

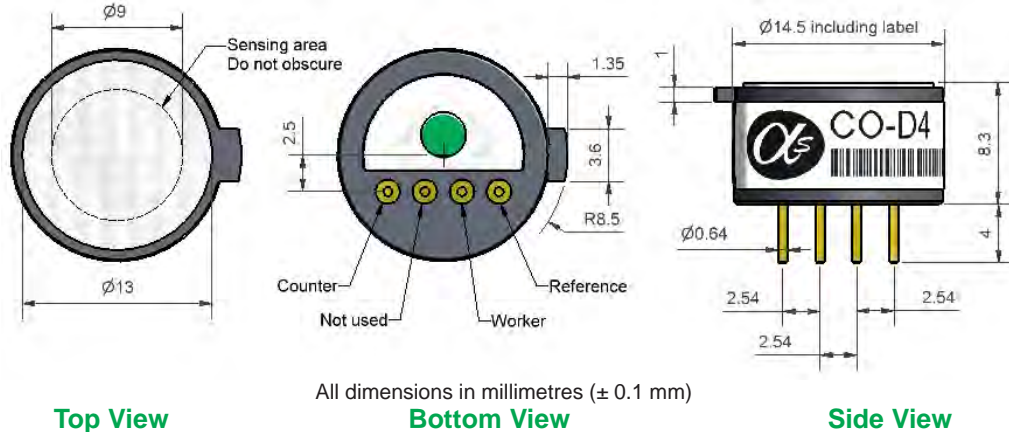


# CO-D4 Carbon Monoxide Sensor Miniature Size



PATENTED and PATENT PENDING

Figure 1 CO-D4 Schematic Diagram



All dimensions in millimetres ( $\pm 0.1$  mm)

Top View

Bottom View

Side View

(A three pin version is available on request, coded CO-DF)

<b>PERFORMANCE</b>	Sensitivity	nA/ppm in 400ppm CO	30 to 48
	Response time	$t_{90}$ (s) from zero to 400ppm CO % 22°C	< 25
	Zero current	ppm equivalent in zero air	< $\pm 3$
	Resolution	RMS noise (ppm equivalent)	< 1.5
	Range	ppm limit of performance warranty	1,000
	Linearity	ppm CO error at full scale, linear at zero and 400ppm CO	$\pm 40$
	Overgas range	maximum ppm for stable response to gas pulse	2,000
<b>LIFETIME</b>	Zero drift	ppm equivalent change/year in lab air	< 0.2
	Sensitivity drift	% change/month in lab air, monthly test	< 0.5
	Operating life	months until 80% original signal (24 month warranted)	> 24
<b>ENVIRONMENTAL</b>	Sensitivity @ -20°C	% (output @ -20°C/output @ 20°C) @ 400ppm CO	72 to 84
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 400ppm CO	105 to 111
	Zero @ -20°C	ppm equivalent change from 20°C	< $\pm 3$
	Zero @ 50°C	ppm equivalent change from 20°C	< $\pm 4$
<b>CROSS SENSITIVITY</b>	Filter capacity	ppm-hrs	H <sub>2</sub> S 20,000
	SO <sub>2</sub> sensitivity	% measured gas @ 20ppm	SO <sub>2</sub> < 0.1
	NO sensitivity	% measured gas @ 50ppm	NO < 50
	NO <sub>2</sub> sensitivity	% measured gas @ 10ppm	NO <sub>2</sub> < 0.1
	Cl <sub>2</sub> sensitivity	% measured gas @ 10ppm	Cl <sub>2</sub> < 0.1
	H <sub>2</sub> sensitivity	% measured gas @ 400ppm	H <sub>2</sub> < 70
	C <sub>2</sub> H <sub>4</sub> sensitivity	% measured gas @ 400ppm	C <sub>2</sub> H <sub>4</sub> < 100
	H <sub>2</sub> S sensitivity	% measured gas @ 20ppm	H <sub>2</sub> S < 0.1
NH <sub>3</sub> sensitivity	% measured gas @ 20ppm	NH <sub>3</sub> < 0.1	
<b>KEY SPECIFICATIONS</b>	Temperature range	°C	-20 to 50
	Pressure range	kPa	80 to 120
	Humidity range	%rh (see note below)	15 to 90
	Storage period	months @ 3 to 20°C (stored in sealed pot)	6
	Load resistor	$\Omega$ (recommended)	10 to 100
	Weight	g	< 2

**Note:** Above 85% rh and 40°C a maximum continuous exposure period of 10 days is warranted. Where such exposure occurs the sensor will recover normal electrolyte volumes when allowed to rest at lower %rh and temperature levels for several days.

**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.



# CO-D4 Performance Data

# Technical Specification

Figure 2 Sensitivity Temperature Dependence

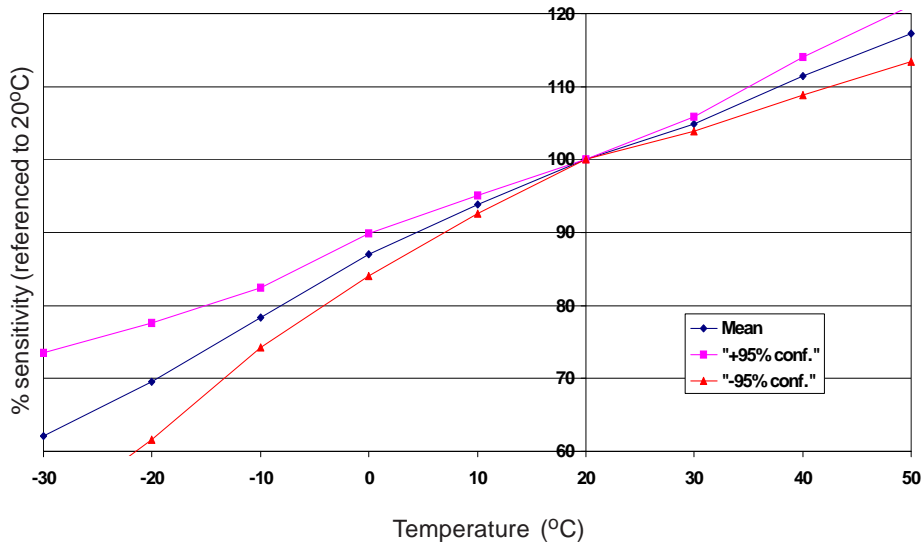


Figure 2 shows the variation in sensitivity caused by changes in temperature. Repeatable temperature dependence at elevated temperatures allows more accurate temperature compensation.

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

Figure 3 Zero Temperature Dependence

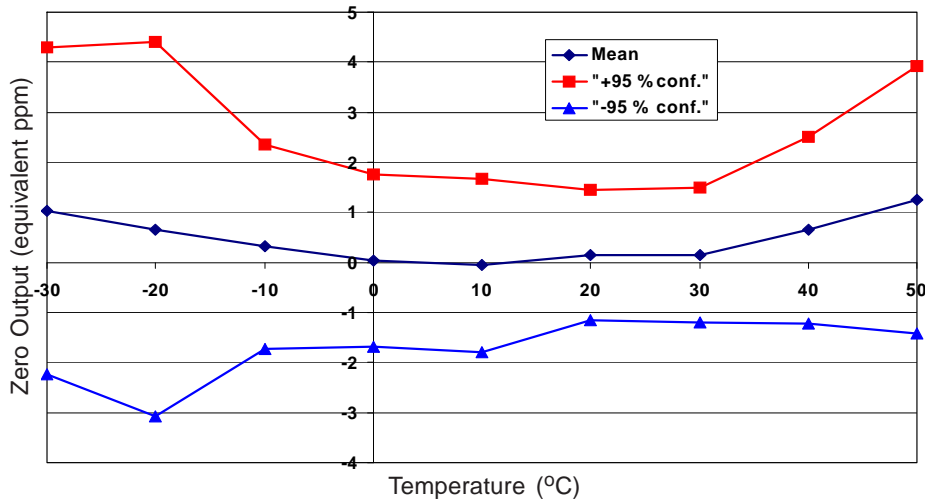


Figure 3 shows the variation in zero output caused by changes in temperature, expressed as ppm gas equivalent.

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

Figure 4 Overgas Performance

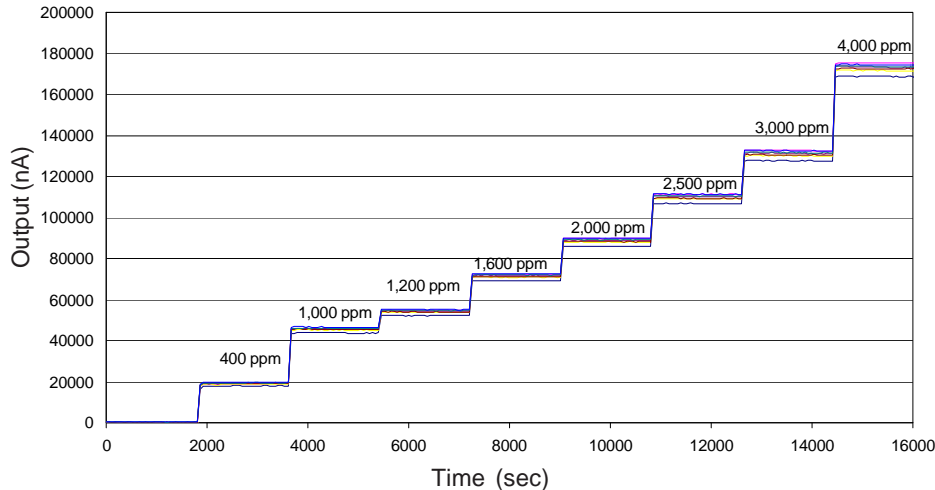


Figure 4 shows sensor output for increasing concentrations of CO, up to twice the specified overgas range. Data are derived from eight sensors taken from a typical production batch.

This stepped overgas test shows the robustness of the sensor with fast response and straight plateaus at each step.

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 web site at "[www.alphasense.com](http://www.alphasense.com)".

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