INSTALLATION AND MAINTENANCE INSTRUCTIONS FOR MODEL 5451E PLUG-IN RATE OF RISE TEMPERATURE SENSORS

Before installing detectors, please thoroughly read System Sensor's Manual I56-407-XX, *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 System Sensor.

GENERAL DESCRIPTION

Model 5451E rate of rise thermal detectors use dual thermistor sensing elements for ambient temperature compensation and fast response. These detectors are designed to provide open area protection and to be used with compatible control panels only. The ability to plug these detectors into a variety of base options extends panel compatibility and application flexibility.
Two LEDs on each detector light to provide a local 360° visible alarm indication. 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 be reset only by a momentary power interruption. These detectors may be tested by activating an internal reed switch with a magnet.

SPECIFICATIONS

Size: Cover Height	60 mm
Cover Diameter	102 mm
Weight	277 g
Installation Temperature Range	-10°C to 50°C
Operating Humidity Range	10% to 93% Relative Humidity, Non-condensing
Latching Alarm	Reset by momentary power interruption.

This detector has been independently tested and certified to EN54 Part5.

SPACING

Spacing of 7-9 metres on a smooth ceiling without significant air movement may be used as a general guide, however refer to local codes and guidance from responsible fire brigade officials. Where application conditions or response requirements vary, other spacing may need to be applied.

BASE SELECTION AND WIRING GUIDE

Refer to the installation instructions supplied with the plug-in detector bases for wiring details. System Sensor has available a variety of detector bases for this heat sensor, including standard 2-wire with or without current limiting resistors or schottky diode or changeover relay.
All bases are provided with screw terminals for power, shield, remote indicator connections and relay contact connections, if applicable. The electrical ratings for each detector-base combination are also included in the base installation instructions.

INSTALLATION

NOTE: All wiring must conform to applicable local national codes and regulations.

NOTE: Verify that all detector bases are installed, that the detector monitoring circuits have been tested and that the wiring is correct. (Refer to detector base instructions for testing procedure)

WARNING

Remove power from detector monitoring circuits before installing detectors.

1. **Install Detectors:**
   a. Place the detector into the detector base.
   b. Rotate the detector clockwise with gentle pressure until the detector drops into place.
   c. Continue rotating the detector clockwise to lock it in place.
2. **Tamper-Resistance:** The detector bases include a feature that, when activated, prevents removal of the detector without the use of a tool. See the installation instructions for the detector base for details of how to use this feature.
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.
6. Notify the proper authorities that the system is in operation.

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, thus 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.

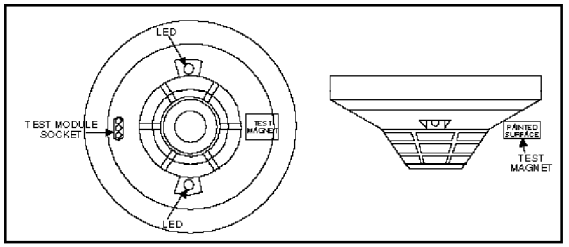


Figure 1. Test Magnet Positioning.

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:

A. Test Magnet (Model M02-24 - optional)

1. Test the detector by positioning the optional test magnet against the detector body approximately 2cm from LED1 in the direction of the metering socket (see Figure 1).
2. Both LEDs should latch on within 30 seconds, indicating an alarm and activating the panel.

B. Calibrated Sensitivity Test (MOD400R)

1. Use the MOD400R Test Module with a digital or analogue voltmeter to check detector sensitivity as described in the test module manual.

C. Direct Heat Method (Hair dryer of 1000-1500 watts)

1. From the side of the detector, direct the heat toward the sensor. Hold the heat source about 15cm away to prevent damage to the cover during testing. **Note:** If a detector goes into alarm, it will only reset if the detector has cooled and if its power is momentarily interrupted. Check the control panel being used to determine whether the RESET switch (or some other auxiliary device or control) momentarily cuts off power to the detector loop.

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

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.

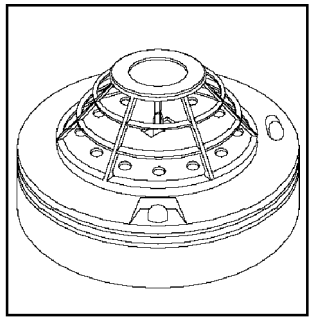


Figure 2. Sensor and Base.

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. Use a vacuum cleaner to remove dust from the sensing chamber.
3. Reinstall the detector.
4. When all detectors have been cleaned, restore power to the system and test the detector(s) as described in the **TESTING** section of this manual.

WARNING

LIMITATIONS OF HEAT SENSORS

Heat sensors are designed to protect property, not life. They do not provide early warning of fire and cannot detect smoke, gas, combustion particles or flame. The 5451E alarms when temperature at the heat sensor reaches 60°C. Given the rapid growth of certain types of fire, heat sensors cannot be expected to provide adequate warning of fires resulting from smoking in bed, inadequate fire protection practices, violent explosions, escaping gas, improper storage of flammable liquids like cleaning solvents, other safety hazards or arson.
Heat sensors do not always detect fires because the fire may be a slow smouldering, low-heat type (producing smoke) or because they may not be near where the fire occurs or because the heat of the fire may bypass them. Heat sensors will not detect smoke, gas, flames or combustion particles.
Heat sensors are components in professionally installed fire alarm systems. **They will not function if they have been improperly wired into the fire alarm system or if power to them is cut for any reason.**
Heat sensors cannot last forever. They should be tested and maintained following the instructions in this manual. To be safe, they should be replaced after they have been installed for 15 years.

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