

Product

Multi-Criteria Photo/Carbon Monoxide (CO) Detector

Architect and Engineering Specifications

Multi-Criteria photo/CO smoke detector shall be a System Sensor model number PC351. The smoke detector shall be an addressable multi-criteria smoke detector with a separate signal for CO detection per UL 2075 standards and shall connect with two wires to the fire alarm control panel signaling line circuit (SLC). The detector shall be comprised of two sensing elements, including a photoelectric (light scattering) particulate sensor and an electrochemical CO sensor. The device shall be able to indicate distinct smoke and CO alarms. The detector shall provide address-setting means on the detector head using rotary switches. Because of the possibility of installation error, systems that use binary jumpers or DIP switches to set the detector address are not acceptable.

The detector shall also store an internal identifying code that the control panel shall use to identify the type of detector. Systems that require a special programmer to set the detector address (including temporary connection at the panel) are labor intensive and not acceptable. Each detector occupies any one of at least 159 possible addresses on the SLC loop. It responds to regular polls from the system and reports its type and status.

Each detector can have its sensitivity tested (required per NFPA 72, Chapter 7 on Inspection, Testing and Maintenance) when installed/connected to a compatible addressable fire alarm control panel. The detectors shall provide a test means whereby they will simulate an alarm condition and report that condition to the control panel. Such a test may be initiated at the detector itself (by activating a switch) or initiated remotely on command from the control panel. There shall be three test methods available: functional magnet, smoke entry aerosol or carbon monoxide aerosol.

The detector shall be capable of automatically adjusting its sensitivity by means of drift compensation and smoothing algorithms. The device shall provide unique signals to indicate when 80 percent of the drift range is remaining, when 100 percent of drift range is used, and when there is a chamber fault to show the unit requires maintenance. The detector shall indicate CO trouble conditions, including six months of sensor life remaining and sensor life has expired. The detector shall indicate a combined signal for any of the following: low chamber trouble and CO self-test failure.

The detectors shall provide two LEDs to provide 360° visibility. The LEDs are placed into steady red illumination by the control panel indicating that an alarm condition has been detected. An output connection shall also be provided in the base to connect an external remote alarm LED, sounder base, and/or relay base (optional accessories). The external remote alarm can be interconnected to other sounder or relay bases for activating all devices in a space via a single alarming unit.

Two LEDs on the sensor are controlled by the panel to indicate sensor status. Coded signals, transmitted from the panel, can cause the LEDs to blink, latch on, or latch off. Refer to the control panel technical documentation for sensor LED status operation and expected delay to alarm.

The detectors shall be low profile, ceiling-mount and wall-mount capable and constructed of a UV resistant polymer with multiple color options. The detectors shall be plug-in mounted into a twist-lock base and detachable from the mounting base to simplify installation, service and maintenance. Mounting base wiring connections shall be made by means of SEMS screws. The detector shall allow pre-wiring of the base. The mounting base shall be mounted on a junction box which is at least 1.5 inches (3.81 cm) deep. The mounting base shall be available to mount to standard junction boxes. Suitable boxes include:

- 4.0" (10.16 cm) square box with and without plaster ring.
- 4.0" (10.16 cm) octagonal box.
- 3.5" (8.89 cm) octagonal box.
- Single-gang box.

Meets Agency Standards

- ANSI/UL 268 7th Edition - Smoke Detectors for Fire Alarm Signaling Systems
- UL 2075 – Gas and Vapor Detector and Sensors – Systems Connected