# PHOTOELECTRIC SMOKE DETECTORS　　i³ SERIES

Features

- 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 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

Description

The 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 C2W-MOD2A 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 CSENS-RDRA 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 C2W-MOD2A 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.
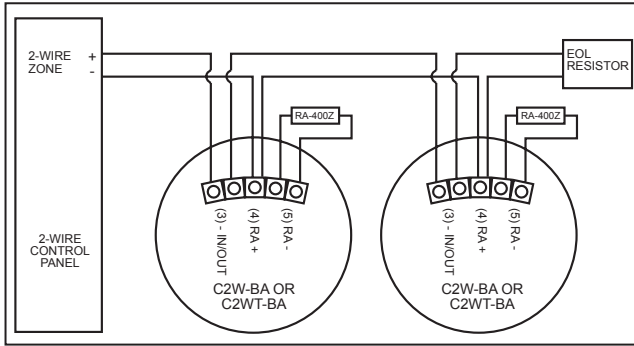
Engineering Specifications

The smoke detector shall be an i3 Series model listed by Underwriters Laboratories of Canada (ULC). The detector shall be a photoelectric type (model C2W-BA, C4W-BA) or a combination photoelectric/thermal (model C2WT-BA, C4WT-BA) 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 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 (model C2WT-BA,C4WT-BA) 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.
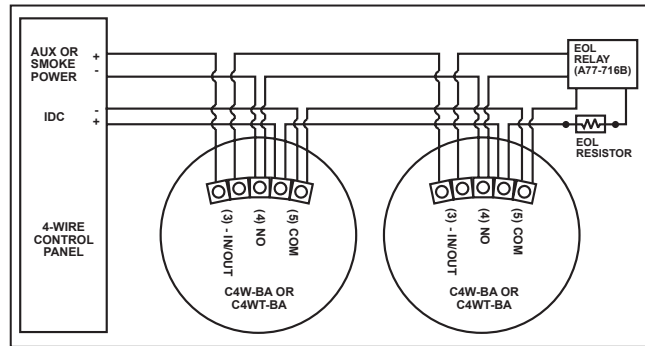
Tamper-Resistant Feature

DIRECT MOUNT HOLES

SNAP OFF TAB FOR TAMPER LOCK

TAMPER RELEASE TAB

CATALOG NUMBER 5131
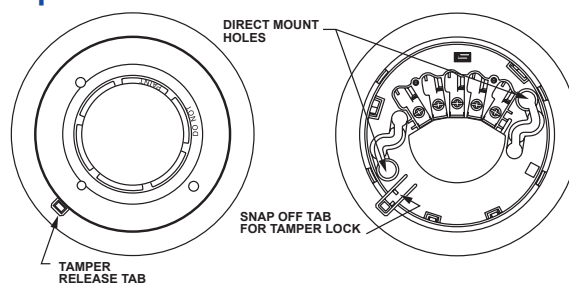
Wiring Diagrams

C2W-BA and C2WT-AB Wiring Diagram

C4W-BA and C4WT-BA Wiring Diagram

Electrical Specifications

Operating Voltage
Nominal: 12/24 V non-polarized
Min.: 8.5 V
Max.: 35 V
Maximum Ripple Voltage
30% of nominal (peak to peak)

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 secs	Blink every 10 secs
Normal (standby)	Blink every 5 secs	off
Out of sensitivity	off	Blink every 5 secs
Freeze trouble	off	Blink every 10 secs
Alarm	off	Solid

Power Up Sequence for LED Indication

Condition	Duration
Initial LED status indication	80 seconds

Physical Specifications

Operating Temperature Range
C2W-BA and C4W-BA:
32°F–120°F (0°C–49°C)
C2WT-BA and C4WT-BA:
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
C2WT-BA & C4WT-BA 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 Number	Thermal	Wiring	Alarm Current
C2W-BA	No	2-wire	130 mA max. limited by control panel
C2WT-BA	Yes	2-wire	130 mA max. limited by control panel
C4W-BA	No	4-wire	20 mA @ 12V, 23mA @ 24V
C4WT-BA	Yes	4-wire	20 mA @ 12V, 23mA @ 24V
Accessories			
C2W-MOD2A	i3 Series 2-wire loop test/maintenance module		
CSENS-RDRA	i3 Series Sensitivity Reader		
A77-AB2	i3 Series Retrofit Adapter Bracket		
RT	i3 Removal/Replacement Tool		

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