



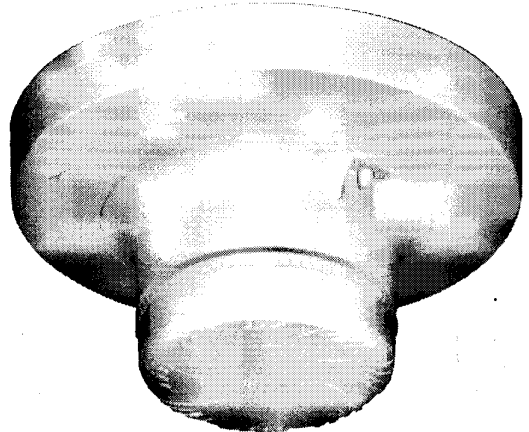
P133A FILTRETTM Intelligent Photoelectronic Smoke Detector

BEFORE INSTALLING

This detector must be installed in compliance with the control panel system installation manual. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Detectors offer maximum performance when installed in compliance with AS1670.1-1995.

GENERAL DESCRIPTION

FiltretTM uses a small air intake fan and a high density replaceable filter. Air and smoke are drawn into a photoelectric sensing chamber while airborne particulate and water mist are removed. The addressable-analog detector transmits an analog representation of smoke density over a communication line to a control panel. Rotary-decade switches are provided for setting the sensor's address. Two LEDs on the sensor are controlled by the panel to indicate sensor status.



Filtret is intended for use in normal environmental conditions, where dust and other airborne particulate are present at elevated levels. These elevated levels tend to cause false alarms and high maintenance in standard detectors. Filtret provides a protective enclosure for a photoelectric smoke detector chamber and allows smoke detection in areas that tended to use exclusively heat detection.

Filtret requires compatible addressable communications to function properly. Connect this detector to listed-compatible control panels only.

SPACING

Olsen recommends spacing detectors in compliance with AS1670.1-1995. In low air flow applications with smooth ceilings, space detectors 30 feet apart. For specific information regarding sensor spacing, placement, and special applications, refer to AS1670.1-1995 or the *Guide For Proper Use of System Smoke Detectors*, available from Olsen (P/N 156-407-XX).

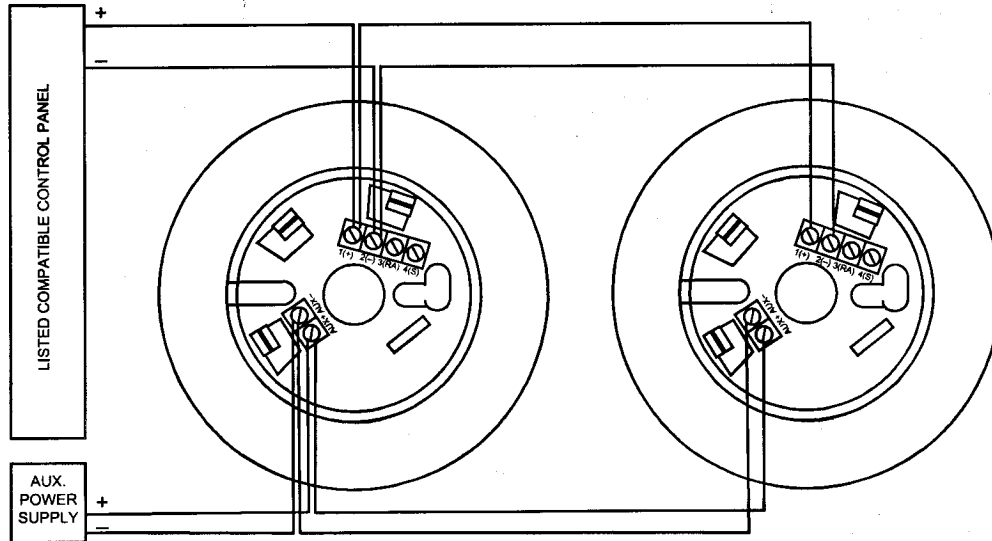
⚠WARNING

Filtret is **not** designed to operate in explosive environments.

SPECIFICATIONS

Operating Voltage Range:	15 to 32 VDC
Detector Current:	230 μ A @ 24 VDC (without communication) 285 μ A @ 24 VDC (one communication every 5 sec. with LED enabled)
Auxiliary Power Supply Voltage:	15 to 30 VDC filtered; Ripple voltage may not drop below 15 volts.
Auxiliary Power Supply Current – Peak:	123 mA max.
Average:	27 mA max.
Operating Humidity Range:	10% to 93% Relative Humidity, noncondensing
Operating Temperature Range:	-10° TO 60°C
Maximum Air Velocity:	4000 ft./min. (20.3m/s)
Filter:	Removes particulate down to 25 microns
Height:	2.8 inches (43 mm)
Diameter:	6.2 inches (155 mm) installed in base
Weight:	7.3 oz. (207 g)
Mounting Base:	Requires Z133A mounting base

Figure 1. Wiring diagram:



WIRING INSTRUCTIONS

All wiring must be installed in compliance with the National Electrical Code, applicable local codes, and any special requirements of 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 detectors.

All wiring must conform to applicable local codes, ordinances, and regulations.

1. Wire the sensor base per the wiring diagram, please see Figure 1.
2. Set the desired address on the sensor address switches, please see Figure 2.
3. Insert 5-wire connector on mounting base into 5-pin connector on Filtrex unit. Install the detector into the sensor base. Push the detector into the base while turning it clockwise to secure it in place. (Please see Figure 5 and INSTALLING FILTRET INTO BASE on page 4 for specific directions.
4. After all detectors have been installed, turn on the auxiliary power supply, then apply power to the control unit and activate the communication line.
5. Test the detector(s) as described in the **TESTING** section of this manual.

CAUTION

Dust cover must be removed before the detector can sense smoke.

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 detectors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Detectors offer maximum performance when tested and maintained in compliance with AS1670.1-1995.

The sensor can be tested in the following ways:

A. Functional: Magnet Test (P/N M02-04-01 or M02-09-00)

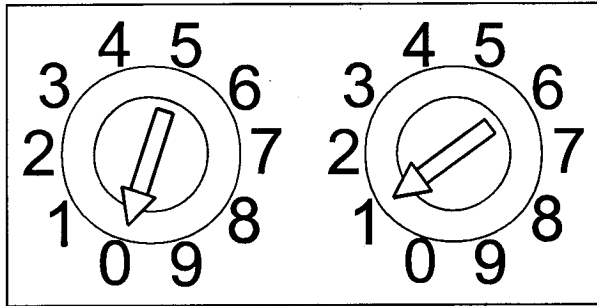
This detector can be functionally tested with a test magnet. The test magnet electronically simulates smoke in the sensing chamber, testing the detector electronics and connections to the control panel.

1. Hold the test magnet in the magnet test area as shown in Figure 3.
2. The detector should alarm the panel. Two LEDs on the detector are controlled by the panel to indicate sensor status. Coded signals, transmitted from the panel, can cause the LEDs to blink, latch on, or latch off. Refer to the control panel technical documentation for detector LED status operation and expected delay to alarm.

B. Smoke Entry: Aerosol Generator

Aerosol generators for smoke entry testing are available from a number of third party manufacturers (e.g., Gemini

Figure 2. Rotary decade address switches:



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Figure 3. Test magnet position:

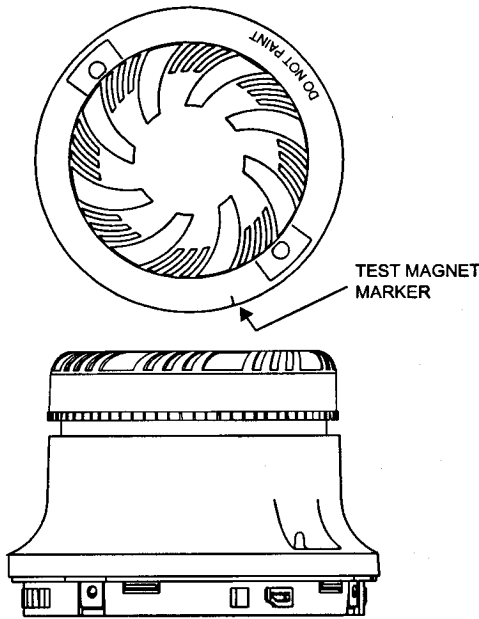
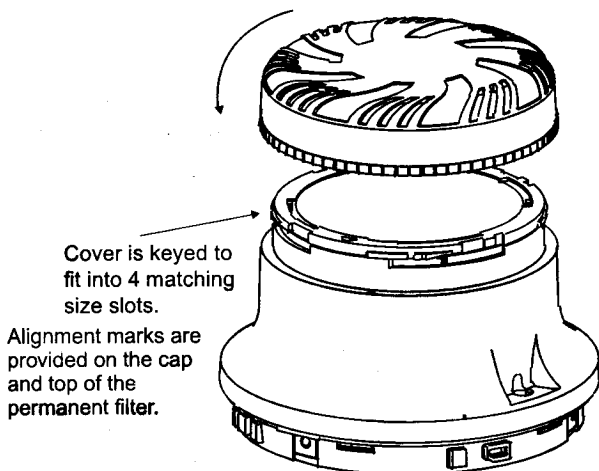


Figure 4. Replacing the filter cover:



Scientific). Following the manufacturer's instructions, apply aerosol until the panel alarms.

A detector that fails any of these tests should be retested. If the detector still fails any test, have its filter replaced (see instructions below) and retested. Finally, if the detector continues to fail after replacing the filter, it must be returned for repair or replacement.

When testing is complete, restore the system to normal operation and notify the proper authorities that the system is back in operation.

CLEANING

The unique design of Filtrex eliminates the need for typical detector cleaning. The unit's high-density filter will remove all particles down to 25 microns. The only maintenance necessary is replacing the filter, which is signaled by a trouble condition at the panel (see below).

Filtrex has been designed to maximize the amount of time before maintenance is required. Filtrex utilizes a replaceable filter that may become clogged over time. Filtrex monitors itself to insure that the filter has not become clogged. Because environmental conditions can vary significantly, the amount of time before maintenance could vary significantly as well. To fully understand the maintenance requirements of Filtrex in its installed location, it is recommended that the following test program be conducted.

1. Install Filtrex in the desired location.
2. Connect Filtrex to the fire alarm control panel.
3. Maintain a record for at least 90 days of any maintenance performed on or required by Filtrex.
4. At the end of the test period, use the record to develop and schedule maintenance. Filtrex detectors should be serviced at regular intervals to insure that the fire alarm system provides continuous protection.

REPLACING THE FILTER

IMPORTANT:

When the filter becomes too clogged to draw adequate air into Filtrex, power is automatically cut from the detector, sending a trouble signal to the fire control panel. After 5 minutes, power is restored to the detector for 72 hours. After 72 hours, power is cut again and the detector will remain off-line until the filter is replaced.

Note: The unit has two filters. The replaceable filter is inside the cover. A permanent filter is mounted to the unit.

1. Grasp the Filtrex housing with one hand and the cover with the other. Turn the cover counterclockwise fully (approx. 30 degrees) and remove cover by pulling it away from detector unit (see Figure 4).
2. Replace with new filter and cover assembly. The cover is keyed so it fits in place only one way. Turn the cover clockwise until it stops.

NOTE: The Z133A Sensor Base is equipped with an optional tamperproof feature which can be used to prevent unintentional removal of Filtrex while replacing the filter.

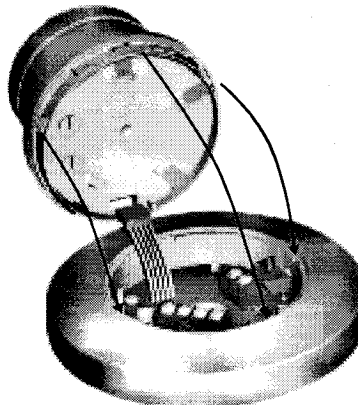
If a clogged filter was the cause of the trouble condition, normal detector operation should resume automatically within five minutes. If the trouble condition persists, the detector must be returned for repair or replacement.

INSTALLING FILTRET INTO BASE

1. Align the detector at a right angle to the base, with the five wires and connector adjacent to the connector receptacle as shown in Figure 5.
2. Plug the wired connector into the receptacle.
3. Rotate the detector into the base, making sure detector and base keyed fit is lined up. Turn the detector clockwise until it snaps into place.

IMPORTANT: Filtrex will only operate with Z133A mounting base.

Figure 5: Installing Filtrex detector into base:



WARNING

The Limitations of Property Protection Smoke Detectors

This smoke detector 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 AS1670.1-1995.

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.

To keep your equipment in excellent working order, ongoing maintenance is required per the manufacturer's recommendations and UL and Australian standards. At a minimum, the requirements of AS1670.1-1995, the National Fire Alarm Code, shall be followed. A preventative maintenance agreement should be arranged through the local manufacturer's representative. Though smoke detectors are designed for long life, they may fail at any time. Any smoke detector, fire alarm equipment, or any component of that system which fails **shall be repaired or replaced as soon as possible.**

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.



Z133A Detector Base

For use with the FILTREX™ Smoke Detector

BEFORE INSTALLING

Please thoroughly read the system wiring and installation manuals, 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 Olsen.

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

IMPORTANT: The detector used with these bases must be tested and maintained regularly following Australian requirements. The detectors should be cleaned at least once a year.

MOUNTING

The detector base mounts directly to 3½- and 4-inch octagon and 4-inch square boxes, with or without a plaster ring.

To mount, remove the decorative ring by rotating it in either direction to unhook the snaps. Then, separate the ring from the base. Install the base on the box, using the screws supplied with the junction box and the appropriate slots in the base. Replace the decorative ring on the base and rotate it in either direction until the ring snaps in place (see Figure 1).

INSTALLATION GUIDELINES

All wiring must be installed in compliance with all applicable local codes and any special requirements of the local authority having jurisdiction, using the proper wire sizes. 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 18 gauge (1.0 square mm). However, wire sizes up to 12 gauge (3.3 square mm) can be used with the base. The use of twisted pair wiring or shielded cable for the power (+ and -) loop is recommended to minimize the effects of electrical interference.

If shielded cable is used, the shield connection to and from the detector must be continuous by using wire nuts, crimping, or soldering, as appropriate, for a reliable connection.

Alarm system control panels have specifications for allowable loop resistance. Consult the control panel specifications for the total loop resistance allowed before wiring the detector loops.

SPECIFICATIONS

Base Diameter:	6.2 inches (157 mm)
Base Height	1.2 inches (31 mm)
Mounting:	4-inch square box with or without plaster ring, Min Depth - 1.5 inches (13 mm) 4-inch octagon box, Min. depth - 1.5 inches (13 mm) 3½-inch octagon box, Min. depth - 1.5 inches (13 mm)
Operating Temperature Range:	-10° to 60°C
Operating Humidity Range:	10% to 93% Relative Humidity, noncondensing
Electrical Ratings	
Operating Voltage:	15 to 32 VDC
Currents:	
Detector—	230µA@24VDC (without communication) 285µA@24VDC (one communication every 5 seconds with LED enabled)
Air Intake—	6mA standby 60mA when checking for smoke (5 seconds on, 30 seconds off) 80mA when checking for proper airflow (15 seconds on, every 4 hours)

WIRING INSTRUCTIONS

Make wiring connections by stripping about $\frac{3}{8}$ " (10 mm) of insulation from the end of the wire. Then, slide the wire under the clamping plate and tighten the clamping plate screw.

Wire the remote annunciator (RA) line to terminal 3 (see Figure 2). Wire the communication lines in (+) and out (+) to terminal 1. Insert the communication line in (-) and out (-) to terminal 2. Terminal 4 is for shielded cable only (see Figure 2). If shielded cable is used, the shield connection to and from the detector must be continuous by using wire nuts, crimping, or soldering to ensure a reliable connection. If shielded cable is not used, leave terminal 4 in the screwed-down position.

Wire the auxiliary power supply positive line to the AUX(+). Wire the auxiliary power supply return to the AUX(-).

Insert the 5-wire connector on the mounting base into the 5-pin connector located on bottom of the Filtrex unit.

Check the zone wiring of all bases in the system before installing detector heads. This includes checking the wiring for continuity, correct polarity, ground fault testing, and performing a dielectric test.

A label is affixed to the base for recording the zone, address, and type of detector being installed at the base location. This information is useful for setting the detector head address and for verification of the sensor type required for that location.

Once all detector bases have been wired and mounted, and the loop wiring has been checked, the detector heads may be installed in the bases.

TAMPER-RESIST FEATURE

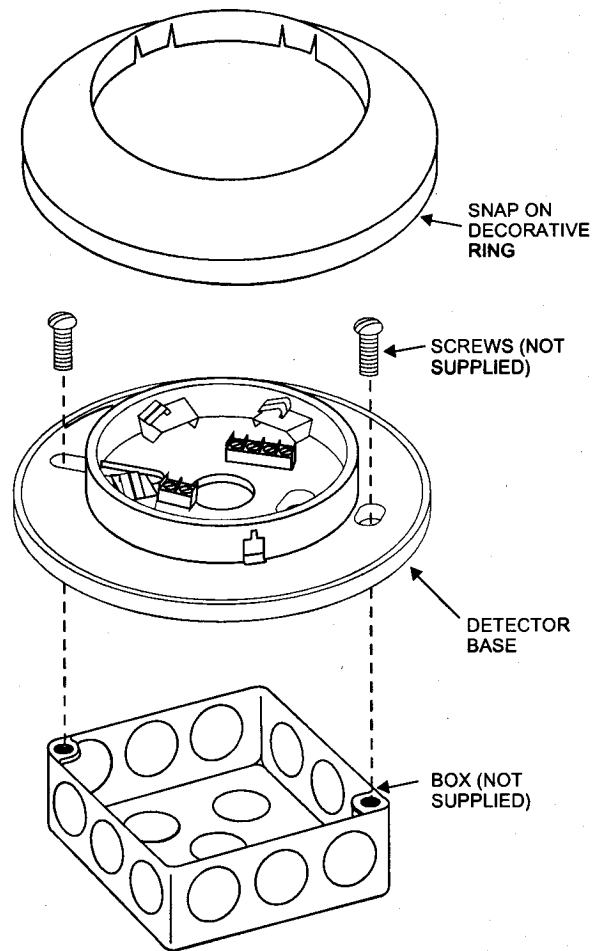
This detector base includes a tamper-resist feature that prevents its removal from the base without the use of a tool. To activate this feature, break the tab from the detector base as shown in Figure 3A. Then, install the detector.

To remove the detector from the base once the tamper-resist feature has been activated, insert a small-bladed screwdriver into the slot in the side of the base and push the plastic lever away from the detector head (see Figure 3B). This allows the detector to be rotated counterclockwise for removal.

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

The tamper-resist feature can be defeated by breaking and removing the plastic lever from the base. However, this prevents the feature from being used again.

Figure 1. Mounting the base to an electrical box:



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Figure 2. Wiring diagram:

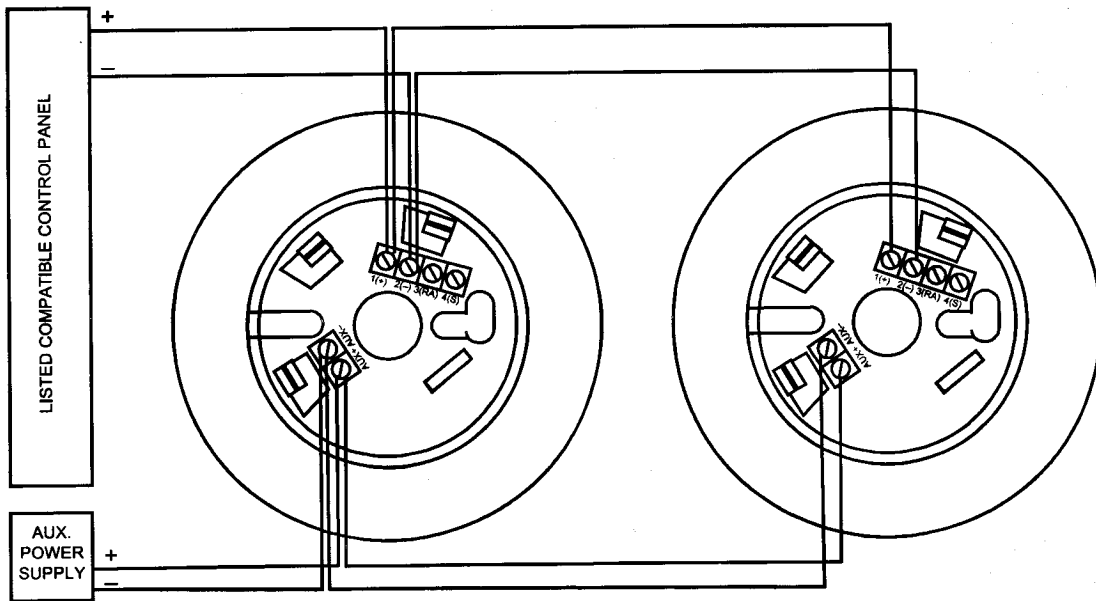


Figure 3A. Activating the tamper-resist feature:

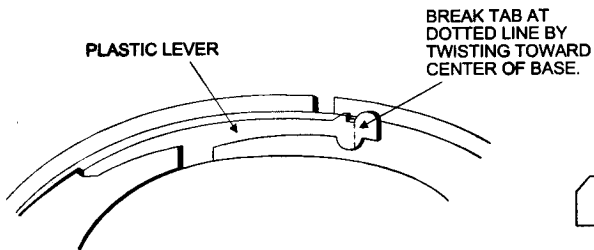
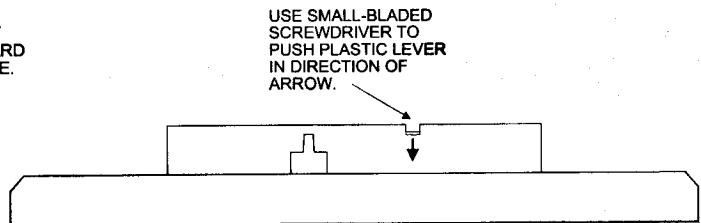


Figure 3B. Removing the detector head from the base:



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▲WARNING

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