

Installation

The sensor must be placed in an area that is representative of the conditioned space or zone. A mounting height between 4 and 6 feet is recommended. The sensor is comprised of three separate pieces: mounting plate, sensor pre-mounted on the sensor bottom and the sensor case top.

Field Supplied Hardware

The following hardware is field supplied:

Two no 6 x 1 philips pan head wood screws wall mount installation.

Two set screws for securing the plastic case (see illustration on pg. 3)

Step 1. Sensor Location

The sensor should be mounted:

- On an internal wall near a return air grille or duct.
- At least 3 ft from an corner, 2 ft from an open doorway an 4 to 6 ft from the floor.
- Proximal to the wiring egress on the wall.
- Where temperature operating limits are 32° to 122° F

The sensor should not be mounted:

- Close to a window, on an outside wall, or next to a door leading to the outside.
- Close to or indirect airflow of areas such as open windows , drafts or overheat sources.
- In areas with poor air circulation, such as behind a door or in a alcove in areas where there are dramatic temperature fluctuations or moisture accumulation.
- Where it may be exposed to direct occupant breathing such as near water coolers or coffee machines.

Warning

Before performing service or maintenance operations on the system, turn off main power switches to the unit. Electric shock can cause personal injury.

Step 2. Wiring Requirements

The sensor wiring has the following requirements:

1. Power requirements: 18-36 vac RMS 50/60 Hz at 4 va.
2. All system wiring must be in compliance with all applicable local and national codes.
3. A dedicated power supply is required for this sensor.
4. All sensor wiring should be color coded for ease of maintenance and service.
5. Wiring should be 18 to 22 AWG (American Gauge Wire) stranded wire. 20 AWG is recommended.

Step 3. Mounting the Sensor

The sensor can be mounted on a surface, wall or in a junction box.

Surface or wall mounting

1. Place the mounting bracket on the wall. Mark the desired location of the two mounting holes on the wall through the holes in the mounting plate. See Illustration
2. Drill two mounting holes in the wall in the location marked in Step 1.
3. Pull the wires through the wire hole in the middle of the mounting plate.
4. Mount the sensor mounting plate with two wood screws and anchors (field supplied).

Junction Box Mounting

1. Run wires through knockout in a 2 x 4 in. junction box (field supplied).
2. Pull wires through the wire hole in the middle of the mounting plate.
3. Secure the sensor mounting plate to the junction box using the two 6 x 32 machine screws (included).

Step 4. Wiring the Sensor

Perform the following procedure to wire the sensor:

1. Run the wall wiring through the wire hole in the sensor base.
2. Align the top clips and secure the bottom clips of the sensor base to the wall mount plate.
3. Gently rock the case from top to bottom, using gentle pressure. A "snap" sound will indicate that the sensor is secure.

I-5000 Series

Operation/Installation Manual

Carbon Dioxide (CO₂)/Temperature Sensors and Controllers



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4. Separate the wires into 3 bundles. The first bundle contains the power and return and is wired to P1. The second bundle contains the CO₂ analog outputs, going to P3. The third bundle contains the thermistor and poentiometer wires and goes to P5.
5. Remove connectors P1, P3 and P5 from the sensor base.
6. Terminate the wires to P1, P3 and P5.
7. Replace the P1, P3 and P5 connectors onto the sensor base in the respective locations.
8. Push excess wire back through the hole. Align the sensor top over the sensor base.

IMPORTANT: Once power is supplied to the sensor, do not press the calibration button as this will put the sensor in Calibration mode, causing adverse sensor readings. If placed in a space that is regularly unoccupied for 4 or more hours over a 24 hour period, the sensor will automatically recalibrate itself based on CO₂ levels dropping to background levels (called ABC Logic™). In this type of installation the sensor should not require calibration for the life of the installation. To facilitate this automatic calibration process it is highly recommended that a per-occupancy purge be initiated on a nightly basis. This will also ensure that contaminants that have built up in the space overnight will be purged from the space.

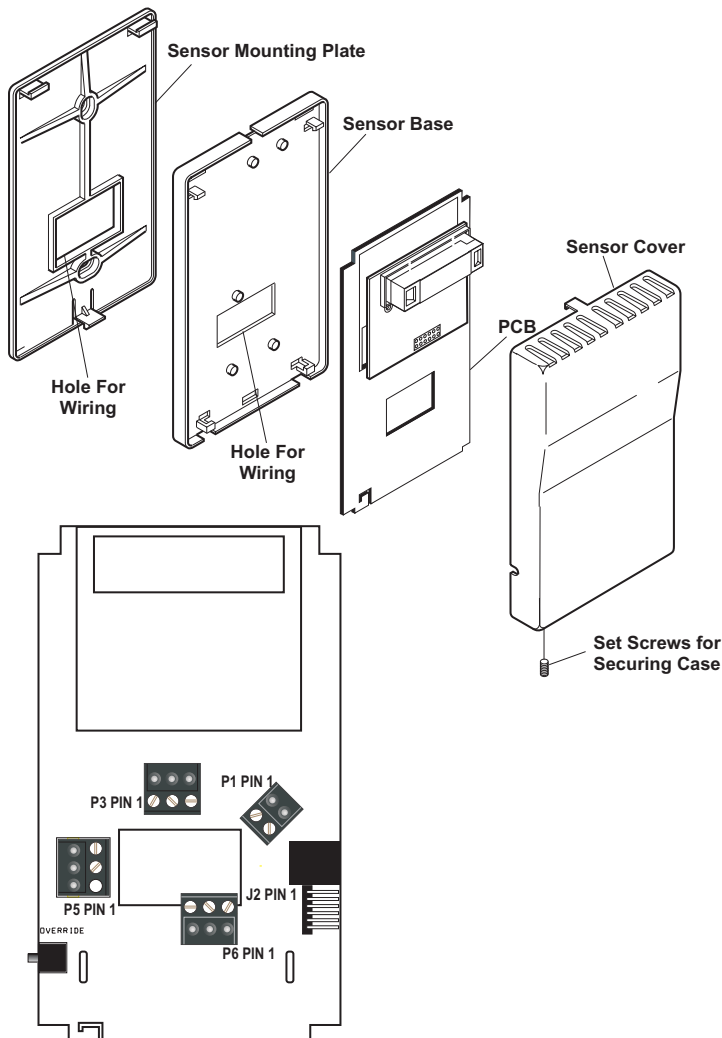
Step 5. Sensor Start Up

Perform the following procedure to start up the sensor:

Once the installation is complete, apply power to the sensor. A two minute warm up will take place. After two minutes, the LED indicator light will be solid.

Measure and read the temperature and CO₂ sensor levels by using a meter or checking the readings at the attached controller. Be sure the CO₂ levels are above the minimum, up to the maximum acceptable level in the range. Replace the sensor cover once the test is complete.

Sensor Drawing



CO2 Sensor Specifications

Method

Single Beam Absorption Infrared™
Diffusion sample method

Measurement Range

0-2000 ppm

Accuracy

±100 ppm or 7% whichever is greater

Elevation (Pressure) Correction

Add 0.13% of reading per mm Hg decrease from 760 mm Hg (On-board correction, user set with UIP software), preset @ 1000 ft above sea level

Response Time 0-90%

<3 minutes

Warm-Up Time @ 25°C

<2 minutes

Operating Conditions

15 - 32°C

0 - 95% RH, non-condensing

Storage Temperature

-20 - 70°C

Agency Certification

FCC Part 15 Class B,
CE, and CA Energy Commission

Temperature Sensor Specifications

Thermistor

10k Ohms +/-2.5% @ 25°C

Night Setback Override Button

Shorts the thermistor output when depressed

Slide Potentiometer (5031 Only)

Left (stop) 0k Ohms (+/-5k Ohms)

Center 50k Ohms (+/- 7.5k Ohms)

Right (stop) 100k Ohms (+/- 15 Ohms)

Input/Output

Power

18-30 VAC RMS, 50/60 Hz half-wave rectified

18-42 VDC polarity protected

1.75 VA maximum average power

3.25 VA peak power

Analog Output

0-10 VDC (Source 50mA, Sink 10mA)

4-20 mA (RLmax = 500 Ohms)

Jumper selectable

Wiring

18-28 AWG stranded copper wire only. 2 wires each for power, analog, thermistor, and slide pot.

Connector	Terminal Description
P1 Power Input Two-pin Screw Terminal	1. 24 VAC(+) or 24 VDC+ (Dedicated) 2. 24 VAC(-) or 24 VDC - (Dedicated)
P3 CO2 Analog Output Connector Three-pin Screw Terminal	1. 4-20 ma CO2 Signal Output 2. CO2 Signal Output Return 3. 0-10 VDC CO2 Signal Output
P5 Temperature Sense and Control Three-pin Screw Terminal	1. Offset Potentiometer (5011 only) 2. Common 3. Thermistor
P6 Carrier CCN connector	1. CCN - 2. CCN Com 3. CCN +
J2 Communications Port 6-Pin Right-Angle Header	1. TDX - TTL-level Output 2. RDX - TTL-level Input 3. 24 VAC (-) or 24 VDC - Output 4. 24 VAC (+) or 24 VDC + Output 5. Not Used 6. 24 VAC (+) or 24 VDC + Output/Input

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