



**SYSTEM  
SENSOR®**



## Smoke Detectors with Sounder and Relay Option

*System Sensor i<sup>3</sup>™ 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 i<sup>3</sup> 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 device. To complete the installation, the i<sup>3</sup> detector plugs into its base with a simple Stop Drop 'N Lock action.

**Intelligence.** To reduce the likelihood of nuisance alarms, all i<sup>3</sup> 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 C2W-MOD2A loop test/maintenance module or an i<sup>3</sup> Ready™ panel, 2-wire i<sup>3</sup> detectors can generate a remote maintenance signal when in a maintenance or freeze trouble condition. To measure the sensitivity of any i<sup>3</sup> detector, the CSENS-RDRA displays the reading, in terms of percent-per-foot obscuration, within seconds.

**Instant inspection.** The i<sup>3</sup> line's red and green LEDs simplify local status indication during power-up, standby, alarm, maintenance and freeze trouble conditions. When in alarm, i<sup>3</sup> sounder models generate an 85 dB temporal tone. If connected to the CRRS-MODA reversing relay/synchronization module, all i<sup>3</sup> sounders on the loop will activate when one detector is in alarm. Additionally, the CRRS-MODA synchronizes the output of all i<sup>3</sup> sounders to ensure a clear audible signal.

Should the application call for differentiating between a local and a general alarm, the i<sup>3</sup> 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.

### Features

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

### Agency Listings

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# Smoke Detector Specifications

| Electrical Specifications          |  |
|------------------------------------|--|
| <b>Operating Voltage</b>           | Nominal: 12/24 V non-polarized<br>2-wire: 8.5 V - 35 V<br>4-wire: 10 V - 35 V  |
| <b>Maximum Ripple Voltage</b>      | 30% of applied voltage (peak to peak)  |
| <b>Standby Current</b>             | 2-wire: 50 $\mu$ A maximum average<br>4-wire: 50 $\mu$ A maximum average   |
| <b>Peak Standby Current</b>        | 2-wire: 100 $\mu$ A<br>4-wire: n/a   |
| <b>Maximum Alarm Current</b>       | 2-wire: C2WTR-BA: 130 mA limited by control panel<br>C2WTA-BA: 130 mA**<br>4-wire: C4WTA-BA, C4WTR-BA: 35 mA<br>C4WTAR-BA, C4WITAR-BA: 50 mA<br>** <u>Direct Power (Non-reverse Polarity)</u> : 130 mA limited by panel. <u>Reverse Polarity Power</u> : 30 mA for the C2WTA-BA in alarm; 12 mA for all other C2WTA-BA units on the loop. Add 25 mA for the CRRS-MODA reversing relay alarm current. |
| <b>Alarm Contact Ratings</b>       | 2-wire: n/a<br>4-wire: 0.5 A @ 30V AC/DC   |
| <b>Form C Contact Ratings</b>      | 2A @ 30V AC/DC   |
| Physical Specifications            |  |
| <b>Operating Temperature Range</b> | 32°F–100° F (0°C–37.8° C)  |
| <b>Operating Humidity Range</b>    | 0 to 95% RH non-condensing   |
| <b>Thermal Sensor</b>              | 135° F (57.2° C) fixed   |
| <b>Freeze Trouble</b>              | 41° F (5° C)   |
| <b>Sensitivity</b>                 | 2.5%/ft. nominal   |
| <b>Input Terminals</b>             | 14–22 AWG  |
| <b>Dimensions (including base)</b> | 5.3 inches (134 mm) diameter, 2.0 inches (51 mm) height  |
| <b>Approximate Weight</b>          | 7.1 oz. (200 grams)  |
| <b>Sound Pressure Output</b>       | 85 dBA (models C2WTA-BA, C4WTA-BA, C4WTAR-BA, and C4WITAR-BA only)   |
| <b>Mounting</b>                    | 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                        |
|------------|---------|--------|--------------------------------------|
| C2WTA-BA   | Yes     | 2-wire | 130 mA max. limited by control panel |
| C2WTR-BA   | Yes     | 2-wire | 130 mA max. limited by control panel |
| C4WTA-BA   | Yes     | 4-wire | 35 mA                                |
| C4WTR-BA   | Yes     | 4-wire | 35 mA                                |
| C4WTAR-BA  | Yes     | 4-wire | 50 mA                                |
| C4WITAR-BA | Yes     | 4-wire | 50 mA                                |

| LED Modes                 |                        |                        |                               |            |
|---------------------------|------------------------|------------------------|-------------------------------|------------|
| LED Mode                  | Green LED              | Red LED                | Condition                     | Duration   |
| <b>Power up</b>           | Blink every 10 seconds | Blink every 10 seconds | Initial LED status indication | 80 seconds |
| <b>Normal (standby)</b>   | Blink every 5 seconds  | off                    |                               |            |
| <b>Out of sensitivity</b> | off                    | Blink every 5 seconds  |                               |            |
| <b>Freeze trouble</b>     | off                    | Blink every 10 seconds |                               |            |
| <b>Alarm</b>              | off                    | Solid                  |                               |            |

| Power Up Sequence for LED Indication |            |
|--------------------------------------|------------|
| Condition                            | Duration   |
| <b>Initial LED status indication</b> | 80 seconds |

## Architect/Engineer Specifications

Smoke detector shall be a System Sensor i<sup>3</sup> Series model number \_\_\_\_\_, listed to ULC. The detector shall be a combination photoelectric/thermal equipped with a sounder (model C2WTA-BA, C4WTA-BA), a Form C relay (model C2WTR-BA), a combination sounder/relay (model C4WTAR-BA) or an isolated thermal/sounder/relay (model C4WITAR-BA). 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 ULC 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 C2W-MOD2A 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 CRRS-MODA module, all i<sup>3</sup> sounder models on a loop shall sound when one alarms, all shall be synchronized, and all sounders may be silenced from the panel.



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