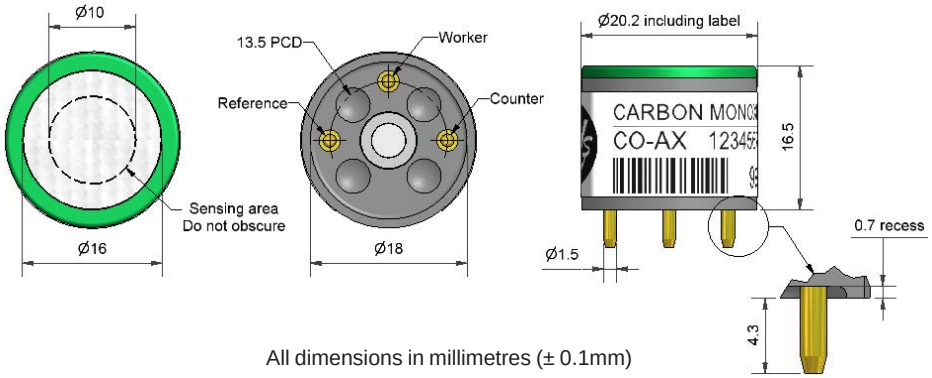
CO-AX Carbon Monoxide Sensor

EN 50379 Compliant for Stack Gases

PATENTED

Technical Specification

Figure 1 CO-AX Schematic Diagram



All dimensions in millimetres (± 0.1mm)

Top View **Bottom View** **Side View**

PERFORMANCE	Sensitivity	nA/ppm in 400ppm CO	55 to 85
	Response time	t_{90} (s) from zero to 800ppm CO	< 45
	Zero current	ppm equivalent in zero air	< ± 2
	Resolution	RMS noise (ppm equivalent)	< 1
	Range	ppm CO limit of performance warranty	2,000
	Linearity	ppm error at full scale, linear at zero and 800ppm CO	< ± 40
	Overgas range	maximum ppm for stable response to gas pulse	4,000
LIFETIME	Zero drift	ppm equivalent change/year in lab air	<0.2
	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	45 to 55
	Sensitivity @ 0°C	% (output @ 0°C/output @ 20°C) @ 400ppm CO	70 to 82
	Sensitivity @ 40°C	% (output @ 40°C/output @ 20°C) @ 400ppm CO	110 to 125
	Zero @ -20°C	ppm equivalent change from 20°C	< ± 3
	Zero @ 0°C	ppm equivalent change from 20°C	< ± 2
	Zero @ 50°C	ppm equivalent change from 20°C	< ± 4
CROSS SENSITIVITY	Filter capacity	ppm-hours	NO 200,000
	Filter capacity	ppm-hours	NO_2 500,000
	Filter capacity	ppm-hours	H_2S 250,000
	Filter capacity	ppm-hours	SO_2 250,000
	H_2	sensitivity % measured gas @ 900ppm H_2 in 900ppm CO @ 10°C	< 2
	H_2	sensitivity % measured gas @ 900ppm H_2 in 900ppm CO @ 20°C	< 4
	H_2	sensitivity % measured gas @ 900ppm H_2 in 900ppm CO @ 30°C	< 6
	Cl_2	sensitivity % measured gas @ 10ppm Cl_2	< 0.5
	SO_2	sensitivity % measured gas @ 20 ppm SO_2	< 0.5
	NO_2	sensitivity % measured gas @ 10 ppm NO_2	< 0.5
	NO	sensitivity % measured gas @ 50 ppm NO	< 3
	C_2H_4	sensitivity % measured gas @ 400 ppm C_2H_4	< 35
	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 @ 0 to 20°C (stored in sealed pot)	6
	Load resistor	W (recommended)	10 to 47
	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.

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CO-AX Performance Data

Technical Specification

Figure 2 CO Sensitivity Temperature Dependence

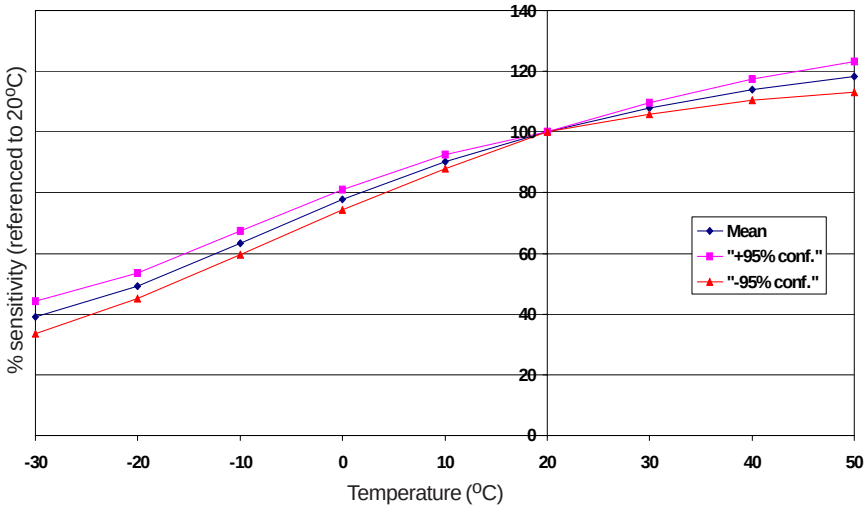

Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Hydrogen Sensitivity Temperature Dependence

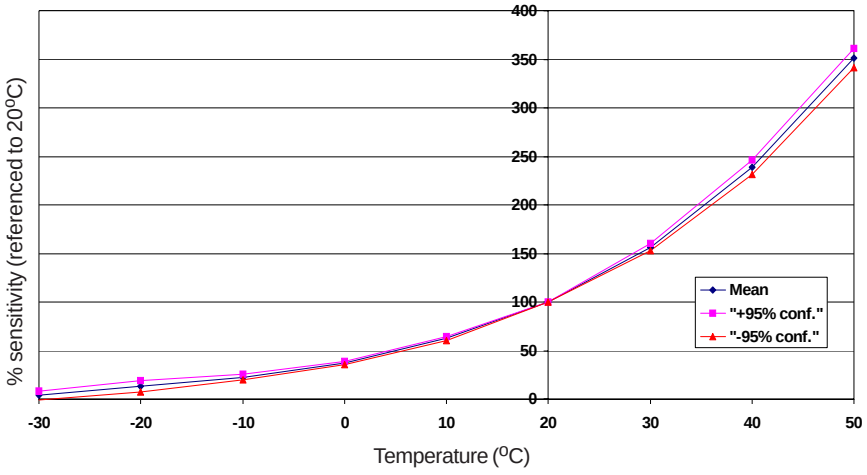

Figure 3 shows the strong temperature dependence of the CO-AX to hydrogen. Since hydrogen sensitivity is less than 4% at 20°C, hydrogen interference can practically be ignored at low temperatures. However, at 50°C hydrogen interference is14%.

Figure 4 Hydrogen Cross Sensitivity at 30°C

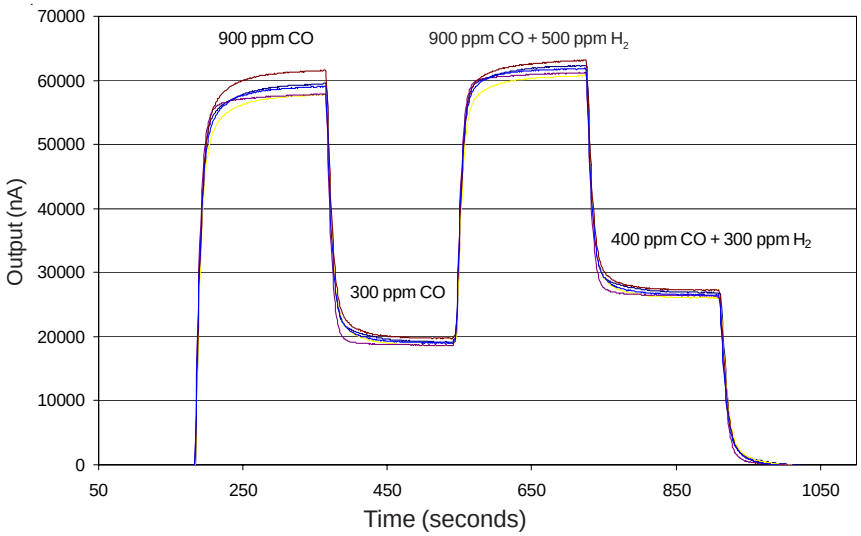

Figure 4 shows hydrogen sensitivity for a typical batch of eight CO-AX sensors at 30°C. All sensors show less than 5% cross sensitivity when 500ppm hydrogen is added to 950ppm carbon monoxide. The t_{90} is less than 45 seconds.

For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. For detailed application notes go to "www.alphasense.com".