

# Duct Smoke Detectors



SM-501

## DESCRIPTION

Duct mounted, multi-voltage, ionization or photoelectric smoke detectors.

## APPLICATION

The duct smoke detectors provide early detection of smoke and products of combustion in air moving through HVAC ducts. Two simultaneous alarm contacts enable fan shutdown, fire alarm, BAS alarm and other control interface functions. Trouble contact reports detector head removal and failure of input supply voltage. A switch allows manual alarm reset and test of detector. The accessories outputs provide connection capability of external horn, strobe, remote status indicators and reset of alarm. The smoke detectors are compatible with HVAC temperature control, fire alarm and building automation systems.



LISTED UL 268A

CSFM Approved  
Listing No.  
3240-1004:108

MEA Approved  
No. 73-92-E

## FEATURES

- Multi-voltage
- 115 VAC, 230 VAC, 24 VAC, 24 VDC
- Ionization or photoelectric heads
- Interconnect up to 30 units
- Output for remote accessories
- (2) alarm & (1) trouble contacts
- Listed: UL, CSFM, MEA

## SPECIFICATIONS

### Electrical

Power requirement (w/o remote accessories) 115 VAC at 25 mA standby, 32 mA alarm;  
230 VAC at 12 mA standby, 16 mA alarm;  
24 VAC at 35 mA standby, 74 mA alarm;  
24 VDC at 15 mA standby, 56 mA alarm

### Sensor

Sensor type Ionization or photoelectric plug-in head, interchangeable, detects smoke and products of combustion in air

Radioactive element For SM-501-N (ionization) : Americium 241; 0.9 Micro-Curie

Type of operation Alarm control w/manual reset, (2) sets of simultaneous contacts. Trouble report for detector head removal, and failure of supply voltage.

Contact

- alarm initiation (2) SPDT, 10 A resistive @ 115 VAC
- trouble (1) SPDT, 10 A resistive @ 115 VAC

Output remote accessories Connection for pilot, horn, strobe, remote status indicators and reset key switches or push buttons

Alarm trip setting Fixed

Alarm reset/test Manual switch w/visual indicator

Status LED displays

Duct air sampling

### Environmental

- Permissible
- air velocity range
  - detector head protection
  - temperature range
    - ionization 32°F to 155°F (0°C to 68°C)
    - photoelectric 32°F to 100°F (0°C to 38°C)
  - humidity range 10% to 85% relative humidity, non-condensing

### Physical

- Enclosure, standard
- wire
  - cable entry
  - connection
  - material
  - color
  - protection
  - installation

Green = Power on  
Red = Smoke detected (relays energized)

Via two (2) duct immersion tubes, a 7.5 in. (191 mm) exhaust tube supplied, intake sampling tube must be ordered separately

500 to 4,000 feet per minute (2.5 to 20 meters per second)

Dust filter installed

32°F to 155°F (0°C to 68°C)  
32°F to 100°F (0°C to 38°C)  
10% to 85% relative humidity, non-condensing

Maximum 14 AWG (2.5 mm<sup>2</sup>), solid or stranded wire  
(3) knockouts for 1/2 in. conduit  
Terminal blocks, screw type for wire leads  
Steel-back box, 18 G.A., w/clear plastic cover  
Gray paint  
NEMA 1  
Duct mounted, mounting template and (4) metal screws supplied

**SPECIFICATIONS**

**Physical (cont..)**

- width 7.25 in. (148 mm)
- height 9.13 in. (232 mm)
- depth 2.25 in. (57 mm)
- Weight 3.5 lb. (1.6 kg)
- Approvals/Listings** UL Listed, CSFM, MEA

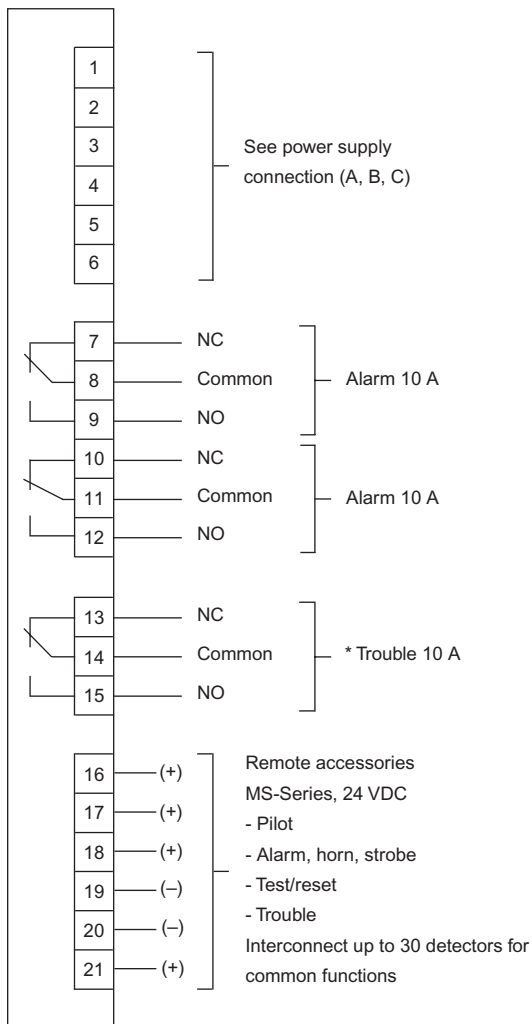
**ORDERING INFORMATION**

**Part Numbers**

- Duct smoke detectors
- ionization **SM-501-N**
- photoelectric **SM-501-P**

**WIRING CONFIGURATION**

**SM-501..**



\* Trouble contacts are shown in non-energized condition. Normal operation contacts will be reversed

Note: • All wiring must comply with local codes and regulations.

**OPTIONS**

**Intake sampling tubes**

- for 6" to 1.0' duct width **STS-1.0**
- for 6" to 2.5' duct width **STS-2.5**
- for 2.5' to 5.0' duct width **STS-5.0**
- for 5' to 10.5' duct width **STS-10.0**

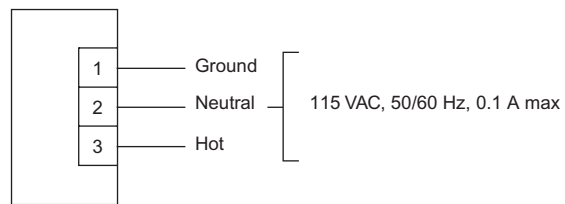
**Outdoor enclosure**

- NEMA 3R **WP-1**

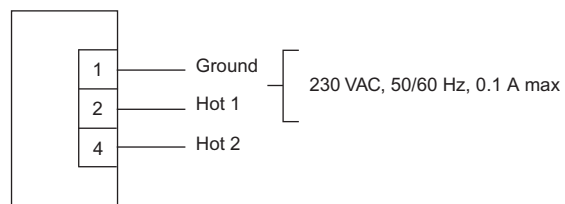
**Remote displays/stations**

- Labeled duct smoke detector & alarm LED **MS-RD**
- Alarm LED **MS-RA**
- Fault/trouble LED **MS-F/T**
- Alarm & pilot LEDs **MS-RA/P**
- Fault/trouble & pilot LEDs **MS-RA/P/T**
- Alarm LED & test/reset button **MS-RA/R**
- Fault/trouble & pilot LEDs, & test/reset button **MS-RA/FT/P**
- Alarm & pilot LEDs, & test/reset button **MS-RA/P/R**
- Alarm horn **MS-RH**
- Pilot & alarm LEDs, & horn **MS-RH/P/A**
- Alarm LED & key test/reset switch **MS-KA/R**
- Alarm & pilot LEDs, & key test/reset switch **MS-KA/P/R**
- Fault/trouble & pilot LEDs, & key test/reset switch **MS-KA/P/T**
- Alarm & pilot LEDs, horn, & key test/reset switch **MS-RH/K A/P/R**
- Alarm, trouble & pilot LEDs, horn & key test/reset switch **MS-RH/K A/P/A/T**
- Horn strobe **SHP24-1575**

**A. 115 VAC power supply**



**B. 230 VAC power supply**



**C. 24 VAC or VDC power supply**

