

508468-02
2/2025
Supersedes 508468-01

SMOKE DETECTOR KIT

INSTALLATION INSTRUCTIONS FOR SMOKE DETECTOR KITS (31A68 & 31A69; 603408-17 & 603408-18) USED WITH LG/LC/LH/LD 078-152 UNITS

Shipping and Packing List

Supply OR Return Air Applications

31A68 single-sensor kit contains the following:

- 1-Smoke detector sensor
- 1-Smoke detector power board
- 2-Supply brackets
- 1 - Hinged panel
- 1 - Hinged panel mounting bracket
- 1 - Panel holder
- 1 - Power harness (P255/A55.P299A)
- 1 - Return harness (P250/P251)
- 1 - Jumper harness (P250/J261 --used on supply air SD units only)
- 1 - 36" metal sampling tube (used on supply air SD units only)
- 1 - 18" metal sampling tube (used on return air SD units only)
- 1 - Plastic exhaust tube
- 1 - Magnet
- 1 - Sensor manufacturer's instructions
 - #10 - 16 X 3/4" sheet metal screws
 - #8 - 32 X 1" thread-forming screws
 - #8 - 32 X 1/2" thread-forming screws
 - Insertion-type wire ties
 - Unit Powered GFI Label

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 installer (or equivalent), service agency or the gas supplier.

WARNING

To prevent serious injury or death:

- 1- Lock-out/tag-out before performing maintenance.
- 2- If system power is required (e.g., smoke detector maintenance), disable power to blower, remove fan belt where applicable, and ensure all controllers and thermostats are set to the "OFF" position before performing maintenance.
- 3- Always keep hands, hair, clothing, jewelry, tools, etc., away from moving parts.

Supply AND Return Air Applications

31A69 dual-sensor kit contains the following:

- 2 - Smoke detector sensors
- 1 - Smoke detector power board
- 2 - Supply brackets
- 1 - Hinged panel
- 1 - Hinged panel mounting bracket
- 1 - Panel holder
- 1 - Power harness (P255/A55.P299A)
- 1 - Return harness (P250/P251)
- 1 - 36" metal sampling tube (used on supply air SD units only)
- 1 - 18" metal sampling tube (used on return air SD units only)
- 2 - Plastic exhaust tubes
- 2 - Magnets
- 1 - Sensor manufacturer's instructions
 - #10 - 16 X 3/4" sheet metal screws
 - #8 - 32 X 1" thread-forming screws
 - #8 - 32 X 1/2" thread-forming screws
 - Insertion-type wire ties
 - Unit Powered GFI Label

CAUTION

As with any mechanical equipment, personal injury can result from contact with sharp sheet metal edges. Be careful when you handle this equipment.

Application

Smoke detector will send a 24Vac signal to the M4 unit controller when smoke is sensed. The M4 unit controller default mode will de-energize unit.

Identify Harnesses

Three harnesses are provided in the single sensor kit and two harnesses are provided in the dual sensor kit. Use wire labels, length of harnesses and number and size of connectors to determine appropriate harnesses used in each application. Refer to FIGURE 1 for 31A68 single sensor kits and FIGURE 2 for 31A69 dual sensor kits.



HARNESS IDENTIFICATION (not to scale)
31A68 SINGLE SENSOR KITS
(SUPPLY AIR OR RETURN AIR ONLY APPLICATIONS)

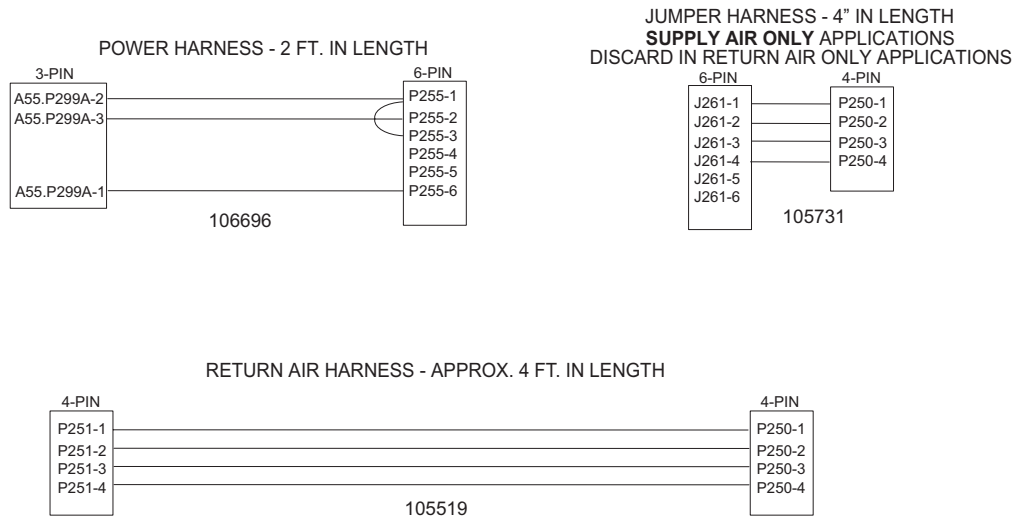


FIGURE 1

HARNESS IDENTIFICATION (not to scale)
31A69 DUAL-SENSOR KITS
(COMBINATION SUPPLY AIR AND RETURN AIR APPLICATIONS)

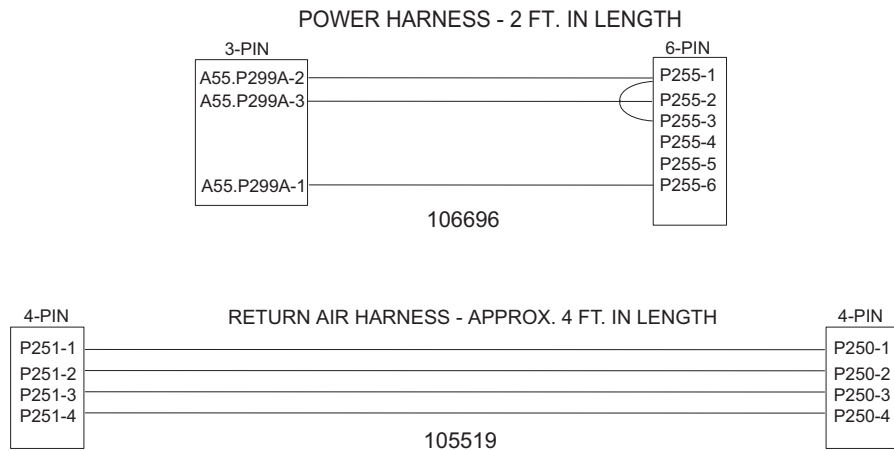


FIGURE 2

Installation

CAUTION

Before attempting to perform any service or maintenance, turn the electrical power to unit OFF at disconnect switch.

Sampling Tube Installation

- 1 - Select the appropriate sampling tube.
Supply air sensor -- 36"
Return air sensor -- 18"
- 2 - Slide metal sampling tube onto the back side of the sensor. When sensor is installed in return air applications, slide plastic exhaust tube onto back side of sensor. See FIGURE 3.

NOTE - Plastic exhaust tube is NOT used in supply air applications and should be discarded.

- 3 - Orient sampling tube so that holes point toward the air stream.

Smoke Detector Sensor and Power Board Installation

- 1 - Use manufacturer's instructions provided with smoke detector to install sensor(s) and power board. See FIGURE 4 to assemble the supply air bracket. Refer to FIGURE 5 for location of power board, supply air sensor and return air sensor.
- 2 - If unit is equipped with a unit-powered GFI, apply the provided label on the hinged panel. See FIGURE 7.

Hinged Panel Factory-Installed

- 1 - Secure power board to hinged panel using two #8-32X1" screws.

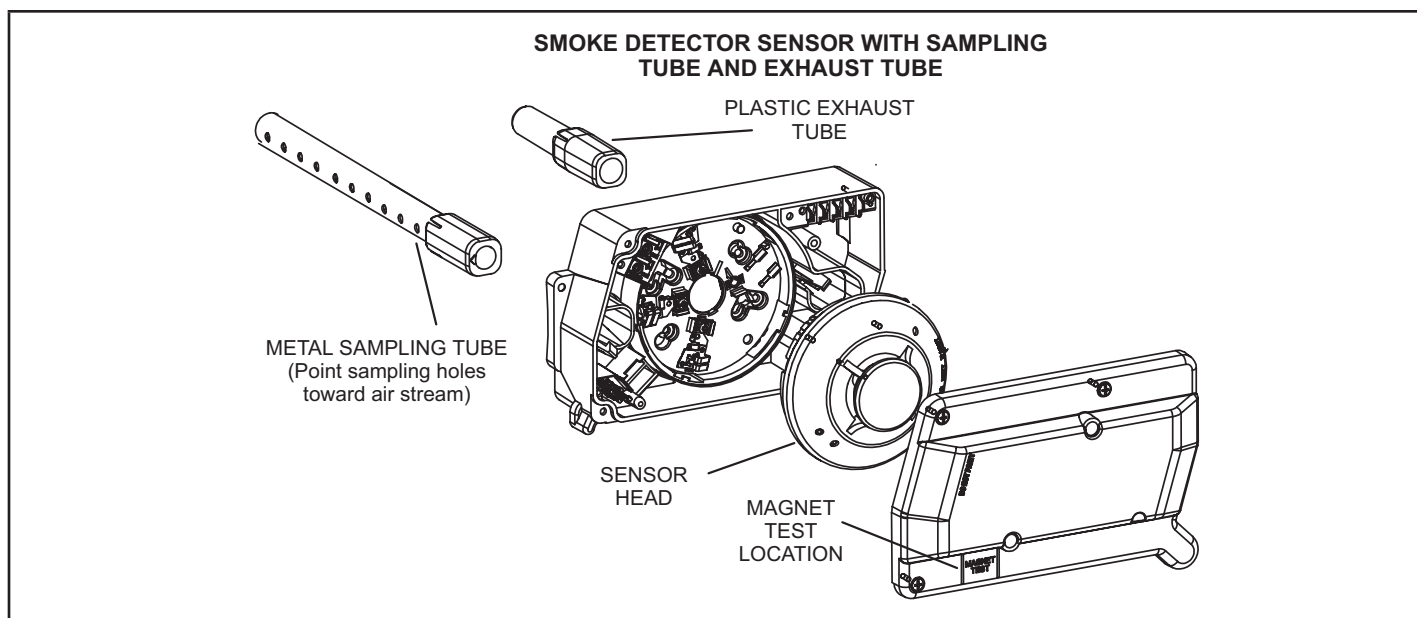


FIGURE 3

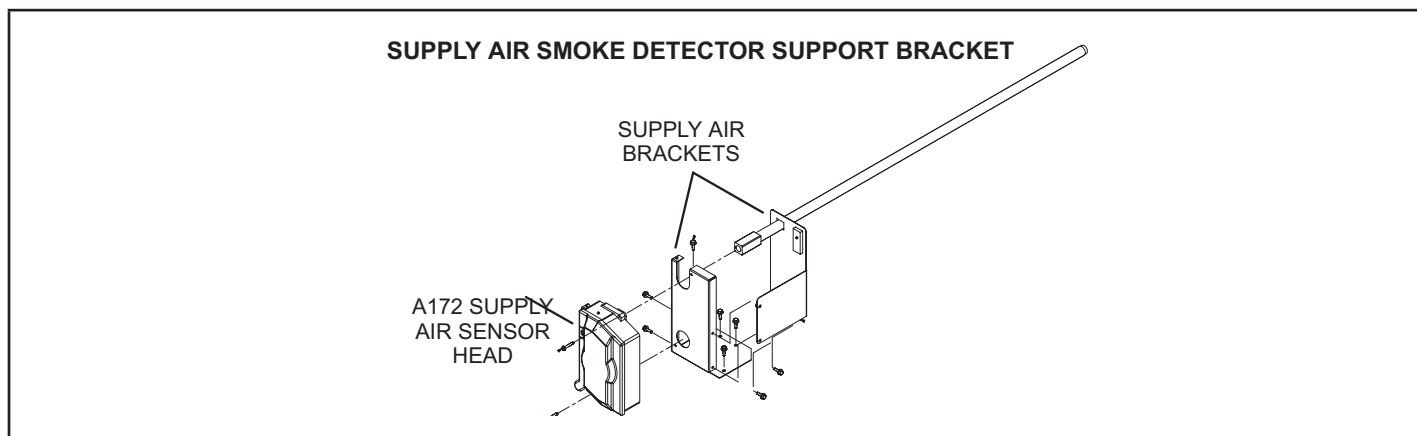


FIGURE 4

SMOKE DETECTOR COMPONENT LOCATIONS

IDENTIFY CONNECTORS
BY LABELS STAMPED
ON WIRES

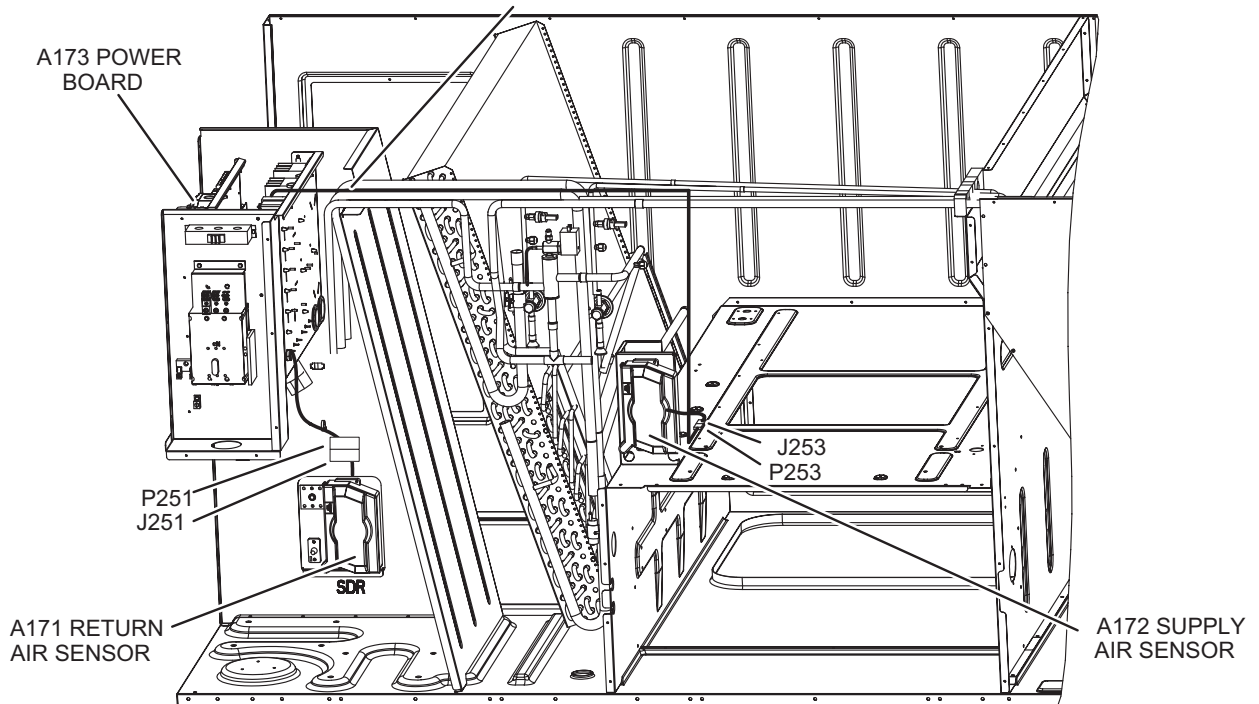


FIGURE 5

Hinged Panel Field-Installed

- 1 - Use two #8 - 32 X 1/2" screws to secure smoke detector hinged panel to hinged panel mounting bracket. See details A and B on FIGURE 6.
- 2 - Use two #8 - 32 X 1/2" screws to secure panel holder to left side of compressor wrapper.
- 3 - Use two #8 - 32 X 1/2" screws to secure hinged panel assembly to control box.

POWER BOARD INSTALLATION

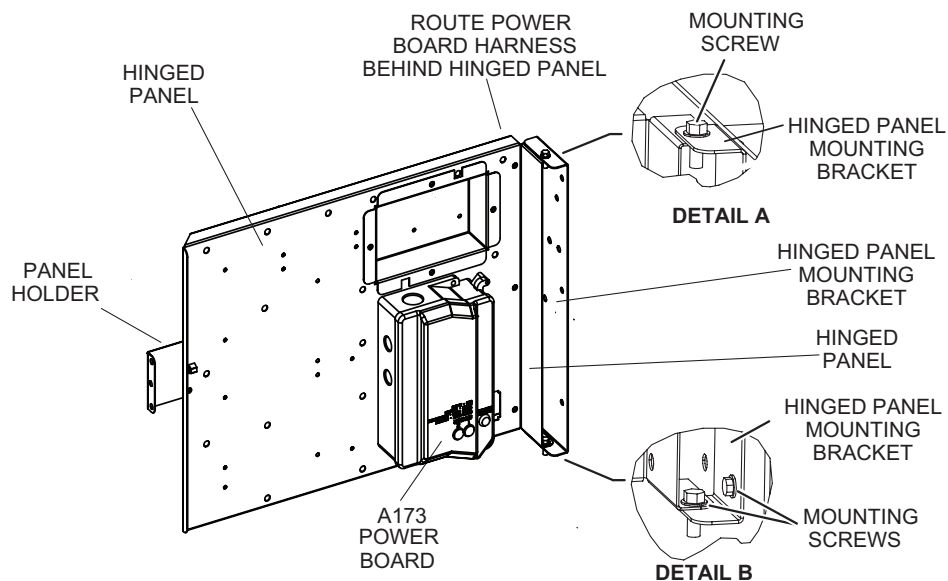


FIGURE 6

Wiring

1 - P255 Power Harness

Disconnect and discard P299, 3-pin plug on A55 M4 Unit Controller. See FIGURE 8 or FIGURE 9. Connect P255 power harness as shown in FIGURE 10, FIGURE 11, or FIGURE 12. Take care to secure wires away from other components.

2 - Make jack/plug connections as shown in FIGURE 10 when installing return air smoke detector only, FIGURE 11 when installing supply air smoke detector only, and FIGURE 12 when installing both supply and return air smoke detectors.

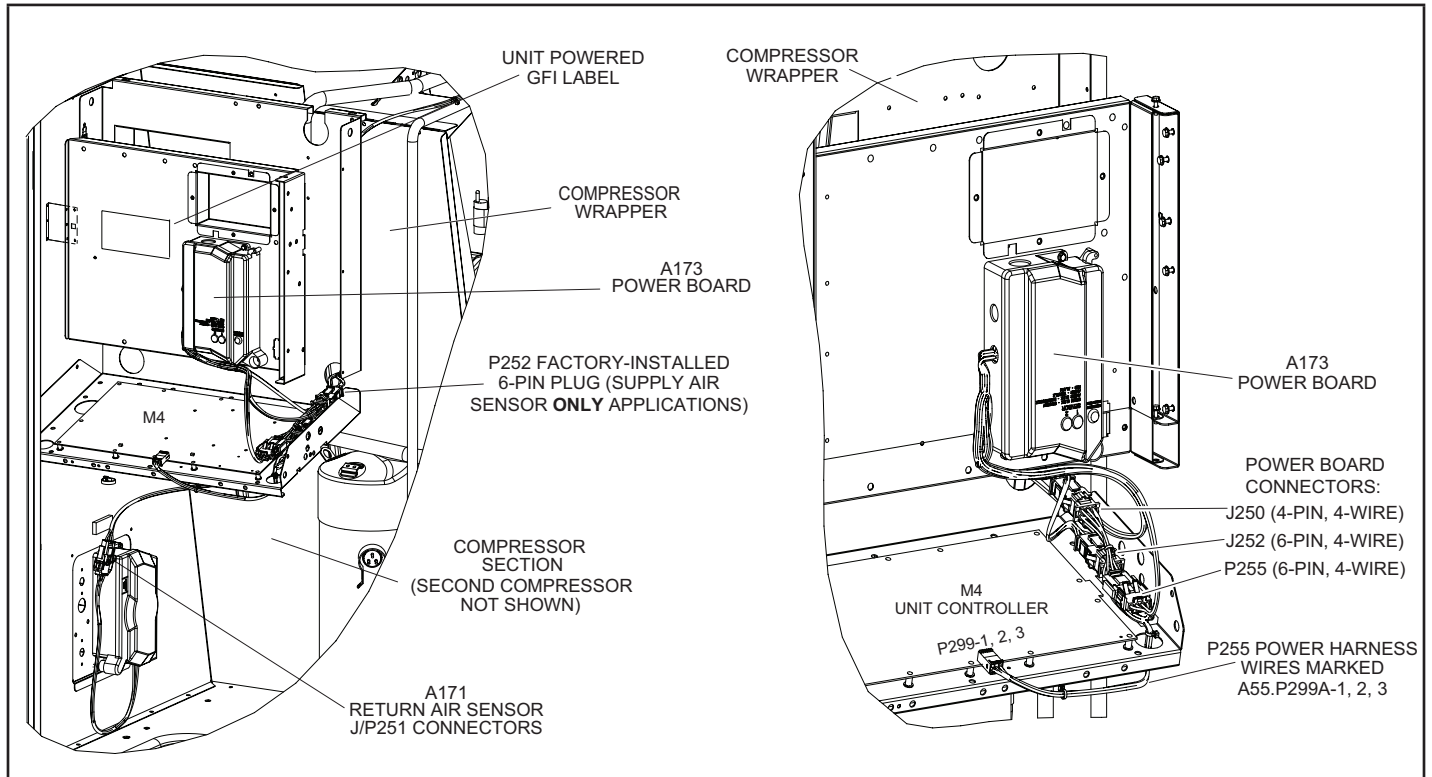


FIGURE 7

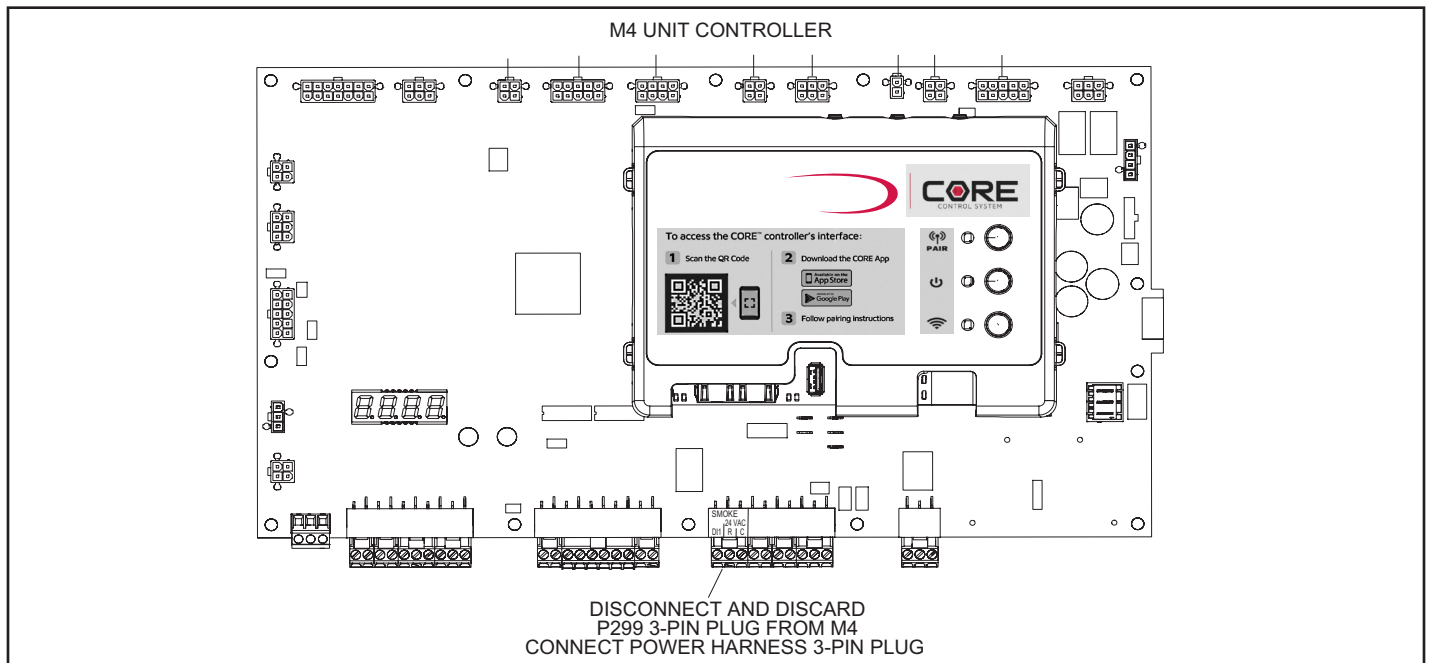


FIGURE 8

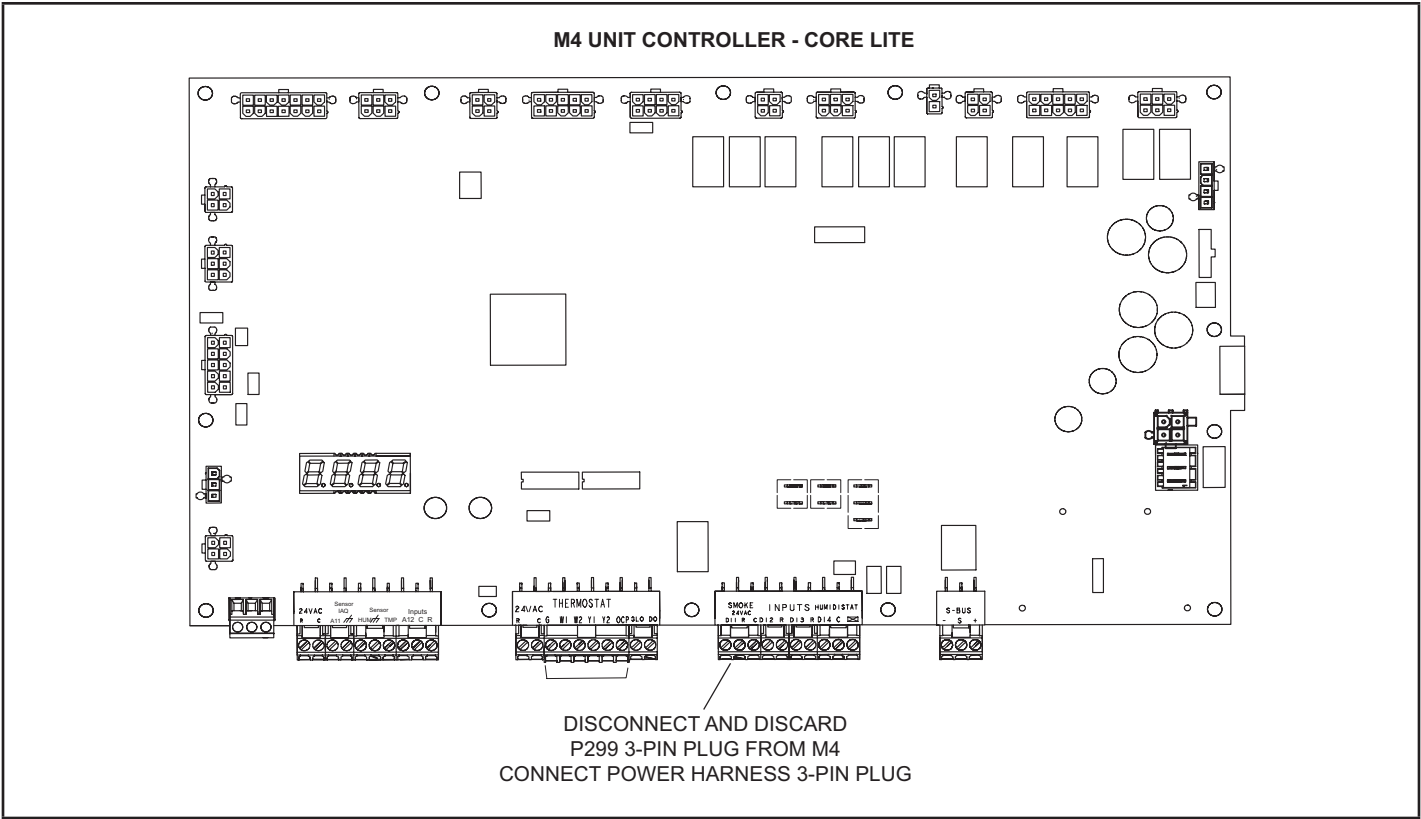


FIGURE 9

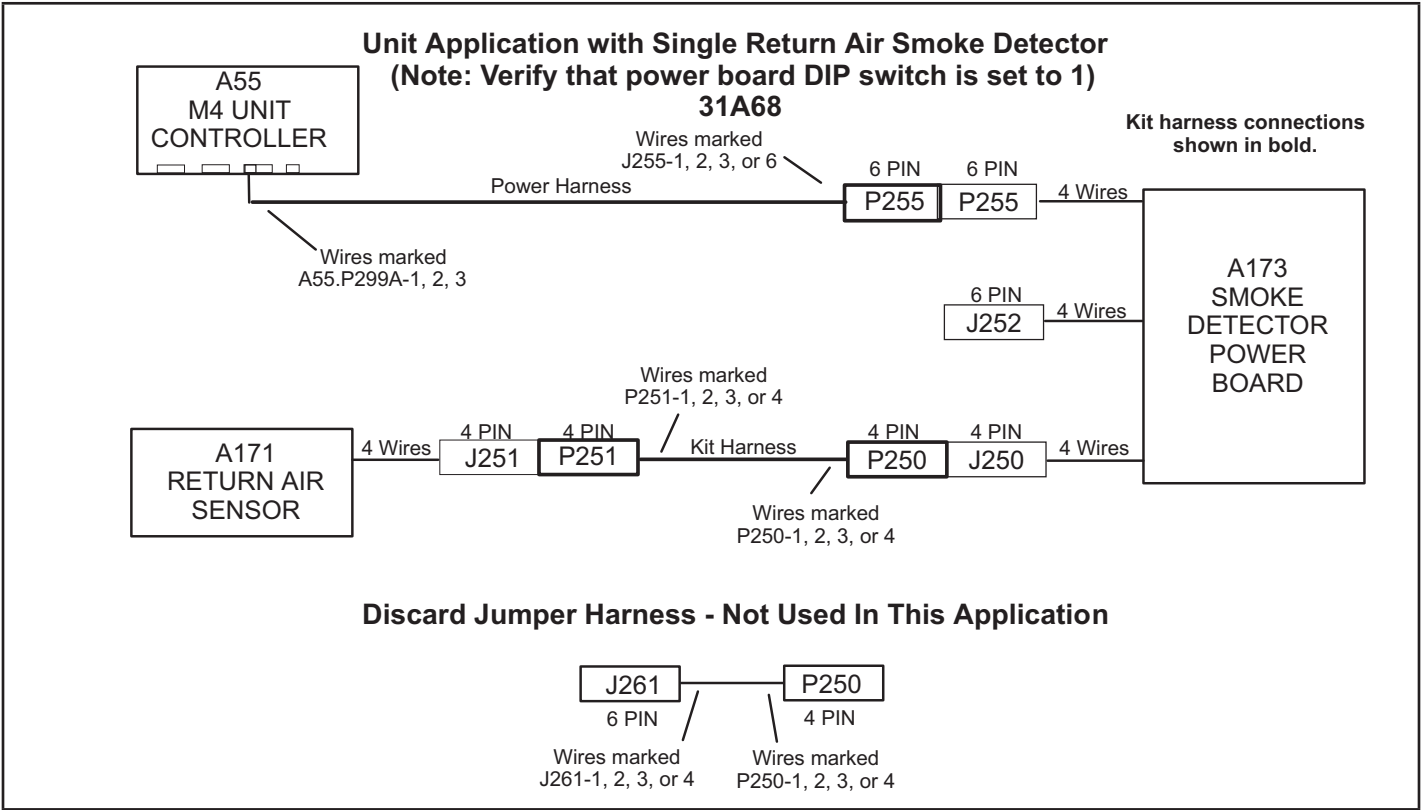


FIGURE 10



01

A173

CTRL SMOKE
DETECT

SENSOR 1

Y

Y

R

B

Y

Y

R

B

Y

Y

R

B

Y

Y

R

B

Y

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