



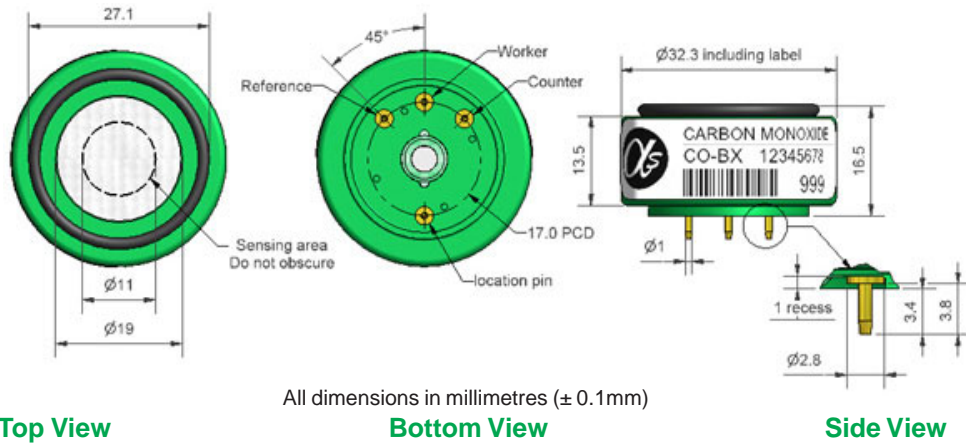
CO-BX Carbon Monoxide Sensor

Low Hydrogen Cross Sensitivity



PATENTED

Figure 1 CO-BX Schematic Diagram



Technical Specification

PERFORMANCE	Sensitivity	nA/ppm in 400ppm CO	70 to 120	
	Response time	t_{90} (s) from zero to 400ppm CO	< 40	
	Zero current	ppm equivalent in zero air	< ± 1.5	
	Resolution	RMS noise (ppm equivalent)	< 1	
	Range	ppm limit of performance warranty	2,000	
	Linearity	ppm CO error at full scale, linear at zero, 400ppm CO	< ± 5	
	Overgas range	maximum ppm for stable response to gas pulse	5,000	
LIFETIME	Zero drift	ppm equivalent change/year in lab air	< 0.1	
	Sensitivity drift	% change/month in lab air, monthly test	< 1	
	Operating life	months until 80% original signal (24 month warranted)	> 24	
ENVIRONMENTAL	Sensitivity @ -20°C		% (output @ -20°C/output @ 20°C) @ 400ppm CO	
	Sensitivity @ 0°C		% (output @ 0°C/output @ 20°C) @ 400ppm CO	
	Sensitivity @ 50°C		% (output @ 50°C/output @ 20°C) @ 400ppm CO	
	Zero @ -20°C		ppm equivalent change from 20°C	± 4
	Zero @ 0°C		ppm equivalent change from 20°C	± 1
	Zero @ 50°C		ppm equivalent change from 20°C	0 to -6
CROSS SENSITIVITY	Filter capacity	ppm-hrs	H ₂ S	160,000
	Filter capacity	ppm-hrs	NO	120,000
	Filter capacity	ppm-hrs	NO ₂	120,000
	Filter capacity	ppm-hrs	SO ₂	160,000
	SO ₂ sensitivity	% measured gas @ 20ppm	SO ₂	< 0.1
	NO sensitivity	% measured gas @ 50ppm	NO	nd
	NO ₂ sensitivity	% measured gas @ 10ppm	NO ₂	< 1
	Cl ₂ sensitivity	% measured gas @ 10ppm	Cl ₂	nd
	H ₂ sensitivity	% measured gas @ 400ppm	H ₂ at 20°C	< 5
	C ₂ H ₄ sensitivity	% measured gas @ 400ppm	C ₂ H ₄	< 10
H ₂ S sensitivity	% measured gas @ 20ppm	H ₂ S	< 0.1	
NH ₃ sensitivity	% measured gas @ 20ppm	NH ₃	< 0.1	
KEY SPECIFICATIONS	Temperature range	°C	-30 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	
	Weight	g	< 13	

Important. The CO-BX must be operated with a 0 Volt bias between Reference & Working electrodes. Failure to comply with this requirement will result in a loss of its low Hydrogen cross sensitivity performance.

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.



CO-BX Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

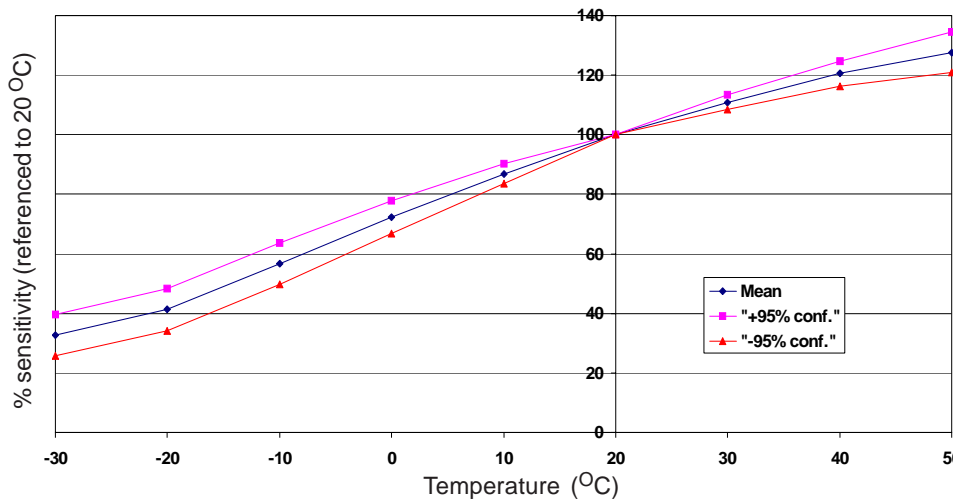


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Temperature Dependence

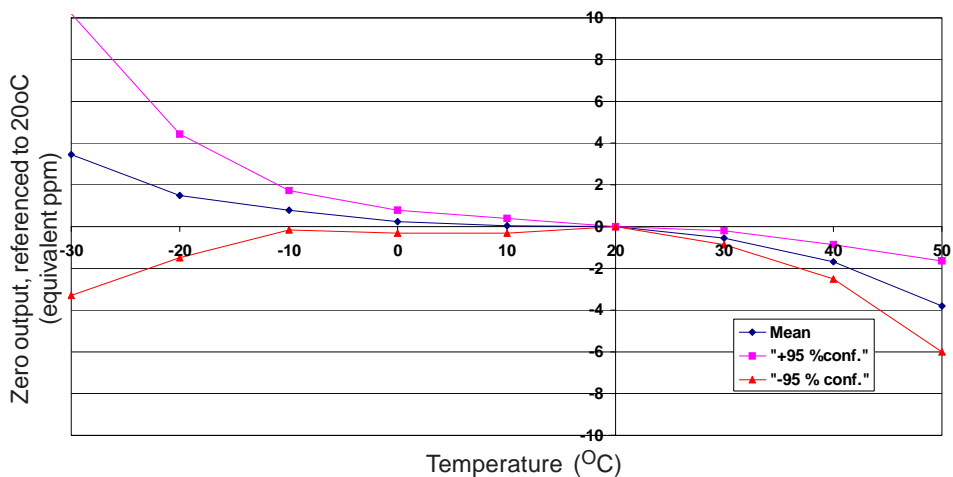


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent.

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

Figure 4 Hydrogen and CO Test at 30°C

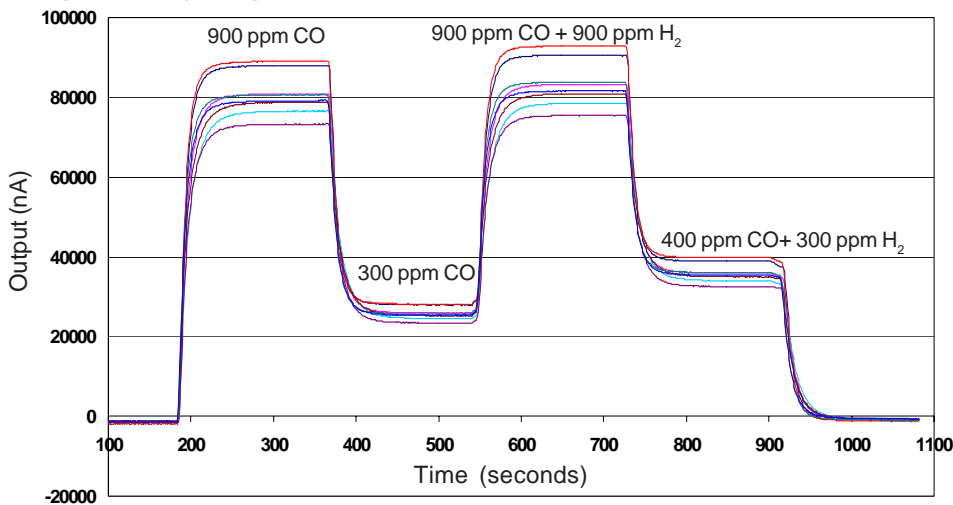


Figure 4 shows hydrogen cross sensitivity for a typical batch of eight CO-BX sensors at 30°C. All sensors show less than 5% cross sensitivity when 500ppm hydrogen is added to 950ppm carbon monoxide. The t_{90} for a typical batch is less than 40 seconds.

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".