

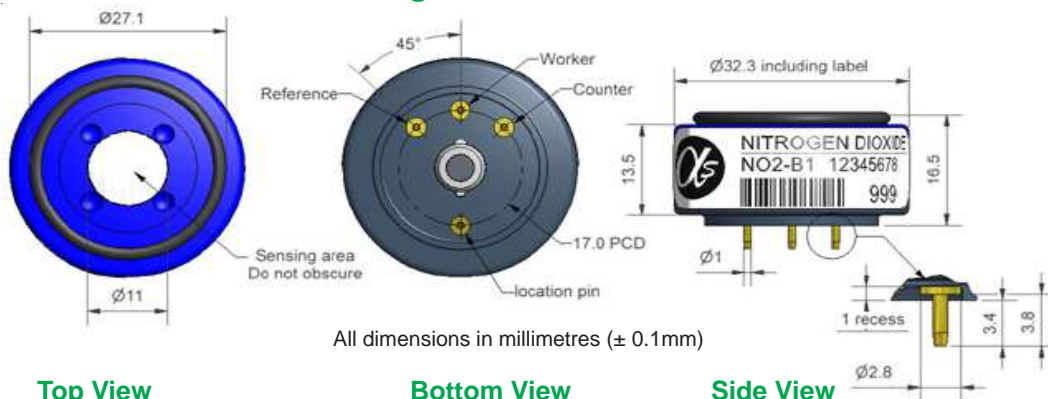


NO2-B1 Nitrogen Dioxide Sensor



PATENTED

Figure 1 NO2-B1 Schematic Diagram



Technical Specification

PERFORMANCE	Parameter	Specification	Range
	Sensitivity	nA/ppm in 10ppm NO ₂	-450 to -1000
	Response time	t ₉₀ (s) from zero to 10ppm NO ₂ (33Ω load resistor)	< 60
	Zero current	ppm equivalent in zero air	< ± 0.4
	Resolution	RMS noise (ppm equivalent) (33Ω Load Resistor)	< 0.02
	Range	ppm NO ₂ limit of performance warranty	20
	Linearity	ppm error at full scale, linear at zero and 10ppm NO ₂	< ± 0.2
	Overshoot limit	maximum ppm for stable response to gas pulse	100

LIFETIME	Parameter	Specification	Range
	Zero drift	ppm equivalent change/year in lab air	< 0.03
	Sensitivity drift	% change/year in lab air, monthly test	< -20 to -40
	Operating life	months until 80% original signal (24 month warranted)	> 24

ENVIRONMENTAL	Parameter	Specification	Range
	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 5ppm NO ₂	75 to 95
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 5ppm NO ₂	100 to 112
	Zero @ -20°C	ppm equivalent change from 20°C	< ± 0.1
	Zero @ 50°C	ppm equivalent change from 20°C	< 0 to -0.5

CROSS SENSITIVITY	Gas	Sensitivity	Specification	Range
	H ₂ S	sensitivity	% measured gas @ 20ppm	< -100
	NO	sensitivity	% measured gas @ 50ppm	< 0.5
	Cl ₂	sensitivity	% measured gas @ 10ppm	< 100
	SO ₂	sensitivity	% measured gas @ 20ppm	< -2
	CO	sensitivity	% measured gas @ 400ppm	< 0.1
	H ₂	sensitivity	% measured gas @ 400ppm	< 0.1
	C ₂ H ₄	sensitivity	% measured gas @ 400ppm	< 0.1
	NH ₃	sensitivity	% measured gas @ 20ppm	< 0.1
CO ₂	sensitivity	% measured gas @ 5% (Vol)	0	

KEY SPECIFICATIONS	Parameter	Specification	Range
	Temperature range	°C	-20 to 50
	Pressure range	kPa	80 to 120
	Humidity range	% rh continuous (see note below)	15 to 90
	Storage period	months @ 3 to 20°C (stored in sealed pot)	6
	Load resistor	Ω (for optimum performance)	33
	Weight	g	< 13

Note: Above 85% rh and 40°C a maximum continuous exposure period of 10 days is warranted. Where such exposure occurs the sensor will recover normal electrolyte volumes when allowed to rest at lower % rh and temperature levels for several days.



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NO2-B1 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

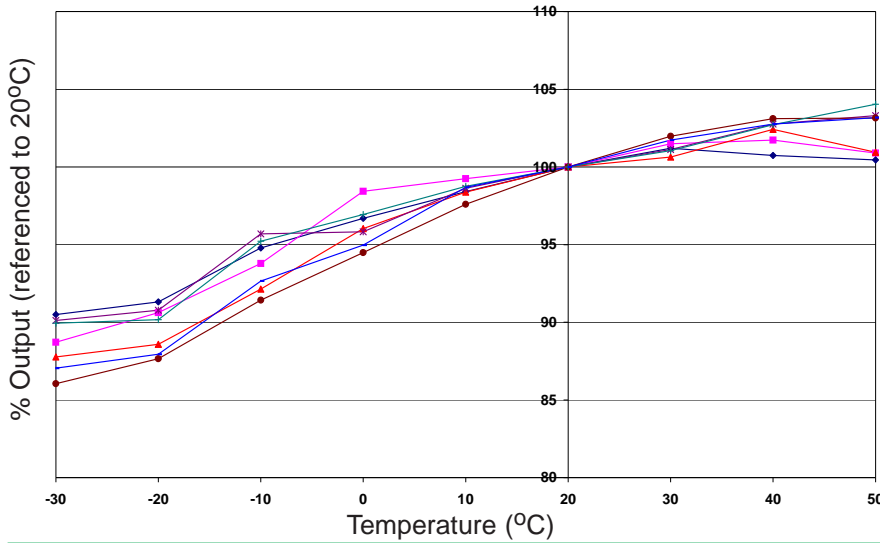


Figure 2 shows the variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of sensors.

Figure 3 Zero Temperature Dependence

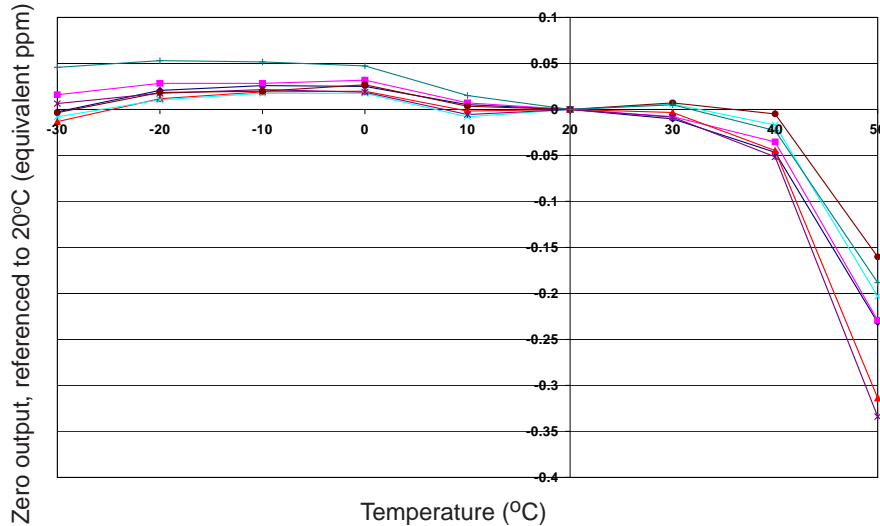


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 4 Effect of Load Resistor Value on Noise

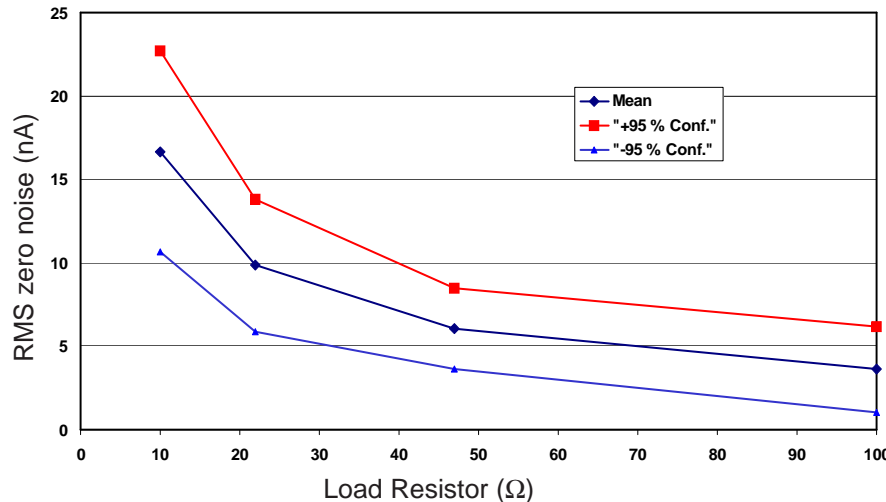


Figure 3 shows the effect of the load resistor on the RMS zero noise for the NO2-B1 sensor. The mean and ±95% confidence intervals are shown.

The t_{90} response time increases linearly with increasing load resistor value. If a fast response is required then a 10 Ω load resistor should be employed; this will give a fast response.

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