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Dallas, Texas, USA

# CONTROLS KITS AND ACCESSORIES

508366-01  
10/23

## CARBON DIOXIDE (CO<sub>2</sub>) SENSOR KIT

### INSTALLATION INSTRUCTIONS FOR CARBON DIOXIDE (CO<sub>2</sub>) SENSOR (24C58)

#### **! IMPORTANT**

Improper installation, adjustment, alteration, service or maintenance can cause personal injury, loss of life, or damage to property.

Installation and service must be performed by a licensed professional installer (or equivalent) or a service agency.

#### Shipping and Packing List

Check contents for shipping damage. The receiving party should contact the last carrier immediately if shipping damage is found.

Package 1 of 1 contains:

Description	Quantity
CO <sub>2</sub> Sensor With Sub-base	1
Wiring Diagram	1

#### **! IMPORTANT**

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.

#### Dimensions

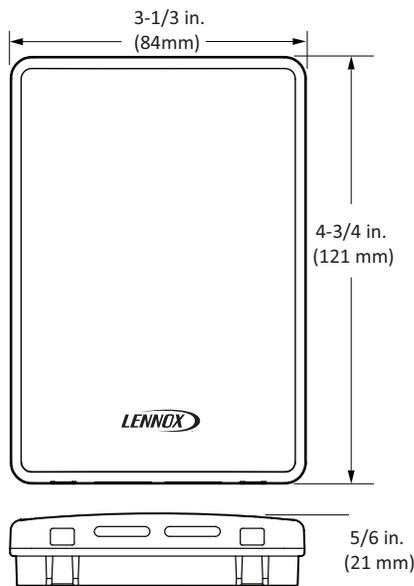


Figure 1. Carbon Dioxide Sensor Dimensions

#### Installation

##### SUB-BASE & SENSOR

1. Insert a thin, flat blade screwdriver into each of the two slots at the bottom of the module to release the two locking tabs.
2. Tilt the cover out and away from the sub-base to release the two locking tabs.
3. Insert the wire in the required terminal location and tighten the screw to complete the termination.
4. Align the top edge and swing down the module until engaged with the lower retaining tabs to reinstall the sensing module on the sub-base.

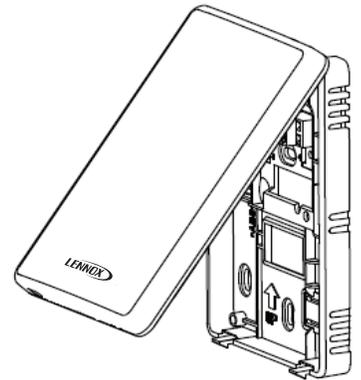


Figure 2. Attaching/Removing the Module from its Sub-Base

##### MOUNTING THE SUB-BASE

Use the mounting sub-base as a template to mark mounting holes or mount to a junction box on a wall. The module can be mounted using the standard utility conduit box with No.6 (3.5 mm) screws or on a 60 mm wall outlet box.

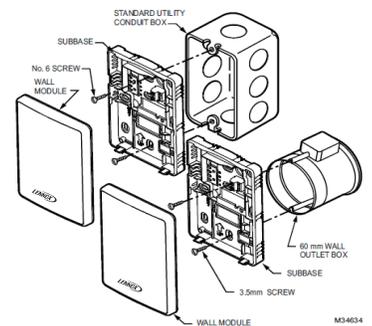
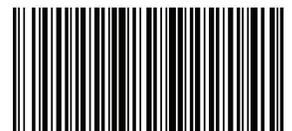


Figure 3. Installing Sub-Base on the Wall



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## WIRING INSTRUCTIONS

The location and connections to the Lennox rooftop units with the unit controller are shown in Figures 4 and 5.

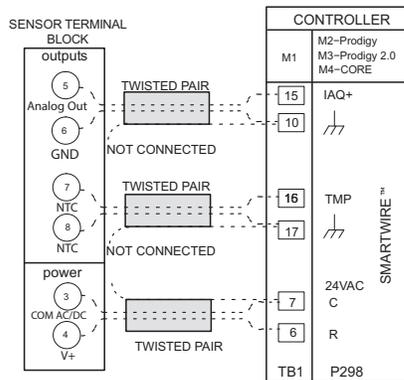


Figure 4. Field Wiring - 150' (46m) or Shorter Runs

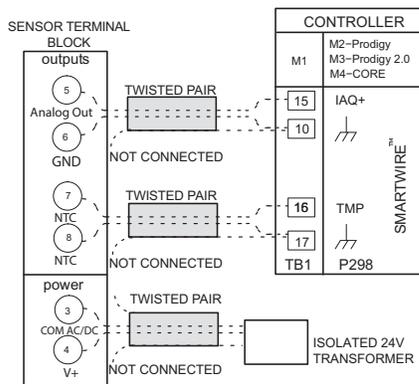


Figure 5. Field Wiring - 150' (46m) or Longer Runs

The connections to the Lennox rooftop units without the unit controller are shown in Figure 6.

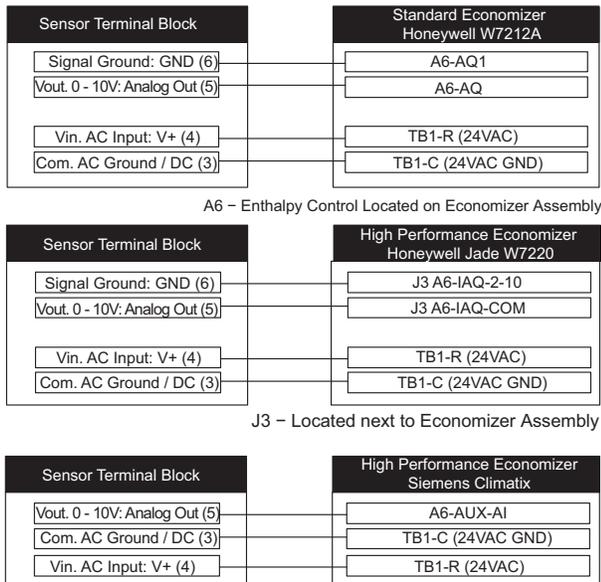


Figure 6. Field Wiring for KC/KG/KH, ZC/ZG/ZH and ELA units without Unit Controller

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

- 24 AWG Maximum for Copper Wire Terminals

## CO<sub>2</sub> THRESHOLD SETTINGS / LED ALERT

The sensor has adjustable range, determined by three DIP Switch positions. Refer to Table 1 for more details.

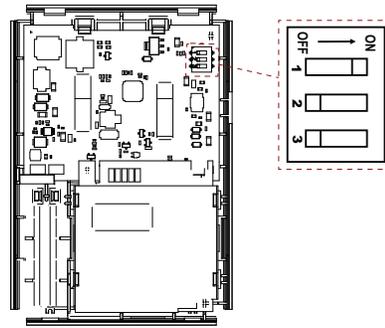


Figure 7. Location of DIP Switches\*

\*Figure 7 shows 1100 ppm settings.

SW1	SW2	SW3	Indicator (ppm)	Output Type
ON	ON	ON	1200	2 -10V 4 - 20mA
ON	OFF	ON	1100	
OFF	ON	ON	1000	
OFF	OFF	ON	800	
ON	ON	OFF	1200	0 - 10V 4 - 20mA
ON	OFF	OFF	1100	
OFF	ON	OFF	1000	
OFF	OFF	OFF	800	

Table 1. DIP Switch Settings

## 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 four 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.

### Specifications

Specification	Description
<b>Sensing Method</b>	Automatic Background Calibration (ABC), Non-Dispersion Infrared (NDIR)
<b>Measurement Range</b>	0-2000 ppm
<b>Accuracy</b>	± (30 ppm +3% of reading) within the range 0-2000 ppm ± (75 ppm at a 600 - 1000 ppm)
<b>Stability</b>	15 Year, Accuracy drift over lifetime: ± 50 ppm
<b>Warm-up Time</b>	< 20 seconds
<b>Operating Conditions</b>	+32°F to +122°F (0°C to +50°C), 0-95% RH (non-condensing)
<b>Storage Conditions</b>	-40°F to 158°F (-40°C to 70°C)
<b>Output (Analog)</b>	0/2-10 VDC (resistive load greater than 5000 ohms), 4-20 mA (resistive load less than 500 ohms)
<b>Power Supply Requirements</b>	24 VAC/DC ±20%, 50/60 Hz (Class 2)
<b>Temperature Dependence</b>	2.5ppm/ °C (0-50°C)
<b>Pressure Dependence</b>	N/A
<b>Certifications</b>	CE and RoHS compliant
<b>Signal Update</b>	Every 2 seconds
<b>Flammability Classification</b>	UL94-V0
<b>Thermistor Type</b>	10k NTC in serial with 1k resistor
<b>Power Consumption</b>	Max 3W