

Factory Installed Smoke Detector Specification Sheet

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

APPLICABLE UNITS: 48/50PG, PM, PD 03-28
48/50TC 04-30, 48/50HC 04-28,
50TCC 04-24, 50HCO 04-12
48/50HC, 50HCO 003-000
48/50HJ, TM, TF 004-014
50HJQ, TFC 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 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 connection 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 inspection 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.

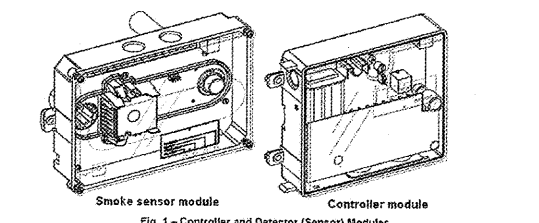


Fig. 1 - Controller and Detector (Sensor) Modules

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 155°F (3° to 70° C)
Humidity: 10% to 95% RH, non-condensing
• Magnet-activated test/reset sensor switches
• Tool-less connection terminal access
• Reversed momentary switch for testing and resetting the detector.

Table 1 - Controller Terminal Connections

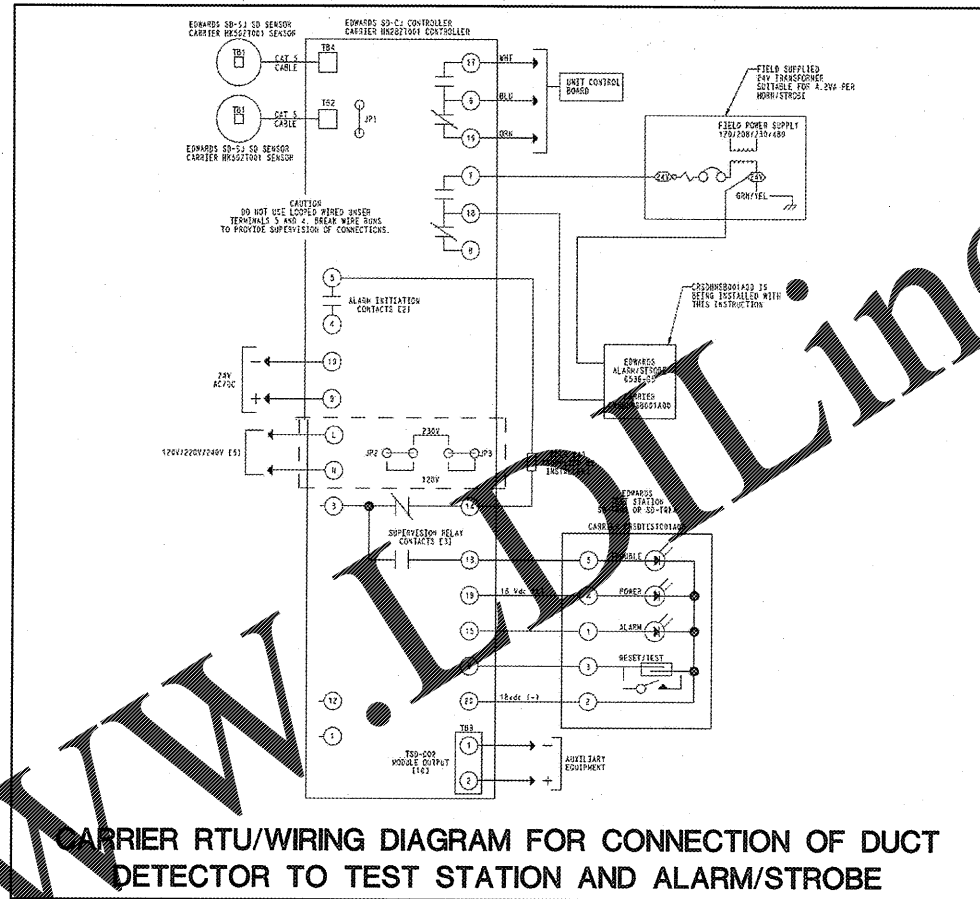
Terminal Number	Name
1	AUX (-)
2	Reset
3	SUPV Contact COM
4	Alarm Contact COM
5	Alarm Contact NO
6	AUX1 Contact COM
7	AUX2 Contact NO
8	24V A/D/C In (+)
9	Not Used
10	24V A/D/C In (+)
11	Not Used
12	Alarm Shutdown
13	SUPV Contact NO
14	SUPV Contact NC
15	REM Alarm LED Out
16	AUX1 Contact NC
17	AUX1 Contact NO
18	AUX2 Contact COM
19	18 VDC Output (+)
20	18VDC Output (-)
TB-1	Not Used
TB-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 as 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 detector modules.
• Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications.

Web Size:
High voltage terminals: 12-22 AWG
All others: 14-22 AWG
Operating voltages:
20-29 VDC: 175 mA
24VAC: 500 mA at 50/60 Hz
120VAC: 100 mA at 50 Hz
220/240 VAC: 55 mA at 50 Hz
40 mA at 60 Hz
LED indicators:
Red (Alarm)
Yellow (Trouble)
Green (Power)

Relays:
Alarm initiation relay:
Quantity: 1
Style: Normally open
Ratings: 2.0A at 30 VDC (resistive)
Auxiliary relays:
Quantity: 2
Style: Form C
Ratings: 10 A at 250 VAC
Supervision (trouble) relay:
Quantity: 1
Style: Form C
Ratings: 2.0A at 30 VDC (resistive)

Detector specifications:
Sensor:
8.70x5.45x1.90 in.
Smoke detection method: Photoelectric
Air velocity (min-max): 100 - 4,000 ft/min
Pressure differential (min-max): 0.035 - 1.00 in
Sensitivity: 0.67 to 2.48 % obscuration/ft
Wiring size: 14 to 22 AWG
Reset time: 2 second maximum
Power up time: 8 seconds max
Alarm test response time: 5 to 7 seconds
LED indicators:
Red (Alarm)
Yellow (Trouble)
Yellow (Dirty)
Green (Power)



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



Installation Instructions

IMPORTANT: Read these instructions completely before attempting to install the necessary Remote 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 grounding cloth for 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 (CEC) C22.1.

Recognize safety information. This is the safety-alert symbol. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signals words: DANGER, WARNING, and CAUTION. These words are used to alert you to the safety-alert symbol. DANGER identifies the most serious hazards which will result in personal injury or death. WARNING identifies potential hazards which can result in personal injury or death. CAUTION identifies potential hazards which may result in property damage, loss of or production of equipment, or which may result in installation, operation, or maintenance.

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 may be more than one disconnect switch. Turn off necessary heater power switch if applicable.

CAUTION
CUT HAZARD
Failure to follow this warning could result in personal injury. Sheet metal power tools have sharp edges or burrs. Use care and wear protective clothing.

WARNING
PERSONAL INJURY AND ENVIRONMENTAL HAZARD
Failure to relieve system pressure could result in personal injury and/or death. Before servicing existing equipment, and before any new installation, use all service ports and open all service valves. Use all service ports and open all service valves. Federal regulations require that you do not vent refrigerant into the atmosphere. Recover during system repair or final unit disposal.

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.)

REMOTE TEST/RESET STATION TEST PROCEDURE

CAUTION
ALARM SYSTEM ACTIVATION HAZARD
Failure to follow this caution may result in emergency air system activation and possible fines.

1. Hold the test magnet to the target area for seven seconds.
2. Verify that the test station's Alarm LED turns on.
3. After performing an alarm test using an SD-TRM4, reset the sensor by holding the test magnet to the target area for two seconds.
4. Verify that the test station's Alarm LED turns off.

INSTALLATION

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

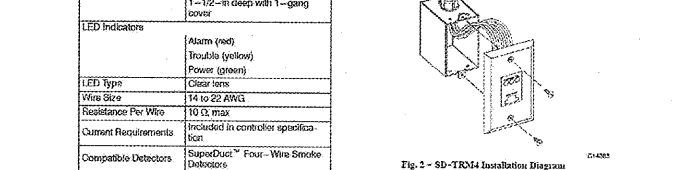


Fig. 2 - SD-TRM4 Installation Diagram

WIRING

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

Table 1. Specifications

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



Fig. 3 - Wiring Diagram

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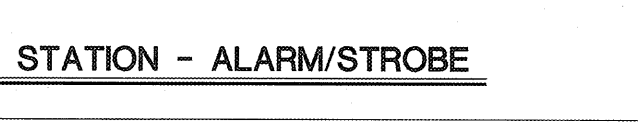


Fig. 3 - Wiring Diagram

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.

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 disconnecting. High energy could be stored in the strobe circuit once it is energized.

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

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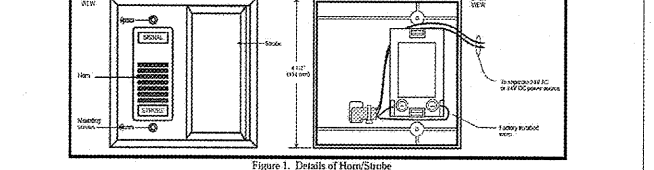


Figure 1. Details of Horn/Strobe

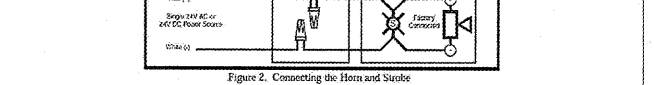
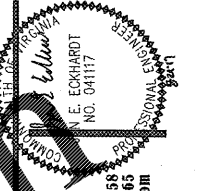


Figure 2. Connecting the Horn and Strobe



Craig A. Schneider, AIA
ARCHITECT
1736 East Sunshine, Suite 417
Springfield, Missouri 65804
417.862.0550
417.862.3285
FAX: 417.862.3285
e-mail: architect@estefscneider.com

PROJECT:
NEW O'REILLY AUTO PARTS STORE
SLIDING HILL PLACE
(ASHLAND, VA #2 - ASHLAND MAGISTERIAL DISTRICT)
HVAC DETAILS

O'Reilly AUTO PARTS
CORPORATE OFFICES
293 SOUTH PATTERSON
SPRINGFIELD, MISSOURI 65802
(417) 862-2674 TELEPHONE

COMM # 3993
DATE: 2-24-17
REVISION
DATE: 8-16-17

DUCT DETECTOR - TEST STATION - ALARM/STROBE