

Factory Installed Smoke Detector Specification Sheet

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



Turn to the Experts

APPLICABLE UNITS: 48/56PG, PM, PD 03-28
49/56TC, 04-30, 49/56TC, 04-28,
50/52C, 04-14, 50/52C, 04-12
48/56HE, 52/HEQ 003-008
48/56HJ, TM, TF, 004-014
50/56JQ, TFO 004-012

GENERAL DATA

Type: TeMAre 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 (Remax Air and/or SuperAir). 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.

Detector - 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 houses no sample 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% duty), the sensor enters a trouble condition. Air is introduced to the 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 configurations.

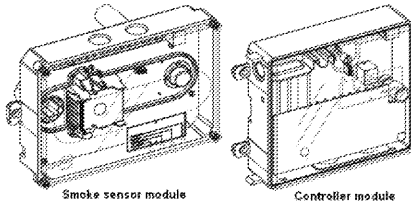


Fig. 1 - Controller and Detector (Sensor) Modules

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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 accuracy
- Operation environment: Temperature -20° to 150°F (-29° to 70° C) Humidity 10% to 95% RH, non-condensing
- Magnet-actuated test/reset sensor switches
- Tool-free connection terminal access
- Received necessary permits for testing and resetting the detector

Table 1 - Controller Terminal Connections

Terminal Number	Name
1	AUX (+)
2	Reset
3	SUPV Common COM
4	Alarm Contact COM
5	Alarm Contact NO
6	AUX 1 Contact COM
7	AUX 2 Contact NO
8	AUX 2 Contact NC
9	24V ACDC In (+)
10	24V ACDC In (-)
11	Not Used
12	MAIR Shutdown
13	SUPV Contact NO
14	SUPV Contact NC
15	REM Alarm LED Out
16	AUX 1 Contact NC
17	AUX 1 Contact NG
18	AUX 2 Contact COM
19	120VAC Output (+)
20	120VAC Output (-)
TR1-4	Not Used
TR5-8	Not Used
N	AC Neutral
L	AC Line

Controller specifications

- One set of normally open alarm initiation contacts for connection to an existing 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 supervisory 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

Wire Size: High voltage terminals: 12-22 AWG All others: 14-22 AWG
Operating voltages: 24VAC, 20-29 VAC, 50/60 Hz, 120VAC, 50/60 Hz, 220/240VAC, 50/60 Hz

Operating current: 20-29VDC: 175 mA 24VAC: 500 mA at 50/60 Hz 120VAC: 100 mA, 50 Hz 70 mA at 60 Hz 220/240VAC: 50 mA at 50 Hz 40 mA at 60 Hz

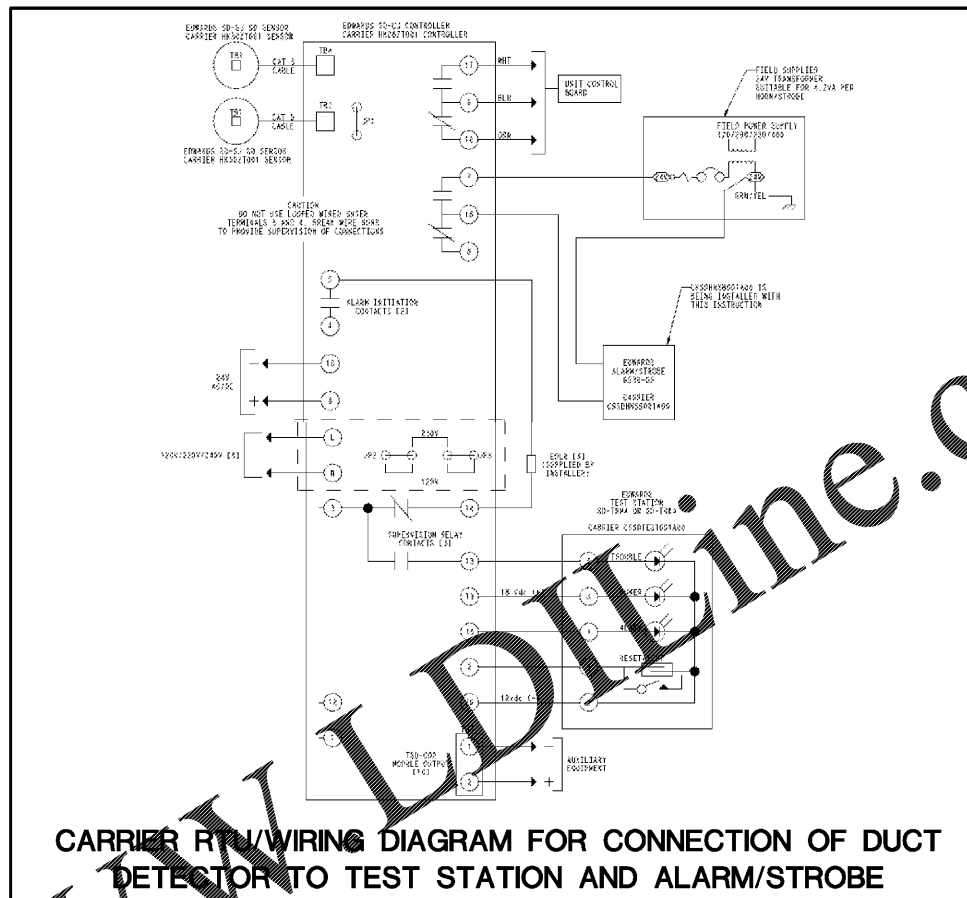
LED Indicators: Yellow (Trouble) Green (Power)

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

Detector specifications: Sensor: 8.70MS 45x1.50 in. Photoelectric Smoke detection method: 100 - 4,000 ft/min Precision differential (non-linear) Sensitivity: 0.05 - 1.00 in. 0.67 to 2.45 microns/cm Sensing chamber: 14 to 22 AWG 2 second maximum Power up time: 8 seconds max Alarm test response time: 5 to 7 seconds Field alarm: Yellow (Trouble) Yellow (Drift) Green (Power)



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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 Magnetar Test/Reset Station.

SAFETY CONSIDERATIONS

Installation and servicing of air conditioning equipment can be hazardous due to voltage presence and electrical components. Only trained and qualified personnel should install, repair, or service this equipment.

Unauthorized personnel can perform unsafe 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 slugged with the unit and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Use operating 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, the Canadian code 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 in instructions or manuals, be alert to the potential for personal injury. Understood 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 unsafe practices which may result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which will result in easier installation, reliability, or operation.

WARNING
ELECTRICAL SHOCK HAZARD
Failure to follow this warning could result in personal injury or death.
Before installing or servicing systems, always turn off main power to system and install lockout tag. There may be more than one disconnect switch. Then, cut accessory leads power source 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 adhere to safety instructions could result in personal injury or death.
1. Release pressure and recover all refrigerant before servicing. Do not open and do not use any devices, tools, or equipment that could create sparks or heat. Do not use any open flame or heat source near the unit. Do not use any flammable or volatile liquids near the unit. Do not use any flammable or volatile liquids near the unit. Do not use any flammable or volatile liquids near the unit. Do not use any flammable or volatile liquids near the unit.

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 magnetar to activate test and reset functions. (See Fig. 1.)

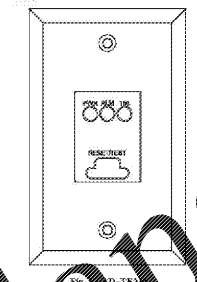


Fig. 2 - SD-TRM4

SPECIFICATIONS

Dimensions (inches)	North American 1-gang box Standard 4-in 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 For Wires	10 Ω max (included in controller specifications)
Compatible Detectors	SuperDuct™ Four-Wire Smoke Detectors
Operating Environment	Temperature 50° - 151°F (0° - 60°C) Humidity 10% 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 checks the detector's ability to indicate and initiate a fault.

CAUTION
ALARMS SYSTEM OPERATION HAZARD
Failure to follow this caution could result in emergency alarm to which activation and possible fires.
This test activates the detector and the alarm state. Under part of the test, the detector will initiate the test and the detector will indicate a fault alarm state. Verify the test results before proceeding.

- To perform the alarm test using an SD-TRM4:
1. Hold the magnetar in the danger area for seven seconds.
 2. Verify that the test/reset station's alarm LED has lit.
 3. After performing an alarm test using an SD-TRM4, reset the magnetar by holding the magnetar to the target area for two seconds.
 4. Verify that the test/reset station's alarm LED has lit.

INSTALLATION

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

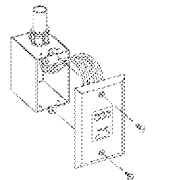


Fig. 3 - SD-TRM4 Installation Diagram

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

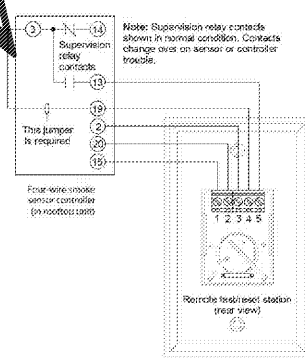


Fig. 3 - Wiring Diagram

EDWARDS

Installation Instructions for the 6536-G5 Horn/Strobe

Description
The 6536-G5 is an audio/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 once a year or when an alarm is indicated 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	120 mA

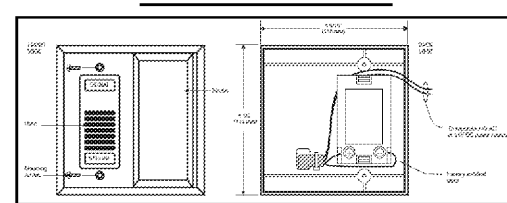


Figure 1. Details of Horn/Strobe

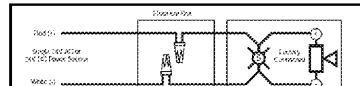


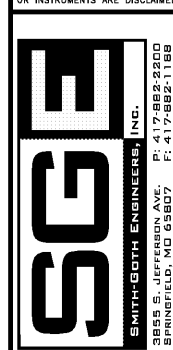
Figure 2. Connecting the Horn and Strobe

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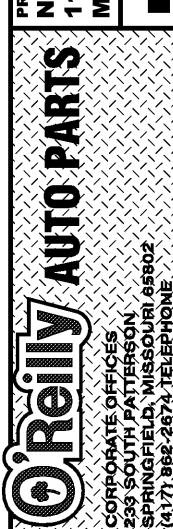


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PROJECT:
NEW O'REILLY AUTO PARTS STORE
1178 COUNTY LINE ROAD
MADISON, AL 35758

HVAC DETAILS



DATE:
05/10/2019

REVISION:

PROJECT NUMBER:
19098-MS3

SHEET NUMBER:
M3

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DUCT DETECTOR - TEST STATION - ALARM/STROBE