CO-A4 Carbon Monoxide Sensor
4-Electrode

PATENTED

Technical Specification

Figure 1 CO-A4 Schematic Diagram

All dimensions in millimetres (± 0.1mm)

Top View | Bottom View | Side View

PERFORMANCE	Sensitivity	nA/ppm in 2ppm CO	220 to 410
	Response time	t_{90} (s) from zero to 10ppm CO	< 30
	Zero current	nA in zero air at 20°C	-100 to +10
	Noise*	±2 standard deviations (ppb equivalent)	20
	Range	ppm limit of performance warranty	500
	Linearity	ppm CO error at full scale, linear at zero, 15ppm CO	< ± 1
	Overgas limit	maximum ppm for stable response to gas pulse	2000

*** Tested with Alphasense AFE low noise circuit**

LIFETIME	Zero drift	ppb equivalent change/year in lab air	< ±100
	Sensitivity drift	% change/year in lab air, monthly test	< 10
	Operating life	months until 50% original signal (24 month warranted)	> 36

ENVIRONMENTAL	Sensitivity @ -20°C	(% output @ -20°C/output @ 20°C) @ 5ppm CO	50 to 85
	Sensitivity @ 50°C	(% output @ 50°C/output @ 20°C) @ 5ppm CO	110 to 125
	Zero @ -20°C	nA change from 20°C	10 to 40
	Zero @ 50°C	nA change from 20°C	-120 to -200

CROSS SENSITIVITY

Filter capacity	ppm·hrs	H_2S	250,000
H_2S sensitivity	% measured gas @ 5ppm	H_2S	< 0.1
NO_2 sensitivity	% measured gas @ 5ppm	NO_2	< -2
Cl_2 sensitivity	% measured gas @ 5ppm	Cl_2	< 0.1
NO sensitivity	% measured gas @ 5ppm	NO	< -2
SO_2 sensitivity	% measured gas @ 5ppm	SO_2	< 0.1
H_2 sensitivity	% measured gas @100ppm	H_2 at 20°C	< 50
C_2H_4 sensitivity	% measured gas @100ppm	C_2H_4	< 0.5
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 @ 3 to 20°C (stored in sealed pot)	6
	Load resistor	Ω (AFE circuit is recommended)	33 to 100
	Weight	g	< 6

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.

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CO-A4 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

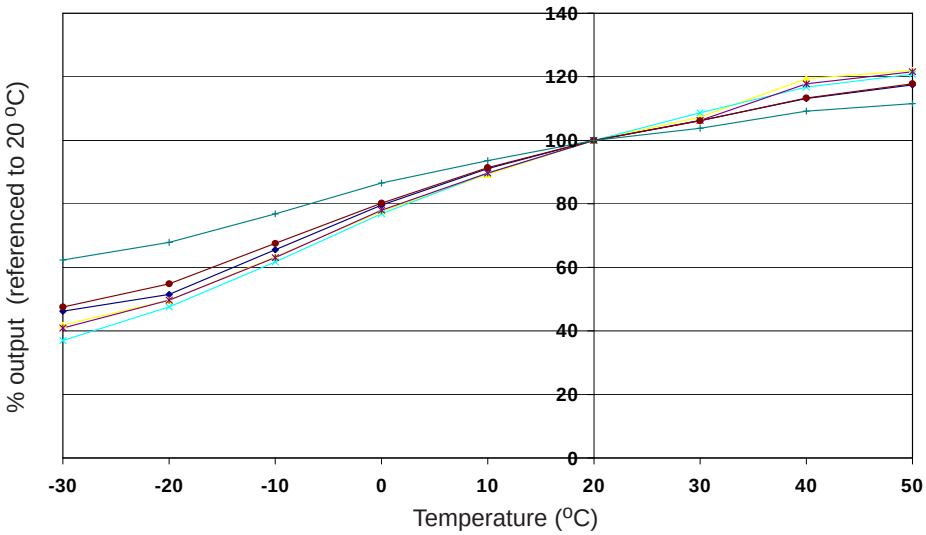

Figure 2 shows the temperature dependence of sensitivity at 2ppm CO.

This data is taken from a typical batch of sensors.

Figure 3 Zero Temperature Dependence

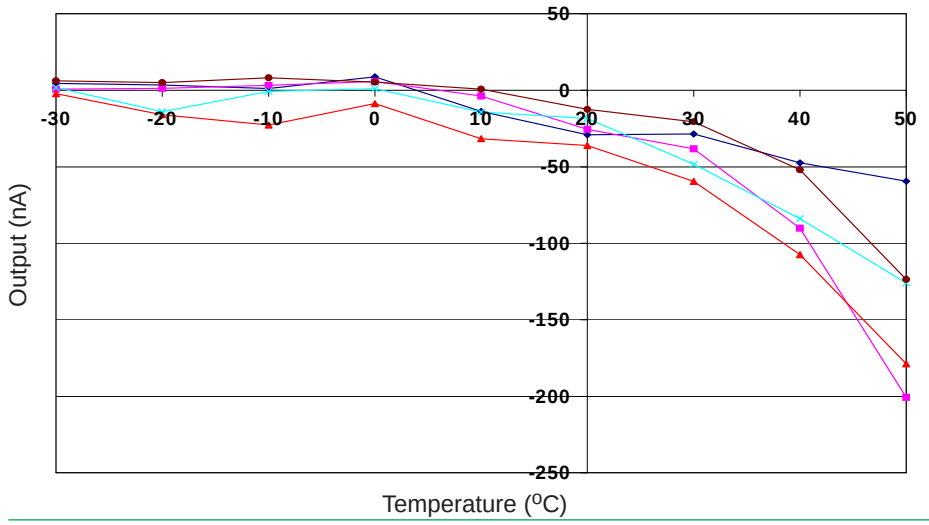

Figure 3 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.

This data is taken from a typical batch of sensors.

Contact Alphasense for futher information on zero current correction.

Figure 4 Linearity from 0 to 1ppm

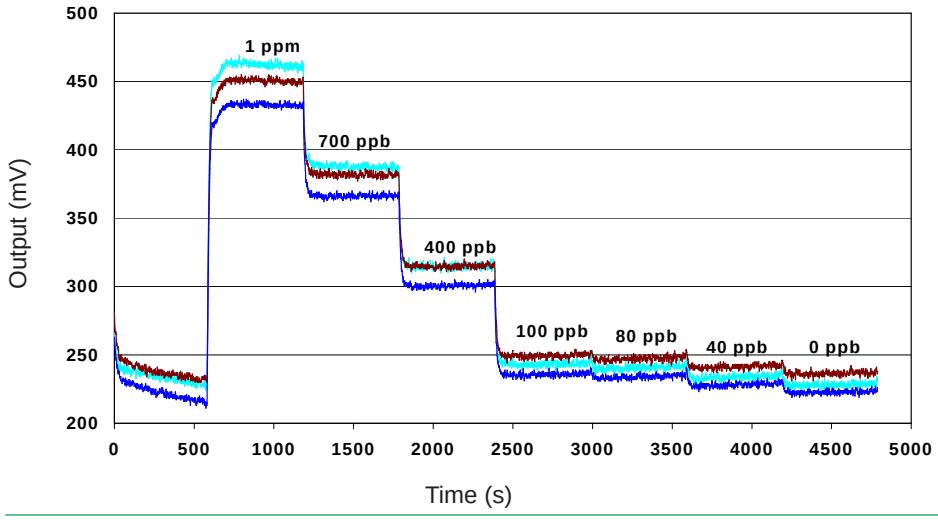

Figure 4 shows response from 0 to 1ppm CO.

Use of Alphasense AFE circuit reduces noise to 20ppb, with the opportunity of digital smooting to reduce noise even further

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".