

# i<sup>3</sup> Series Photoelectric Smoke Detectors



## 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**

**System Sensor's i<sup>3</sup>™ series smoke detectors represent a significant advancement in conventional detection. The i<sup>3</sup> family is founded on three principles: Installation ease, Intelligence, and Instant inspection.**

**Installation ease.** The i<sup>3</sup> 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, i<sup>3</sup> heads plug-in to the base with a simple Stop-Drop 'N Lock action.

**Intelligence.** i<sup>3</sup> detectors offer a number of intelligent features to simplify testing and maintenance. Drift compensation and smoothing algorithms are standard with the i<sup>3</sup> line, to minimize nuisance alarms. When connected to the 2W-MOD2 loop test/maintenance module, or a panel equipped with the i<sup>3</sup> protocol, 2-wire i<sup>3</sup> 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 i<sup>3</sup> detectors, the SENS-RDR is a wireless device that displays the sensitivity in terms of percent per foot obscuration.

**Instant inspection.** The i<sup>3</sup> 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 i<sup>3</sup> protocol, the EZ Walk loop test feature is available on 2-wire i<sup>3</sup> 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<sup>3</sup> 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: 12/24 V non-polarized  
Min.: 8.5 V  
Max.: 35 V

### 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. (16.76 cm) diameter

## System Sensor Sales and Service

### System Sensor Headquarters

3825 Ohio Avenue  
St. Charles, IL 60174  
Ph: 800/SENSOR2  
Fx: 630/377-6495  
Documents-on-Demand  
800/736-7672 x3  
www.systemsensor.com

### System Sensor Canada

Ph: 905.812.0767  
Fx: 905.812.0771

### System Sensor Europe

Ph: 44.1403.276500  
Fx: 44.1403.276501

### System Sensor in China

Ph: 86.29.524.6253  
Fx: 86.29.524.6259

### System Sensor in Singapore

Ph: 65.6273.2230  
Fx: 65.6273.2610

### System Sensor – Far East

Ph: 85.22.191.9003  
Fx: 85.22.736.6580

### System Sensor – Australia

Ph: 613.54.281.142  
Fx: 613.54.281.172

### System Sensor – India

Ph: 91.124.637.1770 x.2700  
Fx: 91.124.637.3118