

K85 CO2 PCB Pin header

PCB to integrate as CO₂ sensor as a transmitter in DCV or monitor in IAQ



K85 CO2 PCB Pin header measures CO₂ concentration in ambient air, with additional options for measuring temperature and allows flexible connectivity.

K85 reuses the core sensor optics from the S8 module, but comes pre-assembled on a robust PCB-board with industrial standard analogue outputs, e.g. 0-to-10V and 4-to-20mA and wide input voltage tolerance with reverse-polarity protection.

Pin layout for additional connectors and terminals allow for further options; e.g. thermistor for temperature and potentiometer for temperature offsets.

The article is prepared to be mounted in an suitable enclosure as a wall-mounted or duct-mounted transmitter.

STANDARD SPECIFICATION

Measured gas	Carbon dioxide (CO ₂)
Operating Principle	Non-dispersive infrared (NDIR)
Measurement range	0–2000ppm
OUT1 analogue output	0–5V or 0–10V
OUT2 analogue output	4–20mA
Accuracy	±40ppm ±3% of reading (@ 15–35°C, 20–70%RH (non condensing))
	(Additional tolerances see next page)
Dimensions	88 x 50 x 14mm (max. dimension)
Weight	25g
Life Expectancy	15 years
Operation temperature range	0–50°C
Operation humidity range	0–95%RH (non-condensing)
Storage temperature	-20–70°C
Power supply	24VAC/VDC
Power consumption	3VA @ 24VAC, 3W @ 24VDC peak <0.9W average

KEY BENEFITS

- High measurement accuracy
- Two analogue outputs
 - Voltage, with scalable range selectable by dip switch, and/or milliampere
- Digital input
 - Overrides outputs, forcing max ventilation
- ABC
 - Maintenance-free operation with autonomous recalibration, selectable by dip switch
- PCB prepared for adding;
 - Cable terminal blocks
 - Thermistor for passive measurement of temperature
 - Slide potentiometer (for offsetting temperature)

Technical Specification

General Performance:

Storage Temperature Range ¹	-20–70°C
Sensor Life Expectancy.....	15 years ²
Warm-up Time	1 minute (@ full specs <15 minutes)
Conformance with standards.....	RoHS directive 2011/65/EU
Operating Temperature Range.....	0–50°C
Operating Humidity Range	0–95%RH (non-condensing)
Operating Environment	In normal IAQ applications, SO ₂ -enriched and corrosive environments are excluded

Electrical / Mechanical:

Power Input.....	24VAC ±20%, 50/60Hz (half-wave rectifier input). Absolute max. ratings 16.5-40VDC
Power Consumption.....	<0.9W average
Peak Power Consumption.....	3VA for 24VAC, 3W for 24VDC
Electrical Connections.....	Screw terminal for connecting stranded wire 26–16AWG (0.14–1.5mm ²)

CO₂ Measurement:

Sensing Method	non-dispersive infrared (NDIR) ³
Sampling Method	diffusion
Measurement Rate.....	0.5Hz
Response Time (T _{90%})	≤2minutes, diffusion
Measurement Range.....	0–2000ppm _{vol.}
Accuracy ^{4,5,6}	±40ppm ±3% of reading (@ 15–35°C, 20–70%RH (non condensing) and standard pressure 101.3kPa)
Pressure Dependence.....	+1.6% reading per kPa deviation from standard pressure, 101.3kPa

Analogue Outputs:

OUT1 Voltage Output:	0–5V or 0–10V for 0-2 000ppm _{vol.} , selectable by dip switch No. 1. Default: 0–10V
D/A Conversion Accuracy	≤±(20mV + 2% of output)
D/A Resolution	<10mV
Electrical Characteristics	R _{OUT} <100Ω (DC) R _{LOAD} >5kΩ
Fail Safe.....	Polarity protection
OUT2 Current Output:	4–20mA
D/A Conversion Accuracy	≤±(0.3mA + 2% of output)
D/A Resolution	<0.02mA
Electrical Characteristics	R _{LOAD} <500Ω

Note 1: Storage in sealed ESD bags.

Note 2: With ABC (Automatic Baseline Correction) ON, Default: ON (selectable with dip switch No. 2), or regular maintenance.

Note 3: Waveguide technology with ABC algorithm.

Note 4: Uncertainty of calibration gases (±1% currently) should be added to the specified accuracy.

Note 5: In normal IAQ applications. Accuracy is defined after minimum three (3) weeks of continuous operation. Some industrial applications do require maintenance.

Note 6: Accuracy outside the specified conditions: ±60ppm ±3% of reading.