



Division of Pittway Corporation

**CP-651 LOW PROFILE
IONIZATION PLUG-IN SMOKE DETECTOR
INSTALLATION AND MAINTENANCE INSTRUCTIONS**

Before installing detectors, please thoroughly read the wiring and installation manual which provides detailed information on detector spacing, placement, zoning, wiring, and special applications. Copies of this manual are available from Notifier.

GENERAL DESCRIPTION

Model CP-651 ionization detector uses a state-of-the-art sensing chamber. The detector is designed to provide open area protection, and to be used with compatible UL-listed control panels only. The capability of plugging these detectors into a variety of special bases makes them more versatile than equivalent direct-wired models.

Two LEDs on each detector light to provide a local 360° visible alarm indication. Remote LED annunciator capability is available as an optional accessory. These detectors also have the latching alarm feature. The alarm can be reset only by a momentary power interruption. For testing, these detectors have an internal magnetically activated reed switch.

SPECIFICATIONS

Size:	Cover Height	1.7 inches (43 mm)
	Cover Diameter	4.0 inches (102 mm)
Weight		3.6 oz (102 g)
Operating Temperature Range		-10° to 60°C (14° to 140°F)
		Note: Do not install in locations where normal ambient temperature range extends beyond 0° to 49°C (32° to 120°F)
Operating Humidity Range		10% to 93% Relative Humidity, Noncondensing
Latching Alarm		Reset by momentary power interruption.

SPACING

Spacing of 30 ft. on a smooth ceiling as per NFPA 72. Where conditions or response requirements vary, other spacing may apply.

BASE SELECTION AND WIRING GUIDE

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

WARNING

Disconnect power from initiating-device circuits before installing detectors.

1. Install Detectors:

- a. Place the detector into the detector base.
 - b. Rotate the detector clockwise until the detector drops into place.
 - c. Continue rotating the detector clockwise to lock it in place.
- 2. Tamper-Resistance:** The detector bases include a feature that, when activated, prevents removal of the detector without the use of a tool. See the installation instruction manual of the detector base for details in using this feature.
3. After all detectors have been installed, apply power to the control unit.
 4. Test the detector as described under **TESTING**.
 5. Reset the detector at the system control panel.
 6. Notify the proper authorities that the system is in operation.

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, Notifier recommends the removal of detectors before beginning construction or other dust producing activity. Be sure to remove dust covers from any sensors that were left in place during construction as part of returning the system to service.

TESTING

Detectors must be tested after installation and following periodic maintenance. However, before testing, notify the proper authorities that the smoke detector system is undergoing maintenance and the system will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

In addition, check to ensure that the LEDs blink. If they do not, power has been lost to the detector (check the wiring), or it is defective (return for repair).

Test the sensors as follows:

A. Test Magnet (Model M02-24 – optional)

1. Test the sensor by positioning the optional test magnet against the sensor plastic just to the left of LED1 (Figure 1).
2. Both LEDs should latch on within 30 seconds, indicating an alarm and annunciating the panel.

B. Calibrated Sensitivity Test (MOD400R)

Use the MOD400R Test Module with a digital or analog voltmeter to test calibrated detector sensitivity as described in the test module manual.

C. Aerosol Generator (Gemini 501)

Set the generator to represent 4%/ft. to 5%/ft. obscuration as described in the Gemini 501 manual. Use the bowl shaped applicator to apply aerosol to the sensor. It should alarm within 30 seconds.

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.

MAINTENANCE

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

1. Remove the sensor to be cleaned from the system.
2. Remove the sensor cover. Use a small standard screwdriver to release each of four cover removal tabs that hold the cover in place.
3. Vacuum the outside of the screen carefully without removing it.
4. Remove the sensor screen. Pull the screen straight away from the sensing chamber until it snaps out of place. Replacement screens are available.
5. Use a vacuum cleaner or clean, compressed air to remove dust and debris from the sensing chamber.
6. Reinstall or replace the sensing chamber screen by placing the screen over the sensing chamber and twisting until it snaps into place.
7. Reinstall the sensor cover. Use the test module socket and LEDs to align the cover with the sensor. Snap the cover into place.
8. When all sensors have been cleaned, restore power to the system and test the sensor(s) as described in the **TESTING** section of this manual.

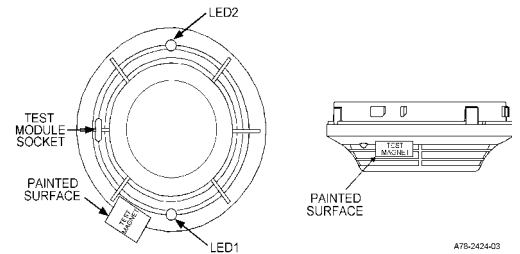


Figure 1. Bottom and side views showing position of test magnet.

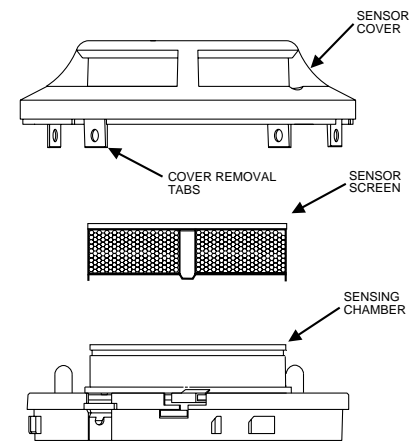


Figure 2. A78-2463-07

WARNING

Limitations of 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 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.