# i3 Series Photoelectric Smoke Detectors

SYSTEM SENSOR®

## Models Available

| | |
|---|---|
| **Two-Wire Models** | |
| 2W-B | 2-wire standard |
| 2WT-B | 2-wire standard with thermal |
| **Four-Wire Models** | |
| 4W-B | 4-wire standard |
| 4WT-B | 4-wire standard with thermal |
| **Accessories** | |
| 2W-MOD2 | 2-wire loop test/maintenance module |
| SENS-RDR | Sensitivity reader |
| RT | Removal/replacement tool |
| A77-AB2 | Retrofit adapter bracket |

## Product Overview

**Plug-in detector line – mounting base included**

**Large wire entry port**

**In-line terminals with SEMS screws**

**Mounts to octagonal and single-gang backboxes, 4-square backboxes, or direct to ceiling**

**Stop-Drop 'N Lock™ attachment to base**

**Removable detector cover and chamber for easy cleaning**

**Built-in remote maintenance signaling**

**Drift compensation and smoothing algorithms**

**Simplified sensitivity measurement**

**Wide angle, dual color LED indication**

**Loop testing via EZ Walk feature**

**Built-in test switch**

UL LISTED S911 | FM APPROVED 3011446 | 7272-1209:210 | MEA approved 290-01-E | MSFM approved 2093

**System Sensor's i3™ series smoke detectors represent a significant advancement in conventional detection. The i3 family is founded on three principles: Installation ease, Intelligence, and Instant inspection.**

**Installation ease.** The i3 line redefines installation ease with its plug-in design. This allows an installer to pre-wire the bases included with the heads. The large wire entry port and in-line terminals provide ample room for neatly routing the wiring inside the base. The base accommodates a variety of back box mounting methods as well as direct mounting with drywall anchors. To complete the installation, i3 heads plug-in to the base with a simple Stop-Drop 'N Lock action.

**Intelligence.** i3 detectors offer a number of intelligent features to simplify testing and maintenance. Drift compensation and smoothing algorithms are standard with the i3 line, to minimize nuisance alarms. When connected to the 2W-MOD2 loop test/maintenance module, or a panel equipped with the i3 protocol, 2-wire i3 detectors are capable of generating a remote maintenance signal when they are in need of cleaning. This signal is indicated via an LED located at the module and the panel. To read the sensitivity of i3 detectors, the SENS-RDR is a wireless device that displays the sensitivity in terms of percent per foot obscuration.

**Instant inspection.** The i3 series provides wide angle red and green LED indicators for instant inspection of the detector condition, indicating: normal standby, out-of-sensitivity, alarm, or freeze trouble conditions. When connected to the 2W-MOD2 loop test/maintenance module or a panel with the i3 protocol, the EZ Walk loop test feature is available on 2-wire i3 detectors. This feature verifies the initiating loop wiring by providing LED status indication at each detector.

## Architect/Engineer Specifications

Smoke detector shall be a System Sensor i$^3$ Series model number_____, listed to Underwriters Laboratories UL 268 for Fire Protection Signaling Systems. The detector shall be a photoelectric type (model 2W-B, 4W-B) or a combination photoelectric/thermal (model 2WT-B, 4WT-B) with thermal sensor rated at 135°F (57.2°C). The detector shall include a mounting base for mounting to 3½-inch and 4-inch octagonal, single gang, and 4-inch square back boxes with a plaster ring, or direct mount to the ceiling using drywall anchors. Wiring connections shall be made by means of SEMS screws. The detector shall allow pre-wiring of the base and the head shall be a plug-in type. The detector shall have a nominal sensitivity of 2.5% per foot nominal as measured in the UL smoke box. The detector shall be capable of automatically adjusting its sensitivity by means of drift compensation and smoothing algorithms. The detector shall provide dual color LED indication which blinks to indicate power up, normal standby, out of sensitivity, alarm, and freeze trouble (model 2WT-B, 4WT-B) conditions. When used in conjunction with the 2W-MOD2 module, 2-wire models shall include a maintenance signal to indicate the need for maintenance at the alarm control panel, and shall provide a loop testing capability to verify the circuit without testing each detector individually.

## Electrical Specifications

**Operating Voltage**
Nominal: 12/24V non-polarized
Min.: 8.5V
Max.: 35V

**Maximum Ripple Voltage**
30% peak to peak of applied voltage

**Standby Current**
2-wire: 50 µA maximum average
4-wire: 50 µA maximum average

**Maximum Alarm Current**
2-wire: 130 mA limited by control panel
4-wire: 20 mA @12V, 23mA @ 24V

**Peak Standby Current**
2-wire: 100 µA
4-wire: n/a

**Alarm Contact Ratings**
2-wire: n/a
4-wire: 0.5 A @ 30V AC/DC

## LED Modes

| LED Mode | Green LED | Red LED |
|---|---|---|
| Power up | Blink every 10 seconds | Blink every 10 seconds |
| Normal (standby) | Blink every 5 seconds | off |
| Out of sensitivity | off | Blink every 5 seconds |
| Freeze trouble | off | Blink every 10 seconds |
| Alarm | off | Solid |

## Power Up Sequence for LED Indication

| Condition | Duration |
|---|---|
| Initial LED status indication | 80 seconds |

## Physical Specifications

**Operating Temperature Range**
2W-B and 4W-B: 32°F–120°F (0°C–49°C)
2WT-B and 4WT-B: 32°F–100°F (0°C–37.8°C)

**Operating Humidity Range**
0 to 95% RH non-condensing

**Thermal Sensor**
135°F (57.2°C) fixed

**Freeze Trouble**
2WT-B and 4WT-B only: 41°F (5°C)

**Sensitivity**
2.5%/ft. nominal

**Input Terminals**
14–22 AWG

**Dimensions (including base)**
5.3 inches (127 mm) diameter
2.0 inches (51 mm) height

**Weight**
6.3 oz. (178 grams)

**Mounting**
3½-inch octagonal back box
4-inch octagonal back box
Single gang back box
4-inch square back box with a plaster ring
Direct mount to ceiling

## Ordering Information

| Model | Thermal | Wiring | Alarm Current |
|---|---|---|---|
| 2W-B | No | 2-wire | 130 mA max. limited by control panel |
| 2WT-B | Yes | 2-wire | 130 mA max. limited by control panel |
| 4W-B | No | 4-wire | 20 mA @ 12V, 23mA @ 24V |
| 4WT-B | Yes | 4-wire | 20 mA @ 12V, 23mA @ 24V |

| Model | Description |
|---|---|
| 2W-MOD2 | 2-wire loop test / maintenance module |
| SENS-RDR | Sensitivity reader |
| RT | Removal / replacement tool |
| A77-AB2 | Retrofit adapter bracket, 6.6 in. (16.76cm) diameter |

## System Sensor Sales and Service


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