

Factory Installed Smoke Detector Specification Sheet

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

APPLICABLE UNITS: 48/50/55 P.M. PD 03 28
48/50/55 C.04-30 48/50/55 C.04-28
50/52/53 C.04-30 50/52/53 C.04-12
48/50/55 H.E. 50/52/53 Q03-D08
48/50/55 H.J. T.M. T.F. 004-014
50/52/53 T.F.Q. 004-012

GENERAL DATA

Type: Telex 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 (Rohm Air and/or Supra-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 status 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 fits over a 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 signals 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 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.

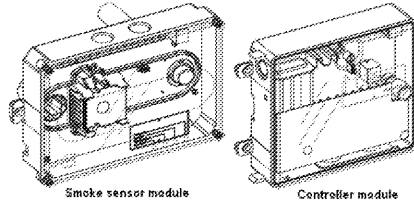


Fig. 1 - Controller and Detector (Sensor) Modules

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11/1/2008



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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 sensitivity
 - Operating environment:
 - Temperature: -20° to 150°F (-29° to 70° C)
 - Humidity: 10% to 93% RH, non-condensing
 - Approved-approved heat/cool sensor switches
 - Field wire connection terminal access
 - Reserved connection points for testing and resetting the detector

Table 1 - Controller Terminal Connections

Terminal Number	Name
1	ALX 1
2	Reset
3	SUPPLY Contact G2M
4	Alarm Contact G2M
5	Alarm Contact NO
6	ALX 1 Contact G2M
7	ALX 2 Contact NG
8	ALX 2 Contact NG
9	24V AC/DC (+)
10	24V AC/DC (+)
11	Not used
12	Mult. Shutdown
13	SUPPLY Contact NO
14	SUPPLY Contact NC
15	REM Alarm LED Out
16	ALX 1 Contact NC
17	ALX 1 Contact NG
18	ALX 2 Contact G2M
19	10 VDC Contact (+)
20	10 VDC Contact (+)
21	Not used
22	Not used
N	AC Neutral
L	AC Line

Controller specifications:

- Coordination 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 suppression (normally) 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:
24 VAC: 20-25 VAC, 50/60 Hz
120 VAC: 75 mA at 50 Hz
220/240 VAC: 53 mA at 50 Hz
40 mA at 60 Hz
LED indicators:
Yellow (Trouble)
Green (Power)

Operating current:
20-25VDC: 175 mA
500 mA at 50/60 Hz
100 mA, 50 Hz
75 mA at 50 Hz
53 mA at 50 Hz
40 mA at 60 Hz
220/240 VAC: 53 mA at 50 Hz
40 mA at 60 Hz
LED indicators:
Yellow (Trouble)
Green (Power)

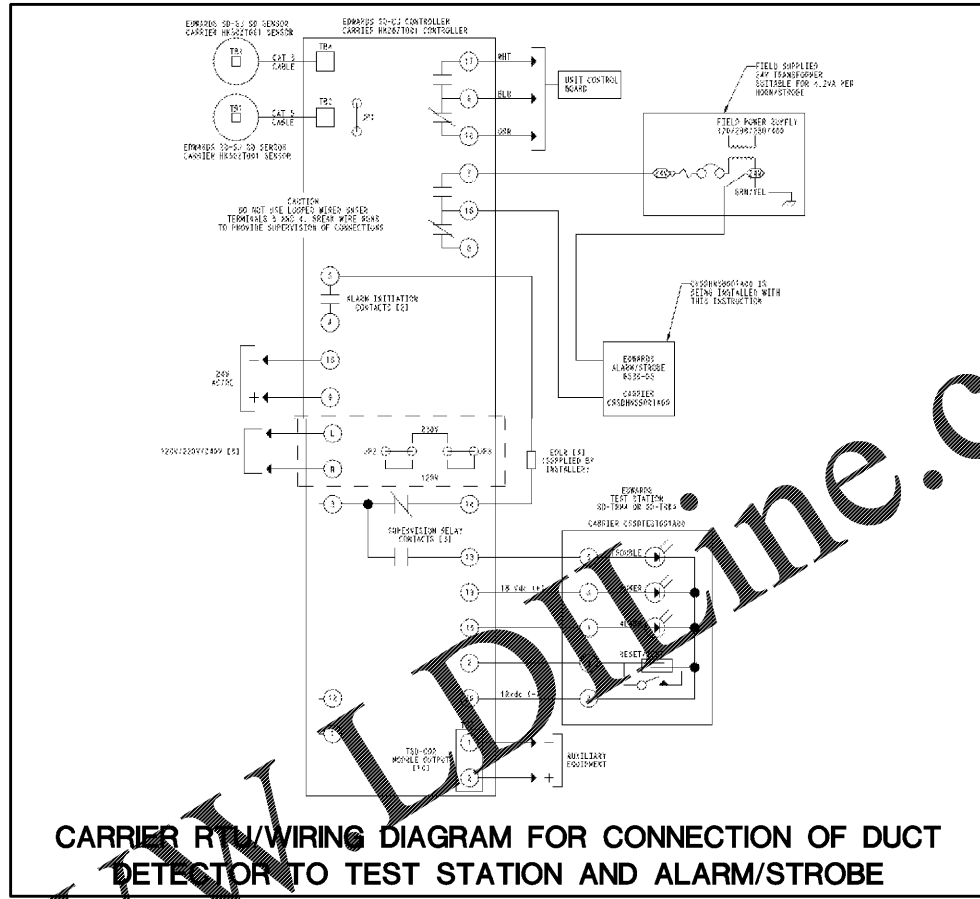
Relays:
Alarm initiation relay:
Quantity: 1
Normally open
2.0A at 30 VDC (resistive)
Suppression:
Quantity: 2
Form C
10A at 50 VDC
10A at 50 VDC
2.0A at 30 VDC (resistive)

Relays:
Alarm initiation relay:
Quantity: 1
Normally open
2.0A at 30 VDC (resistive)
Suppression:
Quantity: 2
Form C
10A at 50 VDC
10A at 50 VDC
2.0A at 30 VDC (resistive)

Detector specifications:
Sensing: 0.70x0.45x1.50 in.
Smoke detection method: Photoelectric
Air velocity (max. acc.): 100 - 4,000 FPM
Pressure differential (min-max): 0.005 - 1.00 in.
Sensitivity: 0.57 to 2.48 micrograms/liter
Wire size: 14 to 22 AWG
Reset time: 2 seconds maximum
Power up time: 8 seconds max
Alarm test response time: 5 to 7 seconds
LED indicators:
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

CRSD/TEST001A00 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 voltage presence and electrical components. Only trained and qualified personnel should install, repair, or service this equipment.

Unauthorized 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 slugged with the unit and other safety precautions that may apply.

Follow all safety orders, 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, the Canadian code to the current edition 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. 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 serious personal injury or death. WARNING signifies hazards which could result in personal injury or death. CAUTION is used to alert the user to unsafe 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 systems, always turn OFF main power to system and install lockout tag. There may be more than one disconnect switch. Use all necessary safety control devices 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 relieve system pressure may result in personal injury or death.
1. Relieve pressure and vent all air before hand to avoid injury.
2. Do not use compressed air to clean your face or clothes.
3. Do not use compressed air to clean others.
4. Do not use compressed air to clean equipment.
5. Do not use compressed air to clean skin.
6. Do not use compressed air to clean clothing.
7. Do not use compressed air to clean shoes.
8. Do not use compressed air to clean hair.
9. Do not use compressed air to clean eyes.
10. Do not use compressed air to clean mouth.
11. Do not use compressed air to clean ears.
12. Do not use compressed air to clean nose.
13. Do not use compressed air to clean throat.
14. Do not use compressed air to clean chest.
15. Do not use compressed air to clean back.
16. Do not use compressed air to clean hands.
17. Do not use compressed air to clean feet.
18. Do not use compressed air to clean body.
19. Do not use compressed air to clean face.
20. Do not use compressed air to clean hair.
21. Do not use compressed air to clean skin.
22. Do not use compressed air to clean clothing.
23. Do not use compressed air to clean shoes.
24. Do not use compressed air to clean hair.
25. Do not use compressed air to clean skin.
26. Do not use compressed air to clean clothing.
27. Do not use compressed air to clean shoes.
28. Do not use compressed air to clean hair.
29. Do not use compressed air to clean skin.
30. Do not use compressed air to clean clothing.
31. Do not use compressed air to clean shoes.
32. Do not use compressed air to clean hair.
33. Do not use compressed air to clean skin.
34. Do not use compressed air to clean clothing.
35. Do not use compressed air to clean shoes.
36. Do not use compressed air to clean hair.
37. Do not use compressed air to clean skin.
38. Do not use compressed air to clean clothing.
39. Do not use compressed air to clean shoes.
40. Do not use compressed air to clean hair.
41. Do not use compressed air to clean skin.
42. Do not use compressed air to clean clothing.
43. Do not use compressed air to clean shoes.
44. Do not use compressed air to clean hair.
45. Do not use compressed air to clean skin.
46. Do not use compressed air to clean clothing.
47. Do not use compressed air to clean shoes.
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49. Do not use compressed air to clean skin.
50. Do not use compressed air to clean clothing.
51. Do not use compressed air to clean shoes.
52. Do not use compressed air to clean hair.
53. Do not use compressed air to clean skin.
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55. Do not use compressed air to clean shoes.
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58. Do not use compressed air to clean clothing.
59. Do not use compressed air to clean shoes.
60. Do not use compressed air to clean hair.
61. Do not use compressed air to clean skin.
62. Do not use compressed air to clean clothing.
63. Do not use compressed air to clean shoes.
64. Do not use compressed air to clean hair.
65. Do not use compressed air to clean skin.
66. Do not use compressed air to clean clothing.
67. Do not use compressed air to clean shoes.
68. Do not use compressed air to clean hair.
69. Do not use compressed air to clean skin.
70. Do not use compressed air to clean clothing.
71. Do not use compressed air to clean shoes.
72. Do not use compressed air to clean hair.
73. Do not use compressed air to clean skin.
74. Do not use compressed air to clean clothing.
75. Do not use compressed air to clean shoes.
76. Do not use compressed air to clean hair.
77. Do not use compressed air to clean skin.
78. Do not use compressed air to clean clothing.
79. Do not use compressed air to clean shoes.
80. Do not use compressed air to clean hair.
81. Do not use compressed air to clean skin.
82. Do not use compressed air to clean clothing.
83. Do not use compressed air to clean shoes.
84. Do not use compressed air to clean hair.
85. Do not use compressed air to clean skin.
86. Do not use compressed air to clean clothing.
87. Do not use compressed air to clean shoes.
88. Do not use compressed air to clean hair.
89. Do not use compressed air to clean skin.
90. Do not use compressed air to clean clothing.
91. Do not use compressed air to clean shoes.
92. Do not use compressed air to clean hair.
93. Do not use compressed air to clean skin.
94. Do not use compressed air to clean clothing.
95. Do not use compressed air to clean shoes.
96. Do not use compressed air to clean hair.
97. Do not use compressed air to clean skin.
98. Do not use compressed air to clean clothing.
99. Do not use compressed air to clean shoes.
100. Do not use compressed air to clean hair.

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

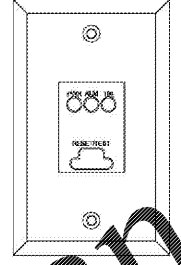


Fig. 1 - SD-TRM4 Remote Test/Reset Station

REMOTE TEST/RESET STATION TESTS

Test/reset station alarm test using the Super Duct™ Four-Wire Smoke Detector
The test/reset station alarm test checks the detector's ability to initiate and indicate an alarm condition.

CAUTION
ALARM SYSTEM ACTIVATION HAZARD
Failure to follow this caution may result in emergency alarm activation and possible fines.
This warning is the detector's test station. Under no circumstances should the test station be connected to the fire alarm system. Failure to follow this warning may result in personal injury or death.

- To perform the alarm test using the SD-TRM4:
- Hold the magnet in the danger area for seven seconds.
 - Verify that the test/reset station's Alarm LED turns on.
 - After performing an alarm test using the SD-TRM4, reset the magnet by holding the reset 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.

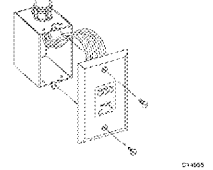


Fig. 2 - SD-TRM4 Installation Diagram

WIRING

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

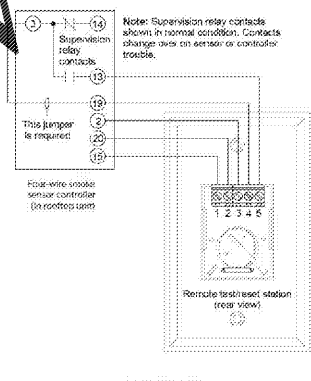


Fig. 3 - Wiring Diagram

EDWARDS 6536-G5 HORN/STROBE

Installation Instructions for the 6536-G5 Horn/Strobe

Description
The 6536-G5 is an audio/visual signal UE. Used for general purpose signaling applications.
NOTE: To ensure the horn and strobe to different distances, between the test/reset, remove the two wires and cap off with wire nuts.

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 literature 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.

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.

Picture regularly scheduled testing at least once a year or as directed by local authorities having jurisdiction.

Table 1: Specifications

Operating Voltage	24V 50/60 Hz	24V DC
Alarm Current	175 mA	120 mA

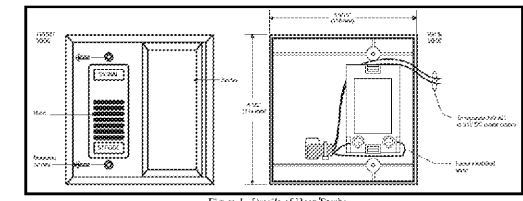


Figure 1: Details of Horn/Strobe

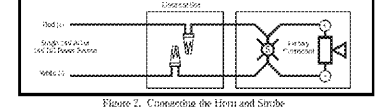


Figure 2: Connecting the Horn and Strobe

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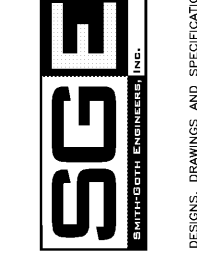


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O'Reilly AUTO PARTS
CORPORATE OFFICES
233 SOUTH PATTERSON
SPRINGFIELD, MISSOURI 65802
(417) 862-2674 TELEPHONE

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DUCT DETECTOR - TEST STATION - ALARM/STROBE

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