# COMMERCIAL TRAINING TOOLBOX TIPS

## Lennox Rooftop Unit Smoke Detector Wiring & Setup

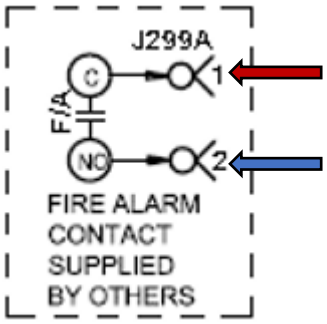
**Applies to Lennox Rooftop Units with the M2 or M3 Prodigy Board**

**Helpful Resources**

1. Lennox Prodigy Control System App found at the appropriate App Store or at the following QR.
2. Installation and service literature on LennoxCommercial.com or LennoxPros.com.

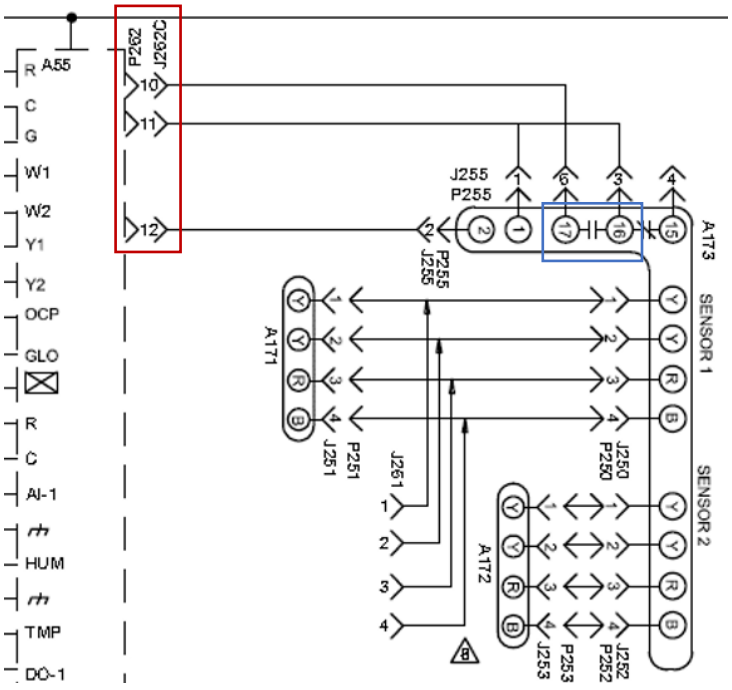
### Global / Remote Shutdown Info

1. Lennox smoke detectors require a field-supplied N/O (Normally Open) relay.
2. The relay coil is connected to the fire panel.
3. The normally open contact side of the relay is connected to DI1 (P299A-1), and R (P299A-2) on the Prodigy board.
4. There is 24VAC present on the R terminal. Once the fire panel energizes the relay coil, the N/O contact closes and causes the 24 VAC on R to pass through the relay energizing the DI1 terminal causing the unit to trigger the smoke detection sequence or other smoke mode setting as defined by parameter 109.




### Smoke Detector Wiring

1. The smoke detector terminates on the Prodigy board on Plug P262 terminals 10, 11, 12.
2. P262 -10 is the 24vac alarm input. When this terminal is energized with 24 vac from the smoke detector, the unit will trigger a smoke detect alarm.
3. P262- 11 is 24VAC. This powers the smoke detector. Connecting additional power sources to the smoke detector will damage the smoke detector.
4. P262 -12 is a common.
5. A171 and A172 are the smoke detector sensors. The RTU can have one or two sensors and they connect to the smoke detector power board as indicated on the diagram.
6. Upon detecting smoke, the normally open relay between terminals 16-17 (smoke detector power board) close, this allows 24VAC to come from terminal 16, pass through the relay and energize 17 and P262-10- causing the unit to initiate the smoke detection sequence or other smoke mode setting as defined by parameter 109.

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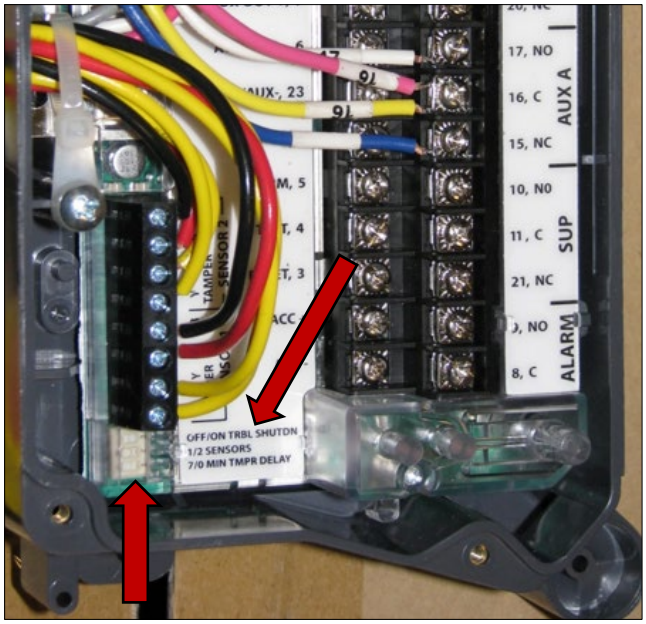
## Smoke Detector Setup

1. Verify the “OFF/ON TRBL SHUTDN” DIP switch is switched to “ON”. This allows the unit to shut down if smoke or trouble is detected.
2. Verify the “Sensors” DIP switch is set to proper number of sensors installed in the unit. To the left is 1 sensor, to the right is 2 sensors. This allows the unit to know how many sensors are connected to the unit.
3. Verify that the “MIN TMPR DELAY” DIP switch is set to 0. When set to 0 the unit will immediately shut down if the tamper switch opens.

| DIP Switch | Selection | Feature |
|---|---|---|
| SENSORS | 1 | One sensor is connected |
| | 2 | Two sensors are connected |




**DIP Switch Locations**

4. Install the clear plastic cover on to the sensors, so the air can be sampled correctly. Ensure the cover is tightened down as this should depress the tamper switch- closing the circuit.
5. The tamper switch (Not the DIP Switch) is indicated by the red arrow in the picture below.

**Tamper Switch Location**

6. Ensure the tamper switch closes when the clear cover is installed on the sensors. You can check this by tracing the wires from the sensor until you get to a molex plug. Unplug the sensor and test for continuity at the molex plug on the 2 yellow wires going to the sensor. If you have continuity, then the tamper switch is closed. If you do not have continuity, then the tamper switch is not closed and may require minor adjustment.
7. Remove the clear cover from the sensor and adjust the metal contact that is between the 2 screws as indicated in the picture above. Then reinstall the cover.
8. Ensure all plugs are securely connected and all terminals are tight.
9. The smoke detector is now ready to use.