

# Carbon Dioxide (CO<sub>2</sub>) Transmitter w/Temperature Sensor



I-5001  
I-5005

## DESCRIPTION

Combination carbon dioxide (CO<sub>2</sub>) transmitter and temperature sensor (thermistor type) in one housing.

## APPLICATION

To sense Carbon Dioxide (CO<sub>2</sub>) and temperature in air in a wide variety of commercial applications such as demand controlled ventilation in buildings, schools, theaters, etc., and transmit to any compatible electronic analog control, DDC/PLC control or automation system in accordance with ASHRAE standards.



CA Energy Commission  
Certified

## FEATURES

- Continuous monitoring
- 0-2,000 ppm CO<sub>2</sub>
- 0-10 VDC Signal
- 24 VAC or 24 VDC power
- Temperature sensor, built-in 20K ohms thermistor
- Optional LED status indicator
- No maintenance required\*\*\*
- Lifetime calibration guarantee\*\*\*

## SPECIFICATIONS

### Electrical

Power supply 18-30 VAC RMS, 50/60 Hz, half-wave rectified, or 18-42 VDC, polarity protected

Power consumption 1.8 VA, max. average, 2.8 VA peak

### Carbon Dioxide

#### Sensor Performance

Gas detected Carbon Dioxide (CO<sub>2</sub>)

Sensor element Single beam absorption infrared (NDIR), gold plated optics

Gas sampling method Diffusion sampling

Range 0-2,000 ppm CO<sub>2</sub>, factory calibrated

Accuracy\*\*\* ± 75 ppm or 10% of reading which ever is greater, @ 72°F (22°C) when compared against a certified reference

Temperature dependence 0.2% FS/°F

Stability < 2% of FS over sensor life

Non-linearity < 1% of FS

Altitude dependence Calibrated for 1000 ft above sea level, add 0.13% of reading per mmHg decrease from 760 mmHg

Response time 3 to 5 minutes for 90% step change

Calibration interval Not required, built-in automatic self-calibration software, ABC Logic™ \*\*\*

Sensor life expectancy 15 years, normal service

### Temperature

#### Sensor Performance

Sensor element Thermistor, 20K Ω, type J  
20K Ω @ 77°F (25°C)

#### Type of Control

General Continuous proportional analog sensor and thermistor resistance outputs

#### Analog outputs

- CO<sub>2</sub> (1) 0-10 VDC, 100 Ω output impedance

#### Resistance output

- temperature (1) 20K @ 77°F (25°C), type J

#### Warm-up time

- operational 2 minutes

- max accuracy 10 minutes

### Environmental

#### Permissible ambient

- humidity 0 to 95% RH, non-condensing related to altitude dependence

- working pressure 32°F to 122°F (0°C to 50°C)

- working temperature -4°F to 158°F (-20°C to 70°C)

- storage temperature

### Physical

#### Enclosure

- material Impact plastic

- color Off-white

- cover Snap-on, w/set screw

- installation Wall (surface) mounted, or single gang electrical box

Dimensions 4.63 x 3.25 x 1.13 in. (117 x 83 x 29 mm)

\*\*\* ABC Logic™ Automatic Background Calibration, is a patented self-calibration technique designed to be utilized in applications where concentrations will drop to outside ambient conditions, about 400 ppm CO<sub>2</sub>, at least 3 times in a 14-day period, typically during unoccupied periods. Full accuracy is achieved after two weeks of operation.

**SPECIFICATIONS**

**Type of Control (cont...)**

Cable entry	1 hole on back side of base plate for single gang electrical box mounting
Wire connection	Terminal blocks, screw type for lead wire
Wire size	Min. 28 AWG (0.08 mm <sup>2</sup> ), max. 18 AWG (0.75 mm <sup>2</sup> ); Up to 2 wires for each terminal
Wire distance	Loop resistance 500 Ohms max. (= wire resistance plus controller input resistance)
Weight	0.6 lb. (0.27 kg)
<b>Installation Location</b>	Surface mount, 4 to 6 feet (1.2 m to 1.8 m) above floor
<b>Manufacturing Approvals/Listings</b>	ISO 9001 Certified CE FCC Part 15, Class B California Energy Commission
<b>Warranty</b>	18 months material and workmanship

**OPTION**

**w/LED Indicator**

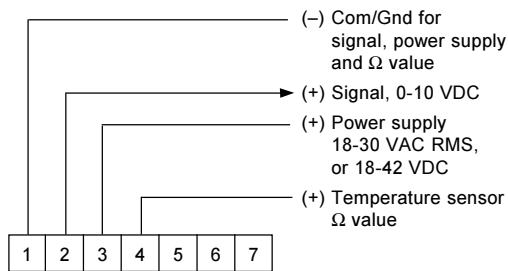
Color status display	Green: Below 1,000 ppm CO <sub>2</sub>
	Yellow: Between 1,000 and 1,500 CO <sub>2</sub> , w/100 ppm hysteresis
	Red: Above 1,500 ppm CO <sub>2</sub>

**ORDERING INFORMATION**

<b>I-5001</b>	CO <sub>2</sub> room transmitter, w/temperature sensor
<b>I-5005</b>	CO <sub>2</sub> room transmitter, w/temperature sensor, and LED status indicator

**WIRING CONFIGURATION**

**I-5001, I-5005**



**Recommended**  
• Twisted, shielded wire

