

INSTALLATION AND MAINTENANCE INSTRUCTIONS



156-2169-002R

B114LPBT Plug-in Detector Base

For use with the following smoke detectors: **US** - 1151, 2151, 2151T;
CANADA - 1151A, 2151A, 2151TA; **EUROPE** - 1151E, 2151E

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

SPECIFICATIONS

Base Diameter:	6.2 in (15.7 cm)
Base Height:	1.1 in (2.9cm)
Weight:	0.6 lb (260 g)
Mounting:	4" square box without plaster ring, minimum depth 1.5"; 4" octagon box, minimum depth 1.5"; 3 1/2" octagon box, minimum depth 1.5"
Operating Temperature Range:	0°C to 49°C (32°F to 120°F)
Operating Humidity Range:	10% to 93% Relative Humidity
Electrical Ratings (includes base and detector)	
System Voltage:	24 VAC/DC, 60 Hz
Relay Contact Ratings Resistive Load:	Form A — 2.0A @ 30VAC/DC; Form C — 2.0A @ 30VAC/DC, 1.0A @ 125VAC (If used, the RA400 Remote Annunciator and RTC operates within the specified detector system voltage)
Standby Current:	25 mA typical @ 24V AC/DC; 35 mA maximum @ 35V AC/DC
Alarm Current:	75 mA typical @ 24V AC/DC; 94 mA maximum @ 35V AC/DC
Start-up Time (after 60 second reset):	36.0 Seconds maximum

BEFORE INSTALLING

Please read thoroughly System Sensor's *Applications Guide for System Smoke Detectors* (SPAG91), which provides detailed information on detector spacing, placement, zoning, wiring, and special applications. This is available online from System Sensor's web site: www.systemsensor.com.

NOTICE: This manual should be left with the owner/user of this equipment.

IMPORTANT: The detector used with this base must be tested and maintained regularly following NFPA 72 requirements. The detector used with this base should be cleaned at least once a year.

GENERAL DESCRIPTION

The B114LPBT detector base is designed for use with System Sensor model 2151 photoelectronic and 1151 ionization detector heads. The capability of plugging these detectors into a variety of special bases makes them more versatile than equivalent direct-wired models. Refer to the System Sensor catalog for other available plug-in bases. The B114LPBT base is intended for use in 4-wire systems with terminals provided for remote annunciator and relay connections.

MOUNTING

The detector base mounts directly to 3 1/2- and 4-inch octagon boxes and 4-inch square boxes. To mount the base, remove the decorative ring by rotating it in either direction to unhook the snaps before separating the ring from the base. Use the screws supplied with the junction box to attach the base to the box through the appropriate mounting slots in the base.

Position the decorative ring around the base and rotate it in either direction until the ring snaps into place (see Figure 2).

BASE TERMINALS			
NO.	FUNCTION	NO.	FUNCTION
1	Remote Annunciator (+)	8	N.O. Alarm Relay
2	Test Coil (+)	9	N.O. Form A
3	Not Used	10	C. Initiation
4	Remote Annunciator (-)	11	C. Contacts
5	RTC (-)	12	N.O. Alarm Relay
6	C. Supervisory Relay	13	N.C. Form C
7	N.O. Form A Contacts	14	C. Auxiliary Contacts

INSTALLATION GUIDELINES

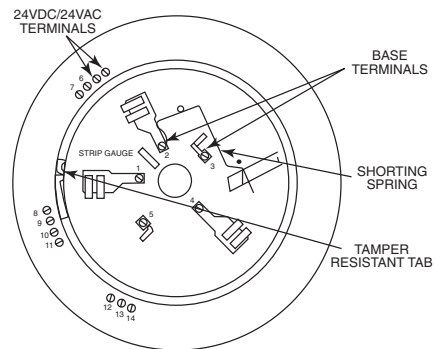
All wiring must be installed in compliance with the National Electrical Code, all applicable local codes, and any special requirements of the authority having jurisdiction, using the proper wire size. The conductors used to connect smoke detectors to control panels and accessory devices should be color-coded to reduce the likelihood of wiring errors. Improper connections can prevent a system from responding properly in the event of a fire.

For signal wiring (the wiring between interconnected detectors), it is recommended that the wire be no smaller than 16 gauge (1.5 square mm), and that

two- or three-conductor wire be no smaller than 18 gauge (1.0 square mm). For best performance, alarm loop conductors should be installed in separate grounded conduit or shielded cable to protect the alarm loop from extraneous electrical interference.

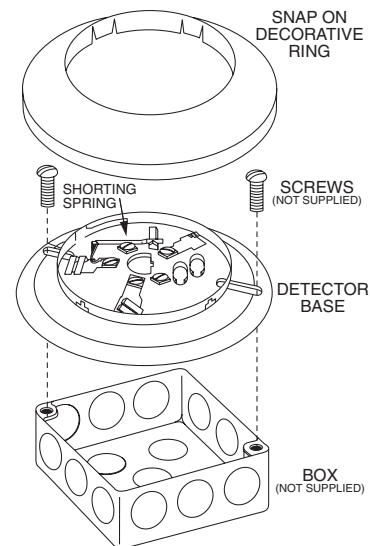
Smoke detectors and alarm systems control panels have specifications for allowable loop resistance. Consult the control panel manufacturer's specifications for the total loop resistance allowed for the particular model control panel being used before wiring the detector loops.

FIGURE 1. BASE TERMINALS:



C1025-00

FIGURE 2. MOUNTING BASE TO BOX:



C0503-00



2151/2151T Low Profile Photoelectronic Plug-in Smoke Detectors

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SPECIFICATIONS

Size	
Height:	2.0 inches (51 mm) installed in B401 Base
Diameter:	4.1 inches (104 mm) installed in B401 Base 6.1 inches (155 mm) installed in B110LP Base
Weight:	3.1 oz. (88 g)
Operating Temperature Range:	0°C to 49°C (32°F to 120°F); 2151, 0°C to 38°C (32°F to 100°F); 2151T
Operating Humidity Range:	10% to 93% Relative Humidity noncondensing
Heat Sensor (2151T only):	135°F Fixed Temperature Electronic Thermistor
Operating Voltage:	8.5 to 35VDC
Standby Current:	120µA
Latching Alarm:	Reset by momentary power interruption.

BEFORE INSTALLING

Please thoroughly read the System Sensor manual A05-1003, Applications Guide for System Smoke Detectors, which provides detailed information on detector spacing, placement, zoning, wiring, and special applications. Copies of this manual are available from System Sensor.

NOTICE: This manual should be left with the owner/user of this equipment. IMPORTANT: The detector must be tested and maintained regularly following NFPA 72 requirements. The detector should be cleaned at least once a year.

GENERAL DESCRIPTION

The 2151 low-profile photoelectronic detector uses a state-of-the-art optical sensing chamber. This detector is designed to provide open area protection and to be used with compatible UL listed control panels only. The capability of plugging this detector into a variety of special bases makes it more versatile than equivalent direct-wired models.

Two LEDs on each detector provide local 360° visible alarm indication. They flash every five seconds indicating that power is applied and the detector is working properly. The LEDs latch on in alarm. LEDs will be off when a trouble condition exists indicating that the detector sensitivity is outside the listed limit. Remote LED annunciator capability is standard and may be implemented through an optional accessory RA400Z/RA100Z. The alarm can be reset only by a momentary power interruption. This detector may be tested by activating the internal reed switch with a magnet.

BASE SELECTION AND WIRING GUIDE

Refer to the installation instructions for the Plug-in Detector Bases for base selection and wiring instructions. System Sensor has a variety of detector bases available for this smoke detector, including 2-wire applications with and without relays and/or current limiting resistors, 4-wire and 120VAC applications.

All bases are provided with screw terminals for power, ground, remote annunciator 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 codes, ordinances, and regulations.

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



Remove power from initiating-device circuits before installing detectors.

1. Install detectors:
 - a. Place the detector into the detector base.
 - b. Turn the detector clockwise until the detector drops into place.
 - c. Continue turning detector clockwise to lock it in place.
2. Tamper Resistance: The detector bases can be made tamper resistant.

When capability is enabled, detectors cannot be removed from the base without the use of a tool. See the detector base installation manual of the detector base for details in using this capability.

3. After all detectors have been installed, apply power to the control unit.
4. Test the detector using the magnet as described under TESTING.
5. Reset the detector at the system control panel.
6. Notify the proper authorities that the system is back on line.

TESTING

Before testing, notify the proper authorities that the smoke detector system is undergoing maintenance and will temporarily be out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms. Detectors must be tested after installation and as part of periodic maintenance. Test 2151 and 2151T as follows:

NOTE: Before testing the detector, check to ensure the LEDs blink. If they do not, the detector has lost power (check the wiring), it is defective (return it for repair), or the detector sensitivity is outside the listed limits.

A. Test Magnet (p/n M02-04-01 or M02-09-00)

1. Place the magnet against the cover in the location designated by the raised mark to activate the test feature (see Figure 1).
2. The LEDs should latch ON within 5 seconds indicating alarm and annunciating the panel.

B. Test Module (SENS-RDR)

Use the SENS-RDR Sensitivity Reader to measure the sensitivity of the detectors. Please refer to the SENS-RDR instruction manual for operating details.

C. Smoke Entry

The GEMINI model 501 aerosol generator can be used for smoke entry testing. Set the generator to represent 4%/ft to 5%/ft obscuration as described in the GEMINI 501 manual. Using the bowl shaped applicator, apply aerosol until the panel alarms.

Additionally, canned aerosol simulated smoke (canned smoke agent) may be used for smoke entry testing of the smoke detector. Tested and approved aerosol smoke products are:

MANUFACTURER	MODEL
Home Safeguard Industries	25S
SDi	CHEK02 and CHEK06
SDi	SOLOA4
SDi	SMOKESABRE-01

When used properly, the canned smoke agent will cause the smoke detector to go into alarm. Refer to the manufacturer's published instructions for proper use of the canned smoke agent.

CAUTION

Canned aerosol simulated smoke (canned smoke agent) formulas will vary by manufacturer. Misuse or overuse of these products may have long term adverse effects on the smoke detector. Consult the canned smoke agent manufacturer's published instructions for any further warnings or caution statements.

D. Direct Heat Method (Hair Dryer of 1000-1500 watts) 2151T only

A hair dryer of 1000-1500 watts should be used to test the thermistors. Direct the heat toward either of the two thermistors, holding the heat source approximately 12 inches from the detector in order to avoid damaging the plastic housing. The detector will reset only after it has had sufficient time to cool. Make sure both thermistors are tested individually.

Notify the proper authorities that the system is back on line.

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.

CAUTION

Dust covers are an effective way to limit the entry of dust into smoke detector sensing chambers. However, they may not completely prevent airborne dust particles from entering the detector. Therefore, System Sensor recommends the removal of detectors before beginning construction or other dust producing activity. Be sure to remove the dust covers from any sensors that were left in place during construction as part of returning the system to service.

CAUTION

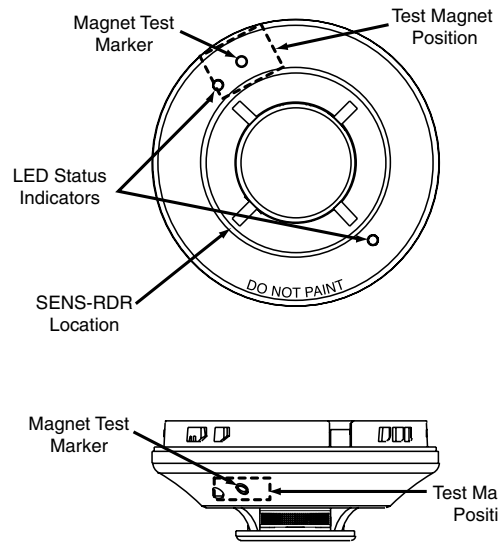
Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

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.

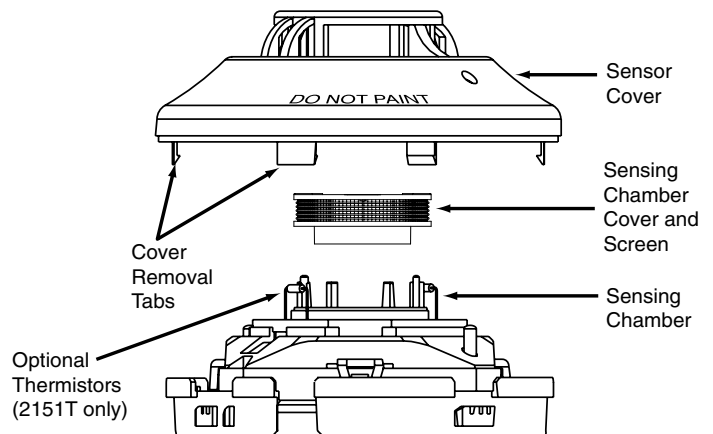
1. Remove the sensor to be cleaned from the system.
2. Remove the sensor cover by pressing firmly on each of the four removal tabs that hold the cover in place.
3. Vacuum the screen carefully without removing it.
If further cleaning is required continue with Step 4, otherwise skip to Step 7.
4. Remove the chamber cover/screen assembly by pulling it straight out.
5. Use a vacuum cleaner or compressed air to remove dust and debris from the sensing chamber.
6. Reinstall the chamber cover/screen assembly by sliding the edge over the sensing chamber. Turn until it is firmly in place.
7. Replace the cover using the LEDs to align the cover and then gently pushing it until it locks into place. Make sure that the thermistors do not become bent under the cover on 2151T.
8. Reinstall the detector.
9. Test the detector as described in TESTING.
10. Reconnect disabled circuits.
11. Notify the proper authorities that the system is back on line.

FIGURE 1. BOTTOM AND SIDE VIEWS SHOWING POSITION OF TEST MAGNET:



C0145-03

FIGURE 2:



C0892-01

SPECIAL NOTE REGARDING SMOKE DETECTOR GUARDS

Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

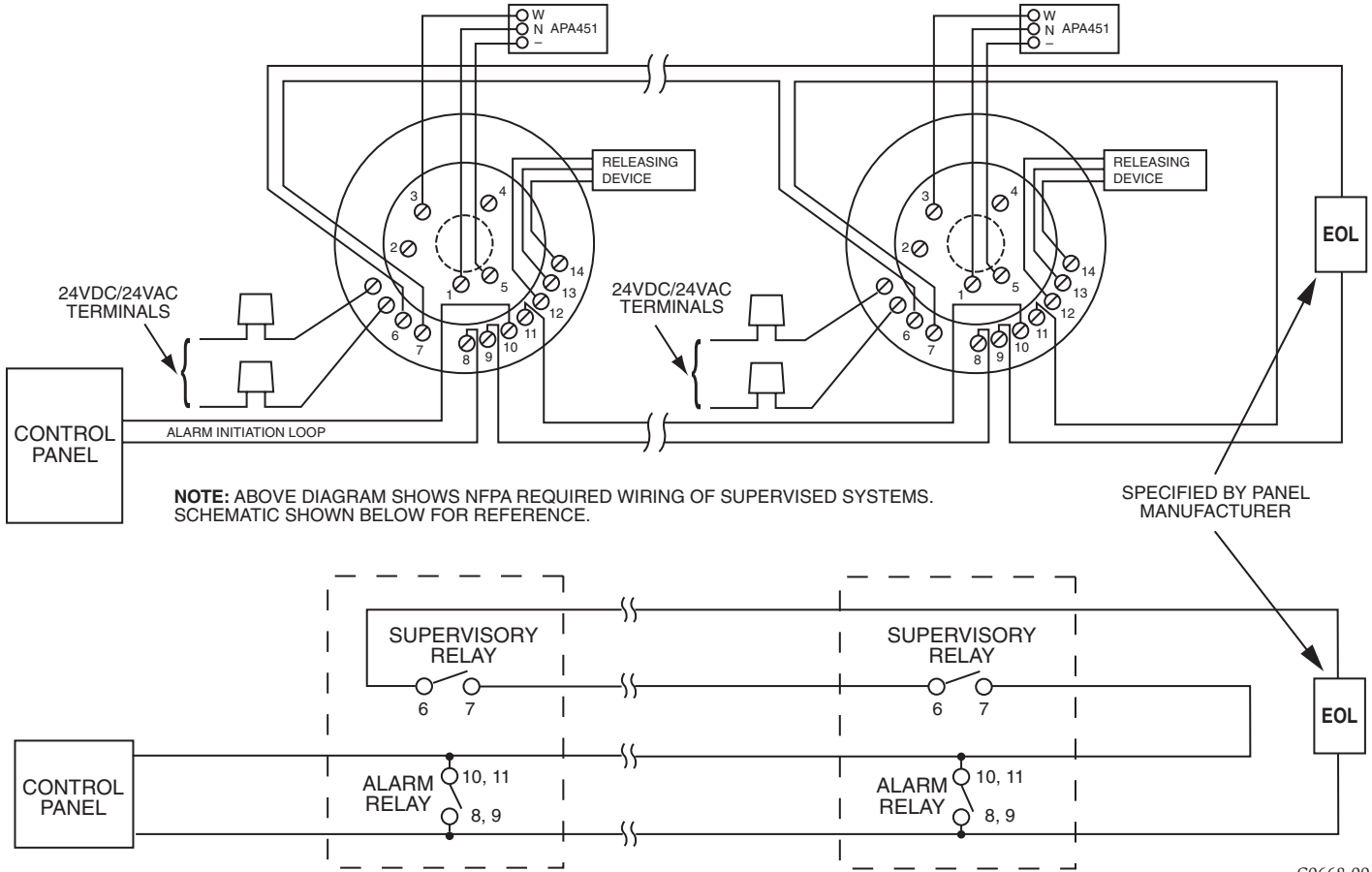
Please refer to insert for the Limitations of Fire Alarm Systems

THREE-YEAR LIMITED WARRANTY

System Sensor warrants its enclosed smoke 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 smoke 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 smoke 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, Repair

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.

FIGURE 3. TYPICAL WIRING DIAGRAM FOR 24VAC RMS/DC DETECTOR SYSTEMS:



C0668-00

WIRING INSTRUCTIONS

NOTE: Refer to the manufacturer’s instructions for releasing device wiring.

NOTE: To ensure that electrical connections are supervised, do NOT loop wires under terminals 8, 9, 10, and 11. Cut the wire at each terminal.

To make electrical connections, strip approximately 3/8 inch (1 cm) insulation from the end of each wire, slide the bare wire end under the clamping plate, and tighten the clamping plate screw. Use the strip gauges molded into the inside and underside of the base for ease of wiring to terminals 1 and 4, and to terminals 6 through 14, respectively.

The zone wiring of the detector base should be checked before installing the smoke detector heads. The base contains a built-in shorting spring to make this possible. After the detector base is wired and mounted to an electrical box, position the shorting spring against terminal 3. This temporary connection energizes the supervisory relay and permits the wiring of the loop to be checked for continuity.

After all detector bases have been mounted, wired, and the wiring checked, install the detector heads. The shorting spring in the base automatically disengages when the detector head is removed from the base. DO NOT remove the shorting spring since it reengages as the detector head is turned into the base, completing the circuit

TAMPER-RESISTANCE FEATURE

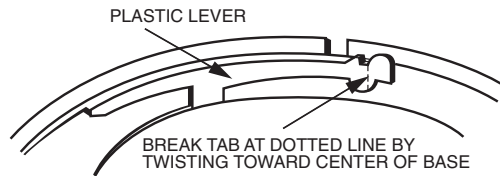
This detector base also includes an optional tamper-resistant feature that when activated prevents removal of the detector without the use of a tool.

To make the base tamper resistant, simply break off the tab on the base (see Figure 4A), before installing the detector.

To remove the detector from the base after it has been made tamper resistant, insert a small screwdriver (see Figure 4B) into the small hole and press the plastic lever away from the detector. Rotate the detector counterclockwise and remove.

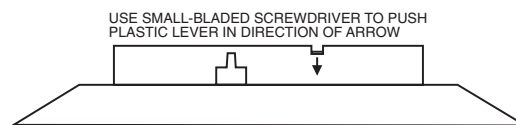
NOTE: Head removal after activating the tamper-resistance feature first requires removal of the decorative ring.

FIGURE 4A. ACTIVATING TAMPER-RESISTANCE FEATURE



C0130-00

FIGURE 4B. REMOVING DETECTOR HEAD FROM BASE



C0130-00

THREE-YEAR LIMITED WARRANTY

System Sensor warrants its enclosed smoke detector base 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 smoke detector base. 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 smoke detector base 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: Honeywell, 12220 Rojas

Drive, Suite 700, El Paso TX 79936, USA. 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.