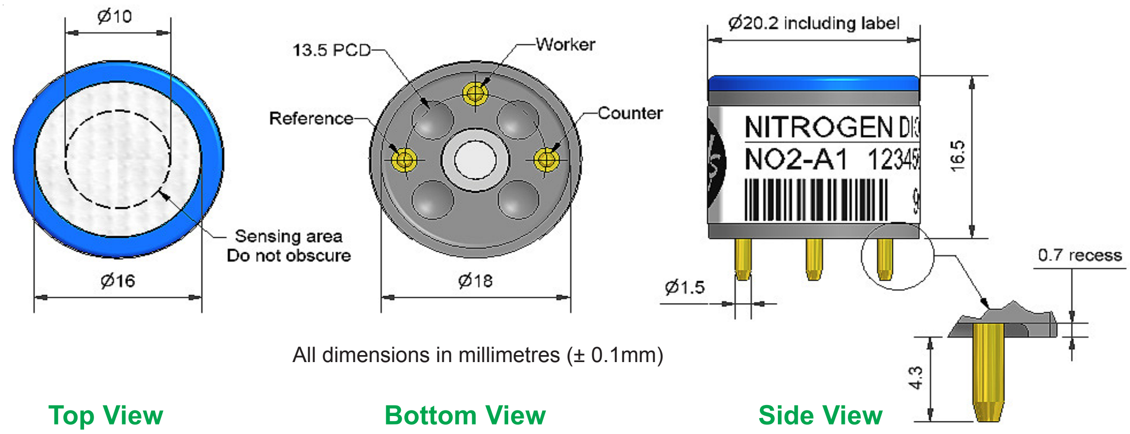
Technical Specification

NO2-A1 Nitrogen Dioxide Sensor

PATENTED

Figure 1 NO2-A1 Schematic Diagram



PERFORMANCE	Sensitivity	nA/ppm in 10ppm NO_2	-250 to -650
	Response time	t_{90} (s) from zero to 10ppm NO_2 (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_2 limit of performance warranty	20
	Linearity	ppm error at full scale, linear at zero and 10ppm NO_2	< 1.5
	Overgas limit	maximum ppm for stable response to gas pulse	100
LIFETIME	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			
	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 5ppm NO_2	73 to 94
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 5ppm NO_2	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	H_2S sensitivity	% measured gas @ 20ppm	H_2S	< -35
	Cl_2 sensitivity	% measured gas @ 10ppm	Cl_2	< 80
	NO sensitivity	% measured gas @ 50ppm	NO	< -5
	SO_2 sensitivity	% measured gas @ 20ppm	SO_2	< -15
	CO sensitivity	% measured gas @ 400ppm	CO	< 0.1
	H_2 sensitivity	% measured gas @ 400ppm	H_2	< 0.1
	C_2H_4 sensitivity	% measured gas @ 50ppm	C_2H_4	< 0.1
	NH_3 sensitivity	% measured gas @ 20ppm	NH_3	< 0.1
	CO_2 sensitivity	% measured gas @ 5% volume	CO_2	< 0.1
	O_3 sensitivity	% measured gas @ 200ppb	O_3	< 120

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

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.

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NO2-A1 Performance Data

Figure 2 Sensitivity Temperature Dependence

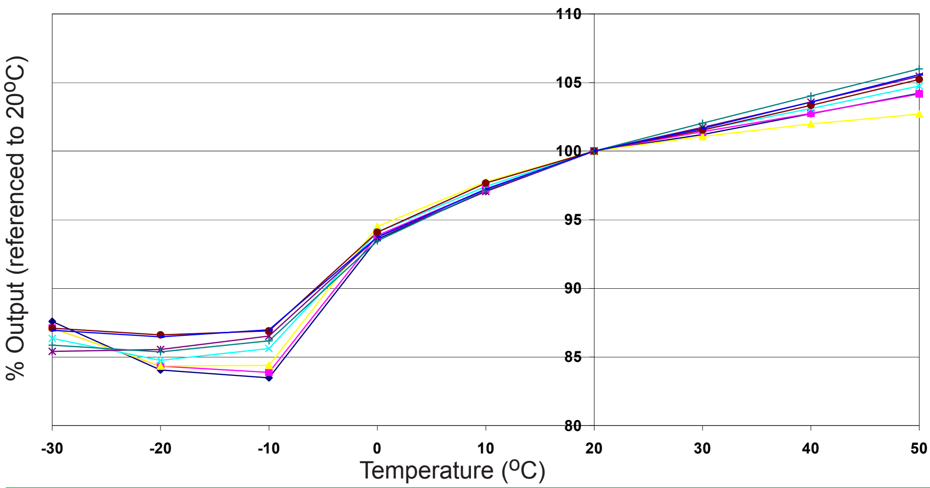

Figure 2 shows the variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of sensors.

Figure 3 Zero Temperature Dependence

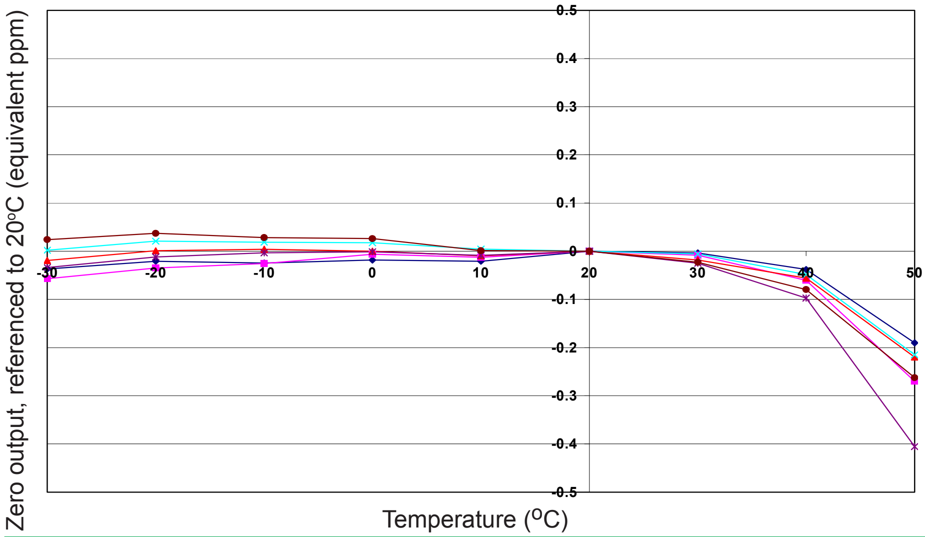

Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C.

This data is taken from a typical batch of sensors.

Figure 4 Humidity plus Temperature Transient Response

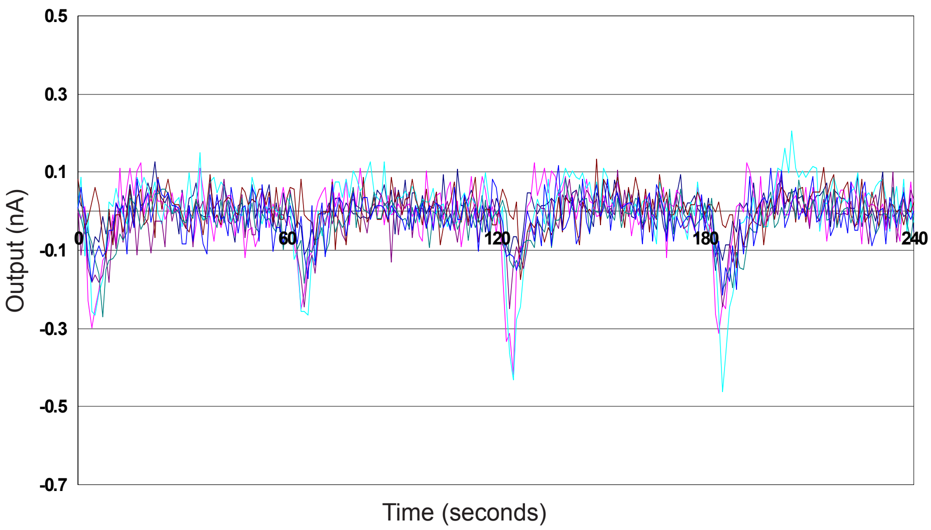

Figure 4 shows typical sensor outputs for a group of sensors exposed to exhaled breath for 4 cycles over 240 seconds.

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.

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