

Factory Installed Smoke Detector Specification Sheet

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

APPLICABLE UNITS: 4850PC, PMA, PD 03-28
4850TC, 04-30, 4850HC 04-26,
50TQ 04-24, 50HCC 04-12
4850HE, 50HED 03-06
4850RM, TRM, TR 03A, 014
50H2, TP2, 03A-012

GENERAL DATA

Type: Telemetry 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 (Remotely Activated 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-safety device. Factory installed smoke detectors require an additional sampling tube to be field installed.

SYSTEM DESCRIPTION

Controller - The controller includes a controller housing, a printed circuit board, and a clear plastic cover. The Carrier factory installed smoke detector system comprises a four-wire controller and one or two sensors (Remotely Activated 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-safety device. Factory installed smoke detectors require an additional sampling tube to be field installed.

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 must be installed 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 elements.

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 wind, causes the sensor to signal an alarm state but does not detect accumulated over time dust. When the sensor's ability to compensate for environmental changes has reached its limit (100% duty), 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 for 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.

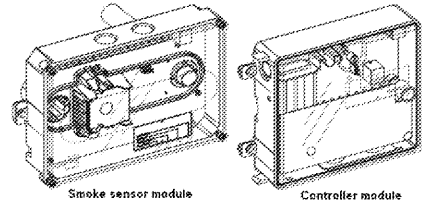


Fig. 1 - Controller and Detector (Sensor) Modules

1/2

11/1/2008

GUIDE SPECIFICATIONS

System Specifications:

- Separate controller and detector modules
- Four-Wire Controller and Detectors
- Photoelectric Sensing
- Environmental compensation with differential sensing for reliable, stable, and drift-free sensitivity
- Operating temperature:
 - Temperature: 20° to 131°F (-2° to 100° C)
 - Humidity: 10% to 95% R.H., non-condensing
- Magnet-actuated test/reset sensor switches
- Tool-less connection terminal access
- Recessed emergency switch for testing and resetting the detector

Table 1 - Controller Terminal Connections

Terminal Number	Name
1	ALM (+)
2	Reset
3	SLP/V Control COM
4	Alarm Control COM
5	Alarm Control NG
6	AUX 1 Control COM
7	AUX 2 Control NG
8	AUX 3 Control NG
9	24V AC/DC (+)
10	24V AC/DC (-)
11	Not Used
12	Multi-Stepdown
13	SLP/V Control NO
14	SLP/V Control NC
15	REM Alarm LED Out
16	AUX 1 Control NC
17	AUX 2 Control NO
18	AUX 3 Control COM
19	16 VDC Output (+)
20	16 VDC Output (-)
TS-1	Not Used
TS-2	Not Used
R	AC Neutral
L	AC Line

Controller specifications:

- Controller shall include:
 - One set of normally open alarm initiation contacts for connection to an initiating device contact on a fire alarm control panel
 - Two Form C auxiliary alarm relays for interface with rooftop unit or other equipment
 - One Form-C suppression (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

Wiring Data:

High voltage terminals: 12-22 AC/2W
All others: 14-22 AC/2W
Operating voltages: 20-29 VAC, 20-65 VDC
120 VAC, 50/60 Hz
220-240 VAC, 50/60 Hz

Operating current:

20-29 VDC: 175 mA
24 VAC: 500 mA at 50-60 Hz
120 VAC: 100 mA, 50 Hz
220-240 VAC: 75 mA at 60 Hz
83 mA at 50 Hz
80 mA at 60 Hz

LED indicators:

Red (Alarm)
Yellow (Trouble)
Green (Power)

Relays:

Alarm initiation relay: Quantity: 1
Normally open
2.0 A at 30 VDC (resistive)

Auxiliary relays:

Quantity: 2
Form C
10A at 50 VDC

Suppression (trouble) relay:

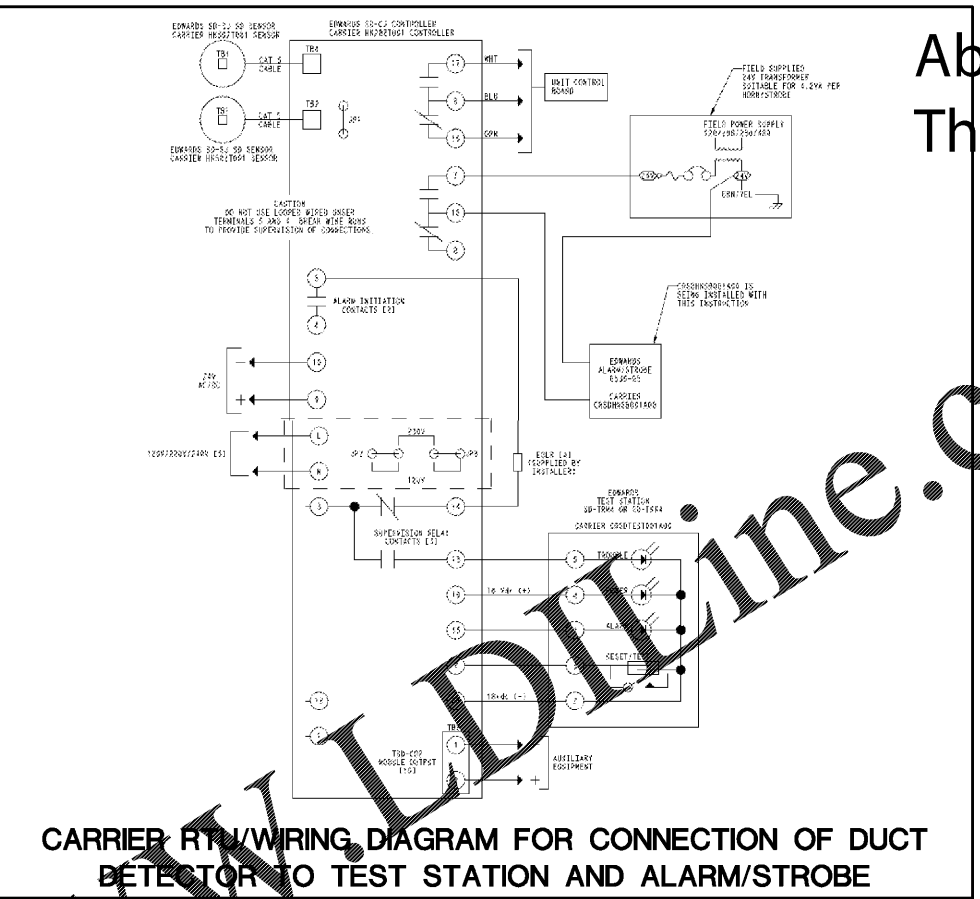
Quantity: 1
Form C
2.0 A at 90 VDC (resistive)

Detector specifications:

Sensor: 8.70x5.45x1.50 in.
Sensing detection method: Photoelectric
Air velocity (min-max): 100 - 4,500 FPM
Pressure differential (min-max): 0.025 - 1.00 in.
Diameter: 0.67 to 2.45 Non-conducting
Wiring size: 14 to 22 AWG
Reset time: 2 second maximum
Power up time: 8 seconds max
Alarm lead response time: 2 to 7 seconds
LED indicators: Red (Alarm)
Yellow (Trouble)
Green (Power)



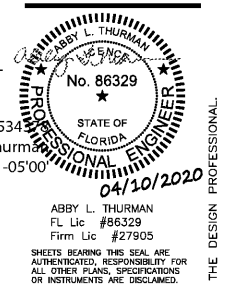
Turn to the Experts



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

Abby L Thurman

Digitally signed by Abby L Thurman
DN: c=US, o=Unaffiliated, ou=A01410D000016DD534, 000003578, cn=Abby L Thurman
Date: 2020.04.21 10:20:45 -05'00'

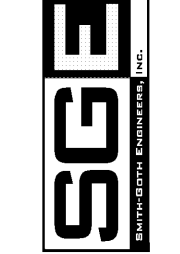


O'Reilly AUTO PARTS
CORPORATE OFFICES
233 SOUTH PATTERSON
SPRINGFIELD, MISSOURI 65802
(417) 862-2674 TELEPHONE

PROJECT:
NEW O'REILLY AUTO PARTS STORE
2425 COUNTY HIGHWAY 484
OCALA, FLORIDA

HVAC DETAILS

3885 S. JEFFERSON AVE.
SPRINGFIELD, MO 65803
P: 417-862-2200
F: 417-862-1188
WWW.O'REILLY.COM



DRAWN BY: LHT
CHECKED BY: ALT/BLC
DATE: 04/01/2020
REVISION:

PROJECT NUMBER: OF7
SHEET NUMBER

M3

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 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.

Trained 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 tools for tracing operations where fire extinguishers 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).

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 or death. 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 signifies 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 damage. NOTE is used to highlight suggestions which will result in enhanced installation, 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 may be more than one disconnect switch. Then, only necessary heater power switch if applicable.

CAUTION

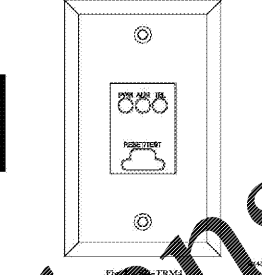
CUT HAZARD
Failure to follow this caution may result in personal injury.
Sharp metal parts may have sharp edges or burrs. Use care and wear appropriate clothing.

WARNING

PERSONAL INJURY AND ENVIRONMENTAL HAZARD
Failure to follow system safety instructions can result in personal injury or death. CAUTION is used to identify safety practices which may result in minor personal injury or property damage. NOTE is used to highlight suggestions which will result in enhanced installation, reliability, or operation.

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 trouble alarm levels. The SD-TRM4 requires a supervisor to activate test and reset functions. (See Fig. 1.)



SPECIFICATIONS

LED Indicators	Alarm (red) Trouble (yellow) Power (green)
LED Type	Clear lens
Wiring Size	14 to 22 AWG
Fluorescence Per Wire	100% max
Current Requirements	Included in controller specification
Compatible Detectors	SuperDuct™ Four-Wire Smoke Detectors
Operating Environment	Temperature: 32° - 131°F (-5° - 55° C) Humidity: 50% RH, non-condensing Storage Temperature: -20° to 80° C (-4° to 140° F)

REMOTE TEST/RESET STATION TESTS

The remote test station tests the SuperDuct™ Four-Wire Smoke Detector.

The remote test station tests the SuperDuct™ Four-Wire Smoke Detector.

CAUTION

ALARM SYSTEM ACTIVATION HAZARD
Failure to follow this warning could result in emergency alarm system activation and possible fines.
This test provides the alarm and trouble alarm state. Under normal conditions, all auxiliary equipment must be tested and performance checked. If the duct detector is connected to a fire alarm system, notify the fire alarm control panel before testing the test.

To perform the remote test on SD-TRM4:

1. Hold the magnet to the test area for seven seconds.
2. Verify that the test reset station's Alarm LED is 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 reset station's Alarm LED is off.

INSTALLATION

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

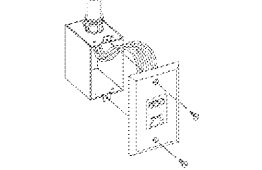


Fig. 2 - SD-TRM4 Installation Diagram

WIRING

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

Fig. 3 - Wiring Diagram

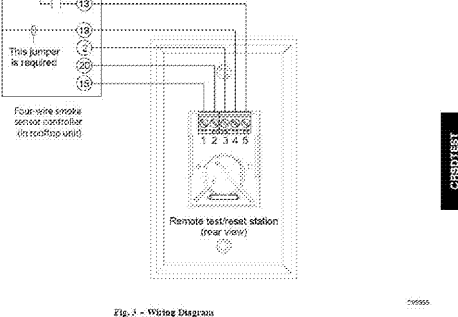


Fig. 3 - Wiring Diagram

EDWARDS SIGNALING PRODUCTS Installation Instructions for the 6536-G5 Horn/Strobe

Description
The 6536-G5 is a multi-voltage signal UL listed for general purpose signaling applications.

Installation
A qualified electrician familiar with National Electrical Code and local code requirements must install this device. 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. Do not connect AC power until installation is complete.

The 6536-G5 (horn/strobe) (Fig. 1) can be mounted on any single gang 2" x 4" (51 mm x 102 mm) electrical box, double gang 4" x 4" (102 mm x 102 mm) electrical box, or standard 4" x 4" (102 mm x 102 mm) junction box with a plaster ring.

1. Install an appropriate electrical box using suitable fasteners.

Table 1. Specifications	
Operating Voltage	24V 50/60 Hz 24V DC
Alarm Current	175 mA 125 mA

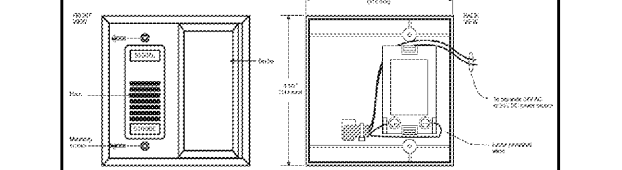


Figure 1: Details of Horn/Strobe

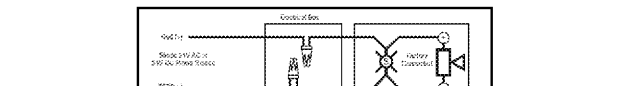


Figure 2: Connecting the Horn and Strobe

© EDWARDS, CT 203.880.3380 FAX 860.877.7348 P-047500-1872 (5/16) 1 of 1 page

DUCT DETECTOR - TEST STATION - ALARM/STROBE

REPRODUCTION PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF THE DESIGN PROFESSIONAL. © COPYRIGHT 2020-2021