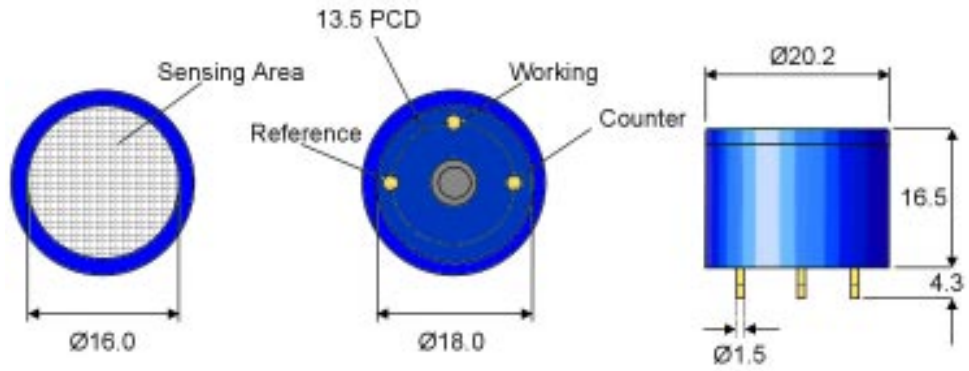
NO2-AE Nitrogen Dioxide Sensor
High Concentration

PATENT PENDING

Technical Specification

Figure 1 NO2-A1 Schematic Diagram



All dimensions in millimetres (± 0.1mm)

Top View Bottom View Side View

Table 1 NO2-AE Specification

PERFORMANCE	*	Sensitivity	nA/ppm @ 22°C, 10ppm NO_2 (33Ω Load Resistor)	-300 to -400
	*	Response time	t_{90} (s) from zero to 10ppm NO_2 (33Ω Load Resistor)	< 40
		Zero current	ppm equivalent in zero air, 22°C	< ± 0.3
		Resolution	RMS noise in zero air at 22°C (ppm equivalent) (33Ω)	< 0.1
		Range	ppm limit of performance warranty	200
	*	Linearity	ppm error at 200ppm, linear at 30 and 100ppm NO_2	< +2 to +11
		Overgas range	maximum ppm for stable response to 10 min gas pulse	> 1,000
LIFETIME		Zero drift	ppm equivalent change/month in lab air	nd
		Sensitivitydrift	% change/month in lab air, twice monthly gassing	< 2
	*	Operating life	months until 80% original signal (24 month warranted)	> 24
ENVIRONMENTAL		Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 10ppm NO_2	nd
		Sensitivity @ 40°C	% (output @ 40°C/output @ 20°C) 10ppm NO_2	nd
		Zero @ -20°C	ppm equivalent	nd
		Zero @ 40°C	ppm equivalent	nd
CROSS SENSITIVITY		NO sensitivity	% measured gas @ 50ppm NO	nd
		SO_2 sensitivity	% measured gas @ 20ppm SO_2	nd
		Cl_2 sensitivity	% measured gas @ 5ppm Cl_2	nd
	*	H_2 sensitivity	% measured gas @ 400ppm H_2	< -0.1
		H_2S sensitivity	% measured gas @ 20ppm H_2S	nd
		CO sensitivity	% measured gas @ 400ppm CO	< -0.1
PHYSICAL DIMENSIONS		Diameter	mm (including label) (± 0.1mm)	20.2
		Height	mm (excluding O-ring) (± 0.1mm)	16.5
		Weight	g	< 6
KEY SPECIFICATIONS		Temperature range	°C	-20 to 50
		Pressure range	kPa	80 to 120
		Humidity range	% rh continuous (5 to 95% rh short term)	15 to 90
		Storage period	months @ 3 to 20°C (stored in sealed pot)	6
		Load Resistor	Ω (for optimum performance)	33

NOTE: * denotes sensors tested and stored at ambient environments (22°C and 30-75% rh)

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NO2-AE Performance Data

Technical Specification

Figure 2 Linearity

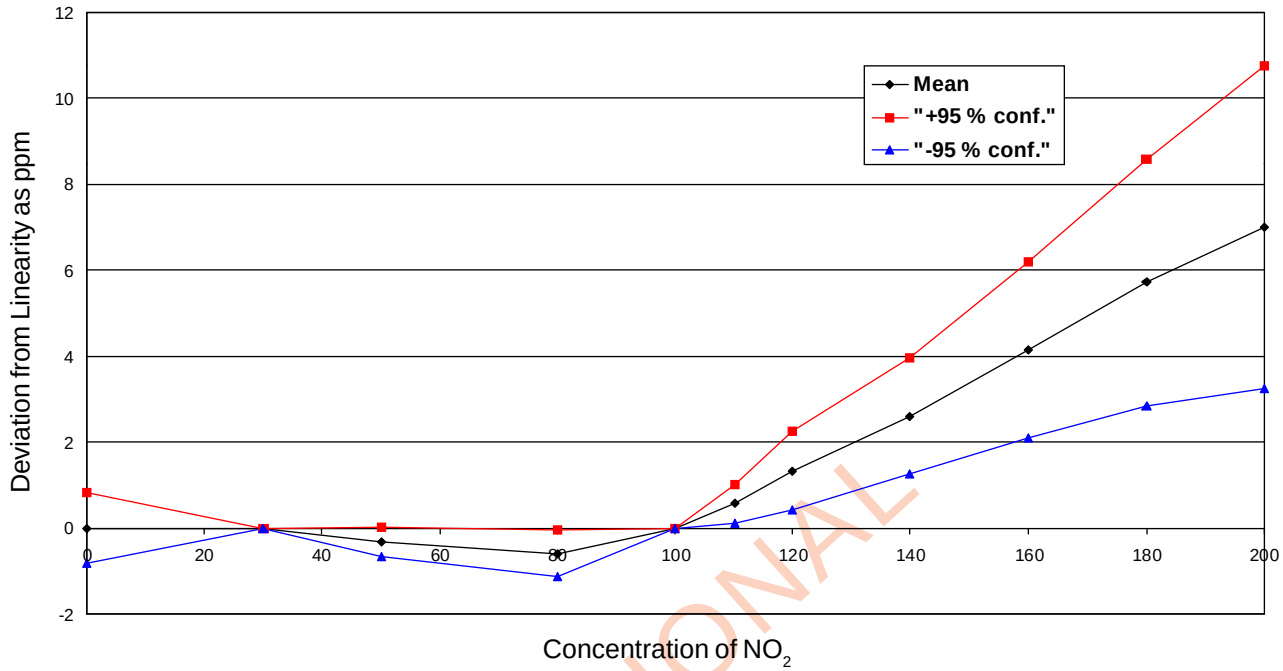

Figure 2 shows the variation in sensitivity at increasing concentrations of NO_2. The data is taken from a typical batch of sensors and the mean and ± 95% confidence intervals are shown.

Figure 3 Response Profile (t_{90})

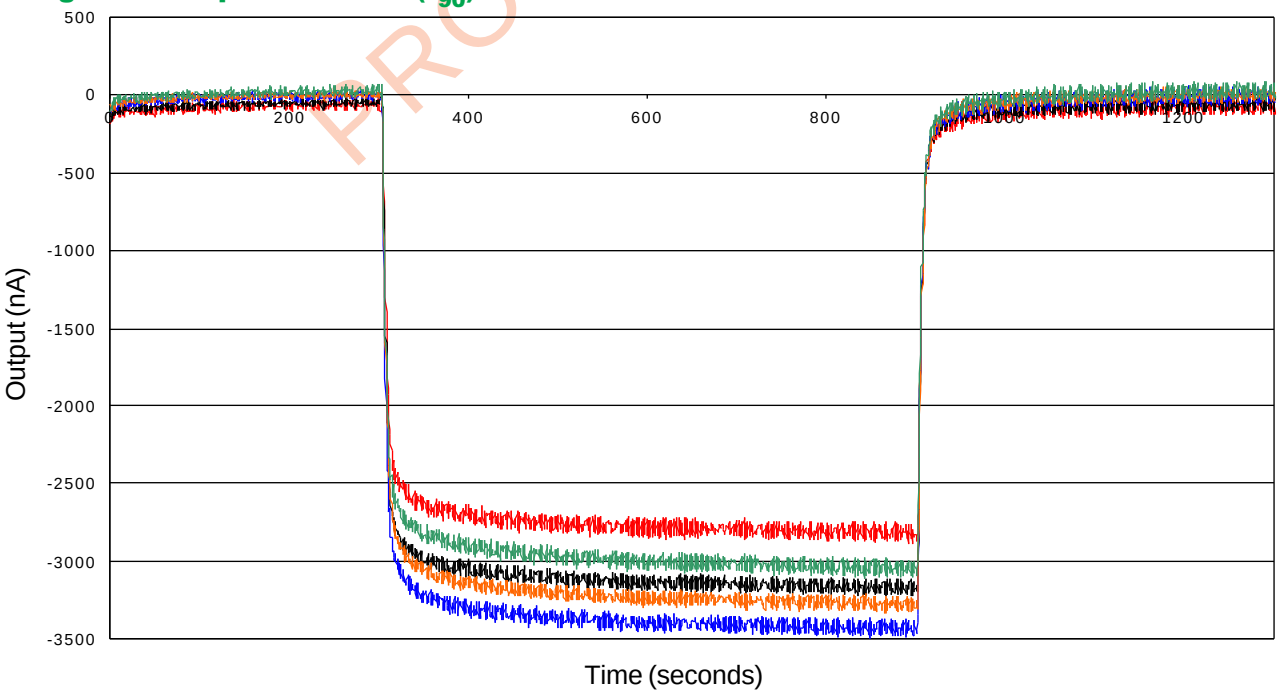

Figure 3 shows the response to 10ppm NO_2 for typical NO2-A1 sensors. The t90 response time for these sensors is < 40 seconds. Load resistor is 33 Ω for best noise (< 50ppb).

For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. For Application Notes visit "www.alphasense.com".