



NO2-B1 Nitrogen Dioxide Sensor



PATENT PENDING

Figure 1 NO2-B1 Schematic Diagram

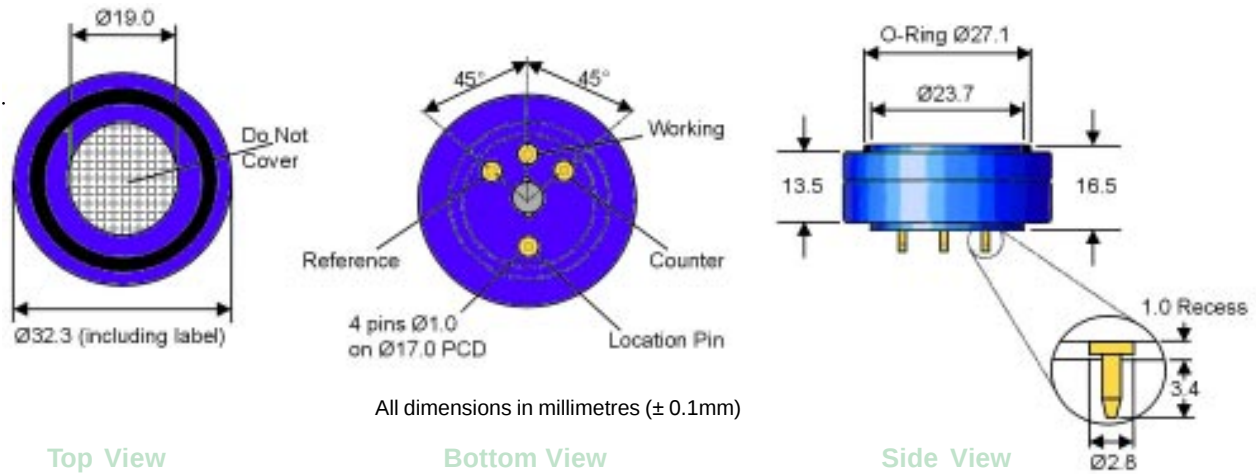
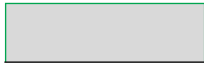


Table 1 NO2-B1 Specification

PERFORMANCE	* Sensitivity	nA/ppm @ 22°C, 10ppm NO ₂	-700 to -1,000
	* Response time	t ₉₀ (s) from zero to 10ppm NO ₂ (33Ω Load Resistor)	< 40
	Zero current	ppm equivalent in zero air, 22°C	< ± 0.2
	Resolution	RMS noise (ppm equivalent) (33Ω Load Resistor)	< 0.05
	Range	ppm limit of performance warranty	20
	* Linearity	ppm error at full scale, linear at 2 and 10ppm	< + 3
LIFETIME	Overgas range	maximum ppm for stable response to gas pulse	> 50
	Zero drift	ppm equivalent change/month in lab air	nd
	Sensitivity drift	% change/month in lab air, twice monthly gassing	< 2
ENVIRONMENTAL	* Operating life	months until 80% original signal (12 month warranted)	> 12
	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 5ppm	80 to 90
	Sensitivity @ 40°C	% (output @ 40°C/output @ 20°C) @ 5ppm	80 to 95
	Zero @ -20°C	ppm equivalent	< ± 0.2
	Zero @ 40°C	ppm equivalent	< ± 0.5
CROSS SENSITIVITY	NO sensitivity	% measured gas @ 50ppm NO	0
	SO ₂ sensitivity	% measured gas @ 20ppm SO ₂	< 1
	Cl ₂ sensitivity	% measured gas @ 5ppm Cl ₂	100
	* H ₂ sensitivity	% measured gas @ 400ppm H ₂	0
	H ₂ S sensitivity	% measured gas @ 20ppm H ₂ S	< -25
	CO sensitivity	% measured gas @ 400ppm CO	0
PHYSICAL DIMENSIONS	Diameter	mm (including label) ($\pm 0.1\text{mm}$)	32.3
	Height	mm (excluding O-ring) ($\pm 0.1\text{mm}$)	16.5
	Weight	g	< 13
KEY SPECIFICATIONS	Temperature range	°C	-20 to 50
	Pressure range	kPa	80 to 120
	Humidity range	% rh continuous (5 to 95% rh short term)	15 to 90
	Storage period	months @ 3 to 20°C (stored in sealed pot)	6
	Load Resistor	Ω (for optimum performance)	33

NOTE: * denotes sensors tested and stored at ambient environments (22°C and 30-75% rh)



NO2-B1 Performance Data



Technical Specification

Figure 2 Sensitivity Temperature Dependence

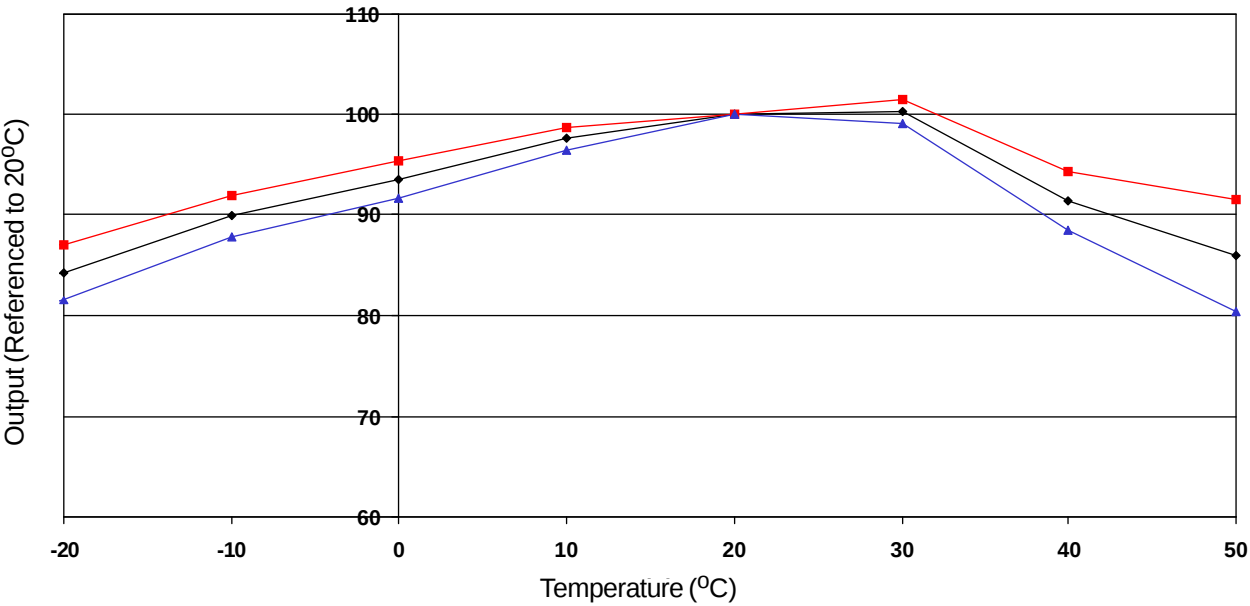


Figure 2 shows the variation in sensitivity caused by changes in temperature. The data is taken from a typical batch of sensors and the mean and $\pm 95\%$ confidence intervals are shown.

Figure 3 Response Profile (t_{90})

Response to 10ppm NO₂
33 Ω Load Resistor

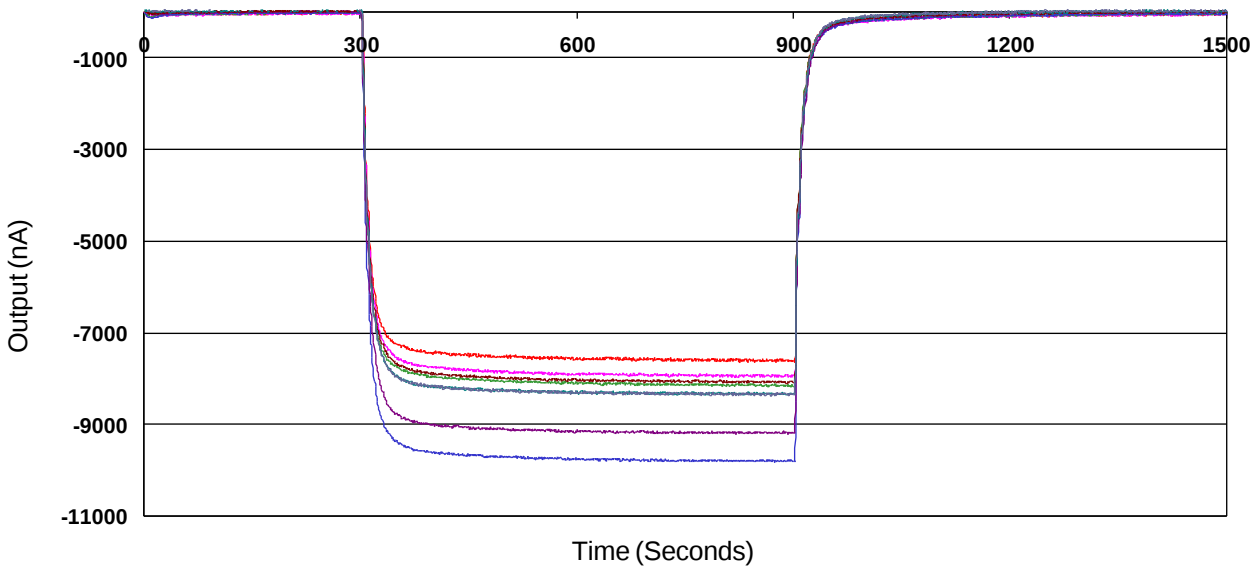


Figure 3 shows the typical time for a batch of NO2-B1 sensors to reach a stable output on exposure to gas. The t_{90} response time for these sensors is < 30 seconds using 33 Ω load resistor.

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".

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