



# NO-A4 Nitric Oxide Sensor 4-Electrode



Figure 1 NO-A4 Schematic Diagram

PATENTED



Technical Specification

## PERFORMANCE

Sensitivity	nA/ppm in 2ppm NO	250 to 425
Response time	$t_{90}$ (s) from zero to 2ppm NO	< 25
Zero current	nA in zero air at 20°C	10 to 80
Noise*	$\pm 2$ standard deviations (ppb equivalent)	80
Range	ppm NO limit of performance warranty	20
Linearity	ppb error at full scale, linear at zero and 5ppm NO	< $\pm 1$
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 50
Sensitivity drift	% change/year in lab air, monthly test	0 to -20
Operating life	months until 50% original signal (24 month warranted)	> 24

## ENVIRONMENTAL

Sensitivity @ -20°C	(% output @ -20°C/output @ 20°C)	@ 2ppm NO	35 to 60
Sensitivity @ 50°C	(% output @ 50°C/output @ 20°C)	@ 2ppm NO	120 to 135
Zero @ -20°C	nA change from 20°C		-10 to -50
Zero @ 50°C	nA change from 20°C		200 to 350

## CROSS SENSITIVITY

H <sub>2</sub> S sensitivity	% measured gas @ 5ppm	H <sub>2</sub> S (after 3 minutes)	< 20
NO <sub>2</sub> sensitivity	% measured gas @ 5ppm	NO <sub>2</sub> (after 3 minutes)	< 7
Cl <sub>2</sub> sensitivity	% measured gas @ 5ppm	Cl <sub>2</sub>	< 4
SO <sub>2</sub> sensitivity	% measured gas @ 5ppm	SO <sub>2</sub>	< 4
H <sub>2</sub> sensitivity	% measured gas @ 100ppm	H <sub>2</sub>	< 0.1
CO sensitivity	% measured gas @ 5ppm	CO	< 0.3
NH <sub>3</sub> sensitivity	% measured gas @ 5ppm	NH <sub>3</sub>	< 0.1
CO <sub>2</sub> sensitivity	% measured gas @ 5% Vol	CO <sub>2</sub>	< 0.1
Halothane sensitivity	@ 100ppm	Halothane	< 0.1

## KEY SPECIFICATIONS

Bias voltage	mV (working electrode potential is above reference electrode)	+200
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	$\Omega$ (AFE circuit is 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 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.



# NO-A4 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

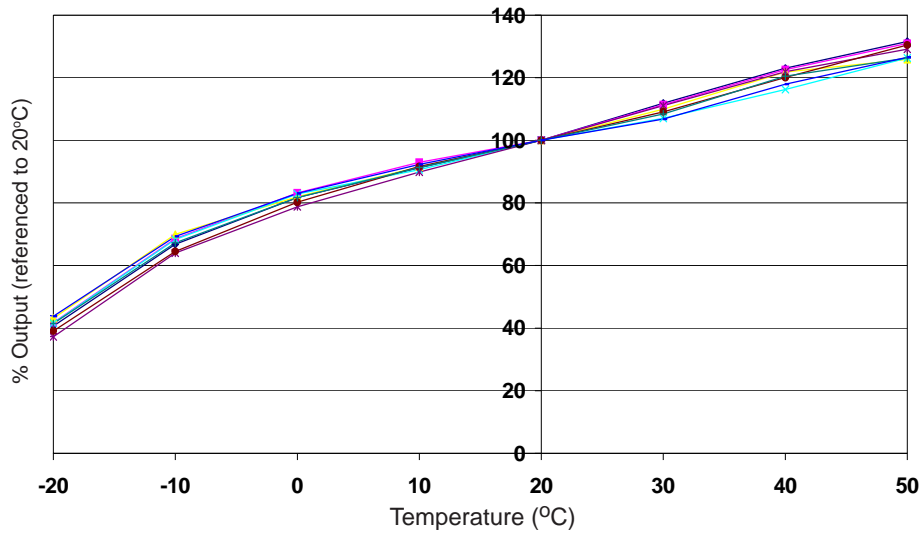


Figure 2 shows the temperature dependence of sensitivity at 2ppm NO

This data is taken from a typical batch of sensors.

Figure 3 Zero Temperature Dependence

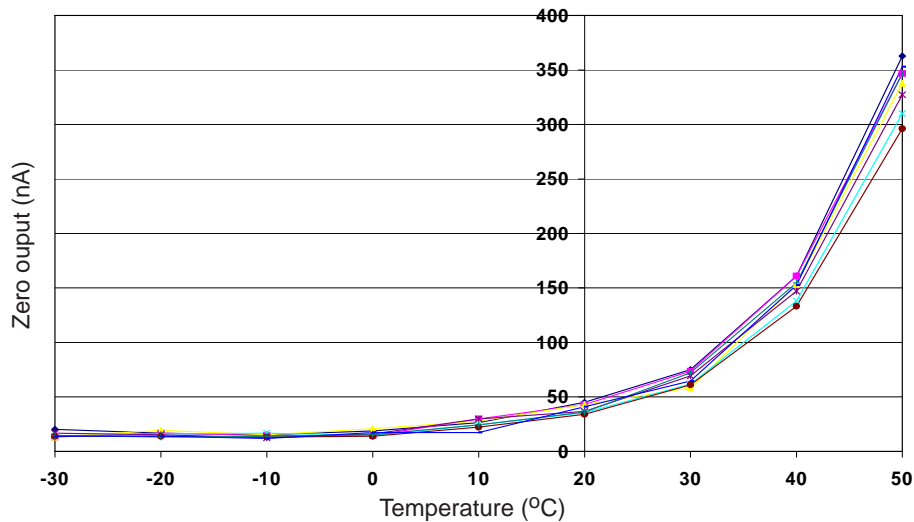


Figure 3 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.

This data is taken from a typical batch of sensors.

Contact Alphasense for further information on zero current correction.

Figure 4 Response to 200ppb NO

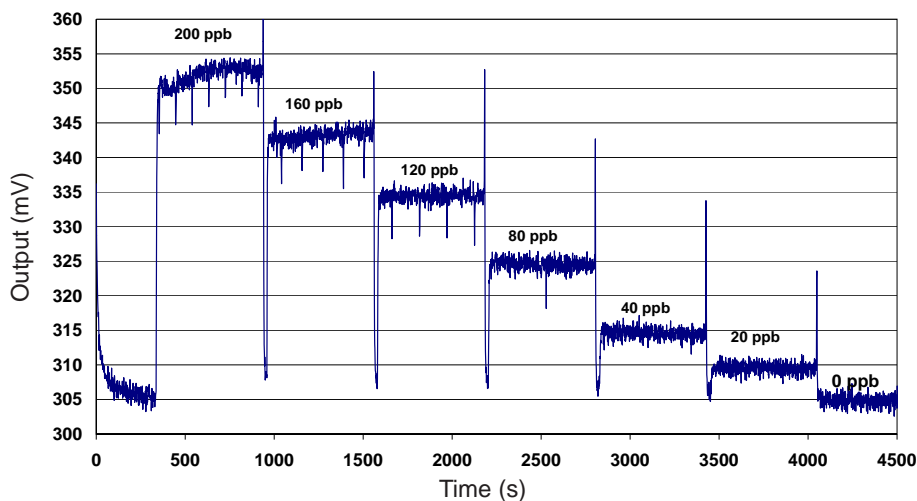


Figure 4 shows response to 200ppb NO. This was tested with the ISB circuit.

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)".

*In the interest of continued product improvement, we reserve the right to change design features and specifications without prior notification. The data contained in this document is for guidance only. Alphasense Ltd accepts no liability for any consequential losses, injury or damage resulting from the use of this document or the information contained within. (©ALPHASENSE LTD) Doc. Ref. NOA4/NOV13*