



## 400 SERIES PLUG-IN SMOKE DETECTOR

### DESCRIPTION

System Sensor's 400 Series plug-in smoke detectors are designed to meet the performance criteria designated by UL/ULC. The ion and photo units have a sensing chamber sealed from 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 a recessed mounting option, interchangeable ion, photo, or thermal detectors, a variety of mounting bases, and a full line of optional accessories.

### Ionization

All 400 Series ionization smoke detectors include a specially designed dual source, dual unipolar detector chamber design which will sense the presence of smoke particles produced by fast combustion as well as slow smoldering fires. This chamber exhibits increased stability, significantly reduces nuisance alarms, and provides better performance at higher air velocities.

### Photoelectric

All 400 Series photoelectronic smoke detectors contain an optical sensing chamber designed to sense the presence of smoke particles produced by a wide range of combustion sources. A custom integrated circuit incorporates signal processing to reduce false alarms.

### Thermal

The 400 Series thermal rate-of-rise with fixed heat detector contains a unique dual thermistor heat sensing circuit to provide maximum performance and solid state reliability. The 60-1027 is designed to initiate an alarm at 135°F and to respond to a temperature increase in excess of 15° per minute. This enables the heat detector to communicate an alarm to the central control panel prior to reaching the static set point for these high rates of rise, providing a timely response to both rapid and slow temperature increases. This model should be used in applications where rapid response is desired and where rapid temperature increases would only be caused by a fire emergency.

### FEATURES

- Low standby current
- Two visible LEDs "blink" in standby and provide a 360° field viewing angle
- Wide variety of mounting bases with built-in shorting spring
- Detector head plugs easily into base
- Built-in test switch
- Field sensitivity metering of detector to meet the requirements of NFPA 72
- Built-in tamper-resistant feature
- SEMS screws for easy wiring
- Optional recessed mounting
- Removable cover and insect screen for field cleaning

### SPECIFICATIONS

|                                  |  |
|----------------------------------|--|
| Operating Voltage/Alarm Current: | See Mounting Base Selection Guide  |
| Standby Current:                 | <i>Photo/Ion:</i> 120mA maximum<br><i>Thermal:</i> 100mA maximum                                   |
| Sensitivity:                     | 1.9% + ±6%/ft. Ion<br>3% + ±7%/ft. Photo   |
| Weight:                          | <i>67-1025, 63-1015, 63-1017:</i> 0.5 lb. (227 gm)<br><i>60-1027:</i> 0.3 lb. (136 gm)             |
| Size:                            | 3.2"/8.1 cm height<br>4.0"/10.2 cm diameter, unflanged base<br>6.2"/15.7 cm diameter, flanged base |
| Construction:                    | Flame retardant Noryl plastic  |



# Data Sheet

Form No. P.1.75.01

Operating Temperature: 67-1025, 63-1015: 32°F to 120°F (0°C to 49°C)  
63-1017, 60-1027: 32°F to 100°F (0°C to 38°C)

Alarm Point, Thermal: 135°F (57.2°C) or 15°F/min. rate of rise

Humidity Range: 10-93% RH non-condensing

Air Velocity Rating: *Ionization*:1200 fpm maximum  
*Photoelectric*: 3000 fpm maximum

Smoke Detector Spacing: For ion, photo, and photo/thermal detectors on smooth ceilings (as defined in NFPA 72), spacing of 30 feet (900 sq. ft.) may be used as a guide. For thermal detectors on smooth ceilings (as defined in NFPA 72), spacing of 50 feet (2500 sq. ft.) may be used. Other spacing may be used depending on ceiling height, high air movements, and other conditions or response requirements.

#### MOUNTING BASE SELECTION GUIDE

| Fike P/N | Mfg. Base Model No. | Version      | Loop Type | Current Limit Resistor | Alarm Contact Type     | Nominal Voltage | Current Draw on Alarm (mA) |
|----------|---------------------|--------------|-----------|------------------------|------------------------|-----------------|----------------------------|
| 67-1031  | B401B               | UL/ULC       | 2-wire*   | No                     | -                      | 12/24VDC****    | 10-100**                   |
|          | B401BR              | UL/ULC       | 2-wire*   | Yes                    | -                      | 24VDC           | 10-62                      |
| 60-1034  | B402B               | UL/ULC       | 4-wire    | Yes                    | Form A&C               | 24VDC           | 14-39                      |
| 60-1035  | B404B               | UL/ULC       | 4-wire    | Yes                    | Form A&C+A Supervisory | 120VAC          | 75 mA AC Max               |
| 60-1037  | B406B               | UL/ULC/EN-54 | 2-wire*   | No                     | Form C                 | 24VDC           | 12-100**                   |
| 60-1031  | B401***             | UL/EN-54     | 2-wire*   | No                     | -                      | 12/24VDC****    | 10-100**                   |
| 60-1033  | B401R***            | EN-54        | 2-wire*   | Yes                    | -                      | 24VDC           | 10-62                      |

\* Functionality contingent on panel compatibility

\*\* Must be limited by control panel

\*\*\* Flangeless base

\*\*\*\* Although 67-1031 and 60-1031 bases are capable of operating at 12 and 24 VDC, they cannot be used with the 60-1027 in 12 V applications

Relay Contact Ratings:

Resistive or Inductive (60% power factor) load.

Form A: 2.0A at 30 VAC/DC

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

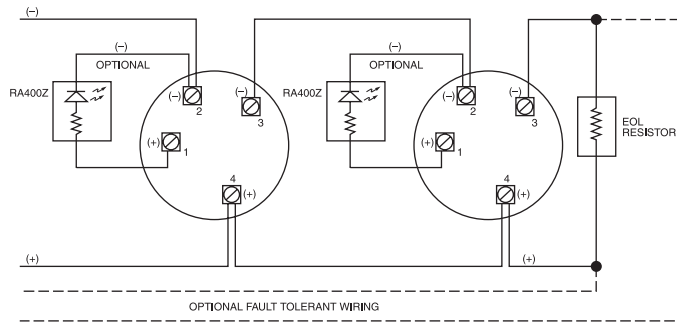
1.0A at 125VAC, 2.0A at 30VAC

#### JUNCTION BOX SELECTION GUIDE\*

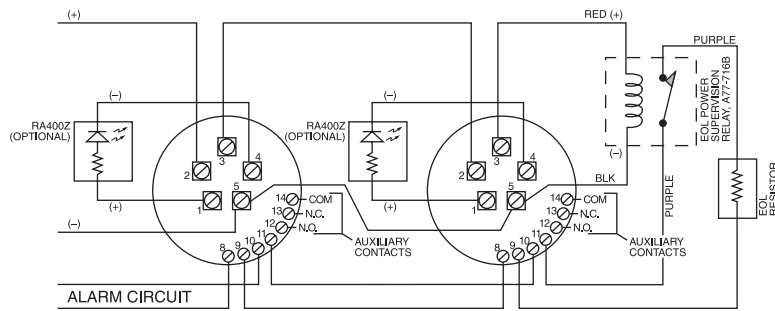
| Fike P/N        | Mfg. Base Model No. | Single Gang | 3.5" Octagon | 4" Octagon | 4" Square | 50 mm | 60 mm | 75 mm |
|-----------------|---------------------|-------------|--------------|------------|-----------|-------|-------|-------|
| 67-1031/60-1033 | B401/B401R          | No          | No           | No         | Yes       | Yes   | Yes   | No    |
| 67-1031/        | B401B/BR            | Yes         | Yes          | Yes        | Yes       | No    | No    | No    |
| 60-1034/60-1037 | B402B/B406B         | Yes         | Yes          | Yes        | Yes       | Yes   | Yes   | Yes   |
| 60-1035         | B404B               | No          | No           | Yes        | Yes       | No    | No    | No    |

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

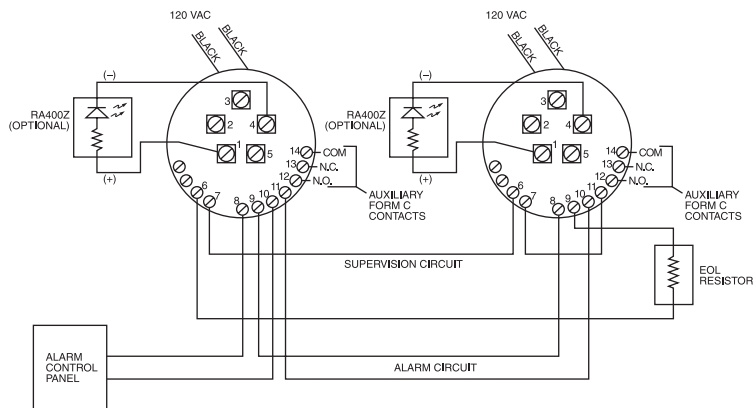
## B401 SERIES



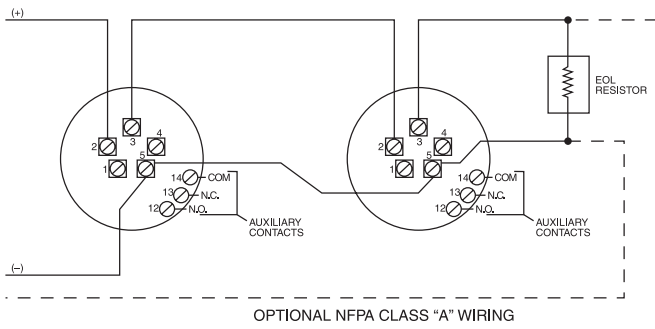
## B402B



## B404B



## B406B



## ORDERING INFORMATION

| Fike P/N | Mfg. P/N | Description   |
|----------|----------|---|
| 67-1025  | 1451     | Ionization detector. Must be mounted to one of the B40X series bases listed in Mounting Base Guide.   |
| 63-1015  | 2451     | Photoelectric detector. Must be mounted to one of the B40X series bases listed in Mounting Base Guide.  |
| 63-1017  | 2451TH   | Same as model 2451 above, but with a 135°F (57.2°C) fixed temperature, restorable, bi-metallic heat sensor.   |
| 60-1027  | 5451     | Fixed heat detector with rate-of-rise. Alarm point at 57.2°C (135°F). Must be mounted to one of the 400 Series Bases listed in Mounting Base Guide. |

## ACCESSORIES

| Fike P/N | Mfg. P/N  | Description  |
|----------|-----------|--|
| 02-3868  | RA400Z    | Remote annunciator for 2- or 4-wire systems, 3-32V. Use with ion and photo plug-in detectors. Fits standard U.S. single gang electrical box.                     |
| 60-1032  | B401BH    | Sounder base with B401. Requires an external 24 VDC power supply. Mounts to 4" square electrical box (1 1/2" minimum depth).                                     |
| 02-3727  | MOD400R   | Detector sensitivity test tool. (See below.) Use with most analog or digital multimeters. Satisfies requirement of NFPA 72 for sensitivity testing. (See below). |
| 02-10373 | RMK400    | Recessed mounting kit for use with 60-1031 or 60-1033 mounting bases only. (See below).  |
| 02-10375 | SMK400    | Surface mounting kit provides for entry of surface wiring conduit. For use with 60-1031 or 60-1033 mounting bases only.  |
| 27-035   | A77-716B  | End of line relay for power supervision, 12/24 VDC, 4-wire only.   |
| 02-11482 | RS14      | Replacement insect screen for 67-1025.   |
| 02-11483 | RS24      | Replacement insect screen for 63-1015.   |
| 02-11484 | RS24T     | Replacement insect screen for 63-1017.   |
| 02-11485 | DUST45    | Replacement protective dust cover for plug-in 400 Series.  |
| 02-11486 | CRT400    | Cover removal tool for 1451  |
| 02-11487 | M02-04-01 | Test magnet.   |
| 02-4984  | M02-09-00 | Test magnet with 32 inch telescoping handle.   |
| 02-11488 | XR5       | Detector removal tool. Allows installation and/or removal of ion, photo, and thermal detector heads from base in high ceiling installations.                     |
| 02-4986  | XP-4      | Extension pole for XR5. Comes in three 5 ft. sections.   |

