



©2019 Lennox Industries Inc.  
Dallas, Texas, USA

COMMERCIAL UNITS  
KITS AND ACCESSORIES

504,603M  
3/2019  
Supersedes 1/2018

**INDOOR REMOTE SENSORS**

**INSTALLATION INSTRUCTIONS FOR INDOOR REMOTE TEMPERATURE SENSORS  
— 10K OHM (47W37) AND 20K OHM (47W36)**

**⚠ WARNING**

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 HVAC installer (or equivalent) or service agency.

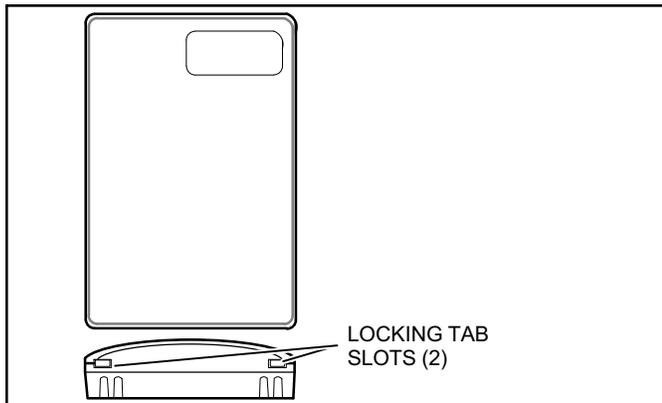
When the remote indoor sensor is installed with a commercial touch screen thermostat, use these instructions to install the sensor. Also see the touch screen instructions for more on wiring the sensor to the thermostat.

**PRE-INSTALLATION**

**Cover Removal**

A snap-fit locking mechanism is used to attach the cover of the remote indoor sensor to its sub-base. To remove the cover from the sub-base:

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 (see figure 1).



**Figure 1. Cover Removal**

2. Tilt the cover out and away from the sub-base to release the two locking tabs.

**Electrical Wiring Practices**

**⚠ CAUTION**

Erratic System Operation Hazard.

Failure to follow proper wiring practices can introduce disruptive electrical interference (noise).

**⚠ IMPORTANT**

All wiring must comply with local electrical codes and ordinances, or as specified on installation wiring diagrams.

**Typical Commercial Touch Screen Thermostats**

The following items are recommended for indoor remote sensor installations:

1. Keep wiring at least one foot away from large inductive loads such as motors, line starters, lighting ballasts, and large power distribution panels.
2. Shielded cable is required in installations where these guidelines cannot be met.
3. Ground shield only to grounded controller case.
4. When connecting to all other thermostats, remote indoor sensor wiring can be sized from 16 to 22 AWG (1.31 to .34 mm<sup>2</sup>) depending on the application.
5. The maximum length of wire from a thermostat or remote indoor sensor to another remote indoor sensor is 1000 feet (305 meters).
6. Twisted pair wire is recommended for wire runs longer than 100 feet (30.5 meters).

**ComfortSense 7500 Commercial Thermostat and ComfortSense 8500**

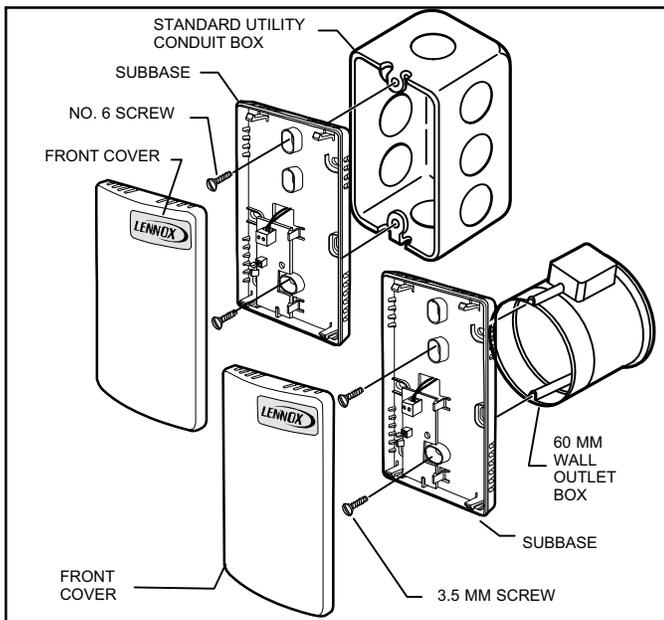
1. Must keep wiring at least one foot away from large inductive loads such as motors, line starters, lighting ballasts, and large power distribution panels.
2. Do not use shielded cabling.
3. Use only standard two-wire thermostat wire.
4. Indoor (room) sensor wiring can be sized from 16 to 22 AWG depending on the application.
5. The maximum length of wire from the thermostat to all remote sensors should not exceed 300 feet (100 meters).

**INSTALLATION**

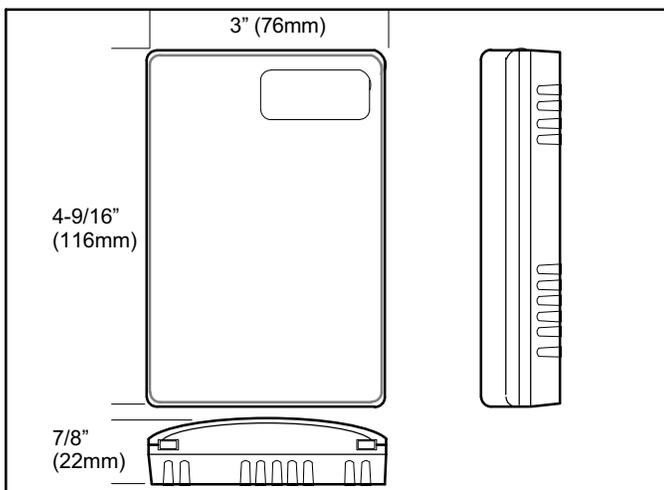
Install the remote indoor sensor on an inside wall approximately 54 inches (1372 mm) from the floor (or in the specified location) to allow exposure to the average room temperature. Do not mount the remote indoor sensor on an outside wall, on a wall containing water pipes or near air ducts. Avoid locations that are exposed to discharge air from registers or radiation from lights, appliances, or the sun.



The remote indoor sensor may be installed on a wall, on a standard utility conduit box using no. 6 (3.5 mm) screws or on a 60 mm wall outlet box (see figure 2). When installing directly on a wall, use the type of screws appropriate for the wall material. See figure 3 for remote indoor sensor dimensions.



**Figure 2. Installing Remote Indoor Sensor on Standard Utility Conduit Box or 60 mm Wall Outlet Box**



**Figure 3. Room Sensor Dimensions**

## WIRING

Attach the wires from the device sensor terminals to the appropriate remote indoor sensor terminals on the thermostat (see figure 5).

## ⚠ CAUTION

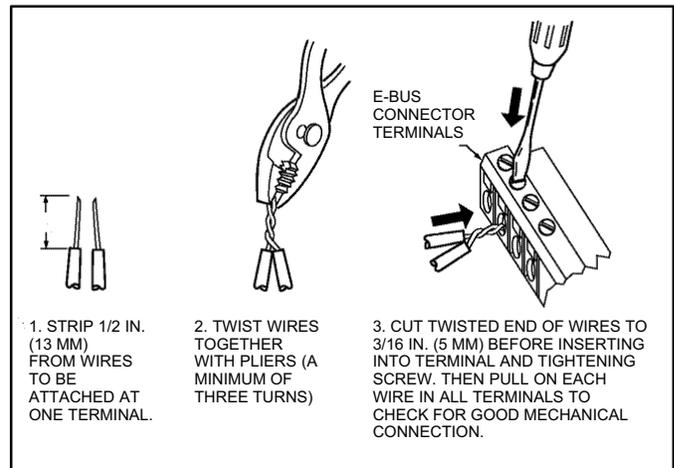
**Improper Electrical Contact Hazard.**

Screw type terminal blocks are designed to accept no more than one 16 AWG (1.31 sq. mm<sup>2</sup>) conductor.

Connect multiple wires that are 16-18 AWG (1.31 to .82 mm<sup>2</sup>) with a wire nut. Include a pigtail with this wire group and attach the pigtail to the individual terminal block.

Wire the terminal blocks as follows:

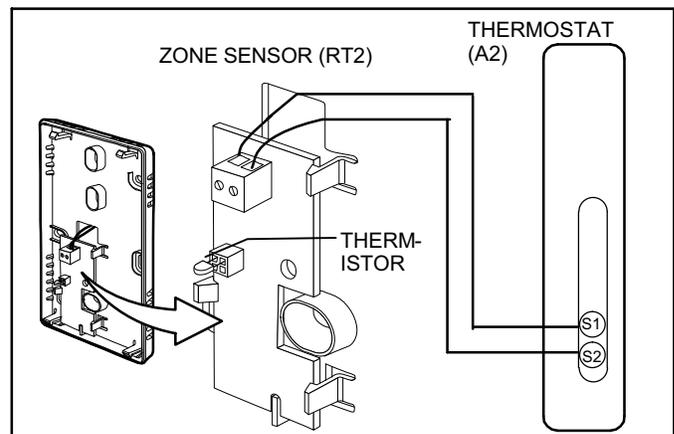
1. For single wires, strip 3/16" (5mm); for multiple wires going into one terminal, strip 1/2 in. (13 mm) insulation from the conductor.
2. If two or more wires are being inserted into one terminal, twist the wires together before inserting.



**Figure 4. Multi-wire Installation**

**NOTE:** When two or more wires are being inserted into one terminal, be sure to twist them together. Deviation from this rule can result in improper electrical contact (see figure 4).

3. Insert the wire in the required terminal location and tighten the screw to complete the termination.
4. Verify remote indoor sensor wiring per figure 5. Check that thermistor is in place.

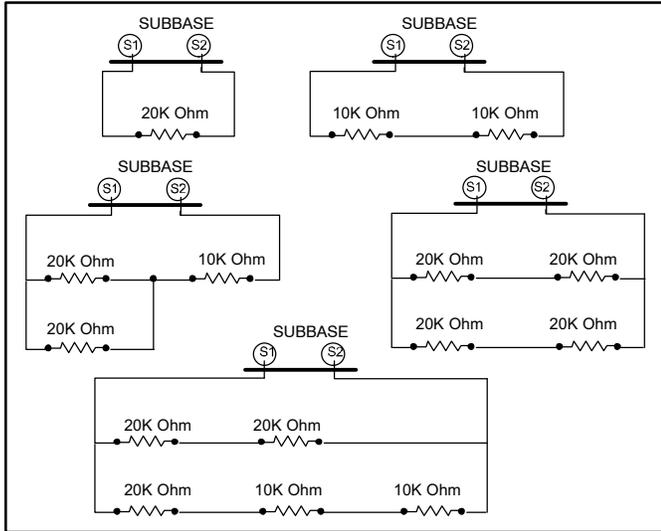


**Figure 5. Room Sensor Wiring**

When all wiring is complete, attach the cover of the remote indoor sensor by pressing the cover straight down onto the sub-base until it snaps into place.

**Multiple-sensor Installations**

When using more than one sensor, maintain an equivalent resistance of 20K ohms at the thermostat (see figure 6).



**Figure 6. Sensor Wiring for Temperature Averaging**

**SENSOR SPECIFICATIONS**

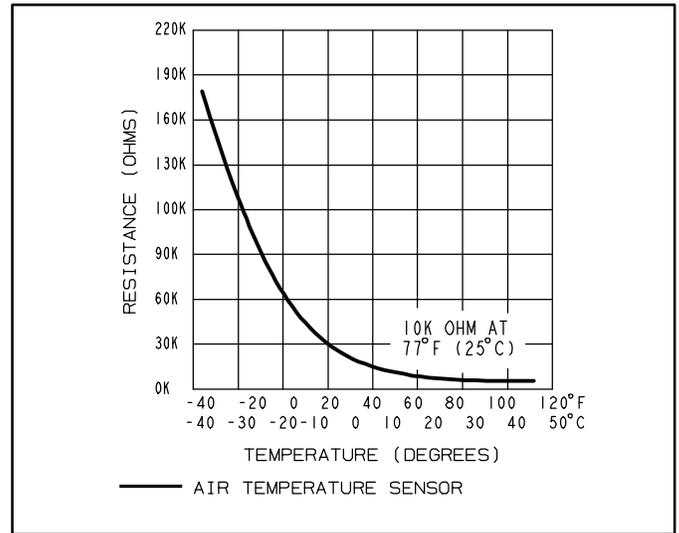
**Application**

To be used with the ComfortSense 7500 Commercial Thermostat and ComfortSense 8500.

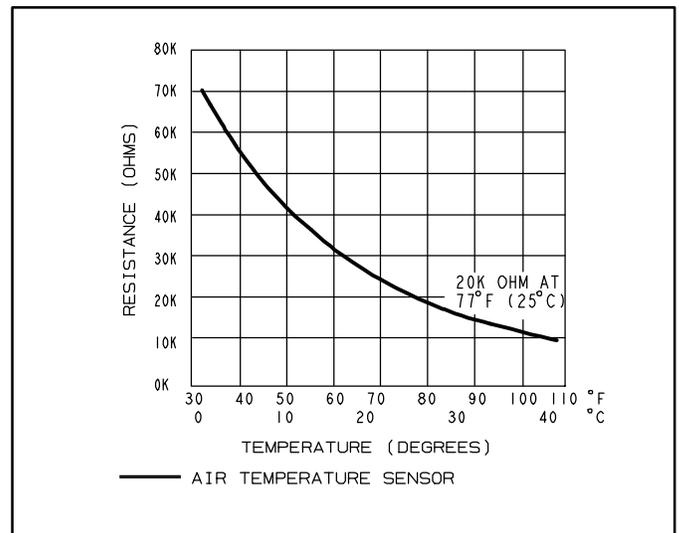
**Temperature Sensor Operating Range**

45 to 99°F (10 to 37.2°C)

- 100959-02 (47W37) is furnished with a 10K ohm nonlinear NTC temperature sensor that follows a specific temperature resistance curve as shown in figure 7.
- 100959-03 (47W36) is furnished with a 20K ohm nonlinear NTC temperature sensor that follows a specific temperature resistance curve as shown in figure 8.



**Figure 7. 10K Ohm Temperature Sensor (47W37)**



**Figure 8. 20K Ohm Temperature Sensor (47W36)**

**Operating Temperature**

45 to 99°F (7.2 to 38.2°C)

**Relative Humidity**

5% to 95% non-condensing

**Dimensions**

3" W x 4.56" H x .88" D