

Electrical Signaling

Electrical protective signaling systems are configurations of components used to produce alarm signals indicative of fire, smoke, sprinkler waterflow or other emergency and to produce supervisory signals indicative of conditions needing attention with respect to protection equipment or watch service. System configurations are classified according to where and how the signals are received. The categories are commonly designated as local, municipal, remote station, proprietary, emergency voice/alarm communication, emergency communication, and central station. Auxiliary systems are either local or proprietary systems interconnected with a municipal system.

This category presents the major system component categories and the integrated system configurations. The selection of components to form a hybrid system should be made only by those skilled in system design. Also, the suitability of any system application should be judged on the basis of the hazard(s) being protected.

Alarm Signal Initiating Devices

Alarm signals are initiated either automatically or manually. Automatic detectors respond to changes in characteristic phenomena associated with fire or other emergency conditions.

Fire Detection, Smoke-Actuated

FM Approved smoke actuated devices respond to airborne particulate products of combustion.

The photoelectric principle is based on the change in current which accompanies a change in light intensity on a photoelectric cell as a result of smoke entering the detector.

The beam type version has the light source and photoelectric cell separated in the protected area.

The ionization type detector ionizes the air in special chambers within the detector.

Particles entering the exposed chamber decrease the normal ionization current.

Air-sampling detectors have ambient air drawn from the protected area into a chamber containing the sensing element.

Air duct smoke detectors are for the primary purpose of controlling blowers and dampers of air conditioning and ventilating systems to prevent distribution of smoke and gaseous products; they should not be used as a substitute for open area detection.

Unless otherwise indicated in the listing, the permissible air velocity range for duct type detectors is 250 to 1500 ft/min (75 to 455 m/min) and up to 300 ft/min (90 m/min) for open area detectors.

A "smoke switch" is fail-safe in that loss of power to the device causes the same switching operation as when smoke is detected. Average coverage should not exceed 900 ft² (84 m²) per detector. Reduced coverage is recommended beneath high ceilings and for high air flow areas such as computer rooms.

These devices are suitable for use in ambients of 32°-100°F (0°-38°C) unless otherwise indicated in the listing. Installation, testing, and maintenance by trained personnel are recommended.

Fire Detectors-Smoke

Model SPC-24 Projected Beam Smoke Detector

Model SPC-24 Projected Beam Smoke Detector. For area coverage where the beam length between emitter (transmitter) and receiver does not exceed 100 m (328 ft) but no less than 10 m (32.8 ft). Max lateral spacing is 18 m (60 ft). User selectable sensitivity levels are at 25%, 50% and 70% light obscuration (reduction in beam intensity). The microprocessor provides compensation for a change in received signal value, caused by gradual contamination of the optics. The SPC-24 operates between 19 and 33V dc (drawing 50 µA (Emitter) and 200 µA (Receiver) in standby; 25 mA in alarm or trouble), and may be used with any FM Approved control panel capable of supplying power separately from the detection circuit and maximum allowable line resistance 50 Ω or less. Alarm and trouble relay contacts rated 24V dc at 0.5 A.

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