FP-11 FirePrint™ Detector

Intelligent Fire Detector for MXL, MXL-IQ, and MXLV Control Panels

ENGINEER AND ARCHITECT SPECIFICATIONS

- Most Sophisticated "Detector Intelligence" available today
- Multi-Criteria fire detection for the price of a photoelectric detector
- FirePrint™ Technology to discriminate between deceptive phenomena and an actual fire
- Easily programmed to match specific hazard profiles from the control panel
- Pre-Alarm reporting based on fire profile selected
- Remote sensitivity measurement capability
- System logic activation based on any of three inputs from detector (smoke, heat or neural network)
- Field cleanable chamber with replaceable chamber parts available
- Multi-color detector status LED
- Two-wire operation
- Compatible with Model DPU or FPI-32 field programmer/tester
- Supports EnviroLINK software based automatic environmental compensation
- Backward compatible with older MXL systems (Rev. 2 and above)
- Optional fully programmable relay base, audible base, and duct housing
- (UL) UL Listed, ULC Listed, CSFM, FM, NYMEA Approved

Introduction

The FP-11 Intelligent Fire Detector provides the life safety industry with the most highly evolved detection system available today. The FP-11 utilizes advanced detection technology that allows the detector to distinguish nonthreatening deceptive phenomena, such as cigarette smoke, from actual fire hazards, while optimizing detection for the area in which it is installed. No other detection system available today offers a higher level of protection or nuisance alarm immunity. The FP-11 uses state-of-the-art microprocessor circuitry with error check, detector self-diagnostics and supervision programs.

The FP-11 intelligent fire detector is compatible with the Siemens Building Technologies, Fire Safety Division, Model DPU or FPI-32 field programmer/tester, which is a compact, portable, menu-driven accessory for electronically programming and testing detectors, easily and reliably. The DPU or FPI-32 eliminates the need for cumbersome, unreliable mechanical programming methods and reduces installation and service costs by electronically programming and testing the detector prior to installation.

The FP-11 fire detector is compatible with the MXL family of control panels including the MXL, MXL-IQ, and MXLV.

The FP-11 detector is Underwriters Laboratories and Underwriters Laboratories of Canada Listed.

Description

The FP-11 is a plug-in, two-wire, multi-sensor detector with both photoelectric and thermal inputs and is compatible with the MXL family of control panel systems. Each detector consists of a dust resistant, field cleanable photo chamber, a solid state

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non-mechanical thermal sensor, microprocessor based electronics with a low-profile plastic cover and base. The FP-11 utilizes state-of-the-art ASIC and surface mount technology for maximum reliability. Every FP-11 fire detector is shipped with a protective dust cover.

The FP-11 fire detector utilizes an infrared light emitting diode (IRLED), and light sensing photodiode. Under normal conditions, light transmitted by the LED is directed away from the photodiode and scattered through the smoke chamber in a controlled pattern. The smoke chamber is designed to manage light dissipation and extraneous reflections from dust particles or other non-smoke airborne contaminants in such a way as to maintain stable, consistent detector operation. When smoke enters the detector chamber, light emitted from the IRLED is scattered by the smoke particles and is received by the photodiode.

The FP-11 also utilizes a modern, accurate, shock-resistant thermistor to sense temperature changes. The "on-board" FirePrint technology allows the detector to gather smoke and thermal data, and to analyze this information in the detector's "neural network." By comparing data received with the common characteristics of fires, or fire fingerprints, the FP-11 can compare these "Fire Prints" to those of deceptive phenomena that cause other detectors to alarm. The advanced FirePrint technology allows the FP-11 to accurately determine a true fire hazard from a nonthreatening deceptive phenomena WITHOUT needing to use alarm delaying verification and confirmation techniques, which can increase the probability of losses due to fire.

The FP-11 provides the highest level of detector intelligence available today with a detector/control panel link that allows the user to program the detector for the specific hazard profile Detectors are optimized by selecting one of the following applications:

- Office/Retail
- Lobby
- Computer Room
- Dormitory
- Healthcare
- Parking Garage
- Utility/Transformer Room
- Hostile Environment
- Precious Storage
- Air Duct
- Warehouse/Light Manufacturing

The software does the rest; no guessing on detector sensitivities or alarm verification; the control panel programs the FP-11 detector for the protected area without hassle and without confirmation delays. Once optimized for the hazards in the protected area, the FP-11 provides the best detection you can buy. Should the operator or installer forget to program the detector, the FP-11 will revert to a default setting that allows it to operate as a standard photoelectric or photothermal detector.

The FP-11's FirePrint technology monitors input from both the photo chamber and the thermal sensor,

evaluating this information with sophisticated mathematical formulas, or algorithms, comparing this input to characteristics of both threatening fires and deceptive phenomena that would "fool" any ordinary detector. This technology was developed over years of research and reviewing the results of over 20 years of fire test data in one of the world's most advanced fire research centers. The results of this research are the mathematical models that form the algorithms used in FirePrint. No other fire detector has this level of intelligence or this amount of research and development supporting it's design.

The microprocessor's software can identify and disregard false input caused by radio frequency (RFI) and electromagnetic (EMI) interference, and validates all trouble conditions before annunciating or reporting to the control panel. The FP-11 detector's microprocessor uses an integral EEPROM to store the detector's address and other critical operating parameters which include the assigned program values for alarm and trouble thresholds. Communications within the detector itself and between the FP-11 and the control panel, or with the FPI-32 field programmer/tester, are supervised and safeguarded against disruption by reliable, microprocessor based error checking routines. Additionally, the microprocessor supervises all EEPROM memory locations and provides a high degree of EEPROM failure fault tolerance.

In MXL(V) applications, the FP-11 determines its operating status to be normal, in alarm, or in trouble depending on the difference between the alarm threshold values stored in the detector's memory and the detector's latest analog measurement. The detector then communicates changes in its status to the control panel.

In addition, the MXL(V) control panel will sample the value of the FP-11's analog signal over a period of time in order to determine if those values indicate excessive buildup in the photo chamber; if so, the MXL(V) will indicate that the particular detector requires maintenance.

The FP-11 is listed as a self-testing device. The FP-11's visible light emitting diode (LED) flashes green every 4 seconds to indicate it is communicating with the control panel and that it has passed its internal self-test. Should the detector sense a fault or failure within its systems, the LED will flash amber and the detector will transmit that information to the control panel. A quick visual inspection is sufficient to indicate the condition of the detector at any time. If more detailed information is required, a printed report can be provided from the MXL panel indicating the status and settings assigned to each individual detector.

When the FP-11 moves to the alarm mode, it will flash amber and transmit that information to the control panel. When the MXL(V) confirms the detectors condition, the panel will instruct the FP-11 to flash red and to continue flashing until the system is reset at the control panel. At that same time, any user defined

system alarm functions programmed into the system are activated. Each FP-11 detector can operate one remote alarm indicator, one auxiliary relay, or one audible base.

Detector sensitivity, calibration, and identification are dynamically supervised by the control panel. Detector sensitivity and pre-alarm levels are a function of the application chosen at the control panel and are controlled by the panel. If an alternate, non-FirePrint mode is selected, then the sensitivity can be changed from the control panel.

The DPU or FPI-32 Program/Test accessory is used to program and verify the detector's address. The technician selects the accessory's program mode to enter the desired address. The DPU or FPI-32 automatically sets and verifies the address and tests the detector. It also allows the user to change the device ID from that of an FP-11 to an older detector ID such as an ILP-1, ILPT-1, ILP-2, ID-60P or ID-60PT to allow for easy replacement of older detectors without the need of reprogramming the control panel.

The FPI-32 operates on AC power or rechargeable batteries, providing flexibility and convenience in programming and testing equipment almost anywhere. When in the test mode, the DPU or FPI-32 will perform a series of diagnostic tests without altering the address or other stored data, allowing technicians to determine if the detector is operating properly.

The FP-11 fire detector may be installed on the same initiating circuit with IL or ID series detectors (Photo-electric, thermal, or ionization), MSI series manual stations, TRI series interfaces, ICP output control devices, or CZM series of addressable, conventional zone modules.

All FP-11 detectors can be cleaned in the field, when required, by simply removing the detector cover and unsnapping the photo chamber. There is also the option of cleaning the interior of the detector with a clean, soft cloth or brush, or replacing the labyrinth and bug screen included in the detector maintenance kit, model DMK-11.

The FP-11 uses the low profile surface mounting base, model DB-11. This base mounts on a 4-inch octagon, square, or a single gang electrical box. The base utilizes screw clamp contacts for electrical connections and self-wiping contacts for increased reliability. The base can be used with the optional LK-11 detector locking kit which contains 50 detector locks and an installation tool, to prevent unauthorized removal of the detector head. The DB-11 base has integral decorative plugs to cover the outer mounting screw holes.

The FP-11 is electrically compatible with existing MXL detector accessories including relays, remote lamps, duct housings, and audible bases. With duct housings, a base adapter and new detector housing cover are required (order AD-11UK upgrade kit). To use existing DB-3S base or audible base, the FP-11 requires a DB-ADPT base adapter.

All FP-11 detectors are approved for operation within the UL specified temperature range of 32 to 100 degrees F (0 to 38 degrees C).

Application Data

Installation of the FP-11 series of fire detectors requires a two-wire circuit of 18 AWG (minimum) thermoplastic fixture wire enclosed in conduit, or 18 AWG limited energy, shielded cable without conduit, if permitted by local codes. Field wiring should conform to local and National Electric Codes and the control panel wiring specifications.

"T-tapping" is permitted only for Style 4 (Class B) wiring.

FP-11 fire detectors can be applied within the maximum 30 foot center spacing (900 sq. ft. areas) as referenced in NFPA 72. This applications guideline is based on ideal conditions, specifically, smooth ceiling surfaces, minimal air movement, and no physical obstructions between potential fire sources and the detector. Do not mount detectors in close proximity to ventilation or heating and air conditioning outlets. Exposed joints or beamed ceilings may also affect safe spacing limitations for detectors. Should questions arise regarding detector placement, observe NFPA 72 guidelines.

Good fire protection system engineering and common sense dictate how and when fire detectors are installed and used. Contact your local Siemens Building Technologies, Fire Safety Division authorized sales outlet whenever you need assistance applying FirePrint in unusual applications. Be sure to follow NFPA guidelines, UL/ULC approved installation instructions, which are included with every detector, and local codes as for all fire protection equipment.

Dimensions

6" Diameter Base

2.3" Overall Height
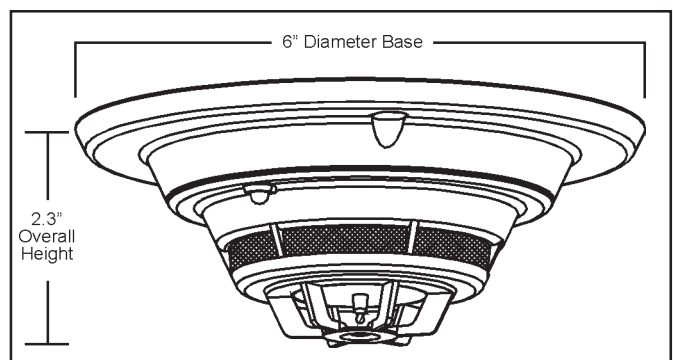
Technical Specifications

Current Requirements: Normal 750 µa Alarm 750 µa

Operating Temperature: +32°F (0°C) to 100°F (38°C)
per UL 268/268A

Humidity: 0-93% Relative Humidity
Non-Condensing

Ordering Information

Model	Description	Part Number
FP-11	Addressable FirePrint Fire Detector	500-095112
DB-11	Detector Mounting Base for Series 11	500-094151
DB-11E	Detector Base (Small)	500-094151E
AD2-P	Air Duct Housing for use with FP-11, HFP-11, HFPO-11, PE-11	500-649706
AD2-XHR	Air Duct Housing for use with FP-11, HFP-11, HFPO-11 with relay	500-649708
ADBX-11	Audible Base	500-096181
DB-X11RS	Relay Base for Series 11 Intelligent Detectors	500-096125
RLI-1	Remote (red) alarm indicator- 4" octagon box mount	500-390673
RLI-2	Remote (red) alarm indicator- single gang box mount	500-390674
LK-11	Base Locking Kit for Series 11 detectors	500-695350
DMK-11	Series 11 Maint Kit (replacement labyrinth and bug bug screen)	500-695338
DB-ADPT	Base Adapter to DB-3S Base	500-094187
In Canada Order:		
FP-11C	Addressable FirePrint Fire Detector (ULC)	500-095112C
DB-11C	Detector Mounting Base for Series 11 (ULC)	500-095687
AD-11PC	Air Duct Housing (ULC)	500-095984
DB-X11RSC	Relay Base for Series 11 Intelligent Detectors (ULC)	500-096125C
ADBX-11C	Audible Base for Series 11 Intelligent Detector (ULC)	500-096181C