

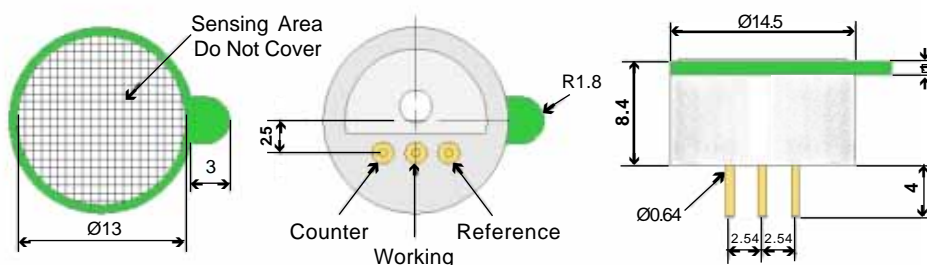


# CO-DF Carbon Monoxide Sensor Miniature Size



PATENTED

Figure 1 CO-DF Schematic Diagram



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

Top View

Bottom View

Side View

A four pin version is available on request, coded CO-D4

Technical Specification

<b>PERFORMANCE</b>	Sensitivity	nA/ppm in 400ppm CO	33 to 48
	Response time	$t_{90}$ (s) from zero to 400ppm CO at 20°C	< 25
	Zero current	ppm equivalent in zero air	< $\pm 3$
	Resolution	RMS noise (ppm equivalent)	< 1.5
	Range	ppm CO limit of performance warranty	1,000
	Linearity	ppm 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	50 to 70
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 400ppm CO	110 to 122
	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.



# CO-DF Performance Data

# Technical Specification

### Figure 2 Sensitivity Temperature Dependence

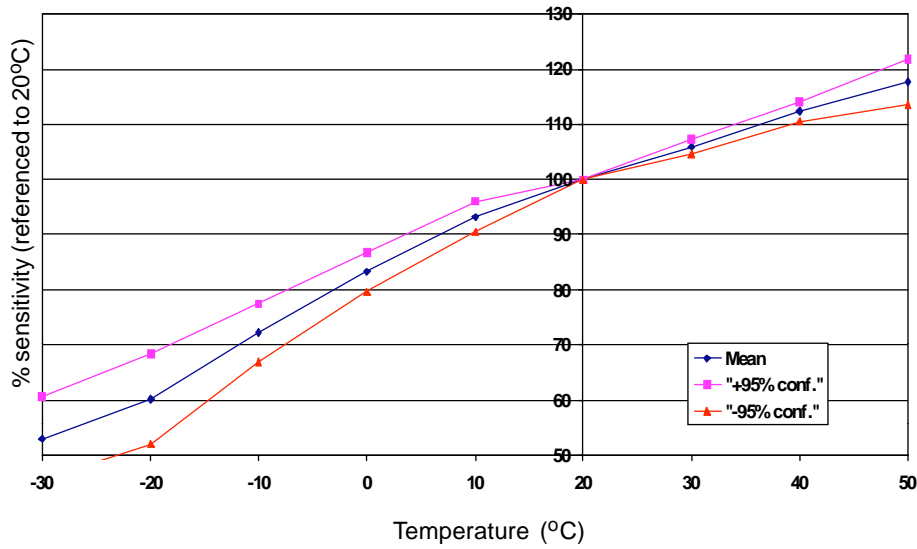


Figure 2 shows the variation in sensitivity caused by changes in temperature. The repeatable temperature dependence at elevated temperatures allows more accurate temperature compensation.

This data is taken from a typical batch of sensors and the mean and ± 95% confidence intervals are shown.

### Figure 3 Zero Temperature Dependence

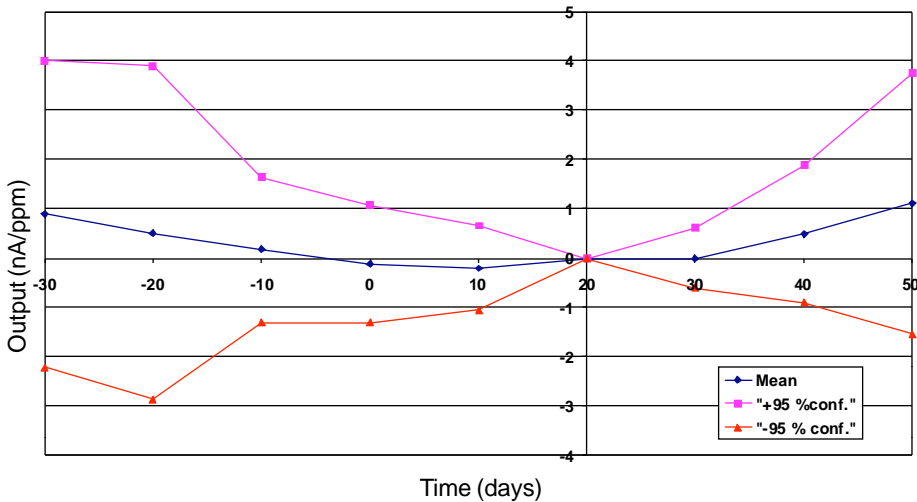


Figure 3 shows the variation in zero output caused by changes in temperature expressed as ppm gas equivalent.

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

### Figure 4 Overgas Performance

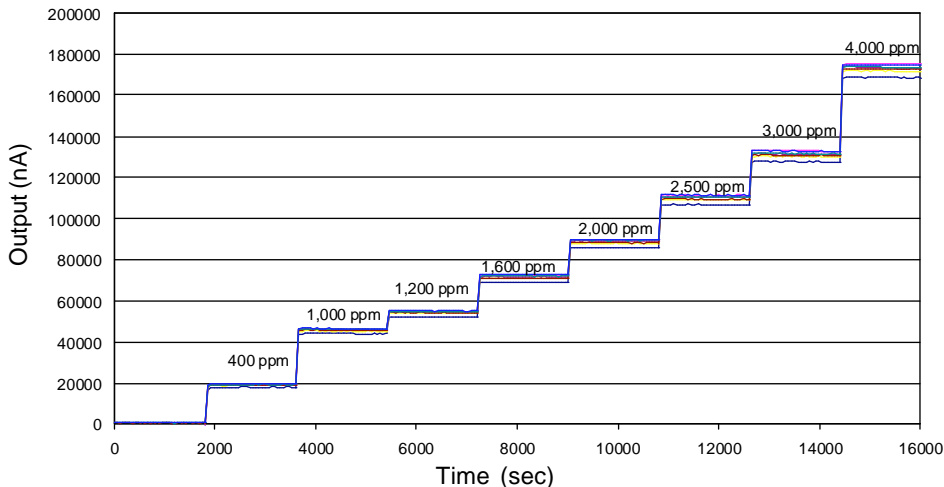


Figure 4 shows sensor output for increasing concentrations of CO to twice the specified overgas range. The data is derived from 8 sensors taken from a full production batch.

The stepped overgas test shows the robustness of the sensor with no saturation occurring (straight plateaus at each step).