

i³ Sounder and Relay Smoke Detectors



Models Available

Two-Wire Models

2WTA-B	2-wire with thermal and sounder
2WTR-B	2-wire with thermal and Form C relay

Four-Wire Models

4WTA-B	4-wire with thermal and sounder
4WTR-B	4-wire with thermal and Form C relay
4WTAR-B	4-wire with thermal, sounder, and Form C relay
4WITAR-B	4-wire with isolated thermal, sounder, and Form C relay

Accessories

RRS-MOD	Reversing relay/synchronization module
2W-MOD2	2-wire loop test/maintenance module
SENS-RDR	Sensitivity reader
RT	Removal/replacement tool
A77-AB2	Retrofit adapter bracket



Product Overview

Full line of options including:

- 85 dB sounder
- Form C relay
- Isolated thermal sensor

Maintains the i³ feature set including:

- Plug-in design – base included
- In-line terminals
- Flexible mounting options
- Stop-Drop 'N Lock™ attachment to the base
- Removable cover and chamber
- Remote maintenance signaling
- Drift compensation and smoothing algorithms
- Simplified sensitivity measurement
- Dual color LEDs

System Sensor's i³™ sounder and relay smoke detectors apply the guiding principles of installation ease, intelligence, and instant inspection in a series of specialty conventional devices.

Installation ease. Throughout the i³ series, installation is simple with its installer-friendly base and plug-in design. The base accommodates a broad range of back box and direct mounting options, and provides ample space for pre-wiring the installation. To complete the installation, the i³ detector plugs into its base with a simple Stop Drop 'N Lock action.

Intelligence. To reduce the likelihood of nuisance alarms, all i³ detectors are equipped with both drift compensation and smoothing algorithms. These capabilities minimize both short- and long-term causes of nuisance alarms such as RF interference and dust accumulation. When connected to the 2W-MOD2 loop test /maintenance module or an i³ Ready™ panel, 2-wire i³ detectors can generate a remote maintenance signal when they are in a maintenance or freeze trouble condition. To measure the sensitivity of any i³ detector, the SENS-RDR displays the reading, in terms of percent per foot obscuration, within seconds.

Instant inspection. The i³ line's red and green LEDs simplify local status indication during power-up, standby, alarm, maintenance and freeze trouble conditions. When in alarm, i³ sounder models generate an 85dB temporal tone. If connected to the RRS-MOD reversing relay/synchronization module, all i³ sounders on the loop will activate when one detector is in alarm. Additionally, the RRS-MOD synchronizes the output of all i³ sounders, to ensure a clear audible signal.

Should the application call for differentiating between a local and a general alarm, the i³ line offers an isolated thermal model, which initiates a local alarm when smoke is detected, and a general alarm when the thermal sensor is activated.



Architect/Engineer Specifications

Smoke detector shall be a System Sensor i³ Series model number _____, listed to Underwriters Laboratories UL 268 for Fire Protection Signaling Systems. The detector shall be a combination photoelectric/thermal equipped with a sounder (model 2WTA-B, 4WTA-B), a Form C relay (model 2WTR-B), a combination sounder/relay (model 4WTAR-B) or an isolated thermal/sounder/relay (model 4WITAR-B). 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 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. When used in conjunction with the RRS-MOD module, all i³ sounder models on a loop shall sound when one alarms, all shall be synchronized, and all sounders may be silenced from the panel.

Electrical Specifications

Operating Voltage

Nominal: 12/24 V non-polarized
2-wire: 8.5 V - 35 V
4-wire: 10 V - 35 V

Maximum Ripple Voltage

30% of applied voltage (peak to peak)

Standby Current

2-wire: 50 µA maximum average
4-wire: 50 µA maximum average

Peak Standby Current

2-wire: 100 µA
4-wire: n/a

Maximum Alarm Current

2-wire: 2WTR-B: 130 mA limited by control panel
2WTA-B: 130 mA**
4-wire: 4WTA-B, 4WTR-B: 35 mA
4WTAR-B, 4WITAR-B: 50 mA

**Direct Power (Non-reverse Polarity): 130 mA limited by panel. Reverse Polarity Power: 30 mA for the 2WTA-B in alarm; 12 mA for all other 2WTA-B units on the loop. Add 25 mA for the RRS-MOD reversing relay alarm current.

Alarm Contact Ratings

2-wire: n/a
4-wire: 0.5 A @ 30V AC/DC

Form C Contact Ratings

2A@ 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

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

41°F (5°C)

Sensitivity

2.5%/ft. nominal

Input Terminals

14–22 AWG

Dimensions (including base)

5.3 inches (134 mm) diameter
2.0 inches (51 mm) height

Approximate Weight

7.1 oz. (200 grams)

Sound Pressure Output

85 dBA (models 2WTA-B, 4WTA-B, 4WTAR-B, and 4WITAR-B only)

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	Model	Description
2WTA-B	Yes	2-wire	130 mA max. limited by control panel	RRS-MOD	Reversing relay/synchronization module
2WTR-B	Yes	2-wire	130 mA max. limited by control panel	2W-MOD2	2-wire loop test/maintenance module
4WTA-B	Yes	4-wire	35 mA	SENS-RDR	Sensitivity reader
4WTR-B	Yes	4-wire	35 mA	RT	Removal/replacement tool
4WTAR-B	Yes	4-wire	50 mA	A77-AB2	Retrofit adapter bracket
4WITAR-B	Yes	4-wire	50 mA		

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