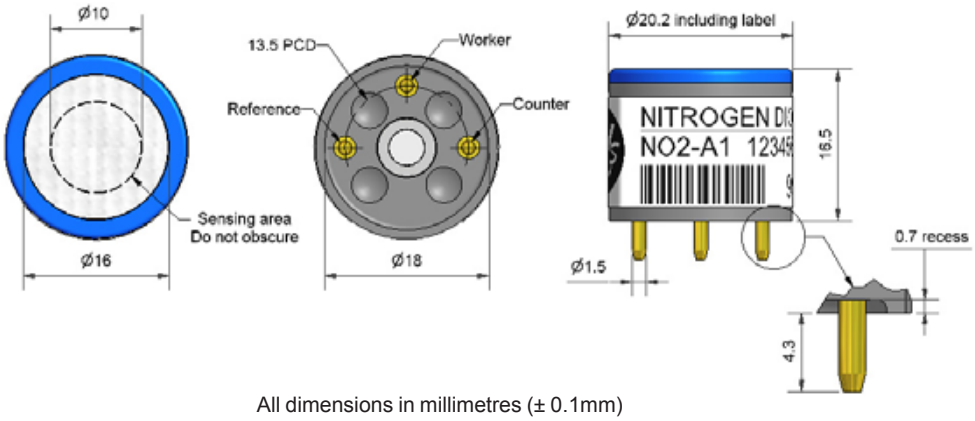
NO2-A1 Nitrogen Dioxide Sensor

PATENTED

Technical Specification

Figure 1 NO2-A1 Schematic Diagram



All dimensions in millimetres (± 0.1mm)

Top View Bottom View Side View

PERFORMANCE	Sensitivity	nA/ppm in 10ppm NO_2		-400 to -750
	Response time	t_{90} (s) from zero to 10ppm NO_2 (33Ω Load Resistor)		< 40
	Zero current	ppm equivalent in zero air		< ± 0.2
	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		< 1.5
	Overgas range	maximum ppm for stable response to gas pulse		100
LIFETIME	Zero drift	ppm equivalent change/year in lab air		< 0.2
	Sensitivitydrift	% change/month in lab air, monthly test		< 4
	Operating life	months until 80% original signal (24 month warranted)		> 24
ENVIRONMENTAL	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 5ppm NO_2		76 to 90
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 5ppm NO_2		101 to 110
	Zero @ -20°C	ppm equivalent change from 20°C		< ± 0.1
	Zero @ 50°C	ppm equivalent change from 20°C		< 0 to -0.4
CROSS SENSITIVITY	C_2H_2 sensitivity	% measured gas @ 50ppm	C_2H_2	< 0.1
	NO sensitivity	% measured gas @ 50ppm	NO	< 0.5
	SO_2 sensitivity	% measured gas @ 20ppm	SO_2	< -2.5
	Cl_2 sensitivity	% measured gas @ 10ppm	Cl_2	100
	H_2 sensitivity	% measured gas @ 400ppm	H_2	< 0.1
	H_2S sensitivity	% measured gas @ 20ppm	H_2S	< -40
	CO sensitivity	% measured gas @ 400ppm	CO	< 0.1
	NH_3 sensitivity	% measured gas @ 20ppm	NH_3	< 0.1
KEY SPECIFICATIONS	Temperature range	°C		-20 to 50
	Pressure range	kPa		80 to 120
	Humidity range	% rh continuous		15 to 90
	Storage period	months @ 3 to 20°C (stored in sealed pot)		6
	Load resistor	Ω (for optimum performance)		33
	Weight	g		< 6

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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NO2-A1 Performance Data

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Figure 2 Sensitivity Temperature Dependence

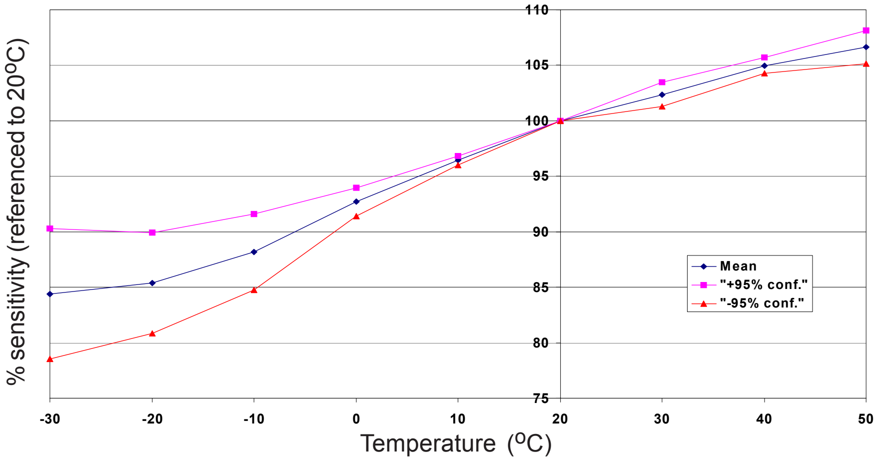

Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Temperature Dependence

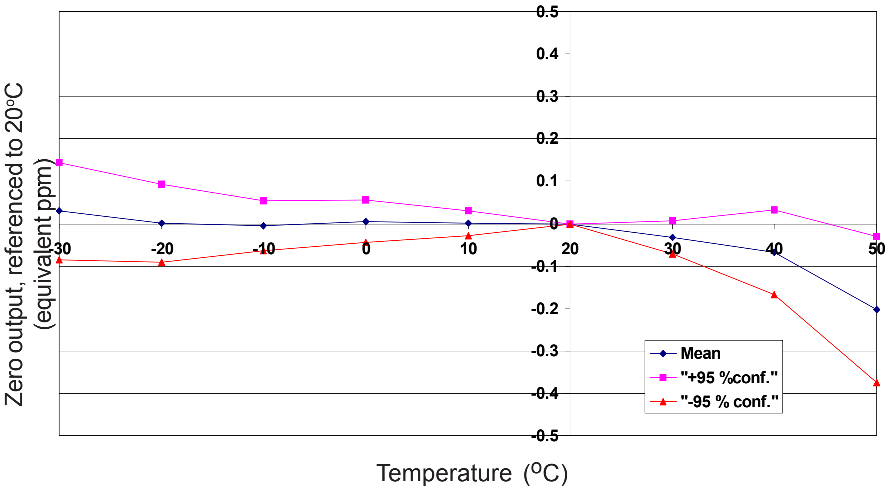

Figure 3 shows the variation in zero output caused by changes in temperature expressed at ppm gas equivalent.

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

Figure 4 Humidity plus Temperature Transient Response

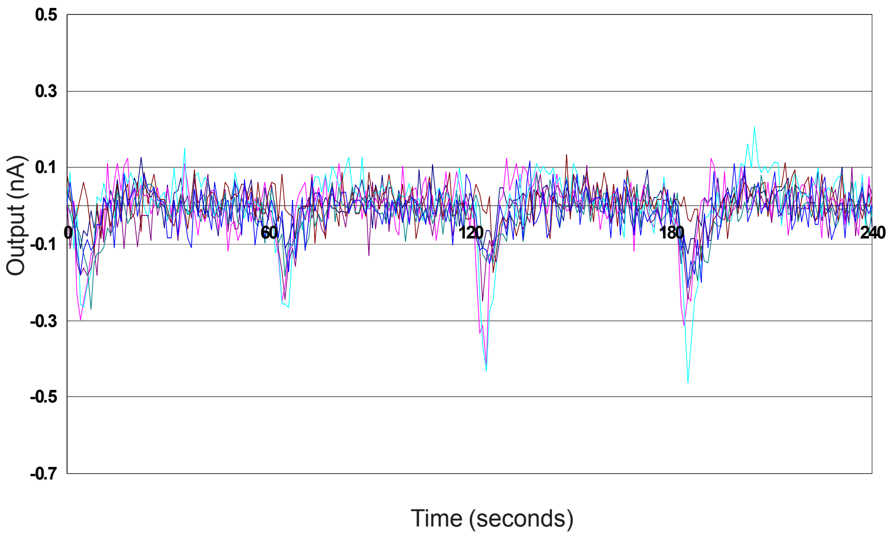

Figure 4 shows typical sensor outputs for a group of sensors exposed to exhaled breath for 4 cycles over 240 seconds.

This is an extreme test for such sensors and the shift in the base line of no more than 0.5 ppm shows a very strong resistance to this test. Therefore the sensor will not give false signals when exposed to transient changes in relative humidity.

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".