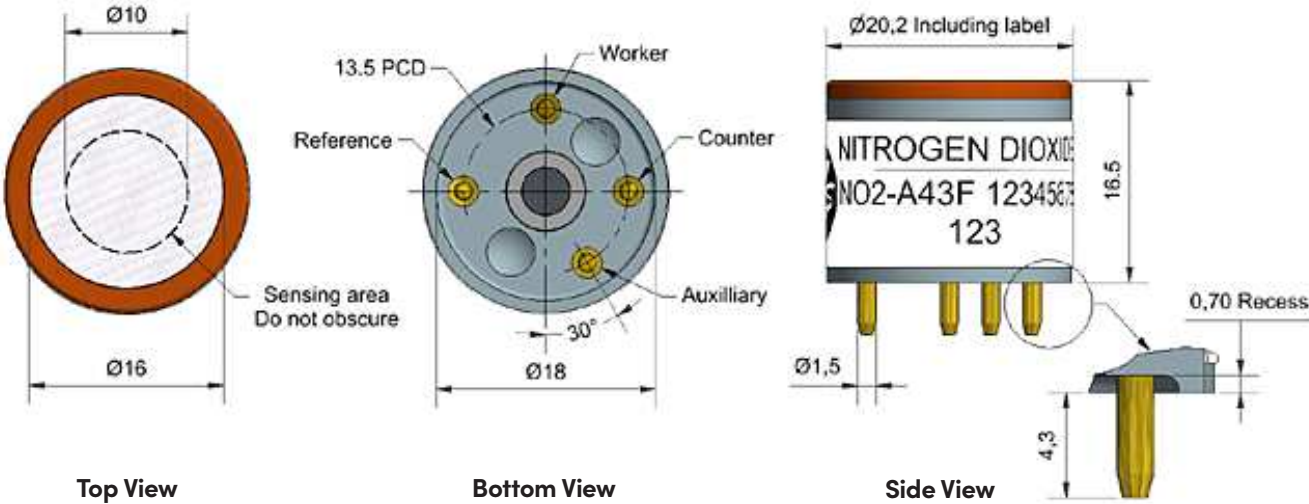


NO2-A43F Nitrogen Dioxide Sensor – 4-Electrode



Dimensions are in millimetres (± 0.15 mm).

Performance		Sensitivity	nA/ppm at 2ppm NO ₂	-175 to -500
		Response time	t90 (s) from zero to 2ppm NO ₂	< 80
		Zero current	nA in zero air at 20°C	-70 to +70
		Noise*	±2 standard deviations (ppb equivalent)	15
		Range	ppm NO ₂ limit of performance warranty	20
		Linearity	ppm 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 AFE 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	40 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	20 to 60
Cross-sensitivity		O ₃	filter capacity (ppm hrs) @ 2ppm	< 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
		C ₂ H ₄	sensitivity % measured gas @ 100ppm	< 1
		NH ₃	sensitivity % measured gas @ 20ppm	< 0.2
		H ₂	sensitivity % measured gas @ 100ppm	< 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 (AFE circuit is recommended)	33 to 100
		Weight	g	< 6



Figure 1 Sensitivity Temperature Dependence

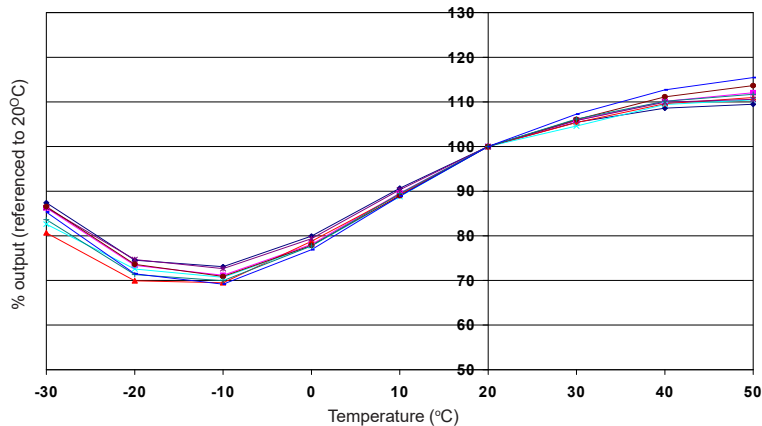


Figure 1 shows the temperature dependence of sensitivity at 2ppm NO₂.
This data is taken from a typical batch of sensors.

Figure 2 Zero Temperature Dependence

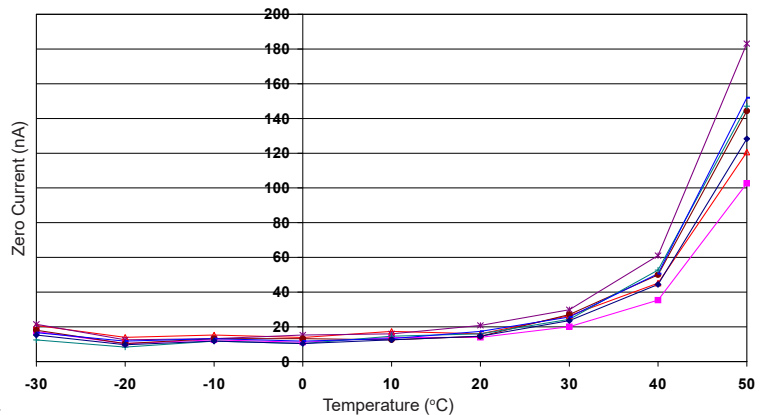


Figure 2 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.
This data is taken from a typical batch of sensors.
Contact Alphasense for further information on zero current correction.

Figure 3 Response from 200 ppb to 0 ppb NO₂

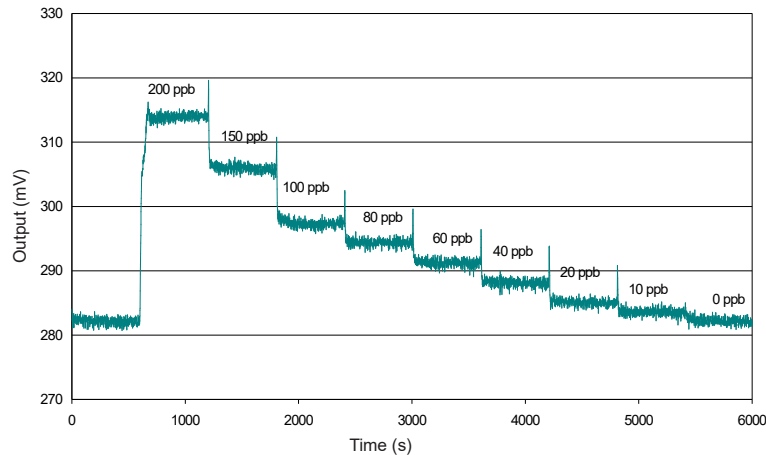


Figure 3 shows response from from 200ppb NO₂ to 0ppb NO₂.
Use of Alphasense AFE circuit reduces noise to 15ppb, with the opportunity of digital smooting to reduce noise even further.
Offset voltage is due to intentional AFE circuit electronic offset.