

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*	± 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	< ± 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 ₂ S sensitivity	% measured gas @ 5ppm	H ₂ S (after 3 minutes)	< 20
NO ₂ sensitivity	% measured gas @ 5ppm	NO ₂ (after 3 minutes)	< 7
Cl ₂ sensitivity	% measured gas @ 5ppm	Cl ₂	< 4
SO ₂ sensitivity	% measured gas @ 5ppm	SO ₂	< 4
H ₂ sensitivity	% measured gas @ 100ppm	H ₂	< 0.1
CO sensitivity	% measured gas @ 5ppm	CO	< 0.3
NH ₃ sensitivity	% measured gas @ 5ppm	NH ₃	< 0.1
CO ₂ sensitivity	% measured gas @ 5% Vol	CO ₂	< 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	Ω (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.

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NO-A4 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

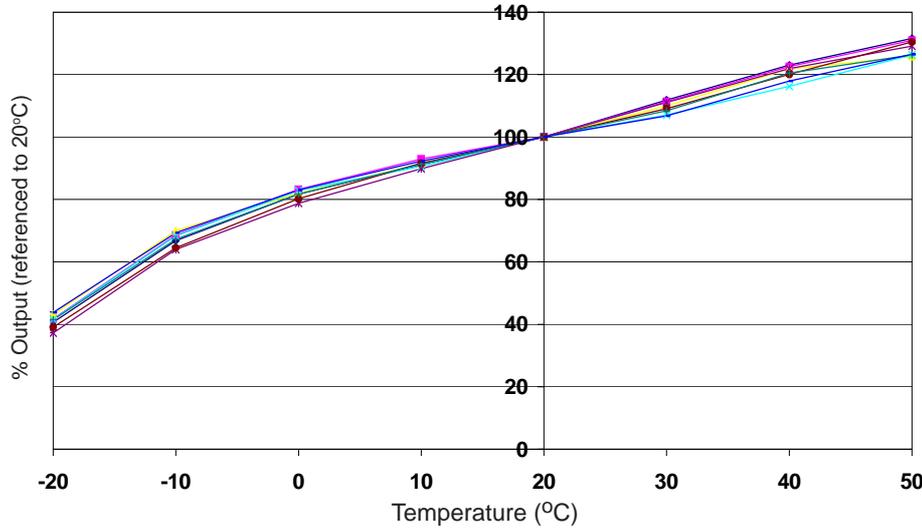


Figure 2 shows the temperature dependence of sensitivity at 2ppm NO

This data is taken from a typical batch of sensors.

Figure 3 Zero Temperature Dependence

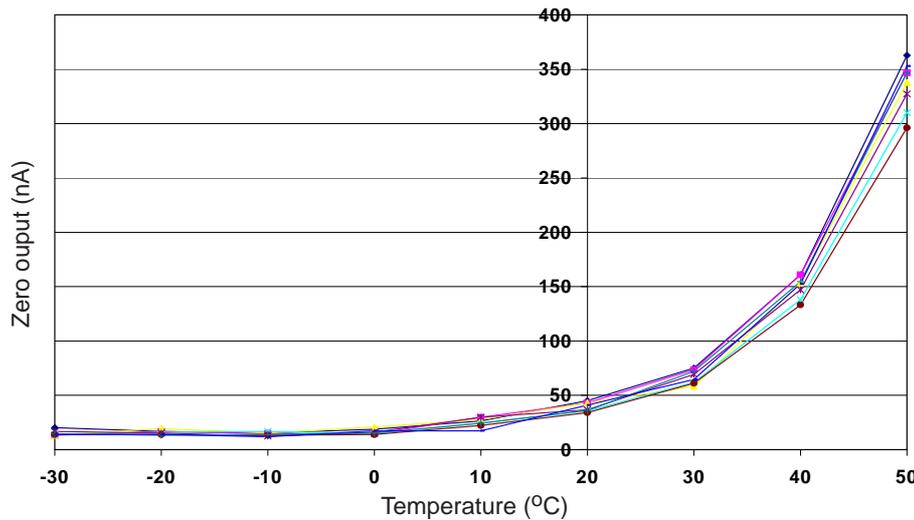


Figure 3 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.

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

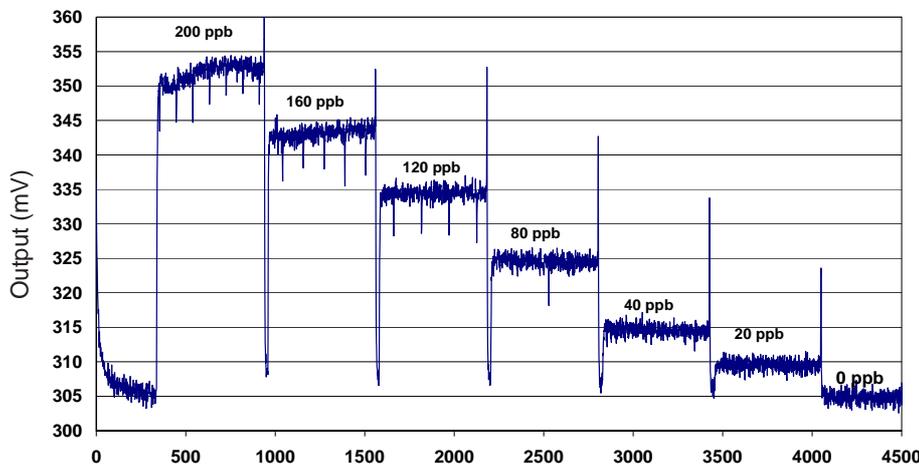


Figure 4 shows response to 200ppb NO. This was tested with the ISB circuit.

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