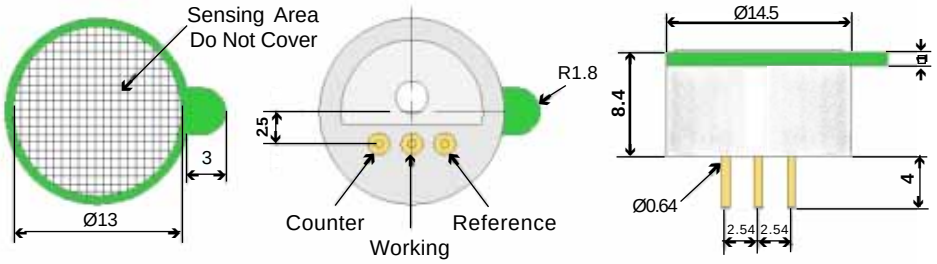
CO-DF Carbon Monoxide Sensor
Miniature Size

PATENTED

Technical Specification

Figure 1 CO-DF Schematic Diagram



All dimensions in millimetres (± 0.1mm)

Top View Bottom View Side View

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

PERFORMANCE	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		< ± 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		± 40
	Overgas range	maximum ppm for stable response to gas pulse		2,000
LIFETIME	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
ENVIRONMENTAL	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		< ± 3
	Zero @ 50°C	ppm equivalent change from 20°C		< ± 4
CROSS SENSITIVITY	Filter capacity	ppm·hrs	H_2S	20,000
	SO_2 sensitivity	% measured gas @ 20ppm	SO_2	< 0.1
	NO sensitivity	% measured gas @ 50ppm	NO	< 50
	NO_2 sensitivity	% measured gas @ 10ppm	NO_2	< 0.1
	Cl_2 sensitivity	% measured gas @ 10ppm	Cl_2	< 0.1
	H_2 sensitivity	% measured gas @ 400ppm	H_2	< 70
	C_2H_4 sensitivity	% measured gas @ 400ppm	C_2H_4	< 100
	H_2S sensitivity	% measured gas @ 20ppm	H_2S	< 0.1
	NH_3 sensitivity	% measured gas @ 20ppm	NH_3	< 0.1
KEY SPECIFICATIONS	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	Ω (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.

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CO-DF Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

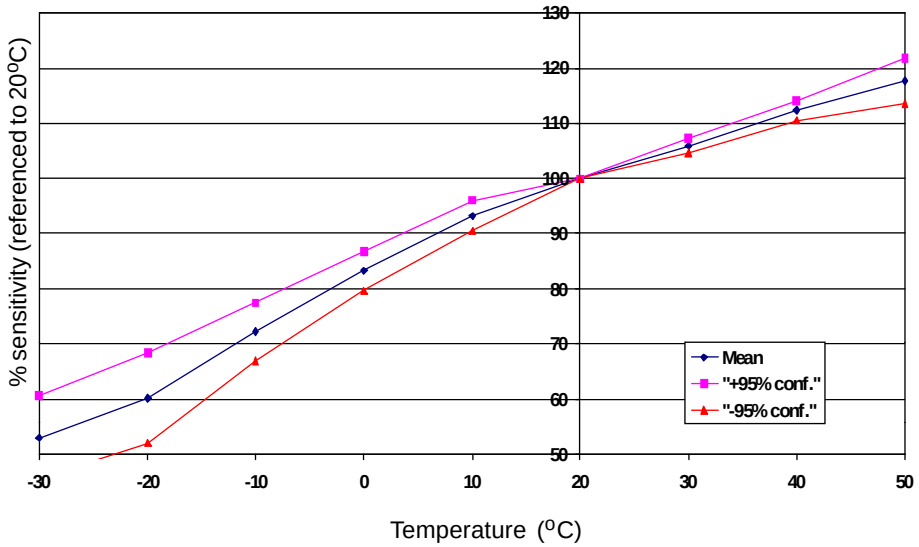

Figure 2 shows the variation in sensitivity caused by changes in temperature. The repeatable temperature dependence at elevated temperatures allows more accurate temperature compensation.

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

Figure 3 Zero Temperature Dependence

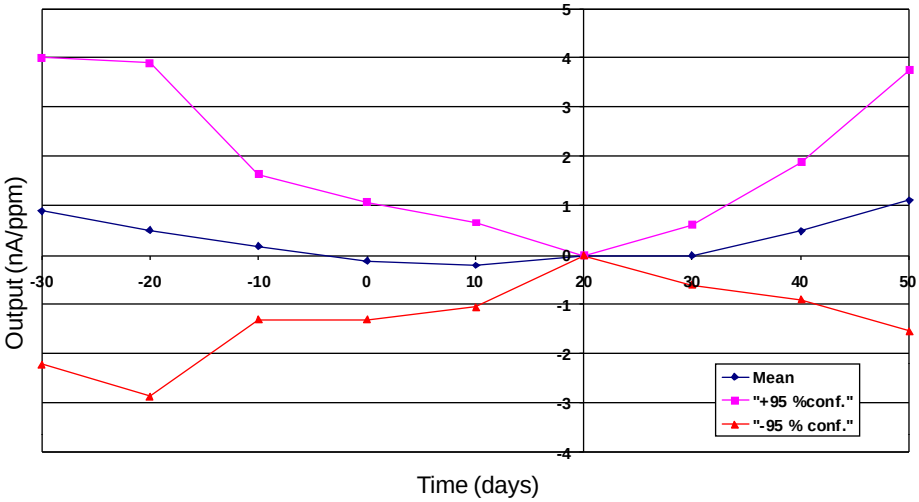

Figure 3 shows the variation in zero output caused by changes in temperature expressed as ppm gas equivalent.

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

Figure 4 Overgas Performance

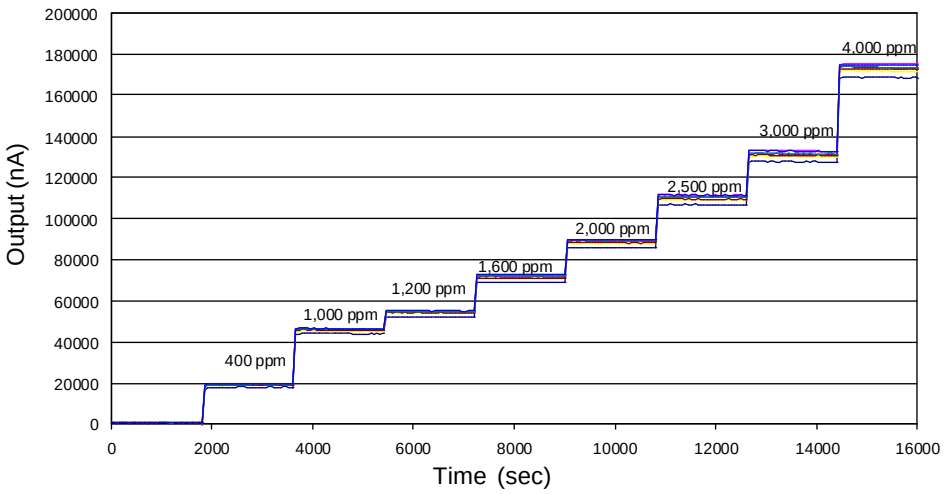

Figure 4 shows sensor output for increasing concentrations of CO to twice the specified overgas range. The data is derived from 8 sensors taken from a full production batch.

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

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".