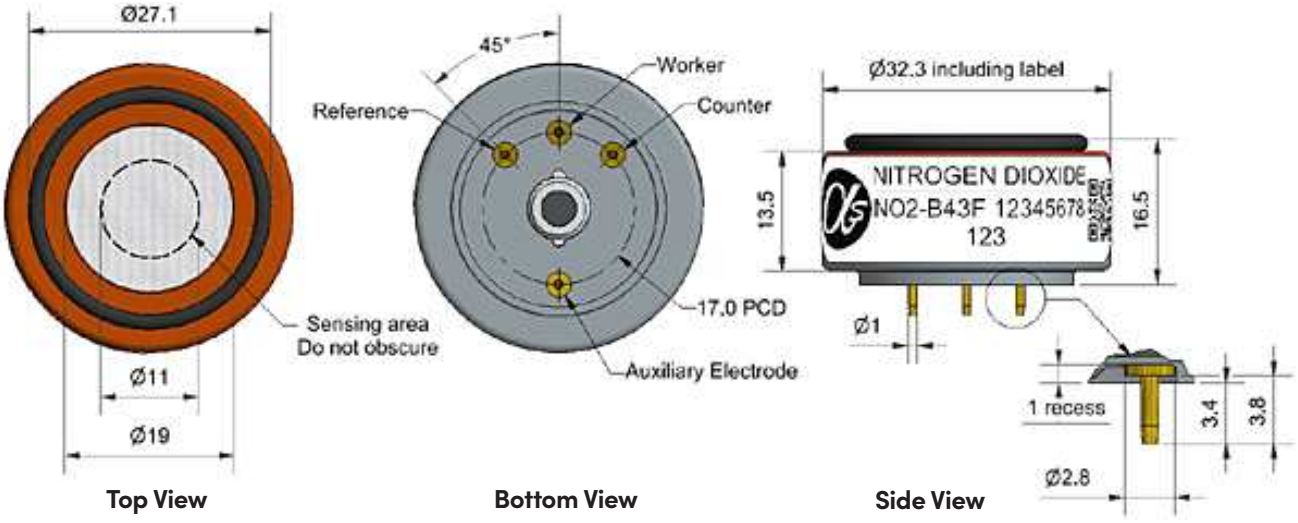
NO2-B43F Nitrogen Dioxide Sensor – 4-Electrode



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

Dimensions are in millimetres (± 0.15 mm).

Performance	Sensitivity	nA/ppm at 2ppm NO_2	-200 to -650
	Response time	t90 (s) from zero to 2ppm NO_2	< 80
	Zero current	nA in zero air at 20°C	-80 to +80
	Noise*	±2 standard deviations (ppb equivalent)	15
	Range	ppm NO_2 limit of performance warranty	20
	Linearity	ppb error at full scale, linear at zero and 20ppm	< ± 0.5
	Overgas limit	NO_2 maximum ppm for stable response to gas pulse	50
	***Tested with Alphasense ISB 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 (24-month warranted)	> 24
Environmental	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 2ppm NO_2	60 to 80
	Sensitivity @ 40°C	% (output @ 50°C/output @ 20°C) @ 2ppm NO_2	95 to 115
	Zero @ -20°C	nA	0 to 25
	Zero @ 40°C	nA	-10 to 50

Cross-sensitivity	O_3	filter capacity (ppm hrs)	@ 0.5ppm	O_3	< 500
	H_2S	sensitivity	% measured gas @ 5ppm	H_2S	< -80
	NO	sensitivity	% measured gas @ 5ppm	NO	< 5
	Cl_2	sensitivity	% measured gas @ 5ppm	Cl_2	< 100
	SO_2	sensitivity	% measured gas @ 5ppm	SO_2	< -3
	CO	sensitivity	% measured gas @ 5ppm	CO	< -3
	H_2	sensitivity	% measured gas @ 100ppm	H_2	< 0.1
	C_2H_4	sensitivity	% measured gas @ 100ppm	C_2H_4	< 0.1
	NH_3	sensitivity	% measured gas @ 20ppm	NH_3	< 0.1
	CO_2	sensitivity	% measured gas @ 5% volume	CO_2	< 0.1
	Halothane	sensitivity	% measured gas @ 100ppm	Halothane	nd

Key Specifications	Temperature range	°C	-30 to 40
	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 (ISB circuit is recommended)	33 to 100
	Weight	g	< 13

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Figure 1 Sensitivity Temperature Dependence

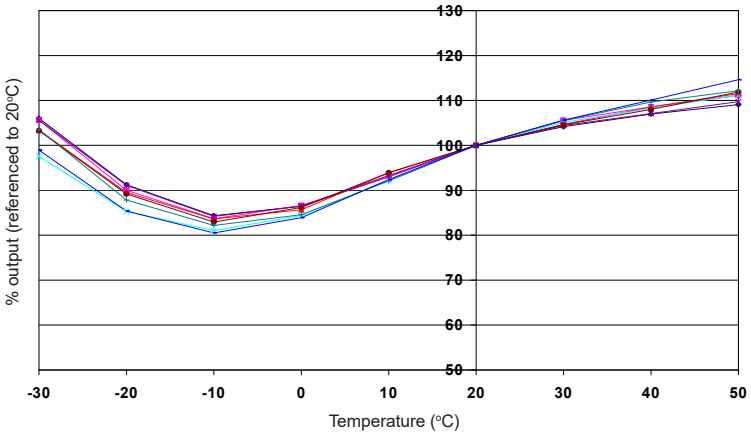


Figure 1 shows the temperature dependence of sensitivity at 2ppm NO_2.

This data is taken from a typical batch of sensors.

Figure 2 Zero Temperature Dependence

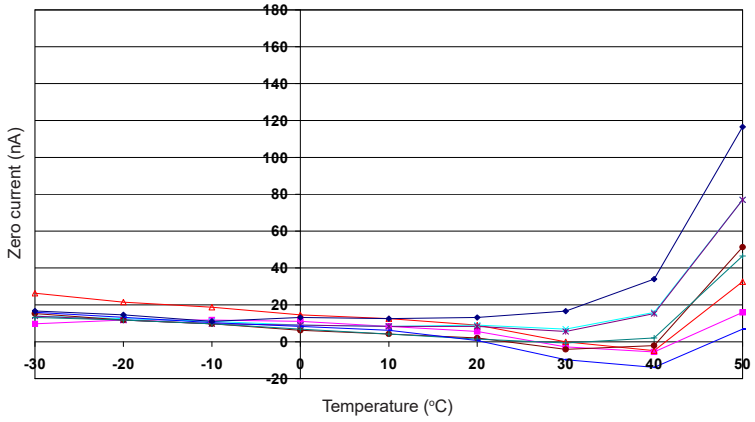
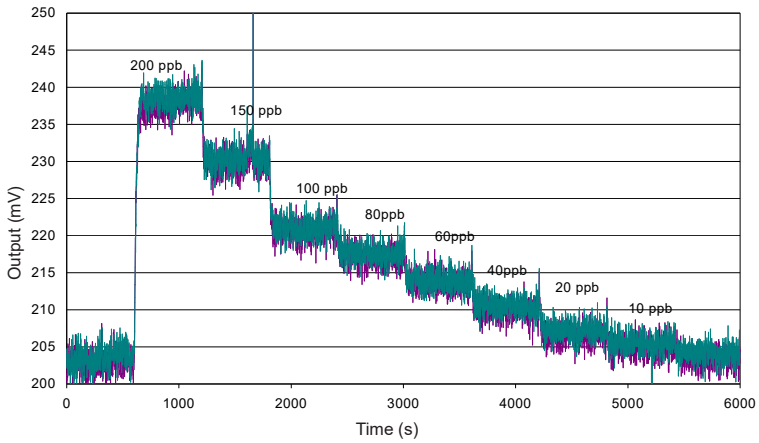


Figure 2 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.

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 NO_2



With a 33 Ω load resistor, the NO2-B43F shows excellent resolution, even at the ppb level: ideal for outdoor air environmental testing.

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

Offset voltage is due to intentional ISB circuit electronic offset.

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