

100 Series™ Low-Profile Plug-in Smoke Detector



Models Available

1151/1151A* Ionization Detector

2151/2151A* Photoelectronic Detector

A suffix denotes ULC listed product



Product Overview

Sleek, low-profile design

Same housing design for both ion and photo models

Compatible with 400 Series product

Two LEDs blink in standby, providing 360° visibility

Field sensitivity metering of detector to meet the requirements of NFPA 72

Broad range of adapter bases available with built-in shorting spring

System Sensor 100 Series Plug-in Smoke Detectors offer superb performance and reliability in a profile which is just 1.6" (4.2 cm) deep. Model 1151 (ionization sensor) and Model 2151 (photoelectronic sensor) share the same sleek low-profile design and can be used with a variety of different adapter bases in several wiring configurations and voltages. Other features include: low current draw, stable performance in high air velocities, built-in tamper resistant base design, remote LED option, removable cover, and built-in test switch.

The 100 Series is designed to meet the performance criteria designated by UL. Their sensing chambers are sealed against back pressure air flow, dirt, and insects. This chamber is protected by a fine mesh screen which can be cleaned or replaced. Additional key features include interchangeable ion and photo heads, a variety of mounting bases, and a full line of accessories.

Ionization

All 100 Series ionization smoke detectors include a single source, dual chamber design that senses smoke particles. This chamber exhibits excellent stability, significantly reducing nuisance alarms, and provides good performance at higher air velocities.

Photoelectronic

All 100 Series photoelectronic smoke detectors contain a unique optical sensing chamber designed to sense smoke particles produced by a wide range of combustion sources. A custom integrated circuit incorporates signal processing to reduce false alarms.



Engineering Specifications

The ionization detector model shall be equipped with a dual-chamber, unipolar sensing chamber. The nominal sensitivity of the detector shall be 1.0%/ft. as measured in a UL smoke box and shall not alarm when it is exposed to wind gusts up to 500 feet per minute. The photoelectronic detector model shall have a nominal sensitivity of 3.0%/ft. as measured in a UL smoke box with a nominal signal-to-noise ratio of 2.0. Both ionization and photoelectronic detector models shall be available. The detector shall be equipped with a light-emitting diode (LED) that is visible from the floor. This LED shall blink every ten seconds to indicate that the detector is operational, in standby, and latch on as a visual indication of alarm. The detector shall be capable of applying an output voltage to an optional remote LED annunciator as an indication of its status. The photoelectronic detector shall include built-in circuitry that performs

a functional test of all detection circuits at least once every 40 seconds without the need for generating smoke. It shall be possible to perform a calibrated sensitivity and performance test on the detector without the need for generating smoke. The test method shall test all detector circuits. The detector screen and cover assembly shall be easily removable for cleaning or replacement. It shall maintain stable operation when it is exposed to wind gusts of up to 3000 feet per minute. The detector shall use a plug-in, low-profile design that is both unobtrusive and aesthetically pleasing. A line of plug-in bases for a variety of applications shall be available for use with the detectors. Wire connections shall be made by means of a clamping plate and screw. These bases shall allow for mounting directly to a surface or to a 3½" or 4" octagon box.

Specifications

Operating Voltage/Alarm Current

See Adapter Base Selection Guide following

Standby Current

Ion: 40µA Standby

Photo: 85µA Standby

Sensitivity

.97 ±.47%/ft. Ion; 3% ±.7%/ft. Photo

Shipping Weight

3.6 oz. (102 g)

Size

1.66" h. (42 mm)

4.1"/104 mm dia. unflanged base

6.1"/155 mm dia. flanged base

Construction

Flame retardant thermoplastic

Temperature

32°F to 120°F (0° to 49°C)

UL Listed Velocity Range

Ion: 0 – 500 fpm (0 – 2.5 m/s)

Photo: 0 – 3000 fpm (0 – 15.2 m/s)

Humidity Range

10% – 93% RH noncondensing

Smoke Detector Spacing

On smooth ceilings (as defined in NFPA 72), spacing of 30 feet (900 sq. ft.) may be used as a guide. Other spacing may be used depending on ceiling height, high air movements, and other conditions or response requirements.

Adapter Base Selection Guide

Base Model Number	Loop Type	Current Limit Resistor	Contact Type	Nominal Voltage	Current Draw on Alarm (mA)
B110LP	2-wire*	No	—	12/24VDC	10–100**
B110RLP	2-wire*	Yes	—	24VDC	22–62
B112LP	4-wire	Yes	Form A&C	24VDC	14–39
B114LP	4-wire	Yes	Form A&C + A Supervisory	120VAC	75 mA AC Max
B116LP	2-wire*	No	Form C	24VDC	12–100**
B401†	2-wire*	No	—	12/24VDC	10–100**

*Functionality contingent on panel compatibility

**Must be limited by control panel

†Flangeless base

Relay Contact Ratings: Resistive or Inductive (60% power factor) load.

Form A: 2.0A at 30 VAC/DC

Form C: 0.6A at 110VDC, 2.0A at 30VDC

1.0A at 125VAC, 2.0A at 30VAC

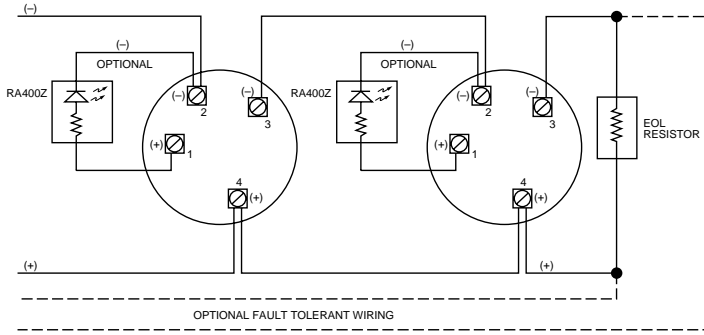
Junction Box Selection Guide*

Base Model Number	Single Gang	3½" Octagon	4" Octagon	4" Square	50 mm	60 mm	75 mm
B401	NO	NO	NO	NO	YES	YES	NO
B110LP/RLP	YES	YES	YES	YES	NO	NO	NO
B112LP/B116LP	YES	YES	YES	YES	YES	YES	YES
B114LP	NO	NO	YES	YES	NO	NO	NO

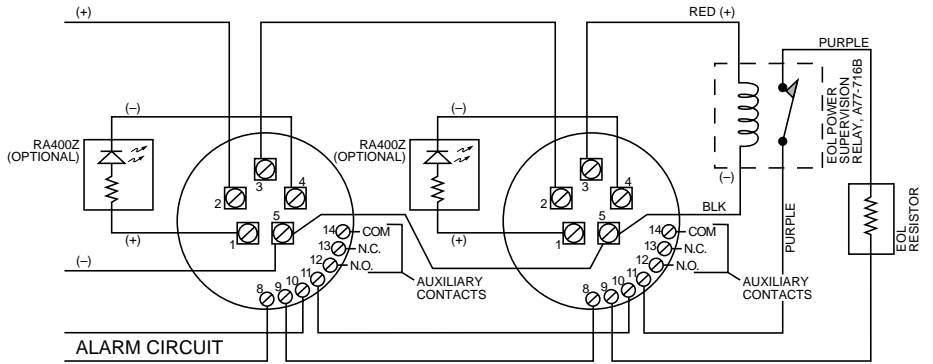
*Box depth contingent on base and wire size. Refer to National Electrical Code or local applicable codes for appropriate recommendations.

100 Series Adapter Base Mounting Guide

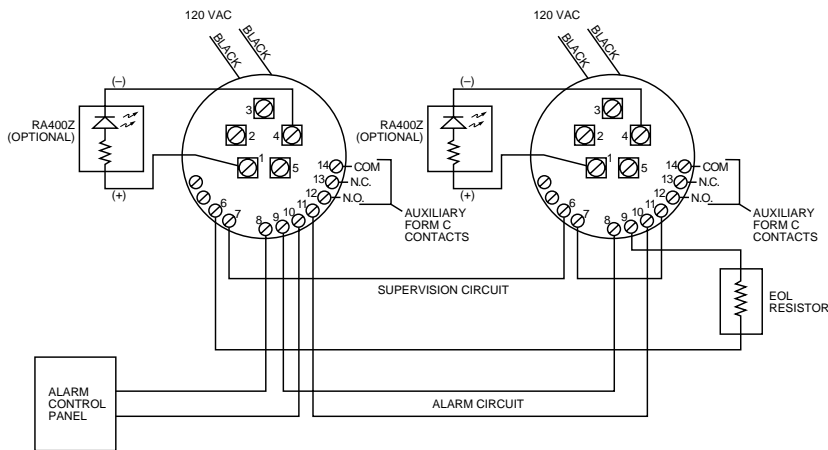
B110LP/RLP or B401 Wiring Diagram



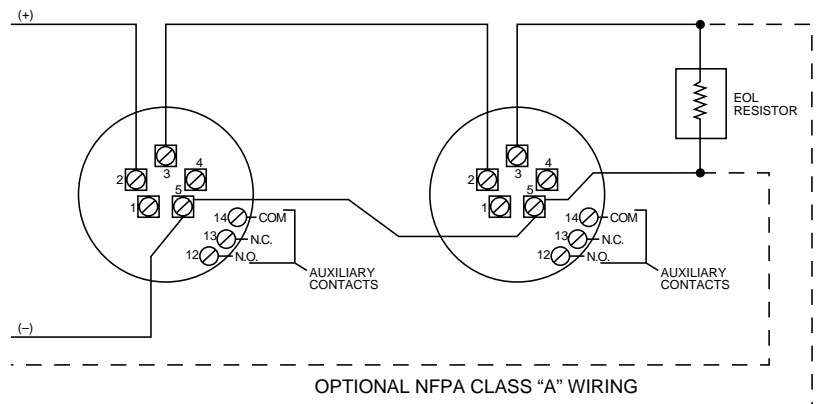
B112LP Wiring Diagram



B114LP Wiring Diagram



B116LP Wiring Diagram



Ordering Information

Part No. Description

1151	Low-profile ionization detector. Must be mounted to one of the B100 Series or B400 Series bases listed in Adapter Base Selection Guide.	1151A	Low-profile ionization detector, ULC listed.
		2151A	Low-profile photoelectronic detector, ULC listed.
2151	Low-profile photoelectronic detector. Must be mounted to one of the B100 Series or B400 Series bases listed in Adapter Base Selection Guide.		

Accessories

F110	Retrofit replacement flange for B400 Series flanged bases.	M02-04-01	Test magnet.
RA400Z	Remote annunciator for 2 or 4 wire systems, 3-32V. Use with ion and photo plug-in detectors. Fits standard single gang electrical box.	M02-09-00	Test magnet with 32" telescoping handle.
B401BH	Sounder base. Requires an external 24 VDC power supply. Mounts to 4" square electrical box (1½" minimum depth, 2½" recommended).	XR-2	Detector removal tool. Allows installation and/or removal of 100 Series detector heads from base in high ceiling installations when used with XP-4.
MOD400R	Detector sensitivity test tool. (See below.) Use with most analog or digital multimeters. Satisfies NFPA 72 requirement for sensitivity testing.	XP-4	Extension pole for XR-2. Comes in three 5 ft. sections.
SMK400	Surface mounting kit provides for entry of surface wiring conduit. For use with B401 or B401R mounting bases only.	C58-227-01	Replacement dust cover for 100 Series smoke detectors.
A77-716B	End of line relay for power supervision, 12/24 VDC systems.	RMK400	Recessed mounting kit for 2151 detector (B401 sold separately).



The MOD400R Field Sensitivity Test Module can be used with any standard DC voltmeter or multimeter to check the sensitivity range of System Sensor detectors (satisfies NFPA 72 requirement for sensitivity testing).

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