



March 3, 2004

DN-6935 • H-202

# FSP-851 and FSP-851T

## Intelligent Plug-in Photoelectric Smoke Detectors with FlashScan®

Section: Intelligent/Addressable Devices

### GENERAL

NOTIFIER 851 Series intelligent plug-in smoke detectors with integral communication provide features that surpass conventional detectors. Detector sensitivity can be programmed in the control panel software. Sensitivity is continuously monitored and reported to the panel. Point ID capability allows each detector's address to be set with decade address switches, providing exact detector locations for selective maintenance when chamber contamination reaches an unacceptable level. The **FSP-851 photoelectric detector's** unique optical sensing chamber is engineered to sense smoke produced by a wide range of combustion sources. Dual electronic thermistors add 135°F (57°C) fixed-temperature thermal sensing on the **FSP-851T**. FSP-851 and FSP-851T detectors are compatible with all NOTIFIER intelligent Fire Alarm Control Panels (FACPs).

**FlashScan®** (U.S. Patent 5,539,389) is a communication protocol developed by NOTIFIER Engineering that greatly enhances the speed of communication between analog intelligent devices and certain NOTIFIER systems. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel's CPU stops the group poll and concentrates on single points. The net effect is response speed **greater than five times** that of earlier designs.


### FEATURES


- Sleek, low-profile design.
- Addressable-analog communication.
- Stable communication technique with noise immunity.
- Low standby current.
- Two-wire SLC connection.
- FlashScan® (NFS-640, NFS-3030, AFC-600) and classic CLIP system (AFP-100, AFP-200, AFP-300, AFP-400, AFC-600, NFS-640, AFP1010, AM2020, and NFS-3030) compatible.
- Rotary, decimal addressing (1 – 99 on current classic systems, 1 – 159 on FlashScan® systems).
- Optional remote, single-gang LED accessory (RA400Z).
- Dual LED design provides 360° viewing angle.
- Visible bicolor LEDs blink green every time the detector is addressed, and illuminate steady red on alarm.
- Remote test feature from the panel.
- Walk test with address display (an address of 121 will blink the detector LED: 12-(pause)-1) (FlashScan® systems only).
- Built-in functional test switch activated by external magnet.
- Built-in tamper-resistant feature.
- Sealed against back pressure.
- Constructed of off-white Bayblend®, designed to commercial standards, and offers an attractive appearance.
- 94-5V plastic flammability rating.
- SEMS screws for wiring of the separate base.
- Optional relay, isolator, or sounder bases.
- Listed to UL 268.
- Backward-compatible.

### SPECIFICATIONS


**Size:** 2.1" (5.3 cm) high x 4.1" (10.4 cm) diameter installed in B501 base, 6.1" (15.5 cm) diameter installed in B710LP base.

**Shipping weight:** 5.2 oz. (147 g).







California State Fire Marshal  
7272-0028:206




MARYLAND State Fire Marshal  
Permit # 2122



U.S. Coast Guard  
161.002/23/3 (AFP-200)  
161.002/27/3 (AFP1010/AM2020)  
161.002/42/1 (NFS-640)



BSMI  
CI313066760036



Lloyd's Register  
TYPE APPROVED  
03/60011



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**FSP-851 with B710LP base**



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**FSP-851T with B710LP base**

**Operating temperature:** **FSP-851:** 0°C to 49°C (32°F to 120°F); **FSP-851T:** 0°C to 38°C (32°F to 100°F). Low-temperature signal for FSP-851T at 45°F +/- 10°F (7.22°C +/- 5.54°C).

**UL-Listed velocity range:** 0 – 4000 ft./min. (1219.2 m/min.), suitable for installation in ducts.

**Relative humidity:** 10% – 93% noncondensing.

**Thermal ratings:** fixed-temperature setpoint 135°F (57°C).

#### DETECTOR SPACING and APPLICATIONS:

NOTIFIER recommends spacing detectors in compliance with NFPA 72. In low airflow applications with smooth ceilings, space detectors 30 feet (9.144 m) for ceiling heights 10 feet (3.048 m) and higher. For specific information regarding detector spacing, placement, and special applications, refer to NFPA 72. *System Smoke Detector Application Guide*, document A05-1003, is available at [systemsensor.com](http://systemsensor.com).

FSP-851 and FSP-851T are Listed for use in ducts, but they are **NOT** Listed for use inside duct smoke detector housings. See *Duct Application Smoke Detectors Guide*, document A05-1004, available at [systemsensor.com](http://systemsensor.com), for details on pendant-mount applications.

**FlashScan®** is a registered trademark of NOTIFIER.

**Bayblend®** is a registered trademark of Bayer Corporation.

NOTIFIER® is a Honeywell company.

This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information, contact NOTIFIER. Phone: (203) 484-7161 FAX: (203) 484-7118



12 Clintonville Road, Northford, Connecticut 06472



## ELECTRICAL SPECIFICATIONS:

**Voltage range:** 15 - 32 volts DC peak.

**Standby current (max. avg.):** 250  $\mu$ A @ 24 VDC (with no communication enabled); 360  $\mu$ A @ 24 VDC (one communication every 5 seconds with LED enabled).

**LED current (max.):** 6.5 mA @ 24 VDC ("ON").

## BASES AVAILABLE:

**B710LP:** 6.1" (15.5 cm) diameter.

**B501:** 4.1" (10.4 cm) diameter.

**B501BH or B501BHT:** Sounder base assembly. Includes B501 base.

**B224RB Relay Base:** **Screw terminals:** up to 14 AWG (2.0 mm<sup>2</sup>). **Relay type:** Form-C. **Rating:** 2.0 A @ 30 VDC resistive; 0.3 A @ 110 VDC inductive; 1.0 A @ 30 VDC inductive. **Dimensions:** 6.2" (15.748 cm) x 1.2" (3.048 cm).

**B224BI Isolator Base:** **Dimensions:** 6.2" (15.748 cm) x 1.2" (3.048 cm). **Maximum:** 25 devices between isolator bases.

## INSTALLATION

FSP-851 plug-in detectors use a separate base to simplify installation, service, and maintenance. A special tool allows maintenance personnel to plug in and remove detectors without using a ladder.

Mount base on an electrical backbox which is at least 1.5" (3.81 cm) deep. Suitable mounting base boxes include:

- 4.0" (10.16 cm) square box.
- 3.5" (8.89 cm) or 4.0" (10.16 cm) octagonal box.
- Single-gang box (**except relay or isolator base**).
- **With B501BH or B501BHT base**, use a 4.0" (10.16 cm) square box.
- **With B224RB or B224BI base**, use a 3.5" (8.89 cm) octagonal box, or a 4.0" (10.16 cm) octagonal or square box.

**NOTES:** 1) Because of the inherent supervision provided by the SLC loop, **end-of-line resistors** are not required. Wiring "T-taps" or branches are permitted for Style 4 (Class "B") wiring. 2) When using **relay or sounder bases**, consult data sheet DN-2243 (ISO-X) for device limitations between isolator modules and isolator bases.

## PRODUCT LINE INFORMATION

**NOTE:** "A" suffix indicates ULC Listed model.

**FSP-851:** Low-profile intelligent photoelectric sensor. Must be mounted to one of the bases listed below.

**FSP-851A:** Same as FSP-851 but with ULC Listing.

**FSP-851T:** Same as FSP-851 but includes a built-in 135°F (57°C) fixed-temperature thermal device.

**FSP-851TA:** Same as FSP-851T but with ULC Listing.

## Bases:

**B710LPBP:** Standard U.S. low-profile base, pkg. of 10.

**B710LPA:** Standard U.S. low-profile base, ULC Listing.

**B501BP:** Standard European flangeless base, pkg. of 10.

**B501A:** Standard European flangeless base, ULC Listing.

**B501BH(A):** Sounder base, includes B501(A) base above.

**B501BHT(A):** Same as B501BH(A), but includes temporal sounder.

**B224RB(A):** Intelligent relay base.

**B224BI(A):** Intelligent isolator base. Isolates SLC from loop shorts.

## Accessories:

**F110:** Retrofit replacement flange for BX-501 base. Converts BX-501 base for use with FlashScan® detectors.

**RA400Z(A):** Remote LED annunciator. 3 – 32 VDC. Fits U.S. single-gang electrical box. *Supported by B710LP(A) and B501(A) bases only.*

**SMK400:** Surface mounting kit provides for entry of surface wiring conduit. *For use with B501(A) base only.*

**RMK400:** Recessed mounting kit. *For use with B501(A) base only.*

**SMB600:** Surface mounting kit for use with B710LP(A).

**BCK-200B:** Black detector covers, box of 10.

**M02-04-01:** Test magnet.

**M02-09-00:** Test magnet with telescope stick.

**XR2B:** Detector removal tool. Allows installation and/or removal of FlashScan® Series detector heads from base in high ceiling installations.

**T55-127-000:** Detector removal tool without pole.

**XP-4:** Extension pole for XR2B. Comes in three 5-ft. sections.

## Detector Guards:

**NOTE:** Some guards listed below may not be applicable to FSP models.

**SDG-773:** Smoke detector guard; cover is 7.0" (17.78 cm) square x 3.0" (7.62 cm) deep. *This guard is mechanically compatible with FSP-751. It is UL-compatibility listed with the FSP-851 (file UL S5515).*

**STI 9601:** Low-profile, flush-mount smoke detector guard, wire.\*

**STI 9602:** Low-profile, surface-mount, smoke detector guard, wire.\*

**STI 9609:** High-profile, flush-mount, smoke detector guard, wire.\*

**STI 9605:** High-profile, surface-mount, smoke detector guard, wire.\*

**STI 9604:** Flush-mount heat detector guard, wire.\*

**STI 9610:** Surface-mount heat detector guard, wire.\*

\*For dimensions and additional information on STI Steel Web Stoppers, see data sheet DN-4936.

**STI-8200-SS:** Flush-mount stainless steel smoke detector guard (*compatibility pending*).

**STI-8230-SS:** Surface-mount stainless steel smoke detector guard (*compatibility pending*).

## WIRING DIAGRAM

