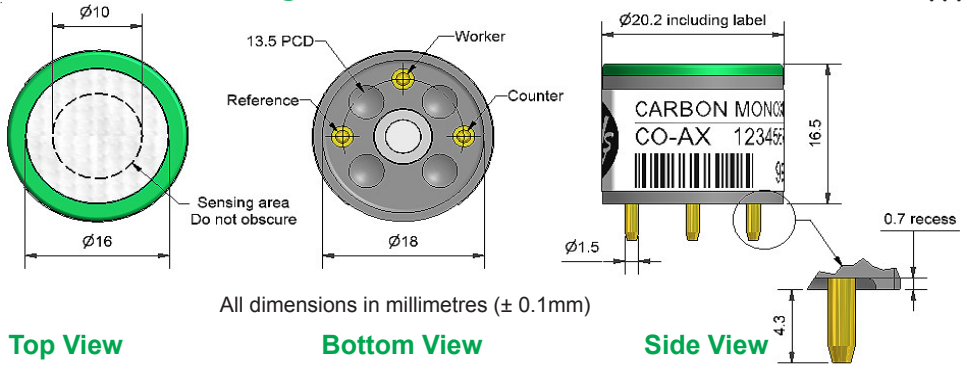
CO-AX Carbon Monoxide Sensor

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 100
	Response time	t_{90} (s) from zero to 400ppm CO	< 30
	Zero current	ppm equivalent in zero air	< ± 3
	Resolution	RMS noise (ppm equivalent)	< 0.5
	Range	ppm CO limit of performance warranty	2,000
	Linearity	ppm error at full scale, linear at zero and 800ppm CO	< ± 40
	Overgas limit	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/year in lab air, monthly test	<6
	Operating life	months until 80% original signal (24 month warranted)	> 24
ENVIRONMENTAL	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 400ppm CO	55 to 75
	Sensitivity @ 0°C	% (output @ 0°C/output @ 20°C) @ 400ppm CO	75 to 90
	Sensitivity @ 40°C	% (output @ 40°C/output @ 20°C) @ 400ppm CO	106 to 120
	Zero @ -20°C	ppm equivalent change from 20°C	< 0 to 4
	Zero @ 0°C	ppm equivalent change from 20°C	< 0 to 3
	Zero @ 50°C	ppm equivalent change from 20°C	< 0 to -6
CROSS SENSITIVITY	Filter capacity	ppm·hours H_2S	250,000
	Filter capacity	ppm-hours NO_2	500,000
	Filter capacity	ppm-hours NO	20,000
	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
	NO_2 sensitivity	% measured gas @ 10ppm NO_2	< -1
	Cl_2 sensitivity	% measured gas @ 10ppm Cl_2	< 0.1
	NO sensitivity	% measured gas @ 500ppm NO	< -2
	SO_2 sensitivity	% measured gas @ 20ppm SO_2	< 0.1
	C_2H_4 sensitivity	% measured gas @ 400ppm C_2H_4	< 5
	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	Ω (recommended)	10 to 47
	Weight	g	< 6

Important. The CO-AX 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.

At the end of the product's life, do not dispose of any electronic sensor, component or instrument in the domestic waste, but contact the instrument manufacturer, Alphasense or its distributor for disposal instructions.

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.

iSweek www.isweek.com
Add: 16/F, Bldg. #3, Zhongke Mansion, No.1 Hi-Tech S. Rd, Hi-Tech Park South, Shenzhen, Guangdong, 518067 P.R.China
Tel: + 86-755-83289036 Fax: + 86-755-83289052 E-mail: sales@isweek.com

CO-AX Performance Data

Technical Specification

Figure 2 CO Sensitivity Temperature Dependence

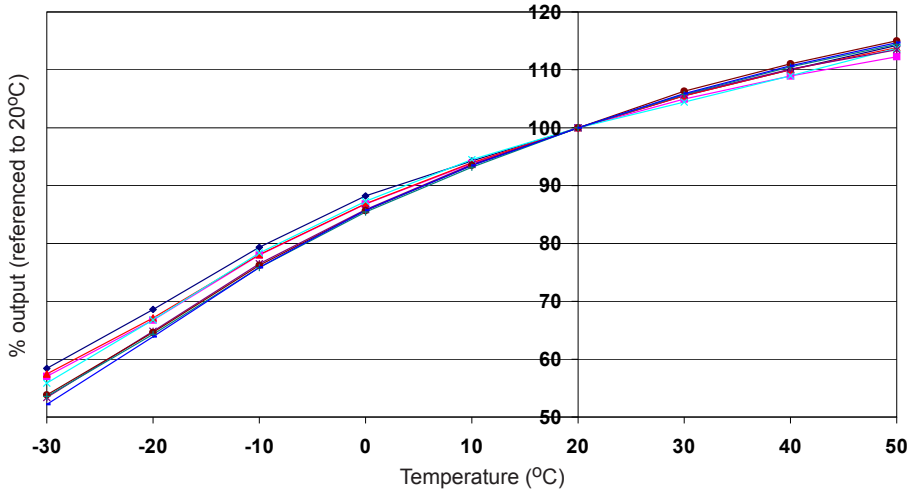


Figure 2 shows the variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of sensors.

Figure 3 Hydrogen Sensitivity Temperature Dependence

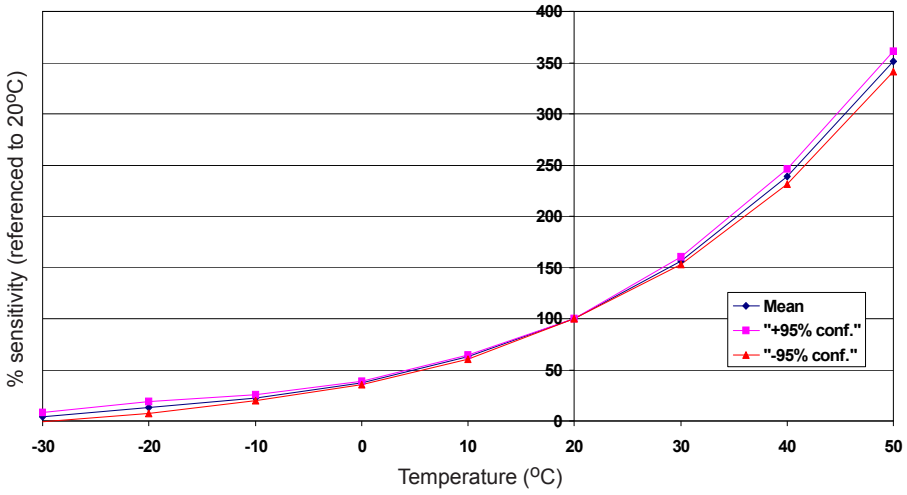


Figure 3 shows the strong temperature dependence of the CO-AX to hydrogen. Since hydrogen sensitivity is less than 4% at 20°C, hydrogen interference can practically be ignored at low temperatures. However, at 50°C hydrogen interference is 14%.

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

Figure 4 Hydrogen Cross Sensitivity at 30°C

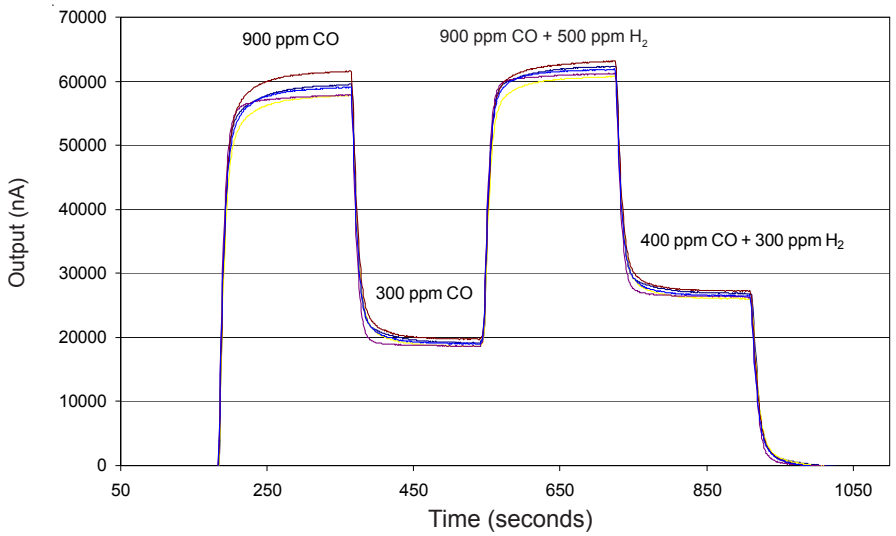


Figure 4 shows hydrogen sensitivity for a typical batch of eight CO-AX sensors at 30°C following EN50379. All sensors show less than 5% cross sensitivity when 500ppm hydrogen is added to 950ppm carbon monoxide. t_{90} is less than 45 seconds.

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Tel: + 86-755-83289036 Fax: + 86-755-83289052 E-mail: sales@isweek.com