

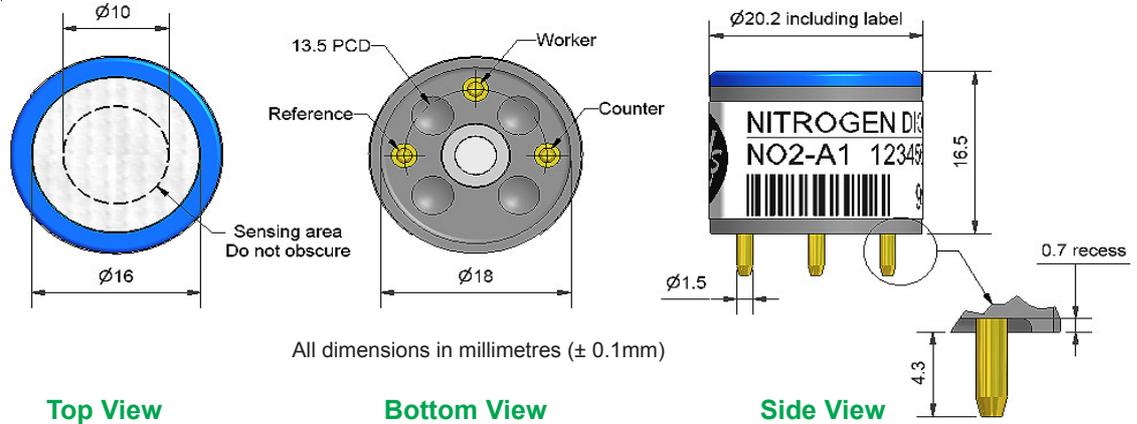


# NO2-A1 Nitrogen Dioxide Sensor



PATENTED

Figure 1 NO2-A1 Schematic Diagram



Technical Specification

PERFORMANCE	Parameter	Specification	Range
	Sensitivity	nA/ppm in 10ppm NO <sub>2</sub>	-250 to -650
	Response time	t <sub>90</sub> (s) from zero to 10ppm NO <sub>2</sub> (33Ω Load Resistor)	< 50
	Zero current	ppm equivalent in zero air	< ± 0.4
	Resolution	RMS noise (ppm equivalent) (33Ω Load Resistor)	< 0.02
	Range	ppm NO <sub>2</sub> limit of performance warranty	20
	Linearity	ppm error at full scale, linear at zero and 10ppm NO <sub>2</sub>	< 1.5
	Overgas limit	maximum ppm for stable response to gas pulse	100

LIFETIME	Parameter	Specification	Range
	Zero drift	ppm equivalent change/year in lab air	< 0.05
	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 <sub>2</sub>	73 to 94
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 5ppm NO <sub>2</sub>	105 to 125
	Zero @ -20°C	ppm equivalent change from 20°C	< ± 0.2
	Zero @ 50°C	ppm equivalent change from 20°C	< 0 to -0.5

CROSS SENSITIVITY	Gas	Specification	Range
	H <sub>2</sub> S	% measured gas @ 20ppm	< -35
	Cl <sub>2</sub>	% measured gas @ 10ppm	< 80
	NO	% measured gas @ 50ppm	< 5
	SO <sub>2</sub>	% measured gas @ 20ppm	< -15
	CO	% measured gas @ 400ppm	< 0.1
	H <sub>2</sub>	% measured gas @ 400ppm	< 0.1
	C <sub>2</sub> H <sub>4</sub>	% measured gas @ 50ppm	< 0.1
	NH <sub>3</sub>	% measured gas @ 20ppm	< 0.1
	CO <sub>2</sub>	% measured gas @ 5% volume	< 0.1
	O <sub>3</sub>	% measured gas @ 200ppb	< 120

KEY SPECIFICATIONS	Parameter	Specification	Range
	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



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.



# NO2-A1 Performance Data

# Technical Specification

**Figure 2 Sensitivity Temperature Dependence**

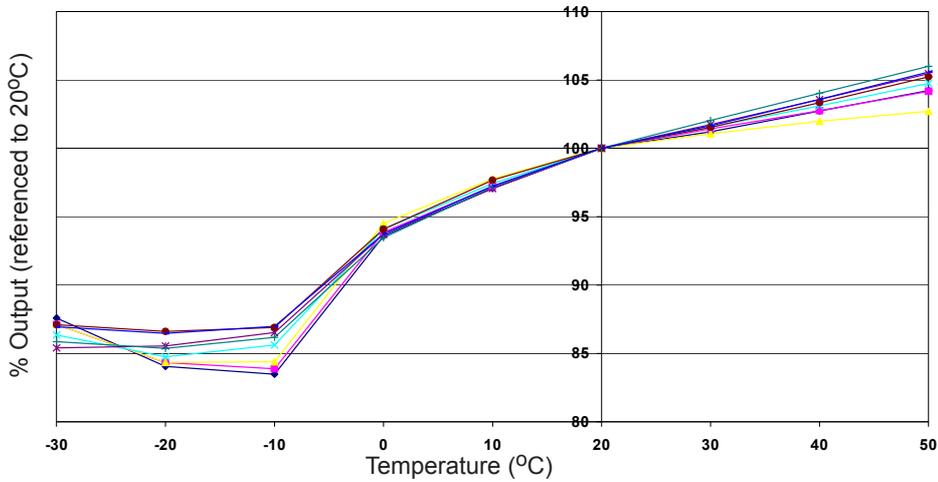


Figure 2 shows the variation in sensitivity caused by changes in temperature. This data is taken from a typical batch of sensors.

**Figure 3 Zero Temperature Dependence**

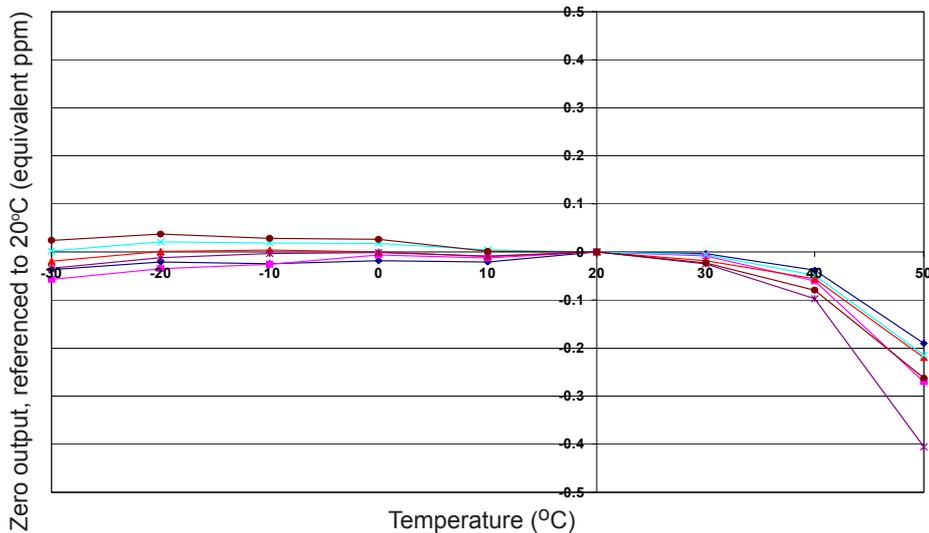


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C. This data is taken from a typical batch of sensors.

**Figure 4 Humidity plus Temperature Transient Response**

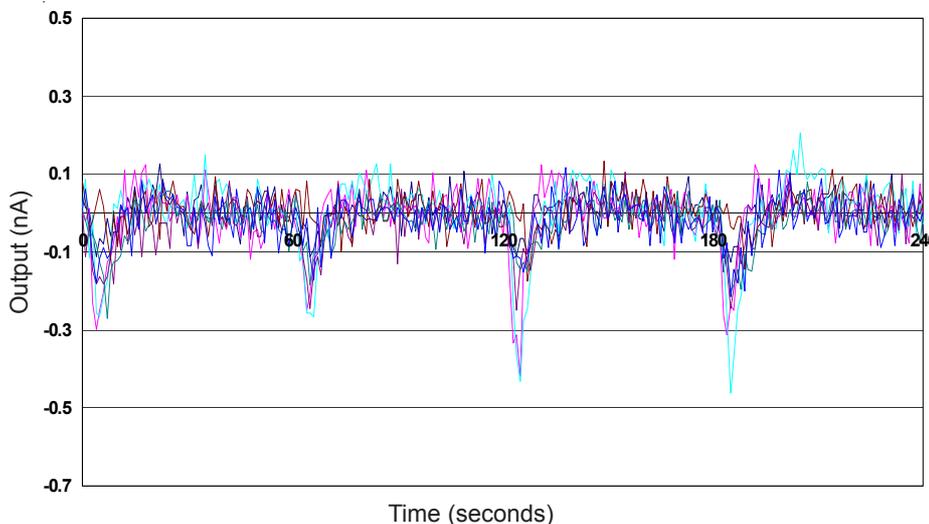


Figure 4 shows typical sensor outputs for a group of sensors exposed to exhaled breath for 4 cycles over 240 seconds. This is an extreme test for such sensors and the shift in the base line of no more than 0.5 ppm shows a very strong resistance to this test.

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](http://www.alphasense.com)".