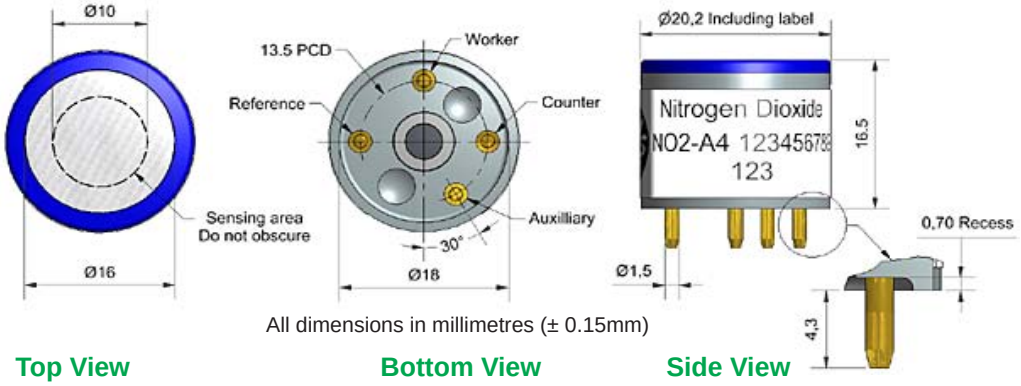
NO2-A4 Nitrogen Dioxide Sensor
4-Electrode

Patented

Technical Specification

Figure 1 NO2-A4 Schematic Diagram



All dimensions in millimetres (± 0.15mm)

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

PERFORMANCE

	Sensitivity	nA/ppm at 1ppm NO_2	-300 to -600
	Response time	t_{90} (s) from zero to 1ppm NO_2	< 30
	Zero current	nA in zero air at 20°C	< ±30
	Noise*	±2 standard deviations (ppb equivalent)	15
	Range	ppm NO_2 limit of performance warranty	20
	Linearity	ppm error at full scale, linear at zero and 20ppm NO_2	< ±0.5
	Overgas limit	maximum ppm for stable response to gas pulse	50

*** Tested with Alphasense AFE low noise circuit**

LIFETIME

	Zero drift	ppb equivalent change/year in lab air	0 to 20
	Sensitivity drift	% change/year in lab air, monthly test	< -20 to -40
	Operating life	months until 50% original signal (12 month warranted)	> 18

ENVIRONMENTAL

	Sensitivity @ -20°C	(% output @ -20°C/output @ 20°C) @ 2ppm NO_2	30 to 60
	Sensitivity @ 50°C	(% output @ 50°C/output @ 20°C) @ 2ppm NO_2	120 to 180
	Zero @ -20°C	nA change from 20°C	< ±20
	Zero @ 50°C	nA change from 20°C	90 to 150

CROSS SENSITIVITY

	H_2S	sensitivity % measured gas	@ 5ppm	H_2S	< -80
	NO	sensitivity % measured gas	@ 5ppm	NO	< 2
	Cl_2	sensitivity % measured gas	@ 5ppm	Cl_2	< 70
	SO_2	sensitivity % measured gas	@ 5ppm	SO_2	< -5
	CO	sensitivity % measured gas	@ 5ppm	CO	< 0.1
	C_2H_4	sensitivity % measured gas	@ 100ppm	C_2H_4	< 0.1
	NH_3	sensitivity % measured gas	@ 20ppm	NH_3	< 0.1
	H_2	sensitivity % measured gas	@ 100ppm	H_2	< 0.1
	CO_2	sensitivity % measured gas	@ 5% Vol	CO_2	0.1
	O_3	sensitivity % measured gas	@ 100ppb	O_3	30 to 60
	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 (AFE circuit recommended)	33 to 100
	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 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.

NO2-A4 Performance Data

Technical Specification

Figure 2 Sensitivity temperature dependence

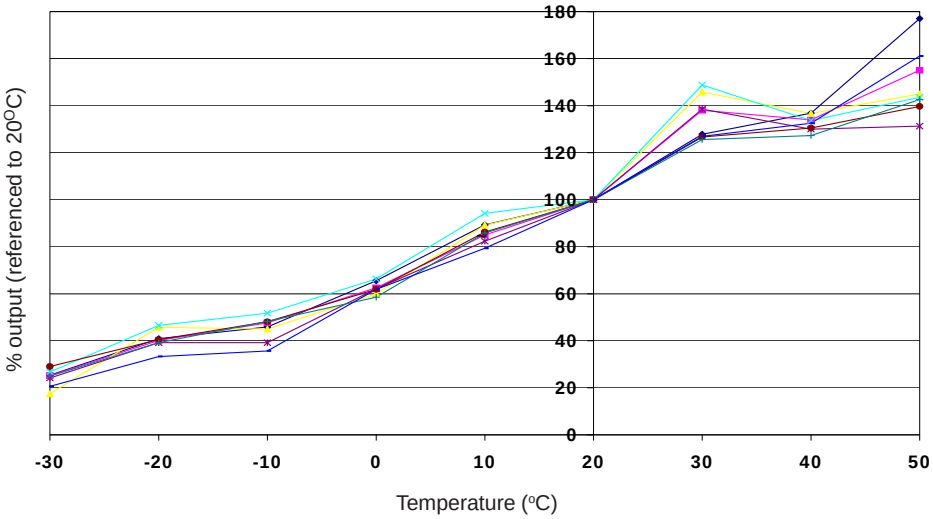


Figure 2 shows the temperature dependence of sensitivity at 1ppm NO_2.

This data is taken from a typical batch of sensors.

Figure 3 Zero temperature dependence

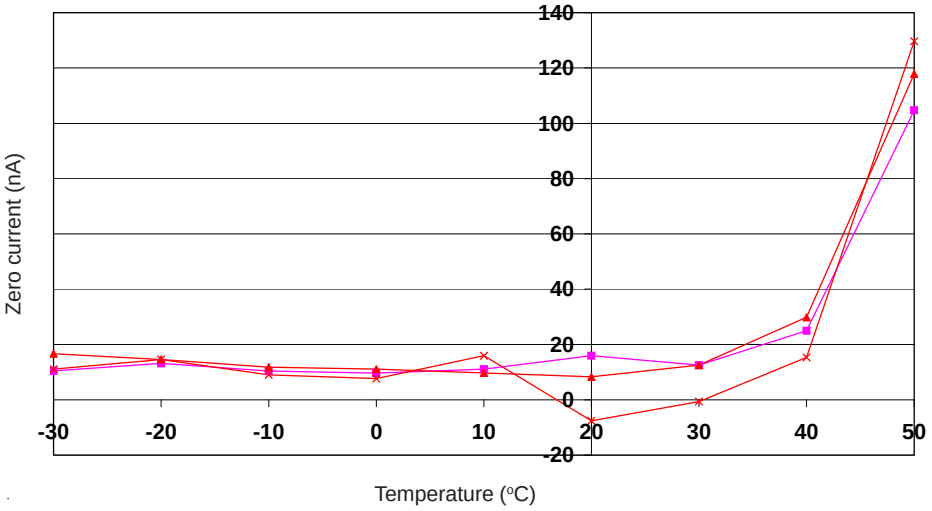


Figure 3 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.

This data is taken from a typical batch of sensors.

Contact Alphasense for futher information on zero current correction.

Figure 4 Response to 200 ppb NO_2

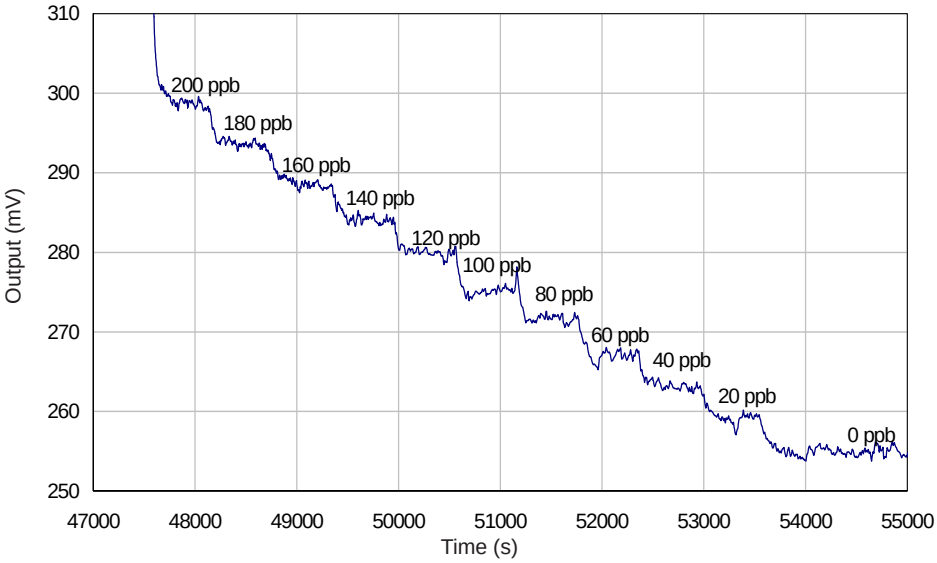


Figure 4 shows response to 200ppb NO_2.

Use of Alphasense AFE circuit reduces noise to 15ppb, with the opportunity of digital smooting to reduce noise even further

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".