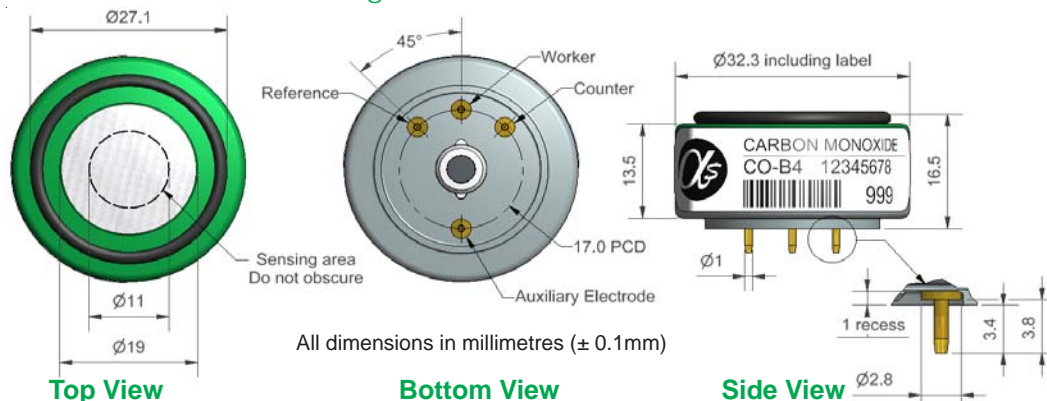


CO-B4 Carbon Monoxide Sensor 4-Electrode



PATENTED

Figure 1 CO-B4 Schematic Diagram



PERFORMANCE	Parameter	Specification	Value
	Sensitivity	nA/ppm in 2ppm CO	500 to 750
	Response time	t_{90} (s) from zero to 10ppm CO	< 25
	Zero current	nA in zero air at 20°C	-30 to -120
	Noise*	RMS noise (ppb equivalent)	< 10
	Limit of detection*	ppb equivalent	< 5
	Range	ppm limit of performance warranty	50
	Linearity	ppm CO error at full scale, linear at zero, 15ppm CO	< ± 1
	Overshoot limit	maximum ppm for stable response to gas pulse	100

* Requires a low noise potentiostat circuit for lowest noise and best resolution

LIFETIME	Parameter	Specification	Value
	Zero drift	ppb equivalent change/year in lab air	< 50
	Sensitivity drift	% change/year in lab air, monthly test	< 5
	Operating life	months until 80% original signal (24 month warranted)	> 24

ENVIRONMENTAL	Parameter	Specification	Value
	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 5ppm CO	35 to 50
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 5ppm CO	117 to 124
	Zero @ -20°C	ppm equivalent change from 20°C	< ± 0.1
	Zero @ 50°C	ppm equivalent change from 20°C	< ± 0.2

CROSS SENSITIVITY	Filter capacity	ppm-hrs	Gas	Value
	Filter capacity	ppm-hrs	H ₂ S	250,000
	Filter capacity	ppm-hrs	NO ₂	120,000
	Filter capacity	ppm-hrs	NO	120,000
	Filter capacity	ppm-hrs	SO ₂	160,000
	H ₂ S sensitivity	% measured gas @ 20ppm	H ₂ S	< 0.1
	NO ₂ sensitivity	% measured gas @ 10ppm	NO ₂	< 0.1
	Cl ₂ sensitivity	% measured gas @ 10ppm	Cl ₂	< 0.1
	NO sensitivity	% measured gas @ 10ppm	NO	< -0.5
	SO ₂ sensitivity	% measured gas @ 20ppm	SO ₂	< 0.1
	H ₂ sensitivity	% measured gas @ 400ppm	H ₂ at 20°C	< 50
	C ₂ H ₄ sensitivity	% measured gas @ 400ppm	C ₂ H ₄	< 35
	NH ₃ sensitivity	% measured gas @ 20ppm	NH ₃	< 0.1

KEY SPECIFICATIONS	Parameter	Specification	Value
	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 (recommended)	33 to 100
	Weight	g	< 13

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.

Technical Specification

CO-B4 Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

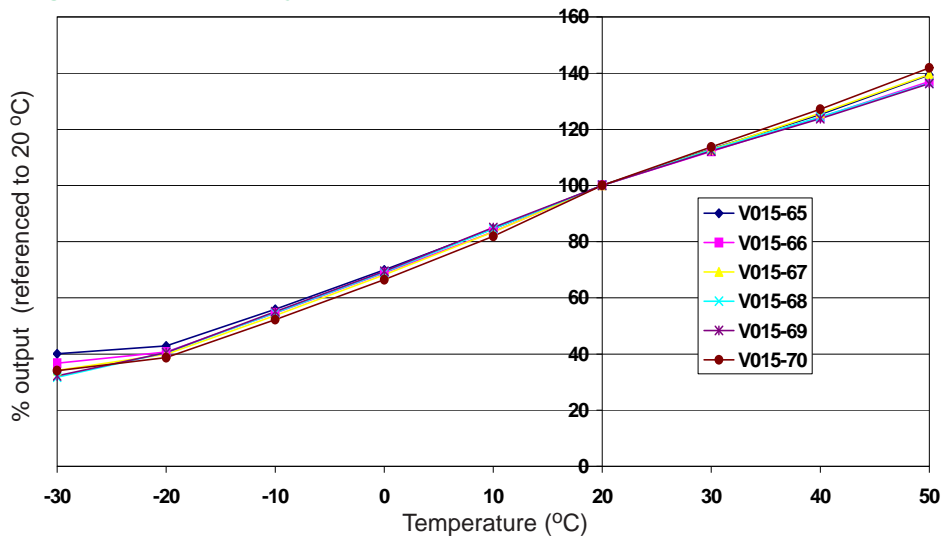


Figure 2 shows the variation in sensitivity caused by changes in temperature. This data is taken from a typical batch of sensors.

Figure 3 Zero Current Temperature Dependence (corrected)

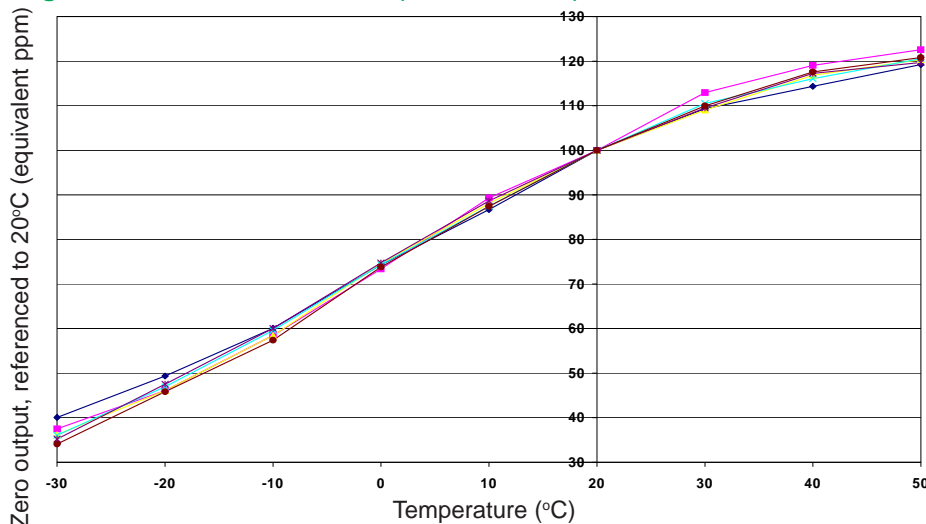
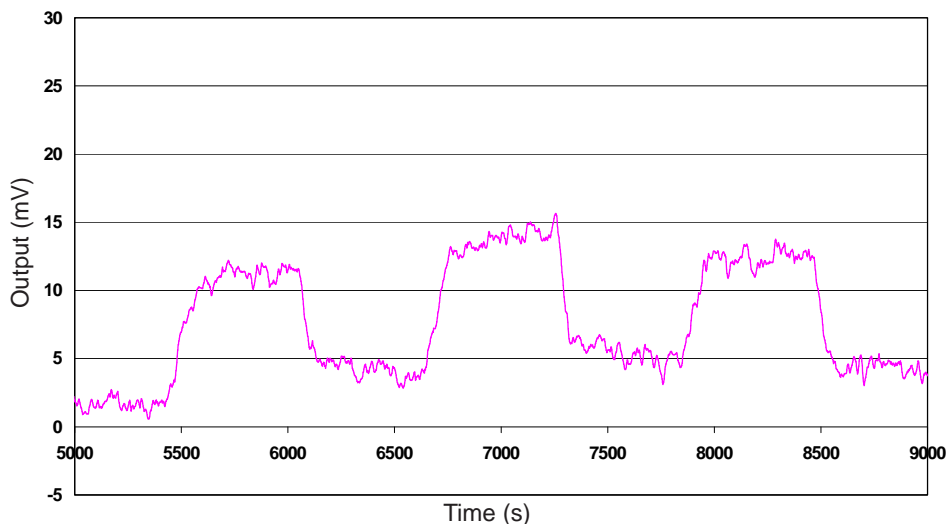


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent, referenced to zero at 20°C. The fourth (auxilliary) electrode compensates the zero current in the CO-B4.

Figure 4 Response to 20ppb CO



When used with good 4-electrode electronics, lower detection limit is less than 20ppb.