



# 5251B, 5251RB and 5251H Intelligent Plug-In Temperature Sensors

3825 Ohio Avenue, St. Charles, Illinois 60174  
1-800-SENSOR2, FAX: 630-377-6495  
www.systemsensor.com

## SPECIFICATIONS

Diameter:	6.1 inches (155 mm) installed in B210LP; 4.1 inches (104 mm) installed in B501
Height:	2.0 inches (51 mm)
Weight:	4.8 ounces (137 gm)
Installation Temperatures:	-4°F to 100°F (-20°C to 38°C); 5251B and 5251RB; -4°F to 150°F (-20°C to 66°C); 5251H
Operating Humidity Range:	10% to 93% Relative Humidity Non-condensing
Mounting:	B210LP flanged base; B501 flangeless base; B501 with RMK400 recessed mounting kit
Voltage Range:	15 to 32 Volts DC Peak
Standby Current:	300 µA @ 24 VDC (one communication every 5 seconds with LED blink enabled)
LED Current:	6.5 mA @ 24 VDC
Fixed Temperature Rating:	135°F (57°C); 5251B and 5251RB; 190°F (88°C); 5251H
Rate of Rise Detection:	Responds to greater than 15°F/min.; 5251RB

## BEFORE INSTALLING

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.

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 System Sensor.

## GENERAL DESCRIPTION

Models 5251B, 5251RB and 5251H are 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. Model 5251B is a fixed temperature sensor with 135°F fixed temperature alarm. Model 5251RB is a rate-of-rise temperature sensor with 135°F fixed temperature alarm. Model 5251H is a high temperature sensor with 190°F fixed temperature alarm.

Two LEDs on each sensor light to provide 360° visibility of the sensor indication. The LEDs can be latched ON by code command from the panel for an alarm indication. The LEDs can also be unlatched to the normal condition by code command. Remote LED annunciator capability is available as an optional accessory (Part No. RA400Z/RA100Z).

**Models 5251B, 5251RB and 5251H require compatible addressable communications to function properly. Connect these sensors to listed-compatible control panels only.**

NOTE: 5251RB Heat detectors are sold in the European Community for use only in applications in conjunction with sprinkler systems. They must not be used in Europe as part of an EN54 fire detection and alarm system

## 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) per the wiring diagram, see Figure 1.
2. Set the desired address on the sensor address switches, see Figure 2.
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.

## TAMPER RESISTANCE

The sensor bases have a tamper-resistant capability. When this capability is enabled, sensors cannot be removed from the base without the use of a small screwdriver or other similar tool. Refer to the sensor base installation instruction manual for details in using 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. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72. The sensor may be tested in the following ways:

### A. TEST MAGNET (MODEL NO. M02-04)

1. Place the 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 (15cm) 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 set point. 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.

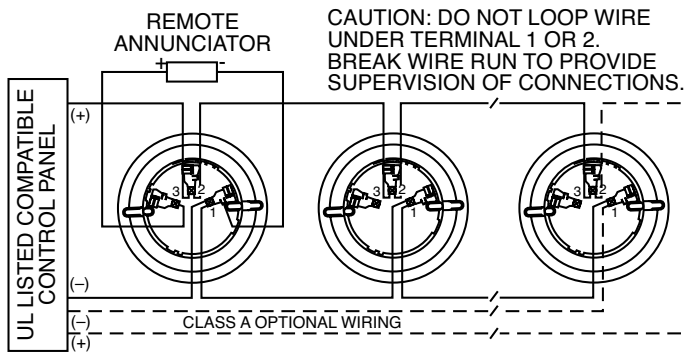
Detectors that fail these tests should be cleaned as described under MAINTENANCE and retested. If the detectors still fail these tests they should be returned for repair.

## MAINTENANCE

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

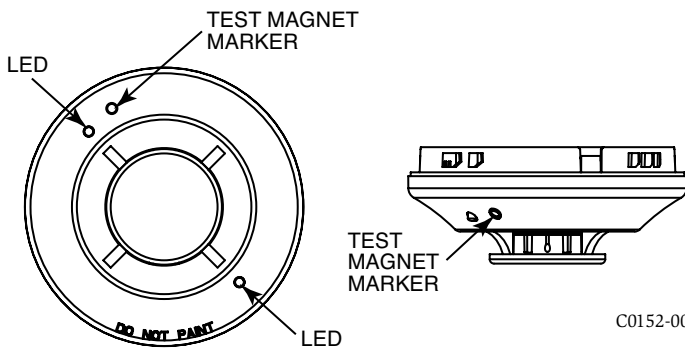
It is recommended that the sensor be removed from its mounting base for easier cleaning and that sensors be cleaned at least once a year. Use a vacuum cleaner to remove dust from the sensing chamber.

**FIGURE 1:**



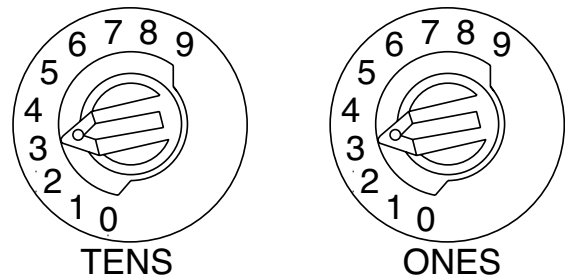
C0129-00

**FIGURE 3. VIEWS SHOWING POSITION OF TEST MAGNET:**



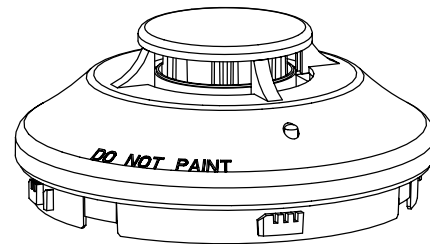
C0152-00

**FIGURE 2. ROTARY DECADE ADDRESS SWITCHES:**



C0146-00

**FIGURE 4:**



C0151-00

**FM CLASSIFICATION**

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

5251B RTI:	FAST
5251RB RTI:	V2-FAST
5251H RTI:	QUICK

**Please refer to insert for the Limitations of Fire Alarm Systems**

**THREE-YEAR LIMITED WARRANTY**

System Sensor warrants its enclosed heat detector to be free from defects in materials and workmanship under normal use and service for a period of three years from date of manufacture. System Sensor makes no other express warranty for this heat detector. No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this Warranty. The Company's obligation of this Warranty shall be limited to the repair or replacement of any part of the heat detector which is found to be defective in materials or workmanship under normal use and service during the three year period commencing with the date of manufacture. After phoning System Sensor's toll free number 800-SENSOR2 (736-7672) for a Return Authorization number, send defective units postage prepaid to: System Sensor, Returns Department, RA

# \_\_\_\_\_, 3825 Ohio Avenue, St. Charles, IL 60174. Please include a note describing the malfunction and suspected cause of failure. The Company shall not be obligated to repair or replace units which are found to be defective because of damage, unreasonable use, modifications, or alterations occurring after the date of manufacture. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other Warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company's negligence or fault. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

**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 installation. 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.