

**INSTALLATION INSTRUCTIONS FOR CARBON DIOXIDE (CO<sub>2</sub>) SENSOR**

**Shipping and Packing List**

Package 1 of 1 contains:

- 1 - CO<sub>2</sub> Sensor With Cover
- 1 - Mounting Plate
- 1 - Wiring Diagram

Check contents for shipping damage. Receiving party should contact last carrier immediately if shipping damage is found.

These instructions are intended as a general guide and do not supersede local codes in any way. Authorities having jurisdiction should be consulted before installation.

Options	Cat No.
CO <sub>2</sub> Wall Mount with LCD Display	77N39
CO <sub>2</sub> Wall Mount No Display	87N53
CO <sub>2</sub> Wall Mount, Black Case, with Display	87N52
CO <sub>2</sub> Wall Mount, Black Case No Display	87N54

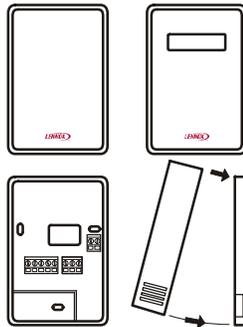
**Installation**

**NOTICE**

**Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a licensed professional installer (or equivalent) or service agency.**

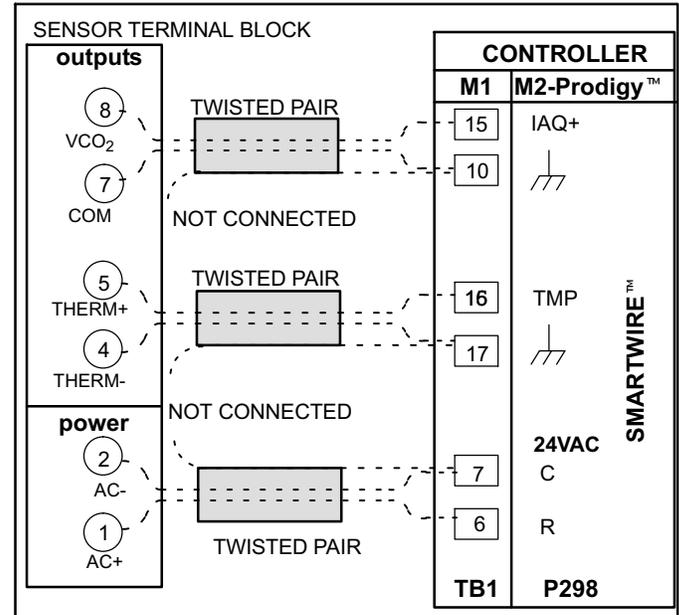
**Mounting Bracket & Sensor**

1. Make the appropriate wiring preparations.
2. Use the mounting bracket as a template to mark mounting holes or mount to a junction box.
3. Run the wiring through the mounting bracket and make necessary wire connections.
4. Mount the sensor on the mounting bracket; a "snap" sound will indicate that the sensor is secure. Secure the sensor to the mounting bracket with the supplied setscrew. The sensor will now have power. After a 1 minute warm-up, the sensor will stabilize and output the current CO<sub>2</sub> readings.

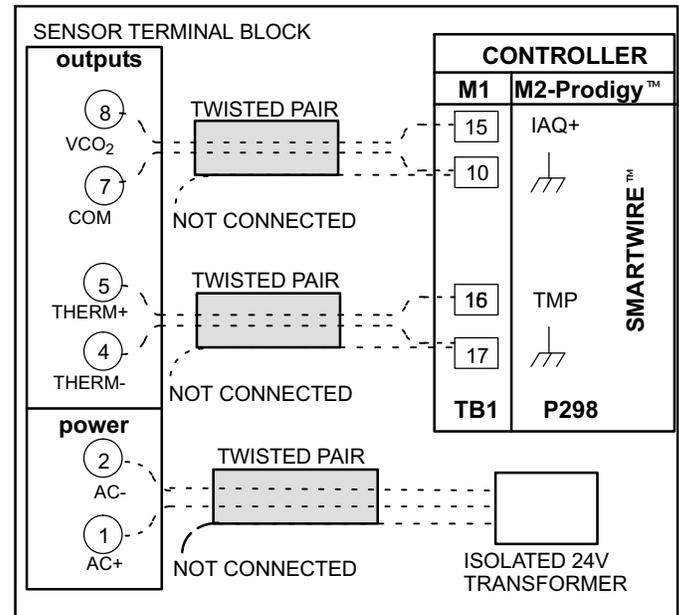


**Wiring Instructions**

The location and connections to the Lennox rooftop units with the Unit Controller are shown in figures 1 and 2.



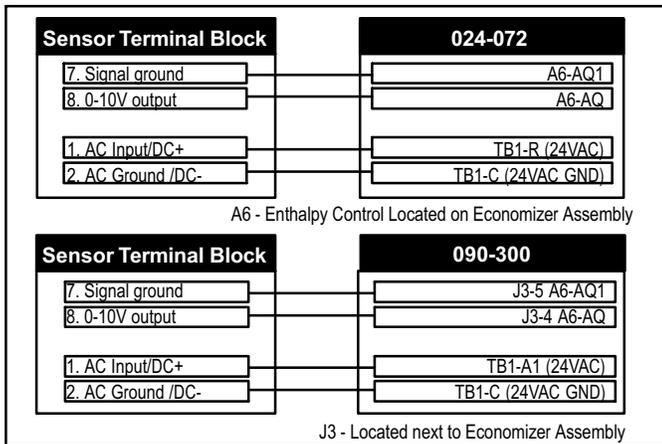
**Figure 1. Field Wiring  
(150' [46m] or shorter runs)**



**Figure 2. Field Wiring  
(150' [46m] or longer runs)**



The connections to the Lennox rooftop units without the Unit Controller are shown in figure 3.



**Figure 3. Field Wiring for KC/KG/KH and T-Class® units without Unit Controller**

For applications that require the Lennox CO<sub>2</sub> sensor interface to a non-Lennox controller, please refer to controller manufacturer's instructions.

**Use 18 AWG copper wire.**

Data Logging: If data logging is desired, the output terminals #6 and #7 (4-20 mA) may be used with a field-provided data logging device.

*NOTE - The CO<sub>2</sub> sensor must be connected to the Unit Controller or economizer control assembly if the third-party controller cannot provide damper control.*

**ABC Logic™ Self Calibration System**

This feature allows the sensor to continually recalibrate itself when the indoor CO<sub>2</sub> concentrations drop to outside levels while the building is unoccupied. A building must be unoccupied for 4 hours or more for this self-calibration system to operate properly. Under these conditions, ABC Logic™ should maintain sensor calibration over the lifetime of the sensor. The ABC Logic™ should be turned OFF where a building is continuously occupied 24 hours per day, or where there could be significant sources of non-occupant related CO<sub>2</sub> such as greenhouses, breweries and other industrial and food processing applications.

**Specifications**

**Sensing Method**—Non-dispersive infrared (NDIR) absorption, gold-plated optics, patented ABC Logic self calibration algorithm.

**Measurement Range**— 0-2000 ppm (0 ppm = 0V, 4mA).

**Accuracy**— 400 - 1250 ppm +/-3% of reading; 1250 - 2000 ppm +/-5% of reading +30 ppm.

**Stability**— < 2% of FS over life of sensor (15 yr typical).

**Warm-up Time**— < 2 minutes (operational) 10 minutes (max accuracy).

**Operating Conditions**— 0 - 50°C (32 - 122°F) 0 - 95% RH, non-condensing.

**Storage Conditions**— -40 - 70°C (-40 - 158°F).

**Output (Analog)**— 0 - 10V (100 ohms output impedance) & 4 - 20 mA (RL max 500 ohms) available simultaneously

**Output (Digital)**— EIA-232 communicates.

**Power Supply Req'ts**— 18 - 30 VAC RMS, 50/60Hz.

**Temperature Dependence**— 0.2% FS per °C (+/-0.11% per °F).

**Pressure Dependence**— 0.135% of reading per mm Hg.

**Certifications**— CE and RoHS compliant.

**Signal Update**— Every 5 seconds.

**Flammability Classification**— UL94 5 VA.

**Thermistor Type**— NTC 10 K ohm thermistor with 1 K ohm resistor in series.

**Power Consumption**— Typical 0.7 W at nominal voltage of 24 V AC RMS.

*This product is covered by one or more of the following patents:*

- 5,650,624 / 5,721,430 / 5,444,249 / 5,747,808 / 5,834,777 / 5,163,332 / 5,340,986 / 5,502,308 / 6,344,798 / 6,023,069 / 5,370,114 / 5,601,079 / 5,691,704 / 5,767,776 / 5,966,077 / 6,107,925 / 5,798,700 / 5,945,924 / 5,592,147 / 6,255,653 / 6,250,133 / 6,285,290