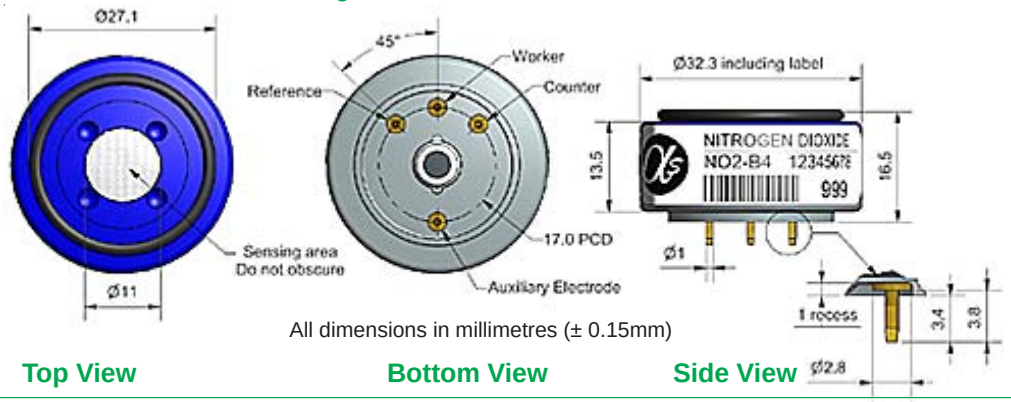
NO2-B4 Nitrogen Dioxide Sensor
4-Electrode

Technical Specification

Figure 1 NO2-B4 Schematic Diagram



All dimensions in millimetres (± 0.15mm)

Top View **Bottom View** **Side View**

PERFORMANCE

	Sensitivity	nA/ppm in 1ppm NO_2	-350 to -750
	Response time	t_{90} (s) from zero to 1ppm NO_2	< 35
	Zero current	nA in zero air at 20°C	0 to 50
	Noise*	RMS noise (ppb equivalent)	< 5
	Limit of detection*	ppb	< 5
	Range	ppm NO_2 limit of performance warranty	20
	Linearity	ppm error at full scale, linear at zero and 5ppm NO_2	< ±1
	Overgas limit	maximum ppm for stable response to gas pulse	50

*** Requires a low noise potentiostat circuit for lowest noise and best resolution**

LIFETIME

	Zero drift	ppb equivalent change/year in lab air	< 20
	Sensitivitydrift	% change/year in lab air, monthly test	< 50
	Operating life	months until 80% original signal (12 month warranted)	> 8

ENVIRONMENTAL

	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 2ppm NO_2	35 to 60
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 2ppm NO_2	120 to 140
	Zero @ -20°C	ppm equivalent change from 20°C	< 0 to 0.05
	Zero @ 50°C	ppm equivalent change from 20°C	< 0 to 0.01

CROSS

	H_2S	sensitivity	% measured gas @	20ppm	H_2S	< -250
	NO	sensitivity	% measured gas @	10ppm	NO	< 0.5
	Cl_2	sensitivity	% measured gas @	10ppm	Cl_2	< 100
	SO_2	sensitivity	% measured gas @	20ppm	SO_2	< -2
	CO	sensitivity	% measured gas @	10ppm	CO	< 0.1
	C_2H_4	sensitivity	% measured gas @	400ppm	C_2H_4	< 0.1
	NH_3	sensitivity	% measured gas @	20ppm	NH_3	< 0.1
	CO_2	sensitivity	% measured gas @	5% Vol	CO_2	< 0.1
	O_3	sensitivity	% measured gas @	100ppb	O_3	< 70
	Halothane	sensitivity	% measured gas @	100ppm	Halothane	< 0.1

KEY SPECIFICATIONS

Temperature range	°C	-30 to 50
Pressure range	kPa	80 to 120
Humidity range	% rh continuous	15 to 85
Storage period	months @ 3 to 20°C (stored in sealed pot)	6
Load resistor	Ω (recommended)	33 to 100
Weight	g	< 13

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 47 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.

Alphasense Ltd, Sensor Technology House, 300 Avenue West, Skyline 120, Great Notley. CM77 7AA. UK
Telephone: +44 (0) 1376 556 700 Fax: +44 (0) 1376 335 899 E-mail: sensors@alphasense.com Website: www.alphasense.com

NO2-B4 Performance Data

Technical Specification

Figure 2 Sensitivity temperature dependence

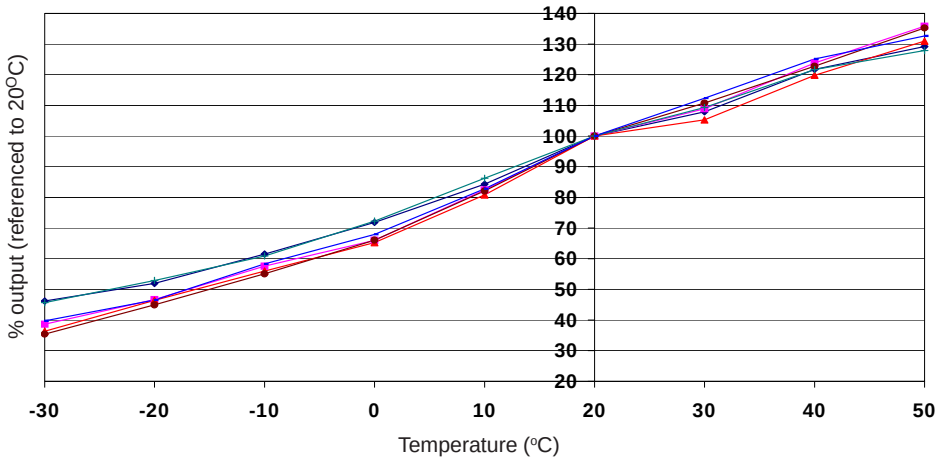


Figure 2 shows the variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of sensors.

Figure 3 Response to 20 ppb NO_2 using ISB circuit

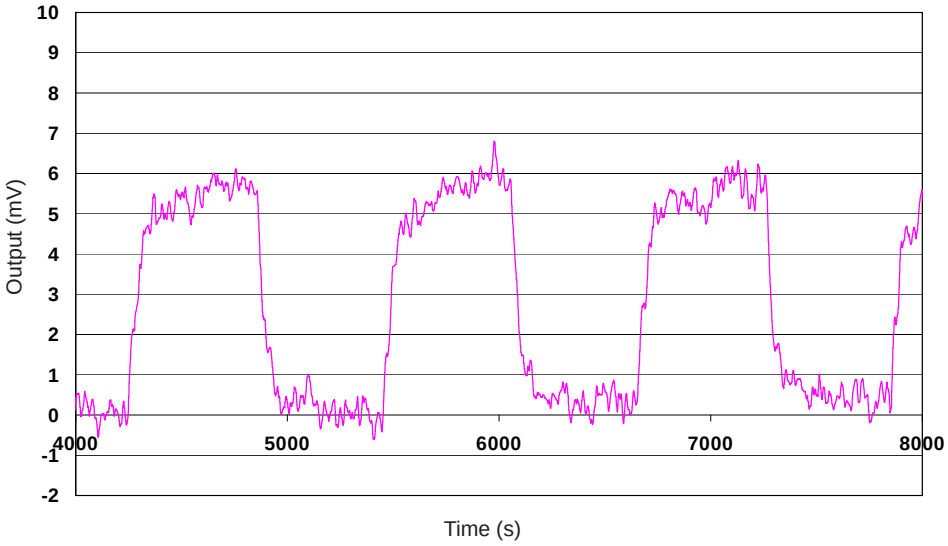
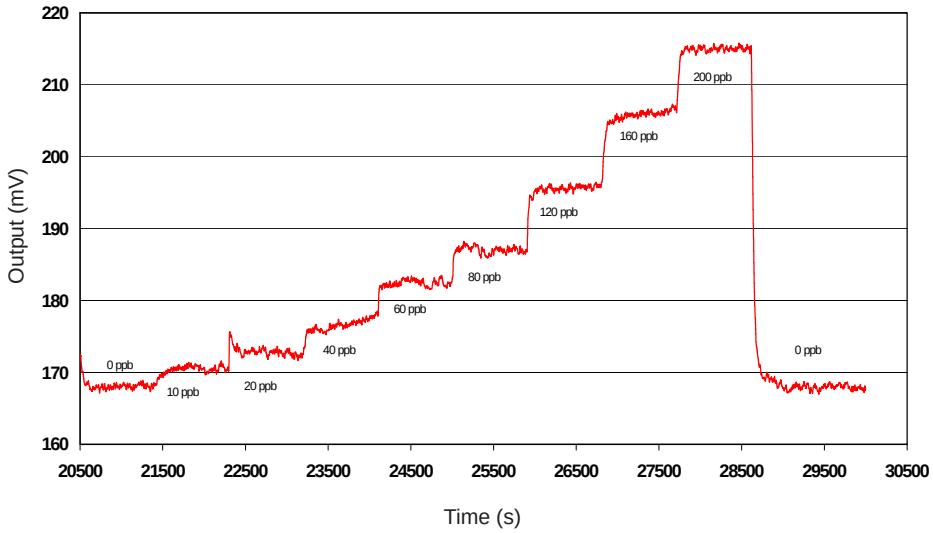


Figure 3 shows the repeated response to 20ppb NO_2.

Careful selection of load resistor, low noise electronics and digital smoothing improves noise.

Return to the same baseline ensures repeatable measurements.

Figure 4 Response to 200 ppb NO_2



With a 33 Ω load resistor, the NO2-B4 shows excellent resolution, even at the ppb level: ideal for outdoor air environmental testing.

This raw data can be digitally smoothed.

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".