FSC-851 Intelligent Photoelectric Multi-Criteria Smoke Sensor

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SPECIFICATIONS

Operating Voltage Range:	15 to 32 VDC
Standby Current:	300µA @ 24 VDC (one communication every 5 seconds with LED blink enabled)
Max. Alarm Current (LED on):	7 mA @ 24 VDC
Operating Humidity Range:	10% to 93% Relative Humidity, Non-condensing
Operating Temperature Range:	0°C to 38°C (32°F to 100°F)
Height:	2.7″ (69 mm) installed in B710LP Base
Diameter:	6.0″ (155 mm) installed in B710LP Base; 4.0″ (102 mm) installed in B501 Base
Weight:	4.6 oz. (130 g)

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 FSC-851 is a plug-in type smoke sensor that is a photoelectronic sensing chamber combined with Carbon Monoxide (CO), thermal, and infra-red (IR) sensors with addressable-analog communications. The sensors transmit 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).

Notifier panels offer different features sets across different models. As a result, certain features of the FSC-851 may be available on some control panels, but not on others. The possible features available in the FSC-851, if supported by the control unit are:

1. The panel controls the LED operation on the sensor. Operational modes are RED blink, RED continuous, GREEN blink, and off.
2. The remote output may be synchronized to the LED operation or controlled independent of the LEDs.

Please refer to the operation manual for the UL listed control unit for specific operation of the FSC-851.

The FSC-851 requires compatible addressable communications to function properly. Connect these sensors to listed-compatible control panels only.

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 the System Smoke Detector Application Guide, available from Notifier.

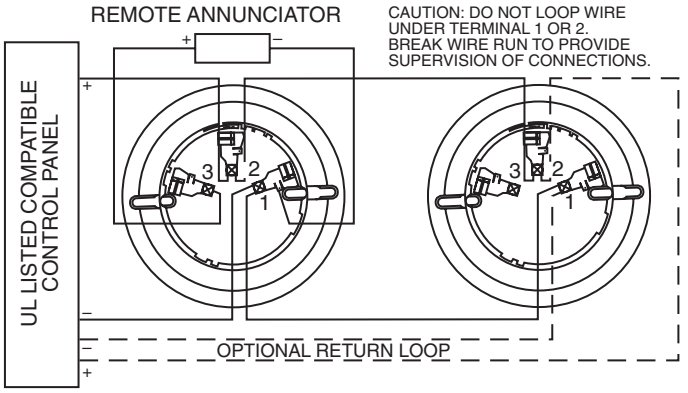
WIRING GUIDE

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 sensors.

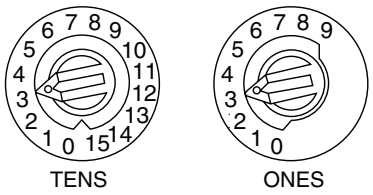
1. Wire the sensor base (supplied separately) per the wiring diagram, see Figure 1.
2. Set the desired address on the sensor address switches, see Figure 2.
3. Install the sensor into the sensor base. Push the sensor into the base while turning it clockwise to secure it in place.
4. After all sensors 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.

FIGURE 1. WIRING DIAGRAM:



C0100-01

FIGURE 2. ROTARY ADDRESS SWITCHES:



C0955-00

⚠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.

TAMPER-RESISTANCE

Model FSC-851 includes a tamper-resistant capability that prevents their removal from the bracket without the use of a tool. Refer to the base manual for details on making use of this capability.

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 or M02-09-00)

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 in Figure 3.
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.

B. 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.

For FSC-851, smoke entry testing should be performed immediately following the magnet test. Magnet test initiates an approximately 10 minute period when the detector's signal processing software routines are not active. Failure to first perform the magnet test will introduce a time delay before the detector alarms.

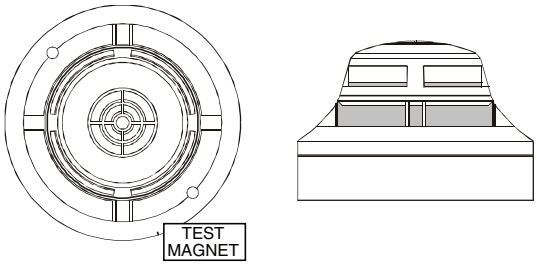
C. Direct Heat Method (Hair dryer of 1000-1500 watts).

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.

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. TEST MAGNET POSITIONING:



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CLEANING

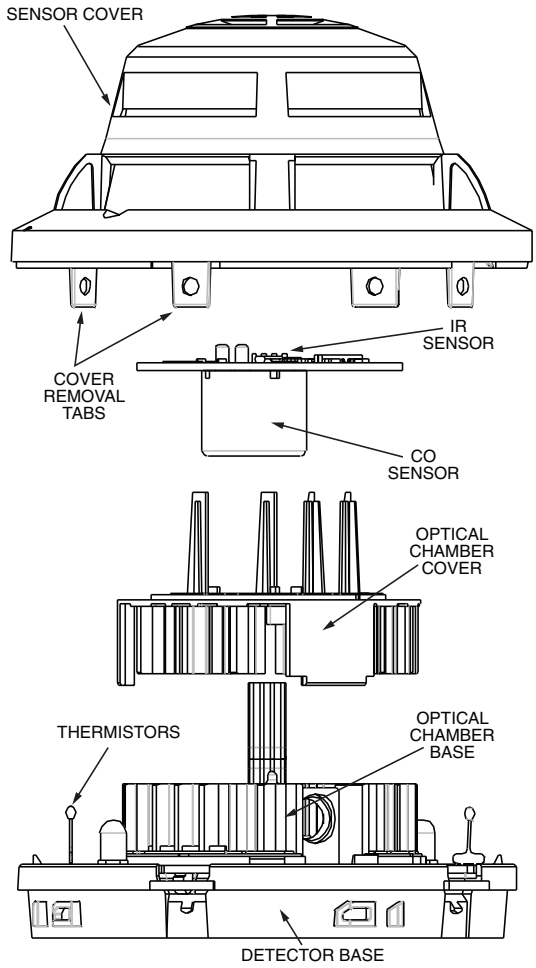
Before removing the detector, notify the proper authorities that the smoke detector system is undergoing maintenance and will be temporarily out of service.

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. Use a small flat blade screwdriver to gently release each of the four cover removal tabs that hold the cover place. Use caution to avoid damaging the thermistors and other sensors
3. Carefully vacuum the outside of the anti insect screen without removing it from the detector cover.
4. The chamber cover, CO and IR sensors may be removed as a single assembly. Gently pull the assembly away from the sensing chamber being careful neither to damage the thermistors, the IR / CO sensor PCB nor to strain the connector cable to the PCB, then gently folded away from the optical chamber.
5. Use a vacuum cleaner and/or clean compressed air to remove dust and debris from the sensing chamber and sensing chamber cover.
6. Re-install the sensing chamber cover assembly by sliding the cover over the chamber, gently pressing it home until it snaps into place.
7. Re-install the sensor cover. Use the cover removal tabs, LEDs and thermistors to align the cover with the sensor. Snap the cover into place.
8. When all sensors have been cleaned and re-installed, restore power to the loop and test the sensor(s) as described under TESTING.

After completion of maintenance and testing, notify the proper authorities that the system is operational.

FIGURE 4:



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CO SENSOR LIFETIME

The CO cell has an expected lifetime of approximately six years. The detector is programmed to signal the approach of end of this lifetime to the control panel. The CO cell is not a field replaceable component and on failure, you should contact the system supplier to arrange for replacement of the cell.

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

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.

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