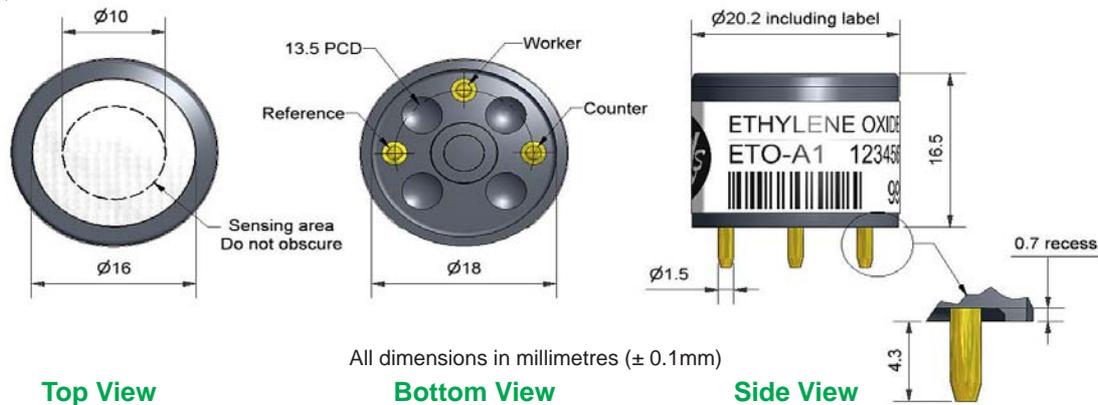




ETO-A1 Ethylene Oxide Sensor

Figure 1 ETO-A1 Schematic Diagram

PATENTED



All dimensions in millimetres ($\pm 0.1\text{mm}$)

Top View

Bottom View

Side View

PERFORMANCE	Parameter	Specification	Range
	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	Parameter	Specification	Value
	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	Parameter	Specification	Value
	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 SENSITIVITY	Gas	Sensitivity	Specification	Value
	H ₂ S	sensitivity	% measured gas @ 20ppm	< 200
	NO ₂	sensitivity	% measured gas @ 10ppm	< 50
	Cl ₂	sensitivity	% measured gas @ 10ppm	< -1
	NO	sensitivity	% measured gas @ 50ppm	< 80
	SO ₂	sensitivity	% measured gas @ 20ppm	< 50
	CO	sensitivity	% measured gas @ 400ppm	< 30
	H ₂	sensitivity	% measured gas @ 400ppm	< 0.5
	C ₂ H ₄	sensitivity	% measured gas @ 80ppm	< 100
	NH ₃	sensitivity	% measured gas @ 25ppm	< 0.1
	HCHO	sensitivity	% measured gas @ 4ppm	90
CO ₂	sensitivity	% measured gas @ 5%	< 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.

Technical Specification

ETO-A1 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

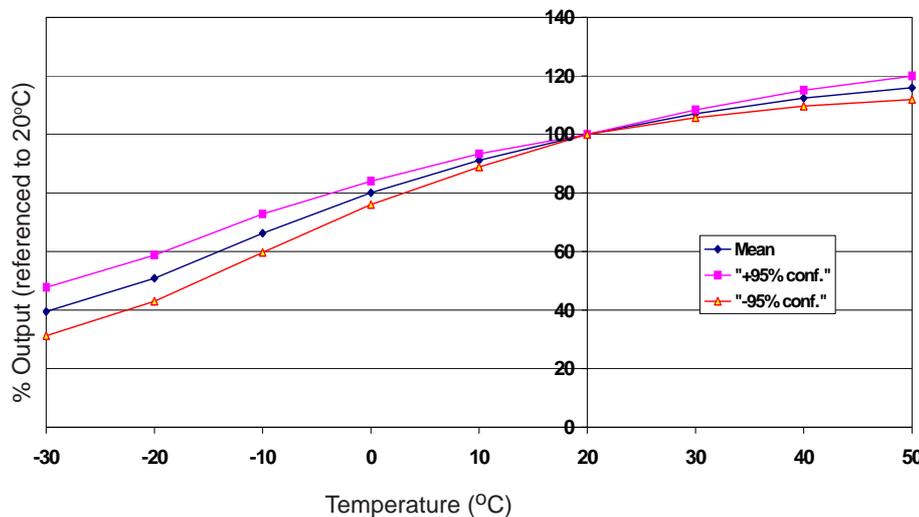


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Temperature Dependence

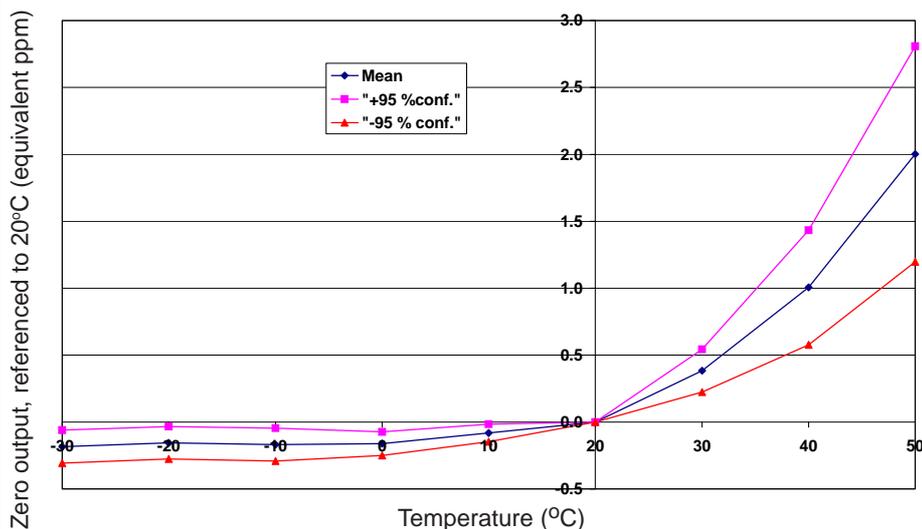
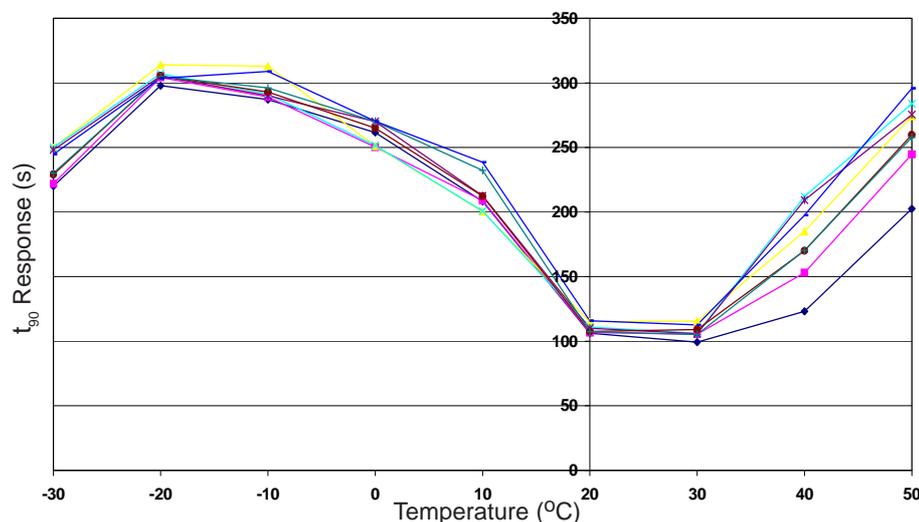


Figure 3 shows the variation in zero output caused by changes in temperature expressed as ppm gas equivalent, referenced to zero at 20°C.

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.