

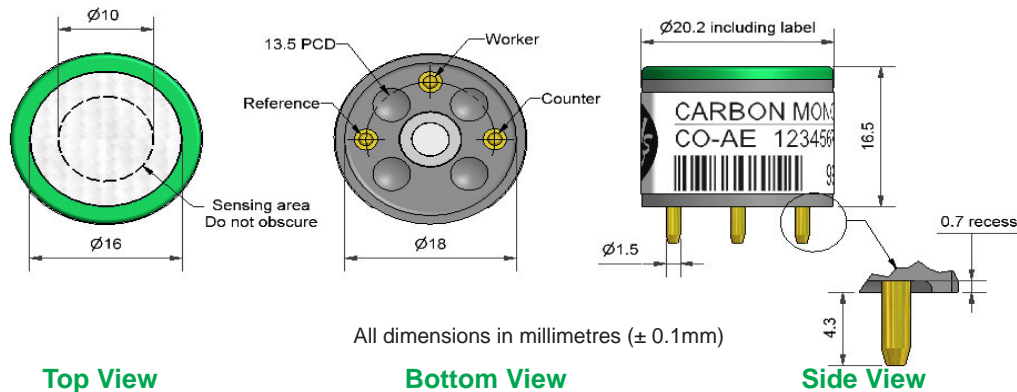
# CO-AE Carbon Monoxide Sensor

## High Concentration



PATENTED

Figure 1 CO-AE Schematic Diagram



Technical Specification

<b>PERFORMANCE</b>	Sensitivity	nA/ppm in 2,000ppm CO	12 to 20
	Response time	$t_{90}$ (s) from zero to 2,000ppm CO	< 75
	Zero current	ppm equivalent in zero air	< $\pm 20$
	Resolution	RMS noise (ppm equivalent)	< 5
	Range	ppm CO limit of performance warranty	10,000
	Linearity	ppm error at full scale, linear at zero and 2000ppm CO	< 0 to 500
	Overgas limit	maximum ppm for stable response to gas pulse	100,000

<b>LIFETIME</b>	Zero drift	ppm equivalent change/year in lab air	< 2
	Sensitivity drift	% change/year in lab air, monthly test	< 1
	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	77 to 93
	Sensitivity @ 50°C	% (output @ 50°C/output @ 20°C) @ 400ppm CO	97 to 110
	Zero @ -20°C	ppm equivalent change from 20°C	$\pm 2$
	Zero @ 50°C	ppm equivalent change from 20°C	-2 to +5

<b>CROSS SENSITIVITY</b>	Filter capacity	ppm-hours	H <sub>2</sub> S	3,000,000
	Filter capacity	ppm-hours	NO <sub>2</sub>	8,000,000
	Filter capacity	ppm-hours	NO	200,000
	Filter capacity	ppm-hours	SO <sub>2</sub>	4,000,000
	H <sub>2</sub> S sensitivity	% measured gas @ 20ppm	H <sub>2</sub> S	< 0.1
	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>	< 0.2
	NO sensitivity	% measured gas @ 50ppm	NO	< 0.1
	SO <sub>2</sub> sensitivity	% measured gas @ 20ppm	SO <sub>2</sub>	< 0.1
	H <sub>2</sub> sensitivity	% measured gas @ 400ppm	H <sub>2</sub> at 20°C	< 75
	C <sub>2</sub> H <sub>4</sub> sensitivity	% measured gas @ 400ppm	C <sub>2</sub> H <sub>4</sub>	< 60
NH <sub>3</sub> sensitivity	% measured gas @ 20ppm	NH <sub>3</sub>	< 0.1	

<b>KEY SPECIFICATIONS</b>			
	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	$\Omega$ (recommended)	10 to 47
	Weight	g	< 6

**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-AE Performance Data

Technical Specification

Figure 2 Sensitivity Temperature Dependence

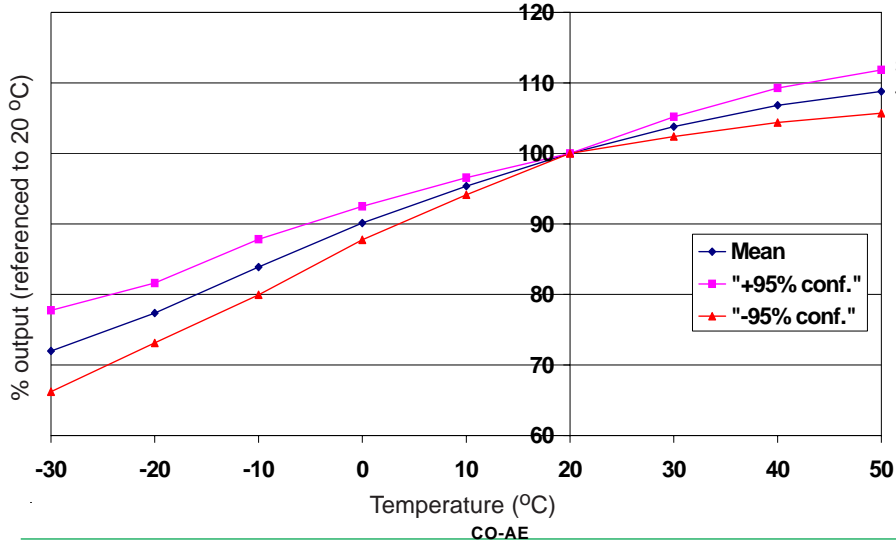
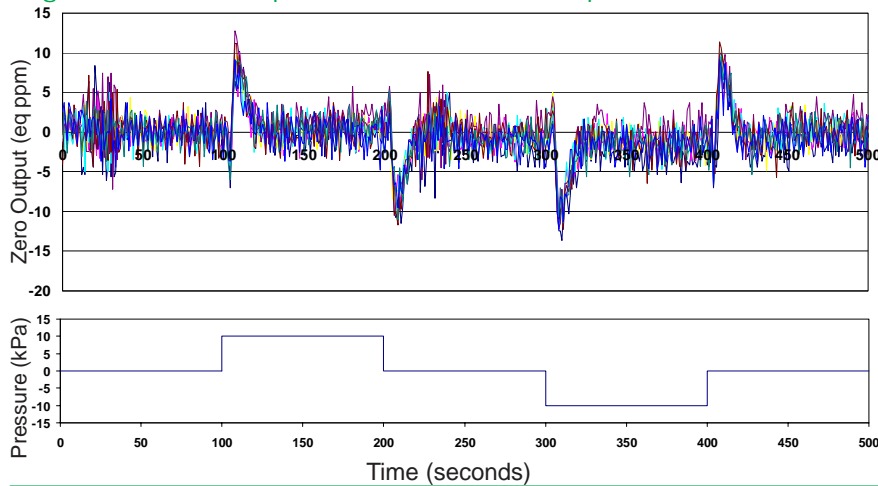


Figure 2 shows the variation in sensitivity caused by changes in temperature.

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

Figure 3 Zero Response to Pressure Steps



From ambient pressure, sensors were subjected to both positive and negative 10kPa pressure steps. The small transient rapidly decays as the sensor returns to its zero baseline.

Figure 4 Linear Response to Exposure to 1% Volume CO

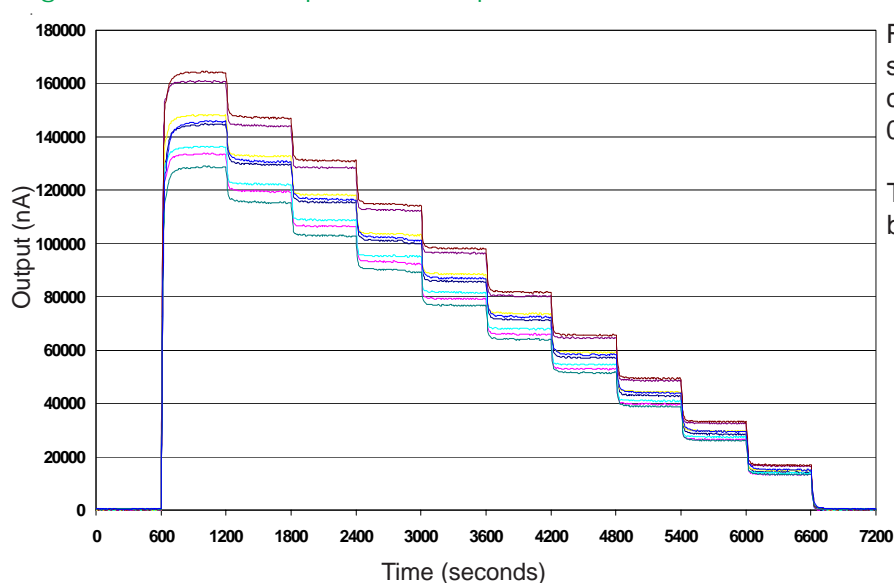


Figure 4 shows the response to step changes in CO concentrations from 1% CO to 0% CO in ten steps.

This data is taken from a typical batch of sensors.