

Factory Installed Smoke Detector Specification Sheet

For Factory Installed Smoke Detectors on 2-28 ton Commercial Rooftop Units

APPLICABLE UNITS: 48R09PG, FM, PD 03-28
48R09TC 04-30, 48R09HC 04-29,
54R09C 04-24, 54R09C2 04-22,
48R09H, 54R09C2 04-22
48R09H1, FM, TF 004-014
50R13C, TFD 004-012

GENERAL DATA

Type: TeLite SuperDuct, 4-wire Photoelectric Sensing detector and control module.
The Carrier Factory installed smoke detector system comprises a flow-type controller and one or two sensors (Detectors). All set on Supply Air. In primary function it is used to detect smoke to prevent smoke from circulating throughout the building. It is used for the use as a life saving device. Factory installed smoke detectors require no additional wiring tubes as they are field installed.

SYSTEM DESCRIPTION

The controller includes a controller housing, a printed circuit board, and an easily accessible clear plastic cover. The cover allows access to the terminal connections and relay contacts for connection to fire alarm systems, HVAC controls, and other auxiliary functions. A remote reset/retest alarm station can be connected to the controller.

Detectors - The detector includes a plastic housing, a printed circuit board, a clear plastic cover, an exhaust tube, and a sampling tube. The exhaust tube and sampling tube are attached during factory installation. The sampling tube varies in length depending on the size of the rooftop unit. The clear plastic cover prevents visual inspection without having to disassemble the sensor. The cover forms an airtight enclosure around the sensing electronics.

For installations using two detectors, the controller does not differentiate which detector signals an alarm or trouble condition. A rapid change in environmental conditions, such as smoke, causes the sensor to signal an alarm state but does not detect accumulation over time. When the sensor's ability to compensate for environmental changes has eroded to a level (100% duty), the sensor signals a trouble condition. An accumulation of dust particles obscures the sensing chamber through a sampling tube that extends into the HVAC duct and is directed back into the ventilation system through an exhaust tube. The difference in air pressure between the two tubes pulls the sampled air through the sensing chamber. When a sufficient amount of smoke is detected in the sensing chamber, the sensor signals an alarm state and the controller automatically takes the appropriate action to clear the unit via the factory installed wiring connection. Additional functions such as integration with a Building Alarm System, additional flow and pressure, notify the fire alarm control panel, require field wiring and configuration.

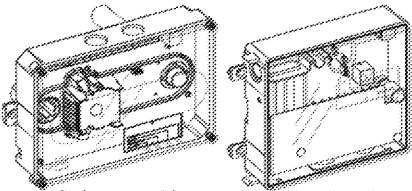


Fig. 1 - Controller and Detector (Sensor) Modules

GUIDE SPECIFICATIONS

System Specifications:

- System Type: Separate controller and detector modules
- Flow Type: Controller and Detector Photoelectric Sensing
- Environmental compensation with differential sensing for reliable, stable, and dust-free sensitivity
- Operating temperature: Temperature: -20° to 158°F (-29° to 70° C) Humidity: 10% to 91% RH, non-condensing
- Alarms activated near sensor switches
- Field-less connections from sensor
- recessed auxiliary switch for testing and resetting the detector

Table 1 - Controller Terminal Connections

Terminal Number	Name
1	RES-1
2	RES-2
3	SMOKE CONTROL ROOM
4	Alarm Control COM
5	Alarm Control NO
6	Alarm Control COM
7	Alarm Control NO
8	Alarm Control NO
9	Alarm Control NO
10	Alarm Control NO
11	Not used
12	Not used
13	Alarm Control NO
14	Alarm Control NO
15	Alarm Control NO
16	Alarm Control NO
17	Alarm Control NO
18	Alarm Control NO
19	Alarm Control NO
20	Alarm Control NO
21	Alarm Control NO
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99	Alarm Control NO
100	Alarm Control NO

Controller specifications:

- Controller shall include:
 - One set of normally open alarm initiation contacts for connection to an alarm control panel
 - Two Form C auxiliary alarm relays for water leak detection or other equipment
 - One Form C supervisory (trouble) relay to control the operation of the trouble LED on a remote test station
 - Capable of direct connection to ten individual detector modules
 - Can be tested to up to 14 other duct smoke detectors for multiple fire shutdown applications

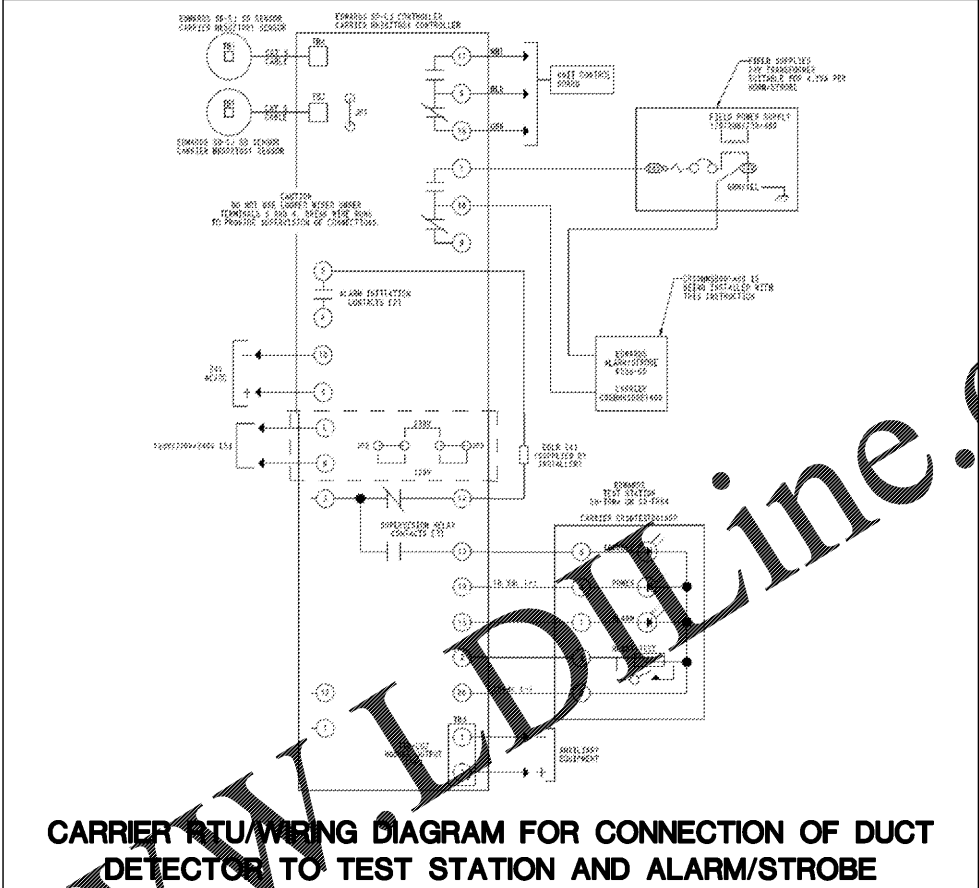
Wire Size: High voltage terminals: 12-22 AWG Air others: 20-28 VAC, 50/60 Hz 120 VAC, 50/60 Hz 200-240 VAC, 50/60 Hz

Operating current: 20-25VDC: 175 mA 24VAC: 500 mA @ 50/60 Hz 120VAC: 100 mA @ 50 Hz 75 mA @ 60 Hz 220-240 VAC: 40 mA @ 60 Hz 40 mA @ 60 Hz (load alarm) 150mA (TROUBLE) (green) indicator

LED Indicators: 220/240 VAC: 40 mA @ 60 Hz (load alarm) 150mA (TROUBLE) (green) indicator

Relays: Alarm initiation relay: Quantity: 1 Normally open 20A @ 50 VDC (residual) Ratings: 20A @ 50 VDC (residual) Auxiliary relay: Quantity: 2 Form C 10A @ 30 VDC, 10 A @ 250 VAC Supervisory (trouble) relay: Quantity: 1 Form C 10A @ 30 VDC, 10 A @ 250 VDC (residual) Ratings: 10A @ 30 VDC (residual)

Detector specifications: Sensor: 0.70x5.49x1.90 in Smoke detection method: Photoelectric Air velocity (min-max): 100 - 4,000 ft/min Pressure differential (min-max): 0.005 - 1.00 in Sensitivity: 0.07 to 2.45 %obsm/obsm Wire size: 14 to 22 AWG or 2 second maximum Power up time: 9 seconds max Alarm test response time: 5 to 7 seconds (load alarm) Yellow (TROUBLE) Yellow (STBY) Green (Power)



CARRIER RTU/WIRING DIAGRAM FOR CONNECTION OF DUCT DETECTOR TO TEST STATION AND ALARM/STROBE

CRSDTEST001A00 REMOTE TEST/RESET STATION SD-TRM4 FOR SMOKE DETECTORS COMMERCIAL ROOFTOP UNIT 3-27.5 TONS

Installation Instructions

IMPORTANT: Read these instructions thoroughly before attempting to install the Remote Test/Reset Station. The Remote Test/Reset Station is used to test and reset the smoke detector. It is used to test the detector's ability to sense smoke and to reset the detector after a test or alarm. The Remote Test/Reset Station is used to test the detector's ability to sense smoke and to reset the detector after a test or alarm. The Remote Test/Reset Station is used to test the detector's ability to sense smoke and to reset the detector after a test or alarm.

SAFETY CONSIDERATIONS

Installation and servicing of non-condensing equipment can be hazardous due to system pressure and electrical components. Only trained and qualified personnel should install, repair, or service this equipment. Untrained personnel can perform basic maintenance functions such as cleaning and replacing air filters. All other operations must be performed by trained service personnel. When working on air conditioning equipment, observe precautions in the literature, on tags, and on labels attached to or shipped with the unit and other safety precautions that may apply. Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Use opening cloth for breathing operations. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions marked in literature and attached to the unit. Consult local building codes, the manufacturer's list of National Electrical Code (NEC), NFPA 70, in Canada refer to the current edition of the Canadian Electrical Code (CEC).

WARNING

ELECTRICAL SHOCK HAZARD
Failure to follow this warning could result in personal injury or death. Before servicing or servicing, always turn off main power to system and lock out/tag out. There may be some lines, use disconnect switch. Two set accuracy heater power switch if applicable.

CAUTION

CUT HAZARD
Failure to follow this caution may result in personal injury.
Sharp metal parts may have sharp edges or burrs. Use care and wear appropriate clothing.

WARNING

PERSONAL INJURY AND ENVIRONMENTAL HAZARD
Failure to observe safety precautions may result in personal injury or death. Understand these signal words: DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbols. DANGER identifies the most serious hazards which will result in serious personal injury or death. WARNING identifies hazards which could result in personal injury or death. CAUTION is used to identify safety practices which may result in minor personal injury or property and/or equipment damage. NOTICE is used to highlight suggestions which will result in enhanced performance, reliability, or operation.

GENERAL

The SD-TRM4 Remote Test/Reset Station is used to test and reset the smoke detector. It is used to test the detector's ability to sense smoke and to reset the detector after a test or alarm. The Remote Test/Reset Station is used to test the detector's ability to sense smoke and to reset the detector after a test or alarm. The Remote Test/Reset Station is used to test the detector's ability to sense smoke and to reset the detector after a test or alarm.

REMOTE TEST/RESET STATION TESTS

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CAUTION

ALARM SYSTEM ALERT/STROBE HAZARD
Failure to follow this caution may result in personal injury or death. This test station is used to test and reset the smoke detector. It is used to test the detector's ability to sense smoke and to reset the detector after a test or alarm. The Remote Test/Reset Station is used to test the detector's ability to sense smoke and to reset the detector after a test or alarm. The Remote Test/Reset Station is used to test the detector's ability to sense smoke and to reset the detector after a test or alarm.

INSTALLATION

Mount the Remote Test/Reset Station on a single gang box as shown in Fig. 2.

WIRING

Wire the Remote Test/Reset Station to the smoke detector as shown in Fig. 3.

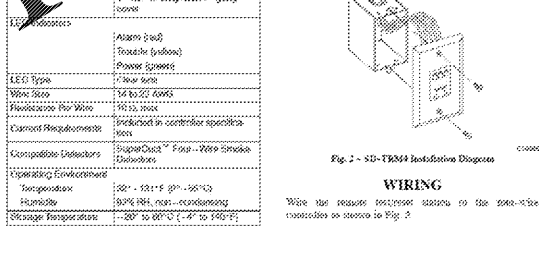


Fig. 2 - SD-TRM4 Installation Diagram

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Fig. 3 - Wiring Diagram

EDWARDS 6536-G5 Horn/Strobe

Description
The 6536-G5 is an audible/visual signal UL listed for general purpose signaling applications.

Installation
A qualified electrician familiar with National Electrical Code and local codes should install this product. Failure to follow the safety precautions in this manual could result in personal injury or death.

WARNING

To reduce the risk of shock, do not remove lens or tamper with unit when the circuit is energized. Do not connect AC power until installation is complete.

WARNING

To reduce the risk of shock, do not remove lens or tamper with unit when the circuit is energized. Disconnect power and allow five (5) minutes for stored energy to dissipate before starting work or disassembly. High energy could be stored in the strobe circuit once it is energized.

WARNING

Perform regularly scheduled testing at least twice a year or more often as dictated by local authorities having jurisdiction.

Table 1. Specifications

Operating Voltage	24V 50/60 Hz	24V DC
Alarm Current	775 mA	125 mA

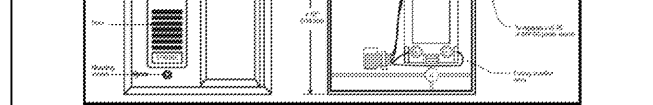


Figure 1. Details of Horn/Strobe

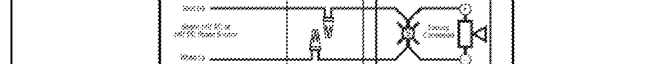


Figure 2. Connecting the Horn and Strobe

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DUCT DETECTOR - TEST STATION - ALARM/STROBE