

B501B Plug-in Detector Base

For use with UL Listed detectors:
1551, 2551, 2551T, and 5551

Specifications

Diameter:	6.1 inches (15.5 cm)
Mounting:	4 inch square box with or without plaster ring; Min. Depth: 1.5 inches. 4 inch Octagon Box; Min. Depth: 1.5 inches. 3-1/2 inch Octagon Box; Min. Depth: 1.5 inches. Single Gang Box; Min. Depth: 1.5 inches.

Electrical Ratings

Voltage Range:	14.5 to 28 VDC peak
Standby Current (nominal):	150 μ A at 24 VDC
Power-up Surge at Maximum	
Rated Voltage:	1.5 mA-second
LED Current (nominal):	6 mA at 24 VDC

Before Installing

Please thoroughly read the system wiring and installation manual, and manual I56-407, *Guide for Proper Use of System Smoke Detectors*, which provides detailed information on detector spacing, placement, zoning, and special applications. Copies of these manuals are available from System Sensor or through a System Sensor distributor. (For installation in Canada, refer to CAN/ULC-S22524-M86, Standard for the Installation of Fire Alarm Systems and CEC part 1, Section 32.)

General Description

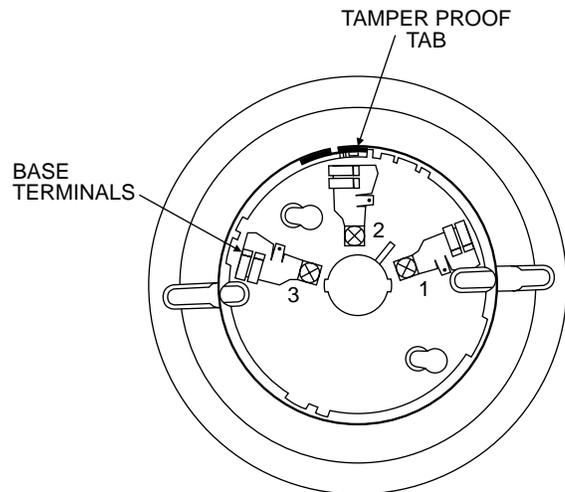
This plug-in detector base is used with System Sensor model 1551 ionization, 2551 and 2551T photoelectric, and 5551 thermal detectors.

The B501B base is intended for use in a 2-wire intelligent system, with screw terminals provided for power (+) and (-), and remote annunciator connections. Communication takes place over the power (+) and (-) lines. (See note on page 4).

Base Terminals

NO.	FUNCTION
1	POWER (-), REMOTE ANNUNCIATOR (-)
2	POWER (+)
3	REMOTE ANNUNCIATOR (+)

Figure 1. Terminal Layout



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Mounting

This detector base mounts directly to 3-1/2 inch and 4 inch octagon boxes, 4 inch square boxes (with or without plaster rings) and single gang boxes. To mount, remove decorative ring by turning it in either direction to unhook the snaps, then separate the ring from the base. Install the base to the box using the screws supplied with the junction box and the appropriate mounting slots in the base. Place decorative ring onto base, then turn in either direction until the ring snaps in place (see Figure 2).

Wiring Installation Guidelines

All wiring must be installed in compliance with the National Electrical Code and the local authorities having jurisdiction. Proper wire gauges should be used. The conductors used to connect smoke detectors to control panels and accessory devices should be color-coded to prevent wiring mistakes. Improper connections can prevent a system from responding properly in the event of a fire.

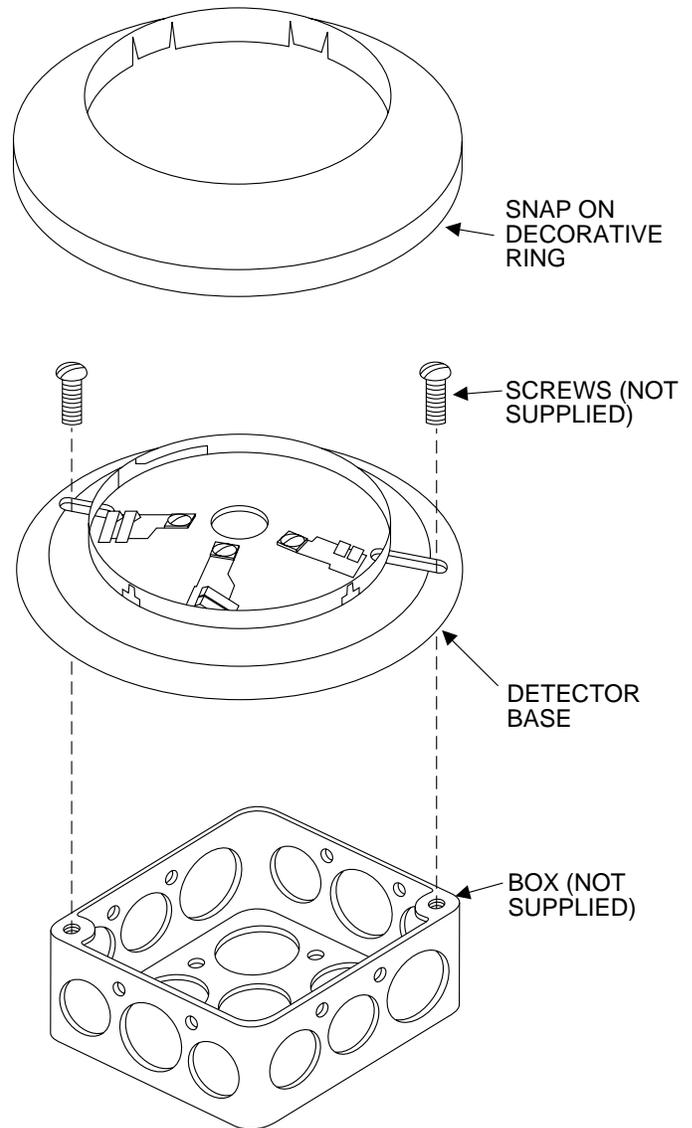
For signal wiring (the wiring between interconnected detectors or modules), it is recommended that the wire be no smaller than 18 gauge (1.0 square mm). Wire sizes up to 12 gauge wire (2.5 square mm) may be used with the base. **For best system performance, the power (+) and power (-) loop wires should be twisted pair installed in separate grounded conduit to protect the loop from extraneous electrical interference.**

Wire connections are made by stripping about 3/8" of insulation from the end of the wire (use strip gauge molded in base), sliding the bare end of the wire under the clamping plate, and tightening the clamping plate screw. Do not loop the wire under the clamping plate.

The zone wiring of the detector base should be checked before the detector heads are installed in them. The wiring should be checked for continuity, polarity in the base, and dielectric tests.

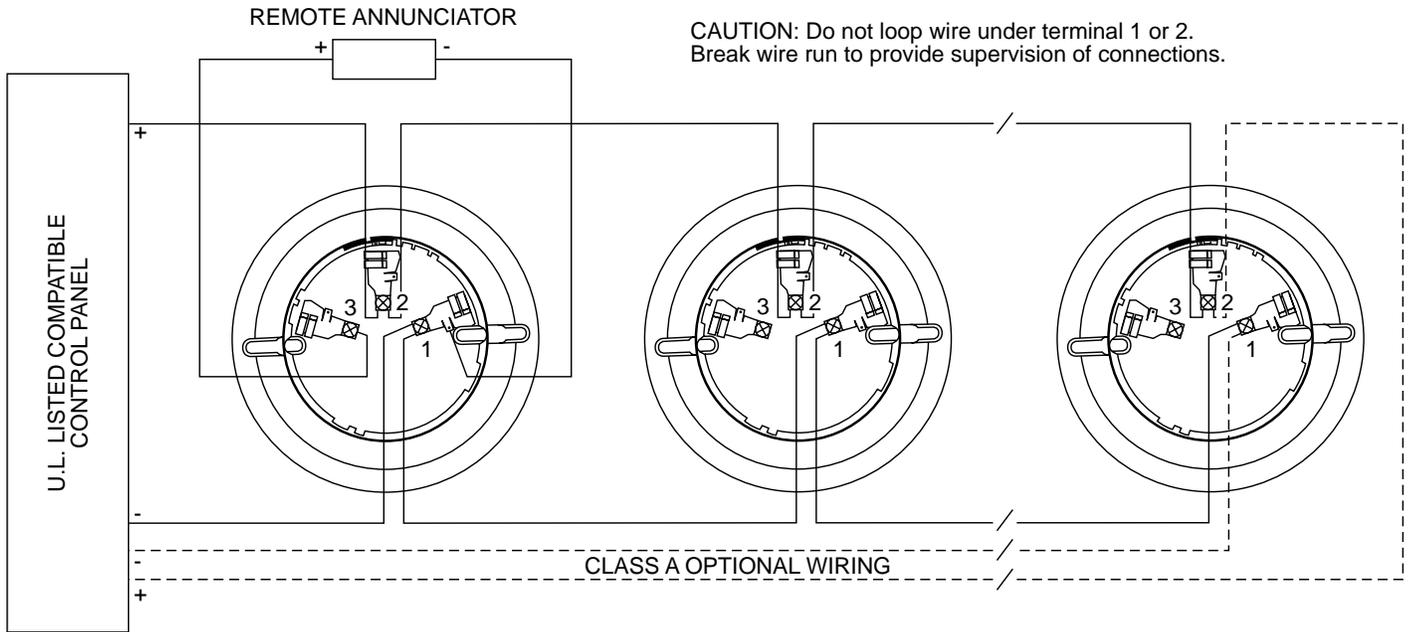
The base contains a label to write the zone, address, and type of detector to be installed at that location. This information is important to set the address of the detector head that will later be plugged into the base and to verify the type required for that location.

Figure 2. Mounting base to box:



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Figure 3. Typical wiring diagram for 2-wire loop:



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Tamper-proof Feature

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

To activate this feature, simply break off the tab on the detector base shown in Figure 4A, then install the detector. To remove the detector from the base once the tamper-proof feature has been activated, place a small bladed screwdriver into the hole on the side of the base and push the plastic lever away from the detector head (see Figure 4B). This will allow the detector to be rotated counterclockwise for removal.

NOTE: Head removal after the tamper-proof feature has been activated first requires removal of the decorative ring.

The tamper-proof feature may be defeated by breaking and removing the plastic lever from the base. However, this prevents ever using the feature again.

Remote Annunciator

The remote annunciator is connected between terminals 1 and 3 using the spade lug terminal packed with the remote annunciator. The spade lug terminal is connected to the base terminal as shown in Figure 5.

Figure 4A. Activating tamper-proof feature:

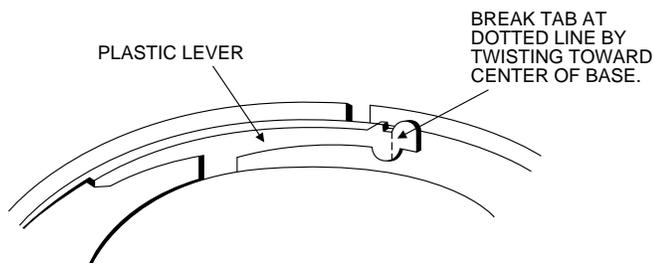
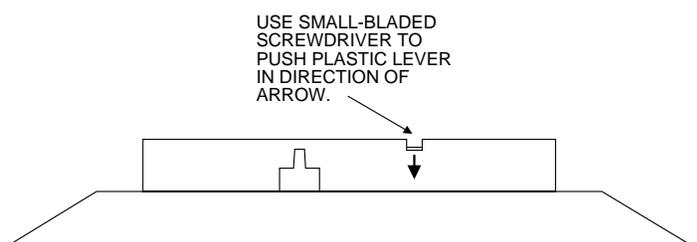


Figure 4B. Removing detector head from base:

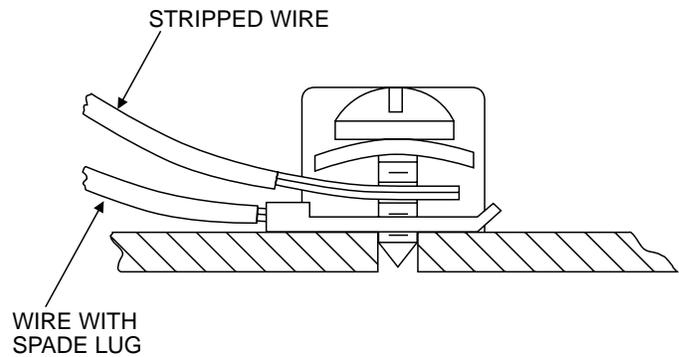


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It is not acceptable to have three stripped wires under the same wiring terminal unless they are separated by a washer or equivalent means. The spade lug supplied with the remote annunciator is considered an equivalent means. See Figure 5 for proper installation.

NOTE: System Sensor smoke detectors are marked with a compatibility identifier located as the last digit of a five digit code stamped on the back of the product. Connect detectors only to compatible control units as indicated in System Sensor's compatibility chart which contains a current list of U.L. listed control units and detectors. A copy of this list is available from System Sensor upon request.

Figure 5. Connection to remote annunciator terminal:



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WARNING

The Limitations of Property Protection Smoke Detectors

The smoke detector used with this base is designed to **activate and initiate** emergency action, but will do so only when it is used in conjunction with an authorized fire alarm system. This detector must be installed in accordance with NFPA standard 72.

Smoke detectors will not work without power. AC or DC powered smoke detectors will not work if the power supply is cut off.

Smoke detectors will not sense fires which start where smoke does not reach the detectors. Smoldering fires typically do not generate a lot of heat which is needed to drive the smoke up to the ceiling where the smoke detector is usually located. For this reason, there may be large delays in detecting a smoldering fire with either an ionization type detector or a photoelectric type detector. Either one of them may alarm only after flaming has initiated which will generate the heat needed to drive the smoke to the ceiling.

Smoke from fires in chimneys, in walls, on roofs or on the other side of a closed door(s) may not reach the smoke detector and alarm it. A detector cannot detect a fire developing on another level of a building quickly or at all. For these reasons, detectors **shall be located on every level and in every bedroom within a building.**

Smoke detectors have sensing limitations, too. Ionization detectors and photoelectric detectors are required to pass fire tests of the flaming and

smoldering type. This is to ensure that both can detect a wide range of types of fires. Ionization detectors offer a broad range of fire sensing capability but they are somewhat better at detecting fast flaming fires than slow smoldering fires. Photoelectric detectors sense smoldering fires better than flaming fires which have little, if any, visible smoke. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is always best, and a given detector may not always provide early warning of a specific type of fire.

In general, detectors cannot be expected to provide warnings for fires resulting from inadequate fire protection practices, violent explosions, escaping gases which ignite, improper storage of flammable liquids like cleaning solvents which ignite, other similar safety hazards, arson, smoking in bed, children playing with matches or lighters, etc. Smoke detectors used in high air velocity conditions may have a delay in alarm due to dilution of smoke densities created by 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 smoke detectors are made to last over 10 years, any part can fail at any time. Therefore, smoke detectors shall be replaced after being in service for 10 years. The smoke detector system that this detector is used in must be tested regularly per NFPA 72. This smoke detector should be cleaned regularly per NFPA 72 or at least once a year.

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: 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.