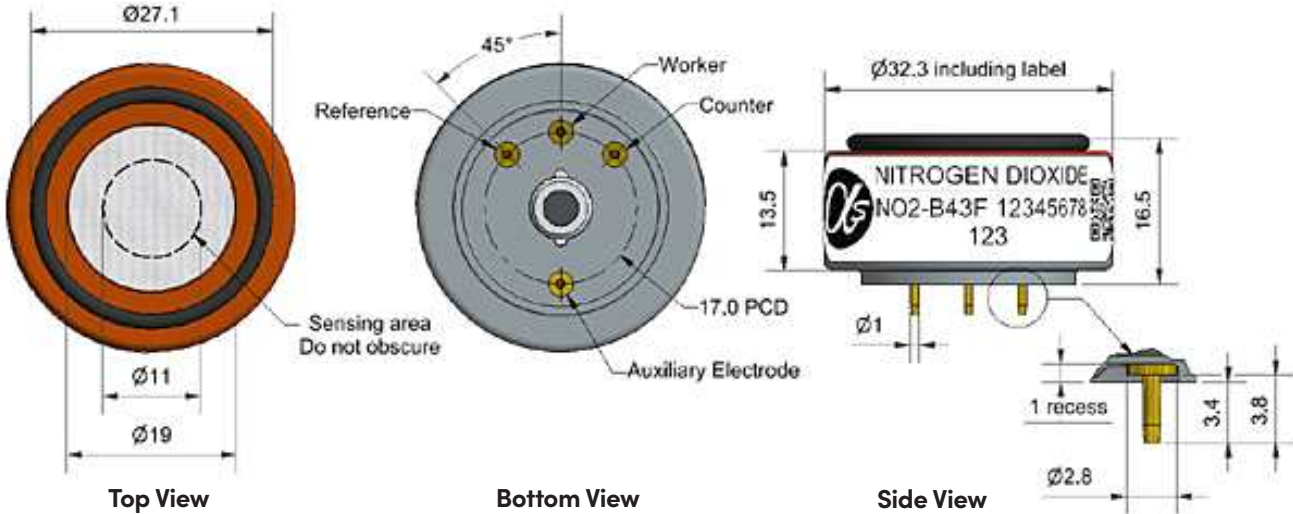


Technical specifications Version 1.0

NO2-B43F Nitrogen Dioxide Sensor – 4-Electrode



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	< 500
		H ₂ S	sensitivity % measured gas @ 5ppm	< -80
		NO	sensitivity % measured gas @ 5ppm	< 5
		Cl ₂	sensitivity % measured gas @ 5ppm	< 100
		SO ₂	sensitivity % measured gas @ 5ppm	< -3
		CO	sensitivity % measured gas @ 5ppm	< -3
		H ₂	sensitivity % measured gas @ 100ppm	< 0.1
		C ₂ H ₄	sensitivity % measured gas @ 100ppm	< 0.1
		NH ₃	sensitivity % measured gas @ 20ppm	< 0.1
		CO ₂	sensitivity % measured gas @ 5% volume	< 0.1
		Halothane	sensitivity % measured gas @ 100ppm	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



Figure 1 Sensitivity Temperature Dependence

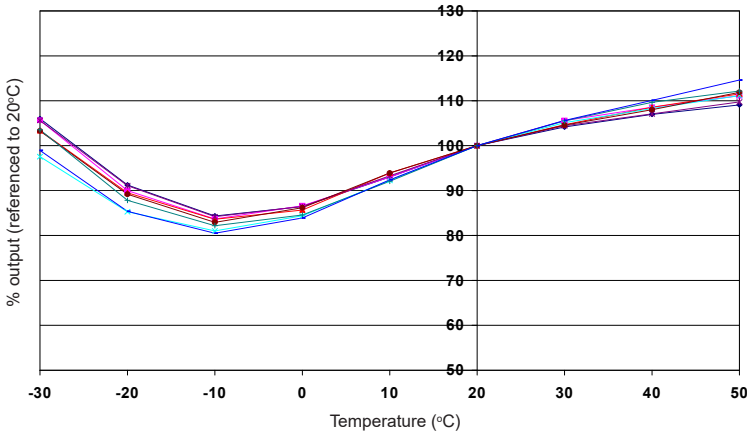


Figure 1 shows the temperature dependence of sensitivity at 2ppm NO₂.
This data is taken from a typical batch of sensors.

Figure 2 Zero Temperature Dependence

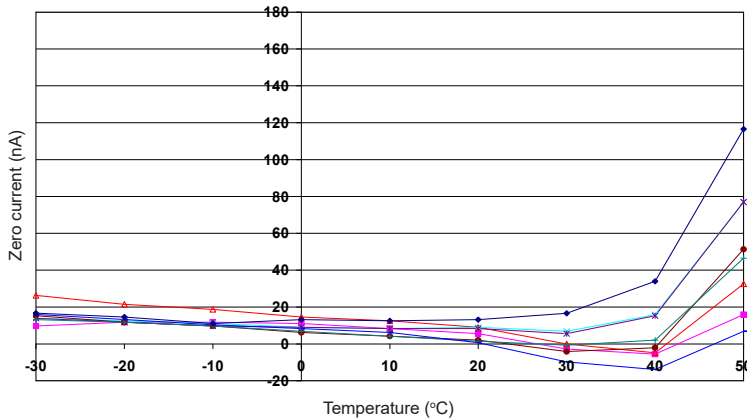
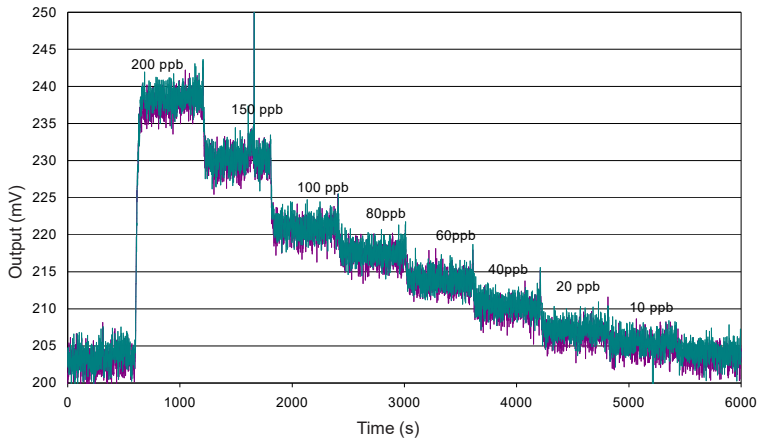


Figure 2 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.
This data is taken from a typical batch of sensors.
Contact Alphasense for further information on zero current correction.

Figure 3 Response from 200 ppb NO₂



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.