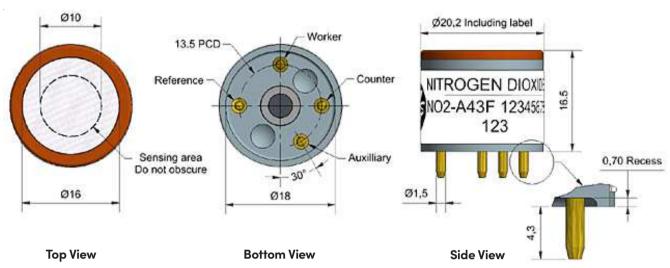


Technical specifications Version 1.0

## NO2-A43F Nitrogen Dioxide Sensor – 4-Electrode



Dimensions are in millimetres ( $\pm$  0.15 mm).

Performance	Sensitivity Response time Zero current Noise* Range Linearity Overgas limit *Tested with Alphasense	nA/ppm at 2ppm NO <sub>2</sub> t90 (s) from zero to 2ppm NO <sub>2</sub> nA in zero air at 20°C ±2 standard deviations (ppb equivalent) ppm NO <sub>2</sub> limit of performance warranty ppm error at full scale, linear at zero and 20ppm NO <sub>2</sub> maximum ppm for stable response to gas pulse AFE low noise circuit	-175 to -500 < 80 -70 to +70 15 20 < ± 0.5 50
Lifetime	Zero drift Sensitivity drift Operating life	ppb equivalent change/year in lab air % change/year in lab air, monthly test months until 50% original signal (24–month warranted)	0 to 20 < -20 to -40 > 24
Environmental	Sensitivity @ -20°C Sensitivity @ 40°C Zero @ -20°C Zero @ 40°C	% (output @ -20°C/output @ 20°C) @ 2ppm ${\rm NO_2}$ % (output @ 50°C/output @ 20°C) @ 2ppm ${\rm NO_2}$ nA nA	40 to 80 95 to 115 0 to +25 20 to 60
Cross-sensitivity	O <sub>3</sub> filter capacit H <sub>2</sub> S sensitivity NO sensitivity Cl <sub>2</sub> sensitivity SO <sub>2</sub> sensitivity CO sensitivity C <sub>2</sub> H <sub>4</sub> sensitivity NH <sub>3</sub> sensitivity H <sub>2</sub> sensitivity CO <sub>2</sub> sensitivity Halothane sensitivity	y (ppm hrs) @ 2ppm O <sub>3</sub> % measured gas @ 5ppm H <sub>2</sub> S % measured gas @ 5ppm NO % measured gas @ 5ppm Cl <sub>2</sub> % measured gas @ 5ppm SO <sub>2</sub> % measured gas @ 5ppm CO % measured gas @ 100ppm C <sub>2</sub> H <sub>4</sub> % measured gas @ 20ppm NH <sub>3</sub> % measured gas @ 100ppm H <sub>2</sub> % measured gas @ 100ppm H <sub>2</sub> % measured gas @ 5% volume CO <sub>2</sub> % measured gas @ 100ppm Halothane	< 500 < -80 < 5 < 100 < -3 < -3 < 1 < 0.2 < 0.1 < 0.1 nd
Key Specifications	Temperature range Pressure range Humidity range Storage period Load resistor Weight	°C kPa % rh continuous months @ 3 to 20°C (stored in sealed pot) Ω (AFE circuit is recommended) g	-30 to 40 80 to 120 15 to 85 6 33 to 100 < 6

## Figure 1 Sensitivity Temperature Dependence

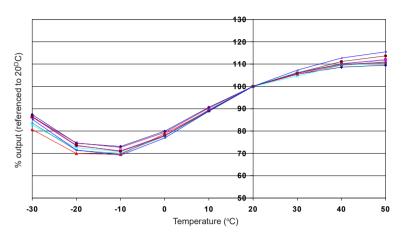


Figure 1 shows the temperature dependence of sensitivity at 2ppm NO<sub>2</sub>.

This data is taken from a typical batch of sensors.

Figure 2 Zero Temperature Dependence

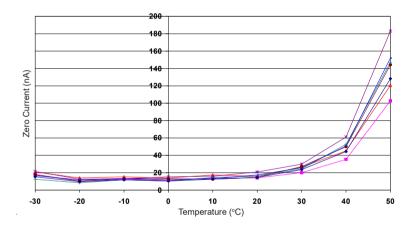


Figure 2 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.

This data is taken from a typical batch of sensors. Contact Alphasense for futher information on zero

current correction.

Figure 3 Response from 200 ppb to 0 ppb NO,

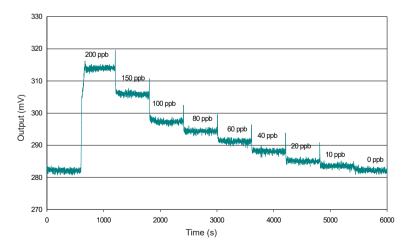


Figure 3 shows response from from 200ppb NO<sub>2</sub> to Oppb NO<sub>2</sub>.

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

Offset voltage is due to intentional AFE circuit electronic offset.

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 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.

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. NO2-A43F/SEP22