NOTIFIER®

Division of Pittway Corporation

SDX-751 Intelligent Photoelectronic Smoke Sensor Installation and Maintenance Instructions

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.

GENERAL DESCRIPTION

Model SDX-751 is a plug-in type smoke sensor that combines a photoelectronic sensing chamber with addressable-analog communications. The sensor 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. An output is provided for connection to an optional remote LED annunciator (P/N RA400Z).

SPECIFICATIONS

Operating Voltage Range:	15 to 32 VDC
Max. Avg. Standby Current:	330μA @ 24 VDC (one communication every 5 seconds with LED blink enabled)
Max. Alarm Current (LED on):	6.5 mA @ 24 VDC
Operating Humidity Range:	10% to 93% Relative Humidity, noncondensing
Operating Temperature Range:	0° to 49°C (32° to 120°F)
Height:	1.7 inches (43 mm) installed in B710LP Base
Diameter:	6.2 inches (155 mm) installed in B710LP Base 4.1 inches (104 mm) installed in B501 Base
Weight:	3.6 oz. (102 g)

The SDX-751 requires compatible addressable communications to function properly. Connect to listed-compatible control panels only.

WIRING DIAGRAM

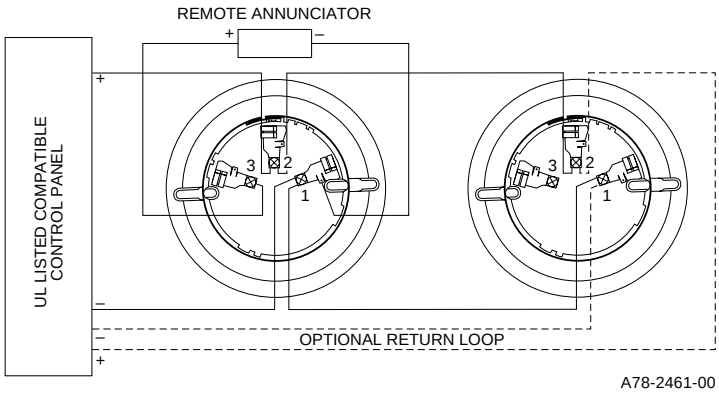

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Figure 1.

SPACING

Notifier recommends spacing sensors in compliance with NFPA 72. In low air flow applications with smooth ceilings, space sensors 30 feet apart. For specific information regarding sensor spacing, placement, and special applications, refer to NFPA 72 or Notifier's *Guide For Proper Use of System Smoke Detectors*, available at no charge from Notifier (P/N I56-407-XX).

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.

Disconnect power from the communication line before installing sensors.

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

1. Wire the sensor base (supplied separately) per the wiring diagram.
2. Set the desired address on the sensor address switches.
3. Install the sensor in to 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.

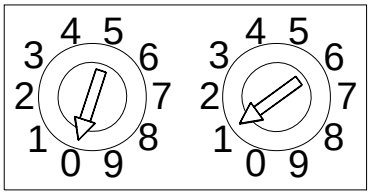

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Figure 2. Rotary Decade Address Switches

⚠CAUTION

Dust covers provide limited protection against airborne dust particles during shipping. Dust covers must be removed before the sensors can sense smoke. Remove sensors prior to heavy remodeling or construction.

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 can be tested in the following ways:

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

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

1. Hold the test magnet in the magnet test area as shown.
2. The sensor should alarm the panel.

Two LEDs on the sensor 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 sensor LED status operation and expected delay to alarm.

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B. Sensitivity: Test Module (MOD400R)
A sensitivity test module socket is provided for checking the sensor's sensitivity with the MOD400R Test Module (supplied separately). Use the test module with a digital or analog voltmeter to check the sensor sensitivity. An acceptable voltage range is stamped on the back of the sensor. Test the sensor as described in the test module's manual.

C. Smoke Entry: Aerosol Generator (Gemini 501)
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.

A sensor that fails any of these tests should be cleaned as described under **CLEANING**, and retested. If the sensor fails after cleaning, it must be replaced and returned for repair.

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

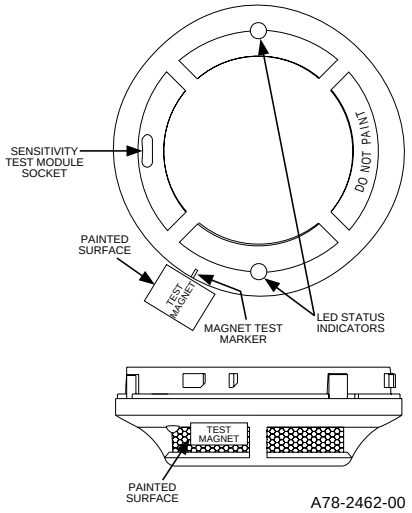

Figure 3.

HIGH SENSITIVITY SETTING

The use of the 0.2% to 0.5% per foot sensitivity setting requires a 90-day test period to ensure that the detector's environment is suitable for this setting. The following steps must be followed to meet Notifier and UL requirements for this high sensitivity application:

1. Each detector intended for 0.2% to 0.5% per foot alarm application shall have its initial alarm setting set for 0.5% obscuration per foot alarm level. The initial prealarm setting for the detector shall be set to the intended alarm setting of the system. Prealarm shall be set for nonlatching operation.
2. Detectors set at 0.2% to 0.5% per foot are intended for use in smoke-free, environmentally controlled applications, such as computer rooms and clean rooms. In order to determine if an environment is suitable for installation, the detectors shall be operated continuously for 90 days with all environmental factors, including temperature, humidity, air flow, occupancy, etc., similar to the intended application for these detectors. An electronic history file or printer shall be used to record all events associated with the detectors under testing.
3. At the end of 90 days, the results of the test shall be inspected by an authorized Notifier representative or the end user, if trained by an authorized Notifier representative. If no alarms or prealarms are recorded for the detectors under testing, the system may be set to the tested prealarm level in the 0.2% to 0.5% per foot range.

CLEANING

It is recommended that the detector be removed from its mounting base to facilitate cleaning. The detector is cleaned as follows:

NOTE: 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 detector cover by prying away the four side tabs with a small-bladed screwdriver, and then pulling the cover from the base.
2. Vacuum the screen carefully without removing it. If further cleaning is required continue with Step 3, otherwise skip to Step 8.
3. Remove the screen assembly by pulling it straight out (see Figure 4).
4. Remove the sensing chamber cover by pulling it straight out.
5. Clean the vaned chamber piece by vacuuming or blowing out dust and particles.
6. Replace the sensing chamber cover, aligning the arrow on the top with arrow on the printed circuit board.
7. To replace the screen, place it over the chamber assembly, turning it until it snaps into place.
8. Replace the cover using the test module socket and LEDs to align the cover and then gently pushing it until it locks into place.
9. Reinstall the detector.
10. Test the detector as described in TESTING.
11. Reconnect disabled circuits.
12. Notify the proper authorities that the system is back on line.

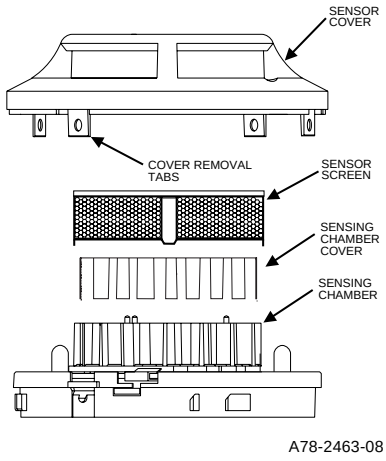

Figure 4.

⚠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.

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