

Carbon Dioxide (CO₂) Transmitter w/Temperature Sensor



I-5031

DESCRIPTION

Combination carbon dioxide (CO₂) transmitter and temperature sensor (thermistor type) in one housing.

APPLICATION

To sense Carbon Dioxide (CO₂) 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 CO₂
- 4-20 mA and 0-10 VDC signals
- 24 VAC or 24 VDC power
- Temperature sensor, 10K Thermistor
- Night setback override
- Communication jack
- Setpoint adjuster
- 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, 3.3 VA peak

Carbon Dioxide

Sensor Performance

Gas detected	Carbon Dioxide (CO ₂)
Sensor element	Single beam absorption infrared (NDIR), gold plated optics
Gas sampling method	Diffusion sampling
Range	0-2,000 ppm CO ₂ , factory calibrated
Accuracy	± 40 ppm plus 3% of reading, @ 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	< 2 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, 10K Ω, type II
Range	10K Ω @ 77°F (25°C), ± 2.5% -40°F to 158°F (-40°C to 70°C)
Override Button	
Night setback	Push button, shorts the thermistor temperature sensor output

Communication Jack

<i>"Only to be used for pass-through network connection"</i>	
Type of jack	RJ45, 6-pin
Terminal block	3-wire connection

Setpoint Adjustment

Slide potentiometer	100K Ω, direct action
Output, w/manual slide in position	
- left	0K Ω, ± 5K Ω
- center	50K Ω, ± 7.5K Ω
- right	100K Ω, ± 15K Ω

Type of Control

General	Continuous proportional analog sensor and thermistor resistance outputs
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*** 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 CO₂, 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...)

Analog outputs

- CO₂ (1) 0-10 VDC, 100 Ω output impedance,
(1) 4-20 mA, 500 Ω max.;
Both analog signals can be used concurrently

Resistance output

- temperature (1) 10K @ 77°F (25°C), ± 2.5%;
Refer to data sheet
I-2252...10000-R/T, thermistor
R/T curve table I-10K-CP

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 59°F to 89.6°F (15°C to 32°C)
- working temperature
- storage temperature -4°F to 158°F (-20°C to 70°C)

Physical

Enclosure

- material Impact plastic, UL 94 V0
 - color Beige
 - cover Snap-on, w/set screw
 - installation Wall (surface) mounted, or single gang electrical box
- Dimensions 5.63 x 3.35 x 1.26 in.
(143 x 85 x 32 mm)

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 mm²), max. 18 AWG (0.75 mm²);

Wire distance

Up to 2 wires for each terminal
Loop resistance 500 Ohms max.
(= wire resistance plus controller input resistance)

Weight

0.6 lb. (0.27 kg)

Installation Location

Surface mount,
4 to 6 feet (1.2 m to 1.8 m) above floor

Manufacturing

ISO 9001 Certified

Approvals/Listings

CE
FCC Part 15, Class B
California Energy Commission

Warranty

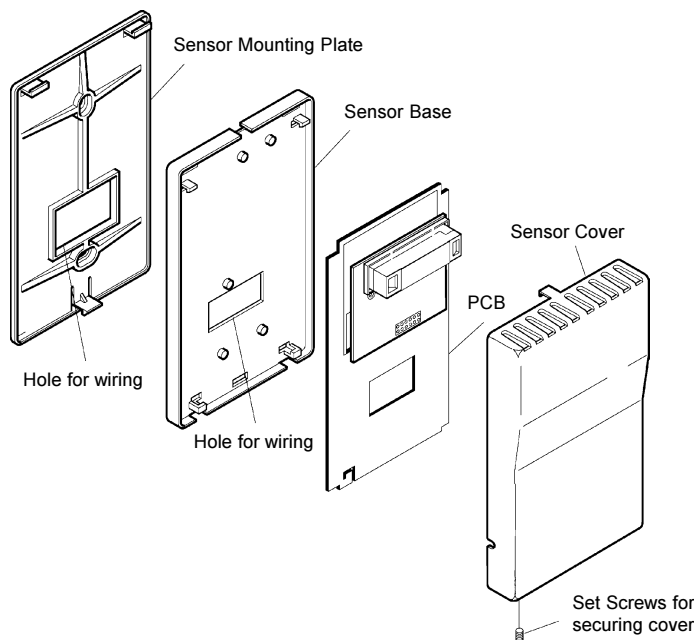
12 months material and workmanship

ORDERING INFORMATION

I-5031

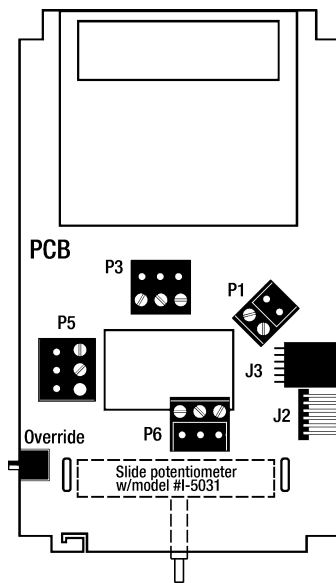
CO₂ room transmitter, w/temperature sensor, override push button and setpoint adjuster (slide potentiometer)

INSTALLATION

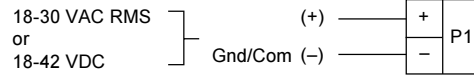


WIRING CONFIGURATION

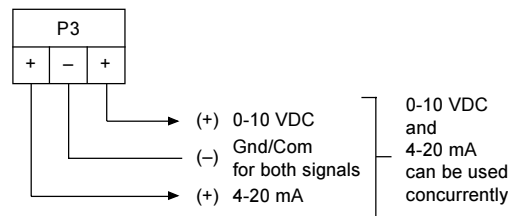
I-5031



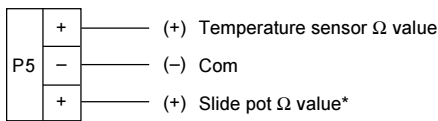
P1 Power Supply



P3 Signal Outputs

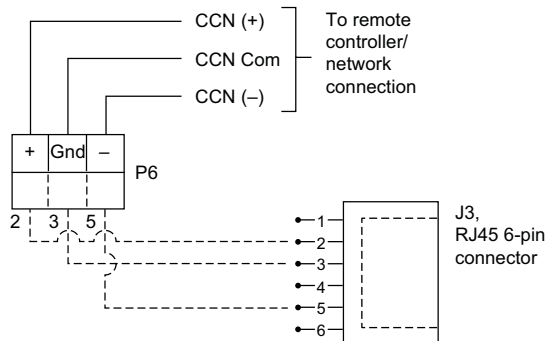


P5 Temperature Sensor (Thermistor) and Slide Pot Resistance Outputs



* Slide pot provided only with model #I-5031

P6, J3 Pass-Through Network Connection
 "No direct access to the CO₂ or temperature readings"



Recommended
 • Twisted, shielded wire

Note:
J2 Connector is reserved for factory testing only