

Factory Installed Smoke Detector Specification Sheet

For Factory Installed smoke detectors on 2-28 ton Commercial Rooftop Units

APPLICABLE UNITS: 48/50PG, PM, PD 03-28
48/50TC 04-30, 48/50HC 04-28,
50/70TC 04-24, 50/40CO 03-22
48/50HE, 50/HEG 003-006
48/50HJ, TM, TF 004-014
50/HJQ, TFO 004-012

GENERAL DATA

Type: TelAire SuperDuct, 4-wire Photoelectric Sensing detector and control module
The Carrier factory installed smoke detector system comprises a four-wire controller and one or two sensors (Return Air and/or Supply Air). Its primary function is to shut down the rooftop unit in order to prevent smoke from circulating throughout the building. It is not to be used as a life saving device. Factory installed smoke detectors require no additional sampling tubes to be field installed.

SYSTEM DESCRIPTION

Controller - The controller includes a controller housing, a printed circuit board, and an easily removable clear plastic cover for access to the multiple terminal connections and relay contacts for connections to fire alarm systems, HVAC controls, and other auxiliary functions. A remote test/reset visual 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 permits visual inspections without having to disassemble the sensor. The cover forms an airtight chamber 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 dust and debris accumulated over time does not. When the sensor's ability to compensate for environmental changes has reached its limit (100% dirty), the sensor signals a trouble condition. Air is introduced to the duct smoke detector's 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 shut down the unit via the factory installed wiring connections. Additional functions such as integration with a Building Alarm System, additional fans and blowers, notify the fire alarm control panel, etc. require field wiring and configuration.

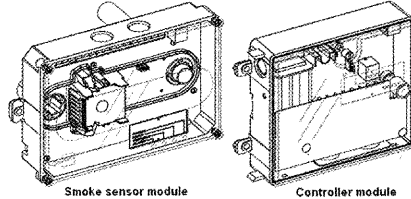


Fig. 1 - Controller and Detector (Sensor) Modules

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CRSDTEST001A00

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

Installation Instructions

IMPORTANT: Read these instructions completely before attempting to install the necessary Remote Magnetic Test/Reset Station.

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning 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 caution when brazing operations. Have fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions included in literature and attached to the unit. Consult local building codes, the current editions of the National Electrical Code (NEC), NFPA 70, In Canada refer to the current editions of the Canadian Electrical Code (CSA C22.1).

Recognize safety information. This is the safety-alert symbol. When you see this symbol on the unit and its instructions or manuals, be alert to the potential for personal injury. Understand these signal words: DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which will result in severe personal injury or death. WARNING identifies hazards which could result in personal injury or death. CAUTION is used to identify safe practices which may result in minor personal injury or property and product damage. NOTE: Safety-related information, such as warnings, cautions, and instructions, reliability, or operation.

WARNING

ELECTRICAL SHOCK HAZARD
Failure to follow this warning could result in personal injury or death.

Before installing or servicing system, always turn off main power to system and install lockout tag. There must be more than one disconnect switch. Turn off accessory heater power switch if applicable.

CAUTION

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

WARNING

PERSONAL INJURY AND ENVIRONMENTAL HAZARD

Failure to relieve system pressure could result in personal injury and/or death. Relieve pressure before servicing equipment and before final unit disposal. Use all safety devices and open all flow-control devices, including bypass valves.
Federal regulations require that you do not vent refrigerant into the atmosphere. Recover during repair or final unit disposal.

GUIDE SPECIFICATIONS

System Specifications:

- System Type: Separate controller and detector modules
- Four Wire Controller and Detector
- Photoelectric Sensing
- Environmental compensation with differential sensing for reliable, stable, and drift-free sensitivity
- Operating environment: Temperature: -20° to 158°F (-29° to 70° C) Humidity: 10% to 93% RH, non-condensing
- Magnet-actuated test/reset sensor switches
- Tool-less connection terminals
- Recessed momentary switch for testing and resetting the detector

Table 1 - Controller Terminal Connections

Terminal Number	Name
1	AUX (-)
2	Reset
3	SLPV Contact COM
4	Alarm Contact COM
5	Alarm Contact NO
6	AUX 1 Contact COM
7	AUX 2 Contact NO
8	AUX 2 Contact COM
9	24V AC/DC In (+)
10	24V AC/DC In (-)
11	Not used
12	Multi-Shutdown
13	SLPV Contact NC
14	REM Alarm LED Off
15	AUX 1 Contact NC
16	AUX 1 Contact NO
17	AUX 2 Contact COM
18	AUX 2 Contact NO
19	12 VDC Output (+)
20	16VDC Output (+)
TR3-1	Not Used
TR3-2	Not Used
N	AC Neutral
L	AC Line

Controller specifications:

- Controller shall include:
 - One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel
 - Two Form C auxiliary alarm relays for interface with rooftop unit or other equipment
 - One Form C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station
 - Capable of direct connection to two individual detectors for multiple fan shutdown applications
 - Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications

Wire Size: High voltage terminals: 12-22 AWG, 14-22 AWG, 20-29 VAC, 50/60 Hz, 120 VAC, 50/60 Hz, 220/240 VAC, 50/60 Hz
Operating voltages: 175 mA, 500 mA at 50/60 Hz, 100 mA, 80 Hz, 75 mA at 60 Hz, 53 mA at 50 Hz, 40 mA at 60 Hz
LED indicators: Red (Alarm), Yellow (Trouble), Green (Power)

Relays: Alarm initiation relay: 1 Normally open, 2.0A at 30 VDC (resistive)
Style: Fail-safe
Auxiliary relays: 2 Form C, 10A at 250 VAC, 2 second maximum
Supervision (trouble) relay: 1 Form C, 2.0A at 30 VDC (resistive)
Style: Fail-safe

Detector specifications: Sensor: 8.70x5.4x1.90 in. Smoke detection method: Photoelectric
Air velocity (min-max): 100 - 4,000 fpm
Pressure differential (min-max): 0.005 - 1.00 in
Sensitivity: 0.67 to 2.48 % obscuration/ft
Wire size: 14 to 22 AWG
Reset time: 2 second maximum
Power up time: 6 seconds max
Alarm test response time: 5 to 7 seconds
LED indicators: Red (Alarm), Yellow (Trouble), Green (Power)

GENERAL

The SD-TRM4 Remote Test/Reset Station is used with the SuperDuct™ four-wire duct smoke detector. Each remote test/reset station provides a green LED to indicate power, a red LED to indicate alarm, and a yellow LED to indicate trouble and detector dirty levels. The SD-TRM4 requires a magnetic to activate test and reset functions. (See Fig. 1.)

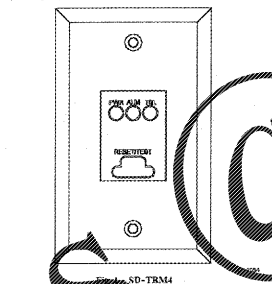


Fig. 1 - SD-TRM4

SPECIFICATIONS

Item	Specification
Dimensions	North American 1-gang box (Standard) 4.31" square box, 1-1/2" in deep with 1-gang cover
LED Indicators	Alarm (red), Trouble (yellow), Power (green)
LED Type	Clear lens
Wire Size	14 to 22 AWG
Resistance Per Wire	10 Ω, max
Current Requirements	Included in controller specifications
Compatible Detectors	SuperDuct™ Four-Wire Smoke Detectors
Operating Environment	Temperature: 50° - 131°F (10° - 55°C) Humidity: 80% RH, non-condensing Storage Temperature: -20° to 60°C (-4° to 140°F)

REMOTE TEST/RESET STATION TESTS

Test/reset station alarm test using the SuperDuct™ Four-Wire Smoke Detector
The test/reset station alarm test is a test/reset station's ability to initiate and indicate an alarm state.

CAUTION
ALARM SYSTEM ACTIVATION
Failure to follow this caution may result in emergency alarm system activation and possible injury or death.
Do not place the duct detector into the alarm state. Doing so will cause the test/reset station to indicate an alarm state. Before performing the test, disconnect all regulatory equipment from the controller before performing the test. If the duct detector is connected to a fire alarm system, notify the proper authorities before performing the test.

- Perform an alarm test using an SD-TRM4.
- Hold the test magnet to the target area for seven seconds.
- Verify that the test/reset station's Alarm LED turns on.
- After finishing an alarm test using an SD-TRM4, stop the sensor by holding the test magnet to the target area for two seconds.
- Verify that the test/reset station's Alarm LED turns off.

INSTALLATION

Mount the remote test/reset station on a single gang box as shown in Fig. 2.

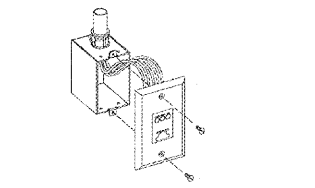
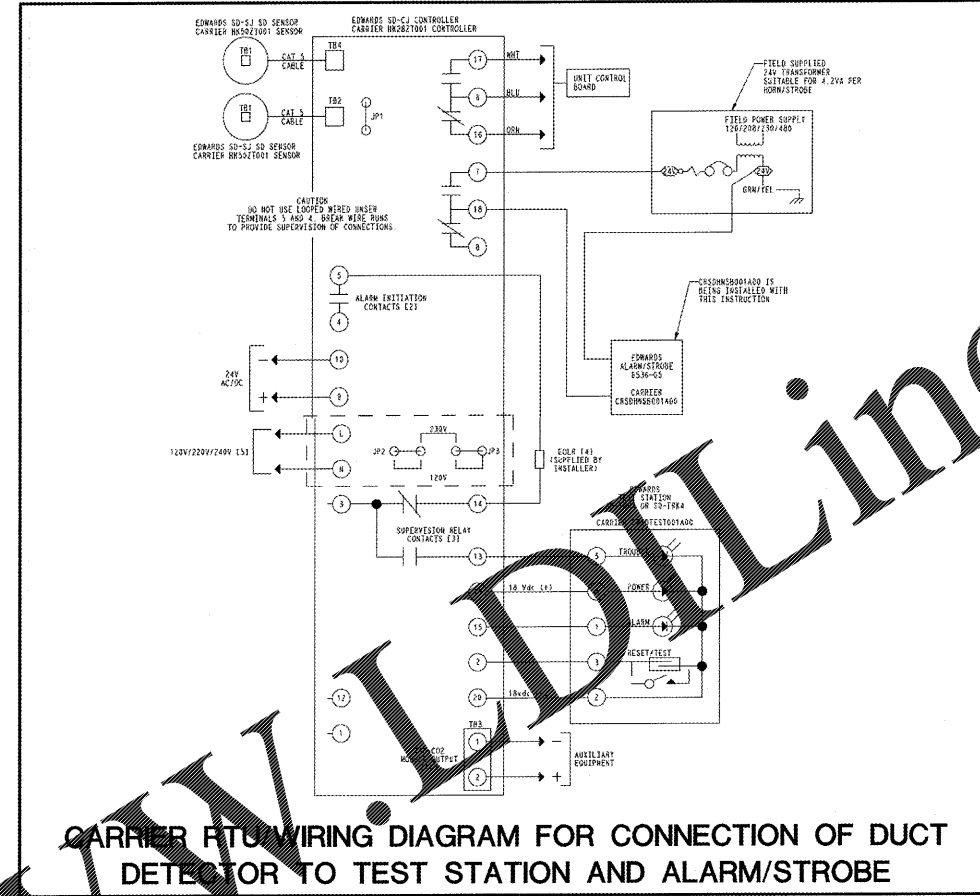


Fig. 2 - SD-TRM4 Installation Diagram

WIRING

Wire the remote test/reset station to the four-wire controller as shown in Fig. 3.



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

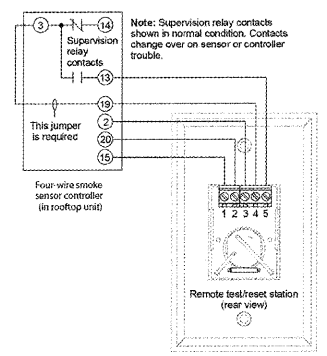


Fig. 3 - Wiring Diagram

EDWARDS SIGNALING PRODUCTS

Installation Instructions for the 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 code requirements must install this product. Failure to follow the safety precautions in this instruction sheet could result in product or property damage, severe personal injury or death.

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

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.

Table 1. Specifications

Operating Voltage	24V 50/60 Hz	24V DC
Alarm Current	175 mA	125 mA

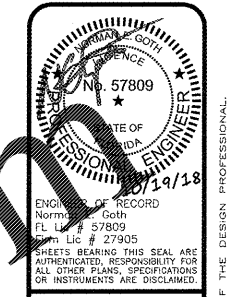
Figure 1. Details of Horn/Strobe

Figure 2. Connecting the Horn and Strobe

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DUCT DETECTOR - TEST STATION - ALARM/STROBE

Order Plans



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