change from 20°C	< 2 to 4
CROSS SENSITVITY	H_2S sensitivity	% measured gas @ 20ppm H_2S	< 200
	NO_2 sensitivity	% measured gas @ 10ppm NO_2	< 50
	Cl_2 sensitivity	% measured gas @ 10ppm Cl_2	< -1
	NO sensitivity	% measured gas @ 50ppm NO	< 80
	SO_2 sensitivity	% measured gas @ 20ppm SO_2	< 50
	CO sensitivity	% measured gas @ 400ppm CO	< 30
	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% 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 47
Bias voltage	mV (working electrode potential above reference electrode potential)	300
Weight	g	< 6

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-A1 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

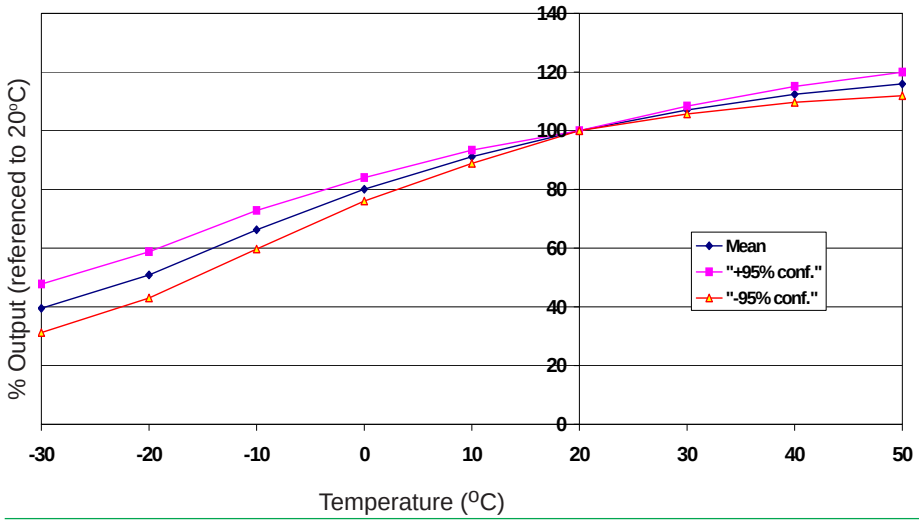


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Temperature Dependence

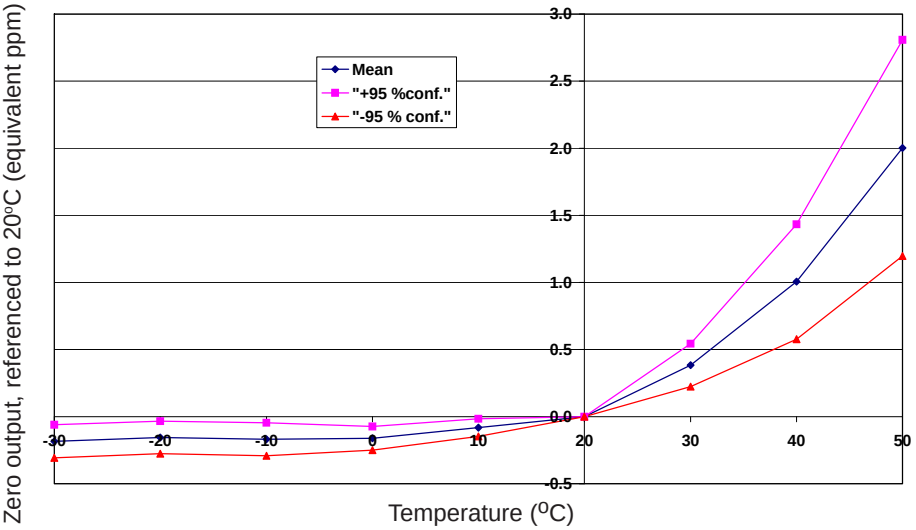
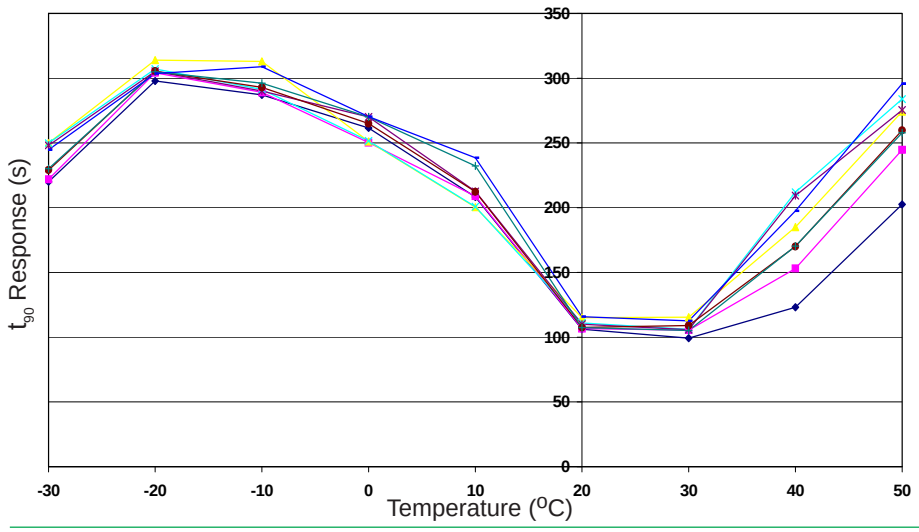


Figure 3 shows the variation in zero output caused by changes in temperature expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 4 Response Time Temperature Dependence



The response time depends on both gas properties and sensor electrochemistry.

Diffusion of VOCs can be very slow at low temperatures.

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".