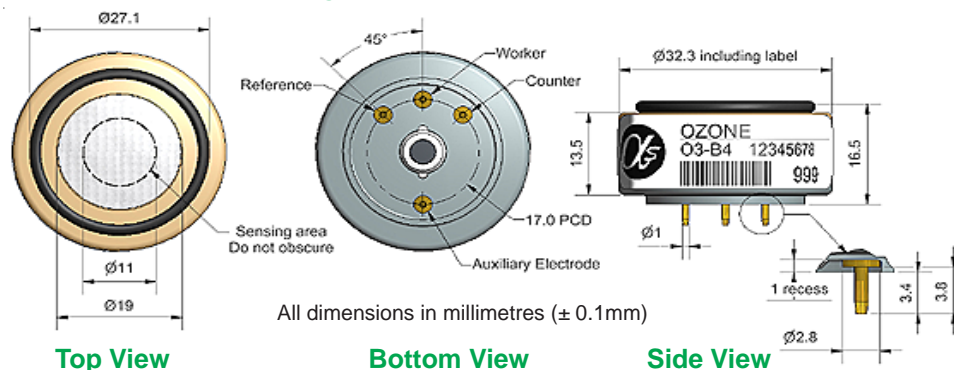


O3-B4 Ozone Sensor 4-Electrode



PATENTED

Figure 1 O3-B4 Schematic Diagram



Technical Specification

PERFORMANCE

Sensitivity	nA/ppm in 100ppb O ₃	-850 to -1700
Response time	t ₉₀ (s) from zero to 100ppb	< 30
Zero current	nA in zero air at 20°C	0 to 220
Noise*	RMS noise (ppb equivalent)	< 3
Limit of detection*	ppb equivalent	< 5
Range	ppm O ₃ limit of performance warranty	< 2
Linearity	ppm error at full scale, linear at zero and 1ppm O ₃	< 5%
Overgas limit	maximum ppm for stable response to gas pulse	nd

* Requires a low noise potentiostat circuit for lowest noise and best resolution

LIFETIME

Zero drift	ppb equivalent change/year in lab air	nd
Sensitivity drift	% change/year in lab air, monthly test	nd
Operating life	months until 60% original signal (24 month warranted)	> 24

ENVIRONMENTAL

Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 500ppb O ₃	nd
Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 500ppb O ₃	nd
Zero @ -20°C	ppm equivalent change from 20°C	< ± 0.05
Zero @ 50°C	ppm equivalent change from 20°C	< ± 0.2

CROSS SENSITIVITY

H ₂ S sensitivity	% measured gas @ 5ppm	H ₂ S	nd
NO ₂ sensitivity	% measured gas @ 0.35ppm	NO ₂	45 to 60
Cl ₂ sensitivity	% measured gas @ 10ppm	Cl ₂	nd
NO sensitivity	% measured gas @ 1ppm	NO	< 3
SO ₂ sensitivity	% measured gas @ 0.2ppm	SO ₂	< 0.1
CO sensitivity	% measured gas @ 10 ppm	CO	nd
H ₂ sensitivity	% measured gas @ 400ppm	H ₂	nd
C ₂ H ₄ sensitivity	% measured gas @ 400ppm	C ₂ H ₄	nd
NH ₃ sensitivity	% measured gas @ 20ppm	NH ₃	nd
CO ₂ sensitivity	% measured gas @ 5%	CO ₂	nd

KEY SPECIFICATIONS

Temperature range	°C	-20 to +50
Pressure range	kPa	80 to 120
Humidity range	% rh non-condensing	15 to 90
Flow rate	minimum sccm during calibration	500 (0.5L/m)
Bias voltage	V	0
Storage period	months @ 3 to 20°C (stored in sealed pot)	6
Load resistor	Ω (recommended)	33 to 100
Weight	g	< 13

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.

O3-B4 Performance Data

Technical Specification

Figure 2 Zero Temperature Dependence (corrected)

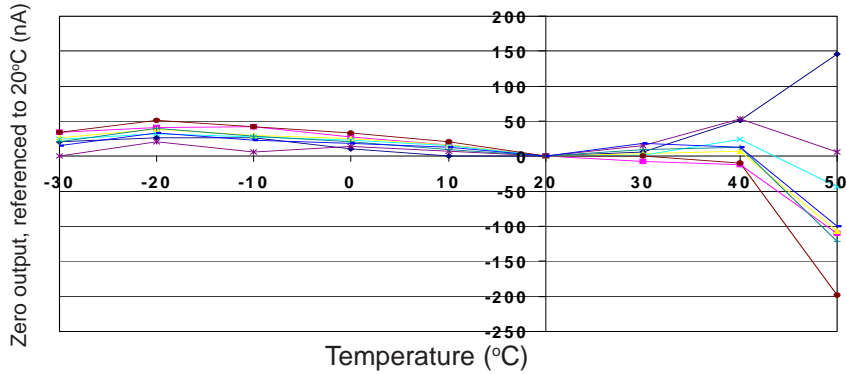


Figure 2 shows the variation in zero output caused by changes in temperature, expressed as nA referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 3 Sensitivity Temperature Dependence

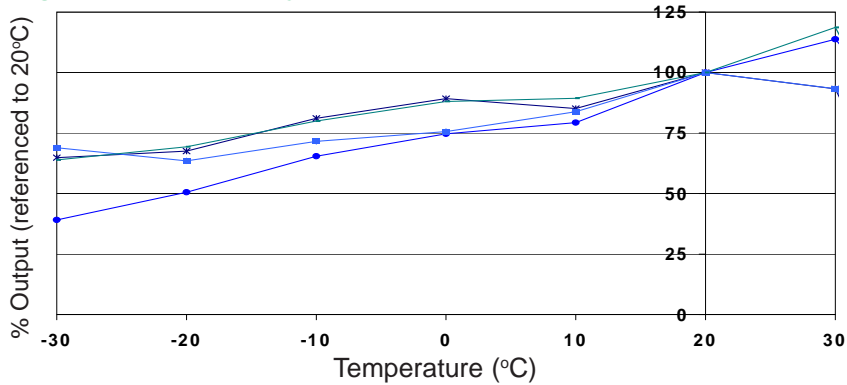
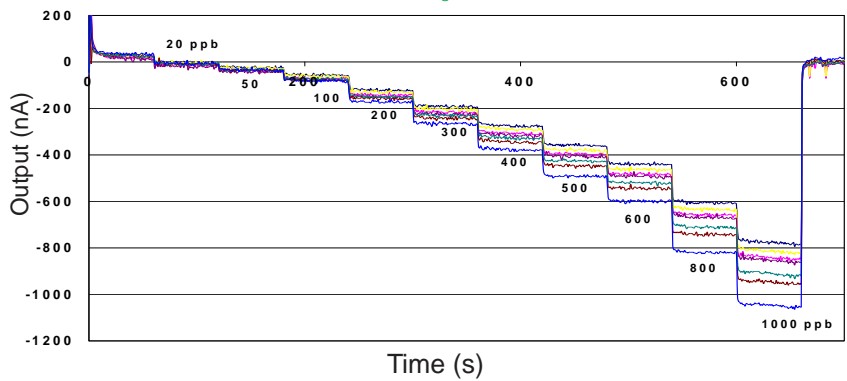


Figure 2 shows the variation in sensitivity caused by changes in temperature.

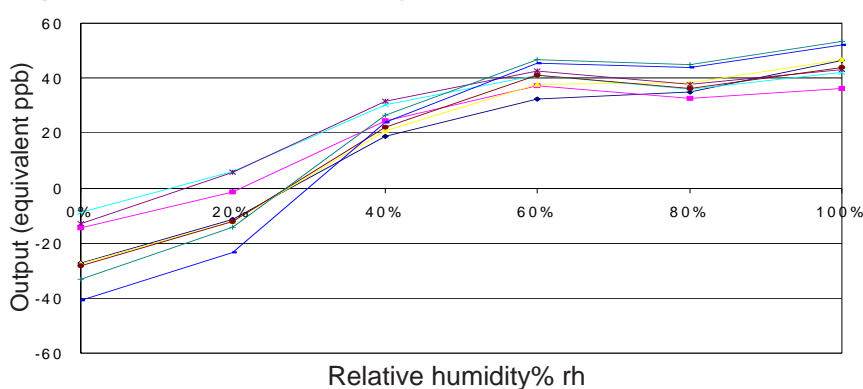
This data is taken from a typical batch of sensors.

Figure 4 Response to 1ppm O₃



Fast and stable response can be seen from 20ppb to 1ppm.

Figure 5 Effect of Humidity on Sensor Output (1 mV = 0.8 ppb)



Humidity shifts the baseline but does not change the sensitivity.

The repeatability of the zero shift means that humidity correction can be achieved in software.