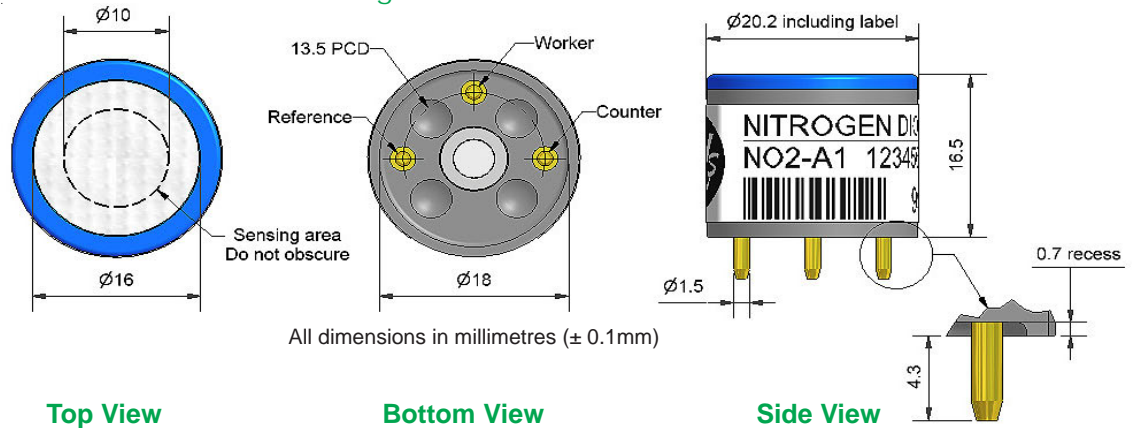


NO2-A1 Nitrogen Dioxide Sensor



PATENTED

Figure 1 NO2-A1 Schematic Diagram



Technical Specification

PERFORMANCE			
Sensitivity	nA/ppm in 10ppm NO ₂		-400 to -750
Response time	t ₉₀ (s) from zero to 10ppm NO ₂ (33Ω Load Resistor)		< 40
Zero current	ppm equivalent in zero air		< ± 0.2
Resolution	RMS noise (ppm equivalent) (33Ω Load Resistor)		< 0.02
Range	ppm NO ₂ limit of performance warranty		20
Linearity	ppm error at full scale, linear at zero and 10ppm NO ₂		< 1.5
Overgas limit	maximum ppm for stable response to gas pulse		100

LIFETIME			
Zero drift	ppm equivalent change/year in lab air		< 0.05
Sensitivity drift	% change/year in lab air, monthly test		< 10
Operating life	months until 80% original signal (24 month warranted)		> 24

ENVIRONMENTAL			
Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 5ppm NO ₂		76 to 90
Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 5ppm NO ₂		103 to 110
Zero @ -20°C	ppm equivalent change from 20°C		< ± 0.2
Zero @ 50°C	ppm equivalent change from 20°C		< 0 to -0.5
Zero slope	equivalent ppm/K		-0.005

CROSS SENSITIVITY				
H ₂ S sensitivity	% measured gas @ 20ppm	H ₂ S		< -40
Cl ₂ sensitivity	% measured gas @ 10ppm	Cl ₂		100
NO sensitivity	% measured gas @ 50ppm	NO		< 0.5
SO ₂ sensitivity	% measured gas @ 20ppm	SO ₂		< -2.5
CO sensitivity	% measured gas @ 400ppm	CO		< 0.1
H ₂ sensitivity	% measured gas @ 400ppm	H ₂		< 0.1
C ₂ H ₄ sensitivity	% measured gas @ 50ppm	C ₂ H ₄		< 0.1
NH ₃ sensitivity	% measured gas @ 20ppm	NH ₃		< 0.1
CO ₂ sensitivity	% measured gas @ 5% volume	CO ₂		< 0.1

KEY SPECIFICATIONS			
Temperature range	°C		-20 to 50
Pressure range	kPa		80 to 120
Humidity range	% rh continuous		15 to 90
Storage period	months @ 3 to 20°C (stored in sealed pot)		6
Load resistor	Ω (for optimum performance)		33
Weight	g		< 6



NOTE: all sensors are tested at ambient environmental conditions, with 10 ohm load resistor, 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.

NO2-A1 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

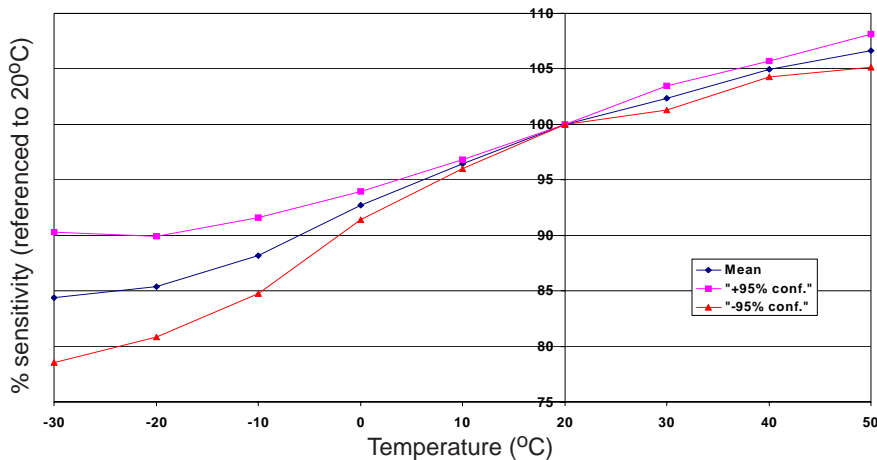


Figure 2 shows the variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of sensors. The mean and $\pm 95\%$ confidence intervals are shown.

Figure 3 Zero Temperature Dependence

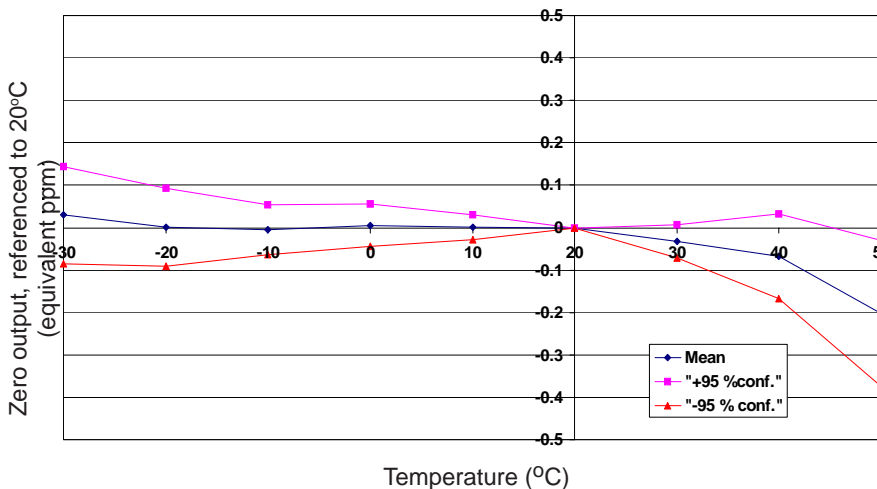


Figure 3 shows the variation in zero output caused by changes in temperature expressed as ppm NO₂ equivalent.

This data is taken from a typical batch of sensors. The mean and $\pm 95\%$ confidence intervals are shown.

Figure 4 Humidity plus Temperature Transient Response

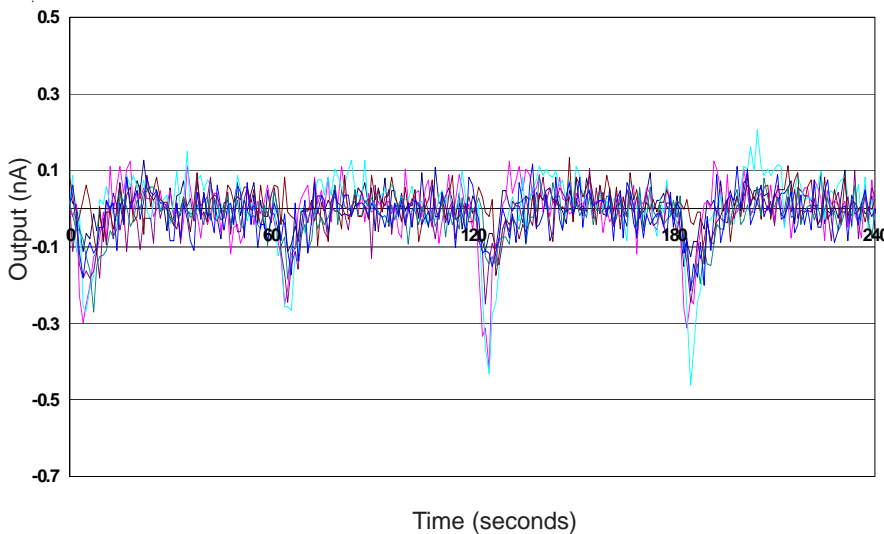


Figure 4 shows typical sensor outputs for a group of sensors exposed to exhaled breath for 4 cycles over 240 seconds.

This is an extreme test for such sensors and the shift in the base line of no more than 0.5 ppm shows a very strong resistance to this test.

When ambient and storage humidity conditions are less than 35%rh, then humidity transients can be up to 3ppm.