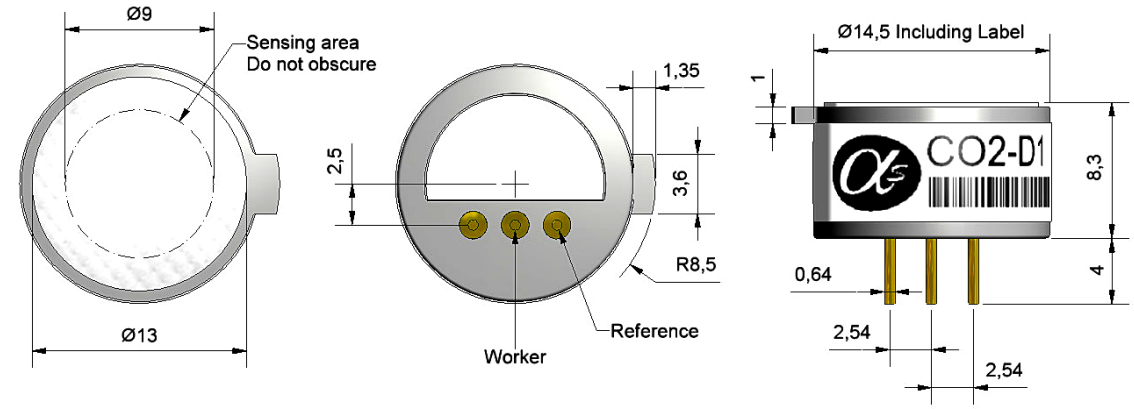
CO2-D1 Carbon Dioxide Sensor

Solid State

PATENTED

Technical Specification

Figure 1 CO2-D1 Schematic Diagram



All dimensions in millimetres (± 0.1mm)

Top View **Bottom View** **Side View**

PERFORMANCE	Sensitivity	mV/decade concentration change (0.5% to 5% CO_2)	6 to 10
	Response time	t_{90} (s) for mV change (20°C)(0.5% to 5% CO_2)	2-4 mins
	Zero	E_0 @ 5000ppm CO_2	-30 to +30mV
	Resolution	RMS noise (ppm equivalent) @ 5,000ppm CO_2	100
	Range	CO_2 concentration	0.2% to 95%
	Linearity	see Figure 3	Logarithmic
LIFETIME	Zero drift	(mV)E_0 change/day in lab air	±3
	Sensitivity drift	mV/decade/month change in lab air, monthly test	<1
	Operating life	months until 80% original signal (24 month warranted)	>24
ENVIRONMENTAL			
	Temperature range	°C	10 to 35°C
	Pressure range	kPa	80 to 120
	Humidity range	% rh continuous	15 to 95
KEY SPECIFICATIONS			
	Storage period	months @ 0 to 20°C (stored in original container)	6
	Input	Impedance of op amp input	$>10^8$ Ω

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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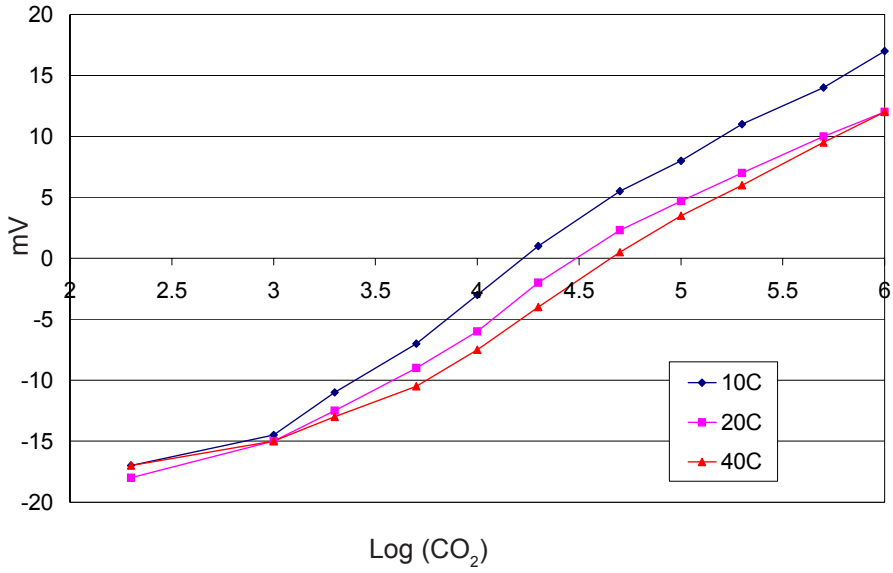
CO2-D1 Performance Data

Technical Specification

Figure 2 Mastercurve



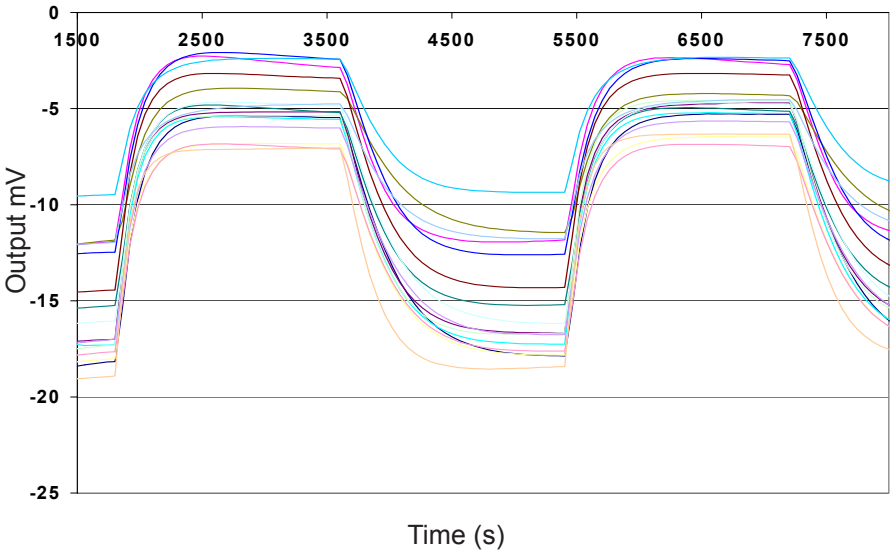
The CO2-D1 is a potentiometric sensor and responds over four decades of CO_2 concentration.

Sensitivity (mV/decade concentration) is not constant, it changes with concentration: sensitivity increases at higher concentrations.

Sensitivity remains stable with time, but the offset voltage (E_0) will shift, so regular zeroing is advised.

Temperature affects E_0 but not the sensitivity from 10° to 40°C.

Figure 3 Hysteresis



Sensors were exposed first to 5000 ppm CO_2 then 5% CO_2 for 30 minutes.

Sensors return to the initial voltage with a fast initial response, followed by a slower stabilisation to the final voltage.

For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. For Application Notes visit "www.alphasense.com".