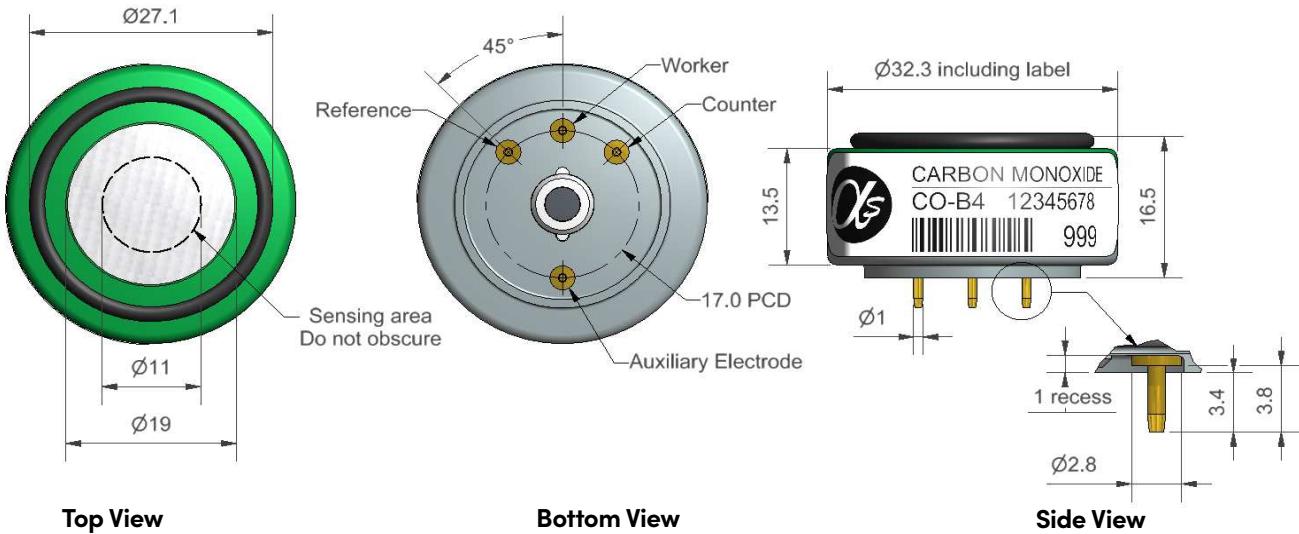


Technical specifications Version 1.0

CO-B4 Carbon Monoxide Sensor – 4-Electrode



Dimensions are in millimetres (± 0.1 mm).

Performance	Sensitivity	nA/ppm in 2ppm CO	420 to 650
	Response time	t90 (s) from zero to 10ppm CO	< 30
	Zero current	nA in zero air at 20°C	+30 to -250
	Noise*	±2 standard deviations (ppb equivalent)	4
	Range	ppm limit of performance warranty	1000
	Linearity	ppm CO error at full scale, linear at zero, 500ppm CO	20 to 35
	Overgas limit	maximum ppm for stable response to gas pulse	2000
	*Tested with Alphasense ISB 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	40 to 70
	Sensitivity @ 50°C	(% output @ 50°C/output @ 20°C) @ 5ppm CO	110 to 125
	Zero @ -20°C	nA	-30 to +30
	Zero @ 50°C	nA	-50 to -200
Cross Sensitivity	Filter capacity	ppm·hrs	H <sub>2</sub> S 250,000
	H <sub>2</sub> S sensitivity	% measured gas @ 5ppm	H <sub>2</sub> S < 1
	NO <sub>2</sub> sensitivity	% measured gas @ 5ppm	NO <sub>2</sub> < 1
	Cl <sub>2</sub> sensitivity	% measured gas @ 5ppm	Cl <sub>2</sub> < 1
	NO sensitivity	% measured gas @ 5ppm	NO < -3
	SO <sub>2</sub> sensitivity	% measured gas @ 5ppm	SO <sub>2</sub> < 0.1
	H <sub>2</sub> sensitivity	% measured gas @ 100ppm	H <sub>2</sub> at 20°C < 50
	C <sub>2</sub> H <sub>4</sub> sensitivity	% measured gas @ 100ppm	C <sub>2</sub> H <sub>4</sub> < 1
	NH <sub>3</sub> sensitivity	% measured gas @ 20ppm	NH <sub>3</sub> < 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 (ISB circuit is recommended)	33 to 100
	Weight	g	< 13

Figure 1 Sensitivity Temperature Dependence

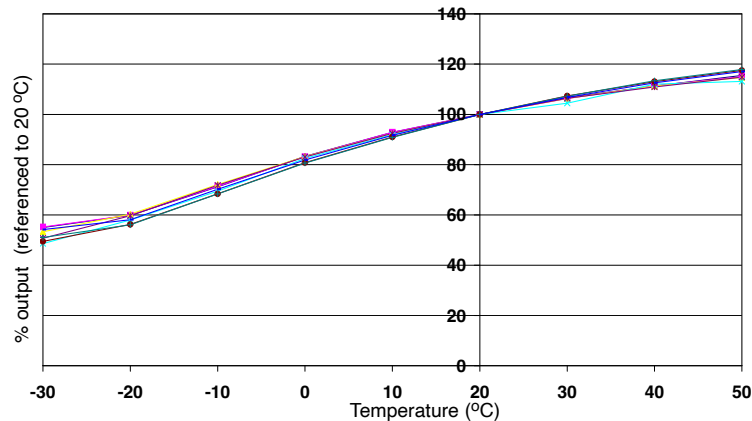


Figure 1 shows the temperature dependence of sensitivity at 2ppm CO.  
This data is taken from a typical batch of sensors.

Figure 2 Zero Current Temperature Dependence (corrected)

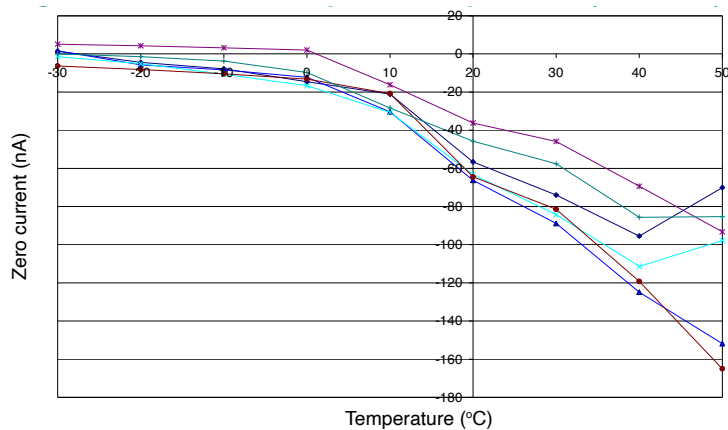


Figure 2 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA.  
This data is taken from a typical batch of sensors.  
Contact Alphasense for further information on zero current correction.

Figure 3 Response from 0 to 1ppm CO

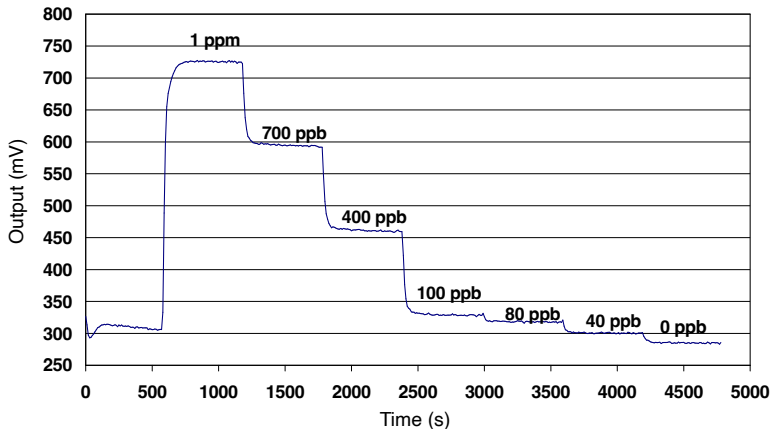


Figure 3 shows response from 0 to 1ppm CO.  
Use of Alphasense ISB circuit reduces noise to 4ppb, with the opportunity of digital smoothing to reduce noise even further.