



## 2151 Photoelectric Smoke Detector (542R/542D)

### Features

- Unique optical sensing chamber
- Built-in signal processing
- 3.0% nominal sensitivity
- Removable cover for field cleaning
- Visible LED “blinks” in standby
- Sealed against dirt, insects, and back pressure
- Field metering of detector sensitivity
- Built-in magnetic test switch
- Low standby current
- Built-in tamper-resistant feature
- Designed for direct surface or electrical box mounting
- 360° Field viewing angle of the visual alarm LEDs
- Insect-resistant screening
- Easy plug-in of the head to base
- SEMS screws for easy wiring
- Air velocity up to 3000 feet per minute (914 meters per minute)

### Applications

Photoelectric detectors are recommended in areas where slow smoldering fires are likely to ignite. In areas where small combustion particles are usually present from fork-lift trucks, cooking stoves, etc., they are less likely than ionization detectors to produce false alarms. The detectors are used in combination with an AUTOPULSE Control System and an fire suppression system for automatic detection, alarm, equipment control, and fire suppression system release capabilities.

### Description

The 2151 photoelectric smoke detector contains a unique optical sensing chamber designed to sense the presence of smoke particles produced by a wide range of combustion sources and meet the performance criteria designed by UL 268. An integrated circuit incorporates signal processing to reduce false alarms and sample/hold circuitry to provide easy field metering of sensitivity.

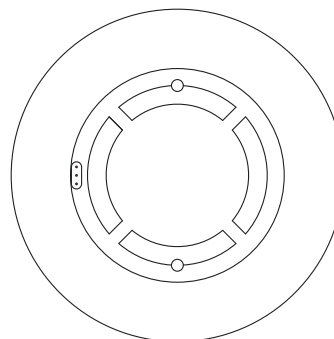
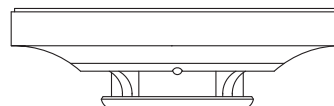
The 2151 photoelectric detector incorporates the light scatter principle within its sensing chamber and solid-state circuitry allowing it to react to either smoldering or flaming fires.

The high-impedance circuitry of the detector allows a single loop to power multiple detectors with very low power consumption. Two externally-mounted LED indicators are provided which will blink as long as the detector is powered and will light steadily when the detector is in alarm.

### Technical Information

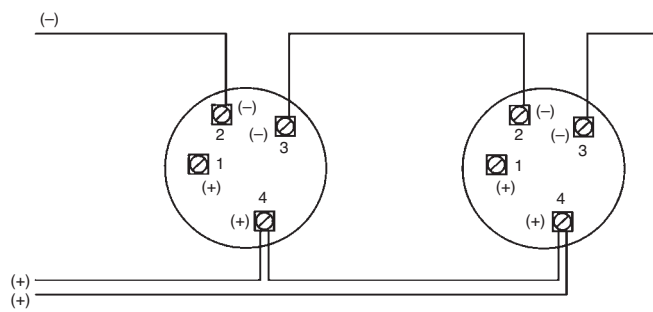
Stand-by Current: . . . . . 85 microamps  
 Sensitivity: . . . . . 3.0% nominal  
 Weight: . . . . . 0.5 lb (277 g)  
 Size: . . . . . 1.7 in. high x 4.0 in. diameter  
 (84 mm x 102 mm)  
 Construction: . . . . . Flame retardant white thermo plastic  
 Temperature: . . . . . 32 °F to 120 °F (0 °C to 49 °C)  
 Humidity Range: . . . . . 10-93% RH (non-condensing)  
 Maximum Air Velocity: . . . . . 3000 ft per minute  
 (15 m per second)

### 2151 PHOTOELECTRIC SMOKE DETECTOR WITH BASE



007353

### B110LP OPTIONAL NFPA CLASS “A” WIRING



007350

## Technical Information (Continued)

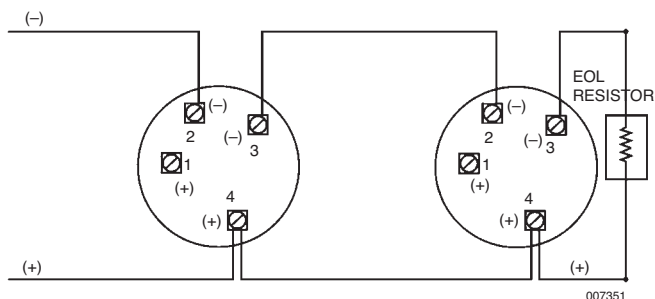
Base Model	Loop Type	Current Limit Resistor	Contact Type	Standby Voltage	Current Draw on Alarm
B110LP	2-Wire	No	--	12-24 VDC	10-100 mA*
B401	2-Wire	No	--	12-24 VDC	10-100 mA*
B401B	2-Wire	No	--	8.5-35 VDC	10-100 mA*
B401BR-750	2-Wire	Yes	--	17-32 VDC	10-39 mA
B402B	2/4 Wire	Yes	Form A/C	17-32 VDC	14-39 mA

\* Limited by control unit

### Detector Base/Control Unit Compatibility

Detector Base (Part No.)	AUTOPULSE 542R, 542D	AUTOPULSE IQ-318, IQ-636X-2 FZM-1
B110LP (430025)	Yes	Yes
B401 (423026)	Yes	Yes
B401B (417996)	Yes	Yes
B401BR-750 (78997)	No	No
B402B (79011)	4-wire only	4-wire only

### B110LP BASE WIRING DIAGRAM



### Listings and Approvals\*

UL..... S911  
 California State Fire Marshal (CSFM)..... 7271-1209:159  
 Factory Mutual (FM)..... Approved  
 MEA..... 205-94-E

\* Listings and Approvals are under SYSTEM SENSOR

### Ordering Information

Part No.	Description	Shipping Weight	
		lb	(kg)
430023	2151, Photoelectric Detector	1	(0.4)
430025	B110LP Standard Base	0.5	(0.2)
430026	B401 4 in. Dia Base	0.5	(0.2)
428138	F110 Trim Ring, Low Profile	0.5	(0.2)
417675	M02-04 Test Magnet	0.5	(0.2)
417699	EOL, Power Supervision Relay	1	(0.4)

### Mounting Guidelines

The detector bases are designed for surface mounting. The detector head can be inserted or removed from the base without disrupting the wiring connections.

- ▶ All detector bases can be mounted to a 3 1/2 in. (89 mm) octagon, 4 in. (102 mm) octagon, or a 4 in. (102 mm) square outlet box.