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NOTIFIER FST-951R Intelligent Programmable Temperature Sensors Installation Guide

Contents

NOTIFIER®
by Honeywell

NOTIFIER FST-951R Intelligent Programmable Temperature Sensors

Product Information:

The product is an Intelligent Programmable Temperature Sensor, available in various models including FST-951, FST-951-IV, FST-951R, FST-951R-IV, FST-951H, and FST-951H-IV. It operates within a specified voltage range and has maximum current and alarm current limits. The sensor is designed to function within a specific humidity range and installation temperature. It has fixed temperature rating, high heat temperature rating, and rate-of-rise detection capability. The sensor has specific dimensions and weight.

Product Usage Instructions

1. Before installing the sensors, thoroughly read the system wiring and installation manual.
2. The sensor must be installed in compliance with the control panel system installation manual and the requirements of the Authority Having Jurisdiction (AHJ).
3. Ensure the sensors are installed in compliance with the National Fire Protection Association (NFPA) guidelines, specifically NFPA 72.
4. Two LEDs on each sensor provide a local, visible sensor indication. Optional remote LED annunciator capability is available (Part No. RA100Z).
5. Use the rotary dial switches to set the sensor's address according to the provided figure (Figure 1).
6. Refer to the operation manual for the UL-listed control unit to understand specific operation instructions related to remote output synchronization and control.
7. The sensor supports point addressing up to 159 addresses.
8. Connect the intelligent programmable temperature sensors to listed-compatible control panels only for proper functionality.
9. Follow the wiring guide provided:
    1. All wiring must comply with the National Electrical Code and applicable local codes.
    2. Use proper wire gauges and color code the installation wires to limit wiring mistakes and ease system troubleshooting.
    3. Remove power from the communication line before installing sensors.
    4. Wire the sensor base as shown in the provided wiring diagram (Figure 2).
    5. Set the desired address on the rotary dial switches.
    6. Install the sensor into the sensor base by pushing it in while turning it clockwise to secure it in place.
    7. After installing all sensors, apply power to the control unit and activate the communication line.

8. Test the sensor(s) as described in the TESTING section of the manual.

SPECIFICATIONS

- **Operating Voltage Range:** 15 to 32 Volts DC Peak
- **Operating Current @ 24 VDC:** 200 uA (one communication every 5 seconds with green LED blink on communication)
- **Maximum Alarm Current:** 2 mA @ 24 VDC (one communication every 5 seconds with red LED solid on)
- **Maximum Current:** 4.5 mA @ 24 VDC (one communication every 5 seconds with amber LED solid on)
- **Operating Humidity Range:** 10% to 93% Relative Humidity, Non-condensing
- **Installation Temperature:** Set for fixed-temperature or rate-of-rise (ROR): –4°F to 100°F (–20°C to 38°C)
- **Set for high-heat:** –4°F to 150°F (–20°C to 66°C)
- **Fixed Temperature Rating:** 135°F (57°C)
- **High Heat Temperature Rating:** 190°F (88°C)
- **Rate-of Rise Detection:** Responds to greater than 15°F/minute or 135°F (8.3°C/minute or 57°C)
- **Height:** 2.0″ (51 mm) installed in B300-6 Base
- **Diameter:** 6.2″ (156 mm) installed in B300-6 Base
- **Weight:** 3.4 oz. (95 g)

UL 521 listed for Heat Detectors
This sensor must be installed in compliance with the control panel system installation manual. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when installed in compliance with the National Fire Protection Association (NFPA); see NFPA 72.
Before installing sensors, please read the system wiring and installation manual thoroughly. This manual provides detailed information on sensor spacing, placement, zoning, and special applications. Copies of these manuals are available from Notifier.

GENERAL DESCRIPTION

Models FST-951, FST-951-IV, FST-951R, FST-951R-IV, FST-951H, and FST-951H-IV are field programmable intelligent sensors that utilize a state-of-the-art thermistor sensing circuit for fast response. These sensors are designed to provide open area protection with 50-foot spacing capability as approved by UL 521. The intelligent temperature sensor can be programmed as either a 135°F fixed temperature sensor, a rate of rise and 135°F fixed temperature sensor or a 190°F high temperature sensor through the Fire Alarm Control Panel (FACP).
Two LEDs on each sensor light to provide a local, visible sensor indication. Remote LED annunciator capability is available as an optional accessory (Part No. RA100Z). Rotary dial switches are provided for setting the sensor's address. (See Figure 1.)

FIGURE 1: ROTARY ADDRESS SWITCHES

TENS   ONES
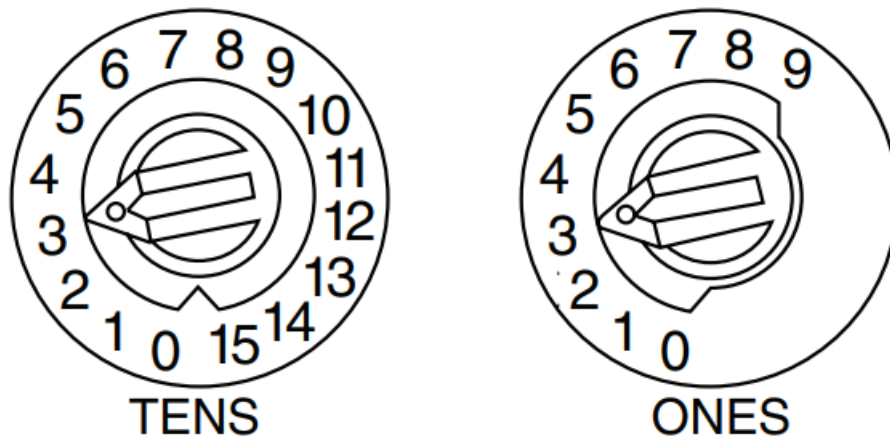
Notifier panels offer different feature sets across different models. As a result, certain features of the Intelligent Programmable Temperature Sensors may be available on some control panels, but not on others. FST-951, FST-951R, and FST-951H will support only FlashScan® protocol mode. FST-951-IV, FST-951R-IV, and FST-951H-IV will support either FlashScan or CLIP (Classic Loop Interface Protocol) mode.
The possible features available if supported by the control panel include:

1. The sensor's LEDs can operate in three ways—on, off, and blinking–and they can be set to red, green, or amber. This is controlled by the panel.

2. The remote output may be synchronized to the LED operation or con-trolled independent of the LEDs. Please refer to the operation manual for the UL listed control unit for specific operation of these models

3. Devices are point addressable up to 159 addresses.

4. The heat sensor operates as a programmable heat detector.

   NOTE: In panels where this feature is not available, the FST-951 and FST-951-IV will default to a 135°F fixed heat detector. FST-951R and FST-951R-IV will default to a 135°F fixed heat detector and rate-of-rise. FST-951H and FST-951H-IV will default to a 190°F high temperature heat detector.

Intelligent programmable temperature sensors require compatible addressable communications to function properly. Connect these sensors to listed-compat-ible control panels only.
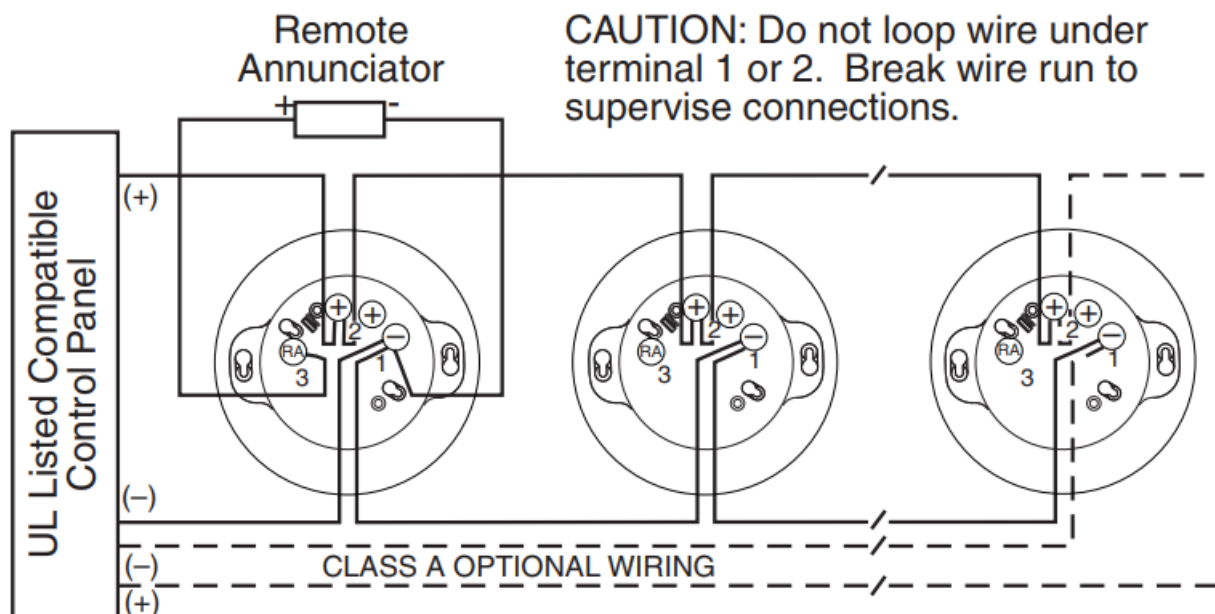
WIRING GUIDE

All wiring must be installed in compliance with the National Electrical Code, applicable local codes and the Authority Having Jurisdiction. Proper wire gauges should be used. The installation wires should be color coded to limit wiring mistakes and ease system troubleshooting. Improper connections will prevent a system from responding properly in the event of a fire.
Remove power from the communication line before installing sensors.

1. Wire the sensor base (supplied separately) as shown in the wiring diagram. (See Figure 2.)

2. Set the desired address on the rotary dial switches. (See Figure 1.).

3. Install the sensor into the sensor base. Push the sensor into the base while turning it clockwise to secure it in place.

4. After all sensors have been installed, apply power to the control unit and activate the communication line.

5. Test the sensor(s) as described in the TESTING section of this manual.

FIGURE 2. WIRING DIAGRAM:

Remote Annunciator

CAUTION: Do not loop wire under terminal 1 or 2. Break wire run to supervise connections.

UL Listed Compatible Control Panel

(+)

(−)

(−)

(+)

CLASS A OPTIONAL WIRING

TAMPER RESISTANCE

Intelligent programmable temperature sensors include a tamper-resistant ca-pability that prevents their removal from the base without the use of a tool. Refer to the base manual for details on making use of this capability.

TESTING

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

All sensors must be tested after installation and periodically thereafter. Test-ing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72.

A. Test Magnet (Model No. M02-04 – optional)

1. Place the optional test magnet against the cover in the magnet test area, as shown in Figure 3, to activate the test feature.
2. The LEDs should latch on within 10 seconds, indicating alarm and annunciating the panel.
3. Reset the detector at the system control panel.

B. 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 6 inches (15 cm) away to prevent damage to the cover during testing.
2. The LEDs on the detector should light when the temperature at the detector reaches the alarm setpoint. If the LEDs fail to light, check the power to the detector and the wiring in the detector base.
3. Reset the detector at the system control panel.

Detectors that fail these tests may need to be cleaned as described under CLEANING and retested.

CLEANING

Before removing the detector, notify the proper authorities that the smoke detector system is undergoing maintenance and will be temporarily out of service.

Disable the zone or system undergoing maintenance to prevent unwanted alarms.

1. Remove the sensor to be cleaned from the system.

2. Use a vacuum cleaner or compressed air to remove dust and debris from the sensing area.

3. Reinstall the detector.

4. Test the detector as described in TESTING.

5. Reconnect disabled circuits.

6. Notify the proper authorities that the system is back on line.
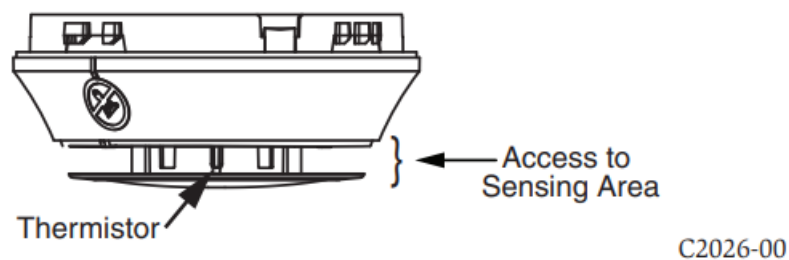
FM CLASSIFICATION

RTI ratings are for installations which must comply with FM 3210.

135°F Fixed RTI:	FAST
Rate of Rise/135°F Fixed RTI:	V2-FAST
190°F Fixed RTI:	QUICK

FIGURE 3: FEATURES OF THE HEAT DETECTOR

C2025-00
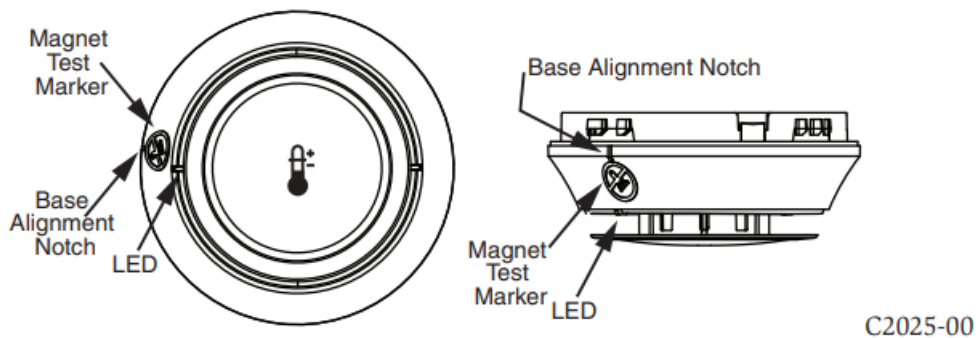
FIGURE 4: CLEANING THE HEAT DETECTOR

C2026-00

Please refer to insert for the Limitations of Fire Alarm Systems

FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant

to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installa-tion. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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Documents / Resources

NOTIFIER FST-951R Intelligent Programmable Temperature Sensors [pdf] Installation Guide
FST-951, FST-951-IV, FST-951R, FST-951R-IV, FST-951H, FST-951H-IV, FST-951R Intelligent Programmable Temperature Sensors, Intelligent Programmable Temperature Sensors, Programmable Temperature Sensors, Temperature Sensors, Sensors