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by Honeywell

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INSTALLATION AND MAINTENANCE INSTRUCTIONS FOR MODEL SD-851E LOW PROFILE PHOTOELECTRONIC SMOKE DETECTOR

Before installing detectors, please thoroughly read System Sensor's guide for the proper use of system smoke detectors, which provides detailed information on detector spacing, placement, zoning, wiring, and special applications. Copies of this manual are available at no charge from Notifier.

GENERAL DESCRIPTION

Model SD-851E photo-electronic detectors use state-of-the-art optical sensing chambers. The ability to plug these detectors into a variety of base options extends panel compatibility and application flexibility. **These detectors are designed to provide open area protection and are only to be used with compatible control panels.**

A bicolour LED on each detector lights red to provide a local visible alarm indication, and may also be set to flash green to indicate correct operation of the detector. Remote LED annunciator capability is available as an optional accessory wired to the standard base terminals. These detectors also have a latching alarm feature. The alarm can only be reset only by a momentary power interruption.

Three sensitivity settings are available on the SD-851E: high, medium and low. These sensitivities are set using a dedicated tool available from Notifier. This tool may also be used to access operating data from the detector, see the operating manual for the tool for further details.

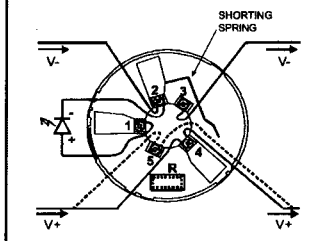
SPECIFICATIONS

Height	47mm (mounted in a B401 base)
Diameter	102 mm
Weight	105g (excluding base)
Operating temperature range	-30°C to 70°C
Supply voltage	8 - 30VDC
Air velocity	20m/s (4000 ft/min)
Humidity	5 - 95%RH (non-condensing)
Quiescent current	50µA Typical
Maximum alarm current	80mA (Limited by panel or base resistance)
Latching alarm	Reset by momentary power interruption.

This detector has been independently tested and certified to EN54-7.

Note: Do not install in locations where the normal ambient temperature range extends beyond 0°C to 50°C for extended periods, particularly if icing or condensation may be expected.

Figure 1: Base Terminal Wiring



NOTE: WHEN A BASE FITTED WITH A RESISTOR (R) BETWEEN TERMINALS 4 AND 5 IS USED, THE WIRING SHOULD FOLLOW THE DASHED LINE.
A SCHOTTKY DIODE CONNECTED BETWEEN TERMINALS 2 AND 3 DOES NOT AFFECT BASE WIRING.

BASE MOUNTING AND WIRING INSTRUCTIONS

Verify that the detector base supplied is compatible with the system control panel.

400 series bases may be mounted to standard electrical junction boxes with 50-60 mm centre fixings.

See figure 1 for terminal connections on standard bases. If relay bases are to be used, please refer to the relevant base instructions, and packaging.

Notes:

1. Series 800 detectors are polarity conscious, and must be wired as indicated.
2. Do not loop wire under terminals: break the wire run to ensure supervision of connections.
3. All wiring must conform to applicable local and national codes and regulations.
4. It is not recommended to mix 800 series detectors with other range detectors on the same detection line.

Each 400 series base is fitted with a shorting spring, which may be used to connect across terminals 2 and 3 to permit loop wiring to be checked before installation of detector heads. This spring automatically disengages when the detector is fitted into the base.

WARNING

Remove power from detector monitoring circuits before installing detectors.

DETECTOR INSTALLATION

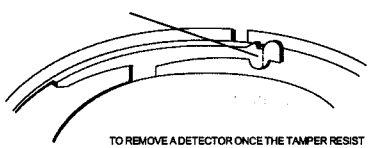
1. Place the detector into the detector base and rotate the detector clockwise with gentle pressure until the detector drops into place.
2. Continue rotating the detector clockwise to lock it in place.
3. After all detectors have been installed, apply power to the detector monitoring circuits.
4. Test the detector as described under **TESTING**.
5. Reset the detector at the system control panel.

Tamper-resistance

The detector bases include a feature that, when activated, prevents removal of the detector without the use of a tool. See figure 2 for details.

Figure 2: Tamper Resist Feature

TO ACTIVATE THE TAMPER RESIST FEATURE, BREAK TAB ON PLASTIC LEVER AT DOTTED LINE BY TWISTING TOWARD CENTRE OF BASE



TO REMOVE A DETECTOR ONCE THE TAMPER RESIST FEATURE HAS BEEN ACTIVATED, INSERT A SMALL SCREWDRIVER INTO THE SLOT IN THE SIDE OF THE BASE AND APPLY PRESSURE TOWARDS THE BASE WHILST ROTATING THE DETECTOR IN AN ANTI-CLOCKWISE DIRECTION.

CAUTION

Dust covers are fitted to the detectors to help protect units during shipment and when first installed. They are not intended to provide complete protection against contamination; therefore detectors should be removed before beginning construction, major re-decoration or other dust producing activity. Dust covers must be removed before the system can be made operational.

TESTING

Detectors must be tested after installation and following periodic maintenance. However, before testing, notify the proper authorities that the system is undergoing maintenance and the system will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

Test the detector as follows:

Smoke method

1. Using generated smoke, or synthetic smoke aerosol from an approved manufacturer such as No Climb Products Ltd, subject the detector to controlled amounts of smoke in accordance with local codes of practice and manufacturer recommendations.
2. The red LED on the detector should latch into alarm within 40 seconds, and the control panel should activate into alarm.

Laser test tool method (model no. S300RTU)

Note: this method does not carry out a complete functional test of the detector.

1. Align the flashing red spot produced by the laser beam with the LED on the detector.
2. Provided the detector has not reached its drift compensation limit, it should latch into alarm within a few seconds, and the control panel should activate into alarm.

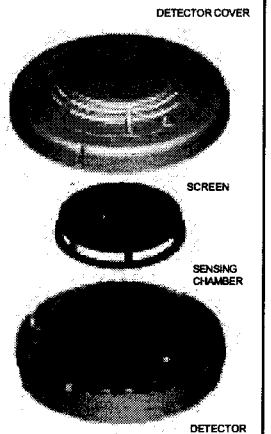
CAUTION

The S300RTU test tool is a Class II laser product. Do not direct the beam towards a person's face or eyes

Detectors that fail these tests should be cleaned as described under **MAINTENANCE** and re-tested. If the detectors still fail these tests they should be returned for repair.

After completion of all tests notify the proper authorities that the fire system is operational.

Figure 3: SD-851E Optical Smoke Detector



MAINTENANCE

Before cleaning, notify the proper authorities that the system is undergoing maintenance and will be temporarily out of service. Disable the system to prevent unwanted alarms.

1. Remove the detector to be cleaned from the system.
2. Gently release each of the cover removal tabs that secure the cover in place by inserting a small screwdriver into the recess, and gently levering outwards, and remove the detector cover.
3. Vacuum the outside of the screen carefully without removing it.
4. Carefully remove the screen from the sensing chamber. Replacement screens are available.
5. Use a vacuum cleaner and/or clean, compressed air to remove dust and debris from the sensing chamber and the inside of the screen.
6. Re-install the screen by aligning the arrow moulded on it with the arrow on the sensing chamber, sliding the screen over the chamber and applying gentle pressure to secure it in place.
7. Reinstall the detector cover. Align the LED with the cover assembly and snap the cover into place, ensuring that all the cover removal tabs are correctly engaged.
8. When all the detectors have been cleaned, restore power to the circuit and test the detector as described in **TESTING** above.

After maintenance has been completed, notify the proper authorities that the fire system is operational.

WARNING

LIMITATIONS OF SMOKE DETECTORS

This smoke detector is designed to activate and initiate emergency action but will do so only when used in conjunction with other equipment. **Smoke detectors will not work without power.**

Smoke detectors will not sense fires which start where smoke does not reach the detectors. Smoke from fires in chimneys, in walls, on roofs, or on the other side of closed doors may not reach the smoke detector and trigger the unit.

A detector may not detect a fire developing on another level of a building. For this reason, detectors should be located on every level of a building.

Smoke detectors also have sensing limitations. In general, detectors can not be expected to provide warnings for fires resulting from inadequate fire protection practices, violent explosions, escaping gas, improper storage of flammable liquids like cleaning solvents, other safety hazards, or arson. Smoke detectors used in high air velocity conditions may fail to alarm due to dilution of smoke densities created by such frequent and rapid air exchanges. Additionally, high air velocity environments may create increased dust contamination, demanding more frequent maintenance.

Smoke detectors cannot last forever. Smoke detectors contain electronic parts. Even though detectors are made to last over 10 years, any of these parts could fail at any time. Therefore, test your smoke detector system at least semi-annually. Clean and take care of your smoke detectors regularly. Taking care of the fire detection system you have installed will significantly reduce your liability risks.