BREEN
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Fire Alarm Equipment Cut Sheets

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Breen Engineering, Inc. Project Number # 273-13-001

2 STORY BUILDING ADDITION FIRE ALARM SYMBOLS LEGEND

SYMBOL	DESCRIPTION
S_D	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR. NOTIFIER FSP-851A CSFM#7272-0028:0206 WITH BASE NOTIFIER B710LPBP CSFM#7272-0028:0206
H_D	ADDRESSABLE HEAT DETECTOR. NOTIFIER FST-851 CSFM#7270-0028:0196 WITH BASE NOTIFIER B710LPBP CSFM#7270-0028:0196
110cd [AV]	COMBINATION AUDIO SPEAKER/110cd VISUAL DEVICE. GENTEX #GEC3 CSFM#7125-0569:0122 75 CANDELA @ 0.217A.
75cd [AV]	WALL MOUNTED COMBINATION AUDIO SPEAKER/75cd VISUAL DEVICE. GENTEX #GEC3 CSFM#7125-0569:0122 75 CANDELA @ 0.117A.
30cd [AV]	VISUAL DEVICE. GENTEX #GEC3 CSFM#7125-0569:0122 30 CANDELA @ 0.091A.
15cd [F]	VISUAL DEVICE. GENTEX #GEC3 CSFM#7125-0569:0122 15 CANDELA @ 0.030A.
▷S	WEATHERPROOF EXTERIOR VOICE EVAC SPEAKER WITH BACKBOX GENTEX #WSSPKR CSFM#7320-0569:0141 @ 0.08A.
▷H	WEATHERPROOF EXTERIOR HORN GENTEX #GEH CSFM#7125-0569:0122
[J]	WALL JUNCTION BOX, MOUNTING HEIGHT AS INDICATED ON PLAN, SIZE PER N.E.C; U.O.N. @ SHEET AS INDICATED ON PLAN. 120V, U.O.N. CONTRACTOR SHALL PROVIDE AND INSTALL JUNCTION BOXES SIZE TO ACCOMMODATE QUANTITIES OF WIRES PER N.E.C. SECTION 314.18 AND TABLE 314.18(A), 5" BOX ⁹⁄₁₆" SQ. X 2⅛"D. BOX.
FCPS-24 ▷	NOTIFIER FIRE ALARM USUAL (FLASHER POWER SUPPLY, NOTIFIER FCPS-24S8 FOR STROBE FLASHER UNIT). CSFM#7315-0028:225
NFS2-3030 ▷	EXISTING FIRE ALARM CONTROL PANEL WITH VOICE CONTROL CENTER (VOICE EVAC). NOTIFIER NFS2#3030 WITH AUDIO OPTION DVC VOICE TRANSPONDER. CSFM#7165-0028:0224 INTELLIGENT.
DAA-5025 ▷	NOTIFIER #DAA-5025 INTELLIGENT AUDIO TRANSPONDER POWER SUPPLIES (FOR FREE MAIN VOICE EVAC SPEAKER). CSFM#7170-0028:223, 7170-0028:244.
[FS]	FLOW SWITCH
ⓉS	TAMPER SWITCH
FACP EXIST.	EXISTING NOTIFIER #1010 FIRE ALARM CONTROL TO REMAIN IN PLACE AND IN SERVICE FOR SCHOOL USE TO OPERATE IN PARALLEL WITH NEW FACP AT SCHOOL CAMPUS.

NFS2-3030

Intelligent Addressable Fire Alarm System

NOTIFIER®
by Honeywell

Intelligent Fire Alarm Control Panels

General

The NFS2-3030 is an intelligent Fire Alarm Control Panel (FACP) designed for medium- to large-scale facilities. Fire emergency detection and evacuation are extremely critical to life safety, and the NFS2-3030 is ideally suited for these applications. The NFS2-3030 is part of the ONYX® Series of products from NOTIFIER. The NFS2-3030 is ideal for virtually any application because it features a modular design that is configured per project requirements. With one to ten Signaling Line Circuits (SLCs), the NFS2-3030 supports up to 3,180 intelligent addressable devices.

Information is critical to fire evacuation personnel, and the NFS2-3030's large 640-character Liquid Crystal Display (LCD) presents vital information to operators concerning a fire situation, fire progression, and evacuation details.

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.

Features

- Certified for seismic applications when used with the appropriate seismic mounting kit.
- Approved for Marine applications when a marine-listed version is used with marine-listed compatible equipment. *See DN-60688.*
- Complies with UL 2572 Mass Notification Systems (NFS2-3030 version 20 or higher)
- One to ten isolated intelligent Signaling Line Circuits (SLC) Style 4, 6 or 7.
- Up to 159 detectors and 159 modules per SLC, 318 devices per loop/3,180 per FACP or network node. Detectors can be any mix of ion, photo, laser photo, thermal, or multi-sensor detectors; modules can be addressable pull stations, normally open contact devices, two-wire smoke detectors, notification, or relay modules.
- Large 640-character LCD backlit display (16 lines x 40 characters) 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.
- Built-in Alarm, Trouble, Security, and Supervisory relays.
- VeriFire® Tools online/offline program option.
- With built-in Degraded Mode operation, the system is capable of general alarm if a fire alarm condition is present even if the central processing unit (CPU) fails.
- Weekly Occupancy Schedules allow changing sensitivity by time of day and day of week.
- EIA-485 annunciators, including custom graphics.
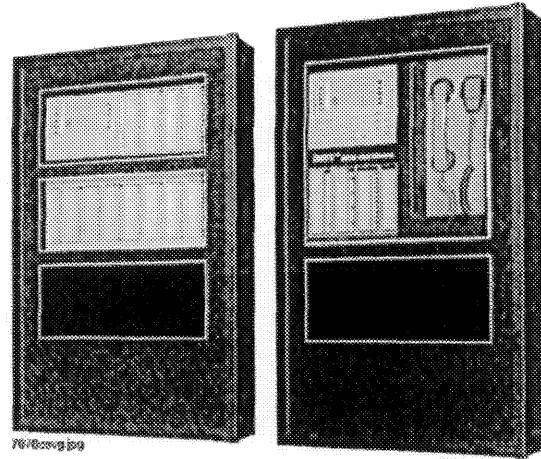
NFS2-3030 (left)
and NFS2-3030 with DVC audio option (right)

- History file with 4000-event capacity in nonvolatile memory, plus separate 1000-event alarm-only file.
- Advanced history filters allow sorting by event, time, date, or address.
- Alarm Verification selection per point, with automatic counter.
- Autoprogramming and Walk Test reports.
- Multiple central station communication options:
  - Standard UDACT
  - Internet
  - Internet/GSM
- Positive Alarm Sequence (PAS) Presignal.
- Silence Inhibit and Auto Silence timer options.
- Field-programmable on panel or on PC, with VeriFire Tools program, also check, compare.
- Non-alarm points for lower priority functions.
- Remote ACK/Signal Silence/System Reset/Drill via monitor modules.
- Up to 1000 powerful Boolean logic equations.
- Supports SCS Series smoke control system in both HVAC and FSCS modes.
- FM6320 approved Gas Detection System with FMM-4-20 module and any FM listed gas detector.
- EIA-232 printer port.
- EIA-485 annunciator port.

640-CHARACTER DISPLAY FEATURES

- Backlit, 640-character display.
- Program keypad: full QWERTY keypad.
- Up to nine users, each with a password and selectable access levels.

- **11 LED Indicators:** Power; Fire Alarm; Pre-Alarm; Security; Supervisory; System Trouble; Other Event; Signals Silenced; Point Disabled; CPU Failure; Controls Active.
- **Membrane Switch Controls:** Acknowledge; Signal Silence; Drill; System Reset; Lamp Test.
- **LCD Display:** 640 characters (16 lines x 40 characters) with long-life LED backlight.

FLASHSCAN® INTELLIGENT FEATURES

- Polls up to 318 devices on each loop 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.
- Sensitivity levels:
  - 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).
- 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.
- Programmable activation of sounder/relay bases during alarm or pre-alarm.
- Read Status displays the level of detector cleanliness.

FSL-751 VIEW® (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 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.

Sample System Options
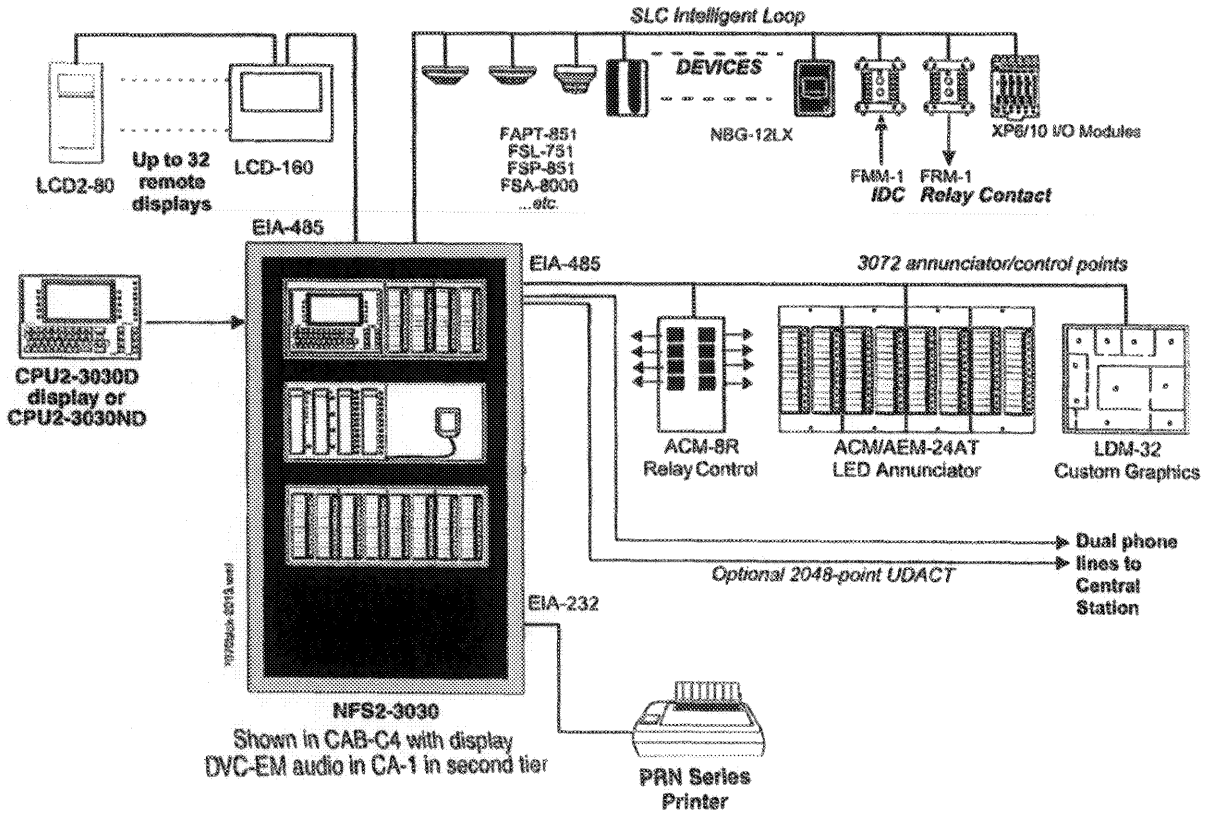
NOTE: *CPU2-3030 firmware version 14.0 (and higher) can support LCD-160 on the RDP port, or LCD2-80 in terminal mode, but not both at the same time.*

- 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.

FMM-4-20 GAS DETECTION MODULE

- Interface to industry-standard linear scale 4-20 mA sensors.
- Five programmable thresholds.
- FM Approved, Class 6320 (Stationary Gas Sensors/Detectors).

RELEASING FEATURES

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

VOICE AND TELEPHONE FEATURES

- Up to eight channels of digital audio.
- 35 watt, 50 watt, 75 watt, and 100/125 watt digital amplifiers (DAA2/DAX series and DS series).
- Solid state message generation.
- Hard-wired voice control module options.
- Firefighter telephone option.
- 30- to 120-watt analog amplifiers (AA Series).
- Backup tone generator and amplifier option.

FlashScan® Exclusive World-Leading Detector Protocol

At the heart of the NFS2-3030 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.

As well as giving 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 NFS2-3030 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

ONYX Intelligent Sensing is a set of software algorithms that provide the NFS2-3030 with industry-leading smoke detection capability. These complex algorithms require many calculations on each reading of each detector, and are made possible by the very high-speed microcomputer used by the NFS2-3030.

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, usually 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. The NFS2-3030, 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 NFS2-3030 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 NFS2-3030 simultaneously monitors other (already installed) points for alarm conditions.

VERIFIRE® TOOLS

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 NFS2-3030 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.

Product Line Information

- "Configuration Guidelines" on page 4
- "Main System Components" on page 4
- "Networking Options" on page 4
- "Auxiliary Power Supplies and Batteries" on page 4
- "Audio Options" on page 4
- "Compatible Devices, EIA-232 Ports" on page 5
- "Compatible Devices, EIA-485 Ports" on page 5
- "Compatible Intelligent Devices" on page 5
- "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 single-FACP systems (one NFS2-3030D), the display option is the CPU2-3030D. On network systems (two or more networked fire panel nodes), at least one NCA-2, NCS, or ONYX-Works annunciation device is required. Options listed as follows.

MAIN SYSTEM COMPONENTS

CPU2-3030D: NFS2-3030 Primary Display. CPU2-3030D ships with keypad/display installed; includes 640-character backlit LCD display, QWERTY programming and control keypad. CPU2-3030 is a central processing unit and requires an AMPS-24(E) power supply. Non-English versions are available: CPU2-3030D-FR, CPU2-3030D-HE, CPU2-3030D-KO, CPU2-3030D-PO, CPU2-3030D-SC, CPU2-3030D-SP, CPU2-3030D-TC, and CPU2-3030D-TH. For English Marine applications order CPU2-3030D-M; for non-English Marine applications order CPU2-3030D-M and the appropriate KP-KIT-XX. (See DN-60688.)

CPU2-3030ND: CPU2-3030 without display. Non-English versions are available: CPU2-3030ND-FR, CPU2-3030ND-HE, CPU2-3030ND-KO, CPU2-3030ND-PO, CPU2-3030ND-SC, CPU2-3030ND-SP, CPU2-3030ND-TC.

LCM-320: Loop Control Module. Provides one SLC. NFS2-3030 supports up to five LCM-320s and five LEM-320 expanders for a total of ten SLCs. See DN-6881.

LEM-320: Loop Expander Module. Expands an LCM-320. See DN-6881.

SAMPLE SYSTEM: *Four-loop NFS2-3030 with display: CPU2-3030D, DP-DISP, two BMP-1s, CHS-M3, two LCM-320s, two LEM-320s, AMPS-24, SBB-A4, DR-A4, BP2-4, BB-100, batteries.*

NETWORKING OPTIONS

NCA-2: Network Control Annunciator, 640 characters. An alternate primary display for CPU2-3030 can be provided by the NCA-2, NCS, or ONYXWorks. Using NCA-2 as primary display enables non-English languages. On network systems (two or more networked fire panel nodes), one network display (either NCA-2, NCS, or ONYXWorks) is required for every system. On network systems, the NCA-2 connects (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-DISP, ADP-4B, or in an annunciator box, such as the ABS-2D. In CAB-4 top-row applications, a DP-DISP and two BMP-1 blank modules are required for mounting. Non-English versions are available: NCA-2-FR, NCA-2-HE, NCA-2-KO, NCA-2-PO, NCA-2-SC, NCA-2-SP, NCA-2-TC, NCA-2-TH. For marine applications, order NCA-2-M; for non-English marine applications order NCA-2-M and appropriate KP-KIT-XX. See DN-7047.

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, ONYXWorks GUI 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

AMPS-24(E): One required for each NFS2-3030. Addressable power supply and battery charger with two 24 VDC outputs. Addressable by any FlashScan® or CLIP mode FACP. Charges 7 to 200 AH batteries. Occupies up to five addresses on an SLC, depending on configuration. Primary input power for panel. See DN-6883.

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.

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

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

BAT Series: Batteries. AMPS-24 uses two 12 volt, 7 to 200 AH batteries. See DN-6933.

AUDIO OPTIONS

NOTE: See "Enclosures, Chassis, and Dress Plates" on page 6 for mounting hardware.

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. 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-AMP/E: 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 DAA2/DAX Series amplifiers. *See DN-60633.*

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: Microphone used with DVC/DVC-EM. Included with CA-2 chassis assembly. *See DN-7045.*

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-6726.*

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. AA-120 is 120 watts, 25 Vrms. AA-100 is 100 watts, 70.7 Vrms. The amplifier contains an integral chassis for mounting to a CAB-B4, -C4, or -D4 backbox (consumes one row). Includes audio input and amplified output supervision, backup input, and automatic switchover to backup tone. *See DN-3224.*

DAA Series Digital Audio Amplifiers: Legacy DAA Series amplifiers are compatible with DVC 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.

COMPATIBLE DEVICES, EIA-232 PORTS

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

VS4095/5: Printer, 40-column, 24 V. Order from Keltron, Inc. *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.*

LCD-160: Liquid Crystal Display annunciator, 160-character backlit. Can store character sets for multiple languages. Supports Canadian requirements. *See DN-6940.*

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 LCD2-80 (DN-60548).*

SCS Series: Smoke control station; eight (expandable to 16) circuits. *See DN-4818.*

TM-4: Transmitter Module. Includes three reverse-polarity circuits and one municipal box circuit. Mounts in panel module position (as in single-address mode applications) or in CHS-M3 position. *See DN-6860.*

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

UZC-256: Programmable Universal Zone Coder provides positive non-interfering successive zone coding. Microprocessor-controlled, field-programmable from IBM®-compatible PCs *(requires optional programming kit)*. Mounts on a CHS-4 series chassis within NFS2-3030.

COMPATIBLE INTELLIGENT DEVICES

FSA-8000: Intelligent FAAST 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-6985.*

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

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

FSP-851T: Low-profile FlashScan photoelectric detector with 135°F (57°C) thermal. *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-851 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 sychronization 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.*

FMM-4-20: FlashScan 4-20 mA protocol monitor module. *See DN-60411.*

FCM-1: FlashScan control module. *See DN-6724.*

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

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

FRM-1: FlashScan relay module. *See DN-6724.*

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.*

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: NFS2-3030 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. Order CPU2-3030D-M; for non-English marine applications order CPU2-3030D and appropriate KP-KIT-XX. Also order **BB-MB** for systems using 100 AH batteries. For a full list of required and optional equipment, see *DN-60688.*

CHS-M3: Mounting chassis for CPU2-3030. One required for each CPU2-3030D/3030ND.

CA-2: Chassis for FACP control panel when DVC-EM is used with firefighter's telephone. Mounts in the top two rows of a CAB-4 series enclosure.

DP-DISP: Dress panel for top row in cabinet with CPU2-3030D installed.

DP-1B: Blank dress panel. Provides dead-front panel for unused tiers; covers DAA2/DAX series or AA-series amplifier. *See DN-7046.*

CHS-BH1: Battery chassis; holds two 12.0 AH batteries. Mounts on 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 NFS2-3030 or 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).

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.*

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-2: Dress Panel used with the CA-2 chassis assembly.

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.*

ADP-4B: Annunciator dress plate. Mounts in rows 2, 3 or 4 of a CAB-4 series enclosure. Used with ACS series annunciators.

BMP-1: Blank module for unused module positions.

DP-1B: Blank dress panel. Provides dead-front panel for unused tiers; covers DAA2/DAX series or AA-series amplifier. *See DN-7046.*

BP2-4: Battery plate, required.

CHS-4L: Low-profile four-position Chassis. Mounts two AA-30 amplifiers.

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

CHS-6: Chassis used with the XP6 and XP10 Multi-Modules. Mounts up to six modules in any CAB-4 series row.

BB-100: Backbox for batteries and power supplies. The BB-100 is used to mount up to two 100 AH batteries and power supply, if needed. 30" (76.20 cm) wide x 25" (63.50 cm) high x 7.5" (19.05 cm) deep; depth includes door.

BB-200: Backbox for batteries and power supplies. Holds up to four 100 AH batteries (200 AH capacity) and power supply.

30" (76.20 cm) wide x 36" (91.44 cm) high x 7.5" (19.05 cm) deep; depth includes door.

NFS-LBB: Battery Box. The NFS-LBB is used to mount up to two 55 AH batteries. Dimensions: Box: 24" (610 mm) wide x 14" (356 mm) high x 7.75" (197 mm) deep. Door: 24.125" (613 mm) wide x 14.25" (362 mm) high; door adds 0.0625" (approx. 1.6 mm) to depth.

BB-UZC: Backbox for housing the UZC-256 for applications where the UZC will not fit in panel enclosure. Black; for red, order BB-UZC-R. *See DN-3404.*

SEISKIT-CAB: Seismic mounting kit. Required for seismic-certified applications with NFS2-3030 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, 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-adapter 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 10
- Intelligent detectors .... 159 per loop
- Addressable monitor/control modules .... 159 per loop
- Programmable software zones .... over 2000
- ACS annunciators
  per CPU2-3030 .... 32 address x 64 or 96 points
  NOTE: The CPU2-3030 can support up to 96 annunciator address points per ACM-24AT/-48A.

SPECIFICATIONS

Primary Input Power:

-- AMPS-24: 110-120 VAC, 50/60 Hz, 4.5 A maximum.

-- AMPS-24E: 240 VAC, 50/60 Hz, 2.25 A maximum.

DC Output:

-- Main 24 VDC: Up to 5.0 A

-- Aux 24 VDC: Up to 5.0 A

-- 5 VDC: Up to 0.15 A.

Current draw (Standby/Alarm):

-- CPU2-3030D board: 0.340 A.

-- CPU2-3030ND board: 0.120 A.

-- LCM-320: 0.130 A.

-- LEM-320: 0.100 A.

-- AMPS-24(E)*: 0.13 A.
(Draws power from secondary power source only.)

NOTE: See AMPS-24(E) Manual 51907 for a complete current draw calculation sheet and details of input and output values.

Battery charger range: 7 AH – 200 AH. Use separate cabinet for batteries over 26 AH.

Float Rate: 27.6 V.

SHIPPING WEIGHT

- CPU2-3030D: 5.95 lb (2.70 kg).
- CPU2-3030ND: 2.90 lb (1.32 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

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.
- ULC Listed: S635.
- MEA: 232-06-E.
- FDNY: COA#6114.
- CSFM: 7165-0028:0224 (Commercial).
- FM Approved.
- FM6320 Approved. Class 6320 for Gas Detection.
- City of Chicago.
- City of Denver.
- Singapore Productivity and Standards Board (PSB).
- CCCF listed.
- Fire Services Department (Hong Kong).

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 161.002/55/0 (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 NFS2-3030 complies with the following UL Standards and NFPA 72, International Building Code (IBC), and California Building Code (CBC) Fire Alarm Systems requirements:

- UL 864 (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, Waterflow and Sprinkler Supervisory). *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).

DAA-50 Series

Digital Audio Amplifiers

(N) **NOTIFIER®**
by Honeywell

Voice Control Systems

General

The **DAA-50 Series Amplifiers** are multi-featured Digital Audio Amplifiers designed for audio networks of up to 32 DAA amplifiers terminating at a DVC Digital Voice Command. Each DAA is capable of accessing and processing one of up to eight audio channels on the DVC audio loop, amplifying the signal, and distributing it via four Class B or two Class A outputs at 50 watts. DAA-50 amplifiers can store backup alarm and trouble messages, and provide an adjustable background music input. An optional Firefighter's telephone riser on each DAA-50 amplifier supports FFT communications riser. Each DAA-50 incorporates a powerful digital signal processor, a charging power supply, a 50 watt amplifier, built-in audio NAC outputs, and a chassis which mounts in a single row of CAB-4 and EQ Series cabinets. An optional battery chassis mounts two 12.0 AH batteries in the same standard chassis row.

Features

- **Listed to UL Standard 864, 9th edition.**
- 50 W total output power at 25 VRMS (DAA-5025 series) or 70.7 VRMS (DAA-5070 series)
- Multiple versions provide connection options for twisted-pair wire, single-mode fiber, and multi-mode fiber media
- Two Class A high-level audio outputs; or alternately, four Class B outputs supported. Outputs dynamically share the 50 W - the total power can be dedicated to a single output if required.
- FireFighter's Telephone Riser supports 7 active firefighter telephones. Release 3.0 and higher supports optional configurations: direct connection for up to 7 firefighter telephones, or connection to multiple FTM-1 modules.
- Audio output activation via network control-by-event equations resident within the DVC
- Two digital audio ports support Style 4 or 7 configurations.
- Auxiliary input for 12 Vp-p analog low-level audio.
- Auxiliary input for 1 VRMS, to be used for background music input, an interface with a telephone paging source, or other compatible audio sources. Audio levels can be adjusted by end user. Continuous supervision for active DAA output circuits.
- Programmable through *VeriFire® Tools.*
- Up to two minutes of standard quality backup digital message storage (from a *VeriFire Tools* message library, or created by the installer) for use in the event of communication loss.
- Power supply and battery charger capable or supporting up to 55 AH batteries
- Battery charger disable provides battery sharing option for one or more DAA-50 amplifiers or with a charging power supply
- Isolated alarm bus input, to be used for backup activation of alarm messages when normal digital communication is lost
- Relay contacts that will activate on a trouble condition provide an option for redundant annunciation to a local panel
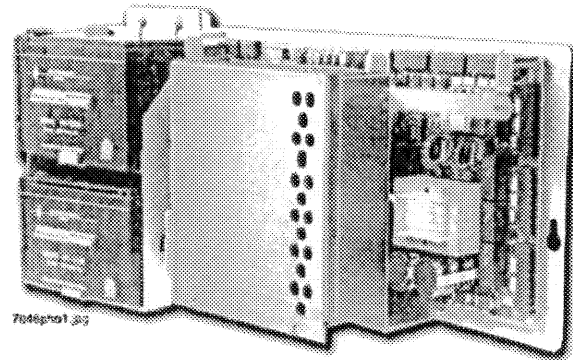
Installation

The DAA arrives from the factory already installed on its chassis. The DAA mounts in one tier of any CAB-4 Series or EQ Series cabinet; the DAA tier can be covered using a DP-1B dress panel, ordered separately (CAB-4 Series only).

Batteries for the DAA may be installed in any of the following configurations:

- In a **CHS-BH1** optional battery chassis. The CHS-BH1 battery chassis will hold two 12.0 AH batteries, and mounts on the left side of the DAA chassis, so that the DAA and batteries are contained in a single cabinet tier.
- In the battery row (bottom) of the CAB-4 Series cabinet, or in the bottom row of an EQ Series cabinet.
- In a cabinet adjacent to the cabinet that holds the DAA, with connections in conduit. External battery charging is supported.

Specifications

DAA-PS POWER SUPPLY BOARD

- **AC power (TB1):** 115 - 120 VAC, 60 Hz input, 4.5 A maximum; *or for "E" versions,* 220 - 240 VAC, 50/60 Hz input, 2.3 A maximum. *Recommended wiring:* 12 to 14 AWG (1.6 mm O.D.) with 600 VAC insulation
- **Battery connections (TB3):** Supplied cable connections to batteries.

DAA-5025/70 BOARDS

Digital audio ports, wire media, A and B (TB2, TB3):

- Maximum distance per segment is 1900 feet (579.12 m) on Belden 5320UJ (18 AWG, TP) FPL cable: 18 AWG (0.821 mm²) twisted-pair, unshielded, power-limited. See wiring documentation, P/N 52916ADD: C *Addendum to DVC and DAA Manuals.* Electrically isolated ports support Style 4 or 7 wiring.
- **Digital audio ports, "F" versions:** Digital audio loop connectors A and B support multi-mode fiber. Maximum attenuation is 4.2 dB for multi-mode with 50/125 micrometer cable @ 850 nm; 8.0 dB for multi-mode with 62.5/125 micrometer cable @ 850 nm.

- **Digital audio ports, "SF" versions:** Digital audio loop connectors A and B support single-mode fiber. Maximum attenuation is 5.0 dB for single-mode with 9/125 micrometer cable @ 1300 nm.

- **Alarm bus (TB4):** Power-limited by source. Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm²) twisted-pair.

- **Trouble bus (TB5):** Dry contact. Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm²) twisted-pair.

- **FFT riser (TB13):** Power-limited output. Class A (Style Z) or Class B (Style Y) operation. Style Y two-wire connections require a 3.9K ohm, 1/2 watt resistor (P/N R-3.9K). Maximum wiring resistance (including individual telephone zone to last handset) permitted is 50 ohms, 10,000 feet (3048 m) maximum wiring distance at 12 AWG (3.31 mm²) to last handset.

- **Auxiliary Input A (AUX A, TB9):** Signal strength from low-level analog audio input: 1 VRMS maximum. Optional supervision (selected through programming). Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm²) twisted-pair. Auxiliary input must be in the same room as the DAA.

- **Auxiliary Input B (AUX B, TB8):** Signal strength from low-level analog audio input: 12 Vp-p nominal, 15 Vp-p maximum. Optional supervision (selected through programming). Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm²) twisted-pair.

- **Speaker circuits (TB10, TB11, TB12, and TB13):** Power-limited outputs. 50 watts dynamically shared among the four outputs. Supervision determined by programming. Recommended wiring: 12 to 18 AWG (3.31 to 0.821 mm²) twisted-pair.

- **End-of-line resistors:** For Class A: 10K ohm, 1/2 watt, P/N R-10K. For Class B: 20K ohm, 1/2 watt, P/N R-20K.

Standards and Codes

The DAA-50 Series Digital Audio Amplifiers comply with the following standards:

- NFPA 72 2002 National Fire Alarm Code.
- Underwriters Laboratories Standard UL 864; 9th Edition.
- Underwriters Laboratories of Canada (ULC) ULC-S527-99 Standard of Control Units for Fire Alarm Systems.
- Part 15 Class A of the conducted and radiated emissions as required by FCC.

Listings and Approvals

These listings and approvals apply to the basic DAA-50 Series Digital Audio Amplifiers. 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: file S635.
- ULC Listed: file S635.
- FM Approved
- CSFM approved: file 7170-0028:223, 7170-0028:244.
- MEA approved: file 232-06-E, 128-07-E (wire only).
- City of Chicago approved: High Rise, Class 1, Class 2 (NFS2-3030, NFS2-640, NCA-2).
- City of Denver approved.
- PSB Corporation approved (Singapore) (NFS2-3030).

Product Line Information

DAA-5025: Digital Audio Amplifier (50 W, 25 VRMS), assembly with DAA-PS power supply board, shipped mounted to its chassis.

DAA-5025F: Digital Audio Amplifier (50W, 25 VRMS), multi-mode fiber, assembly with DAA-PS power supply board, shipped mounted to its chassis.

DAA-5025SF: Digital Audio Amplifier (50W, 25 VRMS), single-mode fiber, assembly with DAA-PS power supply board, shipped mounted to its chassis.

DAA-5070: Digital Audio Amplifier (50 W, 70.7 VRMS), assembly with DAA-PS power supply board, shipped mounted to its chassis.

DAA-5070F: Digital Audio Amplifier (50 W, 70.7 VRMS), multimode fiber, assembly with DAA-PS power supply board, shipped mounted to its chassis.

DAA-5070SF: Digital Audio Amplifier (50 W, 70.7 VRMS), single-mode fiber, assembly with DAA-PS power supply board, shipped mounted to its chassis.

220-240VAC VERSIONS

DAA-5025E: Digital Audio Amplifier (50 W, 25 VRMS, 240 VAC), assembly with DAA-PS power supply board, shipped mounted to its chassis.

DAA-5025EF: Digital Audio Amplifier (50 W, 25 VRMS), multimode fiber, 240 VAC, assembly with DAA-PS power supply board, shipped mounted to its chassis.

DAA-5025ESF: Digital Audio Amplifier (50 W, 25 VRMS), single-mode fiber, 240 VAC, assembly with DAA-PS power supply board, shipped mounted to its chassis.

DAA-5070E: Digital Audio Amplifier (50 W, 70.7 VRMS, 240VAC), assembly with DAA-PS power supply board, shipped mounted to its chassis.

DAA-5070EF: Digital Audio Amplifier (50 W, 70.7 VRMS), multimode fiber, 240 VAC, assembly with DAA-PS power supply board, shipped mounted to its chassis.

DAA-5070ESF: Digital Audio Amplifier (50 W, 70.7 VRMS), single-mode fiber, 240 VAC, assembly with DAA-PS power supply board, shipped mounted to its chassis.

ACCESSORIES

DP-1B: Dress panel; covers one tier of CAB-4 Series cabinet.

CHS-BH1: Battery chassis; holds two 12.0 AH batteries. Mounts on the left side of DAA chassis.

ACT-25, ACT-70: Audio-coupling transformers. Used with AA-30 or DAA-series amplifiers to drive thousands of amplifiers in large system applications.

ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

Made in the U.S.A.

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

LISTING SERVICE

LISTING No.   7165-0028:0224

CATEGORY: 7165 -- FIRE ALARM CONTROL UNIT (COMMERCIAL)

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Model NFS-3030, NFS-3030E, NFS2-3030, NFS2-3030E fire alarm control units. Local, auxiliary, remote station (PPU), proprietary (PPU), central station (PPU), automatic, manual, waterflow and sprinkler supervisory services. Suitable for use as a releasing service, Emergency Voice/Alarm Communication System and Process/Energy Management Equipment. Refer to listee's data sheet for detailed product description and operational considerations. System components:

AA-30/-100/-120; Amplifiers
ACM-8R/-16AT/-24AT/-32A/-48A; Annunciator Control Modules
ACPS-610; Addressable/Charger Power Supply
ACPS-2406; Addressable Charger/Power Supply
ACT-1/-2/-4/-25/-70; Audio Coupling Transformer
ADDR-B4/-B4R/-C4/-C4R/-D4/-D4R; Doors
AEM-16AT/-24AT/-32A/-48A; Annunciator Expander Modules
AFM-16A/-16AT/-32A; Annunciator Fixed Modules
AKS-1B; Annunciator Key Switch
AMG-1/-E; Audio Message Generator
AMPS-24, CPS-24; Addressable Main Power Supply
APS-6R, APS2-6R; Auxiliary Power Supply
ARM-4; Auxiliary Relay Module
BDA-25V/-70V; Backup Digital Audio Amplifiers
BGRA-SCS, BGRB-SCS, CEF-SCS, RSA-SCS, RSB-SCS, RSC-SCS, RSD-SCS,
RSE-SCS; Smoke Control Station
BB-17/-25/-100/-200; Battery Box
BMP-1; Blank Module
BP-4; Battery Panel
BP2-4; Dress Panel
CA-1/-2; Chassis
CAB-3/4 Series, EQ Series; Enclosures
*CAB-RP, CAB-RPR; Cabinets
CHG-120; Battery Charger
CHS-4L/-4MB/-4N/-6/-M3/-PS/-BH1; Chassis
CMIC-1, CMIC-RP*; Microphone Assembly
CPU2-3030D/CPU2-3030ND; CPU Board

*Rev. 05-08-12 gt

Date Issued: **July 01, 2015**   *Listing Expires*   **June 30, 2016**

Authorized By: *JAMES PARSEGIAN, Program Coordinator*

Fire Engineering Division

CRE-4; Control Relay Expander
CRM-4RK; Control Relay Module
CRT-2; Display Terminal
DAA-5025/-5070; Digital Audio Amplifiers
DAA-5025F/DAA-5025SF; Digital Audio Amplifiers, Fiber Mode
DAA-5070F/DAA-5070SF; Digital Audio Amplifiers, Fiber Mode
DAA2-5025/-5070/-7525; Digital Audio Amplifiers
DAA-7525, DAA-7525F, DAA-7525SF Series; Digital Audio Amplifiers
DAA-PS; Power Supply
DAX-3525/-3570/-5025/-5070; Digital Audio Amplifiers
DCM-4RK; Dual Channel Module
DP-1B; Blank Panel
DP-DISP; Display Dress Panel
DR-A4, DR-A4B, DR-A4BR, DR-A4R; Door Assembly
DR-AA4, DR-AA4B, DR-AA4BR, DR-AA4R; Door Assembly
DR-B3F; Door Assembly
DR-B4, DR-B4B, DR-B4BR, DR-B4R; Door Assembly
DR-C4, DR-C4B, DR-C4BR, DR-C4R; Door Assembly
DR-D4, DR-D4B, DR-D4BR, DR-D4R; Door Assembly
DS-AMP/E; Digital Series Audio Amplifier
DS-BDA; Digital Series Backup Amplifier
DS-DB; Digital Series Distribution Board
DS-FM, DS-RFM, DS-SFM; Digital Series Fiber Module
DPDW-1B, DPSW-1B, XPDP; Dress Panels
VP-2B, DPA-1/-1A4/-2; Dress Panels
DPI-232; Direct Panel Interface
DVC-AO; Digital Voice Command
DVC-EM; Extended Memory
DVC-EMF/DVC-EMSF; Digital Voice Command/Ext Memory
DVC-KD; Keypad Board
*DVC-RPU; Remote Paging Unit
EQBB-B4, EQBB-C4, EQBB-D4; Backbox Assembly
EQDR-B4, EQDR-C4, EQDR-D4; Door Assembly
FCM-1-REL; Releasing Control Module
FCPS-24S6/S8; Field Charger/Power Supply
FFT-7/-7S; Fire Fighter's Telephones
FIRSTVISION-LCD; Interactive Firefighters' Display
FIRSTVISION-ENC; FirstVision Backbox Enclosure and Door
FMM-4-20; Analog Input Module
FHS; Fireman's Handset
FCM-1; Addressable control module
FDM-1; Dual monitor module
FDRM-1*; Dual Relay/Monitor Module
FMM-1; Monitor module
FMM-101; Miniature monitor module

*Rev. 05-06-12 gt

Date Issued: **July 01, 2015**   *Listing Expires*   **June 30, 2016**

Authorized By: **JAMES PARSEGIAN**, *Program Coordinator*

                  Fire Engineering Division

FRM-1; Addressable relay module
FTM-1; Firephone Control Module
FPJ; Fireman's Phone Jack
FZM-1; Two-wire detector monitor module
HS-NCM-W/-MF/SF/-WMF/-WSF/-MFSF; High Speed Network Control Modules
ICE-4; Indicating Control Expander
ICM-4RK; Indicating Circuit Module
IPDACT-2/-2UD/IPENC; IP Digital Alarm Communicator
ISO-X; Isolator Module
IZE-A; Initiating Zone Expander
IZM-8RK; Initiating Zone Module
LCD-80, -160; Liquid Crystal Display Module
LCD2-80; Liquid Crystal Display
LCM-320; Loop Control Module
LDM-32/-E32/-R32; Lamp Driver Module
LEM-320; Loop Expander Module
MP-1B; Blank Panel
MPS-24B; Power Supply Module
NBG-12; Series Addressable Manual Pull Station
NBG-12LX; Manual pull station, addressable. See DN-6726
NCA/NCA-2; Network Control Annunciator
NCM-W/-F; Network Control Module
NCS4-W-ONYX, NCS4-F-ONYX; Network Control Station, Wire/Fiber
NCS5-W-ONYX, NCS5-F-ONYX; Network Control Station, Wire/Fiber
ONYXWorks-EW/-NW/NF/-HNW/-HNMF/-HNSF/-TS/-EW-TS/-NF-TS/-HW-TS/-HNMFT/-HNS
FT/- HNWT; Graphics PC workstation for NOTI-FIRE-NET Wire/Fiber/with Touch-screen
monitors
N-ELR; End of Line Resistors
NFS-LBB/-LBBR; Battery Box
PRN-6; Printer
R-120/-2.2K/-27K/-470/-47K; End of Line Resistors
RA-400/-400Z; Remote Annunciators
RKS-S; Remote Security Keyswitch
RM-1/-1SA; Remote Microphone
RPJ-1; Remote Paging Jack
RPT-W/-F/-485W/-485WF; Repeater
SBB-A3F; Backbox Assembly
SBB-A4, SBB-A4R, SBB-AA4, SBB-AA4R; Backbox Assembly
SBB-B4, SBB-B4R-L8, SBB-C4, SBB-C4R; Backbox Assembly
SBB-D4, SBB-D4R; Backbox Assembly
SCS-8; Smoke Control Station
SCS-8L; Smoke Control Lamp Driver Station
SCE-8; Smoke Control Expander
SCE-8L; Smoke Control Expander Lamp
STS-1; Security Tamper Switch

*Rev. 05-08-12 gt

Date Issued: **July 01, 2015**   *Listing Expires*   **June 30, 2016**

Authorized By: *JAMES PARSEGIAN, Program Coordinator*

Fire Engineering Division

TM-4; Transmitter Module
TR-A4/-B3N/-B4/-C4/-D3N/-D4; Trim Ring
UDACT, UDACT-2; Universal DACT
UZC-256/BB--UZC; Universal Zone Coder/Backbox
VCE-4; Voice Control Expander
VCM-4RK; Voice Control Module
VS4095/5; Keltron Remote Printer
XP5-C/-M; Transponder
XPC-8; Transponder Control Module
XPIQ; Transponder Quad Intelligent Audio Module
XPM-8/-8L; Transponder Monitor Modules
XPP-1; Transponder Processor
XPR-8; Transponder Relay Module

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label.

APPROVAL: Listed as fire alarm control units suitable for high rise applications for use with separately listed compatible initiating and indicating devices. This control unit can generate the temporal code pattern fire alarm signal as required per NFPA 72, 2002 Edition. Refer to listee's Installation Instructions Manual for details.
This control unit meets the requirements of UL Standard 864, 9th Edition.

NOTE: 1. For Fire Alarm Verification feature (delay of fire alarm signal), the maximum Retard/Reset/Restart period shall not exceed 30 seconds.

2. Combined with Listing No. 7170-0028:223

*Rev. 05-08-12 gt

Date Issued: **July 01, 2015**   *Listing Expires*   **June 30, 2016**

Authorized By: *JAMES PARSEGIAN, Program Coordinator*

Fire Engineering Division

(N) NOTIFIER®

FCPS-24S6 and FCPS-24S8
6-Amp and 8-Amp
24-Volt Remote Power Supplies
Section: Power Supplies

UL LISTED S635   **FM APPROVED**   California State Fire Marshal 7315-0028:225

MEA 299-02-E

GENERAL

The **FCPS-24S6** (6-amp) and **FCPS-24S8** (8-amp) are compact, cost-effective 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 a stand-alone supply. Primary applications include Notification Appliance (bell) 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.

FEATURES

- UL-Listed NAC synchronization using System Sensor, Wheelock, or Gentex "Commander²" appliances.
- Cascadable for up to ten power supplies (four for Gentex) with strobe timing maintained.
- 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 jumpered 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 (**A77-716B**).
- 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 or 8-hour delay.
- Works with virtually any UL 864 fire alarm control which utilizes an industry-standard reverse-polarity notification circuit (including unfiltered and unregulated bell power).
- Requires input trigger voltage of 9.0 – 32 VDC.
- Self-contained in compact, locking cabinet — 15" (38.1 cm) high x 14.5" (36.83 cm) wide x 2.75" (6.985 cm) deep.
- 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 (3.1 mm²) wire.
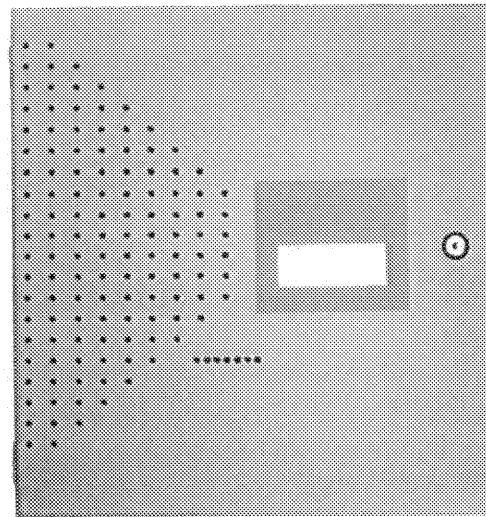
STANDARDS and CODES

The FCPS-24S6/-24S8 complies 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 *(stand-alone mode)*.

SPECIFICATIONS

Primary (AC) power:

- FCPS-24S6/-24S8: 120 VAC, 60 Hz, 3.2 A maximum.
- Wire size: minimum #14 AWG (2.0 mm²) 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 amps at 24 VDC.

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

Auxiliary power output: specific application power 500 mA maximum.

Output circuits:

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

Secondary power (battery) charging circuit:

- Supports lead-acid batteries only.
- Float-charge voltage: 27.6 VDC.
- Maximum charge current: 1.5 amps
- Maximum battery capacity: 18 AH.

APPLICATIONS

Example 1: Expand notification appliance power an additional 6.0 amps (FCPS-24S6) or 8.0 amps (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 amps (FCPS-24S6) or up to 6.0 amps (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.

Addressable FACPs are capable of locating control and monitor modules at distances of up to 10,000 feet (3048 meters).

AGENCY LISTINGS AND APPROVALS

See the first page of this data sheet for listing agencies and file numbers. These listings and approvals apply to the FCPS-24S6 and the FCPS-24S8. 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.

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 attached 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 is 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.

PRODUCT LINE INFORMATION

FCPS-24S6: 6.0 amp, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15" [38.1 cm] high x 14.5" [36.83 cm] wide x 2.75" [6.985 cm] deep), and installation instructions.
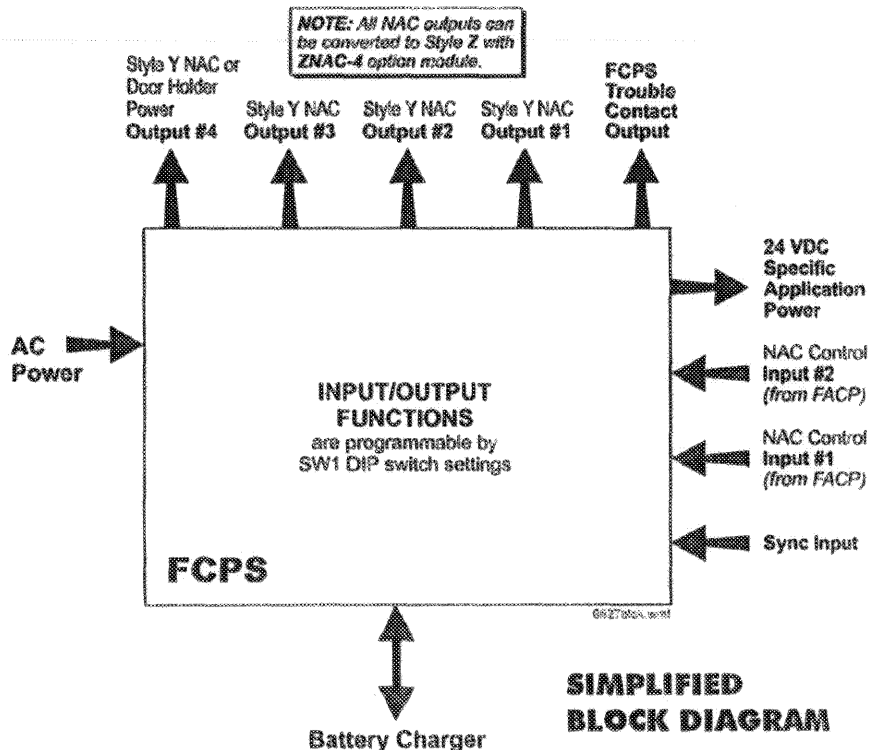
FCPS-24S8: 8.0 amp, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15" [38.1 cm] high x 14.5" [36.83 cm] wide x 2.75" [6.985 cm] deep), and installation instructions.
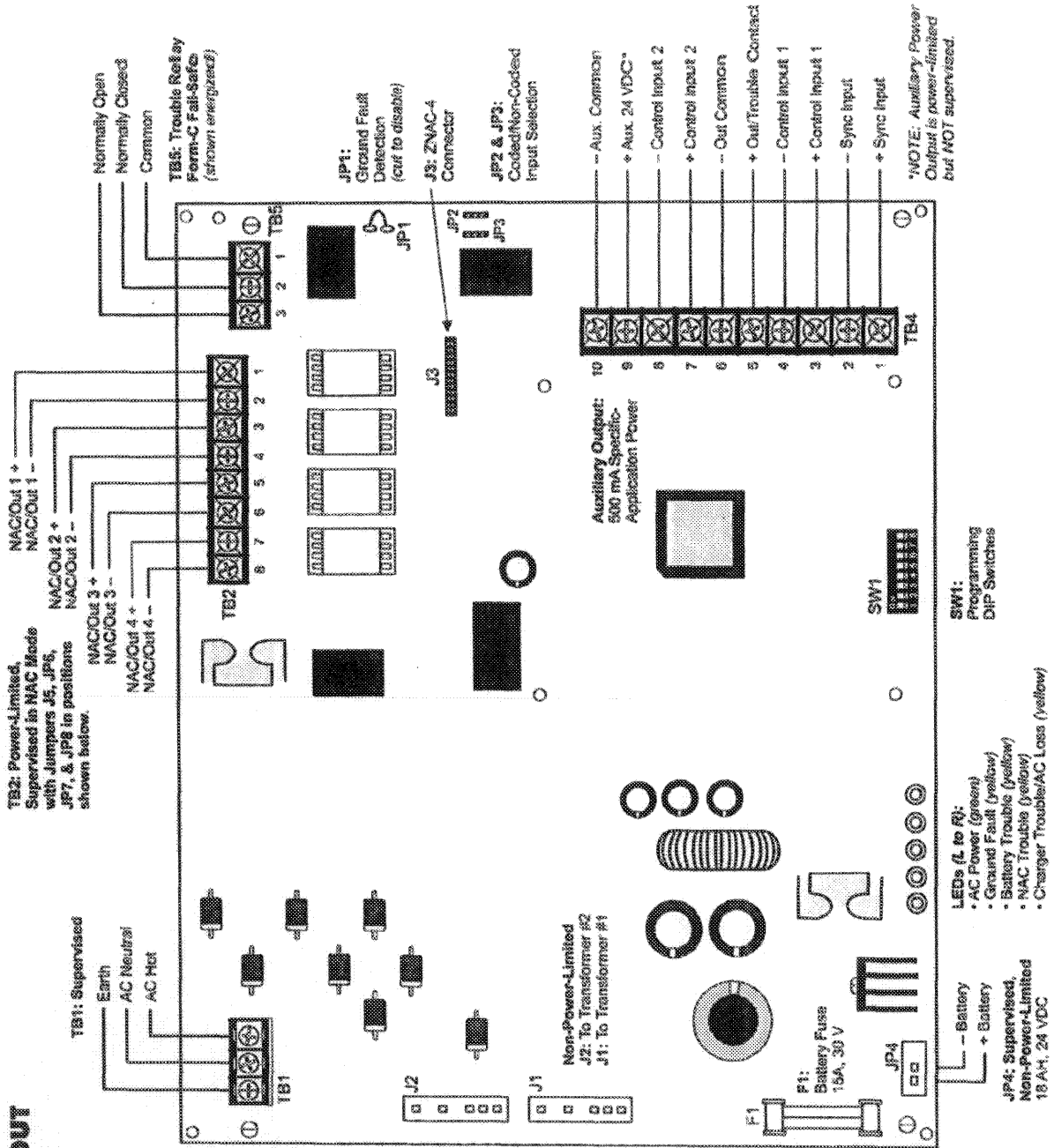
ZNAC-4: Class A (Style Z) NAC option module.

A77-716B: 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).*

PS-1270: Battery, 12 volt, 7.0 AH *(two required, see PS Series data sheet DN-1109).*

NOTE: All NAC outputs can be converted to Style Z with ZNAC-4 option module.

Style Y NAC or Door Holder Power Output #4

Style Y NAC Output #3

Style Y NAC Output #2

Style Y NAC Output #1

FCPS Trouble Contact Output

AC Power

INPUT/OUTPUT FUNCTIONS are programmable by SW1 DIP switch settings

FCPS

24 VDC Specific Application Power

NAC Control Input #2 (from FACP)

NAC Control Input #1 (from FACP)

Sync Input

Battery Charger

SIMPLIFIED BLOCK DIAGRAM

BOARD LAYOUT

Normally Open
Normally Closed
Common
TB5: Trouble Relay
Form-C Fail-Safe
(shown energized)

JP1:
Ground Fault
Detection
(cut to disable)

J3: ZNAC-4
Connector

JP2 & JP3:
Coded/Non-Coded
Input Selection

NAC/Out 1 +
NAC/Out 1 –

NAC/Out 2 +
NAC/Out 2 –

NAC/Out 3 +
NAC/Out 3 –

NAC/Out 4 +
NAC/Out 4 –

TB2: Power-Limited,
Supervised in NAC Mode
with Jumpers J5, JP6,
JP7, & JP8 in positions
shown below.

– Aux. Common
+ Aux. 24 VDC*
– Control Input 2
+ Control Input 2
– Out Common
+ Out/Trouble Contact
– Control Input 1
+ Control Input 1
– Sync Input
+ Sync Input

Auxiliary Output:
500 mA Specific-
Application Power

*NOTE: Auxiliary Power
Output is power-limited
but NOT supervised.

TB4

TB1: Supervised
Earth
AC Neutral
AC Hot

Non-Power-Limited
J2: To Transformer F2
J1: To Transformer #1

SW1:
Programming
DIP Switches

LEDs (L to R):
• AC Power (green)
• Ground Fault (yellow)
• Battery Trouble (yellow)
• NAC Trouble (yellow)
• Charger Trouble/AC Loss (yellow)

F1:
Battery Fuse
15A, 33 V

JP4: Supervised,
Non-Power-Limited
18 A/h, 24 VDC

– Battery
+ Battery

LISTING SERVICE

LISTING No. 7315-0028:0225   Page 1 of 1

CATEGORY: 7315 -- POWER UNITS

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models FCPS-24S6 and FCPS-24S8 are power limited power supply/battery chargers used for supervision and expanded power driving capability of up to four Notification Appliance Circuits (FACP Fire Circuits, Signaling Devices) or resettable/non resettable outputs. Model ZNAC-4 Class A converter. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: 120 VAC, 24 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label.

APPROVAL: Listed as a Power Supply/Battery Charger for use with separately listed compatible fire alarm control units.

XLF: 7315-0075:0206

1-24-03KK

Date Issued: **July 01, 2015**   *Listing Expires* **June 30, 2016**

Authorized By: **JAMES PARSEGIAN**, *Program Coordinator*

Fire Engineering Division

FST-851 Series

Intelligent Thermal (Heat) Detectors with FlashScan®

(N) **NOTIFIER**®
by Honeywell

General

Notifier FST-851 Series intelligent plug-in thermal detectors with integral communication has features that surpass conventional detectors. Point ID capability allows each detector's address to be set with decade address switches, providing exact detector locations. FST-851 Series thermal detectors use an innovative thermistor sensing circuit to produce 135°F/57°C fixed-temperature (FST-851) and rate-of-rise thermal detection (FST-851R) in a low-profile package. FST-851H provides fixed high-temperature detection at 190°F/88°C. These thermal detectors provide effective, intelligent property protection in a variety of applications. FST-851 Series detectors are compatible with all Notifier intelligent Fire Alarm Control Panels, except FireWarden series panels. .

FlashScan® (U.S. Patent 5,539,369) is a communication protocol developed by Notifier Engineering that greatly enhances the speed of communication between analog intelligent devices and certain NOTIFIER systems. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel's CPU stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of earlier designs.

Features

- Sleek, low-profile, stylish design.
- State-of-the-art thermistor technology for fast response.
- Rate-of-rise model (FST-851R), 15°F (8.3°C) per minute.
- Factory preset at 135°F (57°C); high-temperature model at 190°F (88°C).
- Addressable by device.
- Compatible with FlashScan® and CLIP protocol systems.
- Direct dial entry of address 01-159 for FlashScan® loops, 01-99 CLIP mode loops.
- Two-wire SLC connection.
- Visible LEDs "blink" every time the unit is addressed.
- 360°-field viewing angle of the visual alarm indicators (two bi-color LEDs). LEDs blink green in Normal condition and turn on steady red in Alarm.
- Integral communications and built-in device-type identification.
- Remote test feature from the panel.
- Built-in functional test switch activated by external magnet.
- Walk test with address display (an address of 121 will blink the detector LED 12-(pause)-1).
- Low standby current.
- Backward-compatible.
- Built-in tamper-resistant feature.
- Designed for direct-surface or electrical-box mounting.
- Sealed against back pressure.
- Plugs into separate base for ease of installation and maintenance. Separate base allows interchange of photoelectric, ionization and thermal sensors.
- SEMS screws for wiring of the separate base.
- Constructed of off-white Bayblend®, designed to commercial standards, and offers an attractive appearance.

FST-851 Series in B710LP base

- 94-5V plastic flammability rating.
- Remote LED output connection to optional RA400Z remote LED annunciator.
- Optional sounder, relay, and isolator bases.
- Optional recessed (RMK400) or surface (SMK400E) base mounting kits.

Specifications

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

Shipping weight: 4.8 oz. (137 g).

Operating temperature range: FST-851 Series, FST-851R: –20°C to 38°C (–4°F to 100°F); FST-851H: –20°C to 66°C (–4°F to 150°F).

Detector spacing: UL approved for 50 ft. (15.24 m) center to center. FM approved for 25 x 25 ft. (7.62 x 7.62 m) spacing.

Relative humidity: 10% – 93% noncondensing.

Thermal ratings: fixed-temperature setpoint 135°F (57°C), rate-of-rise detection 15°F (8.3°C) per minute, high temperature heat 190°F (88°C).

Altitude rating: 10,000 feet.

ELECTRICAL SPECIFICATIONS:

Voltage range: 15 - 32 volts DC peak.

Standby current (max. avg.): 300 µA @ 24 VDC (one communication every 5 seconds with LED enabled).

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

BASES AVAILABLE:

B710LP: 6.1" (15.5 cm) diameter.

B501: 4.1" (10.4 cm) diameter.

B501BH-2 or B501BHT-2: Sounder base assembly.

B224RB 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. Dimensions: 6.2" (15.748 cm) x 1.2" (3.048 cm).

B224BI Isolator Base: Dimensions: 6.2" (15.748 cm) x 1.2" (15.748 cm). Maximum: 25 devices between isolator bases. See Note 2 under Installation.

Applications

Use thermal detectors for protection of property. For further information, go to systemsensor.com for manual I56-407-00, Applications Manual for System Smoke Detectors, which pro-

vides detailed information on detector spacing, placement, zoning, wiring, and special applications.

Installation

The FST Series plug-in intelligent thermal detector uses a separate base to simplify installation, service, and maintenance. Installation instructions are shipped with each detector.

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

- 4.0" (10.16 cm) square box.
- 3.5" (8.89 cm) or 4.0" (10.16 cm) octagonal box.
- Single-gang box (except relay or isolator base).
- With B501BH-2 or B501BHT-2 base, use a 4.0" (10.16 cm) square box.
- With B224RB or B224BI base, use a 3.5" (8.89 cm) or 4.0" (10.16 cm) octagonal box, or a 4.0" (10.16 cm) square box.

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

## 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: S747
- ULC Listed: S6978MEA Listed: 383-02-E
- FM Approved
- CSFM: 7270-0028:196
- BSMI: CI313066760025
- CCCF: Certif. # 2004081801000018
- U.S. Coast Guard: 161.002/23/3 (AFP-200); 161.002/27/3 (AFP1010/AM2020); 161.002/42/1 (NFS-640)
- Lloyd's Register: 03/60011

Product Line Information

"A" suffix indicates ULC Listed model.

FST-851: Intelligent thermal detector. Must be mounted to one of the bases listed below.

FST-851A: Same as FST-851 but with ULC Listing.

FST-851R: Intelligent thermal detector with rate-of-rise feature.

FST-851RA: Same as FST-851R but with ULC Listing.

FST-851H: Intelligent high-temperature thermal detector.

FST-851HA: Same as FST-851H but with ULC Listing.

BASES:

B710LP: Standard U.S. low-profile base

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

B710LP: Standard U.S. low-profile base.

B710LP(A): Standard U.S. low-profile base.

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

B501: Standard European flangeless base.

B501(A): Standard European flangeless base, ULC Listing.

BH501BH-2: Sounder base, includes **B501** base above.

BH501BHT-2: Same as B501BH-2, but includes temporal sounder.

BH501BHA: Sounder base, includes **B501** base above

BH501BHTA: Same as BH501BHA, but includes temporal sounder.

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

ACCESSORIES:

F110: Retrofit replacement flange for older style high profile bases. Converts bases for use with FlashScan® detectors.

RA400Z(A): Remote LED annunciator. 3 – 32 VDC. Fits U.S. single-gang electrical box. Supported by B710LPBP(A) and B501(A) bases only.

SMK400E: Surface mounting kit provides for entry of surface wiring conduit. For use with B501(A) base only.

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

SMB600: Surface mounting kit for use with B710LPBP(A).

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

M02-04-00: Test magnet.

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

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

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

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

B224BI Isolator Base: Dimensions: 6.2" (15.748 cm) x 1.2" (15.748 cm). Maximum: 25 devices between isolator bases. See Note 2 under Installation.

Applications

Use thermal detectors for protection of property. For further information, go to systemsensor.com for manual I56-407-00, Applications Manual for System Smoke Detectors, which provides detailed information on detector spacing, placement, zoning, wiring, and special applications.

Installation

The FST Series plug-in intelligent thermal detector uses a separate base to simplify installation, service, and maintenance. Installation instructions are shipped with each detector.

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

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

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

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:** S747
- **ULC Listed:** CS630 (ML255)(FST-851A, FST-851HA, FST-851RA)
- **MEA Listed:** 363-02-E
- **FM Approved**
- **CSFM:** 7270-0028:196
- **BSMI:** CI313066760025
- **CCCF:** Certif. # 2004081801000018
- **U.S. Coast Guard:** 161.002/23/3 (AFP-200); 161.002/27/3 (AFP1010/AM2020); 161.002/42/1 (NFS-640)
- Lloyd's Register: 03/60011
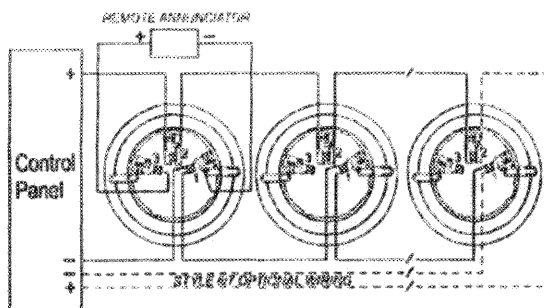
Wiring Diagram
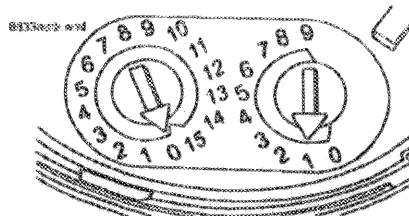
Address dial on back of detector

LISTING SERVICE

LISTING No. 7270-0028:0196

CATEGORY: 7270 -- HEAT DETECTOR

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models FST-751, *-851, *-851R, *-851H (fixed temperature) and FST-751R (fixed temperature with Rate-of-Rise) electronic heat detectors. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: *Models FST-751, -751R, -851, and -851R = 135°F fixed temperature
*Model FST-851H = 190°F fixed temperature

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical ratings, and UL label.

APPROVAL: Listed as heat detectors for use with Models B501 or B710LP base (CSFM Listing No. 7300-0028:173) and separately listed compatable fire alarm control units. Refer to listee's Installation Instructions Manual for details.

*Rev. 2-04-2003KK

Date Issued: **July 01, 2015**

Listing Expires **June 30, 2016**

Authorized By: *JAMES PARSEGIAN, Program Coordinator*

Fire Engineering Division

FSP-851(A) Series

Intelligent Plug-In Photoelectric Smoke Detectors with FlashScan®

NOTIFIER®
by Honeywell

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.

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

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.
- **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 I56-1380 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.

Product Line Information

"A" suffix indicates ULC Listed model.

FST-851 Series: Intelligent thermal detector. Must be mounted to one of the bases listed below.

FST-851 SeriesA: Same as FST-851 Series but with ULC Listing.

FST-851R: Intelligent thermal detector with rate-of-rise feature.

FST-851RA: Same as FST-851R but with ULC Listing.

FST-851H: Intelligent high-temperature thermal detector.

FST-851HA: Same as FST-851H but with ULC Listing.

BASES:

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

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

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

B501A: Standard European flangeless base, ULC Listing.

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

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

B224RB(A): Intelligent relay base.

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

ACCESSORIES:

F110: Retrofit replacement flange for older style high profile bases. Converts bases for use with FlashScan® detectors.

RA400Z(A): Remote LED annunciator. 3 – 32 VDC. Fits U.S. single-gang electrical box. Supported by B710LPBP(A) and B501(A) bases only.

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

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

SMB600: Surface mounting kit for use with B710LPBP(A).

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

M02-04-01: Test magnet.

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

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

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

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

DETECTOR GUARDS:

NOTE: Some guards listed below may not be applicable to FST Series.

STI9601: Low-profile, flush-mount smoke detector guard, wire.*

STI9602: Low-profile, surface-mount, smoke detector guard, wire.*

STI9609: High-profile, flush-mount, smoke detector guard, wire.*

STI9605: High-profile, surface-mount, smoke detector guard, wire.*

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

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

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

STI8200-SS: Flush-mount stainless steel smoke detector guard (compatibility pending).

STI8230-SS: Surface-mount stainless steel smoke detector guard (compatibility pending).

ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

Made in the U.S.A.

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

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No.   7272-0028:0206

CATEGORY: 7272 -- SMOKE DETECTOR-SYSTEM TYPE-PHOTOELECTRIC

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models FSP-751, HPX-751, FSP-751T, FSH-751, FAPT-751, FAPT-851, FSP-851, FSP-851R* and FSP-851T photoelectric type smoke detectors. Models FSP-751T and FSP-851T employ a 135°F supplement integral heat sensor which only assists in a fire situation. This thermal circuitry is NOT approved for use in lieu of a required heat detector. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: 24 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, product number, electrical rating and UL label.

APPROVAL: Listed as photoelectric type smoke detector for use with listee's separately listed compatible base and fire alarm control units. Models FSP-751, FSP-751T, FAPT-751, FAPT-851, FSP-851, FSP-851R*, FSP-851T are suitable for open areas and inside duct installation with air velocities between 0-4000 fpm. Model HPX-751 is suitable for open areas with air velocities between 0-300 fpm. Model FSH-751 is suitable for open areas with air velocity between 0-4000 fpm.

NOTE: Combined with 7272-0028:208

The photoelectric type detectors are generally more effective at detecting slow, smoldering fires that smolder for hours before bursting into flame. Sources of these fires may include cigarettes burning in couches or bedding. The ionization type detectors are generally more effective at detecting fast, flaming fires that consume combustible materials rapidly and spread quickly. Sources of these fires may include paper burning in a waste container or a grease fire in the kitchen.

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Date Issued: **July 01, 2015**   *Listing Expires*   **June 30, 2016**

Authorized By: *JAMES PARSEGIAN, Program Coordinator*

Fire Engineering Division

FST-851 Series

Intelligent Thermal (Heat) Detectors with FlashScan®
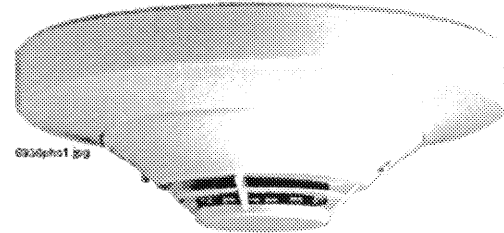
NOTIFIER®
by Honeywell

General

Notifier FST-851 Series intelligent plug-in thermal detectors with integral communication has features that surpass conventional detectors. Point ID capability allows each detector's address to be set with decade address switches, providing exact detector locations. FST-851 Series thermal detectors use an innovative thermistor sensing circuit to produce 135°F/57°C fixed-temperature (FST-851) and rate-of-rise thermal detection (FST-851R) in a low-profile package. FST-851H provides fixed high-temperature detection at 190°F/88°C. These thermal detectors provide effective, intelligent property protection in a variety of applications. FST-851 Series detectors are compatible with all Notifier intelligent Fire Alarm Control Panels, except FireWarden series panels.

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

Features

- Sleek, low-profile, stylish design.
- State-of-the-art thermistor technology for fast response.
- Rate-of-rise model (FST-851R), 15°F (8.3°C) per minute.
- Factory preset at 135°F (57°C); high-temperature model at 190°F (88°C).
- Addressable by device.
- Compatible with FlashScan® and CLIP protocol systems.
- Direct dial entry of address 01-159 for FlashScan® loops, 01-99 CLIP mode loops.
- Two-wire SLC connection.
- Visible LEDs "blink" every time the unit is addressed.
- 360°-field viewing angle of the visual alarm indicators (two bi-color LEDs). LEDs blink green in Normal condition and turn on steady red in Alarm.
- Integral communications and built-in device-type identification.
- Remote test feature from the panel.
- Built-in functional test switch activated by external magnet.
- Walk test with address display (an address of 121 will blink the detector LED 12-(pause)-1).
- Low standby current.
- Backward-compatible.
- Built-in tamper-resistant feature.
- Designed for direct-surface or electrical-box mounting.
- Sealed against back pressure.
- Plugs into separate base for ease of installation and maintenance. Separate base allows interchange of photoelectric, ionization and thermal sensors.
- SEMS screws for wiring of the separate base.
- Constructed of off-white Bayblend®, designed to commercial standards, and offers an attractive appearance.

FST-851 Series in B710LP base

- 94-5V plastic flammability rating.
- Remote LED output connection to optional RA400Z remote LED annunciator.
- Optional sounder, relay, and isolator bases.
- Optional recessed (RMK400) or surface (SMK400E) base mounting kits.

Specifications

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

Shipping weight: 4.6 oz. (137 g).

Operating temperature range: FST-851 Series, FST-851R: –20°C to 38°C (–4°F to 100°F); FST-851H: –20°C to 66°C (–4°F to 150°F).

Detector spacing: UL approved for 50 ft. (15.24 m) center to center. FM approved for 25 x 25 ft. (7.62 x 7.62 m) spacing.

Relative humidity: 10% – 93% noncondensing.

Thermal ratings: fixed-temperature setpoint 135°F (57°C), rate-of-rise detection 15°F (8.3°C) per minute, high temperature heat 190°F (88°C).

Altitude rating: 10,000 feet.

ELECTRICAL SPECIFICATIONS:

Voltage range: 15 - 32 volts DC peak.

Standby current (max. avg.): 300 µA @ 24 VDC (one communication every 5 seconds with LED enabled).

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

BASES AVAILABLE:

B710LP: 6.1" (15.5 cm) diameter.

B501: 4.1" (10.4 cm) diameter.

B501BH-2 or B501BHT-2: Sounder base assembly.

B224RB 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. Dimensions: 6.2" (15.748 cm) x 1.2" (3.048 cm).

B224BI Isolator Base: Dimensions: 6.2" (15.748 cm) x 1.2" (15.748 cm). Maximum: 25 devices between isolator bases. See Note 2 under Installation.

Applications

Use thermal detectors for protection of property. For further information, go to systemsensor.com for manual I56-407-00, Applications Manual for System Smoke Detectors, which pro-

vides detailed information on detector spacing, placement, zoning, wiring, and special applications.

Installation

The FST Series plug-in intelligent thermal detector uses a separate base to simplify installation, service, and maintenance. Installation instructions are shipped with each detector.

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

- 4.0" (10.16 cm) square box.
- 3.5" (8.89 cm) or 4.0" (10.16 cm) octagonal box.
- Single-gang box (except relay or isolator base).
- With B501BH-2 or B501BHT-2 base, use a 4.0" (10.16 cm) square box.
- With B224RB or B224BI base, use a 3.5" (8.89 cm) or 4.0" (10.16 cm) octagonal box, or a 4.0" (10.16 cm) square box.

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

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:** S747
- **ULC Listed:** S6978MEA Listed: 383-02-E
- **FM Approved**
- **CSFM:** 7270-0028:196
- **BSMI:** CI313066760025
- **CCCF:** Certif. # 2004081801000018
- **U.S. Coast Guard:** 161.002/23/3 (AFP-200); 161.002/27/3 (AFP1010/AM2020); 161.002/42/1 (NFS-640)
- **Lloyd's Register:** 03/60011

Product Line Information

"A" suffix indicates ULC Listed model.

FST-851: Intelligent thermal detector. Must be mounted to one of the bases listed below.

FST-851A: Same as FST-851 but with ULC Listing.

FST-851R: Intelligent thermal detector with rate-of-rise feature.

FST-851RA: Same as FST-851R but with ULC Listing.

FST-851H: Intelligent high-temperature thermal detector.

FST-851HA: Same as FST-851H but with ULC Listing.

BASES:

B710LP: Standard U.S. low-profile base

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

B710LP: Standard U.S. low-profile base.

B710LP(A): Standard U.S. low-profile base.

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

B501: Standard European flangeless base.

B501(A): Standard European flangeless base, ULC Listing.

BH501BH-2: Sounder base, includes B501 base above.

BH501BHT-2: Same as B501BH-2, but includes temporal sounder.

BH501BHA: Sounder base, includes B501 base above

BH501BHTA: Same as BH501BHA, but includes temporal sounder.

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

ACCESSORIES:

F110: Retrofit replacement flange for older style high profile bases. Converts bases for use with FlashScan® detectors.

RA400Z(A): Remote LED annunciator. 3 – 32 VDC. Fits U.S. single-gang electrical box. Supported by B710LPBP(A) and B501(A) bases only.

SMK400E: Surface mounting kit provides for entry of surface wiring conduit. For use with B501(A) base only.

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

SMB600: Surface mounting kit for use with B710LPBP(A).

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

M02-04-00: Test magnet.

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

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

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

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

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7270-0028:0196

CATEGORY: 7270 -- HEAT DETECTOR

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models FST-751, *-851, *-851R, *-851H (fixed temperature) and FST-751R (fixed temperature with Rate-of-Rise) electronic heat detectors. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: *Models FST-751, -751R, -851, and -851R = 135°F fixed temperature
*Model FST-851H = 190°F fixed temperature

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical ratings, and UL label.

APPROVAL: Listed as heat detectors for use with Models B501 or B710LP base (CSFM Listing No. 7300-0028:173) and separately listed compatable fire alarm control units. Refer to listee's Installation Instructions Manual for details.

*Rev. 2-04-2003KK

Date Issued: **July 01, 2015**

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Authorized By: *JAMES PARSEGIAN, Program Coordinator*

Fire Engineering Division

NBG-12LX

Addressable Manual Pull Station

NOTIFIER®
by Honeywell

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.

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

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

Made in the U.S.A.

LISTING SERVICE

LISTING No.   7150-0028:0199   Page 1 of 1

CATEGORY: 7150 -- FIRE ALARM PULL BOXES

LISTEE: NotifierOne Fire-Lite Place. Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models NBG-12, NBG-12S, NBG-12LR, NBG-12LRA, NBG-12LAO, NBG-12LAOB,
NBG-12-LO, NBG-12LOB, NBG-12W, NBG-12LW, NBG-12NC, NBG-12WP, NBG-12LWP,
NBG-12L, NBG-12LX, NBG-12LA, NBG-12PS, NBG-12LSP, NBG-12LPS, NBG-12LPSP,
NBG-12SP, NOT-BG12LX, NBG-12LXSP, NBG-12LXBL and NBG-12LXP fire alarm pull
boxes. All units except Model NBG-12S are dual action pull stations. Models NBG-12LR and
NBG-12LRA are intended for agent releasing device. Refer to listee's data sheet for detailed
product description and operational considerations.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances
and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, rating, and UL label.

APPROVAL: Listed as fire alarm pull boxes for use with separately listed compatible fire alarm control units.
Models NBG-12WP, NBG-12LW, NBG-12W, NBG-12LWP, NBG-12LAO, NBG-12LO,
NBG-12LAOB and NBG-12LOB are intended for outdoor use when installed with Models WBB,
SB-I/O, or WP-10 back box. Refer to listee's Installation Instruction Manual for details.

These manual pull boxes meet the requirements of UL Standard 38, 1999 Edition and
California amendments which the controls and operating mechanisms required to be
operable at no more than 5lbs. force with one hand and shall not require tight grasping,
pinching, or twisting of the wrist.

*Corrected 10-06-12 bh
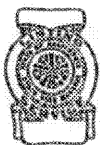
Date Issued: **July 01, 2015**   *Listing Expires*   **June 30, 2016**

Authorized By: *JAMES PARSEGIAN, Program Coordinator*

Fire Engineering Division

Outdoor Wall Mount Speaker and Speaker/Strobe
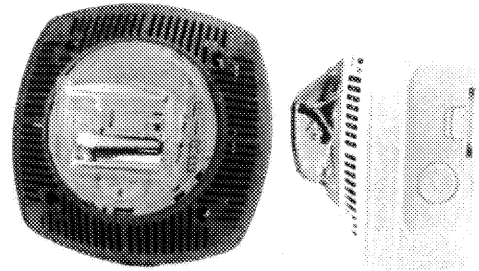
W S S P K
S E R I E S

Applications

The Gentex WSSPK Series is an outdoor listed, wall mount, speaker and speaker/strobe designed to meet code requirements for audio, visual and voice communications. The WSSPK Series are quality speaker products that offer both dependable evacuation signaling and visual alarms, or a combination of both. The WSSPK24 speaker/strobe offers a fixed 15/75 candela.

Included with the WSSPK Series speaker and speaker/strobe is the GBLP outdoor listed back box. Using the GBLP back box with the WSSPK Series provides protection from weather related conditions and allows the necessary full candela output.

The WSSPK Series provides a 25 or 70.7 VRMS speaker with field selectable power taps of 1/8W, 1/4W, 1/2W, 1W, 2W or 4W. The WSSPK24 strobes can be synchronized by using the Gentex Synchronization Control Module, FACP's or power supplies that include the Gentex Synchronization Protocol.

The WSSPK Series grills are constructed of high impact textured plastic. The WSSPK is warranted for 3 years from the date of purchase. The WSSPK devices are ANSI/UL 1480 and ANSI/UL 1638 listed.

WSSPK24-15/75WR   WSSPK24-15/75PWW

WSSPK and WSSPK24 Shipped with the GBLP Outdoor Back Box

Standard Features

- 24VDC fixed 15/75 candela
- WSSPK speaker and WSSPK24 speaker/strobe shipped with GBLP outdoor listed back box
- Unit Dimension: WSSPK speaker 6.1" square X 3.19" deep
  WSSPK24 speaker/strobe 6.1" square X 4.0625" deep
- High quality dBA output (intelligible)
- Frequency range 400-4000Hz
- Screw terminals, separate in/out wiring (12-18 gauge)
- Field selectable power taps: 1/8W, 1/4W, 1/2W, 1W, 2W, 4W
- Speaker voltage 25 or 70.7 VRMS standard, field selectable
- To synchronize use the Gentex AVSM Control Module
- Tamperproof grill
- Faceplate available in red or off-white
- Xenon strobe maintains constant flash rate (1Hz) regardless of input voltage[1]

Product Listings

SIGNALING

- ANSI/UL1480 and ANSI/UL 1638 Listed
- CSFM # 7320-0569:0141

Product Compliance

NEMA MEMBER

- Americans with Disabilities Act (ADA)
- NFPA 72 and NFPA 720
- IBC/IFC/IRC
- City & State Ordinances/Laws/Regulations
- Quality Management System is certified to: ISO 9001:2008

Outdoor Evacuation Speakers and Speaker/Strobes

Model Number	Description	Part Number
WSSPKR	Speaker	904-1437-002
WSSPKW	Speaker	904-1438-002
WSSPK24-15/75WR	Speaker/Strobe	904-1433-002
WSSPK24-15/75PWR	Speaker/Strobe	904-1434-002
WSSPK24-15/75WW	Speaker/Strobe	904-1435-002
WSSPK24-15/75PWW	Speaker/Strobe	904-1436-002
WSSPK24-15/75AWR	Speaker/Strobe	904-1431-002
WSSPK24-15/75AWW	Speaker/Strobe	904-1432-002

WSSPK24 Strobe Current Ratings

Candela	15/75cd
24VDC	63mA
UL Max[1]	96mA

Low Profile Speaker dBA @ 10 feet

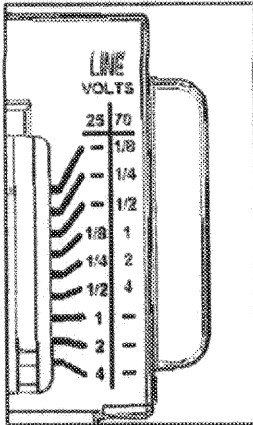| Input Watts	25 Volts	70.7 Volts
1/8	74.6 dBA	73.7 dBA
1/4	77.7 dBA	76.7 dBA
1/2	80.5 dBA	79.6 dBA
1	83.1 dBA	82.5 dBA
2	85.6 dBA	85.4 dBA
4	87.9 dBA	87.9 dBA

NOTES:

- The WSSPK Series is listed for outdoor use.
- Indoor Operating temperature: 32° to 120°F (0° to 49° C).
- Outdoor Operating temperature: -31° to 150°F (-35° to 66° C).
- Gentex does not recommend using a coded or pulsing signaling circuit with any of our strobe products (see technical bulletin 014).

R = Red Faceplate   W = White Faceplate
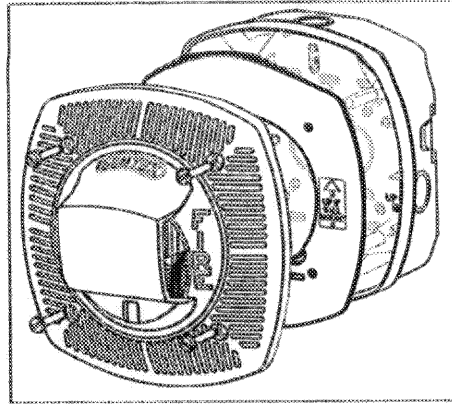A = ALERT Lettering (available on speaker/strobe only)

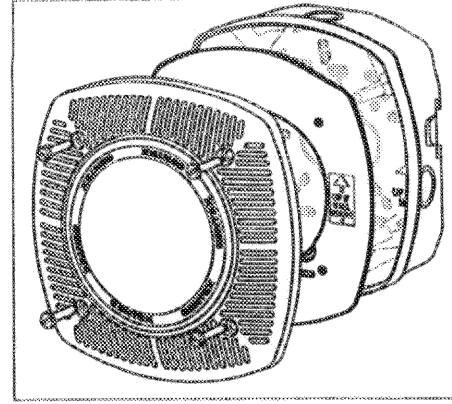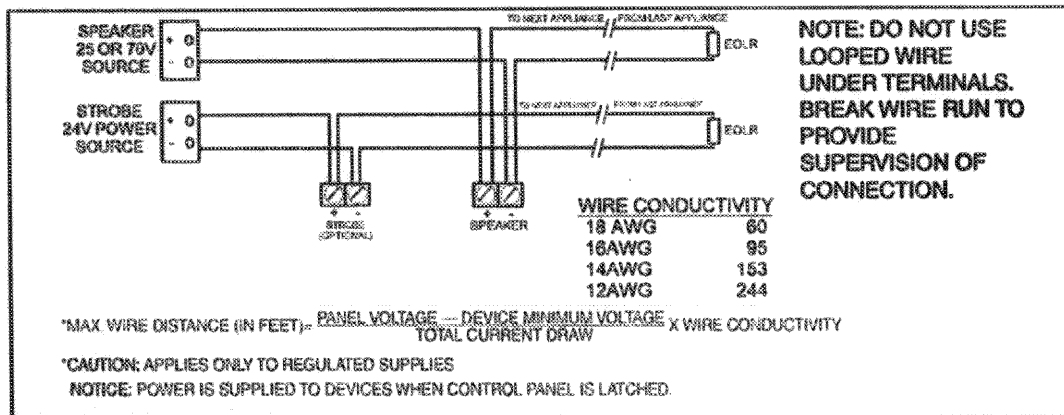All units are available in plain (no lettering)
Plain units are non-returnable

[1] RMS current ratings are per UL average RMS method. UL maximum current rating is the maximum RMS current within the listed voltage range (16-33VDC for 24VDC units) (8-17VDC for 12VDC units). For strobes the UL max current is usually at the minimum listed voltage (16VDC for 24VDC units) (8VDC for 12VDC units). For audibles the maximum current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual.

WSSPK SERIES

Power Tap

WSSPK Mounting Diagram

WSSPK24 Mounting Diagram

Wiring Diagram

NOTE: DO NOT USE LOOPED WIRE UNDER TERMINALS. BREAK WIRE RUN TO PROVIDE SUPERVISION OF CONNECTION.

WIRE CONDUCTIVITY	
18 AWG	60
16AWG	95
14AWG	153
12AWG	244

$$\text{*MAX WIRE DISTANCE (IN FEET)} = \frac{\text{PANEL VOLTAGE} - \text{DEVICE MINIMUM VOLTAGE}}{\text{TOTAL CURRENT DRAW}} \times \text{WIRE CONDUCTIVITY}$$

*CAUTION: APPLIES ONLY TO REGULATED SUPPLIES

NOTICE: POWER IS SUPPLIED TO DEVICES WHEN CONTROL PANEL IS LATCHED.

Architect & Engineering Specifications

The fire alarm speaker shall be Gentex WSSPK, WSSPK24 or equivalent. The speaker shall be capable of producing alarm tones or voice on all 25 or 70.7 VRMS audio systems. The speaker shall provide incremental tap settings of 1/8, 1/4, 1/2, 1, 2 or 4 watts. Minimum dBA ratings at 1/4 watt shall be 76.7 dBA and at 4 watts 87.9 dBA. Tap settings shall be adjustable with field selectable jumper pins. The speaker shall also have an optional visual signal capability.

The visual signal shall have a 1Hz flash rate regardless of input voltage. All field wiring connections shall be made via separate in-out terminal connections.

The appliance has extended temperature range of -31° to 150°F (-35° to 66° C). The appliance shall satisfy all outdoor and sever environment applications. The GBLP back box includes a gasket that must b inserted between the box and device. There are drain holes in the back box to allow for drainage, the seal on the GBLP is not water tight. The speaker or speaker/strobe shall be ANSI/UL and CSFM listed and comply with all local, state and federal fire alarm codes/standards.

1 unit per carton
2 pounds per carton

LISTING SERVICE

LISTING No.   7135-0569:0122

CATEGORY: 7135 -- AUDIBLE DEVICES

LISTEE: Gentex Corporation 10985 Chicago Drive, Zeeland, MI 49464
Contact: Keiffer Sestric (616) 392-7195 Fax (616) 392-4219
Email: keiffer.sestric@gentex.com

DESIGN: Model GEH24 horn and Models HS24-15, HS24-15/75, HS24-30, HS24-60, HS24-75, HS24-110, GEC24-15, GEC24-15/75, GEC24-30, GEC24-60, GEC24-75, GEC24-110, GEC24-177, GCC24-C, GEC3-24 and WGEC24 horn strobes. May be followed by -W (wall) and -W or -R (white or red) or -P plain. Models GCC24-C horn/strobe are ceiling mounted followed by -R (red), -W (white) or -P (plain). Refer to listee's data sheet for additional product description and operational considerations.

RATING: Electrical: 24 VDC

Candela:	15cd, 15/75cd, 30cd, 60cd, 75cd, 110cd, 177cd.
GCC24-C	Ceiling: 15cd, 30cd, 75cd, 95cd, 115cd, 150cd* (selectable)
GEC3-24	Wall: 15cd, 30cd, 60cd, 75cd, 110cd (selectable)

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical ratings and UL label.

APPROVAL: Listed as horn and horn/strobes for use with separately listed compatible fire alarm control units. For indoor use only. Model WGEC24 is intended for outdoor use when used with Model GOE outdoor enclosure (CSFM Listing No. 7300-0569:124). Model WGEC24 is intended for private mode signaling use only and not approved for hearing impaired application.

The audible in Models GEH24, GEC24, GEC3-24, and WGEC24 may produce distinctive tones including: mechanical, 2400Hz and chime tones in continuous and temporal 3 settings as well as a whoop tone in either a high or low dBA setting.

The audible in Model HS24 may produce a horn piezo frequency of 3100Hz. Model GCC24 may produce distinctive tones including mechanical and 2400Hz. Both models are capable of continuous and temporal 3 settings.

*Rev. 09-26-14 jp

Date Issued: **July 01, 2015**   *Listing Expires*   **June 30, 2016**

Authorized By: *JAMES PARSEGIAN, Program Coordinator*

Fire Engineering Division

Features:

- Tamperproof Selectable Candela Selections of 15, 30, 75, 95 and 115.
- Unit Dimension: 6.1" Square X 1.88" Deep
- Ceiling Mounting to a standard 4" X 2-1/8" Deep Backbox - No Extension Ring Required
- High Quality dBA Output (Intelligible) Frequency Range 400-4000Hz
- Screw Terminals, Separate In/Out Wiring (12-18 Gauge)
- Field Selectable Power Taps: 1/8W, 1/4W, 1/2W, 1W, 2W, 4W
- Speaker Voltage 25 or 70.7 VRMS Standard, Field Selectable
- To Synchronize Use the Evax Synchronization Control Module
- Tamperproof Grill Faceplate Available in Red or Off-White
- UL 464/UL 1971/UL 2043 Listed for Fire Protective Service/Signal for Hearing Impaired
- Xenon Strobe Maintains Constant Flash Rate (1Hz) Regardless of Input Voltage

Description:

The Evax SSPK or SSPK24 Series are ceiling or wall mount, selectable candela speakers and speaker/strobes designed to meet code requirements for audio, visual and voice communications. The SSPK Series are quality speaker products that offer both dependable evacuation signaling and visual alarms, or a combination of both. The high output tamperproof candela selections are 15, 30, 75, 95 and 115.

The SSPK Series can be mounted in a 2-1/8" deep square backbox, no extension ring is needed.
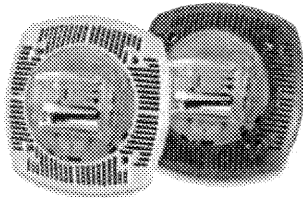
The SSPK Series provides a 25 or 70.7 VRMs speaker with field selectable power taps of 1/8W, 1/4W, 1/2W, 1W, 2W or 4W. The SSPK strobes can be synchronized by using the Evax Synchronization Control Module or with FACP's that include the Gentex synchronization protocol.

The SSPK Series grills are constructed of high impact textured plastic. The SSPK is warranted for 3 years from the date of purchase. The SSPK devices are UL 464 and UL 1971 listed for use with fire protective signaling systems.

EF-G-SSPK Series
Low Profile
Ceiling or Wall Mount
Speaker Speaker/Strobes
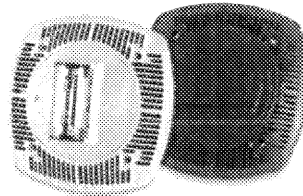
EF-G-SSPK24CLPW
Ceiling Speaker/Strobe
EF-G-SSPKLPR
Ceiling or Wall Speaker

EF-G-SSPK24WLPx
Wall Speaker/Strobe
Selectable Candela
Multi-Tap speaker

BS & A/MEA - Pending
• CSFM - Pending
• UL 1971, UL 464, UL 1480 and UL 2043 Listed

Americans with Disabilities Act (ADA)
• NFPA 72

The SSPK Series provides you a 25 or 70.7 VRMS speaker with field selectable power taps of 1/8W, 1/4W, 1/2W, 1W, 2W, or 4W and high output tamperproof candela selections of 15, 30, 75, 95 and 115.

Speaker dBA @ 10 ft.		
Input Watts	UL Typical dBA	
	25 Volts	70 Volts
1/8	74.6	73.7
1/4	77.7	76.7
1/2	80.5	79.6
1	83.1	82.5
2	85.6	85.4
4	87.9	87.9

LISTING SERVICE

LISTING No.	7320-0569:0137	Page 1 of 1
CATEGORY:	7320 -- SPEAKERS	

LISTEE: Gentex Corporation10985 Chicago Drive, Zeeland, MI 49464
Contact: Keiffer Sestric (616) 392-7195 Fax (616) 392-4219
Email: keiffer.sestric@gentex.com

DESIGN: Model SSPKCLP ceiling *and wall mounted speaker. Model SSPK24CLP ceiling mounted speaker strobe. Models SSPKCLP and SSPK24CLP are available in red or white. Models are to be mounted in standard 4" X 2 1/8 " back boxes. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING:

Speaker	25 Vrms and 70.7 Vrms
Strobe	21-30 VDC
Flash Rate	60 flashes per minute
Candela	15, 30, 75, 95 and 115 cd

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical/candela ratings and UL label.

APPROVAL: Listed as speakers and speaker strobes for use with separately listed compatible fire alarm control units. Units with strobe lights are suitable for the hearing impaired applications. For indoor use only.

If this appliance is required to produce a distinctive three-pulse Temporal Pattern Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72, 2002 Edition, the appliance must be used with a fire alarm control unit that can generate the temporal pattern signal. Refer to manufacturer's Installation Manual for details.
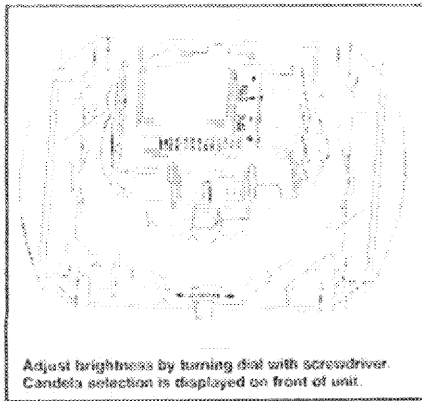
NOTE:

Date Issued:	**July 01, 2015**	*Listing Expires*	June 30, 2016
Authorized By:	*JAMES PARSEGIAN, Program Coordinator*		
	Fire Engineering Division		

SSPK24CLP Candela Selection

Adjust brightness by turning dial with screwdriver.
Candela selection is displayed on front of unit.

SSPKCLP Mounting Diagram
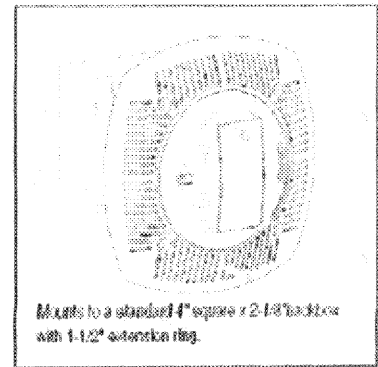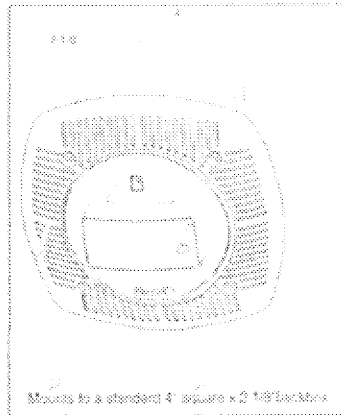
Mounts to a standard 4" square x 2 1/8" backbox.

Mounts to a standard 4" square x 2 1/8" backbox with 1-1/2" extension ring.
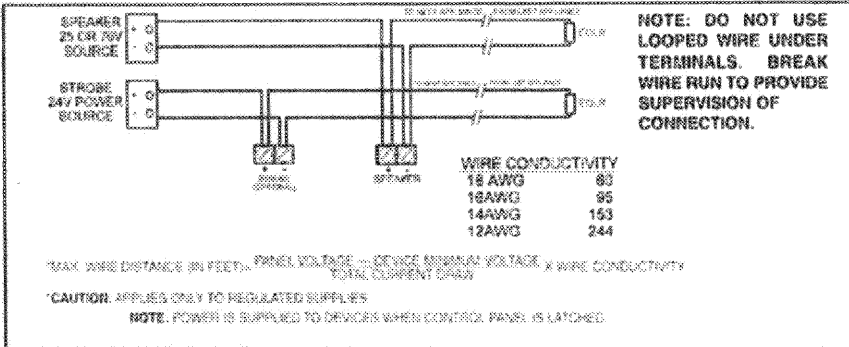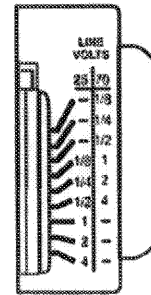
RMS current ratings are per UL average RMS method. UL maximum current rating is the maximum RMS current within the listed voltage range (16-33VDC for 24VDC units) (8-17VDC for 12VDC units). For strobes the UL max current is usually at the minimum listed voltage (16VDC for 24VDC units) (8VDC for 12VDC units). For audibles the maximum current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual

Wiring Diagram

NOTE: DO NOT USE LOOPED WIRE UNDER TERMINALS. BREAK WIRE RUN TO PROVIDE SUPERVISION OF CONNECTION.

WIRE CONDUCTIVITY	
18 AWG	60
16 AWG	95
14 AWG	153
12 AWG	244

*MAX WIRE DISTANCE (IN FEET) = PANEL VOLTAGE - DEVICE MINIMUM VOLTAGE x WIRE CONDUCTIVITY
TOTAL CURRENT DRAW

*CAUTION: APPLIES ONLY TO REGULATED SUPPLIES.
NOTE: POWER IS SUPPLIED TO DEVICES WHEN CONTROL PANEL IS LATCHED

SSPK Power tap Selection (Enlarged)

How to Order:

EF-G-SSPKCLPR — Speaker 4" Ceiling or Wall mount - RED face plate

EF-G-SSPKCLPW — Speaker 4" Ceiling or Wall mount - WHITE face plate

EF-G-SSPK24CLPR — Speaker/Strobe 4" Ceiling Mount multi-candela - Labeled FIRE - RED

EF-G-SSPK24CLPW — Speaker/Strobe 4" Ceiling Mount multi-candela - Labeled FIRE - WHITE

EF-G-SSPK24WLPR — Speaker/Strobe 4" Wall Mount multi-candela - Labeled FIRE - RED

EF-G-SSPK24WLPW — Speaker/Strobe 4" Wall Mount multi-candela - Labeled FIRE - WHITE

EF-G-SSPK24-15/75WLPR — Speaker/Strobe 4" Wall Mount 15/75 candela Labeled FIRE - RED

EF-G-SSPK24-15/75WLPW — Speaker/Strobe 4" Wall Mount 15/75 candela Labeled FIRE - WHITE

EF-G-AVSM-R — Synchronization Module RED

EF-G-AVSM-W — Synchronization Module WHITE

SSPKCLP CEILING MOUNT STROBE CURRENT RATINGS					
Candela	15cd	30cd	75cd	95cd	115cd
24 VDC	72mA	88mA	176mA	200mA	214mA
UL Max	120mA	130mA	272mA	318mA	360mA

Notes:
- The EF-SSPK Series is not listed for outdoor use.
- Operating temperature: 32° to 120°F (0° to 49° C).
- EVAX does not recommend using a coded or pulsing signaling circuit with any of our strobe products.

R = Red Faceplate, W = Off-White Faceplate
P = Plain (no lettering) Available with all models.
12 units per carton, 17 pounds per carton

Architect & Engineering Specifications:

The fire alarm speaker shall be Evax SSPK or equivalent. The speaker shall be capable of producing alarm tones or voice on all 25 or 70.7 VRMs audio systems. The speaker shall provide incremental tap settings of 1/8, 1/4, 1/2, 1, 2 or 4 watts. Minimum dBA ratings at 1/4 watt shall be 76.7dBA and at 4 watts 87.9dBA. Tap settings shall be adjustable with field selectable jumper pins. The speaker shall also have an optional visual signal capability.

The visual signal shall have a 1Hz flash rate regardless of input voltage. All field wiring connections shall be made via separate in-out terminal connections and the speaker or speaker strobe shall be UL, CSFM and BS&A listed and comply with all local, state and federal fire alarm codes/standards.

Specifications are subject to change without notice. Specifications are provided for information only and no responsibility is assumed by Evax Systems, Inc. for their use.

EVAX SYSTEMS FIRE
FIRE SOLUTIONS
Series

FMM-1(A), FMM-101(A), FZM-1(A) & FDM-1(A)

Monitor Modules with FlashScan®

NOTIFIER®
by Honeywell

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
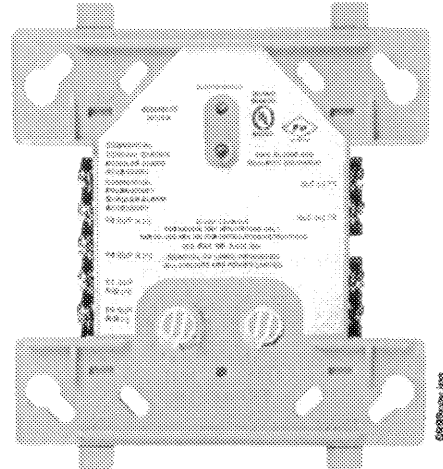
FMM-1(A) (Type H)

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 µA (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.
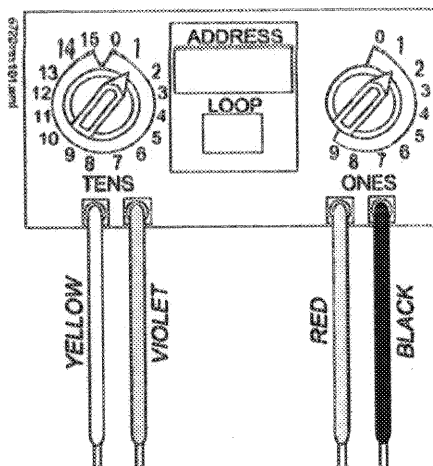
The FMM-101(A) Mini Monitor Module can be installed in a single-gang junction directly behind the monitored unit. Its small size and light weight allow it to be installed without rigid mounting. The FMM-101(A) is intended for use in intelligent, two-wire systems where the individual address of each module 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 µA, 1 communication every 5 seconds, 47k EOL; 600 µA Max. (Communicating, IDC Shorted).

Maximum IDC wiring resistance: 40 ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 400 µA.

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 µA, 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 µA (LED flashing).

Maximum IDC wiring resistance: 1,500 ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 240 µA

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.

(N) NOTIFIER®

FMM-1, FMM-101, FZM-1, FDM-1
Monitor Modules
with FlashScan®
Section: Intelligent/Addressable Devices

GENERAL

Four different monitor modules are available for NOTIFIER intelligent controls to suit a variety of applications. Monitor modules are used to 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).

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

FMM-101 — 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) used to supervise a Class B (Style B) circuit. Its compact design allows the FMM-101 to often be mounted in a single-gang box behind the device it's monitoring.

FZM-1 — is a standard-sized module used to monitor and supervise compatible two-wire, 24 volt, smoke detectors on a Class A (Style D) or Class B (Style B) circuit.

FDM-1 — is a standard-sized dual monitor module used to monitor and supervise two independent two-wire initiating device circuits (IDCs) at two separate, consecutive addresses in intelligent, two-wire systems.

FlashScan® (U.S. Patent 5,539,389) is a new 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.

FlashScan® is a registered trademark of NOTIFIER.

FMM-1 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® systems, 01 – 99 on CLIP systems.
* LED flashes green during normal operation (this is a programmable option) and latches on steady red to indicate alarm.

The **FMM-1 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 can be used to replace MMX-1 modules in existing systems.

UL LISTED S635 • ULC CS669 • FM APPROVED • Lloyd's Register TYPE APPROVED

U.S. Coast Guard
161.002/23/3 *(AFP-200: FMM-1/-101, FZM-1)*
161.002/42/1 *(NFS-640: FMM-1/-101)*
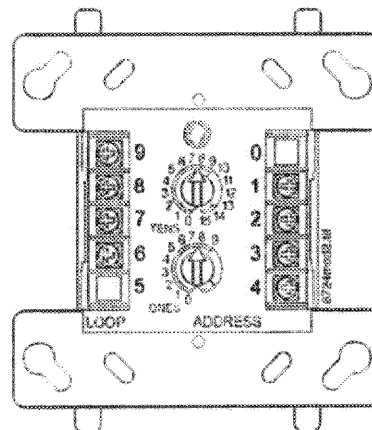
California State Fire Marshal
7300-0028:202

93/60141 (E3) *(FMM-1/-101, FZM-1)*
94/60004/E2 *(AFP200: except FDM-1)*
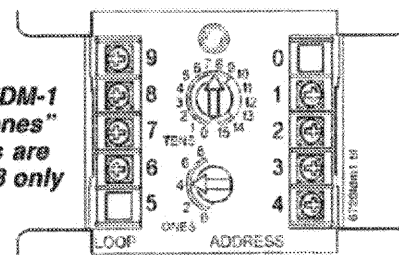02/60007 *(NFS-640: FDM-1)*

MEA
143-01-E *(FDM-1)*
317-01-E *(FMM-1/-101)*
345-02-E *(FMM-1/-101)*
457-99-E *(FZM-1, FMM-1/-101)*
447-99-E

FMM-1 and FZM-1

detail of FDM-1 — note "ones" addresses are 0, 2, 4, 6, 8 only

FMM-1 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 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. Maximum IDC loop length is 2,500 ft./762 m (20 ohms maximum).

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

FMM-1 Operation — Each FMM-1 uses one of 159 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 Specifications

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum operating current: 375 μA (LED flashing).

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 MINI MONITOR MODULE

- Built-in type identification automatically identifies this device as a monitor module to the panel.
- Powered directly by two-wire FACP. 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® systems, 01 – 99 on CLIP systems.
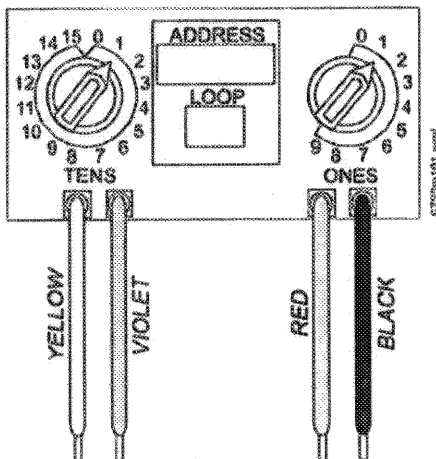
The **FMM-101 Mini Monitor Module** can be installed in a single-gang junction directly behind the monitored unit. Its small size and light weight allow it to be installed without rigid mounting. The FMM-101 is intended for use in intelligent, two-wire systems where the individual address of each module 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 can be used to replace MMX-101 module in existing systems.

FMM-101 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 Operation — Each FMM-101 uses one of 159 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 Specifications

Nominal operating voltage: 15 to 32 VDC.

Maximum operating current: 375 μA.

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 0.5" (1.270 cm) deep.

Wire length: 6" (15.24 cm) minimum.

FZM-1 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® systems, 01 – 99 on CLIP systems.
- LED flashes during normal operation (this is a programmable option).
- LED latches steady to indicate alarm on command from control panel.

The **FZM-1 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 has a panel-controlled LED indicator and can be used to replace MMX-2 modules in existing systems.

FZM-1 Applications — Use the FZM-1 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 Operation — Each FZM-1 uses one of 159 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 Specifications

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum operating current: 255 μA (LED flashing).

EOL resistance: 3.9K ohms.

External supply voltage *(between Terminals T3 and T4)*: *DC voltage:* 18 to 28 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.

FDM-1 DUAL MONITOR MODULE

The **FDM-1 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 provides two Class B (Style Y) IDC circuits ONLY. Class A (Style Z) IDC circuits are NOT supported in any application.*

FDM-1 Specifications

Normal operating voltage range: 15 to 32 VDC.

Maximum current draw: 5.7 mA (LED on).

Maximum operating current: 750 µA (LED flashing).

EOL resistance: 47K ohms.

Maximum IDC wiring resistance: 1,500 ohms.

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

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

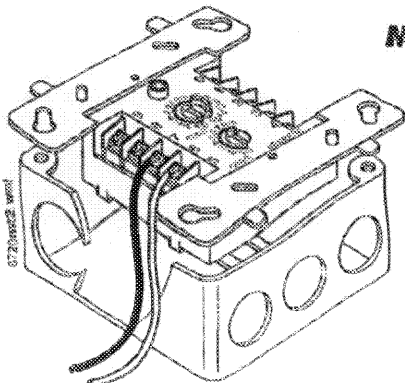**Dimensions:** 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 2.125" (5.398 cm) deep.

FDM-1 Automatic Addressing — The FDM-1 automatically assigns itself to two addressable points, starting with the original address. For example, if the FDM-1 is set to address "56", then it will automatically assign itself to addresses "56" and "57". *NOTE: "ones" addresses on the FDM-1 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.
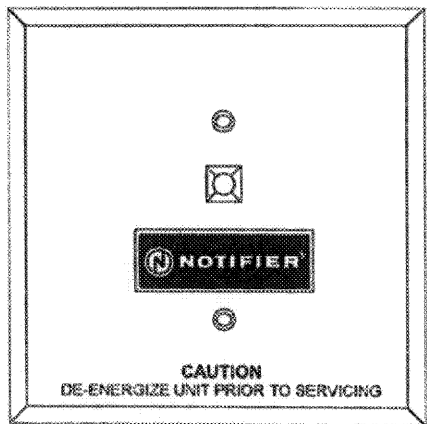
Face Plate for FMM-1, FZM-1, and FDM-1

INSTALLATION

FMM-1, FDM-1, and FZM-1 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 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.

PRODUCT LINE INFORMATION

FMM-1	Monitor module.
FMM-101	Monitor module, miniature.
FZM-1	Monitor module, two-wire detectors
FDM-1	Monitor module, dual, two independent Class B circuits.
SMB500	Optional surface-mount backbox.

ARCHITECTS'/ENGINEERS' SPECIFICATIONS

Specifications of these and all NOTIFIER products are available from NOTIFIER.

MOUNTING DIAGRAMS
for standard-sized modules
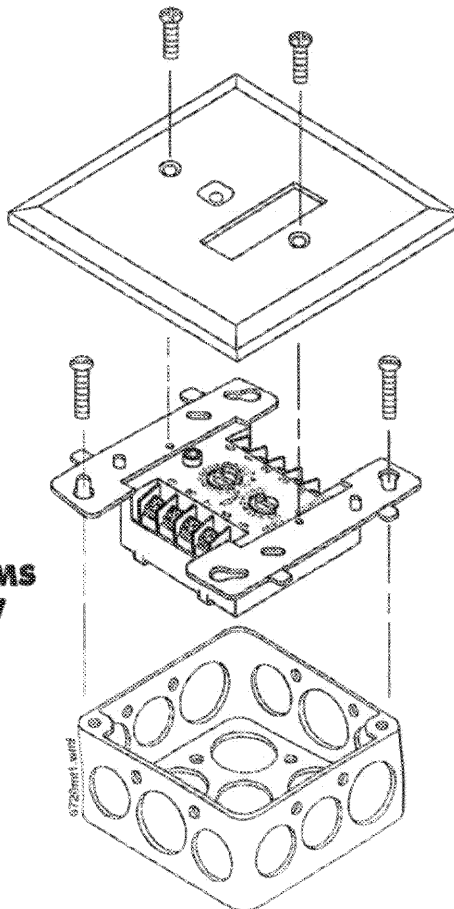
WIRING DIAGRAMS

The following wiring diagrams are included:

1) **FDM-1**, typical dual two-wire Style B initiating device circuit configuration.
2) **FMM-101**, typical two-wire Style B initiating device circuit configuration.
3) **FMM-1**, typical two-wire initiating circuit configuration, NFPA Style B.
4) **FMM-1**, typical four-wire fault-tolerant initiating circuit configuration, NFPA Style D.
5) **FMM-1**, typical two-wire initiating circuit configuration for security systems (with alarm versus short capability).
6) **FZM-1**, interface two-wire conventional detectors, NFPA Style B.
7) **FZM-1**, interface two-wire conventional detectors, NFPA Style D.
8) **FRM-1**, relay control module used to disconnect a power supply.
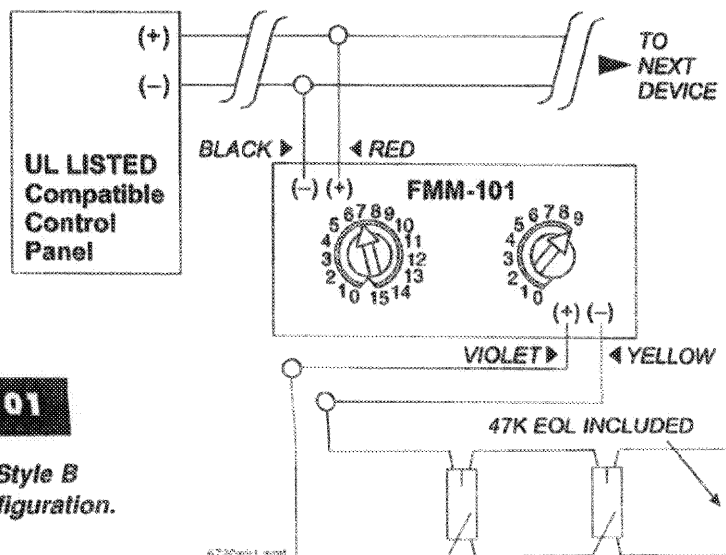
WIRING DIAGRAM: FDM-1

Fig. 1 *FDM-1: Typical dual two-wire Style B initiating device circuit configuration.*
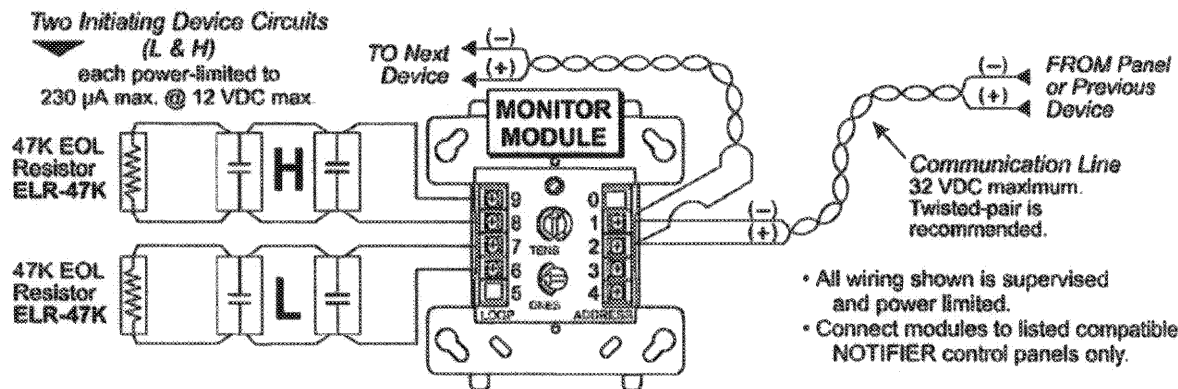
- *ANY NUMBER* of UL Listed contact closure devices may be used.
- *DO NOT MIX* fire alarm initiating, supervisory, or security devices on the same circuit.
- Install contact closure devices per manufacturer's installation instructions.
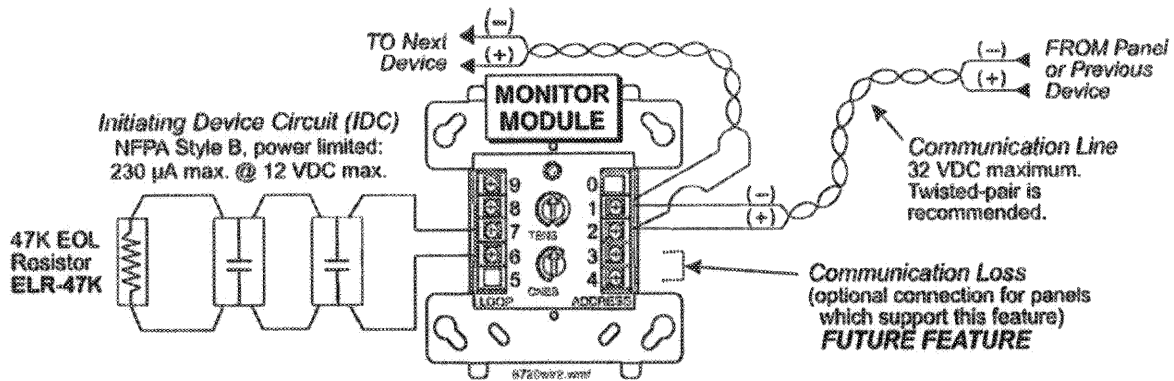
WIRING DIAGRAM: FMM-101

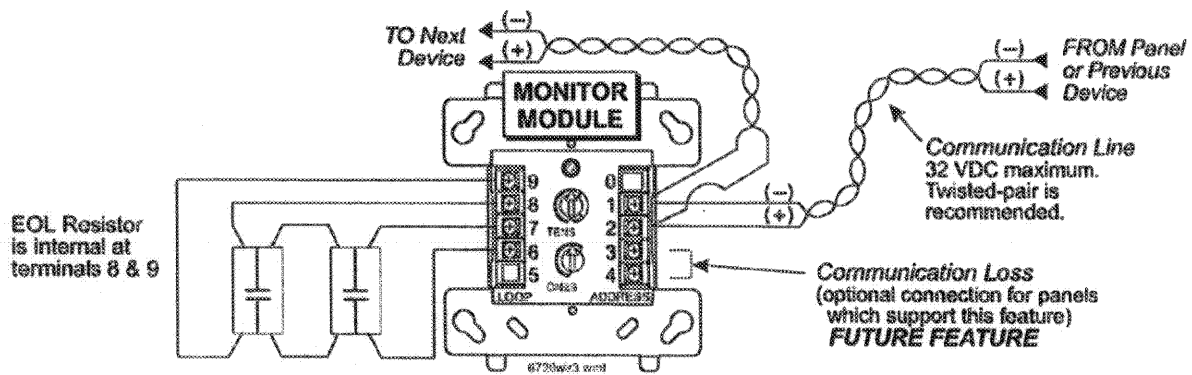**Fig. 2** *FMM-101: Typical two-wire Style B initiating device circuit configuration.*

- Connect modules to listed compatible NOTIFIER control panels only.
- All wiring shown is supervised and power limited.
- Install contact closure devices per manufacturers' installation instructions.
- Any number of UL-listed contact closure devices may be used.
- **DO NOT MIX** fire alarm initiating, supervisory, or security devices on the same circuit.
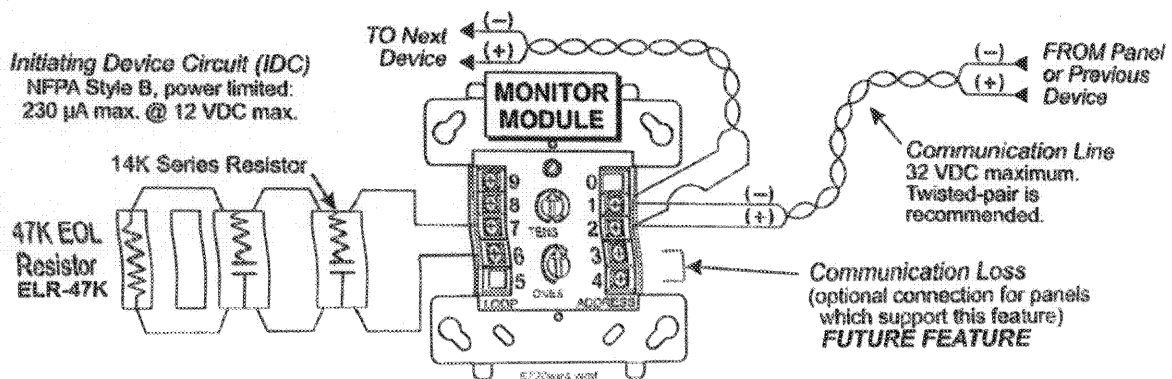
▼ **Fig. 3** *FMM-1: Typical two-wire initiating device circuit configuration, NFPA Style B.*

TO Next Device
(—)
(+)

MONITOR MODULE

FROM Panel or Previous Device
(—)
(+)

Initiating Device Circuit (IDC)
NFPA Style B, power limited:
230 µA max. @ 12 VDC max.

Communication Line
32 VDC maximum.
Twisted-pair is recommended.

47K EOL Resistor
ELR-47K

Communication Loss
(optional connection for panels which support this feature)
FUTURE FEATURE

▼ **Fig. 4** *FMM-1: Typical four-wire fault-tolerant initiating circuit configuration, NFPA Style D.*

TO Next Device
(—)
(+)

MONITOR MODULE

FROM Panel or Previous Device
(—)
(+)

EOL Resistor
is internal at
terminals 8 & 9

Communication Line
32 VDC maximum.
Twisted-pair is recommended.

Communication Loss
(optional connection for panels which support this feature)
FUTURE FEATURE

▼ **Fig. 5** *FMM-1: Typical two-wire initiating circuit configuration for security systems
(with alarm versus short capability).*

TO Next Device
(—)
(+)

MONITOR MODULE

FROM Panel or Previous Device
(—)
(+)

Initiating Device Circuit (IDC)
NFPA Style B, power limited:
230 µA max. @ 12 VDC max.

14K Series Resistor

47K EOL Resistor
ELR-47K

Communication Line
32 VDC maximum.
Twisted-pair is recommended.

Communication Loss
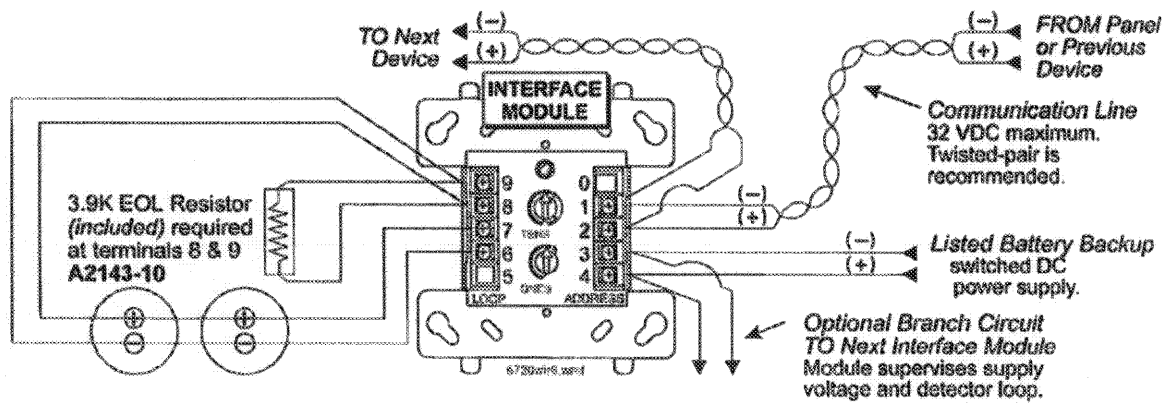(optional connection for panels which support this feature)
FUTURE FEATURE

- Connect modules to listed compatible control panels only.
- Terminal wiring must be power limited.
- *DO NOT MIX* fire alarm initiating, supervisory, or security devices on the same circuit.
- *DO NOT LOOP* wire under terminals. Break wire run to provide supervision of connections.
- Detectors must be UL listed compatible with module.
- Install detectors per manufacturers' installation instructions.
- Power to the interface module must be externally switched to reset the detectors. An **FRM-1** relay control module can be used to switch power from a standard power supply; *see Fig. 7 below.*

▼ **Fig. 6** *FZM-1: Interface two-wire conventional detectors, NFPA Style B.*
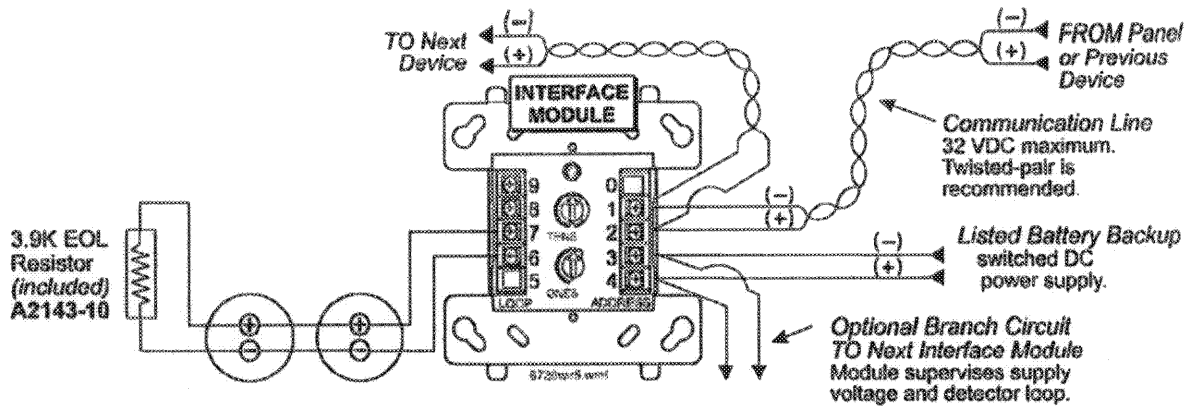
▼ **Fig. 7** *FZM-1: Interface two-wire conventional detectors, NFPA Style D.*

▼ **Fig. 8** *FRM-1: Relay control module used to disconnect a power supply.*