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318878SP**Equipment List****L.L. BEAN INC.**

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LL Bean Cheshire Building Fire Alarm**Description**

NOTIFIER-NFS2640, Notifier NFS 640 Version 2.0
NOTIFIER-CPU2-640, Central processing unit for NFS2-640 w/integral 120V PS
NOTIFIER-KDM-R2, Keyboard Display Mod.; For CPU2-640 80-character display
NOTIFIER-DP-DISP2, Dress Plate used when CPU2-640 is mnt.ed on top row.
NOTIFIER-DP-1B, Dress Pnl blank; covers unused cabinet row(s), painted Blk..
NOTIFIER-BMP-1, Blank Mod. dress plate; used to cover ANN.
NOTIFIER-DR-B4, Door, lock & keys. Accepts 2 chassis, Blk..
NOTIFIER-SBB-B4, BB, 2 chassis, Blk..
IM-12180, 12V 18AH Battery
NOTIFIER-UDACT-2, Universal Digital Alarm Communicator Transmitter-2
R5-804R8, SILVER SATIN 8' PLUG - PLUG
R5-RJ31X, UL 8P8C RJ31X JACK
NOTIFIER-NBG-12LX, Address NBG-12L Pull Stat.; w/ FlashScan.
NOTIFIER-FSP-851, Intelligent Address Photo detector; w/FlashScan.
NOTIFIER-B210LP, Conventional Flanged Mounting Base
NOTIFIER-DNR, InnovairFlex intelligent duct detect, non-relay,no head.
NOTIFIER-FSP-851R, Remote test capable Intell Photo detect w/FlashScan
NOTIFIER-RTS151, Remote test station;w/switch, alarm and power LED#s.
NOTIFIER-DST3, InnovairFlex sampling tube, steel, 3# w/ holes
NOTIFIER-FRM-1, Addressable Relay Mod
NOTIFIER-FMM-101, Addressable Mini Mod
NOTIFIER-FCPS-24S8, 8.0 amps, 120 VAC remote charger Power Supply
IM-1270, 12V 7AH Battery
NOTIFIER-P2R, Horn Strobe, Wall, Red, Multi Cd
NOTIFIER-SR, Strobe, Ceiling, Red, Multi Cd
Space Age-SSU00686, Fire Alarm Records Cabinet
SPAAGEELE-IE0091, Notifier Lock Kit
SR-2507AL, SURF MNT 3" GAP SPDT Door Contact
SR-1078C, 3/4" REC STL DR LEAD 3/8" WHT
SR-1076D, 1" REC S-DR LEAD 1/2" DPDT WHT

NFS2-640(E)

Intelligent Addressable Fire Alarm System



Intelligent Fire Alarm Control Panels

General

The NFS2-640 intelligent Fire Alarm Control Panel is part of the ONYX® Series of Fire Alarm Controls from NOTIFIER.

In stand-alone or network configurations, ONYX Series products meet virtually every application requirement.

The NFS2-640's modular design makes system planning easier. The panel can be configured with just a few devices for small building applications, or networked with many devices to protect a large campus or a high-rise office block. Simply add additional peripheral equipment to suit the application.

A host of other options are available, including single- or multi-channel voice; firefighter's telephone; LED, LCD, or PC-based graphic annunciators; networking; advanced detection products for challenging environments, and many additional options.

NOTE: Unless called out with a version-specific "E" at the end of the part number, "NFS2-640" refers to models NFS2-640 and NFS2-640E; similarly, "CPU2-640" refers to models CPU2-640 and CPU2-640E.

Features

- Certified for seismic applications when used with the appropriate seismic mounting kit.
- Approved for Marine applications when used with listed compatible equipment. See DN-60688.
- One, expandable to two, isolated intelligent Signaling Line Circuit (SLC) Style 4, 6 or 7.
- Up to 159 detectors (any mix of ion, photo, thermal, or multi-sensor) and 159 modules (Addressable pull stations, normally open contact devices, two-wire smoke detectors, notification, or relay) per SLC. 318 devices per loop/636 per FACP or network node.
- Standard 80-character display, 640-character large display (NCA-2), or display-less (a node on a network).
- Network options:
 - High-speed network for up to 200 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCA-2, DVC-EM, ONYXWorks, NFS-3030, NFS-640, and NCA).
 - Standard network for up to 103 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCA-2, DVC-EM, ONYXWorks, NCS, NFS-3030, NFS-640, NCA, AFP-200, AFP-300/400, AFP-1010, and AM2020). Up to 54 nodes when DVC-EM is used in network paging.
- 6.0 A switch mode power supply with four Class A/B built-in Notification Appliance Circuits (NAC). Selectable System Sensor, Wheelock, or Gentex strobe synchronization.
- Built-in Alarm, Trouble, Security, and Supervisory relays.
- VeriFire® Tools online or offline programming utility. Upload/Download, save, store, check, compare, and simulate panel databases. Upgrade panel firmware.
- Autoprogramming and Walk Test reports.
- Multiple central station communication options:
 - Standard UDACT
 - Internet
 - Internet/GSM
- 80-character remote annunciators (up to 32).
- EIA-485 annunciators, including custom graphics.
- Printer interface (80-column and 40-column printers).
- History file with 800-event capacity in nonvolatile memory, plus separate 200-event alarm-only file.
- Alarm Verification selection per point, with automatic counter.
- Presignal/Positive Alarm Sequence (PAS).
- Silence inhibit and Auto Silence timer options.
- March time/temporal/California two-stage coding/strobe synchronization.
- Field-programmable on panel or on PC, with VeriFire Tools program check, compare, simulate.
- Full QWERTY keypad.
- Battery charger supports 18 – 200 AH batteries.
- Non-alarm points for lower priority functions.
- Remote ACK/Signal Silence/System Reset/Drill via monitor modules.
- Automatic time control functions, with holiday exceptions.
- Surface Mount Technology (SMT) electronics.
- Extensive, built-in transient protection.
- Powerful Boolean logic equations.
- Support for SCS Series smoke control system in HVAC mode.



NFS2-640-DVC_right.jpg

NFS2-640

NCA-2 AS PRIMARY DISPLAY

- Backlit, 640-character display.
- Supports SCS Series smoke control system in FSCS mode when SCS is connected to the NCA-2 used as primary display.
- Supports DVC digital audio loop.
- Printer and CRT EIA-232 ports.
- EIA-485 annunciator and terminal mode ports.
- Alarm, Trouble, Supervisory, and Security relays.

FLASHSCAN® INTELLIGENT FEATURES

- Polls up to 318 devices in less than two seconds.
- Activates up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.
- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — up to nine levels.
- Pre-alarm ONYX intelligent sensing — up to nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
 - Ion – 0.5 to 2.5%/foot obscuration.
 - Photo – 0.5 to 2.35%/foot obscuration.
 - Laser (VIEW®) – 0.02 to 2.0%/foot obscuration.
 - Acclimate Plus™ – 0.5 to 4.0%/foot obscuration.
 - IntelliQuad™ – 1.0 to 4.0%/foot obscuration.
 - IntelliQuad™ PLUS – 1.0 to 4.0%/foot obscuration
- Drift compensation (U.S. Patent 5,764,142).

- Degraded mode — in the unlikely event that the CPU2-640 microprocessor fails, FlashScan detectors revert to degraded operation and can activate the CPU2-640 NAC circuits and alarm relay. Each of the four built-in panel circuits includes a Disable/Enable switch for this feature.
- Multi-detector algorithm involves nearby detectors in alarm decision (U.S. Patent 5,627,515).
- Automatic detector sensitivity testing (NFPA-72 compliant).
- Maintenance alert (two levels).
- Self-optimizing pre-alarm.

FSL-751 (VERY INTELLIGENT EARLY WARNING)

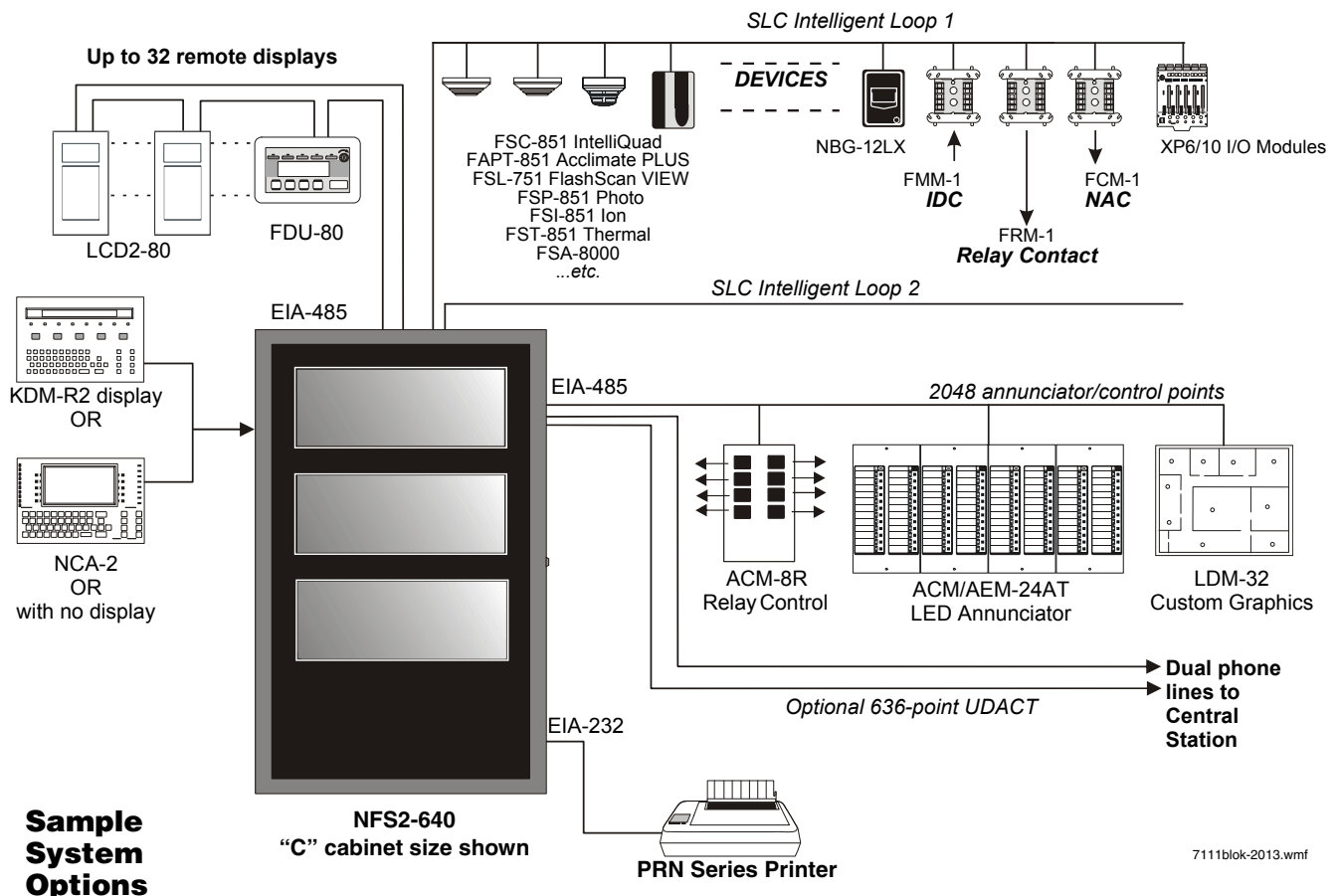
SMOKE DETECTION TECHNOLOGY

- Advanced ONYX intelligent sensing algorithms differentiate between smoke and non-smoke signals (U.S. Patent 5,831,524).
- Addressable operation pinpoints the fire location.
- Early warning performance comparable to the best aspiration systems at a fraction of the lifetime cost.

FAPT-851 ACCLIMATE PLUS

LOW-PROFILE INTELLIGENT MULTI-SENSOR

- Detector automatically adjusts sensitivity levels without operator intervention or programming. Sensitivity increases with heat.
- Microprocessor-based technology; combination photo and thermal technology.
- Low-temperature warning signal at 40°F ± 5°F (4.44°C ± 2.77°C).



FSC-851 INTELLIQUAD

ADVANCED MULTI-CRITERIA DETECTOR

- Detects all four major elements of a fire (smoke, heat, CO, and flame).
- Automatic drift compensation of smoke sensor and CO cell.
- High nuisance-alarm immunity.

FSA-8000 INTELLIGENT FAAST DETECTOR

- Connects directly to the SLC loop of compatible ONYX series panels
- Provides five event thresholds that can be individually programmed with descriptive labels for control-by-event programming; uses five detector addresses.
- Uses patented particle separator and field-replaceable filter to remove contaminants.
- Advanced algorithms reject common nuisance conditions

FCO-851 INTELLIQUAD™ PLUS

ADVANCED MULTI-CRITERIA FIRE/CO DETECTOR

- Detects all four major elements of a fire.
- Separate signal for life-safety CO detection.
- Optional addressable sounder base for Temp-3 (fire) or Temp-4 (CO) tone.
- Automatic drift compensation of smoke sensor and CO cell.
- High nuisance-alarm immunity.

RELEASING FEATURES

- Ten independent hazards.
- Sophisticated cross-zone (three options).
- Delay timer and Discharge timers (adjustable).
- Abort (four options).
- Low-pressure CO₂ listed.

DIGITAL VOICE AND TELEPHONE FEATURES

- Up to eight channels of digital audio.
- 35, 50, 75, and 100/125 watt digital amplifiers (DAA2/DAX series and DS series; NCA-2 required as primary display).
- Solid-state digital message generation.
- Firefighter telephone option.
- 30- to 120-watt high-efficiency amplifiers (AA Series).
- Backup tone generator and amplifier option.
- NFS2-640 can also integrate with the FirstCommand Emergency Communications System. *See DN-60772.*

HIGH-EFFICIENCY OFFLINE SWITCHING

3.0 A POWER SUPPLY (6.0 A IN ALARM)

- 120 VAC (NFS2-640); 240 VAC (NFS2-640E).
- Displays battery current/voltage on panel (with display).

FlashScan, Exclusive World-Leading Detector Protocol

At the heart of the NFS2-640 is a set of detection devices and device protocol — FlashScan (U.S. Patent 5,539,389). FlashScan is an all-digital protocol that gives superior precision and high noise immunity.

In addition to providing quick identification of an active input device, this protocol can also activate many output devices in a fraction of the time required by competitive protocols. This high speed also allows the NFS2-640 to have the largest device per loop capacity in the industry — 318 points — yet every input and output device is sampled in less than two seconds. The microprocessor-based FlashScan detectors have bicolor LEDs

that can be coded to provide diagnostic information, such as device address during Walk Test.

ONYX Intelligent Sensing

Intelligent sensing is a set of software algorithms that provides the NFS2-640 with industry-leading smoke detection capability. These complex algorithms require many calculations on each reading of each detector, and are made possible by the high-speed microcomputer used by the NFS2-640.

Drift Compensation and Smoothing: Drift compensation allows the detector to retain its original ability to detect actual smoke, and resist false alarms, even as dirt accumulates. It reduces maintenance requirements by allowing the system to automatically perform the periodic sensitivity measurements required by NFPA 72. Smoothing filters are also provided by software to remove transient noise signals, such as those caused by electrical interference.

Maintenance Warnings: When the drift compensation performed for a detector reaches a certain level, the performance of the detector may be compromised, and special warnings are given. There are three warning levels: (1) Low Chamber value; (2) Maintenance Alert, indicative of dust accumulation that is near but below the allowed limit; (3) Maintenance Urgent, indicative of dust accumulation above the allowed limit.

Sensitivity Adjust: Nine sensitivity levels are provided for alarm detection. These levels can be set manually, or can change automatically between day and night. Nine levels of pre-alarm sensitivity can also be selected, based on predetermined levels of alarm. Pre-alarm operation can be latching or self-restoring, and can be used to activate special control functions.

Self-Optimizing Pre-Alarm: Each detector may be set for “Self-Optimizing” pre-alarm. In this special mode, the detector “learns” its normal environment, measuring the peak analog readings over a long period of time, and setting the pre-alarm level just above these normal peaks.

Cooperating Multi-Detector Sensing: A patented feature of ONYX intelligent sensing is the ability of a smoke sensor to consider readings from nearby sensors in making alarm or pre-alarm decisions. Without statistical sacrifice in the ability to resist false alarms, it allows a sensor to increase its sensitivity to actual smoke by a factor of almost two to one.

Field Programming Options

Autoprogram is a timesaving feature. The FACP “learns” what devices are physically connected and automatically loads them in the program with default values for all parameters. Requiring less than one minute to run, this routine allows the user to have almost immediate fire protection in a new installation, even if only a portion of the detectors are installed.

Keypad Program Edit (with KDM-R2) The NFS2-640, like all NOTIFIER intelligent panels, has the exclusive feature of program creation and editing capability from the front panel keypad, while continuing to provide fire protection. The architecture of the NFS2-640 software is such that each point entry carries its own program, including control-by-event links to other points. This allows the program to be entered with independent per-point segments, while the NFS2-640 simultaneously monitors other (already installed) points for alarm conditions.

VeriFire® Tools is an offline programming and test utility that can greatly reduce installation programming time, and increase confidence in the site-specific software. It is Windows®-based and provides technologically advanced capabilities to aid the installer. The installer may create the entire program for the NFS2-640 in the comfort of the office, test it,

store a backup file, then bring it to the site and download from a laptop into the panel.

Placement of Equipment in Chassis and Cabinet

The following guidelines outline the NFS2-640's flexible system design.

Rows: The first row of equipment in the cabinet mounts in the chassis shipped with the FACP. Mount the second, third, or fourth rows of equipment in a CHS-4 series chassis or, for Digital Voice Command products, in CA-1 or CA-2. (For DVC-EM and DAA2/DAX components see *DVC Manual*; for DS series components see *DS-AMP Manual*; for DVC-AO applications, see *AA Series Installation Manual*). Other options are available; see your panel's installation manual.

Wiring: When designing the cabinet layout, consider separation of power-limited and non-power-limited wiring as discussed in the *NFS2-640 Installation Manual*.

Positions: A chassis offers four basic side-by-side positions for components; the number of modules that can be mounted in each position depends on the chassis model and the size of the individual module. There are a variety of standoffs and hardware items available for different combinations and configurations of components.

It is critical that all mounting holes of the NFS2-640 are secured with a screw or standoff to ensure continuity of Earth Ground.

Layers: The control panel's chassis accepts four layers of equipment, including the control panel. The CPU2-640 fills three positions (left to right) in the first-installed layer (the back of the chassis); its integral power supply occupies the center two positions in the next two layers; the optional display occupies (the left) two positions at the front, flush with the door. Some equipment, such as the NCA-2, may be mounted in the dress panel directly in front of the control panel. The NCA-2 can be used as a primary display for the NFS2-640 (use NCA/640-2-KIT) by directly connecting their network ports (required in Canadian stand-alone applications); see NCA-2 data sheet for mounting options (*DN-7047*).

Expansion: Installing an LEM-320 Loop Expander Module adds a second SLC loop to the control panel. The LEM-320 is mounted onto the CPU2-640, occupying the middle-right, second (back) slot on the chassis.

Networking: If networking two or more control panels, each unit requires a Network Communication Module or High-Speed Network Communication Module. (HS-NCM can support two nodes; see "Networking Options" on page 5). These modules can be installed in any option board position (see manual), and additional option boards can be mounted in front of the network communication modules.

KDM-R2 Controls and Indicators

Program Keypad: QWERTY type (*keyboard layout, see figure*).

12 LED indicators: Power; Fire Alarm; Pre-Alarm; Security; Supervisory; System Trouble; Signals Silenced; Points Disabled; Control Active; Abort; Pre-Discharge; Discharge.

Keypad Switch Controls: Acknowledge/Scroll Display; Signal Silence; Drill; System Reset; Lamp Test.

LCD Display: 80 characters (2 x 40) with long-life LED backlight.

Product Line Information

- "Configuration Guidelines" on page 4
- "Networking Options" on page 5
- "Auxiliary Power Supplies and Batteries" on page 5
- "Audio Options" on page 5
- "Compatible Devices, EIA-232 Ports" on page 5
- "Compatible Devices, EIA-485 Ports" on page 5
- "Compatible Intelligent Devices" on page 6
- "Enclosures, Chassis, and Dress Plates" on page 6
- "Other Options" on page 7

CONFIGURATION GUIDELINES

Stand-alone and network systems require a main display. On systems with one FACP (one CPU2-640/-640E), display options are the KDM-R2 or the NCA-2. On network systems (two or more networked fire panel nodes), at least one NCA-2, NCS, or ONYXWorks annunciation device is required. Other options listed as follows;

KDM-R2: 80-character backlight LCD display with QWERTY programming and control keypad. Order two BMP-1 blank modules and DP-DISP2 mounting plate separately. *Requires top row of a cabinet. Required for each stand-alone 80-character display system. The KDM-R2 may mount in network nodes to display "local" node information as long as at least one NCA-2 or NCS/ONYXWorks network display is on the system to display network information. (Non-English versions also available: KDM-R2-FR, KDM-R2-PO, KDM-R2-SP.)*

NCA-2: Network Control Annunciator, 640 characters. On single CPU2-640/-640E systems, the optional NCA-2 can be used as the Primary Display for the panel and connects directly to the CPU2-640/-640E. On network systems (two or more networked fire panel nodes), one network display (either NCA-2 or NCS/ONYXWorks) is required for every system. On network systems, the NCA-2 connects to (and requires) a standard Network Communication Module or High-Speed Network Communication Module. Mounts in a row of FACP node or in two annunciator positions. Mounting options include the DP-DISP2, ADP-4B, or in an annunciator box, such as the ABS-2D. In CAB-4 top-row applications, a DP-DISP2 and two BMP-1 blank modules are required for mounting. Required for NFS2-640 applications employing the DVC-EM with DAL devices. Non-English versions are available. For marine applications, order NCA-2-M; for non-English Marine applications, order NCA-2-M and the appropriate KP-KIT-XX. *See DN-7047.*

CPU2-640: Central processing unit (CPU) with integral 3.0 A (6.0 A in alarm) power supply for an NFS2-640 system. Includes control panel factory-mounted on a chassis; one Signaling Line Circuit expandable to two; documentation kit. *Order one per system or as necessary (up to 103 network nodes) on a network system. (Non-English versions also available: CPU2-640-FR, CPU2-640-PO, CPU2-640-SP.)*

CPU2-640E: Same as CPU2-640 but requires 240 VAC, 1.5 A, (3.0 A in alarm). *(Non-English versions also available: CPU2-640E-PO, CPU2-640E-SP.)*

NCA/640-2-KIT: Bracket installation kit required to mount NCA-2 to the CPU2-640/-640E's standard chassis.

DP-DISP2: Dress panel for top row in cabinet with CPU2-640/640E installed.

ADP2-640: Dress panel for middle rows with CPU2-640/640E.

BMP-1: Blank module for unused module positions.

BP2-4: Battery plate, required.

LEM-320: Loop Expander Module. Expands each NFS2-640 to two Signaling Line Circuits. *See DN-6881.*

NETWORKING OPTIONS

NCM-W, NCM-F: Standard Network Communications Modules. Wire and multi-mode fiber versions available. *See DN-6861.*

HS-NCM-W/MF/SF/WMF/WSF/MFSF: High-speed Network Communications Modules that can connect to two nodes. Wire, single-mode fiber, multi-mode fiber, and media conversion models are available. *See DN-60454.*

RPT-W, RPT-F, RPT-WF: Standard-network repeater board with wire connection (RPT-W), multi-mode fiber connection (RPT-F), or allowing a change in media type between wire and fiber (RPT-WF). Not used with high-speed networks. *See DN-6971.*

ONYXWorks: UL-listed graphics PC workstation, software, and computer hardware. *See DN-7048 for specific part numbers.*

NFN-GW-EM-3: NFN Gateway, embedded. (Replaces NFN-GW-EM.) *See DN-60499.*

NWS-3: NOTI•FIRE•NET™ Web Server. *See DN-6928.*

CAP-GW: Common Alerting Protocol Gateway. *See DN-60576.*

VESDA-HLI-GW: VESDAnet high-level interface gateway. *See DN-60753.*

LEDSIGN-GW: UL-listed sign gateway. Interfaces with classic and high-speed NOTI•FIRE•NET networks through the NFN Gateway. *See DN-60679.*

OAX2-24V: UL-listed LED sign, used with LEDSIGN-GW. *See DN-60679.*

AUXILIARY POWER SUPPLIES AND BATTERIES

ACPS-610: 6.0 A or 10.0 A addressable charging power supply. *See DN-60244.*

APS2-6R: Auxiliary Power Supply. Provides up to 6.0 amperes of power for peripheral devices. Includes battery input and transfer relay, and overcurrent protection. Mounts on two of four positions on a CHS-4L or CHS-4 chassis. *See DN-5952.*

FCPS-24S6/S8: Remote 6 A and 8 A power supplies with battery charger. *See DN-6927.*

BAT Series: Batteries. NFS2-640 uses two 12 volt, 18 to 200 AH batteries. *See DN-6933.*

AUDIO OPTIONS

NOTE: For mounting hardware, see "Enclosures, Chassis, and Dress Plates" on page 6 and peripheral data sheets.

DVC-EM: Digital Voice Command, digital audio processor with message storage for up to 32 minutes of standard quality (4 minutes at high quality) digital audio. Capable of playing up to eight simultaneous messages when used with Digital Audio Loop (DAL) devices. *See DN-7045.*

DVC-RPU: Digital Voice Command Remote Paging Unit for use with DVC-EM. Includes the keypad/display. *See DN-60726.*

DS-DB: Digital Series Distribution Board, provides bulk amplification capabilities to the DVC-EM while retaining digital audio distribution capabilities. Can be configured with up to four DS-AMPs, supplying high-level risers spread throughout an installation. *See DN-60565.*

DVC-KD: DVC-EM keypad for local annunciation and controls; status LEDs and 24 user-programmable buttons. *See DN-7045.*

DS-AMPE: 125W, 25 VRMS, or 100W, 70VRMS. 70VRMS requires DS-XF70V step-up transformer. Digital Series Amplifier, part of the DS-DB system. *See DN-60663.*

DS-RFM, DS-FM, DS-SFM: Fiber conversion modules for DVC-EM, DS-DB distribution board, and DAX and DAA2 Series amplifiers. *See DN-60633.*

DVC-AO: DVC Analog Output board provides four analog output circuits for use with AA Series amplifiers. Four-channel operation supported. *See DN-7045.*

DAA2-5025(E): 50W, 25 Vrms Digital Audio Amplifier assembly with power supply; includes chassis. *See DN-60556.*

DAA2-5070(E): 50W, 70.7 Vrms Digital Audio Amplifier assembly with power supply; includes chassis. *See DN-60556.*

DAA2-7525(E): 75W, 25 Vrms digital audio amplifier assembly with power supply; includes chassis. *See DN-60556.*

DAX-3525(E): 35W, 25 Vrms Digital Audio Amplifier assembly with power supply, includes chassis. *See DN-60561.*

DAX-3570(E): 35W, 70.7 Vrms Digital Audio Amplifier assembly with power supply, includes chassis. *See DN-60561.*

DAX-5025(E): 50W, 25 Vrms Digital Audio Amplifier assembly with power supply, includes chassis. *See DN-60561.*

DAX-5070(E): 50W, 70.7 Vrms Digital Audio Amplifier assembly with power supply, includes chassis. *See DN-60561.*

TELH-1: Firefighter's Telephone Handset for use with the DVC-EM when mounted in the CA-2 chassis. *See DN-7045.*

CMIC-1: Optional microphone and microphone well assembly used with the CA-1 chassis.

RM-1/RM-1SA: Remote microphone assemblies, mount on ADP-4 (RM-1) dress panel or CAB-RM/RMR (RM-1SA) stand-alone cabinets. *See DN-6728.*

AA-30: Audio Amplifier, 30 watts, 25 Vrms. Includes amplifier and audio input supervision, backup input, and automatic switchover, power supply, cables. *See DN-3224.*

AA-120/AA-100: Audio Amplifier provides up to 120 watts of 25 VRMS audio power for the NFS-640. The amplifier contains an integral chassis for mounting to a CAB-B4, -C4, or -D4 backbox (consumes one row). Switch-mode power. Includes audio input and amplified output supervision, backup input, and automatic switchover to backup tone. Order the AA-100 for 70.7 VRMS systems and 100 watts of power. *See DN-3224.*

DAA Series Digital Audio Amplifiers: Legacy DAA Series amplifiers are compatible with DVC-EM systems running SR4.0. For specific information on DAA-50 series amplifiers, refer to DN-7046. For information on DAA-7525 Series, refer to DN-60257.

NFC-25/50: 25 watt, 25 VRMS, emergency Voice Evacuation Control Panel (VECP) with integral commercial microphone, digital message generator, and single-/dual-channel Class A or Class B speaker circuits. *See DN-60772.*

COMPATIBLE DEVICES, EIA-232 PORTS

PRN-6: 80-column printer. *See DN-6956.*

VS4095/5: Printer, 40-column, 24V. Mounted in external backbox. *See DN-3260.*

DPI-232: Direct Panel Interface, specialized modem for extending serial data links to remotely located FACPs and/or peripherals. *See DN-6870.*

COMPATIBLE DEVICES, EIA-485 PORTS

ACM-24AT: ONYX Series ACS annunciator – up to 96 points of annunciation with Alarm or Active LED, Trouble LED, and switch per circuit. Active/Alarm LEDs can be programmed (by powered-up switch selection) by point to be red, green, or yellow; the Trouble LED is always yellow. *See DN-6862.*

AEM-24AT: Same LED and switch capabilities as ACM-24AT, expands the ACM-24AT to 48, 72, or 96 points. *See DN-6862.*

ACM-48A: ONYX Series ACS annunciator – up to 96 points of annunciation with Alarm or Active LED per circuit. Active/Alarm LEDs can be programmed (by powered-up switch selection) in groups of 24 to be red, green, or yellow. Expandable to 96 points with one AEM-48A. *See DN-6862.*

AEM-48A: Same LED capabilities as ACM-48A, expands the ACM-48A to 96 points. *See DN-6862.*

ACM-8R: Remote Relay Module with eight Form-C contacts. Can be located up to 6,000 ft. (1828.8 m) from panel on four wires. *See DN-3558.*

FDU-80: Terminal mode. 80-character, backlit LCD display. Mounts up to 6,000 ft. (1828.8 m) from panel. Up to 32 per FACP. *See DN-6820.*

LCD2-80: Terminal and ACS mode. 80-character, backlit LCD display. Mounts up to 6,000 ft. (1828.8 m) from panel. Up to 32 per FACP. *See DN-60548.*

LDM: Lamp Driver Modules LDM-32, LDM-E32, and LDM-R32; remote custom graphic driver modules. *See DN-0551.*

SCS: Smoke control stations SCS-8, SCE-8, with lamp drivers SCS-8L, SCE-8L; eight (expandable to 16) circuits (HVAC only). *See DN-4818.*

TM-4: Transmitter Module. Includes three reverse-polarity circuits and one municipal box circuit. Mounts in panel module position (single-address-style) or in CHS2-M2 position. *See DN-6860.*

UDACT-2: Universal Digital Alarm Communicator Transmitter, 636 channel. *See DN-60686.*

UZY-256: Programmable Universal Zone Coder provides positive non-interfering successive zone coding. Microprocessor-controlled, field-programmable from IBM®-compatible PCs (requires optional programming kit). Up to 256 programmable codes. Mounts in **BB-UZY** or other compatible chassis (purchased separately). *See DN-3404.*

COMPATIBLE INTELLIGENT DEVICES

FSA-8000: Intelligent FFAST Fire Alarm Aspiration Sensing Technology®. Intelligent aspirating smoke detector. For Canadian applications, order FSA-8000A. *See DN-60792.*

FSB-200: Intelligent beam smoke detector. *See DN-6985.*

FSB-200S: Intelligent beam smoke detector with integral sensitivity test. *See DN-6985.*

FSC-851: FlashScan IntelliQuad Advanced Multi-Criteria Detector. *See DN-60412.*

FCO-851: FlashScan IntelliQuad PLUS Advanced Multi-Criteria Fire/CO Detector. *See DN-60689.*

FSI-851: Low-profile FlashScan ionization detector. *See DN-6934.*

FSP-851: Low-profile FlashScan photoelectric detector. *See DN-6935.*

FSP-851T: FSP-851 plus dual electronic thermistors that add 135°F (57°C) fixed-temperature thermal sensing. *See DN-6935.*

FSP-851R: FSP-851, remote-test capable. For use with DNR(W). *See DN-6935.*

FST-851: FlashScan thermal detector 135°F (57°C). *See DN-6936.*

FST-851R: FlashScan thermal detector 135°F (57°C) with rate-of-rise. *See DN-6936.*

FST-851H: FlashScan 190°F (88°C) high-temperature thermal detector. *See DN-6936.*

FAPT-851: FlashScan Acclimate Plus low-profile multi-sensor detector. *See DN-6937.*

FSL-751: FlashScan VIEW laser photo detector. *See DN-6886.*

DNR: InnovairFlex low-flow non-relay duct-detector housing (order FSP-851R separately). Replaces FSD-751PL/FSD-751RPL. *See DN-60429.*

DNRW: Same as above with NEMA-4 rating, watertight. *See DN-60429.*

B224RB: Low-profile relay base. *See DN-60054.*

B224BI: Isolator base for low-profile detectors. *See DN-60054.*

B210LP: Low-profile base. Standard U.S. style. Replaces B710LP. *See DN-60054.*

B501: European-style, 4" (10.16 cm) base. *See DN-60054.*

B200S: Intelligent programmable sounder base, capable of producing a variety of tone patterns including ANSI Temporal 3. Compatible with synchronization protocol. *See DN-60054.*

B200SCOA: Based on B200SA, with added CO detector markings in English/French. For Canadian applications only.

B200SR: Sounder base, Temporal 3 or Continuous tone. *See DN-60054.*

FMM-1: FlashScan monitor module. *See DN-6720.*

FDM-1: FlashScan dual monitor module. *See DN-6720.*

FZM-1: FlashScan two-wire detector monitor module. *See DN-6720.*

FMM-101: FlashScan miniature monitor module. *See DN-6720.*

FTM-1: Firephone Telephone Module connects a remote fire-fighter telephone to a centralized telephone console. Reports status to panel. Wiring to jacks and handsets is supervised. *See DN-6989.*

FCM-1: FlashScan control module. *See DN-6720.*

FCM-1-REL: FlashScan releasing control module. *See DN-60390.*

FRM-1: FlashScan relay module. *See DN-6720.*

FDRM-1: FlashScan dual monitor/dual relay module. *See DN-60709.*

NBG-12LX: Manual pull station, addressable. *See DN-6726.*

ISO-X: Isolator module. *See DN-2243. See DN-2243.*

XP6-C: FlashScan six-circuit supervised control module. *See DN-6924.*

XP6-MA: FlashScan six-zone interface module; connects intelligent alarm system to two-wire conventional detection zone. *See DN-6925.*

XP6-R: FlashScan six-relay (Form-C) control module. *See DN-6926.*

XP10-M: FlashScan ten-input monitor module. *See DN-6923.*

SLC-IM: SLC integration module, for VESDAnet detectors. *See DN-60755.*

ENCLOSURES, CHASSIS, AND DRESS PLATES

CAB-4 Series Enclosure: NFS2-640 mounts in a standard CAB-4 Series enclosure (available in four sizes, "A" through "D"). Backbox and door ordered separately; requires BP2-4 battery plate. A trim ring option is available for semi-flush mounting. *See DN-6857.*

EQ Series Cabinets: EQ series cabinets will house amplifiers, power supplies, battery chargers and control modules. EQ cabinets are available in three sizes, "B" through "D". *See DN-60229.*

CAB-BM Marine System: Protects equipment in shipboard and waterfront applications. Also order **BB-MB** for systems using 100 AH batteries. For a full list of required and optional equipment, see *DN-60688*.

CHS-4: Chassis for mounting up to four APS-6Rs.

CHS-4L: Low-profile four-position Chassis. Mounts two AA-30 amplifiers or one AMG-E and one AA-30.

DP-1B: Blank dress panel. Provides dead-front panel for unused tiers; covers DAA2/DAX series or AA-series amplifier.

NFS-LBB: Battery Box (required for batteries larger than 26 AH).

NFS-LBBR: Same as above but red.

CHS-BH1: Battery chassis; holds two 12.0 AH batteries. Mounts one the left side of DAA2 chassis. See *DN-7046*.

CA-1: Chassis, occupies one tier of a CAB-4 Series enclosure. The left side accommodates one DVC-EM and a DVC-KD (optional); and the right side houses a CMIC-1 microphone and its well (optional). See *DN-7045*.

CA-2: Chassis assembly, occupies two tiers of a CAB-4 Series enclosure. The left side accommodates one DVC-EM mounted on a half-chassis and one NCA-2 mounted on a half-chassis. The right side houses a microphone/handset well. The CA-2 assembly includes CMIC-1 microphone. ADDR Series doors with two-tier visibility are available for use with the CA-2 configuration: ADDR-B4, ADDR-C4, ADDR-D4 (below).

CFFT-1: Chassis to mount firefighter's telephone and one ACS annunciator in a CAB-4 row. Includes TELH-1 firefighter's handset for the DVC-EM, chassis, phone well and mounting hardware. Order DP-CFFT dress panel separately.

DP-CFFT: CFFT-1 dress panel. Requires BMP-1 if no ACS annunciator is installed.

ADDR-B4*: Two-tier-sized door designed for use with the CA-2 chassis configuration. ADDR Series doors are similar to CAB-4 Series "DR" doors, but a clear window space exposes the top two tiers of the CAB-4 enclosure. Use an SBB-B4 backbox with the ADDR-B4. See *DN-7045, DN-6857*.

ADDR-C4*: Three-tier-sized door, designed for use with the CA-2 chassis configuration. ADDR Series doors are similar to CAB-4 Series "DR" doors, but a clear window space exposes the top two tiers of the CAB-4 enclosure. Use an SBB-C4 backbox with the ADDR-C4. See *DN-7045, DN-6857*.

ADDR-D4*: Four-tier-sized door designed for use with the CA-2 chassis configuration. ADDR Series doors are similar to CAB-4 Series "DR" doors, but a clear window space exposes the top two tiers of the CAB-4 enclosure. Use an SBB-D4 backbox with the ADDR-D4. See *DN-7045, DN-6857*.

*Use ADDR-B4/C4/D4 when CA-2 chassis is installed in top two rows with NCA-2 or BP-CA2. Use standard door when CA-2 is not installed in top two rows. For additional configuration information, see the DVC application guide on <http://esd.notifier.com>.

DPA-1: Dress panel, used with the CA-1 chassis when configured with a DVC-EM, DVC-KD, and CMIC-1. See *DN-7045*.

DPA-2B: Dress panel used with CA-2 chassis assembly.

VP-2B: Dress panel, required when CA-2 chassis is installed in the top two cabinet rows.

DPA-1A4: Dress panel, used with the CA-1 chassis when the CMIC-1 is not used. Provides mounting options on right two bays for two ACS annunciators, or for blank plates. See *DN-7045*.

BP-CA2: Blank plate for CA-2 chassis.

BB-UZC: Backbox for housing the UZC-256 in applications where the UZC-256 will not fit in panel enclosure. Black; for red, order BB-UZC-R.

SEISKIT-CAB: Seismic mounting kit. Required for seismic-certified applications with NFS2-640 and other equipment mounted in CAB-4 Series Enclosures. Includes battery bracket for two 26 AH batteries.

SEISKIT-LBB: Seismic kit for the NFS-LBB. Includes battery bracket for two 55 AH batteries.

OTHER OPTIONS

411: Slave digital alarm communicator. See *DN-6619*.

411UDAC: Digital alarm communicator. See *DN-6746*.

IPDACT-2/2UD, IPDACT Internet Monitoring Module: Connects to primary and secondary DACT telephone output ports for internet communications over customer-provided Ethernet connection. Requires compatible Teldat VisorALARM Central Station Receiver. Can use DHCP or static IP. See *DN-60408*.

IPCHSKIT: IP Communicator Chassis Mounting Kit. For mounting an IPDACT-2/2UD onto the panel chassis or CHS-4 series chassis. Use IPENC for external mounting applications.

IPSPLT: Y-adaptor option allow connection of both panel dialer outputs to one IPDACT-2/2UD cable input.

IPENC: External enclosure for IPDACT, includes IPBRKT mounting bracket; Red. For Black order IPENC-B.

IPGSM-4G: Internet and Digital Cellular Fire Alarm Communicator. Provides selectable configurable paths: cellular only, IP only, or IP primary with cellular backup. Connects to the primary and secondary ports of a DACT. For Canadian applications order IPGSM-4GC. See *DH-60769*.

NOTE: For other options including compatibility with retrofit equipment, refer to the panel's installation manual, the SLC manual, and the Device Compatibility Document.

System Specifications

SYSTEM CAPACITY

- Intelligent Signaling Line Circuits 1 expandable to 2
- Intelligent detectors 159 per loop
- Addressable monitor/control modules 159 per loop
- Programmable software zones 99
- Special programming zones 14
- LCD annunciators per CPU2-640/-640E and NCA-2 (*observe power*) 32
- ACS annunciators per CPU2-640/-640E 32 addresses x 64 points
- ACS annunciators per NCA-2 32 addresses x 64 or 96 points

NOTE: The NCA-2 supports up to 96 annunciator address points per ACM-24AT/-48A.

ELECTRICAL SPECIFICATIONS

- Primary input power:
 - CPU2-640 board: 120 VAC, 50/60 Hz, 5.0 A.
 - CPU2-640E board: 220/240 VAC, 50/60 Hz, 2.5 A.
- Current draw (standby/alarm):
 - CPU2-640(E) board: 0.250 A. Add 0.035 A for each NAC in use.
 - KDM-R2: 0.100 A.
 - LEM-320: 0.100 A.

- Total output 24 V power: 6.0 A in alarm.

NOTE: The power supply has a total of 6.0 A. of available power. This is shared by all internal circuits. See Installation Manual for a complete current draw calculation sheet.

- Standard notification circuits (4): 1.5 A each.
- Resettable regulated 24V power: 1.25 A.
- Two non-resettable regulated 24V power outputs:
 - 1.25 A.
 - 0.50 A.
- Non-resettable 5V power: 0.15 A.
- Battery charger range: 18 AH – 200 AH. Use separate cabinet for batteries over 26 AH.
- Float rate: 27.6 V.

CABINET SPECIFICATIONS

- Systems can be installed in CAB-4 Series cabinets (*four sizes with various door options, see DN-6857*). Requires BP2-4 Battery Plate.

SHIPPING WEIGHT

- CPU2-640/-640: 14.3 lb (6.49 kg).
- CPU2-640/-640E: 14.55 lb (6.60 kg).

TEMPERATURE AND HUMIDITY RANGES

This system meets NFPA requirements for operation at 0 – 49°C/32 – 120°F and at a relative humidity 93% ± 2% RH (noncondensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27°C/60 – 80°F.

AGENCY LISTINGS AND APPROVALS

The listings and approvals below apply to the basic NFS2-640 control panel. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S635.
- **ULC Listed:** S635.
- **FM Approved.**
- **MEA:** 128-07-E.
- **FDNY:** COA#6085, #6121.
- **CSFM:** 7165-0028:0243.
- **City of Chicago.**
- **City and County of Denver.**
- **CCCF listed.**

Marine Applications: Marine approved systems must be configured using components itemized in this document. (See Main System Components, in "Product Line Information.") Specific connections and requirements for those components are described in the installation document, PN 54756. When these requirements are followed, systems are approved by the following agencies:

- **US Coast Guard** 161.002/50/0, 161.002/55/0 (Standard 46 CFR and 161.002).
- **Lloyd's Register** 11/600013 (ENV 3 category).

- **American Bureau of Shipping (ABS)** Type Approval.

NOTE: For information on marine applications, see DN-60688.

STANDARDS

The NFS2-640 complies with the following UL Standards and NFPA 72, International Building Code (IBC), and California Building Code (CBC) Fire Alarm Systems requirements:

- **UL 864, 9th Edition** (Fire).
- **UL 1076** (Burglary).
- **UL 2572** (Mass Notification Systems).
- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires TM-4).
- **REMOTE STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory) (requires TM-4).
- **PROPRIETARY** (Automatic, Manual and Waterflow). *Not applicable for FM.*
- **EMERGENCY VOICE/ALARM.**
- **OT, PSDN** (Other Technologies, Packet-switched Data Network).
- **IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000** (Seismic).
- **CBC 2007** (Seismic).

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Made in the U.S. A.

For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
www.notifier.com

BAT Series Batteries

Sealed Lead-Acid or Gell Cell



Power Supplies

General

BAT Series Batteries feature a new part-numbering/listing system — providing an improved method of delivery for NOTIFIER-approved sealed lead-acid batteries for all your fire alarm system needs. Multiple brands of batteries are now offered under generic part numbers, reducing backorder situations and permitting us to deliver these products in a more timely fashion. NOTIFIER has approved the multiple brands listed below as possible product shipped for a given part number. Please note that any incoming orders for “PS Series” batteries will be converted to the equivalent BAT Series part numbers.



6933cov.jpg

Features

- Provide secondary power for control panels.
- Sealed and maintenance-free.
- Overcharge protected.
- Easy handling with leakproof construction.
- Ruggedly constructed, high-impact case (ABS, polystyrene, or polypropylene, depending on models).
- Long service life.
- Compact design.

Agency Listings and Approvals

The listings and approvals below apply to BAT Series Batteries. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Recognized Components:** files MH19884 (*B & B Battery*), MH20567 (*UPG, previously Jolt*), MH20845 (*Power-Sonic*).

Part Number Reference

CURRENT Part Number	BATTERY DESCRIPTION	ALTERNATES APPROVED: manufacturers and P/Ns shipped under BAT P/Ns
BAT-1250	12 V, 5 AH, sealed.	BP5-12 (B&B Battery); PS-1250 (Power-Sonic); SA1250 (Jolt) to be replaced with UB1250 (UPG).
BAT-1250	12 V, 5 AH, sealed.	BP5-12 (B&B Battery); PS-1250 (Power-Sonic); SA1250 (Jolt) to be replaced with UB1250 (UPG).
BAT-1270	12 V, 7 AH, sealed.	BP7-12 (B&B Battery); PS-1270 (Power-Sonic); SA1272 (Jolt) to be replaced with UB1270 (UPG).
BAT-12120	12 V, 12 AH, sealed.	BP12-12 (B&B Battery); PS-12120 (Power-Sonic); SA12120 (Jolt) to be replaced with UB12120 (UPG).
BAT-12180	12 V, 18 AH, sealed.	PS-12180 (Power-Sonic); SA12180 (Jolt) to be replaced with UB12180 (UPG).
BAT-12180	12 V, 18 AH, sealed.	PS-12180 (Power-Sonic); SA12180 (Jolt) to be replaced with UB12180 (UPG).
BAT-12260	12 V, 26 AH, sealed.	BP26-12 (B&B Battery); PS-12260 (Power-Sonic); SA12260 (Jolt) to be replaced with UB12260 (UPG).
BAT-12550	12 V, 55 AH, sealed.	PS-12550 (Power-Sonic); XSA12550 (Jolt) to be replaced with UB12550 (UPG).
BAT-12550	12 V, 55 AH, sealed.	PS-12550 (Power-Sonic); XSA12550 (Jolt) to be replaced with UB12550 (UPG).
BAT-121000	12 V, 100 AH, gell cell.	PS-121000 (Power-Sonic); XSA121000A (Jolt) to be replaced with UB121000 (UPG).

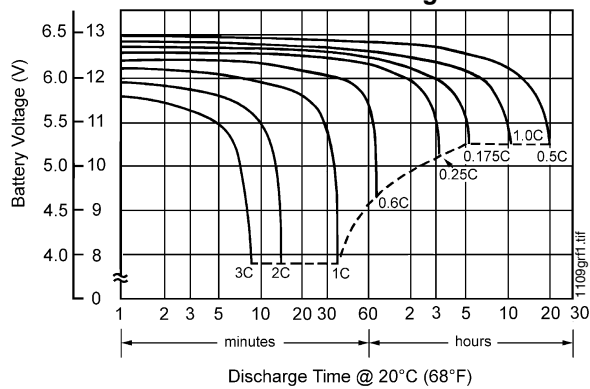
POWER-SONIC

Part Number Reference

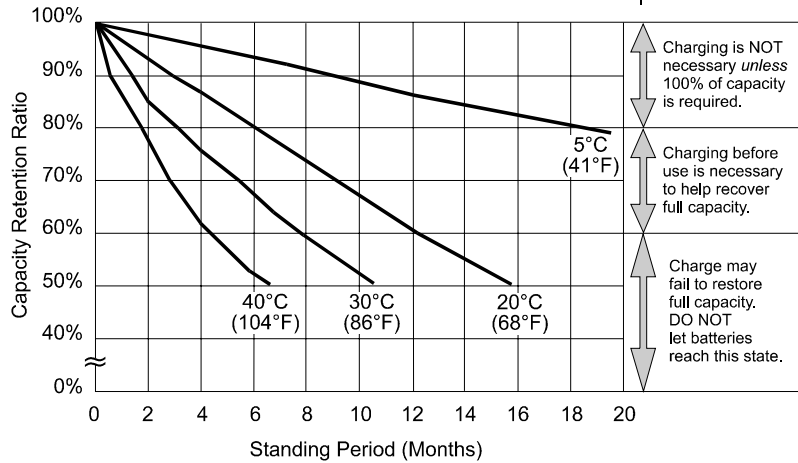
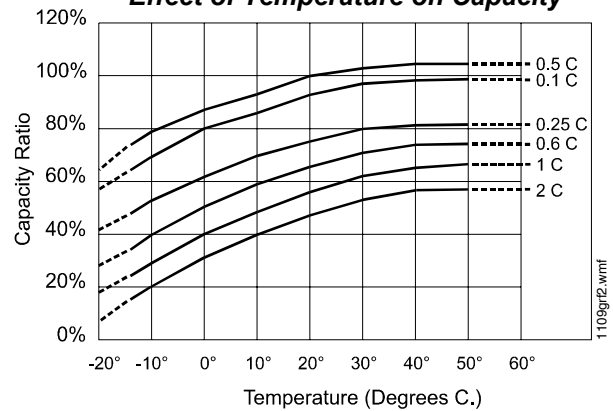
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MODEL	Nominal Voltage V	Nominal Capacity @ 20 hr. rate A.H.	Discharge Current @20 hr. rate mA	DIMENSIONS									
				Width		Depth		Height		Height over terminal		Weight	
				in.	mm	in.	mm	in.	mm	in.	mm	lb.	kg.
PS-1250	12	5	250	3.54	90	2.76	70	4.02	102	4.21	107	4.1	1.9
PS-1270	12	7	325	5.94	151	2.56	65	3.7	94	3.86	98	5.7	2.6
PS-12120	12	12	600	5.94	151	3.86	98	3.7	94	3.86	98	8.8	4
PS-12180	12	18	875	7.13	181	2.99	76	6.57	167	6.57	167	12.8	5.8
PS-12250	12	25	1300	6.89	175	6.54	166	4.92	125	4.92	125	18.7	8.5
PS-12550	12	55	3000	10.25	260	6.6	168	8.2	208	9.45	240	39.7	18
PS-121000	12	100	5000	12	305	6.6	168	8.2	208	9.45	240	65.7	29.8

Characteristic Discharge Curves



Effect of Temperature on Capacity

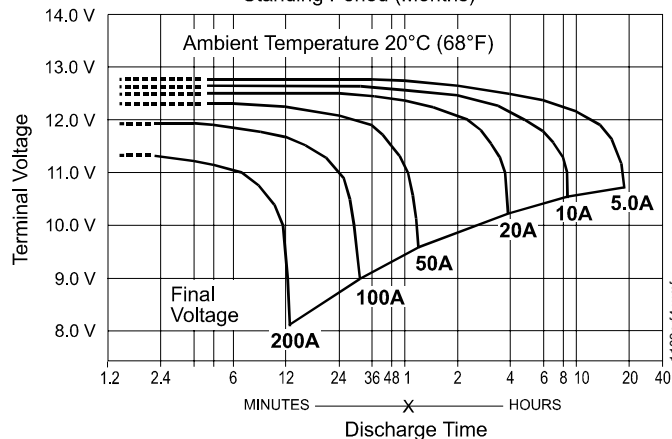


**at left:
PS-121000
Shelf-Life
and Storage**

Charging is NOT necessary unless 100% of capacity is required.

Charging before use is necessary to help recover full capacity.

Charge may fail to restore full capacity. DO NOT let batteries reach this state.



**at left:
PS-121000
Discharge
Characteristics**

UDACT-2

Universal Digital Alarm Communicator Transmitter



Annunciator Control System

General

The Universal Digital Alarm Communicator Transmitter (UDACT-2) is designed for use on Notifier Fire Alarm Control Panels and on the NCA-2 Network Control Annunciator. When used in conjunction with the NCA-2 network control annunciator, the UDACT-2 can report the status of all control panels on NOTI•FIRE•NET™. The UDACT-2 transmits system status to UL listed Central Station Receivers via the public switched telephone network. The UDACT-2 can be installed in the panel cabinet or remotely in a separate enclosure.

NOTE: The UDACT-2 can also be used with legacy panels. Please refer to the UDACT-2 manual for more information.

The UDACT-2 upload/download programming and firmware updates are accomplished with VeriFire Tools. Refer to the Programming Section for further details.

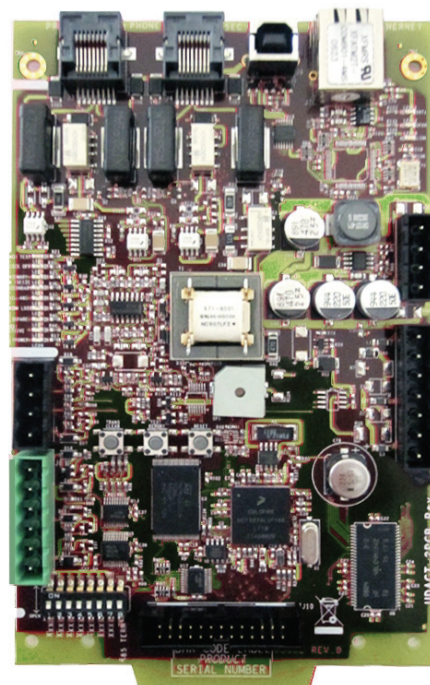
The UDACT-2 is capable of transmitting the status of software zones (Alarm and Trouble), System Trouble, Panel Off-Normal, Supervisory, Bell Trouble, Low Battery, and AC Fail. The UDACT-2 is capable of transmitting all of the zone and point status associated with each panel.

When the UDACT-2 is used with the NFS-3030, NFS2-3030, and NCA-2 it is capable of reporting up to 2,040 points. Reporting may be in the form of points or zones (refer to the UDACT-2 manual for specific reporting parameters). Points transmitted may be programmed for a variety of types, including fire, water-flow, supervisory, etc.

NOTE: Descriptions regarding point capacity, listed above, are for receivers which receive in Ademco Contact ID format. See chart on page 2 for compatible receivers.

Features

- Programmable with VeriFire Tools version 6.60 or higher, allowing the UDACT-2 programming to be uploaded/downloaded and saved.
- Maximum of 14 point trouble messages transmitted per hour.
- Dual phone lines with line voltage detect.
- Compact in size: 6.75" x 4.25" (17.145 x 10.795 cm).
- USB port for upload/download programming.
- Manual Test Report function.
- Manual Transmission Clear function.
- Mounts in a separate enclosure (ABS-8RB or UBS-1B/R).
- Communicates vital system status including:
 - Independent zone fire alarm.
 - Independent zone non-fire alarm.
 - Independent zone trouble.
 - Independent zone supervisory.
 - AC (mains) Power Loss (programmable).
 - Low Battery and Earth Fault.
 - System Off-Normal.
 - 12 or 24 hour test signal.
 - Abnormal Test Signal per new UL requirements.
 - EIA-485 Communication Bus Failure.
- Annunciation of UDACT-2 Troubles including: loss of phone lines, communication failure with either Central Station, total communications failure.
- Individual LEDs for: Power, EIA-485 Loss, Manual Test, Kiss-off, Comm Fail, Primary Line Seize, Secondary Line Seize and Modem Communications.



UDACT-2

- Open Collector relay driver for Total Communications Failure or UDACT-2 trouble.
- Real-time clock.
- Extensive transient protection.
- EIA-485 interface to host panel.

Programming

The UDACT-2 programming is created and downloaded using VeriFire Tools. This enables the unit to be programmed prior to installation, be easily modified, and saved either online or offline. A printed report with point or zone information can be generated from VeriFire Tools for an ONYX Series panel or network annunciator. The point report consists of the central station point address, ACS point, ACS point function, panel label, panel point, type code, custom and extended label, alarm verification, walktest participation, presignal, and PAS information. The zone report consists of a grid with the central station point address, ACS point address, source, ACS point function, custom label and panel label. This report may be sent to the Central Station for their records. VeriFire Tools also supports upgrading the UDACT-2 operating firmware.

Communication Formats

- Ademco Contact ID
- 4+2 Standard
- SIA

NOTE: Ademco Contact ID must be used for independent zone reporting.

Type Mode Feature

Ademco Contact ID format - only Use Type Mode to identify reports to Central Station as:

- Fire Alarm
- Supervisory
- Pull Station
- Heat Detector
- Waterflow
- Duct Detector
- Flame Sensor
- Smoke Zone
- Burglary
- 24 hour Non-Burglary
- High Temperature
- Low Temperature
- Low Water Pressure
- Low Water Level
- Pump Failure

Electrical Specifications

Standby current: 40 mA.

Current while communicating: 75 mA.

Maximum current while communicating and with open collector output activated: 100 mA.

Voltage: Regulated 24 volts. Range: 21.2 to 28.2 volts.

Agency Listings and Approvals

In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL/ULC Listed: S635
- FM Approved
- CSFM: 7165-0028:0243 (NFS2-640/320), 7165-0028:0224 (NFS2-3030)
- FDNY: COA#6085, COA#6098

Ordering Information

UDACT-2: Universal Digital Alarm Communicator Transmitter. Includes operating and programming instructions, and mounting hardware.

MCBL-7: DACT phone cord, 7 ft (2.13 m) long (two required).

ABS-8RB: Metal enclosure for externally mounting UDACT-2 up to 6,000 ft./1828.8 m from host FACP. 9.94" H x 4.63" W x 2.50" D (cm: 25.248 H x 11.760 W x 6.350 D).

UBS-1B: Metal enclosure with solid door, Black.

UBS-1BR: Metal enclosure with solid door, Red.

R-10E: SPDT Form-C relay. Contacts rated for 10 A @ 115 VAC. Connects to open collector relay driver.

R-20E: DPDT Two Form-C relays. Contacts rated for 10A @ 115 VAC. Connects to open collector relay driver.

FBD-1: Ferrite bead kit. Use for remote mounting only.

UL Listed Receivers

The chart below shows UL listed receivers compatible with the UDACT-2. A check in the protocol column indicates the receiver supports that protocol.

Receiver	4+2 Standard 1800/2300	Ademco Contact ID	SIA
Ademco 685 (1)	✓	✓	
Ademco MX8000 (2)	✓	✓	✓
Silent Knight 9500 (3)	✓	✓	✓
Silent Knight 9800 (4)	✓	✓	✓
FBI CP220FB (5)	✓	✓	✓
Osborne Hoffman 2000E (6)		✓	✓
Radionics 6600 (7)		✓	✓
SurGard MLR2 (8)	✓	✓	
SurGard System III (9)		✓	✓
SurGard MLR-2000 (10)		✓	

(1) With 685-8 Line Card with Rev 4.4d software

(2) With 124060V206B and 124063 Line Card Rev B

(3) With version V2.4 Receiver & 126047 Line Card Rev G

(4) With 124077V2.00 Receiver & 126047 Line Card Rev M

(5) With software V3.9

(6) With V.7301 Receiver S/W

(7) With 01.01.03 Receiver S/W & Line Card 01.01.03

(8) With software V1.86

(9) With software V1.72

(10) With DSP4016 and V1.6 Line Card

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All specifications are subject to change without notice.



Made in the U.S. A.

For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
www.notifier.com

NBG-12LX

Addressable Manual Pull Station



Intelligent/Addressable Devices

General

The Notifier NBG-12LX is a state-of-the-art, dual-action (i.e., requires two motions to activate the station) pull station that includes an addressable interface for any Notifier intelligent control panel except FireWarden series panels, and the NSP-25 panel. Because the NBG-12LX is addressable, the control panel can display the exact location of the activated manual station. This leads fire personnel quickly to the location of the alarm.

Features

- Maintenance personnel can open station for inspection and address setting without causing an alarm condition.
- Built-in bicolor LED, which is visible through the handle of the station, flashes in normal operation and latches steady red when in alarm.
- Handle latches in down position and the word “ACTIVATED” appears to clearly indicate the station has been operated.
- Captive screw terminals wire-ready for easy connection to SLC loop (accepts up to 12 AWG/3.25 mm² wire).
- Can be surface mounted (with SB-10 or SB-I/O) or semi-flush mounted. Semi-flush mount to a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box.
- Smooth dual-action design.
- Meets ADAAG controls and operating mechanisms guidelines (Section 4.1.3[13]); meets ADA requirement for 5 lb. maximum activation force.
- Highly visible.
- Attractive shape and textured finish.
- Key reset.
- Includes Braille text on station handle.
- Optional trim ring (BG12TR).
- Meets UL 38, Standard for Manually Actuated Signaling Boxes.
- Up to 99 NBG-12LX stations per loop on CLIP protocol loops.
- Up to 159 NBG-12LX stations per loop on FlashScan® protocol loops.
- Dual-color LED blinks green to indicate normal on FlashScan® systems.

Construction

Shell, door, and handle are molded of durable polycarbonate material with a textured finish.

Specifications

- **Shipping Weight:** 9.6 oz. (272.15 g)
- **Normal operating voltage:** 24 VDC.
- **Maximum SLC loop voltage:** 28.0 VDC.
- **Maximum SLC standby current:** 375 µA.
- **Maximum SLC alarm current:** 5 mA.
- **Temperature Range:** 32°F to 120°F (0°C to 49°C)
- **Relative Humidity:** 10% to 93% (noncondensing)
- **For use indoors in a dry location**



The NBG-12LX
Addressable Manual Pull Station

Installation

The NBG-12LX will mount semi-flush into a single-gang, double-gang, or standard 4" (10.16 cm) square electrical outlet box, or will surface mount to the model SB-10 or SB-I/O surface backbox. If the NBG-12LX is being semi-flush mounted, then the optional trim ring (BG12TR) may be used. The BG12TR is usually needed for semi-flush mounting with 4" (10.16 cm) or double-gang boxes (not with single-gang boxes).

Operation

Pushing in, then pulling down on the handle causes it to latch in the down/activated position. Once latched, the word “ACTIVATED” (in bright yellow) appears at the top of the handle, while a portion of the handle protrudes from the bottom of the station. To reset the station, simply unlock the station with the key and pull the door open. This action resets the handle; closing the door automatically resets the switch.

Each manual station, on command from the control panel, sends data to the panel representing the state of the manual switch. Two rotary decimal switches allow address settings (1 – 159 on FlashScan® systems, 1 – 99 on CLIP systems).

Architectural/Engineering Specifications

Manual Fire Alarm Stations shall be non-coded, with a key-operated reset lock in order that they may be tested, and so designed that after actual Emergency Operation, they cannot be restored to normal except by use of a key. An operated station shall automatically condition itself so as to be visually detected as activated. Manual stations shall be constructed of red-colored polycarbonate material with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in white letters, 1.00 inches (2.54 cm) or larger. Stations shall be suitable for surface mounting on matching backbox SB-10 or SB-I/O; or semi-flush mounting on a standard single-gang, double-gang, or

4" (10.16 cm) square electrical box, and shall be installed within the limits defined by the Americans with Disabilities Act (ADA) or per national/local requirements. Manual Stations shall be Underwriters Laboratories listed.

Manual stations shall connect with two wires to one of the control panel SLC loops. The manual station shall, on command from the control panel, send data to the panel representing the state of the manual switch. Manual stations shall provide address setting by use of rotary decimal switches.

The loop poll LED shall be clearly visible through the front of the station. The LED shall flash while in the normal condition, and stay steadily illuminated when in alarm.

Product Line Information

NBG-12LX: Dual-action addressable pull station. Includes key locking feature. (Listed for Canadian and non-Canadian applications.)

NBG-12LXSP: Spanish/English labelled version.

NBG-12LXP: Portuguese labelled version.

SB-10: Surface backbox; metal.

SB-I/O: Surface backbox; plastic.

BG12TR: Optional trim ring.

17021: Keys, set of two.

NY-Plate: New York City trim plate.

Agency Listings and Approvals

In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL/ULC Listed:** S692 (listed for Canadian and non-Canadian applications).
- **MEA:** 67-02-E.
- **CSFM:** 7150-0028:0199.
- **FDNY:** COA #6085 (NFS2-640), COA #6098 (NFS2-3030).
- **BSMI:** CI313066760047.
- **U.S. Coast Guard.**
- **Lloyd's Register.**
- **FM Approved.**

Patented: U.S. Patent No. D428,351; 6,380,846; 6,314,772; 6,632,108.

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All specifications are subject to change without notice.



Made in the U.S. A.

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www.notifier.com

FSP-851(A) Series

Intelligent Plug-In Photoelectric Smoke Detectors with FlashScan®



Intelligent/Addressable Devices

General

Notifier FSP-851(A) 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 rotary, decimal address switches, providing exact detector location for selective maintenance when chamber contamination reaches an unacceptable level. The FSP-851(A) 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(A). The FSP-851R(A) is a remote test capable detector for use with DNR(A)/DNRW duct detector housings. FSP-851(A) series detectors are compatible with Notifier Onyx and CLIP series Fire Alarm Control Panels (FACPs).

FlashScan® (U.S. Patent 5,539,389) is a communication protocol developed by Notifier that greatly increases the speed of communication between analog intelligent devices. Intelligent devices communicate in a grouped fashion. If one of the devices in 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.
- Compatible with FlashScan® and CLIP protocol systems.
- Rotary, decimal addressing (1-99 on CLIP systems, 1-159 on FlashScan systems).
- Optional remote, single-gang LED accessory.
- Dual LED design provides 360° viewing angle.
- Visible bi-color LEDs blink green every time the detector is addressed, and illuminate steady red on alarm (*FlashScan systems only*).
- Remote test feature from the panel.
- Walk test with address display (an address on 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 fire-resistant plastic, 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, and sounder bases.

Specifications

Sensitivity: 0.5% to 2.35% per foot obscuration

Size: 2.1" (5.3 cm) high; base determines diameter.

- **B210LP(A):** 6.1" (15.5 cm) diameter.
- **B501(A):** 4.1" (10.4 cm) diameter.
- **B200S(A):** 6.875" (17.46 cm) diameter.



FSP-851(A) in B210LP(A) Base

B210-2951.jpg

- **B200SR(A):** 6.875" (17.46 cm) diameter.
- **B224RB(A):** 6.2" (15.748 cm) diameter.
- **B224BI(A):** 6.2" (15.748 cm) diameter.

Shipping Weight: 5.2oz. (147g).

Operating Temperature range: FSP-851(A), 0°C to 49°C (32°F to 120°F). FSP-851T(A), 0°C to 38°C (32°F to 100°F). Low temperature signal for FSP-851T(A) at 45°F +/- 10°F (7.22°C +/- 5.54°C). FSP-851R(A) installed in a DNR(A)/DNRW, -20°C to 70°C (-4°F to 158°F).

UL/ULC 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 ceiling, space detectors 30 feet (9.144m) for ceiling heights 10 feet (3.148m) 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

ELECTRICAL SPECIFICATIONS

Voltage Range: 15-32 volts DC peak.

Standby Current (max. avg.): 300µA @ 24VDC (one communication every five seconds with LED enabled).

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

Installation

FSP-851(A) 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 (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see *DN-60054*.

NOTE: 1) Because of 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 the ISO-X(A) installation

sheet 156-1380 for device limitations between isolator modules and isolator bases.

Agency Listings and Approvals

These listings and approvals apply to the modules specified in this document. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. *Consult factory for latest listing status.*

- **UL Listed:** S1115.
- **ULC Listed:** S1115 (FSP-851A, FSP-851RA, FSP-851TA).
- **MEA Listed:** 225-02-E .
- **FM Approved.**
- **CSFM:** 7272-0028:0206 .
- **Maryland State Fire Marshal:** Permit # 2122 .
- **BSMI:** CI313066760036.
- **CCCF:** Certif. # 2004081801000017 (FSP-851T)
Certif. # 2004081801000016 (FSP-851).
- **U.S. Coast Guard:** 161.002/42/1 (NFS-640); 161.002/50/0 (NFS2-640/NFS-320/NFS-320C, excluding B210LP(A)).
- **Lloyd's Register:** 11/600013 (NFS2-640/NFS-320/NFS-320C, excluding B210LP(A)).

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.

FSP-851R: Low-profile intelligent photoelectric sensor, remote test capable. For use with DNRA/DNRW.

FSP-851RA: Same as FSP-851R but with ULC listing. For use with DNRA.

INTELLIGENT BASES

NOTE: "A" suffix indicates ULC Listed model.

NOTE: For details on intelligent bases, see DN-60054.

B210LP(A): Standard U.S. flanged low-profile mounting base.

B210LPBP: Bulk pack of B210LP; package contains 10.

B501(A): Standard European flangeless mounting base.

B501BP: Bulk pack of B501; package contains 10.

B200S(A): Intelligent, programmable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone.

B200SR(A): Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Replaces B501BH series bases in retrofit applications.

B224RB(A): Plug-in System Sensor **relay** base. Screw terminals: up to 14 AWG (2.0 mm²). Relay type: Form-C. Rating: 2.0 A @ 30 VDC resistive; 0.3 A @ 110 VDC inductive; 1.0 A @ 30 VDC inductive.

B224BI(A): Plug-in System Sensor **isolator** detector base. Maximum 25 devices between isolator bases .

ACCESSORIES

F110: Retrofit flange to convert B210LP(A) to match the B710LP(A) profile, or to convert older high-profile bases to low-profile.

F110BP: Bulk pack of F110; package contains 15.

F210: Replacement flange for B210LP(A) base.

RA100Z(A): Remote LED annunciator. 3 – 32 VDC. Mounts to a U.S. single-gang electrical box. For use with B501(A) and B210LP(A) bases only.

SMB600: Surface mounting kit

M02-04-00: Test magnet.

M02-09-00: Test magnet with telescoping handle.

XR2B: Detector removal tool. Allows installation and/or removal of detector heads from bases in high ceiling applications.

XP-4: Extension pole for XR2B. Comes in three 5-foot (1.524 m) sections.

T55-127-010: Detector removal tool without pole.

BCK-200B: Black detector covers for use with FSP-851(A) only; box of 10.

WCK-200B: White detector covers for use with FSP-851(A) only; box of 10.

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Intelligent Bases

**B501(A), B200S(A), B200SR(A),
B210LP(A), B2241BI(A), B224RB(A),
Mounting Kits, and Accessories**



Intelligent/Addressable Devices

General

Intelligent FlashScan® and CLIP mounting bases and kits provide a variety of ways to install NOTIFIER detectors in any application. Intelligent detectors can be mounted in either flanged or flangeless bases depending on junction box selection (see *Junction Box Selection Guide*). Across this product line, detectors plug in easily to the base with SEMS screws; and models employ various 12 to 24 AWG wire ranges.

Relay, isolator, and sounder bases can be used to meet local code requirements. Relay bases provide one Form-C contact relay for control of auxiliary functions such as door closure and elevator recall. Isolator bases allow loops to continue to operate under fault conditions and automatically restore when the fault is removed. Sounder bases are available in temporal and non-temporal pattern versions depending on whether the signal is to be used for evacuation purposes.

Specifications

Diameter:

- B501: 4.1" (104 mm).
- B224BI, B224RB, B210LP: 6.1" (155 mm).
- B200S/SR/SCOA: 6.875" (17.46 cm).

Wire gauge:

- B224BI, B224RB: 14 to 24 AWG.
- B210LP, B501, B200S/SR/SCOA: 12 to 24 AWG.

Temperature range:

- B224BI, B224RB, B200S/SR/SCOA: 32°F to 120°F (0°C to 49°C).
- B210LP, B501: -4°F to 150°F (-20°C to 66°C).

Humidity range:

System temperature and humidity ranges: This system meets NFPA requirements for operation at 0°C to 49°C (32°F to 120°F); and at a relative humidity (noncondensing) of 85% at 30°C (86°F) per NFPA, and 93% ± 2% at 32°C ± 2°C (89.6°F ± 1.1°F) per ULC. However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and all peripherals be installed in an environment with a nominal room temperature of 15°C to 27°C (60°F to 80°F).

Electrical Ratings

FOR B200S/SR/SCOA:

External supply voltage: 16 to 33 VDC (VFWR)

Standby current: 500 µA maximum.

Alarm current:

- B200S: 35 mA maximum at high-volume setting; 15 mA maximum at low-volume setting.
- B200SR: 35 mA maximum.
- B200SCOA: 40mA Max. (DC), 70mA Max. (FWR)

SLC operating voltage: 15 to 32 VDC.

SLC standby current: 300 µA.

Sound output:



**Flangeless Mounting Base
B501(A)**



**Flanged Mounting Base
B210LP(A)**



**Sounder Base
B200S(A), B200SR(A),
B200SCOA**



**Relay Base
B224RB(A)**

- B200S, high-volume*: Greater than 85 dBA minimum.
- B200S, low-volume*: Greater than 75 dBA minimum.
- B200SR*: Greater than 85 dBA minimum.
- B200SCOA, high-volume**: Greater than 87 dBA minimum.
- B200SCOA, low-volume**: Greater than 85 dBA minimum

*Measured in a UL reverberant room at 10 feet, 24 Volts (continuous tone)

**Measured in a ULC anechoic room at 10 feet, 24 Volts continuous tone)

FOR B224RB, B224BI:

Operating voltage: 15 to 32 VDC (powered by SLC).

Standby ratings: <500 µA maximum @ 24 VDC.

Set time (B224RB only): short delay 55 to 90 msec; long delay 6 to 9 seconds.

Reset time (B224RB only): 20 msec maximum.

Relay characteristics (B224RB only): two-coil latching relay; one Form-C contact; ratings (UL/CSA): 0.9 A @ 125 VAC, 0.9 A @ 110 VDC, and 3.0 A @ 30 VDC.

Product Line Information

INTELLIGENT BASES

B501: Flangeless mounting base.

B501A: Flangeless mounting base, ULC Listed.

B501BP: Bulk pack of B501 (10).

B210LP: Flanged mounting base.

B210LPA: Flanged mounting base, ULC listed

B210LPBP: Bulk pack of B210LP (10).

B200S: Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol. Only compatible with the NFS-320, NFS2-640 and NFS2-3030 operating version with version 15.0 or higher panel firmware.

B200SA: Same as B200S with ULC-listing.

B200SCOA: Same as B200S with ULC-listing and CO detector markings in English/French (required in Canada for ULC applications with FCO-851A).

B200SR: Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone.

B200SRA: Same as B200SR with ULC-listing.

B224RB: Relay base.

B224RBA: Relay base, ULC Listed.

B224BI: Isolator base.

B224BIA: Isolator base, ULC Listed.

MOUNTING KITS AND ACCESSORIES

SMB600: Surface mounting kit, flanged.

F110: Retrofit flange for converting high-profile bases to low-profile.

F110BP: Bulk pack of F110 (10).

F210: Accessory flange ring for B210LP(A) base (new design). 6-inch diameter.

F210BP: Bulk pack of F210 (10).

RA100Z: Remote LED annunciator.

RA100ZA: Remote LED annunciator, ULC Listed.

M02-04-00: Detector test magnet.

M02-09-00: Test magnet with telescoping handle.

XR2B: Detector removal tool for current heads (T55-127-010 included).

XR2: Detector Remove Tool for use with low profile detector heads, and FSL-751.

XP-4: Extension pole for XR2/B (5 to 15 ft/1.524 to 4.572 m).

T55-127-010: Detector removal head.

BCK-200B: Black detector kit, package of 10 (for use with photo and ion detectors).

WCK-200B: White detector kit, package of 10 (for use with photo and ion detectors).

Agency Listings and Approvals

The listings and approvals below apply to intelligent bases as noted. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S911
- **ULC Listed:** S911
- **FM Approved**
- **MEA:** 22-95-E, 205-94-E Vol. 2; 257-06-E
- **CSFM:** 7300-1653:0126, 7135-1653:0213, 7300-1653:0109

Junction Box Selection Guide

Base Models	Single Gang	3.5" Oct.	4.0" Oct.	4.0" Sq.	4.0" Sq. with 3.0" mud ring	50 mm	60 mm	70 mm	75 mm
B200S, B200SR, B200SCOA	Yes	Yes	Yes	Yes	Yes	No	No	No	No
B501	No	Yes	No	No	Yes	Yes	Yes	Yes	No
B210LP	Yes	Yes	Yes	Yes	Yes	No	No	No	No
B224RB	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
B224BI	No	Yes	Yes	Yes	No	No	No	Yes	Yes

NOTE: Box depth contingent on base and wire size.
Refer to National Electric Code or applicable local codes for appropriate recommendations.

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DNR(A)/DNRW InnovairFlex

Intelligent Non-Relay Photoelectric Duct Smoke Detector



Intelligent Devices

General

The Notifier InnovairFlex® DNR(A) intelligent non-relay photoelectric duct smoke detector and DNRW watertight non-relay photoelectric duct smoke detector feature a pivoting housing that fits both square and rectangular footprints capable of mounting to a round or rectangular duct.

DNRW duct smoke detector, with its NEMA-4 rating, is listed as a watertight, UV resistant enclosure providing protection against falling dirt, rain, and windblown dust, splashing and hose directed water, allowing operators to use the detector in the most extreme environments.

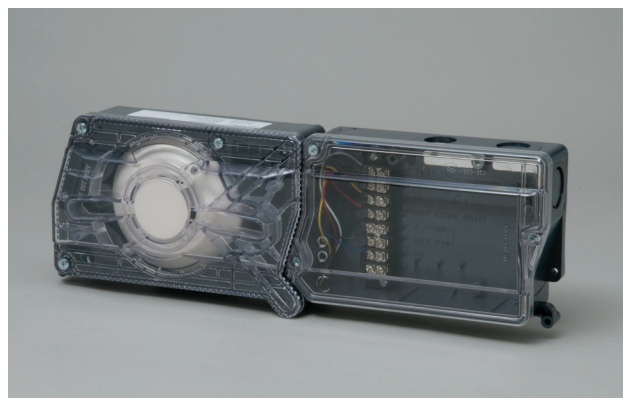
These units sense smoke in the most challenging conditions, operating in airflow speeds of 100 to 4,000 feet per minute (0.5 to 20.32 m/s), temperatures of -4°F to 158°F (-20°C to 70°C), and a humidity range of 0 to 95 percent (non-condensing.)

An improved cover design isolates the sensor head, which allows for ease of maintenance. A cover tamper feature indicates a trouble signal for a removed or improperly installed sensor cover. The Notifier InnovairFlex housing provides a 3/4-inch conduit knockout and ample space to facilitate easy wiring and mounting of a relay module.

The Notifier InnovairFlex duct smoke detector can be customized to meet local codes and specifications without additional wiring. The new InnovairFlex product line is compatible with all previous Innovair models, including remote test accessories.

Features

- Photoelectric, integrated low-flow technology.
- Air velocity rating from 100 ft/min to 4,000 ft/min (0.5 m/s to 20.32 m/s).
- Versatile mounting options: square or rectangular configuration.
- Broad ranges for operating temperature (-4°F to 158°F, -20°C to 70°C) and humidity (0% to 95% non-condensing).
- Patented sampling tube installs from front or back of the detector with no tools required.
- Cover tamper signal.
- Increased wiring space with a newly added 3/4" conduit knockout.
- Available space within housing to accommodate mounting of a relay module.
- Easily accessible code wheels on sensor head (sold separately).
- Clear cover for convenient visual inspection.
- Remote testing capability.
- Requires com line power only.
- Accommodates the installation of an addressable relay module, sold separately, (FRM-1 or NC-100R) for applications requiring a Form-C relay.



Specifications

Size: (Rectangle) 14.38 in (37 cm) Length; 5 in (12.7 cm) Width, 2.5 in (6.6 cm) Depth.

Size: (Square) 7.75 in (19.7 cm) Length; 9 in (22.9 cm) Width; 2.5 in (6.35 cm) Depth.

Weight: 1.6 lb (0.73 kg).

Operating Temperature Range: -4°F to 158°F (-20°C to 70°C).

Storage Temperature Range: -22°F to 158°F (-30°C to 70°C).

Operating Humidity Range: 0% to 95% relative humidity (non-condensing).

Air Duct Velocity: 100 to 4,000 ft/min (0.5 to 20.32 m/s).

Accessories

Notifier provides system flexibility with a variety of accessories, including two remote test stations and different means of visible and audible system annunciation. As with our duct smoke detectors, all duct smoke detectors accessories are UL listed.

DNR(W)s with a date code of 0013 or higher do not require external 24VDC for remote test applications when used with a remote-test-capable detector.

ACCESSORY CURRENT LOADS AT 24 VDC

Device	Standby	Alarm
RA100Z	0mA	12 mA Max
RTS151/ RTS151KEY	0mA	12mA Max

Agency Listings and Approvals

Consult product manual for lists of compatible UL-Listed devices. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL:** S911, S3705.
- **ULC:** S635.

- **CSFM:** 3242-1653:0209.
- **FM approved.**

Product Line Information

NOTE: "A suffix indicates ULC listed model.

DNR(A): Intelligent non-relay photoelectric low flow smoke detector housing. Requires photoelectric smoke detector (sold separately).

DNRW: Watertight intelligent non-relay photoelectric low flow duct smoke detector housing. Requires photoelectric smoke detector (sold separately).

FSP-851R(A): Remote test capable addressable low-profile photoelectric smoke detector.

FSP-851(A): Addressable low-profile photoelectric smoke detector.

NP-100: Addressable low-profile photoelectric smoke detector for FireWarden series panels.

NP-100R(A): Remote test capable addressable low-profile photoelectric smoke detector for FireWarden series panels.

DCOIL: Remote test coil. Required for older DNR(W) duct detector housing.

DST1(A): Metal sampling tube duct width up to 1 ft (0.3m).

DST1.5(A): Metal sampling tube duct widths up to 1 ft to 2 ft (0.3 to 0.6 m).

DST3(A): Metal sampling tube duct widths up to 2 ft to 4 ft (0.6 to 1.2 m).

DST5(A): Metal sampling tube duct widths up to 4 ft to 8 ft (1.2 to 2.4 m).

DST10(A): Metal sampling tube duct widths up to 8 ft to 12 ft (2.4 to 3.7 m).

DH400OE-1: Weatherproof enclosure.

ETX: Metal exhaust tube duct, width 1 ft (0.3 m).

M02-04-00: Test magnet.

P48-21-00: End cap for metal sampling tubes.

RA100Z(A): Remote annunciator alarm LED.

RTS151(A): Remote test station.

RTS151KEY(A): Remote test station with key lock.

Important Note

- DNRW duct detector housings with a date code of 0013 or higher do not require a DCOIL or auxiliary 24 VDC for remote test applications when used with a remote test capable detector.
- DNRW duct detector housings with a date code of 0012 or earlier require a DCOIL and auxiliary 24 VDC power for remote test applications.

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For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
www.notifier.com

Duct Smoke Detector Accessories

for Notifier/System Sensor Products



Miscellaneous

General

Duct smoke detector accessories add functionality to the duct smoke system by allowing quick, convenient inspections at eye level and effective audible and visual notification options. All System Sensor duct smoke detectors and accessories are UL listed.

Specifications

APA151 PIEZO ANNUNCIATOR

The **APA151** piezo annunciator, which replaces the APA451 with a new, improved look, provides an audible alarm signal, a red LED to indicate alarm status, and a green LED to indicate power status. It is intended for use with System Sensor 4-wire conventional duct smoke detector applications without a system control panel, to comply with NFPA 90A.



APA151.wmf

APA151 Piezo Annunciator	
Voltage	Regulated 24 VDC
Operating Voltage	16 to 33 VDC
Maximum Alarm Current	30 mA
Temperature Range	32°F to 120°F (0°C to 49°C)
Relative Humidity	10 to 93%, non-condensing
Wire Gauge	12 to 18 AWG
Dimensions	4.6" H x 2.9" W x .45" D

MHR/MHW MINI-HORNS

The **MHR** and **MHW** SpectrAlert® Advance mini-horns feature temporal or continuous tones at high and low volume settings. Their small footprint allows mounting to single-gang back boxes for applications where a small device is desired.



MHR.wmf, MHW.wmf



60535cov.wmf

MHR/MHW SpectrAlert Advance Mini-Horns	
Voltage	Regulated 12 DC or FWR (Full Wave Rectified) or Regulated 24 VDC or FWR
Operating Voltage	8 to 33 VDC (9 to 33 VDC with Sync-Circuit™ Module)
Sounder Current Draw	22 mA RMS max. at 8 to 17.5 Volts DC 17 mA RMS max. at 8 to 17.5 Volts FWR 29 mA RMS max. at 16 to 33 Volts DC 25 mA RMS max. at 16 to 33 Volts FWR
Temperature Range	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Nominal Sounder Frequency	3 kHz
Wire Gauge	12 to 18 AWG
Dimensions	4.6"H x 2.9"W x 0.45"D

RA100Z/RA100ZA REMOTE ANNUNCIATORS

The **RA100Z** and **RA100ZA** remote annunciators are designed for both conventional and intelligent applications. Their red LED provides visual indication of an alarm condition.



RA100Z.wmf

RA100Z/RA100ZA Remote Annunciator	
Voltage Range	Conventional System: 3.1 to 32 VDC Intelligent System: 18 to 32 VDC
Maximum Alarm Current	10 mA
Dimensions	4.6"H x 2.8"W x 1.3"D

RTS151/RTS151KEY REMOTE TEST STATIONS

The **RTS151** and **RTS151KEY** remote test stations are automatic fire detector accessories designed to test duct smoke detectors from a convenient location. For 4-wire detectors, the **RTS151KEY** test station features a multi-colored LED that alternates between steady green and red. For 2-wire detectors, the LED illuminates red for alarm.



RTS151.wmf, RTS151KEY.wmf

RTS151 Remote Test Station	
Power Requirements	Alarm LED 2.8 to 32 VDC, 10 mA max. Total Current: 95 mA max.
Test Switch	10 VA @ 32 VDC
Reset Switch	10 VA @ 32 VDC
Alarm Response Time	40 seconds max.
Temperature Range	14°F to 140°F (-10°C to 60°C)
Relative Humidity	95% non-condensing
Wire Gauge	14 to 18 AWG
Dimensions	4.8"H x 2.9W x 1.4"D

RTS151KEY Remote Test Station with Key

Power Requirements	Power LED (Green): 14 to 35 VDC, 12 mA max. Alarm LED (RED): 2.8 to 32 VDC, 12 mA max.
Alarm Response Time	40 seconds max.
Temperature Range	14°F to 140°F (-10°C to 60°C)
Relative Humidity	95% non-condensing
Wire Gauge	14 to 18 AWG
Dimensions	4.6"H x 2.75W x 1.8"D

RTS2/RTS-AOS MULTI-SIGNALLING ACCESSORIES

The **RTS2** and **RTS2-AOS** multi-signaling accessories are designed to work with InnovairFlex 4-wire conventional duct smoke detectors. These accessories include a key switch that can be used to select one of two connected sensors to be tested, reset, or both by a push button switch. They also enable sensitivity measurements using the SENS-RDR sensitivity reader (sold separately). The **AOS** (Add-On Strobe) is an optional accessory included with the **RTS2-AOS** model.



RTS-AOS.wmf, AOS.wmf

RTS2 and RTS-AOS Multi-signaling Accessory

Voltage	20 to 29 VDC
Power Requirements	Standby: 3.0 mA max. Trouble: 16.0 mA max. Alarm without Strobe: 30 mA max. Alarm with Strobe: 55 mA max.
Sounder	85 dBA at 10 ft.
Temperature Range	14°F to 140°F (-10°C to 60°C)
Relative Humidity	95% non-condensing
Wire Gauge	14 to 22 AWG
Dimensions	4.8"W x 5.3"H x 1.6"D

Product Line Information

APA151: Piezo Annunciator

MHR: Mini-Horn, Red

MHW: Mini-Horn, White

RA100Z/RA100ZA: Remote Annunciator

RTS151: Remote Test Station

RTS151KEY: Remote Test Station with Key

RTS2: Multi-signaling Accessory

AOS: Add-On Strobe

RTS2-AOS: Multi-Signaling Accessory

Temperature and Humidity Ranges

This system meets NFPA requirements for operation at 0 – 49°C/32 – 120°F and at a relative humidity 93% ± 2% RH (noncondensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27°C/60 – 80°F.

Agency Listings and Approvals

The listings and approvals below apply to the basic products. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL: S4011 (APA 151, MHR, MHW), S2522 (RTS2, RA100Z, RTS151, RTS151KEY, RTS2-AOS)**
- **FM Approved**
- **CSFM: 7135-1653:0212**

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We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
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FMM-1(A), FMM-101(A), FZM-1(A) & FDM-1(A)

Monitor Modules with FlashScan®



Intelligent/Addressable Devices

General

Four different monitor modules are available for Notifier's intelligent control panels for a variety of applications. Monitor modules supervise a circuit of dry-contact input devices, such as conventional heat detectors and pull stations, or monitor and power a circuit of two-wire smoke detectors (FZM-1(A)).

FMM-1(A) is a standard-sized module (typically mounts to a 4" [10.16 cm] square box) that supervises either a Style D (Class A) or Style B (Class B) circuit of dry-contact input devices.

FMM-101(A) is a miniature monitor module a mere 1.3" (3.302 cm) H x 2.75" (6.985 cm) W x 0.5" (1.270 cm) D that supervises a Style B (Class B) circuit of dry-contact input devices. Its compact design allows the FMM-101(A) to be mounted in a single-gang box behind the device it monitors.

FZM-1(A) is a standard-sized module that monitors and supervises compatible two-wire, 24 volt, smoke detectors on a Style D (Class A) or Style B (Class B) circuit.

FDM-1(A) is a standard-sized dual monitor module that monitors and supervises two independent two-wire Style B (Class B) dry-contact initiating device circuits (IDCs) at two separate, consecutive addresses in intelligent, two-wire systems.

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

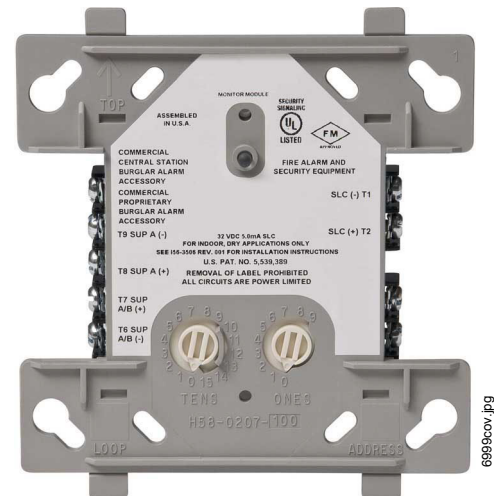
FMM-1(A) Monitor Module

- Built-in type identification automatically identifies this device as a monitor module to the control panel.
- Powered directly by two-wire SLC loop. No additional power required.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on FlashScan loops; 01 – 99 on CLIP loops.
- LED flashes green during normal operation (this is a programmable option) and latches on steady red to indicate alarm.

The FMM-1(A) Monitor Module is intended for use in intelligent, two-wire systems, where the individual address of each module is selected using the built-in rotary switches. It provides either a two-wire or four-wire fault-tolerant Initiating Device Circuit (IDC) for normally-open-contact fire alarm and supervisory devices. The module has a panel-controlled LED indicator. The FMM-1(A) can be used to replace MMX-1(A) modules in existing systems.

FMM-1(A) APPLICATIONS

Use to monitor a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact alarm activation devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class



FMM-1(A) (Type H)

A) Initiating Device Circuit. A 47K ohm End-of-Line Resistor (provided) terminates the Style B circuit. No resistor is required for supervision of the Style D circuit.

FMM-1(A) OPERATION

Each FMM-1(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC). A flashing LED indicates that the module is in communication with the control panel. The LED latches steady on alarm (subject to current limitations on the loop).

FMM-1(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.0 mA (LED on).

Average operating current: 350 μ A (LED flashing), 1 communication every 5 seconds, 47k EOL.

Maximum IDC wiring resistance: 40 ohms.

EOL resistance: 47K ohms.

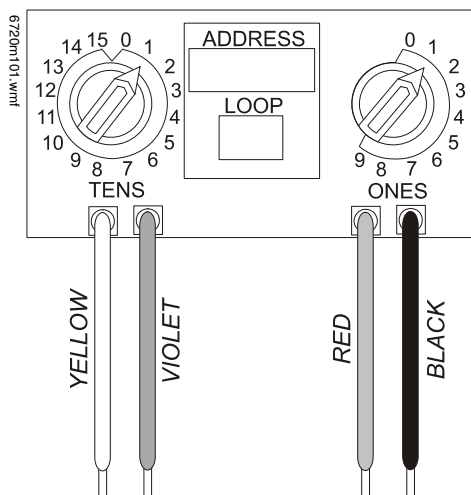
Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

FMM-101(A) Mini Monitor Module

- Built-in type identification automatically identifies this device as a monitor module to the panel.
- Powered directly by two-wire SLC loop. No additional power required.
- High noise (EMF/RFI) immunity.
- Tinned, stripped leads for ease of wiring.
- Direct-dial entry of address: 01 – 159 on FlashScan loops; 01 – 99 on CLIP loops.



The FMM-101(A) Mini Monitor Module can be installed in a single-gang junction directly behind the monitored unit. Its small size and light weight allow it to be installed without rigid mounting. The FMM-101(A) is intended for use in intelligent, two-wire systems where the individual address of each module is selected using rotary switches. It provides a two-wire initiating device circuit for normally-open-contact fire alarm and security devices. The FMM-101(A) can be used to replace MMX-101(A) modules in existing systems.

FMM-101(A) APPLICATIONS

Use to monitor a single device or a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit/device is wired as an NFPA Style B (Class B) Initiating Device Circuit. A 47K ohm End-of-Line Resistor (provided) terminates the circuit.

FMM-101(A) OPERATION

Each FMM-101(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC).

FMM-101(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Average operating current: 350 μ A, 1 communication every 5 seconds, 47k EOL; 600 μ A Max. (Communicating, IDC Shorted).

Maximum IDC wiring resistance: 40 ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 400 μ A.

EOL resistance: 47K ohms.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 1.3" (3.302 cm) high x 2.75" (6.985 cm) wide x 0.65" (1.651 cm) deep.

Wire length: 6" (15.24 cm) minimum.

FZM-1(A) Interface Module

- Supports compatible two-wire smoke detectors.
- Supervises IDC wiring and connection of external power source.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on FlashScan loops, 01 – 99 on CLIP loops.
- LED flashes during normal operation; this is a programmable option.
- LED latches steady to indicate alarm on command from control panel.

The FZM-1(A) Interface Module is intended for use in intelligent, addressable systems, where the individual address of each module is selected using built-in rotary switches. This module allows intelligent panels to interface and monitor two-wire conventional smoke detectors. It transmits the status (normal, open, or alarm) of one full zone of conventional detectors back to the control panel. All two-wire detectors being monitored must be UL compatible with the module. The FZM-1(A) can be used to replace MMX-2(A) modules in existing systems.

FZM-1(A) APPLICATIONS

Use the FZM-1(A) to monitor a zone of two-wire smoke detectors. The monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 3.9 K ohm End-of-Line Resistor (provided) terminates the end of the Style B or D (class B or A) circuit (maximum IDC loop resistance is 25 ohms). Install ELR across terminals 8 and 9 for Style D application.

FZM-1(A) OPERATION

Each FZM-1(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC). A flashing LED indicates that the module is in communication with the control panel. The LED latches steady on alarm (subject to current limitations on the loop).

FZM-1(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum IDC wiring resistance: 25 ohms.

Average operating current: 300 μ A, 1 communication and 1 LED flash every 5 seconds, 3.9k eol.

EOL resistance: 3.9K ohms.

External supply voltage (between Terminals T3 and T4): DC voltage: 24 volts power limited. Ripple voltage: 0.1 Vrms maximum. Current: 90 mA per module maximum.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

FDM1(A) Dual Monitor Module

The FDM-1(A) Dual Monitor Module is intended for use in intelligent, two-wire systems. It provides two independent two-wire initiating device circuits (IDCs) at two separate, consecutive addresses. It is capable of monitoring normally open contact fire alarm and supervisory devices; or either normally open or normally closed security devices. The module has a single panel-controlled LED.

NOTE: The FDM-1(A) provides two Style B (Class B) IDC circuits ONLY. Style D (Class A) IDC circuits are NOT supported in any application.

FDM-1(A) SPECIFICATIONS

Normal operating voltage range: 15 to 32 VDC.

Maximum current draw: 6.4 mA (LED on).

Average operating current: 750 μ A (LED flashing).

Maximum IDC wiring resistance: 1,500 ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 240 μ A

EOL resistance: 47K ohms.

Maximum SLC Wiring resistance: 40 Ohms.

Temperature range: 32° to 120°F (0° to 49°C).

Humidity range: 10% to 93% (non-condensing).

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 2.125" (5.398 cm) deep.

FDM-1(A) AUTOMATIC ADDRESSING

The FDM-1(A) automatically assigns itself to two addressable points, starting with the original address. For example, if the FDM-1(A) is set to address "26", then it will automatically assign itself to addresses "26" and "27".

NOTE: "Ones" addresses on the FDM-1(A) are 0, 2, 4, 6, or 8 only. Terminals 6 and 7 use the first address, and terminals 8 and 9 use the second address.



CAUTION:

Avoid duplicating addresses on the system.

Installation

FMM-1(A), FZM-1(A), and FDM-1(A) modules mount directly to a standard 4" (10.16 cm) square, 2.125" (5.398 cm) deep, electrical box. They may also be mounted to the SMB500 surface-mount box. Mounting hardware and installation instructions are provided with each module. All wiring must conform to applicable local codes, ordinances, and regulations. These modules are intended for power-limited wiring only.

The FMM-101(A) module is intended to be wired and mounted without rigid connections inside a standard electrical box. All wiring must conform to applicable local codes, ordinances, and regulations.

Agency Listings and Approvals

In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL:** S635
- **ULC:** S635
- **FM Approved**
- **CSFM:** 7300-0028:0219
- **MEA:** 457-99-E
- **U.S. Coast Guard:**

– 161.002/23/3 (AFP-200: FMM-1/-101, FZM-1)

– 161.002/42/1 (NFS-640: FMM-1/-101)

- **Lloyd's Register:**

– 03/60011/E1 (FMM-1/-101, FZM-1)

– 94/60004/E2 (AFP-200: *except* FDM-1)

– 02/60007 (NFS-640: FDM-1)

- **FDNY:** COA #6038 (NFS2-640, NFS-320), COA# 6058 (NFS2-3030)

Product Line Information

NOTE: "A" suffix indicates ULC-listed model.

FMM-1(A): Monitor module.

FMM-101(A): Monitor module, miniature.

FZM-1(A): Monitor module, two-wire detectors.

FDM-1(A): Monitor module, dual, two independent Class B circuits.

SMB500: Optional surface-mount backbox.

NOTE: See installation instructions and refer to the SLC Wiring Manual, PN 51253.

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FCM-1(A) & FRM-1(A) Series

Control and Relay Modules



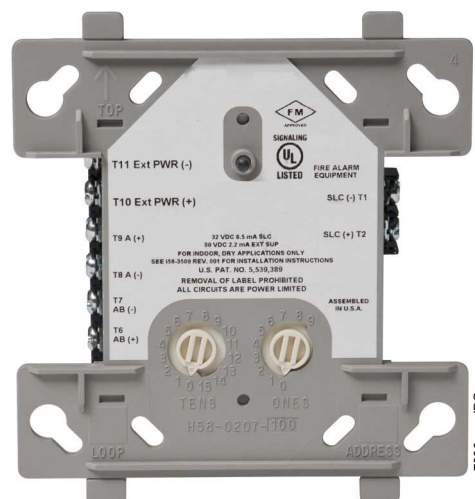
Intelligent / Addressable Devices

General

FCM-1(A) Control Module: The FCM-1(A) Addressable Control Module provides Notifier intelligent fire alarm control panels a circuit for Notification Appliances (horns, strobes, speakers, etc.). Addressability allows the FCM-1(A) to be activated, either manually or through panel programming, on a select (zone or area of coverage) basis.

FRM-1(A) Relay Module: The FRM-1(A) Addressable Relay Module provides the system with a dry-contact output for activating a variety of auxiliary devices, such as fans, dampers, control equipment, etc. Addressability allows the dry contact to be activated, either manually or through panel programming, on a select basis.

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. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel CPU stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of other designs.



FCM-1(A)

Features

- Built-in type identification automatically identifies these devices to the control panel.
- Internal circuitry and relay powered directly by two-wire SLC loop. The FCM-1(A) module requires power (for horns, strobes, etc.), or audio (for speakers).
- Integral LED “blinks” green each time a communication is received from the control panel and turns on in steady red when activated.
- LED blink may be deselected globally (affects all devices).
- High noise immunity (EMF/RFI).
- The FCM-1(A) may be used to switch 24-volt NAC power, audio (up to 70.7 Vrms).
- Wide viewing angle of LED.
- SEMS screws with clamping plates for wiring ease.
- Direct-dial entry of address 01– 159 for FlashScan loops, 01 – 99 for CLIP mode loops.
- Speaker, and audible/visual applications may be wired for Class B or A (Style Y or Z).

Applications

The FCM-1(A) is used to switch 24 VDC audible/visual power, high-level audio (speakers). The FRM-1(A) may be programmed to operate dry contacts for applications such as door holders or Air Handling Unit shutdown, and to reset four-wire smoke detector power.

NOTE: Refer to the SLC Manual (PN 51253) for details regarding releasing applications with the FCM-1(A). Refer to the FCM-1-REL datasheet (DN-60390) for new FlashScan® releasing applications.

Construction

- The face plate is made of off-white heat-resistant plastic.
- Controls include two rotary switches for direct-dial entry of address (01-159).

- The FCM-1(A) is configured for a single Class B (Style Y) or Class A (Style Z) Notification Appliance Circuit.
- The FRM-1(A) provides two Form-C dry contacts that switch together.

Operation

Each FCM-1(A) or FRM-1(A) uses one of 159 possible module addresses on a SLC loop (99 on CLIP loops). It responds to regular polls from the control panel and reports its type and status, including the open/normal/short status of its Notification Appliance Circuit (NAC). The LED blinks with each poll received. On command, it activates its internal relay. The FCM-1(A) supervises Class B (Style Y) or Class A (Style Z) notification or control circuits.

Upon code command from the panel, the FCM-1(A) will disconnect the supervision and connect the external power supply in the proper polarity across the load device. The disconnection of the supervision provides a positive indication to the panel that the control relay actually turned ON. The external power supply is always relay isolated from the communication loop so that a trouble condition on the external power supply will never interfere with the rest of the system.

Rotary switches set a unique address for each module. The address may be set before or after mounting. The built-in TYPE CODE (not settable) will identify the module to the control panel, so as to differentiate between a module and a sensor address.

Specifications for FCM-1(A)

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

Average operating current: 350 μ A direct poll, 375 μ A group poll with LED flashing, 485 μ A Max. (LED flashing, NAC shorted.)

Maximum NAC Line Loss: 4 VDC.

External supply voltage (between Terminals T10 and T11): Maximum (NAC): Regulated 24 VDC; Maximum (Speakers): 70.7 V RMS, 50W.

Drain on external supply: 1.7 mA maximum using 24 VDC supply; 2.2 mA Maximum using 80 VRMS supply.

Max NAC Current Ratings: For class B wiring system, the current rating is 3A; For class A wiring system, the current rating is 2A.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% non-condensing.

Dimensions: 4.5" (114.3 mm) high x 4" (101.6 mm) wide x 1.25" (31.75 mm) deep. Mounts to a 4" (101.6 mm) square x 2.125" (53.975 mm) deep box.

Accessories: SMB500 Electrical Box; CB500 Barrier

Specifications for FRM-1(A)

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

Average operating current: 230 µA direct poll; 255 µA group poll.

EOL resistance: not used.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% non-condensing.

Dimensions: 4.5" (114.3 mm) high x 4" (101.6 mm) wide x 1.25" (31.75 mm) deep. Mounts to a 4" (101.6 mm) square x 2.125" (53.975 mm) deep box.

Accessories: SMB500 Electrical Box; CB500 Barrier

Agency Listings and Approvals

In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL:** S635
- **ULC:** S3705 (A version only)
- **FM Approved**
- **CSFM:** 7300-0028:0219
- **MEA:** 14-00-E
- **FDNY:** COA #6067, #6065

Contact Ratings for FRM-1(A)

Current Rating	Maximum Voltage	Load Description	Application
3 A	30 VDC	Resistive	Non-Coded
2 A	30 VDC	Resistive	Coded
.9 A	110 VDC	Resistive	Non-Coded
.9 A	125 VDC	Resistive	Non-Coded
.5 A	30 VDC	Inductive (L/R=5ms)	Coded
1 A	30 VDC	Inductive (L/R=2ms)	Coded
.3 A	125 VAC	Inductive (PF=0.35)	Non-Coded
1.5 A	25 VAC	Inductive (PF=0.35)	Non-Coded
.7 A	70.7 VAC	Inductive (PF=0.35)	Non-Coded
2 A	25 VAC	Inductive (PF=0.35)	Non-Coded

NOTE: Maximum (Speakers): 70.7 V RMS, 50 W

Product Line Information

NOTE: "A" suffix indicates ULC Listed model.

FCM-1(A): Intelligent Addressable Control Module.

FRM-1(A): Intelligent Addressable Relay Module.

A2143-20: Capacitor, required for Class A (Style Z) operation of speakers.

SMB500: Optional Surface-Mount Backbox.

CB500: Control Module Barrier — required by UL for separating power-limited and non-power limited wiring in the same junction box as FCM-1(A).

NOTE: For installation instructions, see the following documents:

- *FCM-1(A) Installation document I56-1169.*
- *FRM-1(A) Installation document I56-3502.*
- *Notifier SLC Wiring Manual, document 51253.*

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FCPS-24S6(C/E) & FCPS-24S8(C/E)

6- & 8-Amp 24-Volt Remote Power Supplies



Power Supplies

General

The FCPS-24S6E (6-amp) and FCPS-24S8E (8-amp) are remote power supplies with battery charger. The FCPS-24S6/-24S8 may be connected to any 12 or 24 volt fire alarm control panel (FACP) or may be used as stand-alone supplies. Primary applications include notification appliance circuit (NAC) expansion (to support ADA requirements and NAC synchronization) or auxiliary power to support 24 volt system accessories. The FCPS-24S6/-24S8 provides regulated and filtered 24 VDC power to four notification appliance circuits configured as either four Class B (Style Y) or Class A (Style Z, with ZNAC-4 option module). Alternately, the four outputs may be configured as all non-resettable, all resettable or two non-resettable and two resettable. The FCPS-24S6/-24S8 also contains a battery charger capable of charging up to 18 AH batteries. FCPS-24S6C & FCPS-24S8C are ULC-listed.

NOTE: Unless otherwise specified, the terms FCPS-24S6 and FCPS-24S8 used in this document refers to the standard FCPS-24S6 and FCPS-24S8, FCPS-24S6C and FCPS-24S8C, the FCPS-24S6E and FCPS-24S8E

Features

- UL-Listed NAC synchronization using System Sensor, Wheelock, or Gentex "Commander²" appliances.
- Operates as a "sync-follower" or as a "sync-generator" (default). See note on page 2.
- Contains two fully-isolated input/control circuits - triggered from FACP NAC (NAC expander mode) or jumped permanently "ON" (stand-alone mode).
- Four Class B (Style Y) or four Class A (Style Z, with ZNAC-4 module) NACs.
- 6-amp (FCPS-24S6) or 8-amp (FCPS-24S8) full load output, with 3 amps maximum/circuit, in NAC expander mode (UL 864).
- 4-amp (FCPS-24S6) or 6-amp (FCPS-24S8) continuous output in stand-alone mode (UL 1481).
- Compatible with coded inputs; signals passed through.
- Optional power-supervision relay (EOLR-1).
- In stand-alone mode, output power circuits may be configured as: resettable, (reset line from FACP required), non-resettable, or a mix of two and two.
- Fully regulated and filtered power output - optimal for powering four-wire smoke detectors, annunciators, and other system peripherals requiring regulated/filtered power.
- Power-limiting technology meets UL power-limiting requirements.
- Form-C normally-closed trouble relay.
- Fully supervised power supply, battery, and NACs.
- Selectable earth fault detection.
- AC trouble report selectable for immediate 2-hour delay.
- Works with virtually any UL 864 fire alarm control which utilizes an industry-standard reverse-polarity notification circuit (including unfiltered and unregulated NAC power).
- Requires input trigger voltage of 9 - 32 VDC.
- Self-contained in compact, locking cabinet - 15"H x 14.5"W x 2.75"D (cm: 38.1H x 36.83W x 6.985D).



- Includes integral battery charger capable of charging up to 18 AH batteries. Cabinet capable of housing 7.0 AH batteries.
- Battery charger may be disabled via DIP switch for applications requiring larger batteries.
- Fixed, clamp-type terminal blocks accommodate up to 12 AWG (3.1mm²) wire.

Specifications

Primary (AC) Power:

- FCPS-24S6C/-24S8C: 120 VAC, 60 Hz, 3.2A maximum.
- FCPS-24S6E/-24S8E: 240 VAC, 50 Hz, 1.6A maximum.
- Wire Size: minimum #14 AWG (2.0mm²) with 600 V insulation.

Control Input Circuit:

- **Trigger Input Voltage:** 9 to 32 VDC.
- **Trigger Current:** 2.0 mA (16 - 32 V); Per Input: 1.0 mA (9 - 16 V).

Trouble Contact Rating:

5 A at 24 VDC.

Auxiliary Power Output: Specific application power 500 mA maximum.

Output Circuits:

- +24 VDC filtered, regulated.
- 3.0 A maximum for any one circuit.
- Total continuous current for all outputs (stand-alone mode):
 - FCPS-24S6: 4.0 A maximum.
 - FCPS-24S8: 6.0 A maximum.
- Total short-term current for all outputs (NAC expander mode):
 - FCPS-24S6: 6.0 A maximum.
 - FCPS-24S8: 8.0 A maximum.

Secondary Power (Battery) Charging Circuit:

- Supports lead-acid batteries only.

- Float-charge voltage: 27.6 VDC.
- Maximum current charge: 1.5 A.
- Maximum battery capacity: 18 AH.

Applications

Example 1: Expand notification appliance power an additional 6.0 A (FCPS-24S6) or 8.0 A (FCPS-24S8). Use up to four Class B (Style Y) outputs or four Class A (Style Z) outputs (using ZNAC-4). For example, the FACP notification appliance circuits will activate the FCPS when reverse-polarity activation occurs. Trouble conditions on the FCPS are sensed by the FACP through the notification appliance circuit.

Example 2: Use the FCPS to expand auxiliary regulated 24-volt system power up to 4.0 A (FCPS-24S6) or up to 6.0 A (FCPS-24S8). Both resettable and non-resettable power options are available. Resettable outputs are created by connecting the resettable output from the FACP to one or both of the FCPS inputs.

Example 3: Use addressable control modules to activate the FCPS instead of activating it through the FACP notification appliance circuits. This typically allows for mounting the FCPS at greater distances* away from the FACP while expanding system architecture in various applications.

For example, an addressable control module is used to activate the FCPS, and an addressable monitor module is used to sense FCPS trouble conditions. Local auxiliary power output from the FCPS provides power to the addressable control module.

**NOTE: Addressable FACP's are capable of locating control and monitor modules at distances of up to 12,500 feet (3,810 meters).*

Sync Follower/Generator Note

In some installations, it is necessary to synchronize the flash timing of all strobes in the system for ADA compliance. Strobes accomplish this by monitoring very short timing pulses on the NAC power which are created by the FACP. When installed at the end of a NAC wire run, the FCPS-24S6/-24S8 can track (i.e. "follow") the strobe synchronization timing pulses on the existing NAC wire run. This maintains the overall system flash timing of the additional strobes attaches to the FCPS.

When the FCPS-24S6/-24S8 is configured (via DIP switch settings) as a "sync follower," the FCPS's NAC outputs track the strobe synchronization pulses present at the FCPS's sync input terminal. The pulses originate from an upstream FACP or other power supply.

When the FCPS-24S6/-24S8 are configured (via DIP switch settings) as a "sync generator," the FCPS's sync input terminals are not used. Rather, the FCPS is the originator of the strobe synchronization pulses on the FCPS's NAC outputs. In "sync generator" mode, the sync type (System Sensor, Wheelock, or Gentex) is selectable via DIP switch settings.

Standards and Codes

The FCPS-24S6 and FCPS-24S8 comply with the following standards:

- **NFPA 72** National Fire Alarm Code.
- **UL 864** Standard for Control Units for Fire Alarm Systems (NAC expander mode).
- **UL 1481** Power Supplies for Fire Alarm Systems.

Agency Listings and Approvals

These listings and approvals apply to the modules specified in this document. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S635, S674
- **ULC Listed:** S635 (FCPS-24S6C & FCPS-24S8C)
- **CSFM Approved:** 7315-0028:225
- **MEA:** 299-02-E
- **FM Approved**

Ordering Information

FCPS-24S6: 6.0 A, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15"H x 14.5"W x 2.75"D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

FCPS-24S6C: Same as above, ULC-listed.

FCPS-24S6R: Same as FCPS-24S6 with red enclosure.

FCPS-24S6E: 6.0 A, 240 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15"H x 14.5"W x 2.75"D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

FCPS-24S8: 8.0 A, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15"H x 14.5"W x 2.75"D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

FCPS-24S8C Same as above, ULC-listed.

FCPS-24S8R: Same as FCPS-24S8 with red enclosure.

FCPS-24S8E: 8.0 A, 240 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15"H x 14.5"W x 2.75"D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

ZNAC-4: Class A (Style Y) NAC option module.

EOLR-1: 12/24 VDC end-of-line relay for monitoring four-wire smoke detector power.

BAT-1270: Battery, 12-volt, 7.0 AH (two required, see BAT Series data sheet DN-6933).

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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.



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For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
www.notifier.com

SpectrAlert® Advance

Selectable Output Notification Appliances



Audio/Visual Devices

General

System Sensor® SpectrAlert® Advance selectable-output horns, strobes and horn/strobes are rich with features guaranteed to cut installation times and maximize profits. The SpectrAlert Advance series of notification appliances is designed to simplify your installations, with features such as: plug-in designs, instant feedback messages to ensure correct installation of individual devices, and eleven field-selectable candela settings for wall and ceiling strobes and horn/strobes.

More specifically, when installing Advance products, first attach a universal mounting plate to a four-inch square, four-inch octagon, or double-gang junction box. The two-wire mounting plate attaches to a single-gang junction box.

Then, connect the notification appliance circuit wiring to the SEMS terminals on the mounting plate.

Finally, attach the horn, strobe, or horn/strobe to the mounting plate by inserting the product's tabs in the mounting plate's grooves. The device will rotate into position, locking the product's pins into the mounting plate's terminals. The device will temporarily hold in place with a catch until it is secured with a captured mounting screw.

SpectrAlert Advance products allow you to choose:

- 12 or 24 volts.
- 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, or 185 candela by way of a rear-mounted slide switch and front viewing window.
- Horn tones and volume by way of a rotary switch.
- The SpectrAlert Advance series includes outdoor notification appliances. Outdoor strobes and horn/strobes (two-wire and four-wire) are available for wall or ceiling. Outdoor horns are available for wall only. All System Sensor outdoor products are rated between -40°F and 151°F (-40°C and 66°C) in wet or dry applications.

Models available:

- Indoor wall-mount: horn, strobe, 2-wire horn/strobe, 4-wire horn/strobe.
- Indoor ceiling-mount: strobe, 2-wire horn/strobe, 4-wire horn/strobe.
- Outdoor wall-mount: horn, strobe, 2-wire horn/strobe, 4-wire horn/strobe.
- Outdoor ceiling-mount: strobe, 2-wire horn/strobe, 4-wire horn/strobe.

Features

- Plug-in design.
- Same mounting plate for wall- and ceiling-mount units.
- Shorting spring on mounting plate for continuity check before installation.
- Captive mounting screw.
- Tamper-resistance capability.
- Field-selectable candela settings on wall and ceiling units: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, 185.
- Automatic selection of 12 or 24 volt operation at 15 and 15/75 candela.
- Outdoor wall and ceiling products.



Indoor Ceiling
Horn/Strobe



Outdoor Ceiling
Strobe



Indoor Wall
Horn/Strobe



Indoor Ceiling
Strobe



Indoor Wall
Horn



Outdoor Wall
Strobe

- Outdoor products rated from -40°F and 151°F (-40°C and 66°C).
- Outdoor products rainproof per UL50 (NEMA 3R) and weatherproof per NEMA 4X, IP56
- Minimal intrusion into the backbox.
- Horn rated at 88+ dbA at 16 volts.
- Rotary switch for tone selection.
- Three horn volume settings.
- Electrically compatible with existing SpectrAlert products.

Engineering Specifications

SpectrAlert Advance horns, strobes, and horn/strobes shall mount to a standard 4.0" x 4.0" x 1.5" (10.16 x 10.16 x 3.81 cm) backbox, 4.0" (10.16 cm) octagonal backbox, or a double-gang backbox. Two-wire products shall also mount to a single-gang 2.0" x 4.0" x 1.875" (5.08 x 10.16 x 4.763 cm) backbox. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt rated notification appliance circuit outputs shall operate between 9 and 17.5 volts; 24-volt rated notification appliance circuit outputs shall operate between 17 and 33 volts. Indoor SpectrAlert Advance products shall operate between 32°F and 120°F (0°C and 49°C) from a regulated DC, or full-wave-rectified, unfiltered power supply. Strobes and horn/strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, 185.

STROBE

The strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1971 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

HORN/STROBE COMBINATION

The horn/strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn/strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have three audibility options and an option to switch between a Temporal 3 pattern and a Non-Temporal (continuous) pattern. These options are set by a multiple position switch. On four-wire products, the strobe shall be powered independently of the sounder. The horn on horn/strobe models shall operate on a coded or non-coded power supply.

OUTDOOR PRODUCTS

SpectrAlert Advance outdoor horns, strobes and horn/strobes shall be listed for outdoor use by UL and shall operate between -40°F and 151°F (-40°C and 66°C). The products shall be listed for use with a System Sensor outdoor/weather-proof backbox with half-inch and three-fourths-inch conduit entries.

SYNCHRONIZATION MODULE

The module shall be a System Sensor Sync•Circuit MDL3R or MDL3W listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz and horns at Temporal 3. Also, while operating the strobes, the module shall silence the horns on horn/strobe models over a single pair of wires. The module shall mount to a 4.688" x 4.688" x 2.125" (11.906 x 11.906 x 5.398 cm) backbox. The module shall also control two Style Y (class B) circuits or one Style Z (Class A) circuit. The module shall synchronize multiple zones. Daisy-chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Strobe Current Draw, UL Maximum (mA RMS)

Candela	8 – 17.5 V		16 – 33 V		
	DC	FWR	DC	FWR	
Standard Candela Range	15	123	128	66	71
	15/75	142	148	77	81
	30	NA	N/A	94	96
	75	NA	NA	158	153
	95	NA	NA	181	176
	110	NA	NA	202	195
	115	NA	NA	210	205
High Candela Range	135	NA	NA	228	207
	150	NA	NA	246	220
	177	NA	NA	281	251
	185	NA	NA	286	258

Operating Specifications

- **Standard operating temperature:** 32°F to 120°F (0°C to 49°C).
- **K Series operating temperature:** -40°F to 151°F (-40°C to 66°C).
- **Humidity range:** 10% to 93% non-condensing (indoor products).
- **Strobe flash rate:** 1 flash per second.
- **Nominal voltage:** regulated 12 VDC/FWR or regulated 24 VDC/FWR. **NOTE:** Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
- **Operating voltage range:** 8 V to 17.5 V (12 V nominal); or 16 V to 33 V (24 V nominal). **NOTE:** P, S, PC, and SC products will operate at 12 V nominal only for 15 cd and 15/75 cd.
- **Input terminal wire gauge:** 12 to 18 AWG (3.31 to 0.821 mm²).
- **Ceiling-mount dimensions (including lens):** 6.8" diameter x 2.5" deep (17.3 cm diameter x 6.4 cm deep).
- **Wall-mount dimensions (including lens):** 5.6" H x 4.7" W x 2.5" D (14.2 cm H x 11.9 cm W x 6.4 cm D).
- **Horn dimensions:** 5.6" H x 4.7" W x 1.3" D (14.2 cm H x 11.9 cm W x 3.3 cm D).

Agency Listings and Approvals

The listings and approvals below apply to SpectrAlert Advance Selectable Output Notification Devices. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S4011 (HR__, HW__, P2__, P4__, PC2__, PC4__ models); S5512 (models SCR, SCRH, SCW, SCWH, SR, SRH, SW, SWH); S3593 (SCRHK, SCRK, SRHK, SRK).
- **ULC Listed:** S4011 (HRA, HRKA); S5512 (typically "A" models, with exception of outdoor strobes). See Canadian data sheet for listings and specifications.
- **FM approved**
- **MEA: 452-05-E**
- **CSFM: 7125-1653:0186** (SCR, SCRH, SCW, SCWH, SR, SRH, SW, SWH); **7300-1653:0188** (P2_, P4_, PC2_, PC4_ modules); **7135-1653:0189** (HR, HRK, HW); **7300-1653:0187** (SCRHK, SCRK, SRHK, SRK).

Horn Current Draw, UL Maximum (mA RMS)

Sound Pattern	dB	8 – 17.5 V		16 – 33 V	
		DC	FWR	DC	FWR
Temporal	High	57	55	69	75
Temporal	Medium	44	49	58	69
Temporal	Low	38	44	44	48
Non-temporal	High	57	56	69	75
Non-temporal	Medium	42	50	60	69
Non-temporal	Low	41	44	50	50
Coded	High	57	55	69	75
Coded	Medium	44	51	56	69
Coded	Low	40	46	52	50

Horn and Horn/Strobe Rotary Switch Setting

Setting	Repetition Rate	dB Level
1	Temporal horn	High
2	Temporal horn	Medium
3	Temporal horn	Low
4	Normal horn	High
5	Normal horn	Medium
6	Normal horn	Low
7*	Externally coded	High
8*	Externally coded	Medium
9*	Externally coded	Low

***NOTE:** Settings 7, 8, and 9 are not available on 2-wire horn/strobe.

Horn and Horn/Strobe Output (dBA)

Switch Position	Sound Pattern	dB	8 – 17.5 V		16 – 33 V	
			DC	FW R	DC	FW R
1	Temporal	High	78	78	84	84
2	Temporal	Medium	74	74	80	80
3	Temporal	Low	71	73	76	76
4	Non-temporal	High	82	82	88	88
5	Non-temporal	Medium	78	78	85	85
6	Non-temporal	Low	75	75	81	81
7*	Coded	High	82	82	88	88
8*	Coded	Medium	78	78	85	85
9*	Coded	Low	75	75	81	81

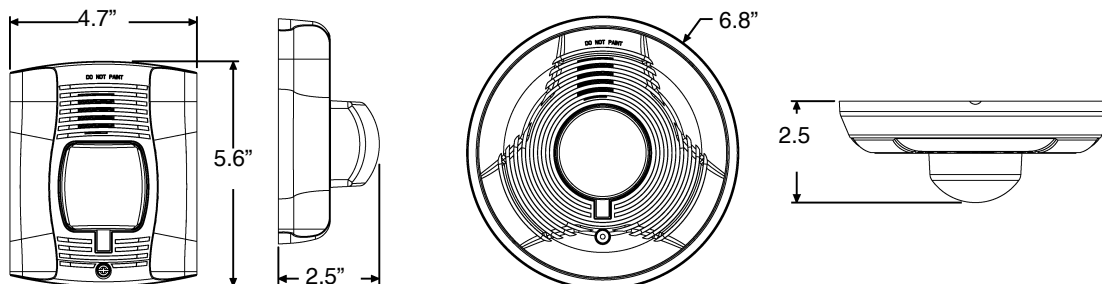
***NOTE:** Settings 7, 8, and 9 are not available on 2-wire horn/strobe.

Two-Wire Horn/Strobe, **STANDARD** Candela Range (15 – 115 cd), UL Maximum Current Draw (mA RMS)

Input, Sound Pattern, dB Level	8 – 17.5 V		16 – 33 V						
	15	15/75	15	15/75	30	75	95	110	115
DC Input, Temporal, High	137	147	79	90	107	176	194	212	218
DC Input, Temporal, Medium	132	144	69	80	97	157	182	201	210
DC Input, Temporal, Low	132	143	66	77	93	154	179	198	207
DC Input, Non-temporal, High	141	152	91	100	116	176	201	221	229
DC Input, Non-temporal, Medium	133	145	75	85	102	163	187	207	216
DC Input, Non-temporal, Low	131	144	68	79	96	156	182	201	210
FWR Input, Temporal, High	136	155	88	97	112	168	190	210	218
FWR Input, Temporal, Medium	129	152	78	88	103	160	184	202	206
FWR Input, Temporal, Low	129	151	76	86	101	160	184	194	201
FWR Input, Non-temporal, High	142	161	103	112	126	181	203	221	229
FWR Input, Non-temporal, Medium	134	155	85	95	110	166	189	208	216
FWR Input, Non-temporal, Low	132	154	80	90	105	161	184	202	211

Two-Wire Horn/Strobe, **HIGH** Candela Range (135 – 185 cd), UL Maximum Current Draw (mA RMS)

DC Input	16 – 33 V				FWR Input	16 – 33 V			
	135	150	177	185		135	150	177	185
DC, Temporal, High	245	259	290	297	FWR, Temporal, High	215	231	258	265
DC, Temporal, Medium	235	253	288	297	FWR, Temporal, Medium	209	224	250	258
DC, Temporal, Low	232	251	282	292	FWR, Temporal, Low	207	221	248	256
DC, Non-temporal, High	255	270	303	309	FWR, Non-temporal, High	233	248	275	281
DC, Non-temporal, Medium	242	259	293	299	FWR, Non-temporal, Medium	219	232	262	267
DC, Non-temporal, Low	238	254	291	295	FWR, Non-temporal, Low	214	229	256	262



Ordering Information

Model	Description	Model	Description
WALL HORN/STROBES		CEILING HORN/STROBES	
P2R	2-wire horn/strobe, standard cd, red.	PC2R	2-wire horn/strobe, standard cd, red.
P2RH	2-wire horn/strobe, high cd, red.	PC2RH	2-wire horn/strobe, high cd, red.
P2RK	2-wire horn/strobe, standard cd, red, outdoor.	PC2RK	2-wire horn/strobe, standard cd, red, outdoor.
P2RHK	2-wire horn/strobe, high cd, red, outdoor.	PC2RHK	2-wire horn/strobe, high cd, red, outdoor.
P2W	2-wire horn/strobe, standard cd, white.	PC2W	2-wire horn/strobe, standard cd, white.
P2WH	2-wire horn/strobe, high cd, white.	PC2WH	2-wire horn/strobe, high cd, white.
P4R	4-wire horn/strobe, standard cd, red.	PC4R	4-wire horn/strobe, standard cd, red.
P4RH	4-wire horn/strobe, high cd, red.	PC4RH	4-wire horn/strobe, high cd, red.
P4RK	4-wire horn/strobe, standard cd, red, outdoor.	PC4RK	4-wire horn/strobe, standard cd, red, outdoor.
P4RHK	4-wire horn/strobe, high cd, red, outdoor.	PC4RHK	4-wire horn/strobe, high cd, red, outdoor.
P4W	4-wire horn/strobe, standard cd, white.	PC4W	4-wire horn/strobe, standard cd, white.
P4WH	4-wire horn/strobe, high cd, white.	PC4WH	4-wire horn/strobe, high cd, white.
WALL STROBES		CEILING STROBES	
SR	Strobe, standard cd, red.	SCR	Strobe, standard cd, red.
SRH	Strobe, high cd, red.	SCRH	Strobe, high cd, red.
SRK	Strobe, standard cd, red, outdoor.	SCRK	Strobe, standard cd, red, outdoor.
SRHK	Strobe, high cd, red, outdoor.	SCRHK	Strobe, high cd, red, outdoor.
SW	Strobe, standard cd, white.	SCW	Strobe, standard cd, white.
SWH	Strobe, high cd, white.	SCWH	Strobe, high cd, white.
ACCESSORIES		HORNS	
BBS-2A	Backbox skirt, wall, red.	HR	Horn, red.
BBSW-2A	Backbox skirt, wall, white.	HRK	Horn, red, outdoor.
BBSC-2A	Backbox skirt, ceiling, red.	HW	Horn, white.
BBSCW-2A	Backbox skirt, ceiling, white.	ACCESSORIES, continued	
SA-WBB	Weatherproof backbox, wall.	TR-HS	Trim Ring, wall, red, package of 5
SA-WBBC	Weatherproof backbox, ceiling.	TRW-HS	Trim Ring, wall, white, package of 5
WTP	Weatherproof, flush mount plate, red	TRC-HS	Trim Ring, ceiling, red, package of 5
WTPW	Weatherproof, flush mount plate, white	TRCW-HS	Trim Ring, ceiling, white, package of 5
<p>NOTE: "High cd" refers to strobes that include 135, 150, 177, and 185 candela settings. "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings.</p> <p>NOTE: For strobes and horn/strobes, add suffix "F" for French or "B" for Bilingual.</p> <p>NOTE: All outdoor models ("K(A)" suffix) include a plastic weatherproof backbox.</p> <p>NOTE: Add "-R" to models for weatherproof replacement device (no back box included). Only for use with weatherproof outdoor flush mounting plate, WTP and WTPW.</p> <p>NOTE: Add "P" to model for plain housing. (No "FIRE" marking on cover.)</p>			

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**NO
EXCUSES!**



FIRE ALARM DOCUMENTS

The FAD is the perfect fit to meet the demanding code requirements today. SAE's number one goal is to manufacture code compliant solutions and this product allows you to do just that. NFPA 72 2010 section 6.2.2.1 states, "A record of installed software and firmware version numbers shall be maintained at the location of the fire alarm control unit."

This durable 16 gauge steel enclosure with a solid piano hinge and key lock will keep all of your code required documents in one safe place. With a 4GB USB flash drive it stores your fire alarm software safe and secure eliminating the occurrences of the software not being on site when technicians arrive to service the system. Along with your fire alarm software you can store your test & inspection documents, service records, manuals & AS built drawings for the system. Using a standard USB B connector it allows you to plug in with any standard SB printer cable to upload or download information.

The FDB is designed to hold critical manuals and documents with a durable steel retainer. It has designated hooks to organize key rings and hold important business cards for easy access and reference. Inside the cover it has a organized note table that allows for documentation for passwords and other critical system information.

Standard Features:

- Installed with a 4 gig digital flash drive with USB B connector
- 2 Key ring hooks to hold system keys
- Business card holder for key contacts
- Overall Dimensions are 12" x 13" tall and 2 ¼ deep
- 16 gauge steel box and cover for security
- Durable powercoat baked on finish other colors available
- Standard ¾" cat 30 key lock other lock assemblies available
- Solid stainless steel piano hinge
- Permanently screened white ink 1" high "Fire Alarm Documents"
- Legend sheet for passwords and system information



**ISO 9001
REGISTERED
COMPANY**

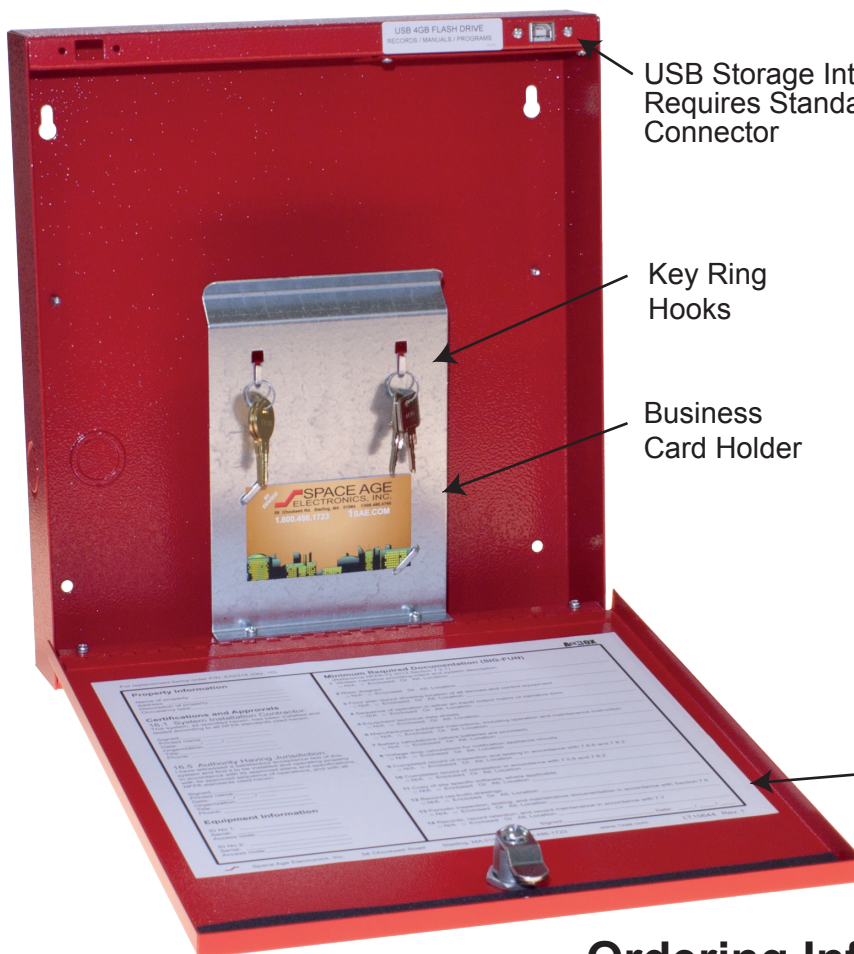


ACEBOX

Space Age Electronics, Inc.
www.1sae.com
800.486.1723 Toll Free
508.485.0966 Local
508.485.4740 Fax

Specifications:

The fire alarm documents box (FAD) shall be constructed of 18 gauge cold rolled steel. It shall have a red powder coat epoxy finish. The cover shall be permanently screened with 1" high lettering "FIRE ALARM DOCUMENTS" with white indelible ink. The access door shall be locked with a 3/4" barrel lock and the hinge shall be a solid width 12" stainless steel piano hinge. The enclosure will supply 4 mounting holes. Inside the enclosure will accommodate standard 8 1/2 x 11 manuals and loose document records that will be protected within the enclosure. A legend sheet will be permanently attached to the door for system required documentation, key contacts and system information. The FAD will have securely mounted inside a minimum of 4 Gigabyte digital flash memory drive with a standard USB B connector for uploading and downloading information. The drive shall not be accessible without tools to any person whom gains access to the records. The enclosure shall also provide 2 key ring holders with a location to mount standard business type cards for key contact personnel.



USB Storage Interface
Requires Standard USB-B
Connector

Key Ring
Hooks

Business
Card Holder

For replacement forms order PIN: EA0316 (Qty. 10)

Property Information	Minimum Required Documentation (SIG-FUN) (Reference NFPA-72 2013 Section 7.2.1)
Name of property: _____ Address: _____ Description of property: _____ Occupancy type: _____	1 Written narrative providing intent and system description <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
Certifications and Approvals 16.1 System Installation Contractor: This system, as specified herein, has been installed and tested according to all NFPA standards cited herein.	2 Riser diagram <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
Signed: _____ Date: ____/____/____ Organization: _____ Title: _____ Phone: _____	3 Floor plan layout showing location of all devices and control equipment <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
16.5 Authority Having Jurisdiction: I have witnessed a satisfactory acceptance test of this system and find it to be installed and operating properly in accordance with its approved plans and specifications, with its approved sequence of operations, and with all NFPA standards cited herein.	4 Sequence of operation in either an input/output matrix or narrative form <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
Signed: _____ Date: ____/____/____ Organization: _____ Title: _____ Phone: _____	5 Equipment technical data sheets <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
Equipment Information ID No 1: _____ Serial: _____ Access code: _____	6 Manufacturers published instructions, including operation and maintenance instruction <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
ID No 2: _____ Serial: _____ Access code: _____	7 Battery calculations (where batteries are provided) <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
	8 Voltage drop calculations for notification appliance circuits <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
	9 Completed record of inspection and testing in accordance with 7.6.6 and 7.8.2 <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
	10 Completed record of completion in accordance with 7.5.6 and 7.8.2 <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
	11 Copy of site specific software, where applicable <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
	12 Record (as built) drawings <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
	13 Periodic inspection, testing, and maintenance documentation in accordance with Section 7.6 <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
	14 Records, record retention, and record maintenance in accordance with 7.7 <input type="checkbox"/> NA <input type="checkbox"/> Enclosed <input type="checkbox"/> At Location
	Signed: _____ Date: ____/____/____

Space Age Electronics, Inc. 58 Chocksett Road Sterling, MA 01564 800-486-1723 www.1sae.com LT10644 Rev. 1

Legend sheet for storing system information including contacts, sign-off, maintenance & test information, and alternate locations of additional records.

Ordering Information:

Part # Description

SSU00685 Fire Alarm Storage Cabinet RED

SSU00686 Custom screening with your Logo

Check out our Infinity line eFAD single gang 2 Gig digital storage solutions (IAMEFAD)



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800.486.1723 Toll Free
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No Excuses, Just Solutions!

This document is subject to change without notice, see doc # ED0479 for legal disclaimer

ED0549

LT10559

Rev.C

2/2



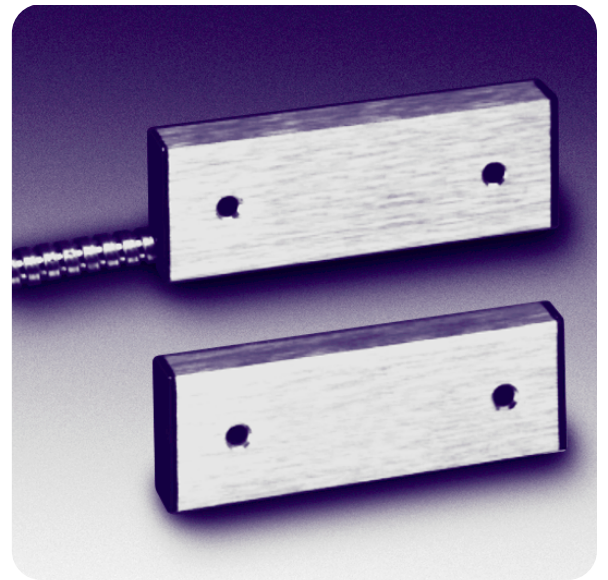
www.GE-Interlogix.com

Industrial Wide Gap Surface Mount

2500 Series

Overview

The 2500 Series is designed to be installed in commercial and industrial environments where a rugged sealed unit is required. It is ideal for metal doors, overhead doors, fences and gates. Each model features a high strength extruded aluminum housing and is completely encapsulated in our exclusive polyurethane potting compound. The 2500 series feature wide gap distances and several models to meet any application need. Jacketed lead or armored cable is available.



Standard Features

- Wide gap distance for decreased installation time
- Fewer false alarms
- Fewer service calls
- Six models including SPDT, DPDT and High Security
- Mounting brackets available

Model Numbers

2505, 2505A, 2507, 2507A, 2507AD, 2507AH

Industrial Wide Gap Surface Mount

2500 Series

Architectural and Engineering Specifications

The contact shall be a hermetically sealed reed switch nominally 3" L x 1" H x 0.50" D with matching actuating magnet. Mounting holes shall be on 2" centers. Contact and magnets shall be in brushed anodized aluminum tube housing. Contact shall be sealed in our exclusive polyurethane potting compound. Right angle mounting bracket shall be furnished with contact, #1912. Contacts shall be specified as part numbers 2505, 2505A, 2507, 2507A, 2507AD, 2507AH.

2505, 2505A, 2507, 2507A

Each contact shall connect to three feet of vinyl-jacketed cable (2505, 2507) or three feet of flex stainless steel conduit (2505A, 2507A).

2507AD (not ULC listed)

The contact shall contain two single-poled double throw reed contacts. Three feet of flex stainless steel conduit shall be permanently attached to the contact.

2507AH (not ULC listed)

The contact shall be a Form C (SPDT) reed contact biased with an Alnico VII magnet. Contact will be difficult to defeat with an external magnet. Three feet of flex stainless steel conduit shall be permanently attached to the contacts.

Specifications

Form A (2505, 2505A)

Voltage	100V AC/DC max.
Current	0.5A max.
Power	7.5W max.
European Union Specification	48V AC/DC max.

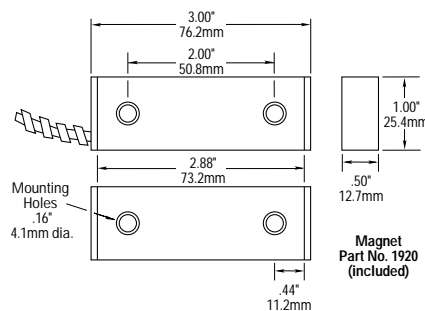
Form C (2507, 2507A, 2507AD, 2507AH)

Voltage	30V AC/DC max.
Current	0.25A max.
Power	3.0W max.

SPDT Lead Colors

Black	Common
White	Closed Loop (N.O.)
Red	Open Loop (N.C.)
Listing	C-UL-US, UL-634

Dimensions



Ordering Information

Model	Loop Type	Electrical Configuration	Gap Distance (Make)*	Lead Type
2505	Closed	N.O.	Up to 3"	3' vinyl jacketed
2505A	Closed	N.O.	Up to 3"	3' stainless steel armored cable
2507	Open or Closed	SPDT	Up to 3"	3' vinyl jacketed
2507A	Open or Closed	SPDT	Up to 3"	3' stainless steel armored cable
2507AD no Canadian listing	Open or Closed	DPDT	Up to 1 1/2"	3' stainless steel armored cable
2507AH no Canadian listing	Open or Closed	SPDT	3/4" min., 2" max.	3' stainless steel armored cable

* Gap distances are nominal make distance $\pm 20\%$. Gap specifications are for switch to make. Break distance is approximately 1.1 to 1.5 times make.



GE Interlogix

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Faxback: 800-483-2495

2266 Second Street North
North St. Paul, MN 55109
Phone: 651-777-2690
USA & Canada: 800-777-5484
Technical Service: 800-777-2624



Steel Door Contact

³/₄" and 1" contacts
1078/1076 Series

Overview

The GE Interlogix 1078 Series Steel Door contacts are designed specifically for use in the steel doors commonly found in commercial building applications. The unique housing design features a rugged unibody construction with flexible ribbed sides for quick, secure installation without gluing. The magnet housing isolates the magnet from the surrounding steel for maximum gap distances, both make and break. Over seven models including: Wide Gap, SPDT, DPDT, and Biased for High Security applications make the 1078 Series the most widely used and comprehensive line available.

On available models a terminal connection (T) makes installation easier. Simply strip the wire, insert it into the terminal block and tighten. The terminal accepts any wire size from 14 to 22 gauge, and has a unique one piece design for added strength.

An optional Rare Earth Magnet is available. It is designed for use in metal entry/exit doors with a channel in the top of the door. The magnet eliminates the need to cut a mounting hole in the door channel. The flexible magnet housing can be compressed to accommodate a variety of channel widths for quick, easy installation. Adhesive is recommended.

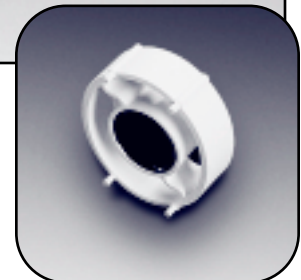
Architectural and Engineering Specifications

The contact contains a hermetically sealed magnetic reed switch. The reed shall be potted in the contact housing with a polyurethane based compound. Contact and magnet housing shall snap-lock into a 3/4" or 1" dia. hole. Housings shall be molded of flame retardant ABS plastic. Color of housings shall be off-white, grey or mahogany brown. The magnet shall be made of Alnico V. Rare Earth Magnet shall be made of neodymium iron boron.

Designed for use in Steel Doors

Snap-lock insulation bushing for tight fit and maximum gap in steel.

Both contact and magnet plastic housings are constructed of one piece of thick-walled ABS plastic for maximum strength and durability.



**Optional 1840
Rare Earth Magnet**

Standard Features

- Fly leads and terminal options available
- Designed specifically for use in steel doors
- Special ribbed sides allow for easy installation
- Rugged unibody construction for maximum durability and reliability
- Terminal models available for easier installation
- Regular, Wide Gap, SPDT, DPDT, and High Security models available
- Rare Earth Magnet designed for steel door with top channel available

Model numbers

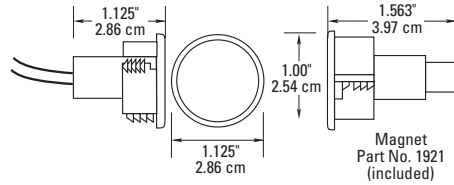
1076, 1076W, 1076C, 1076CW, 1076D, 1078, 1078W, 1078C, 1078CT, (R)1078, 1078CTW

Steel Door Contact

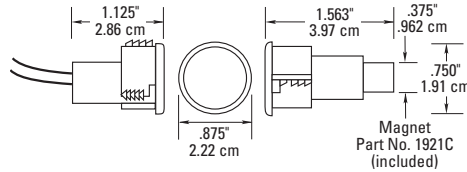
3/4" and 1" contacts
1078/1076 Series

Dimensions

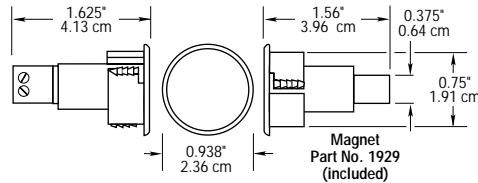
Models:
(R)1078, 1078W, 1076,
1076W, 1076D



Models:
1078C, 1076C,
1076CW, 1076CH



Models:
1078CT, 1076CTW,



(R) prefix indicates
Rare Earth Magnet

Ordering Information

Model	Dia.	Loop Type	Electrical Config.	Hole Required		Gap Distance*			Color
				Contact	Magnet	Wood*	Steel*	Rare Earth	
1076	1"	Open or Closed	SPDT	1" x 1.125"	1" x 1.563"	1"	Up to 1/2"	Up to 5/8"	M, N, G
1076W	1"	Open or Closed	SPDT	1" x 1.125"	1" x 1.563"	2"	Up to 1"		M, N, G
1076D	1"	Open or Closed	DPDT	1" x 1.125"	1" x 1.563"	3/4"	Up to 3/8"	Up to 5/8"	M, N, G
1078	1"	Closed	N/O	1" x 1.125"	1" x 1.563"	1"	Up to 1/2"	Up to 5/8"	M, N, G
1078W	1"	Closed	N/O	1" x 1.125"	1" x 1.563"	2"	Up to 1"		M, N, G
1076C	3/4"	Open or Closed	SPDT	.75" x 1.125"	.75" x 1.563"	7/8"	Up to 3/8"	Up to 5/8"	M, N, G
1076CW	3/4"	Open or Closed	SPDT	.75" x 1.125"	.75" x 1.563"	2"	Up to 3/4"		M, N
1078C	3/4"	Closed	N/O	.75" x 1.125"	.75" x 1.563"	1/2"	N/A		M, N, G
(R)1078	1"	Closed	N/O	1" x 1.125"	1" x 1.563"	1"	Up to 1/2"	Up to 5/8"	M, N
1078CT	3/4"	Closed	N/O	.75" x 1.625"	.75" x 1.56"	7/8"	1/2"	5/8"	M, N
1078CTW	3/4"	Closed	N/O	.75" x 1.625"	.75" x 1.56"	5/8"	3/4"	N/A	N

* Gap distances are nominal make distance $\pm 20\%$. Gap specifications are for switch to make. Break distance is approximately 1.1 to 1.5 times make.

Specifications

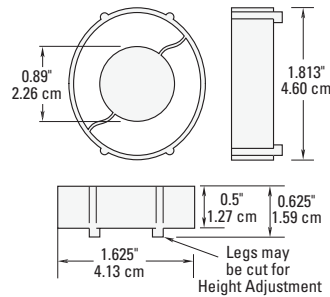
Form A: (R)1078, 1078W, 1078C, 1078CT, 1078CTW

Voltage 100V AC/DC max.
Current 0.5 A max.
Power 7.5 W max.

Form C: 1076, 1076W, 1076D, 1076C(D), 1076CW, 1076CH

Voltage 30V AC/DC max.
Current 0.25 A max.
Power 3.0 W max.

Rare Earth Magnet



Protected by
U.S. Patent 5,844,458.



GE Interlogix