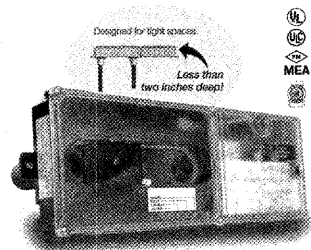


## Four-wire Duct Smoke Detector SD-4WJ



**Overview**

Edwards SuperDuct smoke detectors are the most advanced and most reliable detectors in their class. Designed for easy installation and superb reliability, SuperDuct represents the perfect balance of practical design and advanced technology.

Reliability and stability are two features built into every SuperDuct detector. SuperDuct features environmental compensation with patented differential sensing. This achieves a level of stability and reliability never before achieved for detectors of this type. With differential sensing, SuperDuct detectors are immune from sensitivity drift — a common cause of false alarms. Every eight minutes the SuperDuct sensor checks its environment for dirt, humidity or other conditions that normally interfere with sensor operation, and automatically adjusts its sensitivity to compensate. The result is unparalleled reliability and rock-solid stability — two features essential to any duct smoke detector application.

Sensitivity testing and diagnostics reveal some of the most exciting innovations built into SuperDuct. With the ingenious SuperDuct remote test station, a sensitivity test can be performed at any time from the safety and comfort of a maintenance office or utility room. Coordinated either by key or by magnet, the one-gang station also performs alarm tests for detectors connected to a single controller. Detectors may also be tested at the controller via a test switch, or they can be tested individually in the field with a simple, one-hand operated magnetic test tool. Access to the magnetic test switch does not require the detector cover to be removed, so testing can be performed quickly and easily.

A dedicated dirty/trouble LED on each unit offers immediate at-a-glance information even when the cover is closed.

**Standard Features**

- Less than 2" deep for easy installation
- PCB mounted photoelectric detector with on-board intelligence
- Environmental compensation with patented differential sensing
- 4" x 1.5" (102 x 38 mm) operating range
- 100 ft/min. to 4,000 ft/min. air velocity rating
- Standard FM45 modular interconnection
- Status LEDs remain visible through clear assembly cover
- Cover hanger not needed for added security
- Standard sampling tube and mounting holes
- Install in tandem with the controller assembly, or remotely from it
- Sampling tubes install from front side or back side of housing
- Other conditions that normally interfere with sensor operation, and automatically adjusts its sensitivity to compensate. The result is unparalleled reliability and rock-solid stability — two features essential to any duct smoke detector application.
- No need to open the detector for installation

**Controller**

- One controller for up to two detectors
- Standard connections for easy migration from other detectors
- 24 Vdc, 24 Vdc, 120 Vac or 230 Vac operation
- Status LEDs remain visible through clear assembly cover
- Knockouts located on the bottom
- Alarm contacts, trouble contacts, and two 10 amp auxiliary contacts does not require the detector cover to be removed, so testing can be performed quickly and easily.
- Interconnect up to 16 controllers for multiple fan shut-down

**Specifications**

Dimensions	Controller: 6.75" x 6.45" x 1.60" inches (17.16 cm x 16.34 cm x 4.83 cm) Sensor: 4.75" x 6.45" x 1.60" inches (12.16 cm x 16.34 cm x 4.83 cm)
Wiring distance	Controller with sensor: 14.5" x 5.45" x 1.90" (36.83 cm x 13.84 cm x 4.83 cm) High voltage power input terminals: 6.84" #12 to #22 AWG All others: #14 to #22 AWG Detector to Controller: 100 feet max for each detector Test Station to Controller: 100 feet max, per wire (6.621 feet with 22 AWG, 5.062 feet with 14 AWG) Controller Interconnect: 500 feet max between first and last controller (6.310 feet with 22 AWG, 1.978 feet with 14 AWG)
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FM45 wiring harness	Cable type: CMP
Smoke detection method	Photoelectric
AC security rating	100 to 4,000 ft/min and meets the minimum air pressure differential
AC security differential	Close to 1.00 inch of water
Sensitivity	0.87 to 2.68 Siccoburns/ft
Reset time	2 seconds, max.
Power up time	8 seconds, max.
Alarm test response time	5 to 7 seconds
Controller LED indicators	Alarm (red), Trouble (yellow), Power (green)
Sensor LED indicators	Alarm (red), Trouble (yellow), Dirty (yellow), Power (green)
Alarm validation relay	Quantity: 1 Style: Normally open Ratings: 2.0 A at 30 Vdc (resistor)
Accessory relay	Quantity: 2 Style: Form C Rating: 10 A at 30 Vdc, 10 A at 250 Vdc (resistor must switch a minimum of 100 mA at 5 Vdc)
Supervision (trouble) relay	Quantity: 1 Style: Form C Rating: 2.0 A at 30 Vdc (resistor)
Operating environment	Temperature (S.L.): -4 to 125 °F (-20 to 70 °C), Temperature (R.L.C): -4 to 125 °F (-20 to 49 °C) Relative humidity: 10 to 95%, noncondensing
Operating voltage	24 Vdc, 24 V AC at 50/60 Hz, 120 V AC at 50/60 Hz
Agency Approval	UL, LULU, CSA, FM, MEA

**Accessories**

- FM45 wiring harnesses**  
These 8-conductor cables are used to interconnect detectors with controllers. Harnesses are available in 5 ft, 10 ft, and 15 ft lengths. They include FM45 connectors with rubber glands to provide a watertight seal at each end.
- Air Sampling Tubes**  
Rigid metal sampling tubes are available in several lengths. They can be installed without the need to open the detector.

- Remote Test/Reset Station**  
The Remote Test/Reset Station provides alarm test or dirty test capability from a remote location. It includes a one-gang plastic, momentary SPST switch, red alarm LED, yellow trouble LED, green power LED, and terminal block. Magnetically-operated or key-operated models are available.

Current Load @ 24 Vdc:  
standby = 6 mA  
alarm = 15 mA max.

- Air Velocity Test Kit**  
With this kit, and a suitable manometer, testing can be carried out with the duct detector fully installed and wired.

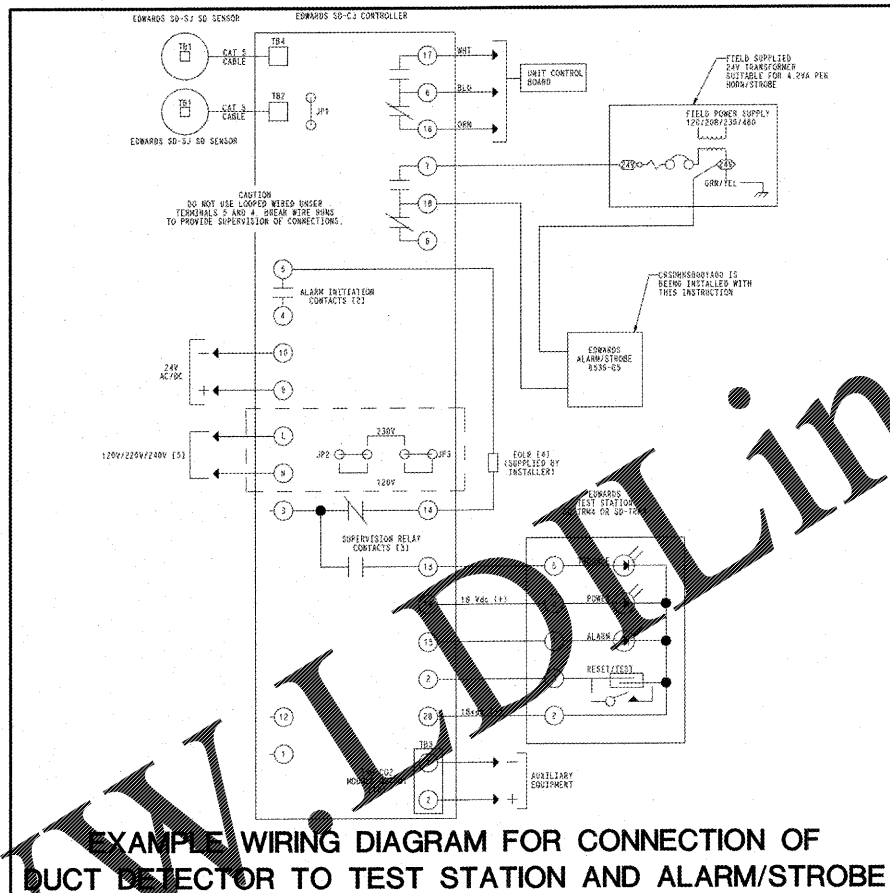
- Test Magnet**  
Used to activate test routine from either a SD-TRM4 Remote Test/Reset Station, or the detector.

**Ordering information**

Quantity	Description	Price/Unit
1	Controller (RM45)	2.4 (1.1)
1	SD-5U Sensor (RM45)	2.4 (1.1)
1	SD-4WJ Controller/wireless (RM45)	3.7 (1.4)
1	SD-CT Controller (terminal)	2.4 (1.1)
1	SD-8T Sensor (terminal)	2.4 (1.1)

Quantity	Description	Price/Unit
1	SD-78 Air sample tube, 8 inch	0.5 (0.2)
1	SD-716 Air sample tube, 16 inch	1.0 (0.7)
1	SD-724 Air sample tube, 24 inch	1.5 (0.9)
1	SD-736 Air sample tube, 36 inch	3.0 (1.4)
1	SD-742 Air sample tube, 42 inch	3.6 (1.6)
1	SD-760 Air sample tube, 60 inch	5.9 (2.8)
1	SD-778 Air sample tube, 78 inch	4.1 (1.9)
1	SD-1120 Air sample tube, 120 inch	11.5 (5.2)
1	SD-RM45 FM45 wiring harness kit - 5 ft	1.5 (0.7)
1	SD-RM10 FM45 wiring harness kit - 10 ft	1.5 (0.7)
1	SD-RS25 FM45 wiring harness kit - 5 ft	0.6 (0.3)
1	SD-TRM4 Remote test/reset station, magnetic	1.0 (0.5)
1	SD-TRM4 Remote test/reset station, keypad	1.0 (0.5)
1	RM45A Remote test/reset station, keypad	1.0 (0.5)
1	SD-947 Protective housing for high velocity areas	0.5 (0.2)
1	SD-VTK Air velocity test kit (step-down, 8ft)	1.0 (0.5)
1	SD-CSR Cover spacer kit	0.5 (0.2)
1	SD-MMS Test magnet kit	0.5 (0.2)
1	SD-4WV-CBT Replacement PCB/sensor kit (terminal)	1.0 (0.5)
1	SD-4WV-CBJ Replacement PCB/sensor kit (RM45)	1.0 (0.5)
1	7140789-01 Replacement FM45 interconnect cable	0.5 (0.2)



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

**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. 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 cautioning 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 CSA C22.1.

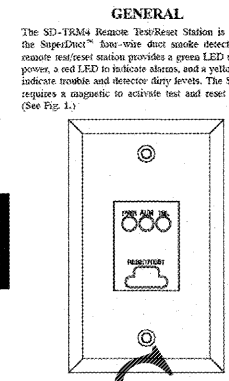
Recognize safety information. This is the safety-alert symbol. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury. Understand these signal words: DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies 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 unsafe practices which may result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which will enhance installation, operation, reliability, or performance.

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

**CAUTION**  
CUT HAZARD  
Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Use cautioning 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 CSA C22.1.

**WARNING**  
PERSONAL INJURY AND ENVIRONMENTAL HAZARD  
Failure to follow this warning could result in personal injury or death.

1. Relieve pressure and recover refrigerant before servicing existing equipment and before final disposal. Use all service personnel and all safety devices including safety goggles and safety glasses. Observe the applicable regulations which may result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which will enhance installation, operation, reliability, or performance.



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

**REMOTE TEST/RESET STATION TESTS**

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

**CAUTION**

ALARM SYSTEM ACTIVATION  
Failure to follow this caution may result in alarm system activation and possible fines.

This test bypasses the duct detector into the alarm state. Unless the test is terminated, all audible equipment from the controller before performing the test. The duct detector is connected to a fire alarm control panel for proper activation before performing the test.

1. Hold the test/reset station's Alarm LED turns off.
2. After performing the alarm test using an SD-TRM4, reset the sensitivity holding the test magnet to the target area for three seconds.
3. After 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.

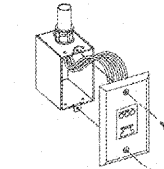


Fig. 1 - SD-TRM4 Installation Diagram

**WIRING**

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

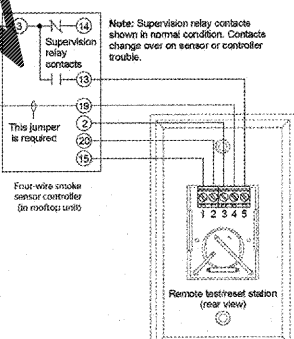


Fig. 3 - Wiring Diagram

**Edwards 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. 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.

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

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

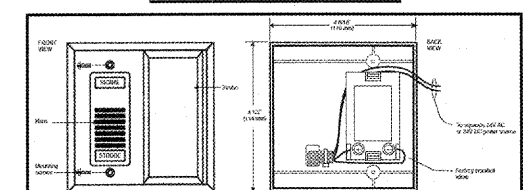


Figure 1. Details of Horn/Strobe

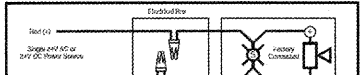


Figure 2. Connecting the Horn and Strobe

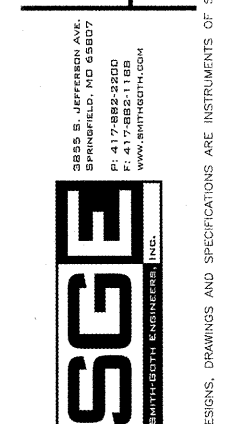


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**PROJECT: NEW O'REILLY AUTO PARTS STORE 2730 HIGHWAY 80 EAST PEARL, MISSISSIPPI**

**HVAC DETAILS**



DRAWN BY: **RM** CHECKED BY: **NEG**  
DATE: **05/11/18**  
REVISION:  
PROJECT NUMBER: **PEA-0994**  
SHEET NUMBER

**M3**

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