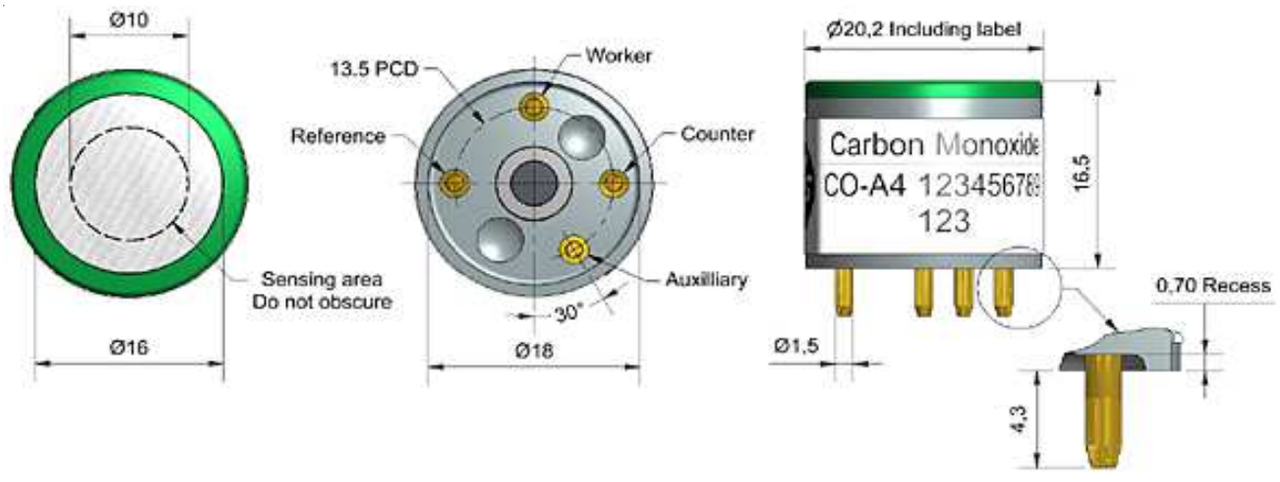
alphasense
AMETEK

Technical specifications Version 1.0

CO-A4 Carbon Monoxide Sensor – 4-Electrode



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

Dimensions are in millimetres (± 0.1 mm).

Performance	Sensitivity	nA/ppm in 2ppm CO		220 to 410
	Response time	t90 (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°	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

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For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. or visit our website at "www.alphasense.com".

Figure 1 Sensitivity Temperature Dependence

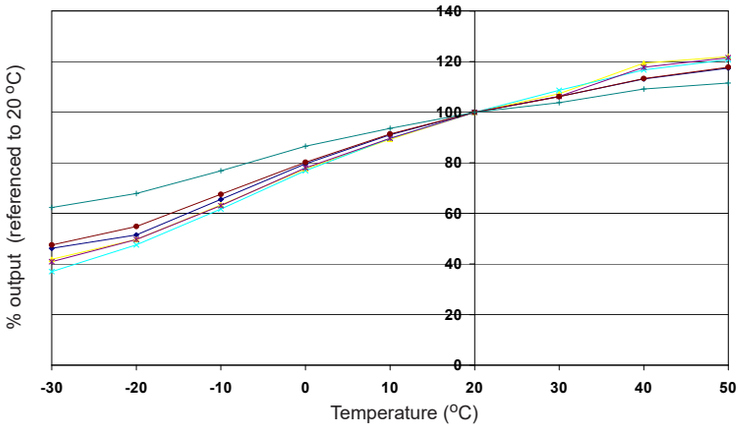

Figure 1 shows the temperature dependence of sensitivity at 2ppm CO.

This data is taken from a typical batch of sensors.

Figure 2 Zero Temperature Dependence

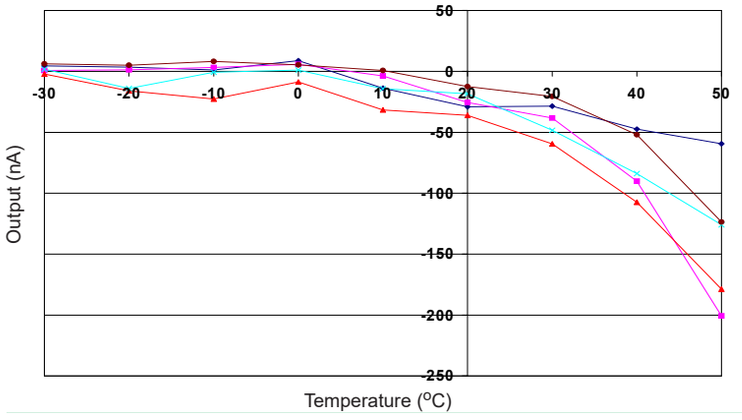

Figure 2 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.

This data is taken from a typical batch of sensors.

Contact Alphasense for futher information on zero current correction.

Figure 3 Linearity from 0 to 1ppm

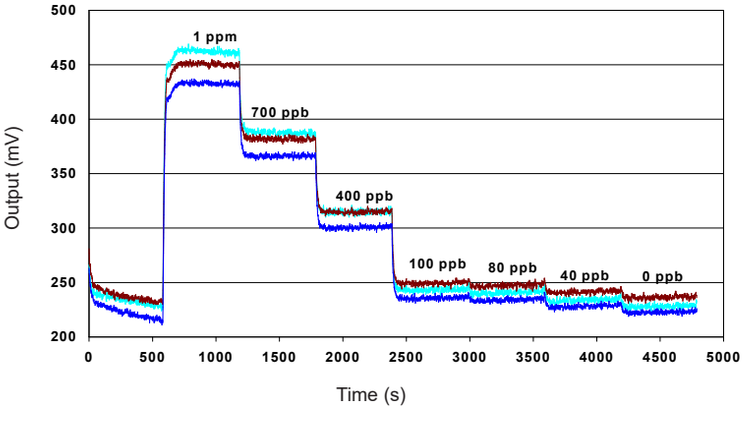

Figure 4 shows response from 0 to 1ppm CO.

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