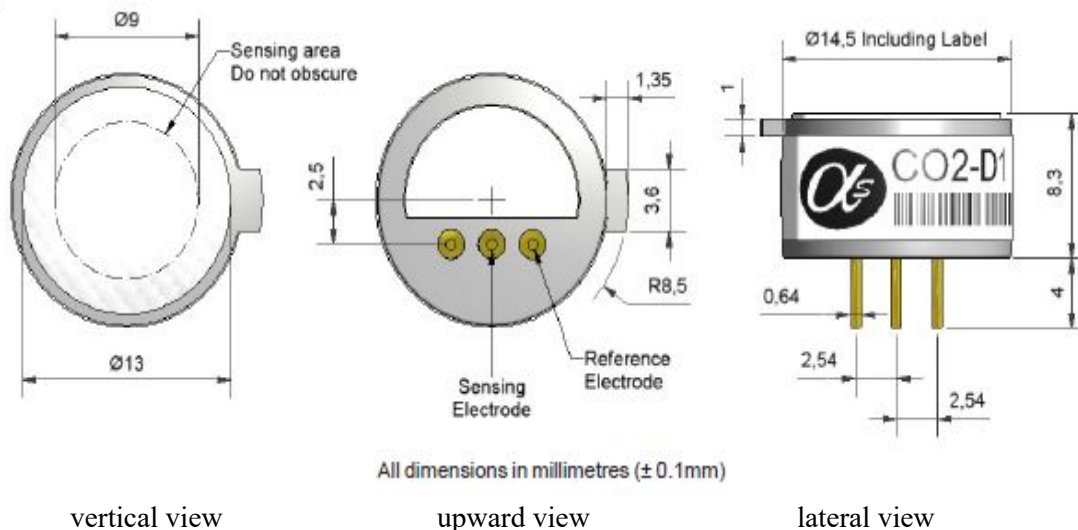


CO2-D1 Carbon Dioxide Sensor Solid State



Figure 1 Schematic Diagram of CO2-D1



function

sensitivity	mV/tenfold concentration change (0.5% ~ 5% CO ₂)	6~10
reaction time	(20°C) (0.5%~5% CO ₂) mV change required t90(s) time	2~4 minutes
null point	E ₀ at 5000ppmCO ₂	-30~+30mV
resolution ratio	5000ppmCO ₂ at RMS noise(equivalent ppm)	100
scope	CO ₂ concentration	0.5% ~ 90%
degree of linearity	See Figure 3	logarithm

life span

Zero drift sensitivity drift	Daily changes in E ₀ (mV) in laboratory conditions	±3
working life	The mV value of the change of 10 times concentration per month in the laboratory environment, and the number of months when the monthly test output drops to 80% of the original signal (12 months guaranteed)	< 1 < 12

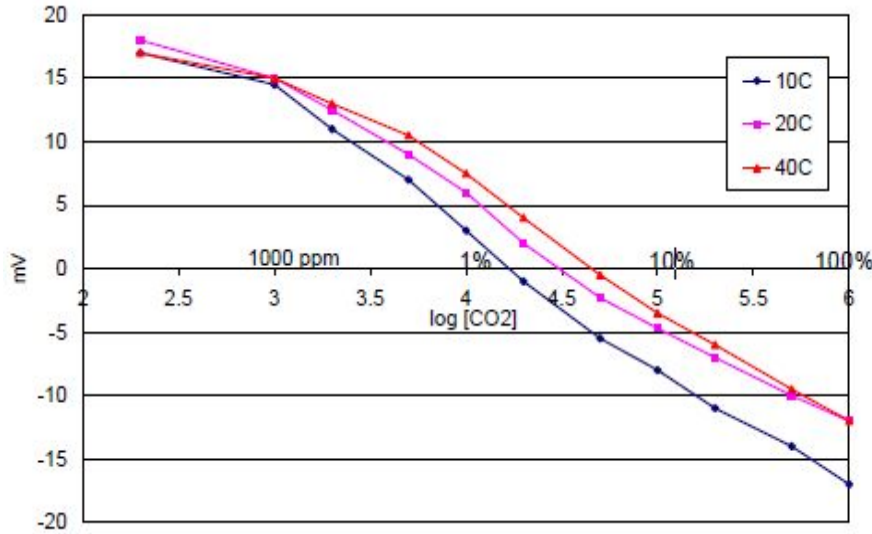
environment

Temperature range	°C	10~35°C
pressure range	kPa	80~120
Humidity range	Percentage of continuous relative humidity	15~95

key parameter

Storage period	0~20°C Number of months for sealed storage (must be stored in the original package)	6
import	Amplifier input resistance	>10 ⁸ Ω

Figure 2 Main Curve



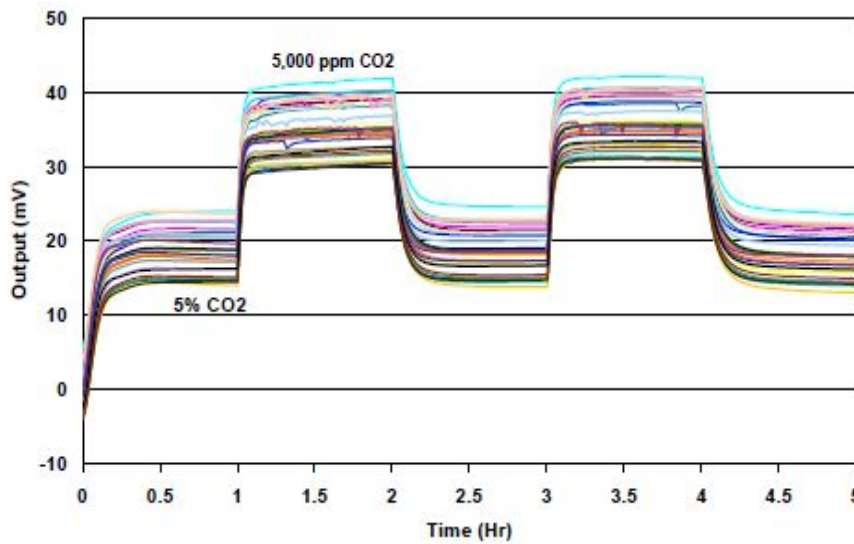
CO₂-D1 is a potential sensor that can detect CO₂ at concentrations of more than four times.

Sensitivity (mV/ten concentration) is not a constant, it changes with the change of concentration: high concentration increases sensitivity.

The sensitivity will not change with the time, but the compensating voltage E_0 will shift, so it is recommended to adjust the zero regularly.

From 10°C to 40°C, the temperature will affect E_0 , but will not affect the sensitivity.

Figure 3 Hysteresis



First, the transmitter was placed in 5000ppm CO₂, and then in 5% CO₂, for 30 minutes.

The sensor responds quickly to the original voltage and then slowly stabilizes at the final voltage.

Because the absolute voltage shifts over time and with the environment, the sensor should be calibrated regularly in clean air (400 ppmCO₂).

CO₂-D1 sensor adjustment PCB

CO₂-D1 is a potentiometric electrochemical gas sensor that reacts with CO₂ as a gas ion-selective electrode. Do not use low-impedance circuits to measure the generated potential. Alphasense has developed a simple buffer circuit that can adjust the potential and protect the sensor from damage.

This adjustment board enables customers and single users (research teams) during the verification period to monitor the sensor with a simple data logger or DVM without damaging the sensor.



power : CR2032 lithium button battery (3V) (diameter 20mm, height 3.2mm, 165mA) located under the plate

power dissipation : About 30uA, sustainable use for 6 to 12 months

Output slots: Marked with + and - dual screw ports. Can be directly connected to a data logger or DVM.

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