Model S250 Ionization Smoke Detector

- ***Ionization type Smoke Detector with dual Stainless Steel Ionization Chambers***
- ***Suitable for operation in high air flow areas***
- ***Locking feature for tamper resistance***
- ***UL 268A listed for duct applications***
- ***EMI/RFI resistant***
- ***In-place sensitivity measurement***
- ***Functional Test Capability without requiring Smoke or other chemicals***
- ***Provides UL Sensitivity Test Feature***
- ***Meets requirements of NFPA Standard 72***
- ***Optional remote LED, remote Test Switch, Supplementary relay***

The SST Model S250 Smoke Detector is a dual chamber ionization type detector designed to respond to the first traces of a fire by sensing both visible smoke and invisible products of combustion. A unique sensing chamber design insures maximum smoke response from any direction, even in air velocities up to 2000 feet per minute. It is designed for smoke detection in open areas or, when used with the optional duct housing, in air ducts. When installed with a suitable NOVA-5000 Detection System, the Model S250 may be used for Releasing Device Service.

The smoke detector is installed into its accessory base with a simple twist-lock action, which prevents unauthorized removal of the detector. Operating power is provided over the 2-wire detection circuit from the Control System. Proper operation of the detector is indicated by a blinking Light Emitting Diode (LED), which changes to a steady “on” condition when smoke is detected. For installations where the detector is not visible (such as above a false ceiling), a remote LED may be connected to the unit. Special signal processing techniques are used to insure immunity to electrical interference and to verify the presence of smoke before an alarm is transmitted.

In-place test features are provided in the Model S250 to insure the integrity of the detector. A test magnet, when properly placed near the detector, simulates the effect of smoke (approximately 1.3% per foot obscuration). This magnet test meets the requirements of the UL Sensitivity Test feature. In addition, the actual sensitivity of the detector may be monitored with a standard voltmeter and a special sensitivity tester that allows direct readout in percent per foot obscuration without removing the detector from its base. For Smoke Detectors installed in inaccessible locations, a functional test can be made using a remotely mounted test switch.

In addition to operation with a remote alarm LED and test switch, the Model S250 may be installed with an optional supplementary relay. This relay can be used to perform local operations when an alarm is detected, such as shutting down a process, vent fan, or air conditioning system.

APPLICATION INFORMATION

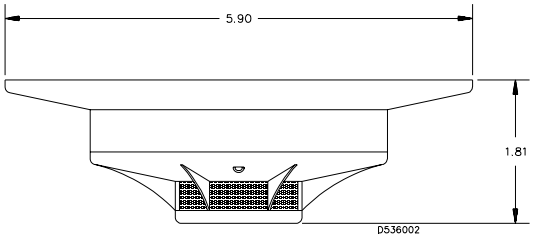
The Model S250 Smoke Detector is intended for installation per NFPA Standard 72 on a ceiling, on a wall near the ceiling, or under a raised floor. NFPA 72 recommends Ionization Smoke Detection where **flaming fires that produce invisible products of combustion** are expected. (Where smoldering fires are also expected, SST Model S260 Photoelectric Smoke Detectors may be mixed with Ionization detectors to secure the earliest possible detection.) Ionization detectors are not suitable for installation in kitchens, areas with excessive exhaust fumes, furnace rooms, near fireplaces, or within 3 feet of air supply registers or diffusers.

The Model S250 is to be installed on maximum 30 foot centers, typically on smooth ceilings up to 15 feet high with minimum air circulation. This results in a 900 square foot coverage area which may be used as a guideline for coverage. Where special conditions exist (ceiling obstructions, high air exchange rates, etc.), reduced square footage spacing must be used to achieve adequate protection. Computer Rooms and other such installations may require spacing with maximum 200 square feet due to high air exchange rates. Complete application guidelines are in NFPA Standard 72.

The Model S250 may also be installed to monitor the air in a ventilation system using a special duct mounting base. The base extracts a small sample of the air from the duct and passes it through the detector for analysis.

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

Smoke detection capability shall be provided by plug-in dual chamber ionization detectors for locations indicated on the plans. The combination detector head and twist-lock base shall be UL Listed. The smoke detector shall have a Flashing status indicating LED for visual supervision. When the detector is actuated, the flashing LED shall latch on steady at full brilliance. It shall be possible to measure the sensitivity level of the detector in percent per foot obscuration without removal from the base. It shall also be possible to perform a functional test of the detector without requiring smoke. The test method must simulate effects of products of combustion in the chamber to ensure testing of all detector circuits. The specified detector shall provide facilities for energizing a remotely mounted LED status indicator, for connecting a remote functional test switch, and for energizing a supplementary control relay. EMI and RFI transient suppression techniques to withstand 20 volts/meter shall be employed to minimize susceptibility to false alarms. Safety Systems Technology Model S250 ionization Smoke Detectors, or approved equivalent, shall be supplied.



TECHNICAL SPECIFICATIONS

Detection Method:	Dual ionization Chambers Includes sealed Americium 241 radioactive source, 0.7 micro curies.
Nominal Sensitivity:	1.3% obscuration per foot May be measured with Model ST001 Sensitivity Tester.
Operating Voltage:	10.2 to 36.8 VDC Provided by the SST NOVA-5000 Control System.
Standby Current:	45 microamps @ 24 VDC nominal Unit will draw a 100 microamp peak current at startup.
Alarm Current:	32 mA @ 22.0 VDC Unit will draw this current when in alarm and connected to compatible NOVA-5000 System Module.
Relay Contact Rating:	1 A @ 30 VDC, 0.5 A @ 125 VAC Applicable only when installed with optional relay base.
Operating Environment:	+32 to +120°F, 0 to +49°C, 93% relative humidity Humidity should be below the dew point (non-condensing).
Air Velocity:	1000 FPM continuous Suitable for operation in gusts up to 2000 FPM.
Installation Altitude:	Up to 7500 ft. above sea level
Finish:	Off white, smooth, high impact plastic Interior chamber construction is Stainless Steel to permit operation in corrosive atmospheres (H_2S CO_2 etc.).
Size/Weight:	3.94 inches diameter x 1.38 inches high, 3.5 ounces Extends 1.81 inches below ceiling when installed on SST mounting base.
Compatibility Identifier:	I51FE1

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
250-01	**Model S250 Ionization Smoke Detector** Requires mounting base for installation.
280-01	**Standard Mounting Base** Installs on US standard 3 to 4 inch round, square or octagonal wiring box. Provides twistlock plug-in for detector.
280-02	**Remote LED/Test Mounting Base** Same as above plus wiring terminals for optional remote LED indicator and/or remote functional test switch.
280-03	**Relay Mounting Base** Same as above (including LED/Switch capability) plus addition of a SPDT alarm activated relay.
285-***	**Air Duct Mounting Base** ***insert 24, 48 or 72 (sampling tube length in inches) Mounts on side of air duct. Air sampling tubes extend into duct.
288-01	**Remote Alarm Indicator and Functional Test Switch** Mounts on US standard single gang outlet box.
290-01	**Functional Test Magnet** Simulates the effects of smoke to test alarm capability of detector.
291-01	**Model DST003 Sensitivity Test Instrument** Used with a standard voltmeter to measure detector sensitivity in percent per foot obscuration.

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