ADT Commercial

21312 30th Drive SE, Suite 103, Bothell, WA. 98021
16810 E Euclid Ave, Spokane, WA. 99216

Date: 5/11/2023
Seattle Job # 22-1118
ADT Job # 281716084
System Type: 01- Fire Alarm (FAS)

Customer:
Valley Electric
1100 Merrill Creek PKWY
Everett, WA. 98203

Project:
Pierce College STEM Building
1601 39th Ave SE
Puyallup, WA. 98374

Material List of Data Sheets

Item	Manufacture	Model	Description
1	NOTIFIER	NFS2-640	ADDRESSABLE FIRE ALARM PANEL
2	NOTIFIER	DR-C4	C-SIZE DOOR WITH WINDOW; BLACK
3	NOTIFIER	SBB-C4	BACKBOX; 3 CHASSIS; BLACK
4	NOTIFIER	CPU2-640	CENTRAL PROCESSING UNIT WITH DISPLAY
5	NOTIFIER	KDM-R2	KEYBOARD DISPLAY MODULE
6	NOTIFIER	LEM-320	LOOP EXPANDER MODULE
7	NOTIFIER	BP2-4	BATTERY DRESS PANEL FOR CAB-4 SERIES
8	NOTIFIER	BMP-1	BLAKE MODULE DRESS PLATE
9	NOTIFIER	DP-1B	BLACK PAINTED COVER PLATE
10	NOTIFIER	NFC-50/100	MAIN UNIT 50 WATT 25V
11	NOTIFIER	NFC-BDA-25V	AMPLIFIER FOR SECOND SPEAKER
12	NOTIFIER	NFC-RM	REMOTE MICROPHONE BLACK
13	NOTIFIER	UDACT-2	UNIVERSAL DIGITAL ALARM COMMUNICATOR
14	INTERSTATE	UB12180	12VDC 18AH SEALED LEAD ACID BATTERY
15	NOTIFIER	FDU-80	80 CHARACTER DISPLAY ANNUNCIATOR
16	NOTIFIER	PSE-10	24v POWER SUPPLY EXPANDER
17	INTERSTATE	UB1280/F1	12vDC 8AH BATTERY ACID SEALED
18	NOTIFIER	NBG-12LX	ADDRESSABLE MANUAL PULL STATION
19	NOTIFIER	DNR	DUCT DETECTOR HOUSING
20	NOTIFIER	FSP-951R	DUCT PHOTO DETECTOR HEAD
21	NOTIFIER	DST3	36" DUCT SAMPLING TUBE
22	NOTIFIER	FSP-951	ADDRESSABLE PHOTO DETECTOR
23	NOTIFIER	FST951H	ADDRESSABLE THERMAL 190° DETECTOR
24	NOTIFIER	B300-6	6" STANDARD FLANGED LOW PROFILE BASE
25	NOTIFIER	B300-6-BP	6" STANDARD FLANGED LOW PROFILE BASE
26	NOTIFIER	MR-201/CR	RELAY DPDT, MULTI VOLTAGE
27	NOTIFIER	MR-101/CR	RELAY SPDT, MULTI VOLTAGE
28	NOTIFIER	FRM-1	ADDRESSABLE RELAY MODULE
29	NOTIFIER	FCM-1	ADDRESSABLE RELAY MODULE
30	NOTIFIER	FDM-1	ADDRESSABLE DUAL MONITOR MODULE
31	SYSTEM SENSOR	SPSCWL	CEILING MOUNT SPEAKER/STROBE
32	SYSTEM SENSOR	SPSWL	WALL MOUNT SPEAKER/STROBE WHITE
33	SYSTEM SENSOR	SPWL	WALL MOUNT SPEAKER WHITE
34	SYSTEM SENSOR	SPCWL	CEILING MOUNT SPEAKER WHITE
35	SYSTEM SENSOR	SCWL	CEILING MOUNT STROBE WHITE
36	SYSTEM SENSOR	P2WK	WALL MOUNT HORN/STROBE
37	RATH	2100-958NSR	CALL STATION
38	NOTIFIER	FMM-1	ADDRESSABLE SINGLE MONITOR MODULE
39	NOTIFIER	ISO-X(A)	ISOLATION MODULE

This page intentionally left blank

NOTIFIER® by Honeywell

NFS2-640 Intelligent Addressable Fire Alarm Control Panel

General

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

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

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

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

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

ONYX® Series panels integrate with the Connected Life Safety Services (CLSS) platform through the CLSS Gateway, providing connectivity to central station, cloud, and mobile applications. *(See HON-62034.)* This cloud-based functionality provides reliable protection and remote monitoring of the system, reduced manual data entry, and reporting.

Features

- Certified for seismic applications when used with the appropriate seismic mounting kit.
- Approved for Marine applications when used with listed compatible equipment. *See DN-60688.*
- One, expandable to two, isolated intelligent Signaling Line Circuit (SLC) Class A, B, or X.
- Wireless fire protection using SWIFT Smart Wireless Integrated Fire Technology. *See DN-60820.*
- Up to 159 detectors and 159 modules per SLC; 318 devices per loop/636 per FACP or network node.
  - Detectors can be any mix of photo, thermal, or multi-sensor; wireless detectors are available for use with the FWSG(A).
  - Modules include addressable pull stations, normally open contact devices, two-wire smoke detectors, notification, or relay; wireless modules are available for use with the FWSG(A).
- Standard 80-character display, 640-character large display (NCA-2), or display-less (a node on a network).
- Network options:
  - High-speed network for up to 200 nodes (N16e/x, NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCD, NCA-2, DVC-EM, ONYXWorks, NFS-3030, NFS-640, and NCA).
  - Standard network for up to 103 nodes (N16e/x, NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCD, NCA-2, DVC-EM, ONYXWorks, NCS, NFS-3030, NFS-640, NCA, AFP-200, AFP-300/400, AFP-1010, and AM2020). Up to 54 nodes when DVC-EM is used in network paging.
- 6.0 A switch mode power supply with four Class A/B built-in Notification Appliance Circuits (NAC). Selectable System Sensor, Wheelock, or Gentex strobe synchronization.
- Built-in Alarm, Trouble, Security, and Supervisory relays.
- Optional cloud connectivity for remote off site monitoring through CLSS (*see HON-62034)*
- Monitor multiple buildings through one off-campus central station, and report through the CLSS Gateway
- Optional remote programing through CLSS
- Field-programmable on panel or on PC.
- VeriFire® Tools online or offline programming utility. Upload/Download, save, store, check, compare, and simulate panel databases. Upgrade panel firmware.
- Autoprogramming and Walk Test reports.
- Multiple central station communication options:
  - Standard UDACT
  - Internet
  - Internet/GSM
- 80-character remote annunciators (up to 32).
- EIA-485 annunciators, including custom graphics.
- Printer interface (80-column and 40-column printers).
- History file with 800-event capacity in nonvolatile memory, plus separate 200-event alarm-only file.
- Alarm Verification selection per point, with automatic counter.
- Presignal/Positive Alarm Sequence (PAS).
- Silence inhibit and Auto Silence timer options.
- March time/temporal/California two-stage coding/strobe synchronization.
- Full QWERTY keypad.
- Battery charger supports 18 – 200 AH batteries.
- Non-alarm points for lower priority functions.
- Remote ACK/Signal Silence/System Reset/Drill using monitor modules.
- Automatic time control functions, with holiday exceptions.
- Surface Mount Technology (SMT) electronics.
- Extensive, built-in transient protection.

- Powerful Boolean logic equations.
- Support for SCS Series smoke control system in HVAC mode.

NCA-2 as Primary Display

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

SWIFT Wireless

- Self-healing mesh wireless protocol.
- Each SWIFT Gateway supports up to 49 SWIFT devices.
- Up to 4 wireless gateways can be installed with overlapping network coverage.

Releasing Features

- Ten independent hazards.
- Sophisticated cross-zone (three options).
- Delay timer and Discharge timers (adjustable).
- Abort (four options).
- Low-pressure CO_2 listed.

Digital Voice and Telephone Features

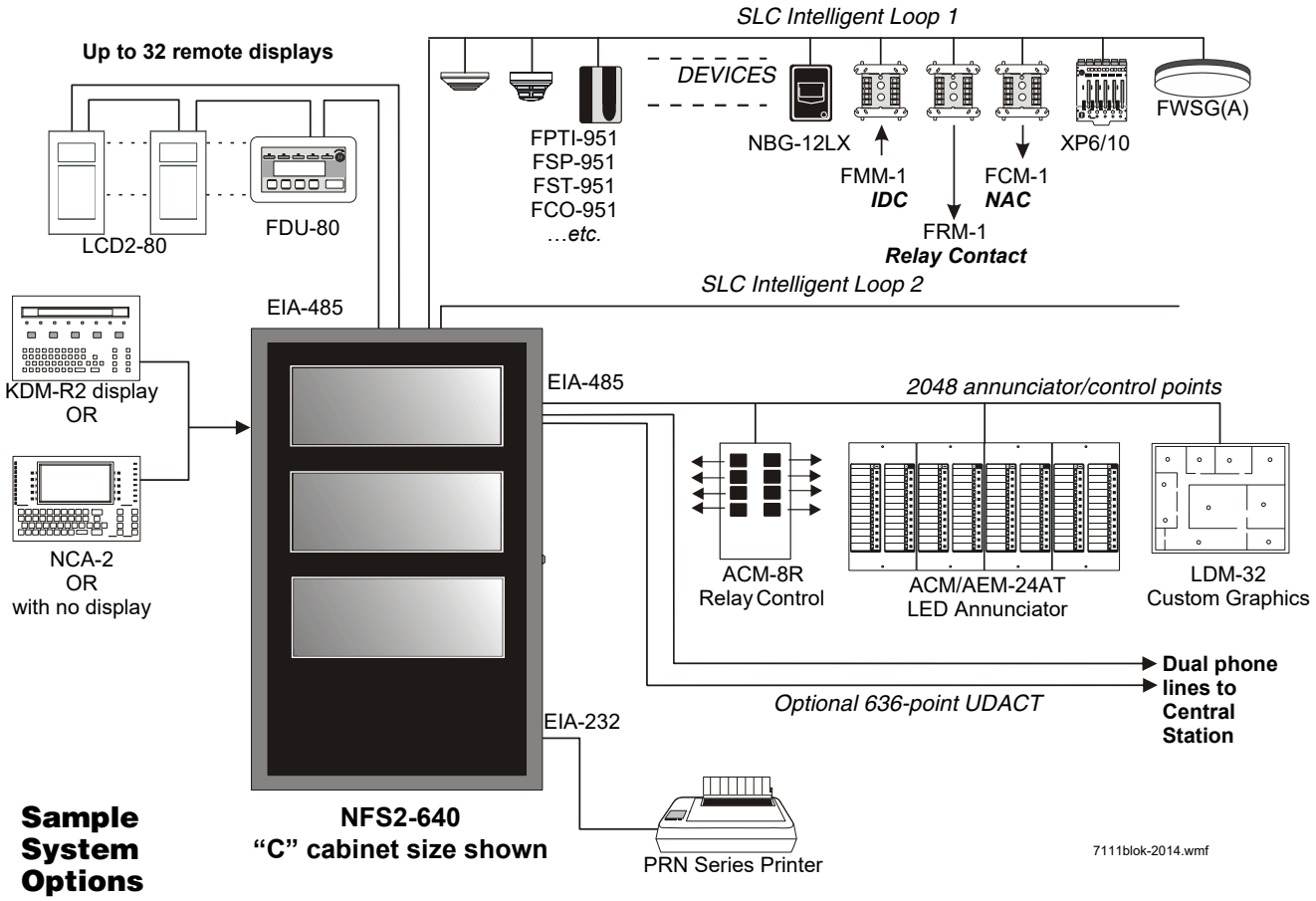
- Up to eight channels of digital audio.
- 35, 50, 75, and 100/125 watt digital amplifiers (DAA2/DAX series and DS series; NCA-2/C required as primary display).
- Solid-state digital message generation.
- Firefighter telephone option.
- 30- to 120-watt high-efficiency amplifiers (AA Series).
- Backup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

High-Efficiency Offline Switching 3.0 A Power Supply (6.0 A in Alarm)

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

FlashScan® Intelligent Features

- Polls up to 318 devices in less than two seconds.
- Activates up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.
- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — up to nine levels.
- Pre-alarm ONYX intelligent sensing — up to nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
  - **Photo** – 0.5 to 2.35%/foot obscuration.
  - **High-Sensitivity Photoelectric (VIEW®) –** Open Air Protection (0.5% - 2.0%/ft. obscuration), Special Applications (0.02%-0.5%/ft. obscuration)
  - **Multi-Criteria Detector** – Open Air Protection (2.52-3.89%/ft. obscuration), Special Applications (1.13-2.52%/ft. obscuration)
- Drift compensation (U.S. Patent 5,764,142).
- Degraded mode: In the unlikely event that the CPU2-640 microprocessor fails, FlashScan detectors revert to degraded operation and can activate the CPU2-640 NAC circuits and alarm relay. Each of the four built-in panel circuits includes a Disable/Enable switch for this feature.



Sample System Options

- 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.

FSV-951 Series View® (Very Intelligent Early Warning) High-Sensitivity Smoke Detector

- Advanced ONYX intelligent sensing algorithms differentiate between smoke and non-smoke signals.
- Addressable operation pinpoints the fire location.
- Ivory models (-IV) support CLIP mode as well as FlashScan.
- ULC listed models available; “A” models are ULC Listed.
- -R is retrofit, backwards compatible for use with older panels.

FCO-951/-IV Advanced Multi-Criteria Fire/CO Detector

- Detects all four major elements of a fire (smoke, heat, CO, and flame).
- 135°F (57.2°C) fixed-temperature heat detector.
- Transmits an alarm signal due to heat.
- 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.
- ULC listed models available; -A models are ULC Listed.

FPTI-951(A) Intelligent Multi-Criteria Detector

- Combined Photoelectric Thermal and Infrared Sensor
- UL 268 7th Edition and UL 521 Listed; Canadian models CAN/ULC S529 and CAN/ULC S530
- Microprocessor-based technology; combination photo, thermal, and infrared technology.

FPC-951(A) Photoelectric/CO Sensor

- Combined photoelectric and carbon monoxide sensor

FSCO-95(A) Intelligent CO Sensor

- Carbon monoxide sensor

FS-OSI-RI(A) Addressable intelligent single-ended beam smoke detector

- Intelligent addressable reflector-type linear optical beam smoke detector
- Fast, easy, and intuitive beam alignment indicated by directional LED arrows
- Long range coverage of 16-328 ft (5-100 m) is standard; no separate long-range kit required

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).

Intelligent VESDA-E Detectors

- Intelligent aspiration smoke detectors connect directly to the SLC loop of compatible ONYX® Series panels:
  - VEA-040-A00-NTF, VEA-040-A10-NTF
  - VEP-A00-P-NTF, VEP-A10-P-NTF, VEP-A00-1P-NTF
  - VEU-A00-NTF, VEU-A10-NTF
  - VES-A00-P-NTF-UL, VES-A10-P-NTF-UL
- Models offer LED display, LCD display, or both
- Coverage options for spaces up to 69,965 square feet

FlashScan, Exclusive World-Leading Detector Protocol

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

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

ONYX Intelligent Sensing

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

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

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

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

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

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

Field Programming Options

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

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

NFS2-640 simultaneously monitors other (already installed) points for alarm conditions.

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

Placement of Equipment in Chassis and Cabinet

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

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

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

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

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

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

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

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

KDM-R2 Controls and Indicators

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

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

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

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

Product Line Information

Configuration Guidelines

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

Main System Components

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

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

KDM-R2: 80-character backlit LCD display with QWERTY programming and control keypad. Order two BMP-1 blank modules and DP-DISP2 mounting plate separately. *Requires top row of a cabinet. Required for each stand-alone 80-character display system. The KDM-R2 may mount in network nodes to display "local" node information as long as at least one NCA-2 or NCS/ONYXWorks network display is on the system to display network information. (Non-English versions also available: KDM-R2C for ULC application, KDM-R2-FR, KDM-R2-PO, KDM-R2-SP.)*

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

NCD: As part of a standalone NFS2-640 system, the NCD can serve as Primary Display for the panel, to provide control and status capabilities on displayless nodes. On network systems, the NCD connects to (and requires) a standard Network Communication Module or High-Speed Network Communication Module. Mounting options include the ABS-TD for standalone applications. In the CAB-4 series the NCD can be mounted in the top row with a DP-GDIS1 or lower rows using a DP-GDIS2. *See DN-60974.*

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

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

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

BMP-1: Blank module for unused module positions.

BP2-4: Battery plate, required.*(Existing JADT-XLS-BP2-4 may be used in retrofits.)*

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

Networking Options

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

HS-NCM-W(-2), HS-NCM-MF, HS-NCM-SF, HS-NCM-WMF(-2), HS-NCM-WSF(-2), HS-NCM-MFSF: High-speed Network Communications Modules that can connect to two nodes. Wire, single-mode fiber, multi-mode fiber, and media conversion models are available. *See DN-60454.*

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

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

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

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

CAP-GW: Common Alerting Protocol Gateway. *See DN-60756.*

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

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

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

Auxiliary Power Supplies and Batteries

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

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

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

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

Audio Options

***NOTE:** For mounting hardware, see "Enclosures, Chassis, and Dress Plates" on page 7 and peripheral data sheets.*

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

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

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

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

DS-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 DAX and DAA2 Series amplifiers. *See DN-60633.*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Compatible Devices, EIA-232 Ports

PRN-7: 80-column printer. *See DN-60897.*

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

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

Compatible Devices, EIA-485 Ports

ACM-24AT: ONYX Series ACS annunciator – 24 points, expandable to 64 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 by 24 points or 36 points (with two modules). *See DN-6862.*

ACM-48A: ONYX Series ACS annunciator – 48 points, expandable to 64 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. *See DN-6862.*

AEM-48A: Same LED capabilities as ACM-48A, expands the ACM-48A to 64 points. *See DN-6862.*

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

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

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

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

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

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

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

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). Up to 256 programmable codes. Mounts in **BB-UZC** or other compatible chassis (purchased separately). *See DN-3404.*

COMPATIBLE INTELLIGENT DEVICES

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

FWSG(A) Wireless SWIFT Gateway: Addressable gateway supports wireless SLC devices. Order FWSGA for ULC applications. *See DN-60820.*

FCO-951/-IV FlashScan, Addressable intelligent multi-criteria smoke sensors, photo, carbon monoxide, fixed temperature heat detector and infra-red (IR). ULC: FCO-951A/-IV

FPC-951. FlashScan, Combined photoelectric and carbon monoxide sensor. ULC: FPC-951A.

FSCO-951. FlashScan, Addressable carbon monoxide sensor. ULC: FSCO-951A.

FPTI-951, FPTI-951-IV: Addressable intelligent multi-criteria photoelectric, thermal and IR sensors. ULC: FPTI-951A, FPTI-951A-IV.

FS-OSI-RI Addressable intelligent single-ended beam smoke detector. ULC: FS-OSI-RIA.

FSP-951: White, low-profile intelligent photoelectric sensor, FlashScan only. ULC: FSP-951A.

FSP-951-IV: Ivory, low-profile intelligent photoelectric sensor. ULC: FSP-951A-IV

FSP-951T: White, same as FSP-951 but includes a built-in 135°F (57°C) fixed-temperature thermal device. FlashScan only. ULC: FSP-951TA.

FSP-951T-IV: Ivory, same as FSP-951T but includes a built-in 135°F (57°C) fixed-temperature thermal device. ULC: FSP-951TA-IV.

FSP-951R: White, low-profile intelligent photoelectric sensor, remote test capable. For use with DNR/DNRW. FlashScan only. ULC: FSP-95RA

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable. FlashScan only. ULC: FSP-95RA-IV, for use with DNRA.

FST-951: White, low-profile intelligent 135°F fixed thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951A. *See DN-60975.*

FST-951-IV: Ivory, low-profile intelligent 135°F fixed thermal sensor, FlashScan and CLIP. Must be mounted to one of the bases listed below. ULC: FST-951A-IV.

FST-951R: White, low-profile intelligent rate-of-rise thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951A

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable. FlashScan only. ULC: FSP-95RA-IV, for use with DNRA.

FST-951H: White, low-profile intelligent 190°F fixed thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951HA.

FST-951H-IV: Ivory, low-profile intelligent 190°F thermal sensor, FlashScan and CLIP. Must be mounted to one of the bases listed below. ULC: FST-951HA-IV.

FSV-951, FSV-951R: White, intelligent high-sensitivity photoelectric smoke detector. ULC: FSV-951A, FSV-951RA

FSV-951-IV, FSV-951R-IV Ivory, intelligent high-sensitivity photoelectric smoke detector. ULC: FSV-951A-IV, FSV-951RA-IV.

VEP-A00-P-NTF: Intelligent aspiration smoke detector with LED display, 4 pipes, covers up to 21,520 square feet. *See DN-61029.* UL/ULC Listed.

VEP-A10-P-NTF: Intelligent aspiration smoke detector with LED and LCD display, 4 pipes, covers up to 21,520 square feet. *See DN-61029.* UL/ULC Listed.

VEP-A00-1P-NTF: Intelligent aspiration smoke detector with LED display, single pipe, covers up to 10,760 square feet. *See DN-61029.* UL/ULC Listed.

VEU-A00-NTF: Intelligent aspiration smoke detector with LED display, 4 pipes, covers up to 69,965 square feet. *See DN-61034.* UL/ULC Listed.

VEU-A10-NTF: Intelligent aspiration smoke detector with LED and LCD display, 4 pipes, covers up to 69,965 square feet. *See DN-61034.* UL/ULC Listed.

VEA-040-A00-NTF: Intelligent aspiration with LED display, 40 point-addressable detection points. Covers 36,000 square feet. *See DN-61036.* UL/ULC Listed.

VEA-040-A10-NTF: Intelligent aspiration with LED and LCD display, 40 point-addressable detection points. Covers 36,000 square feet. *See DN-61036.* UL/ULC Listed.

VES-A00-P-NTF-UL: Intelligent scanning aspiration detector with LEDs. *See DN-62040.* UL 268 7th edition.

VES-A10-P-NTF-UL: Intelligent scanning aspiration detector with 3.5" display. *See DN-62040.* UL 268 7th edition.

DNR: InnovairFlex low-flow non-relay duct-detector housing. ULC: DNRA. (Order FSP-951R(A) separately.) See DN-60429.

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

B224RB-WH: White, low-profile relay base. *See DN-60054.* ULC: B224RBA-WH.

B224RB-IV: Ivory, plug-in System Sensor relay base. ULC: B224RBA-IV.

B224BI-WH: White, isolator base for low-profile detectors. *See DN-60054.* ULC: B224BIA-WH.

B224BI-IV: Ivory isolator detector base. ULC: B224BIA-IV.

B300-6: White, standard flanged low-profile mounting base. (For 10-pack order B300-6-BP.) ULC: B300A-6.

B300-6-IV: Ivory, standard flanged low-profile mounting base. ULC: B300A-6-IV.

B501-WHITE: European-style, 4" (10.16 cm) base. *See DN-60054.* (For 10-pack order B501-WHITE-BP.) UL/ULC listed.

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed.

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed.

B200S-WH: White, intelligent programmable sounder base, capable of producing a variety of tone patterns including ANSI Temporal 3. Compatible with synchronization protocol. See DN-60054. ULC: B200SA-WH.

B200S-IV: Ivory intelligent, programmable sounder base. ULC: B200SA-IV.

B200SCOA-WH: White intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO detectors. Based on B200SA. ULC listed.

B200SCOA-IV: Ivory intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO detectors. Based on B200SA. ULC listed.

B200S-LF-WH: White, low-frequency version of B200S. See DN-60054.

B200S-LF-IV: Ivory, low-frequency version of B200S.

B200SR-WH: White intelligent programmable sounder base, Temporal 3 or Continuous tone. For retrofit installations replacing B501BH series bases. *See DN-60054.* ULC: B200SRA-WH.

B200SR-IV: Ivory intelligent programmable sounder base, Temporal 3 or Continuous tone. For retrofit installations replacing B501BH series bases. ULC: B200SRA-IV.

B200SR-LF-WH: White, low-frequency version of B200SR. *See DN-60054.*

B200SR-LF-IV: Ivory, low-frequency version of B200SR.

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

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

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

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

FTM-1(A): 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.

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

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

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

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

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

N-MPS series: Manual pull stations, addressable and conventional. For use in Canada only. *See DN-5497 and DN-60629.*

ISO-X(A): Isolator module. *See DN-2243.*

ISO-6(A): Six fault isolator module. *See DN-60844.*

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

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

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

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

Enclosures, Chassis, and Dress Plates

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

CAB-5 Series Enclosure: NFS2-640 can mount in CAB-5 Series enclosures designed for INSPIRE panels, using CHS-ADP adapter plate. See *DN-62113 for CAB-5 options.*

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

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

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

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

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

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

NFS-LBBR: Same as above but red.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

BACKBOXES

NOTE: "C" suffix indicates ULC-Listed model.

ABF-1B(C) Annunciator Flush Box.

ABF-1DB(C) Annunciator Flush Box with Door.

ABF-2B Annunciator Flush Box

ABF-2DB/C Annunciator Flush Box with Door

ABF-4B Annunciator Flush Box

ABS-1TB(C) Annunciator Surface Box

ABS-1B(C) Annunciator Surface Box

ABS-2B Annunciator Surface Box

ABS-2D(C) Annunciator Surface Box

ABS-4D(C) Annunciator Surface Box

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

OTHER OPTIONS

CGW-MB: CLSS Gateway for Internet/cloud-based communication between the FACP and peripheral devices. *See HON-62034.*

HON-CGW-MBB: CLSS Gateway, pre-installed in a cabinet. *See HON-62034.*

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

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

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

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

IPSPLT: Y-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.

HWF2V-COM: LTE Digital Cellular Fire Alarm Communicator and Internet Panel, Verizon LTE / IP. Provides selectable configurable paths: cellular only, IP only, or IP primary with cellular backup. Connects to the primary and secondary ports of a DACT. *See DH-62010. (*For Canadian applications order IPGSM-4GC. *See DH-60771*.)

HWF2A-COM: LTE Digital Cellular Fire Alarm Communicator and Internet Panel, AT&T LTE / IP. 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-60771*.)

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 Capacity

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

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

Electrical Specifications

- Primary input power:
  - CPU2-640 board: 120 VAC, 50/60 Hz, 5.0 A.
  - CPU2-640E board: 220/240 VAC, 50/60 Hz, 2.5 A.
- Current draw (standby/alarm):
  - CPU2-640(E) board: 0.250 A. Add 0.035 A for each NAC in use.
  - KDM-R2: 0.100 A.
  - LEM-320: 0.100 A.
- Total output 24 V power: 6.0 A in alarm.

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

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

Cabinet Specifications

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

Shipping Weight

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

Temperature and Humidity Ranges

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

Agency Listings and Approvals

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

- **UL/ULC Listed:** S635.
- **FM Approved.**
- **Fire Dept. of New York:** #6212.
- **CSFM:** 7165-0028:0243.
- **City of Chicago.**
- **City and County of Denver.**
- **CCCF listed.**

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

- **US Coast Guard** 161.002/50/0, 161.002/55/0 (Standard 46 CFR and 161.002).
- **Lloyd's Register** 11/600013 (ENV 3 category).
- **American Bureau of Shipping** (ABS) Type Approval.

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

Standards

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

- **UL 864**, 10th edition (Control Units and Accessories for Fire Alarm Systems).
- **UL 2610** (Commercial Premises Security Alarm Units and Systems).
- **UL 2572** (Mass Notification Systems). (NFS2-640 version 20 or higher.)
- **ULC-S527-11** Standard for the Installation of Fire Alarm Systems.
- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires TM-4).
- **REMOTE STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory) (requires TM-4).
- **PROPRIETARY** (Automatic, Manual and Waterflow). *Not applicable for FM.*
- **EMERGENCY VOICE/ALARM**.
- **OT, PSDN** (Other Technologies, Packet-switched Data Network).
- **IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000** (Seismic).
- **CBC 2007** (Seismic).

ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

Country of Origin: USA

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

NOTIFIER® by Honeywell

C4 and D4 Series Cabinets

Description

The C4 and D4 Series Cabinets are designed to house the Gamewell-FCI's NetSOLO® Classic Emergency Voice Evacuation AA Series amplifiers. These cabinets are constructed from 16-gauge steel.

The cabinet assembly consists of two parts: a backbox and a solid, locking door.

The cabinets are available in black. This selection provides a stylish and a classic accent to the décor of the facility lobby and the reception areas.

The key-locked door includes a pin-type hinge, two keys and hardware that are used to mount the door to the backbox. Right or left hinges are optional in the field.

The backbox is engineered so that it is easy to install and maintain. Knockouts are positioned at numerous points to easily aid the installer in bringing a conduit into the enclosure.

Specifications

Dimensions	C4 Cabinet	D4 Cabinet
Height	37.13" (94.3 cm)	45.90" (116.5 cm)
Width	24" (61 cm)	24" (61 cm)
Depth	5.20" (13.9 cm)	5.20" (13.9 cm)

Ordering Information

Part Number	Description
FCI-VDR-D4B	Ventilated door, lock & key for SBB-D4
FCI-DR-C4B	Door, lock & key for SBB-C4, black
FCI-CR-D4B	Door, lock & key for SBB-D4, black
SBB-C4	Backbox, accepts 3 amplifiers, black
SBB-D4	Backbox, accepts 4 amplifiers, black
Equipment	
AA-100	Audio amplifiers installed in blank door
AA-120	Audio amplifiers installed in blank door
HPFF-8-CM	Power supply installed in the FCI-VDR-D4B ventilated door
HPFF-12-CM	Power supply installed in the FCI-VDR-D4B ventilated door

NetSOLO® is a registered trademark of Honeywell International Inc.

Amplifier Cabinets used for the NetSOLO® Classic Voice Evacuation System

MODEL FCI-D4-D4B door with SBB-D4 backboxMI-6SF

Features

- Constructed of 16-gauge steel backbox with integral trough offset
- Offers a 90° opening door with zero clearance; 180° opening door with full clearance
- Provides removable doors with zinc die-cast hinges
- Contains the backbox and the door ground studs provide positive ground
- Includes a slotted quarter-turn latch and key lock

An ISO 9001-2000 Company

SIGNALING UL LISTED S1869 FM APPROVED 3022355 MEA Approved FDNY: COA-#6077 7165-1703:0125

GAMEWELL-FCI
12 Clintonville Road, Northford, CT 06472-1610 USA • Tel: (203) 484-7161 • Fax: (203) 484-7118

CAB-4 Series Cabinets

ONYX® Series Backboxes with Locking Doors

NOTIFIER® by Honeywell

General

All cabinets for NOTIFIER fire alarm control panels are fabricated from 16-gauge steel. The cabinet assembly consists of two basic parts: a backbox and a locking door. Cabinets are available in either black or red, with or without windows. The window model provides a tasteful combination to accent the decor of the finest lobby setting.

- The ***key-locked door*** is provided with a pin-type hinge, two keys and the necessary hardware to mount the door to the backbox.
- The ***backbox*** has been engineered to provide ease-of-entry for the installer. ***Knockouts*** are positioned at numerous points to aid the installer in bringing a conduit into the enclosure with a minimum of hardship.
- ***Right- or left-hand hinges***, selectable in the field. Door opens 180°.
- Cabinets are arranged in ***four standard sizes***, A (one tier) through D (four tiers), plus a ***mini cabinet*** (AA, one tier without a battery compartment). See *Ordering Information*.
- A ***trim ring option*** is available for semi-flush mounting.
- ***Chassis bridge*** available for assembling multiple CHS-4 chassis external to the backbox.
- Certified for seismic applications when used with the appropriate **seismic mounting kit**.

NFS2-3030 and DVC in "C" sized CAB-4 cabinet

Ordering Information

A complete cabinet assembly consists of: a door, a backbox, an optional battery plate, and an optional semi-flush trim ring. For each cabinet required, order one "DR" door and one "SBB" backbox. The BP2-4 battery plate is required for each cabinet assembly that mounts batteries and/or a power supply in the lower position of the cabinet. The optional trim ring is an attractive "picture frame"-style black metal ring.

MINI "AA" SIZE, ONE TIER

DR-AA4: Door assembly, window, one tier (no battery compartment), BLACK, 9.8 lbs.

DR-AA4R: Door assembly, window, one tier (no battery compartment), RED, 9.8 lbs.

DR-AA4B: Door assembly, solid door, one tier (no battery compartment), BLACK.

DR-AA4BR: Door assembly, solid door, one tier (no battery compartment), RED.

SBB-AA4: Backbox assembly, one tier (no battery compartment), BLACK, 16.65 lbs.

SBB-AA4R: Backbox assembly, one tier (no battery compartment), RED, 16.65 lbs.

TR-AA4: Accessory semi-flush-mount trim ring, one tier (no battery compartment).

NOTE: *Black trim rings are used with red or black cabinets.*

ONE TIER, "A" SIZE

DR-A4: Door assembly, window, one tier, BLACK, 14.20 lbs.

DR-A4R: Door assembly, window, one tier, RED, 14.20 lbs.

DR-A4B: Door assembly, solid door, one tier, BLACK, 14.30 lbs.

DR-A4BR: Door assembly, solid door, one tier, RED, 15 lbs.

SBB-A4: Backbox assembly, one tier, BLACK, 21 lbs.

SBB-A4R: Backbox assembly, one tier, RED, 21 lbs.

TR-A4: Accessory semi-flush-mount trim ring, one tier (opening 24.062" [61.118 cm] W x 20.062" [50.958 cm] H), BLACK, 2.5 lbs.

NOTE: *Black trim rings are used with red or black cabinets.*

BP2-4: Battery plate. Used to cover battery and power supply when lower position is used in backbox, 3.10 lbs.

TWO TIERS, "B" SIZE

DR-B4: Door assembly, window, two tiers, BLACK, 17.45 lbs.

DR-B4R: Door assembly, window, two tiers, RED, 17.45 lbs.

ADDR-B4: Two-tier-sized door designed for use with a CA-2 chassis mounted in the top rows. BLACK.

ADDR-B4R: Two-tier-sized door designed for use with a CA-2 chassis mounted in the top rows. RED.

DR-B4B: Door assembly, solid door, two tiers, BLACK, 18.80 lbs.

DR-B4BR: Door assembly, solid door, two tiers, RED, 18.80 lbs.

SBB-B4: Backbox assembly, two tiers, BLACK, 26.88 lbs.

SBB-B4R: Backbox assembly, two tiers, RED, 26.88 lbs.

TR-B4: Accessory semi-flush-mount trim ring, two tiers (opening 24.062" [61.118 cm] W x 28.562" [72.548 cm] H), BLACK, 3 lbs.

NOTE: *Black trim rings are used with red or black cabinets.*

BP2-4: Battery plate. Used to cover battery and power supply when lower position is used in backbox, 3.10 lbs.

THREE TIERS, "C" SIZE

DR-C4: Door assembly, window, three tiers, BLACK, 20.75 lbs.

DR-C4R: Door assembly, window, three tiers, RED, 20.75 lbs.

ADDR-C4: Three-tier-sized door designed for use with a CA-2 chassis mounted in the top rows. BLACK.

ADDR-C4R: Three-tier-sized door designed for use with a CA-2 chassis mounted in the top rows. RED.

DR-C4B: Door assembly, solid door, three tiers, BLACK, 23.45 lbs.

DR-C4BR: Door assembly, solid door, three tiers, RED, 23.45 lbs.

SBB-C4: Backbox assembly, three tiers, BLACK, 32.60 lbs.

SBB-C4R: Backbox assembly, three tiers, RED, 32.60 lbs.

TR-C4: Accessory semi-flush-mount trim ring, three tiers (opening 24.062" [61.118 cm] W x 37.187" [94.455 cm] H), BLACK, 3.50 lbs.

NOTE: *Black trim rings are used with red or black cabinets.*

BP2-4: Battery plate. Used to cover battery and power supply when lower position is used in backbox, 3.10 lbs.

FOUR TIERS, "D" SIZE

DR-D4: Door assembly, window, four tiers, BLACK, 23.95 lbs.

DR-D4R: Door assembly, window, four tiers, RED, 23.95 lbs.

ADDR-D4: Four-tier-sized door designed for use with a CA-2 chassis mounted in the top rows. BLACK.

ADDR-D4R: Four-tier-sized door designed for use with a CA-2 chassis mounted in the top rows. RED.

DR-D4B: Door assembly, solid door, four tiers, BLACK, 28.40 lbs.

DR-D4BR: Door assembly, solid door, four tiers, RED, 28.40 lbs.

SBB-D4: Backbox assembly, four tiers, BLACK, 40 lbs.

SBB-D4R: Backbox assembly, four tiers, RED, 40 lbs.

TR-D4: Accessory semi-flush-mount trim ring, four tiers (opening 24.062" [61.118 cm] W x 45.812" [116.363 cm] H), BLACK, 3.80 lbs.

NOTE: *Black trim rings are used with red or black cabinets.*

BP2-4: Battery plate. Used to cover battery and power supply when lower position is used in backbox, 3.10 lbs.

ACCESSORIES

ADP-4B: Annunciator dress panel.

CAB-BM: For use with "B" sized cabinets in Marine applications. See DN-60688 for more information.

CB-1: Chassis bridge. Provides a bridge between CHS Series chassis.

DP-1B: Blank dress panel, covers one CAB-4 tier, BLACK.

SEISKIT-CAB: Seismic mounting kit. Required for seismic-certified applications with NFS2-3030, NFS2-640, and NFS-320SYS. Includes battery bracket for two 26 AH batteries.

VP-2B: Ventilator panel.

WC-2: Wire channel. Provides a pair of wire trays to neatly route wiring between CHS chassis.

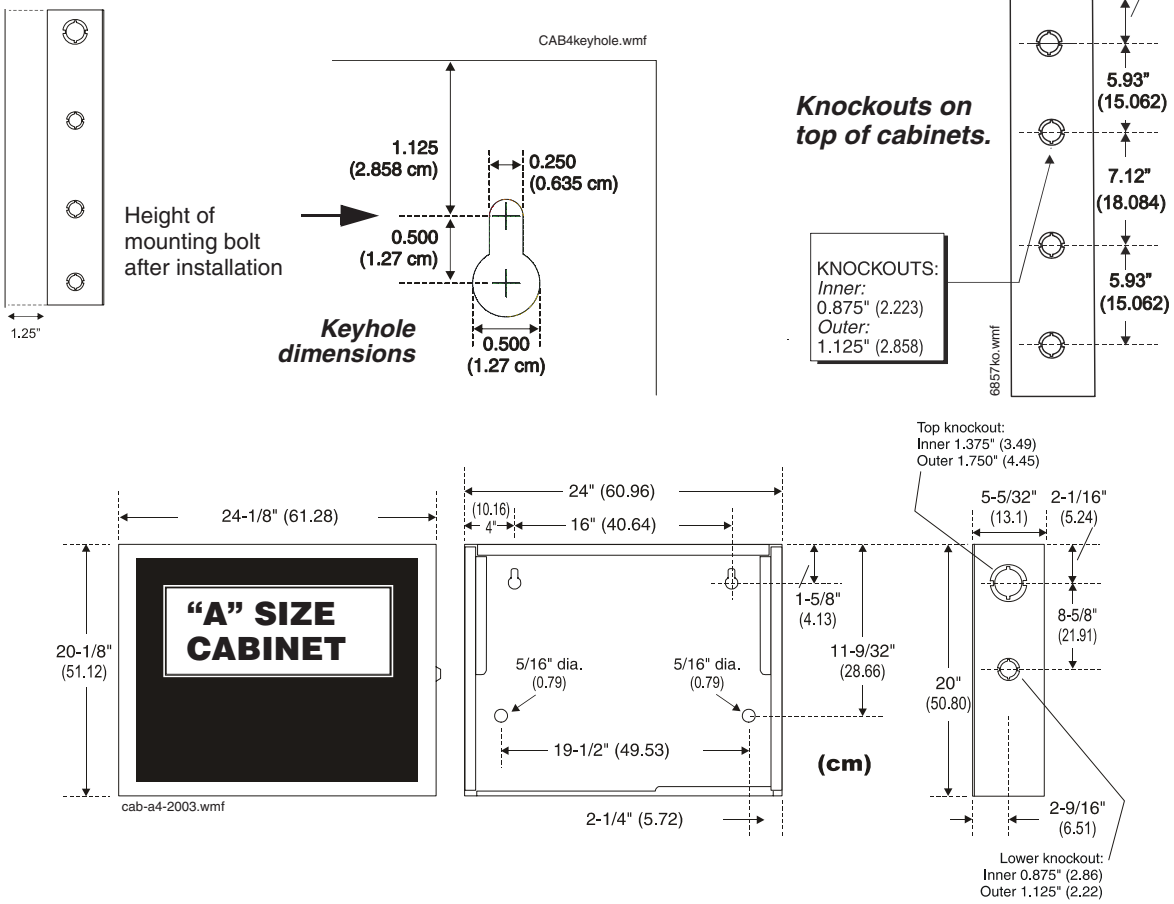
Agency Listings and Approvals

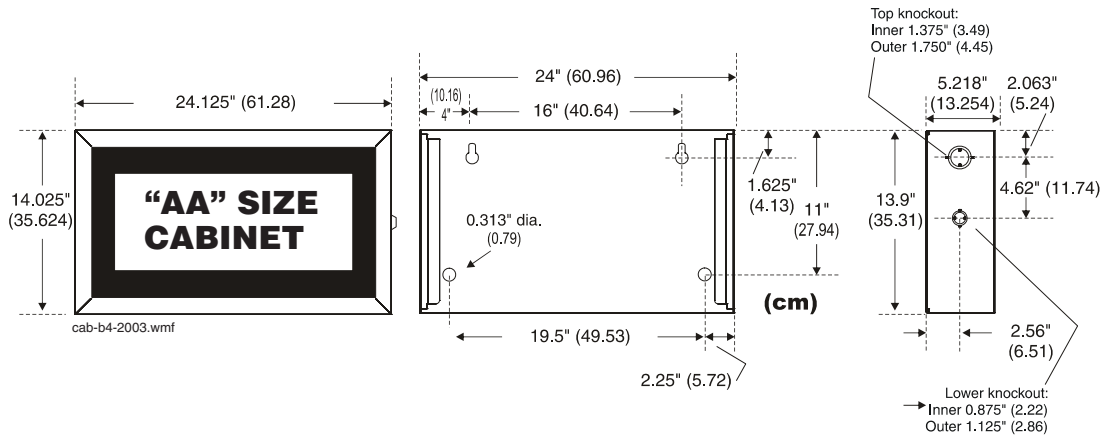
These listings and approvals below apply to the CAB-4 Series Cabinets. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

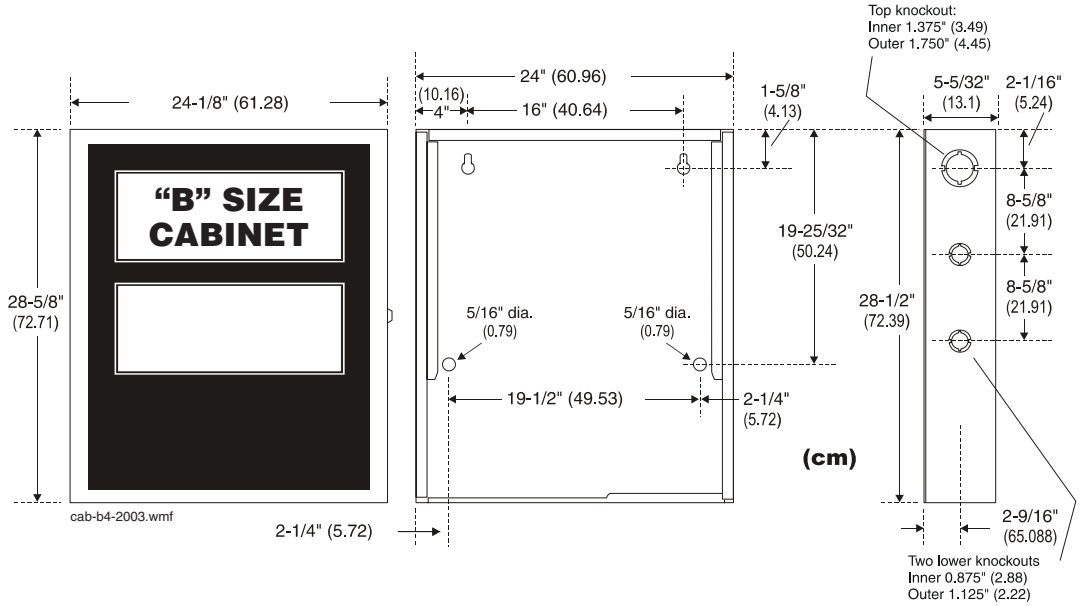
- **UL** Listed: S635
- **ULC** Listed: S635
- **MEA**: 317-01-E, 345-02-E
- **CSFM**: 7165-0028:0243 *(NFS2-640)*, 7165-0028:0224 *(NFS2-3030)*
- **FM** approved
- **FDNY:** COA# 6085, COA# 6098

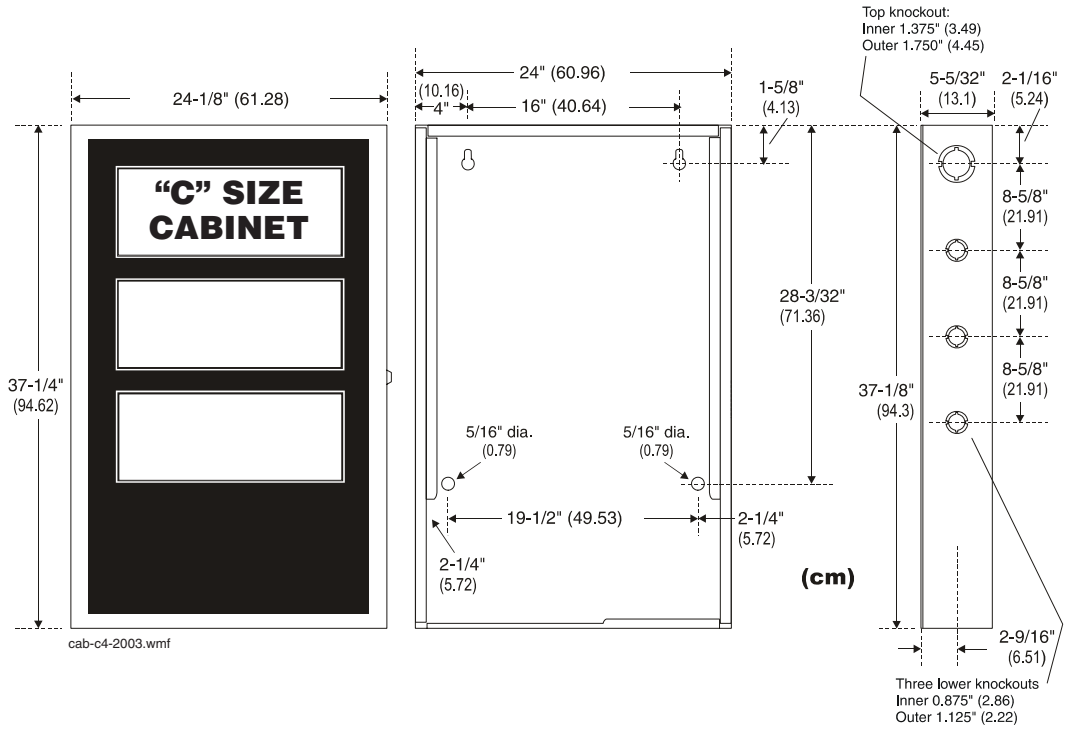
CAB-4 Series cabinets with SEISKIT-CAB comply with seismic requirements of **IBC 2000, IBC 2003, IBC 2006, IBC2009**, and **CBC 2007**.

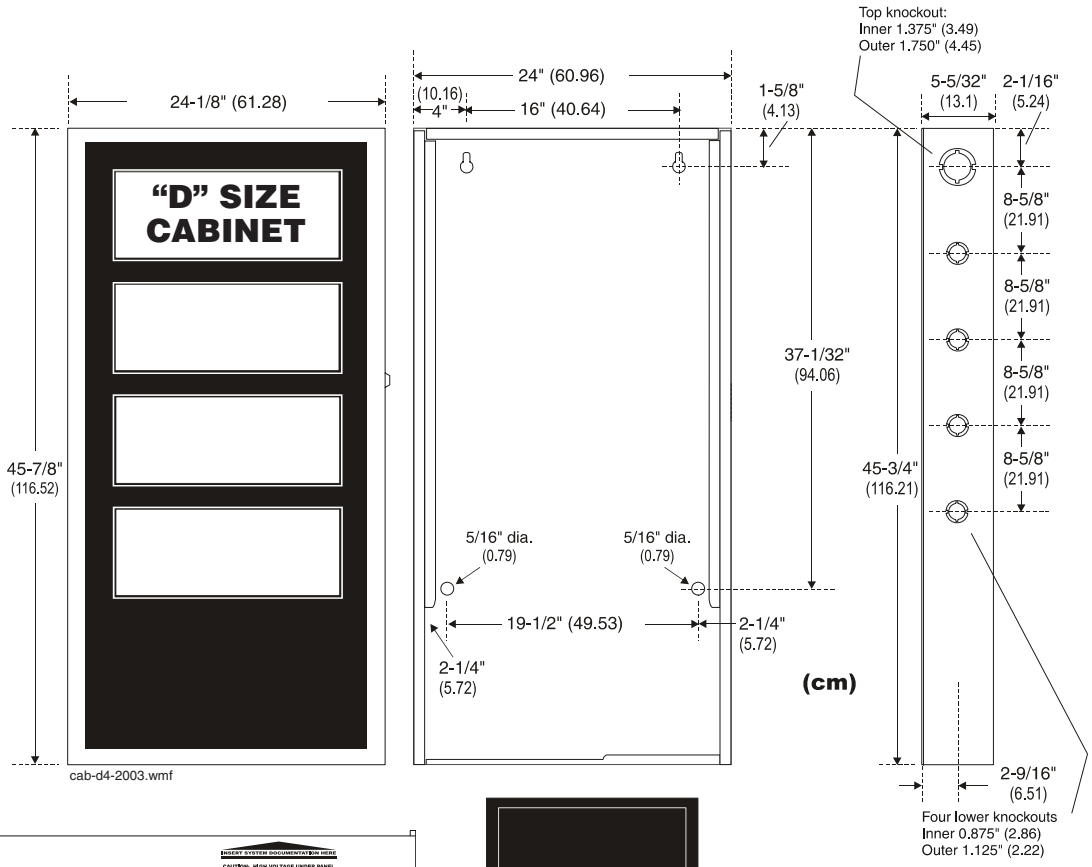
Cabinet Dimensions and Features

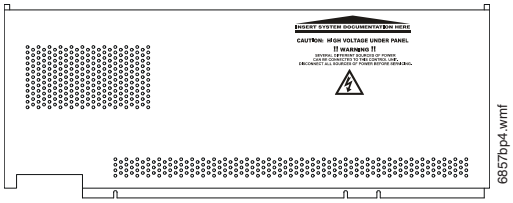



24.125" (61.28)
14.025" (35.624)
"AA" SIZE CABINET
cab-b4-2003.wmf
24" (60.96)
(10.16) 4"
16" (40.64)
0.313" dia. (0.79)
1.625" (4.13)
11" (27.94)
19.5" (49.53)
2.25" (5.72)
(cm)
Top knockout:
Inner 1.375" (3.49)
Outer 1.750" (4.45)
5.218" (13.254)
2.063" (5.24)
4.62" (11.74)
13.9" (35.31)
2.56" (6.51)
Lower knockout:
Inner 0.875" (2.22)
Outer 1.125" (2.86)


24-1/8" (61.28)
28-5/8" (72.71)
"B" SIZE CABINET
cab-b4-2003.wmf
24" (60.96)
(10.16) 4"
16" (40.64)
1-5/8" (4.13)
19-25/32" (50.24)
5/16" dia. (0.79)
5/16" dia. (0.79)
19-1/2" (49.53)
2-1/4" (5.72)
2-1/4" (5.72)
(cm)
Top knockout:
Inner 1.375" (3.49)
Outer 1.750" (4.45)
5-5/32" (13.1)
2-1/16" (5.24)
8-5/8" (21.91)
8-5/8" (21.91)
28-1/2" (72.39)
2-9/16" (65.088)
Two lower knockouts
Inner 0.875" (2.88)
Outer 1.125" (2.22)

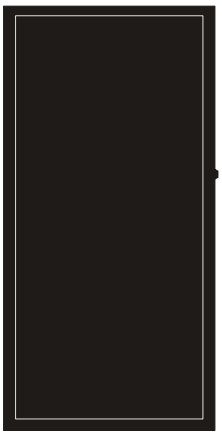

24-1/8" (61.28)
37-1/4" (94.62)
"C" SIZE CABINET
cab-c4-2003.wmf
24" (60.96)
(10.16) 4"
16" (40.64)
1-5/8" (4.13)
28-3/32" (71.36)
5/16" dia. (0.79)
5/16" dia. (0.79)
19-1/2" (49.53)
2-1/4" (5.72)
2-1/4" (5.72)
2-1/4" (5.72)
(cm)
Top knockout:
Inner 1.375" (3.49)
Outer 1.750" (4.45)
5-5/32" (13.1)
2-1/16" (5.24)
8-5/8" (21.91)
8-5/8" (21.91)
8-5/8" (21.91)
37-1/8" (94.3)
2-9/16" (6.51)
Three lower knockouts
Inner 0.875" (2.86)
Outer 1.125" (2.22)





6857bp4.wmf

The* BP2-*4 Battery Plate covers the Main Power Supply and the batteries in the cabinet. Only one* BP2-4 i*s required per cabinet unless an AA cabinet is used (no battery compartment).

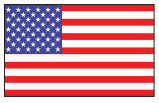


6897d4b.wmf

"D" sized cabinet with solid door. Solid door option available on all sizes in black or red.

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

NFS2-640 Intelligent Addressable Fire Alarm Control Panel

General

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

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

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

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

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

Features

- Certified for seismic applications when used with the appropriate seismic mounting kit.
- Approved for Marine applications when used with listed compatible equipment. *See DN-60688.*
- One, expandable to two, isolated intelligent Signaling Line Circuit (SLC) Class A, B, or X.
- Wireless fire protection using SWIFT Smart Wireless Integrated Fire Technology. *See DN-60820.*
- Up to 159 detectors and 159 modules per SLC; 318 devices per loop/636 per FACP or network node.
  - Detectors can be any mix of ion, photo, thermal, or multi-sensor; wireless detectors are available for use with the FWSG.
  - Modules include addressable pull stations, normally open contact devices, two-wire smoke detectors, notification, or relay; wireless modules are available for use with the FWSG.
- Standard 80-character display, 640-character large display (NCA-2), or display-less (a node on a network).
- Network options:
  - High-speed network for up to 200 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCD, 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, NCD, NCA-2, DVC-EM, ONYXWorks, NCS, NFS-3030, NFS-640, NCA, AFP-200, AFP-300/400, AFP-1010, and AM2020). Up to 54 nodes when DVC-EM is used in network paging.
- 6.0 A switch mode power supply with four Class A/B built-in Notification Appliance Circuits (NAC). Selectable System Sensor, Wheelock, or Gentex strobe synchronization.
- Built-in Alarm, Trouble, Security, and Supervisory relays.
- Field-programmable on panel or on PC.
- VeriFire® Tools online or offline programming utility. Upload/Download, save, store, check, compare, and simulate panel databases. Upgrade panel firmware.
- Autoprogramming and Walk Test reports.
- Multiple central station communication options:
  - Standard UDACT
  - Internet
  - Internet/GSM
- 80-character remote annunciators (up to 32).
- EIA-485 annunciators, including custom graphics.
- Printer interface (80-column and 40-column printers).
- History file with 800-event capacity in nonvolatile memory, plus separate 200-event alarm-only file.
- Alarm Verification selection per point, with automatic counter.
- Presignal/Positive Alarm Sequence (PAS).
- Silence inhibit and Auto Silence timer options.
- March time/temporal/California two-stage coding/strobe synchronization.
- Full QWERTY keypad.
- Battery charger supports 18 – 200 AH batteries.
- Non-alarm points for lower priority functions.
- Remote ACK/Signal Silence/System Reset/Drill using monitor modules.
- Automatic time control functions, with holiday exceptions.
- Surface Mount Technology (SMT) electronics.
- Extensive, built-in transient protection.
- Powerful Boolean logic equations.
- Support for SCS Series smoke control system in HVAC mode.

NCA-2 AS PRIMARY DISPLAY

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

SWIFT WIRELESS

- Self-healing mesh wireless protocol.
- Each SWIFT Gateway supports up to 50 devices: 1 wireless gateway and up to 49 SWIFT devices.
- Up to 4 wireless gateways can be installed with overlapping network coverage.

RELEASING FEATURES

- Ten independent hazards.
- Sophisticated cross-zone (three options).
- Delay timer and Discharge timers (adjustable).
- Abort (four options).
- Low-pressure CO_2 listed.

DIGITAL VOICE AND TELEPHONE FEATURES

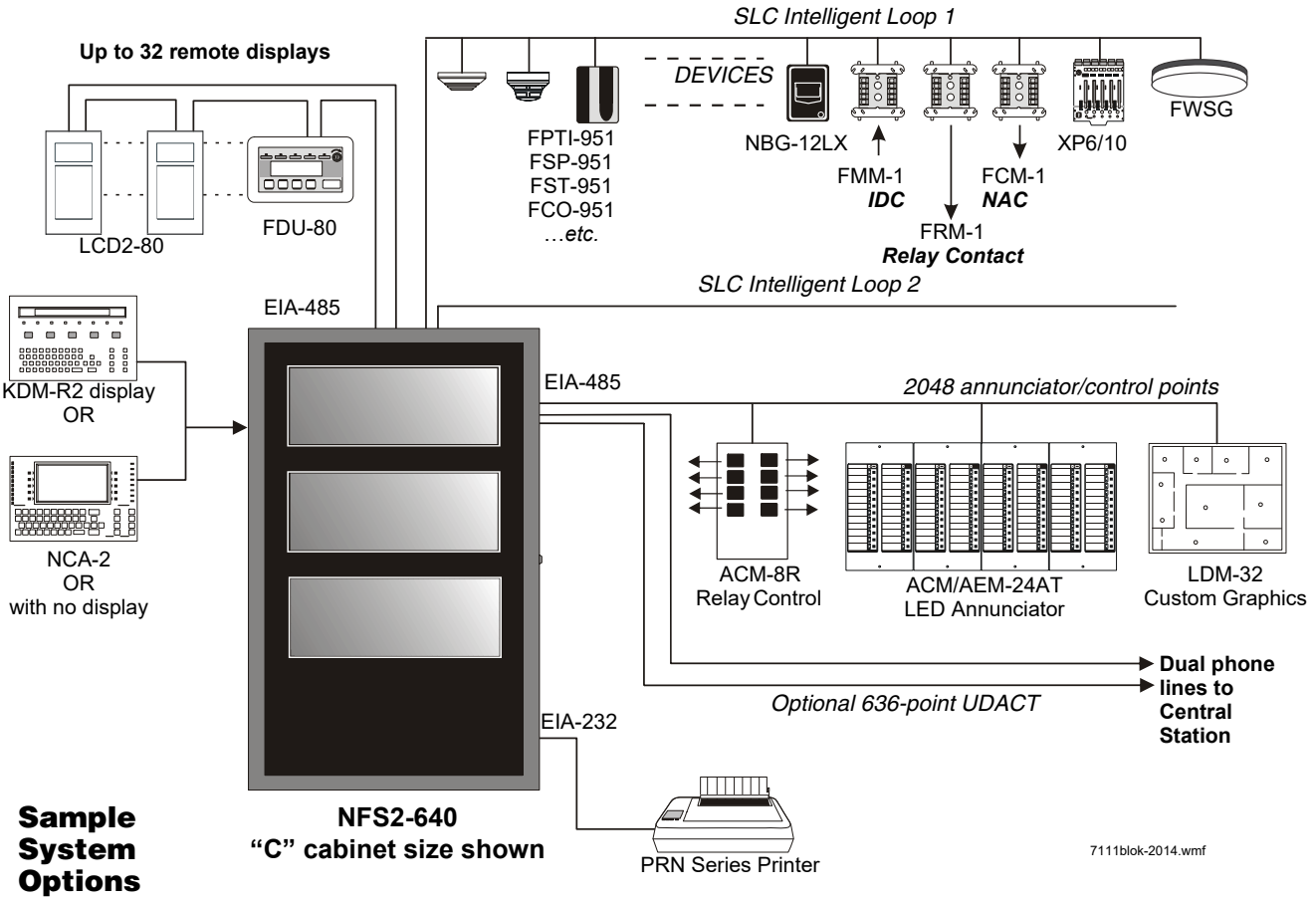
- Up to eight channels of digital audio.
- 35, 50, 75, and 100/125 watt digital amplifiers (DAA2/DAX series and DS series; NCA-2 required as primary display).
- Solid-state digital message generation.
- Firefighter telephone option.
- 30- to 120-watt high-efficiency amplifiers (AA Series).
- Backup tone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

HIGH-EFFICIENCY OFFLINE SWITCHING 3.0 A POWER SUPPLY (6.0 A IN ALARM)

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

FLASHSCAN® INTELLIGENT FEATURES

- Polls up to 318 devices in less than two seconds.
- Activates up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.
- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — up to nine levels.
- Pre-alarm ONYX intelligent sensing — up to nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
  - **Photo** – 0.5 to 2.35%/foot obscuration.
  - **High-Sensitivity Photoelectric (VIEW®) –** Open Air Protection (0.5% - 2.0%/ft. obscuration), Special Applications (0.02%-0.5%/ft. obscuration)
  - **Multi-Criteria Detector** – Open Air Protection (2.52-3.89%/ft. obscuration), Special Applications (1.13-2.52%/ft. obscuration)
- Drift compensation (U.S. Patent 5,764,142).
- Degraded mode: In the unlikely event that the CPU2-640 microprocessor fails, FlashScan detectors revert to degraded operation and can activate the CPU2-640 NAC circuits and alarm relay. Each of the four built-in panel circuits includes a Disable/Enable switch for this feature.
- Multi-detector algorithm involves nearby detectors in alarm decision (U.S. Patent 5,627,515).
- Automatic detector sensitivity testing (NFPA-72 compliant).
- Maintenance alert (two levels).
- Self-optimizing pre-alarm.



Sample System Options

FSV-951 SERIES VIEW® (VERY INTELLIGENT EARLY WARNING) HIGH-SENSITIVITY SMOKE DETECTOR

- Advanced ONYX intelligent sensing algorithms differentiate between smoke and non-smoke signals.
- Addressable operation pinpoints the fire location.
- Ivory models (-IV) support CLIP mode as well as FlashScan.
- ULC listed models available; "A" models are ULC Listed.
- -R is retrofit, backwards compatible for use with older panels.

FCO-951/-IV ADVANCED MULTI-CRITERIA FIRE/CO DETECTOR

- Detects all four major elements of a fire (smoke, heat, CO, and flame).
- 135°F (57.2°C) fixed-temperature heat detector.
- Transmits an alarm signal due to heat.
- 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.
- ULC listed models available; -A models are ULC Listed.

FPTI-951(A) INTELLIGENT MULTI-CRITERIA DETECTOR

- Combined Photoelectric Thermal and Infrared Sensor
- UL 268 7th Edition and UL 521 Listed; Canadian models CAN/ULC S529 and CAN/ULC S530
- Microprocessor-based technology; combination photo, thermal, and infrared technology.

FPC-951(A) PHOTOELECTRIC/CO SENSOR

- Combined photoelectric and carbon monoxide sensor

FSCO-95(A) INTELLIGENT CO SENSOR

- Carbon monoxide sensor

FS-OSI-RI(A) ADDRESSABLE INTELLIGENT SINGLE-ENDED BEAM SMOKE DETECTOR

- Intelligent addressable reflector-type linear optical beam smoke detector
- Fast, easy, and intuitive beam alignment indicated by directional LED arrows
- Long range coverage of 16-328 ft (5-100 m) is standard; no separate long-range kit required

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).

INTELLIGENT VESDA DETECTORS

- Intelligent aspiration smoke detectors connect directly to the SLC loop of compatible ONYX® Series panels:
  - VEA-040-A00-NTF, VEA-040-A10-NTF
  - VEP-A00-P-NTF, VEP-A10-P-NTF, VEP-A00-1P-NTF
  - VEU-A00-NTF, VEU-A10-NTF
- Models offer LED display, LCD display, or both
- Coverage options for spaces up to 69,965 square feet

FlashScan, Exclusive World-Leading Detector Protocol

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

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

ONYX Intelligent Sensing

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

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

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

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

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

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

Field Programming Options

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

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

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

Placement of Equipment in Chassis and Cabinet

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

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

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

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

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

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

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

Networking: If networking two or more control panels, each unit requires a Network Communication Module or High-Speed Network Communication Module. (HS-NCM can support two nodes; see "Networking Options" on page 4). These modules can be installed in any option board position (see manual), and additional option boards can be mounted in front of the network communication modules.

KDM-R2 Controls and Indicators

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

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

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

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

Product Line Information

Configuration Guidelines

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

Main System Components

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

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

KDM-R2: 80-character backlit LCD display with QWERTY programming and control keypad. Order two BMP-1 blank modules and DP-DISP2 mounting plate separately. *Requires top row of a cabinet. Required for each stand-alone 80-character display system. The KDM-R2 may mount in network nodes to display "local" node information as long as at least one NCA-2 or NCS/ONYXWorks network display is on the system to display network information. (Non-English versions also available: KDM-R2C for ULC application, KDM-R2-FR, KDM-R2-PO, KDM-R2-SP.)*

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

NCD: As part of a standalone NFS2-640 system, the NCD can serve as Primary Display for the panel, to provide control and status capabilities on displayless nodes. On network systems, the NCD connects to (and requires) a standard Network Communication Module or High-Speed Network Communication Module. Mounting options include the ABS-TD for standalone applications. In the CAB-4 series the NCD can be mounted in the top row with a DP-GDIS1 or lower rows using a DP-GDIS2. *See DN-60974.*

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

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

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

BMP-1: Blank module for unused module positions.

BP2-4: Battery plate, required.*(Existing JADT-XLS-BP2-4 may be used in retrofits.)*

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

Networking Options

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

HS-NCM-W(-2), HS-NCM-MF, HS-NCM-SF, HS-NCM-WMF(-2), HS-NCM-WSF(-2), HS-NCM-MFSF: High-speed Network Communications Modules that can connect to two nodes. Wire, single-mode fiber, multi-mode fiber, and media conversion models are available. *See DN-60454.*

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

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

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

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

CAP-GW: Common Alerting Protocol Gateway. *See DN-60756.*

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

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

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

Auxiliary Power Supplies and Batteries

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

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

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

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

Audio Options

***NOTE:** For mounting hardware, see "Enclosures, Chassis, and Dress Plates" on page 7 and peripheral data sheets.*

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

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

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

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

DS-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 DAX and DAA2 Series amplifiers. *See DN-60633.*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Compatible Devices, EIA-232 Ports

PRN-7: 80-column printer. *See DN-60897.*

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

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

Compatible Devices, EIA-485 Ports

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

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

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

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

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

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

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

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

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

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

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

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). Up to 256 programmable codes. Mounts in **BB-UZC** or other compatible chassis (purchased separately). *See DN-3404.*

COMPATIBLE INTELLIGENT DEVICES

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

FWSG Wireless SWIFT Gateway: Addressable gateway supports wireless SLC devices. Not appropriate for ULC applications. *See DN-60820.*

FCO-951/-IV FlashScan, Addressable intelligent multi-criteria smoke sensors, photo, carbon monoxide, fixed temperature heat detector and infra-red (IR). ULC: FCO-951A/-IV

FPC-951. FlashScan, Combined photoelectric and carbon monoxide sensor. ULC: FPC-951A.

FSCO-951. FlashScan, Addressable carbon monoxide sensor. ULC: FSCO-951A.

FPTI-951, FPTI-951-IV: Addressable intelligent multi-criteria photoelectric, thermal and IR sensors. ULC: FPTI-951A, FPTI-951A-IV.

FS-OSI-RI Addressable intelligent single-ended beam smoke detector. ULC: FS-OSI-RIA.

FSP-951: White, low-profile intelligent photoelectric sensor, FlashScan only. ULC: FSP-951A.

FSP-951-IV: Ivory, low-profile intelligent photoelectric sensor. ULC: FSP-951A-IV

FSP-951T: White, same as FSP-951 but includes a built-in 135°F (57°C) fixed-temperature thermal device. FlashScan only. ULC: FSP-951TA.

FSP-951T-IV: Ivory, same as FSP-951T but includes a built-in 135°F (57°C) fixed-temperature thermal device. ULC: FSP-951TA-IV.

FSP-951R: White, low-profile intelligent photoelectric sensor, remote test capable. For use with DNR/DNRW. FlashScan only. ULC: FSP-95RA

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable. FlashScan only. ULC: FSP-95RA-IV, for use with DNRA.

FST-951: White, low-profile intelligent 135°F fixed thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951A. *See DN-60975.*

FST-951-IV: Ivory, low-profile intelligent 135°F fixed thermal sensor, FlashScan and CLIP. Must be mounted to one of the bases listed below. ULC: FST-951A-IV.

FST-951R: White, low-profile intelligent rate-of-rise thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951A

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable. FlashScan only. ULC: FSP-95RA-IV, for use with DNRA.

FST-951H: White, low-profile intelligent 190°F fixed thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951HA.

FST-951H-IV: Ivory, low-profile intelligent 190°F thermal sensor, FlashScan and CLIP. Must be mounted to one of the bases listed below. ULC: FST-951HA-IV.

FSV-951, FSV-951R: White, intelligent high-sensitivity photoelectric smoke detector. ULC: FSV-951A, FSV-951RA

FSV-951-IV, FSV-951R-IV Ivory, intelligent high-sensitivity photoelectric smoke detector. ULC: FSV-951A-IV, FSV-951RA-IV.

VEP-A00-P-NTF: Intelligent aspiration smoke detector with LED display, 4 pipes, covers up to 21,520 square feet. *See DN-61029.* UL/ULC Listed.

VEP-A10-P-NTF: Intelligent aspiration smoke detector with LED and LCD display, 4 pipes, covers up to 21,520 square feet. *See DN-61029.* UL/ULC Listed.

VEP-A00-1P-NTF: Intelligent aspiration smoke detector with LED display, single pipe, covers up to 10,760 square feet. *See DN-61029.* UL/ULC Listed.

VEU-A00-NTF: Intelligent aspiration smoke detector with LED display, 4 pipes, covers up to 69,965 square feet. *See DN-61034.* UL/ULC Listed.

VEU-A10-NTF: Intelligent aspiration smoke detector with LED and LCD display, 4 pipes, covers up to 69,965 square feet. *See DN-61034.* UL/ULC Listed.

VEA-040-A00-NTF: Intelligent aspiration with LED display, 40 point-addressable detection points. Covers 36,000 square feet. *See DN-61036.* UL/ULC Listed.

VEA-040-A10-NTF: Intelligent aspiration with LED and LCD display, 40 point-addressable detection points. Covers 36,000 square feet. *See DN-61036.* UL/ULC Listed.

DNR: InnovairFlex low-flow non-relay duct-detector housing. ULC: DNRA. (Order FSP-951R(A) separately.) See DN-60429.

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

B224RB-WH: White, low-profile relay base. *See DN-60054.* ULC: B224RBA-WH.

B224RB-IV: Ivory, plug-in System Sensor relay base. ULC: B224RBA-IV.

B224BI-WH: White, isolator base for low-profile detectors. *See DN-60054.* ULC: B224BIA-WH.

B224BI-IV: Ivory isolator detector base. ULC: B224BIA-IV.

B300-6: White, standard flanged low-profile mounting base. (For 10-pack order B300-6-BP.) ULC: B300A-6.

B300-6-IV: Ivory, standard flanged low-profile mounting base. ULC: B300A-6-IV.

B501-WHITE: European-style, 4" (10.16 cm) base. *See DN-60054.* (For 10-pack order B501-WHITE-BP.) UL/ULC listed.

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed.

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed.

B200S-WH: White, intelligent programmable sounder base, capable of producing a variety of tone patterns including ANSI Temporal 3. Compatible with synchronization protocol. See DN-60054. ULC: B200SA-WH.

B200S-IV: Ivory intelligent, programmable sounder base. ULC: B200SA-IV.

B200SCOA-WH: White intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO detectors. Based on B200SA. ULC listed.

B200SCOA-IV: Ivory intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO detectors. Based on B200SA. ULC listed.

B200S-LF-WH: White, low-frequency version of B200S. See DN-60054.

B200S-LF-IV: Ivory, low-frequency version of B200S.

B200SR-WH: White intelligent programmable sounder base, Temporal 3 or Continuous tone. For retrofit installations replacing B501BH series bases. *See DN-60054.* ULC: B200SRA-WH.

B200SR-IV: Ivory intelligent programmable sounder base, Temporal 3 or Continuous tone. For retrofit installations replacing B501BH series bases. ULC: B200SRA-IV.

B200SR-LF-WH: White, low-frequency version of B200SR. *See DN-60054.*

B200SR-LF-IV: Ivory, low-frequency version of B200SR.

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

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

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

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

FTM-1(A): 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.

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

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

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

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

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

N-MPS series: Manual pull stations, addressable and conventional. For use in Canada only. *See DN-5497 and DN-60629.*

ISO-X(A): Isolator module. *See DN-2243.*

ISO-6(A): Six fault isolator module. *See DN-60844.*

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

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

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

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

Enclosures, Chassis, and Dress Plates

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

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

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

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

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

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

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

NFS-LBBR: Same as above but red.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Backboxes

NOTE: "C" suffix indicates ULC-Listed model.

ABF-1B(C) Annunciator Flush Box.

ABF-1DB(C) Annunciator Flush Box with Door.

ABF-2B Annunciator Flush Box

ABF-2DB/C Annunciator Flush Box with Door

ABF-4B Annunciator Flush Box

ABS-1TB(C) Annunciator Surface Box

ABS-1B(C) Annunciator Surface Box

ABS-2B Annunciator Surface Box

ABS-2D(C) Annunciator Surface Box

ABS-4D(C) Annunciator Surface Box

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

OTHER OPTIONS

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

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

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

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

IPSPLT: Y-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.

HWF2V-COM: LTE Digital Cellular Fire Alarm Communicator and Internet Panel, Verizon LTE / IP. Provides selectable configurable paths: cellular only, IP only, or IP primary with cellular backup. Connects to the primary and secondary ports of a DACT. *See DH-62010. (*For Canadian applications order IPGSM-4GC. *See DH-60771*.)

HWF2A-COM: LTE Digital Cellular Fire Alarm Communicator and Internet Panel, AT&T LTE / IP. 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-60771*.)

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 Capacity

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

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

Electrical Specifications

- Primary input power:
  - CPU2-640 board: 120 VAC, 50/60 Hz, 5.0 A.
  - CPU2-640E board: 220/240 VAC, 50/60 Hz, 2.5 A.
- Current draw (standby/alarm):
  - CPU2-640(E) board: 0.250 A. Add 0.035 A for each NAC in use.
  - KDM-R2: 0.100 A.
  - LEM-320: 0.100 A.
- Total output 24 V power: 6.0 A in alarm.

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

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

Cabinet Specifications

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

Shipping Weight

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

Temperature and Humidity Ranges

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

Agency Listings and Approvals

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

- **UL/ULC Listed:** S635.
- **ULC Listed:** S527-11
- **FM Approved.**
- **MEA:** 128-07-E.
- **Fire Dept. of New York:** #6212.
- **CSFM:** 7165-0028:0243.
- **City of Chicago.**
- **City and County of Denver.**
- **CCCF listed.**

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

- **US Coast Guard** 161.002/50/0, 161.002/55/0 (Standard 46 CFR and 161.002).
- **Lloyd's Register** 11/600013 (ENV 3 category).
- **American Bureau of Shipping** (ABS) Type Approval.

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

Standards

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

- **UL 864, 9th Edition** (Fire).
- **UL 1076** (Burglary).
- **UL 2572** (Mass Notification Systems). (NFS2-640 version 20 or higher.)
- **ULC-S527-11** Standard for the Installation of Fire Alarm Systems.
- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires TM-4).
- **REMOTE STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory) (requires TM-4).
- **PROPRIETARY** (Automatic, Manual and Waterflow). *Not applicable for FM.*
- **EMERGENCY VOICE/ALARM**.
- **OT, PSDN** (Other Technologies, Packet-switched Data Network).
- **IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000** (Seismic).
- **CBC 2007** (Seismic).

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

Country of Origin: USA

NOTIFIER® by Honeywell

KDM-R2

If using KDM-R2 as the primary display for NFS2-640/E, an ACS series annunciator must be mounted adjacent to the panel or within NFS2-640/E enclosure.

LCM-320 and LEM-320

Loop Control and Expander Modules

NOTIFIER® by Honeywell

Intelligent Fire Alarm Control Panels

General

The LCM-320 Loop Control Module and the LEM-320 Loop Expander Module provide NOTIFIER's ONYX® Series of Fire Alarm Control Panels (FACPs) with Signaling Line Circuits (SLCs). The ONYX® Series NFS-640/NFS2-640 supports one LEM-320; the NFS-3030/NFS2-3030 supports up to five LCM-320s and five LEM-320s. The LEM-320 module is used to expand the NFS-640/NFS2-640 to a second loop, and to expand each LCM-320 used on the NFS-3030/NFS2-3030 — each NFS-3030/NFS2-3030 LCM-320 supports an expansion LEM-320.

Features

- Up to 12,500 feet (3,810 m) on a Class B (Style 4) SLC loop (twisted-unshielded).
- Built-in degraded mode increases survivability.
- Very simple installation — plug-in style.
- Permits multiple loops in small enclosure.

Specifications

Voltage: 24 VDC nominal, 27.6 VDC maximum.

Maximum loop length: The maximum wiring distance of an SLC using 12 AWG (3.1 mm²) twisted-pair wire is 12,500 feet (3810 m) per channel. For a twisted-unshielded pair, 12 AWG (3.1 mm²) to 18 AWG (0.78 mm²):

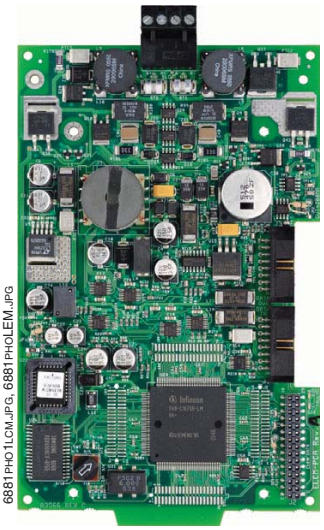
- Distance with 12 AWG: 12,500 ft (3,810 m).
- Distance with 14 AWG: 8,000 ft (2,438 m).
- Distance with 16 AWG: 4,875 ft (1,486 m).
- Distance with 18 AWG: 3,225 ft (983 m).
- 50 ohms maximum per length of Style 6 & 7 loops.
- 50 ohms maximum per branch for Style 4 loop.

Maximum current: for LCM-320: 130 mA; **for LEM-320:** 100 mA; **for single SLC loop:** 400 mA maximum.

NOTE: *Maximum short circuit — loop will shut down until short-circuit condition is corrected.*

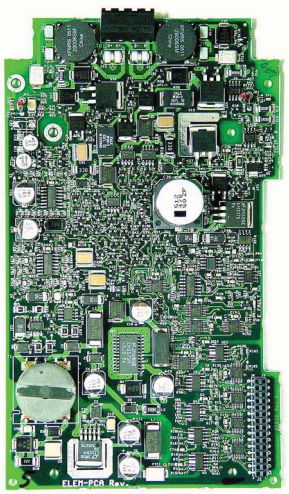
Maximum resistance: 50 ohms (supervised and power-limited).

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.



6881PHO1LCM.JPG, 6881PHOLEM.JPG

Loop Control Module



Loop Expander Module

Product Line Information

LCM-320: Loop Control Module. Adds SLCs to NFS-3030/NFS2-3030; NFS-3030/NFS2-3030 supports up to five LCM-320s and five LEM-320s.

LEM-320: Loop Expander Module. Expands each LCM used on the NFS-3030/NFS2-3030; expands NFS-640/NFS2-640 to two loops.

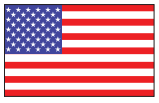
Agency Listings and Approvals

The listings and approvals below apply to the basic LCM-320 and LEM-320. 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/CS118
- **FM Approved**
- **CSFM:** 7165-0028:224, 7170-0028:223 (LCM/LEM-320 with NFS-3030/NFS2-3030). 7165-0028:214, 7170-0028:216 (LEM-320 with NFS-640). 7165-0028:243, 7170-0028:244 (LEM-320 with NFS2-640).
- **FDNY:** COA#6025 (LEM-320 with NFS2-640)
- FDNY: COA#6026 (LCM-320/LEM-320 with NFS2-3030)
- **City of Denver**
- **Hong Kong**

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

NFS2-640 Intelligent Addressable Fire Alarm Control Panel

General

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

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

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

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

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

Features

- Certified for seismic applications when used with the appropriate seismic mounting kit.
- Approved for Marine applications when used with listed compatible equipment. *See DN-60688.*
- One, expandable to two, isolated intelligent Signaling Line Circuit (SLC) Class A, B, or X.
- Wireless fire protection using SWIFT Smart Wireless Integrated Fire Technology. *See DN-60820.*
- Up to 159 detectors and 159 modules per SLC; 318 devices per loop/636 per FACP or network node.
  - Detectors can be any mix of ion, photo, thermal, or multi-sensor; wireless detectors are available for use with the FWSG.
  - Modules include addressable pull stations, normally open contact devices, two-wire smoke detectors, notification, or relay; wireless modules are available for use with the FWSG.
- Standard 80-character display, 640-character large display (NCA-2), or display-less (a node on a network).
- Network options:
  - High-speed network for up to 200 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCD, 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, NCD, NCA-2, DVC-EM, ONYXWorks, NCS, NFS-3030, NFS-640, NCA, AFP-200, AFP-300/400, AFP-1010, and AM2020). Up to 54 nodes when DVC-EM is used in network paging.
- 6.0 A switch mode power supply with four Class A/B built-in Notification Appliance Circuits (NAC). Selectable System Sensor, Wheelock, or Gentex strobe synchronization.
- Built-in Alarm, Trouble, Security, and Supervisory relays.
- Field-programmable on panel or on PC.
- VeriFire® Tools online or offline programming utility. Upload/Download, save, store, check, compare, and simulate panel databases. Upgrade panel firmware.
- Autoprogramming and Walk Test reports.
- Multiple central station communication options:
  - Standard UDACT
  - Internet
  - Internet/GSM
- 80-character remote annunciators (up to 32).
- EIA-485 annunciators, including custom graphics.
- Printer interface (80-column and 40-column printers).
- History file with 800-event capacity in nonvolatile memory, plus separate 200-event alarm-only file.
- Alarm Verification selection per point, with automatic counter.
- Presignal/Positive Alarm Sequence (PAS).
- Silence inhibit and Auto Silence timer options.
- March time/temporal/California two-stage coding/strobe synchronization.
- Full QWERTY keypad.
- Battery charger supports 18 – 200 AH batteries.
- Non-alarm points for lower priority functions.
- Remote ACK/Signal Silence/System Reset/Drill using monitor modules.
- Automatic time control functions, with holiday exceptions.
- Surface Mount Technology (SMT) electronics.
- Extensive, built-in transient protection.
- Powerful Boolean logic equations.
- Support for SCS Series smoke control system in HVAC mode.

NCA-2 AS PRIMARY DISPLAY

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

SWIFT WIRELESS

- Self-healing mesh wireless protocol.
- Each SWIFT Gateway supports up to 50 devices: 1 wireless gateway and up to 49 SWIFT devices.
- Up to 4 wireless gateways can be installed with overlapping network coverage.

RELEASING FEATURES

- Ten independent hazards.
- Sophisticated cross-zone (three options).
- Delay timer and Discharge timers (adjustable).
- Abort (four options).
- Low-pressure CO_2 listed.

DIGITAL VOICE AND TELEPHONE FEATURES

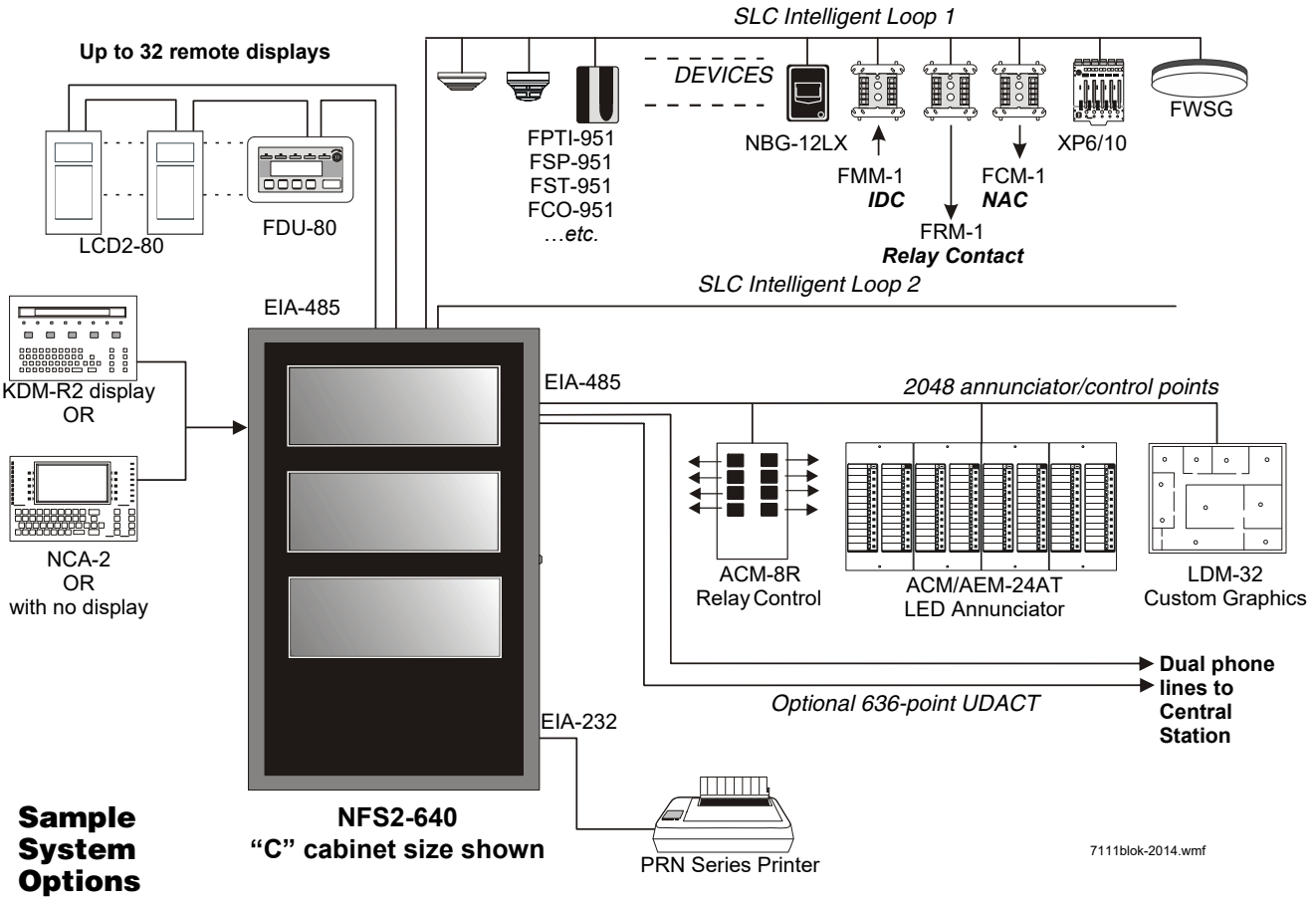
- Up to eight channels of digital audio.
- 35, 50, 75, and 100/125 watt digital amplifiers (DAA2/DAX series and DS series; NCA-2 required as primary display).
- Solid-state digital message generation.
- Firefighter telephone option.
- 30- to 120-watt high-efficiency amplifiers (AA Series).
- Backup tone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

HIGH-EFFICIENCY OFFLINE SWITCHING 3.0 A POWER SUPPLY (6.0 A IN ALARM)

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

FLASHSCAN® INTELLIGENT FEATURES

- Polls up to 318 devices in less than two seconds.
- Activates up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.
- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — up to nine levels.
- Pre-alarm ONYX intelligent sensing — up to nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
  - **Photo** – 0.5 to 2.35%/foot obscuration.
  - **High-Sensitivity Photoelectric (VIEW®) –** Open Air Protection (0.5% - 2.0%/ft. obscuration), Special Applications (0.02%-0.5%/ft. obscuration)
  - **Multi-Criteria Detector** – Open Air Protection (2.52-3.89%/ft. obscuration), Special Applications (1.13-2.52%/ft. obscuration)
- Drift compensation (U.S. Patent 5,764,142).
- Degraded mode: In the unlikely event that the CPU2-640 microprocessor fails, FlashScan detectors revert to degraded operation and can activate the CPU2-640 NAC circuits and alarm relay. Each of the four built-in panel circuits includes a Disable/Enable switch for this feature.
- Multi-detector algorithm involves nearby detectors in alarm decision (U.S. Patent 5,627,515).
- Automatic detector sensitivity testing (NFPA-72 compliant).
- Maintenance alert (two levels).
- Self-optimizing pre-alarm.



Sample System Options

FSV-951 SERIES VIEW® (VERY INTELLIGENT EARLY WARNING) HIGH-SENSITIVITY SMOKE DETECTOR

- Advanced ONYX intelligent sensing algorithms differentiate between smoke and non-smoke signals.
- Addressable operation pinpoints the fire location.
- Ivory models (-IV) support CLIP mode as well as FlashScan.
- ULC listed models available; "A" models are ULC Listed.
- -R is retrofit, backwards compatible for use with older panels.

FCO-951/-IV ADVANCED MULTI-CRITERIA FIRE/CO DETECTOR

- Detects all four major elements of a fire (smoke, heat, CO, and flame).
- 135°F (57.2°C) fixed-temperature heat detector.
- Transmits an alarm signal due to heat.
- 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.
- ULC listed models available; -A models are ULC Listed.

FPTI-951(A) INTELLIGENT MULTI-CRITERIA DETECTOR

- Combined Photoelectric Thermal and Infrared Sensor
- UL 268 7th Edition and UL 521 Listed; Canadian models CAN/ULC S529 and CAN/ULC S530
- Microprocessor-based technology; combination photo, thermal, and infrared technology.

FPC-951(A) PHOTOELECTRIC/CO SENSOR

- Combined photoelectric and carbon monoxide sensor

FSCO-95(A) INTELLIGENT CO SENSOR

- Carbon monoxide sensor

FS-OSI-RI(A) ADDRESSABLE INTELLIGENT SINGLE-ENDED BEAM SMOKE DETECTOR

- Intelligent addressable reflector-type linear optical beam smoke detector
- Fast, easy, and intuitive beam alignment indicated by directional LED arrows
- Long range coverage of 16-328 ft (5-100 m) is standard; no separate long-range kit required

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).

INTELLIGENT VESDA DETECTORS

- Intelligent aspiration smoke detectors connect directly to the SLC loop of compatible ONYX® Series panels:
  - VEA-040-A00-NTF, VEA-040-A10-NTF
  - VEP-A00-P-NTF, VEP-A10-P-NTF, VEP-A00-1P-NTF
  - VEU-A00-NTF, VEU-A10-NTF
- Models offer LED display, LCD display, or both
- Coverage options for spaces up to 69,965 square feet

FlashScan, Exclusive World-Leading Detector Protocol

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

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

ONYX Intelligent Sensing

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

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

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

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

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

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

Field Programming Options

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

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

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

Placement of Equipment in Chassis and Cabinet

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

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

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

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

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

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

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

Networking: If networking two or more control panels, each unit requires a Network Communication Module or High-Speed Network Communication Module. (HS-NCM can support two nodes; see "Networking Options" on page 4). These modules can be installed in any option board position (see manual), and additional option boards can be mounted in front of the network communication modules.

KDM-R2 Controls and Indicators

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

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

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

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

Product Line Information

Configuration Guidelines

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

Main System Components

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

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

KDM-R2: 80-character backlit LCD display with QWERTY programming and control keypad. Order two BMP-1 blank modules and DP-DISP2 mounting plate separately. *Requires top row of a cabinet. Required for each stand-alone 80-character display system. The KDM-R2 may mount in network nodes to display "local" node information as long as at least one NCA-2 or NCS/ONYXWorks network display is on the system to display network information. (Non-English versions also available: KDM-R2C for ULC application, KDM-R2-FR, KDM-R2-PO, KDM-R2-SP.)*

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

NCD: As part of a standalone NFS2-640 system, the NCD can serve as Primary Display for the panel, to provide control and status capabilities on displayless nodes. On network systems, the NCD connects to (and requires) a standard Network Communication Module or High-Speed Network Communication Module. Mounting options include the ABS-TD for standalone applications. In the CAB-4 series the NCD can be mounted in the top row with a DP-GDIS1 or lower rows using a DP-GDIS2. *See DN-60974.*

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

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

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

BMP-1: Blank module for unused module positions.

BP2-4: Battery plate, required.*(Existing JADT-XLS-BP2-4 may be used in retrofits.)*

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

Networking Options

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

HS-NCM-W(-2), HS-NCM-MF, HS-NCM-SF, HS-NCM-WMF(-2), HS-NCM-WSF(-2), HS-NCM-MFSF: High-speed Network Communications Modules that can connect to two nodes. Wire, single-mode fiber, multi-mode fiber, and media conversion models are available. *See DN-60454.*

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

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

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

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

CAP-GW: Common Alerting Protocol Gateway. *See DN-60756.*

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

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

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

Auxiliary Power Supplies and Batteries

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

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

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

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

Audio Options

***NOTE:** For mounting hardware, see "Enclosures, Chassis, and Dress Plates" on page 7 and peripheral data sheets.*

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

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

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

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

DS-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 DAX and DAA2 Series amplifiers. *See DN-60633.*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Compatible Devices, EIA-232 Ports

PRN-7: 80-column printer. *See DN-60897.*

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

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

Compatible Devices, EIA-485 Ports

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

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

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

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

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

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

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

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

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

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

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

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). Up to 256 programmable codes. Mounts in **BB-UZC** or other compatible chassis (purchased separately). *See DN-3404.*

COMPATIBLE INTELLIGENT DEVICES

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

FWSG Wireless SWIFT Gateway: Addressable gateway supports wireless SLC devices. Not appropriate for ULC applications. *See DN-60820.*

FCO-951/-IV FlashScan, Addressable intelligent multi-criteria smoke sensors, photo, carbon monoxide, fixed temperature heat detector and infra-red (IR). ULC: FCO-951A/-IV

FPC-951. FlashScan, Combined photoelectric and carbon monoxide sensor. ULC: FPC-951A.

FSCO-951. FlashScan, Addressable carbon monoxide sensor. ULC: FSCO-951A.

FPTI-951, FPTI-951-IV: Addressable intelligent multi-criteria photoelectric, thermal and IR sensors. ULC: FPTI-951A, FPTI-951A-IV.

FS-OSI-RI Addressable intelligent single-ended beam smoke detector. ULC: FS-OSI-RIA.

FSP-951: White, low-profile intelligent photoelectric sensor, FlashScan only. ULC: FSP-951A.

FSP-951-IV: Ivory, low-profile intelligent photoelectric sensor. ULC: FSP-951A-IV

FSP-951T: White, same as FSP-951 but includes a built-in 135°F (57°C) fixed-temperature thermal device. FlashScan only. ULC: FSP-951TA.

FSP-951T-IV: Ivory, same as FSP-951T but includes a built-in 135°F (57°C) fixed-temperature thermal device. ULC: FSP-951TA-IV.

FSP-951R: White, low-profile intelligent photoelectric sensor, remote test capable. For use with DNR/DNRW. FlashScan only. ULC: FSP-95RA

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable. FlashScan only. ULC: FSP-95RA-IV, for use with DNRA.

FST-951: White, low-profile intelligent 135°F fixed thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951A. *See DN-60975.*

FST-951-IV: Ivory, low-profile intelligent 135°F fixed thermal sensor, FlashScan and CLIP. Must be mounted to one of the bases listed below. ULC: FST-951A-IV.

FST-951R: White, low-profile intelligent rate-of-rise thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951A

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable. FlashScan only. ULC: FSP-95RA-IV, for use with DNRA.

FST-951H: White, low-profile intelligent 190°F fixed thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951HA.

FST-951H-IV: Ivory, low-profile intelligent 190°F thermal sensor, FlashScan and CLIP. Must be mounted to one of the bases listed below. ULC: FST-951HA-IV.

FSV-951, FSV-951R: White, intelligent high-sensitivity photoelectric smoke detector. ULC: FSV-951A, FSV-951RA

FSV-951-IV, FSV-951R-IV Ivory, intelligent high-sensitivity photoelectric smoke detector. ULC: FSV-951A-IV, FSV-951RA-IV.

VEP-A00-P-NTF: Intelligent aspiration smoke detector with LED display, 4 pipes, covers up to 21,520 square feet. *See DN-61029.* UL/ULC Listed.

VEP-A10-P-NTF: Intelligent aspiration smoke detector with LED and LCD display, 4 pipes, covers up to 21,520 square feet. *See DN-61029.* UL/ULC Listed.

VEP-A00-1P-NTF: Intelligent aspiration smoke detector with LED display, single pipe, covers up to 10,760 square feet. *See DN-61029.* UL/ULC Listed.

VEU-A00-NTF: Intelligent aspiration smoke detector with LED display, 4 pipes, covers up to 69,965 square feet. *See DN-61034.* UL/ULC Listed.

VEU-A10-NTF: Intelligent aspiration smoke detector with LED and LCD display, 4 pipes, covers up to 69,965 square feet. *See DN-61034.* UL/ULC Listed.

VEA-040-A00-NTF: Intelligent aspiration with LED display, 40 point-addressable detection points. Covers 36,000 square feet. *See DN-61036.* UL/ULC Listed.

VEA-040-A10-NTF: Intelligent aspiration with LED and LCD display, 40 point-addressable detection points. Covers 36,000 square feet. *See DN-61036.* UL/ULC Listed.

DNR: InnovairFlex low-flow non-relay duct-detector housing. ULC: DNRA. (Order FSP-951R(A) separately.) See DN-60429.

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

B224RB-WH: White, low-profile relay base. *See DN-60054.* ULC: B224RBA-WH.

B224RB-IV: Ivory, plug-in System Sensor relay base. ULC: B224RBA-IV.

B224BI-WH: White, isolator base for low-profile detectors. *See DN-60054.* ULC: B224BIA-WH.

B224BI-IV: Ivory isolator detector base. ULC: B224BIA-IV.

B300-6: White, standard flanged low-profile mounting base. (For 10-pack order B300-6-BP.) ULC: B300A-6.

B300-6-IV: Ivory, standard flanged low-profile mounting base. ULC: B300A-6-IV.

B501-WHITE: European-style, 4" (10.16 cm) base. *See DN-60054.* (For 10-pack order B501-WHITE-BP.) UL/ULC listed.

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed.

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed.

B200S-WH: White, intelligent programmable sounder base, capable of producing a variety of tone patterns including ANSI Temporal 3. Compatible with synchronization protocol. See DN-60054. ULC: B200SA-WH.

B200S-IV: Ivory intelligent, programmable sounder base. ULC: B200SA-IV.

B200SCOA-WH: White intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO detectors. Based on B200SA. ULC listed.

B200SCOA-IV: Ivory intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO detectors. Based on B200SA. ULC listed.

B200S-LF-WH: White, low-frequency version of B200S. See DN-60054.

B200S-LF-IV: Ivory, low-frequency version of B200S.

B200SR-WH: White intelligent programmable sounder base, Temporal 3 or Continuous tone. For retrofit installations replacing B501BH series bases. *See DN-60054.* ULC: B200SRA-WH.

B200SR-IV: Ivory intelligent programmable sounder base, Temporal 3 or Continuous tone. For retrofit installations replacing B501BH series bases. ULC: B200SRA-IV.

B200SR-LF-WH: White, low-frequency version of B200SR. *See DN-60054.*

B200SR-LF-IV: Ivory, low-frequency version of B200SR.

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

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

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

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

FTM-1(A): 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.

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

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

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

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

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

N-MPS series: Manual pull stations, addressable and conventional. For use in Canada only. *See DN-5497 and DN-60629.*

ISO-X(A): Isolator module. *See DN-2243.*

ISO-6(A): Six fault isolator module. *See DN-60844.*

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

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

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

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

Enclosures, Chassis, and Dress Plates

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

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

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

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

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

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

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

NFS-LBBR: Same as above but red.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Backboxes

NOTE: "C" suffix indicates ULC-Listed model.

ABF-1B(C) Annunciator Flush Box.

ABF-1DB(C) Annunciator Flush Box with Door.

ABF-2B Annunciator Flush Box

ABF-2DB/C Annunciator Flush Box with Door

ABF-4B Annunciator Flush Box

ABS-1TB(C) Annunciator Surface Box

ABS-1B(C) Annunciator Surface Box

ABS-2B Annunciator Surface Box

ABS-2D(C) Annunciator Surface Box

ABS-4D(C) Annunciator Surface Box

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

OTHER OPTIONS

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

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

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

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

IPSPLT: Y-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.

HWF2V-COM: LTE Digital Cellular Fire Alarm Communicator and Internet Panel, Verizon LTE / IP. Provides selectable configurable paths: cellular only, IP only, or IP primary with cellular backup. Connects to the primary and secondary ports of a DACT. *See DH-62010. (*For Canadian applications order IPGSM-4GC. *See DH-60771*.)

HWF2A-COM: LTE Digital Cellular Fire Alarm Communicator and Internet Panel, AT&T LTE / IP. 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-60771*.)

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 Capacity

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

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

Electrical Specifications

- Primary input power:
  - CPU2-640 board: 120 VAC, 50/60 Hz, 5.0 A.
  - CPU2-640E board: 220/240 VAC, 50/60 Hz, 2.5 A.
- Current draw (standby/alarm):
  - CPU2-640(E) board: 0.250 A. Add 0.035 A for each NAC in use.
  - KDM-R2: 0.100 A.
  - LEM-320: 0.100 A.
- Total output 24 V power: 6.0 A in alarm.

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

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

Cabinet Specifications

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

Shipping Weight

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

Temperature and Humidity Ranges

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

Agency Listings and Approvals

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

- **UL/ULC Listed:** S635.
- **ULC Listed:** S527-11
- **FM Approved.**
- **MEA:** 128-07-E.
- **Fire Dept. of New York:** #6212.
- **CSFM:** 7165-0028:0243.
- **City of Chicago.**
- **City and County of Denver.**
- **CCCF listed.**

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

- **US Coast Guard** 161.002/50/0, 161.002/55/0 (Standard 46 CFR and 161.002).
- **Lloyd's Register** 11/600013 (ENV 3 category).
- **American Bureau of Shipping** (ABS) Type Approval.

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

Standards

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

- **UL 864, 9th Edition** (Fire).
- **UL 1076** (Burglary).
- **UL 2572** (Mass Notification Systems). (NFS2-640 version 20 or higher.)
- **ULC-S527-11** Standard for the Installation of Fire Alarm Systems.
- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires TM-4).
- **REMOTE STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory) (requires TM-4).
- **PROPRIETARY** (Automatic, Manual and Waterflow). *Not applicable for FM.*
- **EMERGENCY VOICE/ALARM**.
- **OT, PSDN** (Other Technologies, Packet-switched Data Network).
- **IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000** (Seismic).
- **CBC 2007** (Seismic).

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

Country of Origin: USA

NOTIFIER® by Honeywell

NOTIFIER®
World Headquarters
12 Clintonville Rd., Northford, CT 06472-1653 USA
203-484-7161 • Fax 203-484-7118
www.notifier.com

BMP-1 Blank Module Plate

Product Installation Document
P/N 51008 Rev A 07/20/01
ECN 01-376

Introduction

The BMP-1 Blank Module Plate covers unused module positions in an annunciator backbox or in a FACP dress panel such as an ADP-4B or DP-DISP. The BMP-1 may also mount an option module, such as an NCM-W, NCM-F, or TM-4. It includes four stand-offs which allow option modules to mount behind the blank front, on the inside of the cabinet.

Note: This dress plate is suitable for modules that do not need to be visible or accessible when the door is closed.

Compatible dress panels and backboxes include:

- Surface-mount backboxes: ABS-1B, ABS-2B, ABS-4D, ABS-1TB
- Flush-mount backboxes: ABF-1B, ABF-2B, ABF-4B
- Semi-flush-mount backboxes: ABF-1DB, ABF-2DB
- Hinged dress panels: ADP-4B, DP-DISP

Installation

Slide the dress plate's two mounting holes over the backbox screws above and below the slot to be covered. Attach the dress plate with hex nuts provided.

Optional Module Installation

Four standoffs and four screws ship with modules that can be mounted to the back of the dress plate. Attach a standoff to each of the screwstuds on the dress plate, align the module's mounting holes on these standoffs, and screw down securely.

Note: Use all mounting holes so that the module is properly grounded.

Note: Modules cannot be mounted in the ADP-4B Dress Panel when a front slot of the CHS-4 or CHS-M2 is occupied, or when either of the two front right positions of the CHS-M2 is occupied. Always be certain there is enough clearance to close the cabinet door when this installation is used.

If using a surface-mount or flush-mount backbox, continue to assemble the backbox as indicated in assembly documentation.

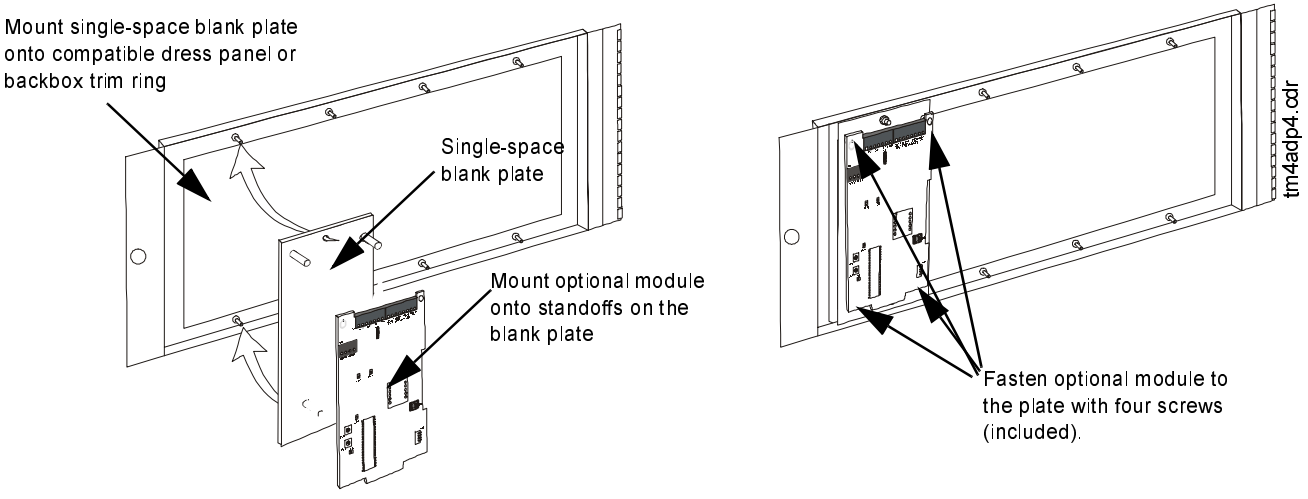


Figure 1 Mounting a Single-space Blank Plate onto the Dress Panel with Optional Module

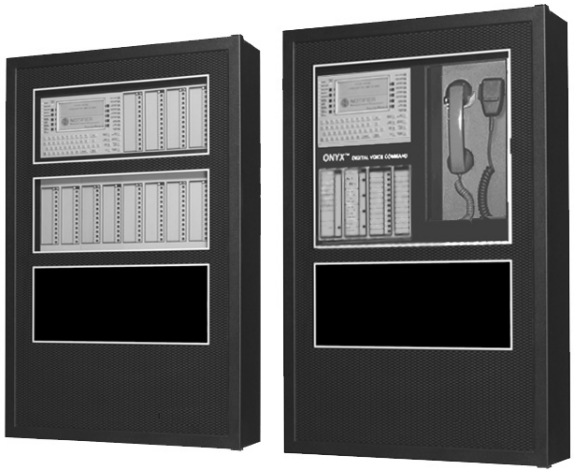
NFS2-3030 Intelligent Addressable Fire Alarm Control Panel

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; wireless fire protection; and many additional options.



NFS2-3030 (left) and
NFS2-3030 with DVC audio option (right)

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) Class A, B, or X.
- Wireless fire protection using SWIFT Smart Wireless Integrated Fire Technology. *See DN-60820.*
- 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, thermal, or multi-sensor; wireless detectors are available for use with the FWSG.
  - Modules include addressable pull stations, normally open contact devices, two-wire smoke detectors, notification, or relay; wireless modules are available for use with the FWSG.
- Large 16 line, 640 character LCD backlit display or use displayless as a network node.
- Network options:
  - High-speed network for up to 200 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCD, 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, NCD, 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.
- 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.

SWIFT WIRELESS

- Self-healing mesh wireless protocol.
- Each SWIFT Gateway supports up to 50 devices: 1 wireless gateway and up to 49 SWIFT devices.
- Up to 4 wireless gateways can be installed with overlapping network coverage.

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.

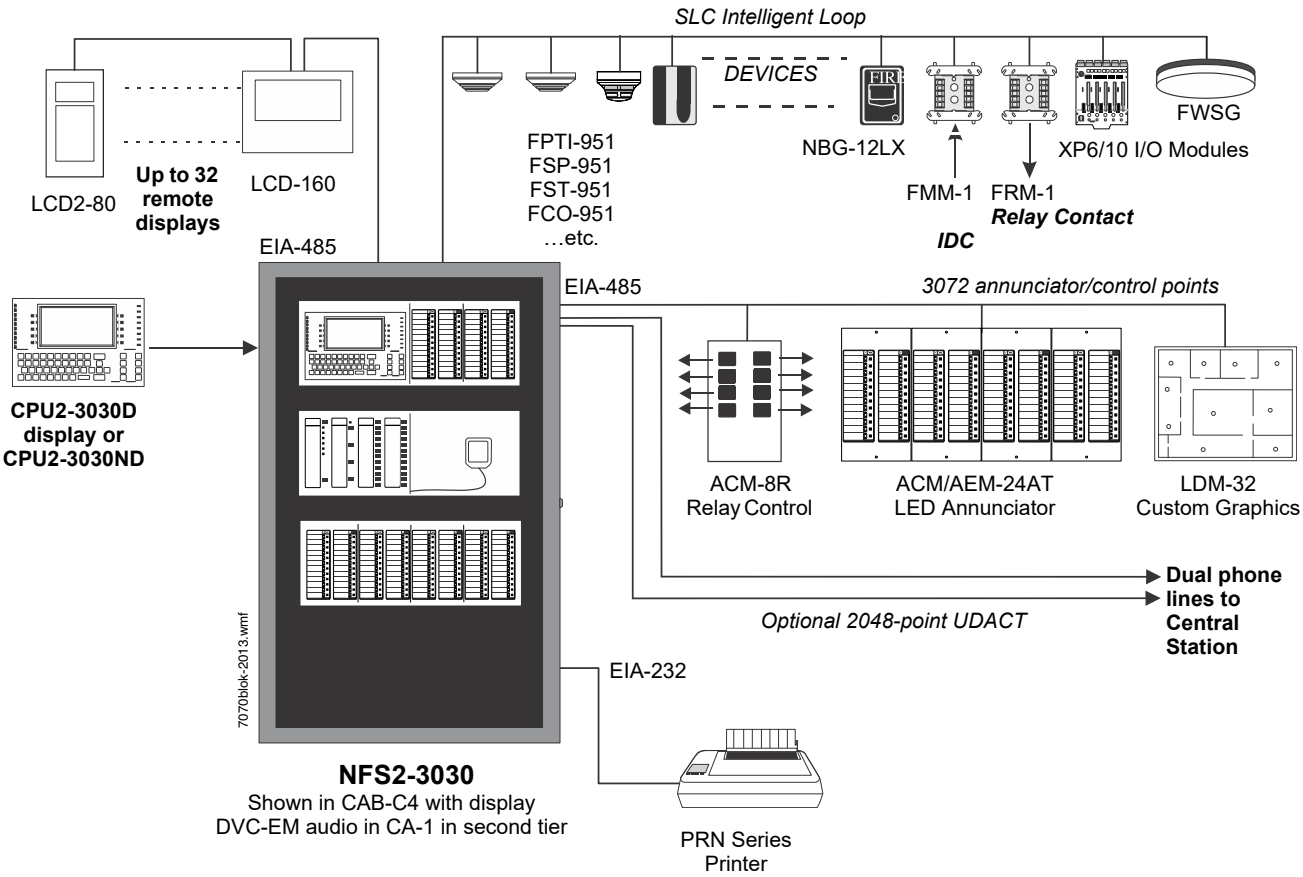
FLASHSCAN® INTELLIGENT FEATURES

- 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:
  - **– Photo –** 0.5 to 2.35%/foot obscuration.
  - **– High-Sensitivity Photoelectric (VIEW®) –** Open Air Protection (0.5% - 2.0%/ft. obscuration), Special Applications (0.02%-0.5%/ft. obscuration**)**
  - **– Multi-Criteria Detector** – Open Air Protection (2.52-3.89%/ft. obscuration), Special Applications (1.13-2.52%/ft. 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.

FSV-951 SERIES VIEW® (VERY INTELLIGENT EARLY WARNING) HIGH-SENSITIVITY SMOKE DETECTOR

- Advanced ONYX intelligent sensing algorithms differentiate between smoke and non-smoke signals.
- Addressable operation pinpoints the fire location.
- Ivory models (-IV) support CLIP mode as well as FlashScan.
- ULC listed models available; “A” models are ULC Listed.
- -R is retrofit, backwards compatible for use with older panels.

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.*

FCO-951(A)/-IV ADVANCED MULTI-CRITERIA FIRE/CO DETECTOR

- Detects all four major elements of a fire (smoke, heat, CO, and flame).
- 135°F (57.2°C) fixed-temperature heat detector.
- Transmits an alarm signal due to heat.
- 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.
- ULC listed models available; "A" models are ULC Listed.

FPTI-951(A) INTELLIGENT MULTI-CRITERIA DETECTOR

- Combined Photoelectric Thermal and Infrared Sensor
- UL 268 7th Edition and UL 521 Listed; Canadian models CAN/ULC S529 and CAN/ULC S530
- Microprocessor-based technology; combination photo, thermal, and infrared technology.

FPC-951(A) PHOTOELECTRIC/CO SENSOR

- Combined photoelectric and carbon monoxide sensor

FSCO-951(A) INTELLIGENT CO SENSOR

- Carbon monoxide sensor

FS-OSI-RI(A) ADDRESSABLE INTELLIGENT SINGLE-ENDED BEAM SMOKE DETECTOR

- Intelligent addressable reflector-type linear optical beam smoke detector
- Fast, easy, and intuitive beam alignment indicated by directional LED arrows
- Long range coverage of 16-328 ft (5-100 m) is standard; no separate long-range kit required

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).

INTELLIGENT VESDA® DETECTORS

- Intelligent aspiration smoke detectors connect directly to the SLC loop of compatible ONYX® Series panels:
  - VEA-040-A00-NTF, VEA-040-A10-NTF
  - VEP-A00-P-NTF, VEP-A10-P-NTF, VEP-A00-1P-NTF
  - VEU-A00-NTF, VEU-A10-NTF
- Models offer LED display, LCD display, or both
- Coverage options for spaces up to 69,965 square feet

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 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

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 NCD, NCA-2, NCS, or ONYXWorks 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. For English ULC applications, use CPU2-3030DC. 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.

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.*

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 English ULC applications, order NCA-2C; for marine applications, order NCA-2-M; for non-English marine applications order NCA-2-M and appropriate KP-KIT-XX. *See DN-7047.*

NCD: Network control display, with a high-definition 10" touch screen. As part of a standalone NFS2-3030 system, the NCD can serve as Primary Display for the panel, to provide control and status capabilities on displayless nodes. On network systems, the NCD connects to (and requires) a standard Network Communication Module or High-Speed Network Communication Module. Mounting options include the ABS-TD for standalone applications. In the CAB-4 series the NCD can be mounted in the top row with a DP-GDIS1 or lower rows using a DP-GDIS2. *See DN-60974.*

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

HS-NCM-W(-2), HS-NCM-MF, HS-NCM-SF, HS-NCM-WMF(-2), HS-NCM-WSF(-2), HS-NCM-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/ULC-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-60756.*

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

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-6728.*

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

AA-120/AA-100: Audio Amplifier. 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-7: 80-column printer. *See DN-60897*

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. LCD-160C is used for ULC applications. *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

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

FWSG Wireless SWIFT Gateway: Addressable gateway supports wireless SLC devices. Not appropriate for ULC applications. *See DN-60820.*

FCO-951/-IV FlashScan, Addressable intelligent multi-criteria smoke sensors, photo, carbon monoxide, fixed temperature heat detector and infra-red (IR). ULC: FCO-951A/-IV

FPC-951. FlashScan, Combined photoelectric and carbon monoxide sensor. ULC: FPC-951A.

FSCO-951. FlashScan, Addressable carbon monoxide sensor. ULC: FSCO-951A.

FPTI-951, FPTI-951-IV: Addressable intelligent multi-criteria photoelectric, thermal and IR sensors. ULC: FPTI-951A, FPTI-951A-IV.

FS-OSI-RI: Addressable intelligent single-ended beam smoke detector. ULC: FS-OSI-RIA. .

FSP-951: White, low-profile intelligent photoelectric sensor, FlashScan only. ULC: FSP-951A.

FSP-951-IV: Ivory, low-profile intelligent photoelectric sensor. ULC: FSP-951A-IV

FSP-951T: White, same as FSP-951 but includes a built-in 135°F (57°C) fixed-temperature thermal device. FlashScan only. ULC: FSP-951TA.

FSP-951T-IV: Ivory, same as FSP-951T but includes a built-in 135°F (57°C) fixed-temperature thermal device. ULC: FSP-951TA-IV.

FSP-951R: White, low-profile intelligent photoelectric sensor, remote test capable. For use with DNR/DNRW. FlashScan only. ULC: FSP-95RA

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable. FlashScan only. ULC: FSP-95RA-IV, for use with DNRA.

FST-951: White, low-profile intelligent 135°F fixed thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951A. *See DN-60975.*

FST-951-IV: Ivory, low-profile intelligent 135°F fixed thermal sensor, FlashScan and CLIP. Must be mounted to one of the bases listed below. ULC: FST-951A-IV.

FST-951R: White, low-profile intelligent rate-of-rise thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951A

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable. FlashScan only. ULC: FSP-95RA-IV, for use with DNRA.

FST-951H: White, low-profile intelligent 190°F fixed thermal sensor, FlashScan only. Must be mounted to one of the bases listed below. ULC: FST-951HA.

FST-951H-IV: Ivory, low-profile intelligent 190°F thermal sensor, FlashScan and CLIP. Must be mounted to one of the bases listed below. ULC: FST-951HA-IV.

FSV-951, FSV-951R: White, intelligent high-sensitivity photoelectric smoke detector. ULC: FSV-951A, FSV-951RA

FSV-951-IV, FSV-951R-IV Ivory, intelligent high-sensitivity photoelectric smoke detector. ULC: FSV-951A-IV, FSV-951RA-IV.

VEP-A00-P-NTF: Intelligent aspiration smoke detector with LED display, 4 pipes, covers up to 21,520 square feet. UL/ULC. *See DN-61029.* UL/ULC Listed.

VEP-A10-P-NTF: Intelligent aspiration smoke detector with LED and LCD display, 4 pipes, covers up to 21,520 square feet. UL/ULC. *See DN-61029.* UL/ULC Listed.

VEP-A00-1P-NTF: Intelligent aspiration smoke detector with LED display, single pipe, covers up to 10,760 square feet. UL/ULC. *See DN-61029.* UL/ULC Listed.

VEU-A00-NTF: Intelligent aspiration smoke detector with LED display, 4 pipes, covers up to 69,965 square feet. UL/ULC. *See DN-61034.* UL/ULC Listed.

VEU-A10-NTF: Intelligent aspiration smoke detector with LED and LCD display, 4 pipes, covers up to 69,965 square feet. UL/ULC. *See DN-61034.* UL/ULC Listed.

VEA-040-A00-NTF: Intelligent aspiration with LED display, 40 point-addressable detection points. Covers 36,000 square feet. UL/ULC. *See DN-61036.* UL/ULC Listed.

VEA-040-A10-NTF: Intelligent aspiration with LED and LCD display, 40 point-addressable detection points. Covers 36,000 square feet. UL/ULC. *See DN-61036.* UL/ULC Listed.

DNR: InnovairFlex low-flow non-relay duct-detector housing. ULC: DNRA. (Order FSP-951R(A) separately.) See DN-60429.

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

B224RB-WH: White, low-profile relay base. *See DN-60054.* ULC: B224RBA-WH.

B224RB-IV: Ivory, plug-in System Sensor relay base. ULC: B224RBA-IV.

B224BI-WH: White, isolator base for low-profile detectors. *See DN-60054.* ULC: B224BIA-WH.

B224BI-IV: Ivory isolator detector base. ULC: B224BIA-IV.

B300-6: White, standard flanged low-profile mounting base. (For 10-pack order B300-6-BP.) ULC: B300A-6.

B300-6-IV: Ivory, standard flanged low-profile mounting base. ULC: B300A-6-IV.

B501-WHITE: European-style, 4" (10.16 cm) base. *See DN-60054.* (For 10-pack order B501-WHITE-BP.) UL/ULC listed.

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed.

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed.

B200S-WH: White, intelligent programmable sounder base, capable of producing a variety of tone patterns including ANSI Temporal 3. Compatible with synchronization protocol. See DN-60054. ULC: B200SA-WH.

B200S-IV: Ivory intelligent, programmable sounder base. ULC: B200SA-IV.

B200SCOA-WH: White intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO detectors. Based on B200SA. ULC listed.

B200SCOA-IV: Ivory intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO detectors. Based on B200SA. ULC listed.

B200S-LF-WH: White, low-frequency version of B200S. See DN-60054.

B200S-LF-IV: Ivory, low-frequency version of B200S.

B200SR-WH: White intelligent programmable sounder base, Temporal 3 or Continuous tone. For retrofit installations replacing B501BH series bases. *See DN-60054.* ULC: B200SRA-WH.

B200SR-IV: Ivory intelligent programmable sounder base, Temporal 3 or Continuous tone. For retrofit installations replacing B501BH series bases. ULC: B200SRA-IV.

B200SR-LF-WH: White, low-frequency version of B200SR. *See DN-60054.*

B200SR-LF-IV: Ivory, low-frequency version of B200SR.

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

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

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

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

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

FTM-1(A): 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.*

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

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

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

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

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

N-MPS series: Manual pull stations, addressable and conventional. ULC-listed; for use in Canada only. *See DN-5497 and DN-60629.*
ISO-X(A): Isolator module. *See DN-2243.*

ISO-6(A): Six fault isolator module. *See DN-60844.*

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

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

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

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

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.

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.*

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

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

DPA-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.

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.

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.

BACKBOXES

NOTE: "C" suffix indicates ULC-Listed model.

ABF-1B(C) Annunciator Flush Box

ABF-1DB(C) Annunciator Flush Box with Door. UL/ULC Listed.

ABF-2B Annunciator Flush Box

ABF-2DB(C) Annunciator Flush Box with Door

ABF-4B Annunciator Flush Box

ABS-1TB(C) Annunciator Surface Box

ABS-1B(C) Annunciator Surface Box

ABS-2B Annunciator Surface Box

ABS-2D(C) Annunciator Surface Box

ABS-4D(C) Annunciator Surface Box

BB-100: Backbox for batteries and power supplies. The BB-100 mounts 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.

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 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.

HWF2V-COM: LTE Digital Cellular Fire Alarm Communicator and Internet Panel, Verizon LTE / IP. Provides selectable configurable paths: cellular only, IP only, or IP primary with cellular backup. Connects to the primary and secondary ports of a DACT. *See DH-62010.* (For Canadian applications order IPGSM-4GC. *See DH-60771*.)

HWF2A-COM: LTE Digital Cellular Fire Alarm Communicator and Internet Panel, AT&T LTE / IP. 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-60771*.)

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 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.*

Electrical 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:** S527-11.
- **MEA:** 232-06-E.
- **Fire Dept. of New York:** COA#6211.
- **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). (NFS2-3030 version 20 or higher)
- **ULC-S527-11** Standard for the Installation of Fire Alarm 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).

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.

Country of Origin: USA

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

NOTIFIER® by Honeywell

NFC-50/100(E) First Command Emergency Communication System

General

Notifier's First Command NFC-50/100 and NFC-50/100E are multi-purpose emergency voice evacuation panels for fire applications, mass notification applications, or both. The First Command delivers 50 or 100 watts of audio power for distribution to up to eight speaker circuits (i.e. zones). The NFC-50/100(E) comes standard with a single speaker circuit and a built-in 50 watt, 25V amplifier. A secondary 50 watt amplifier (NFC-BDA-25/70V) can be added for single speaker circuit backup or to increase system capacity to two speaker circuits and an additional 50 watts of audio power. An optional NFC-CE6 module added to the NFC-50/100(E) will upgrade the system to a maximum of eight speaker circuit outputs. All speaker output circuits can be wired in either Style Y (Class B) or Style Z (Class A) configuration. The NFC-50/100(E) has fourteen field programmable messages (up to 60 seconds each), built-in field configurable pre- and post-announce tone generators and a fully supervised Notification Appliance Circuit (NAC) with 2.0 amps of synchronized NAC power. The NFC-50/100(E) includes three built-in Form-C relay contacts, (AC power, trouble and MNS active) a NAC follower and 500mA special application power. A built-in power supply delivers operational power and an onboard battery charger supports charging up to 26AH batteries (NFC cabinet holds up to 18AH batteries).

For fire protection applications, the NFC-50/100(E) is an adjunct (slave) to any UL listed FACP, providing reverse polarity or contact closure; can be used as a stand-alone unit for non-fire applications. For seamless integration between fire and mass notification, the NFC-50/100(E) can be directly activated via serial communication between the NFW-100X, NFW2-100, NFS-320, or NFS2-640. Activation of the NFC-50/100(E) via other FACPs uses the eight on board Command Input Circuits (CMDs). Two of the eight CMD circuits (CMD 1 & CMD 2) can be individually field programmed for activation by an FACP Notification Appliance Circuit reverse polarity and all eight can be activated by a contact closure. In addition, the NFC-50/100(E) can be activated from a building's Private Branch Exchange (PBX) with the integral night ring feature.

All NFC-50/100(E) programming is done by using a simple, built-in programming utility accessed from any laptop. For added flexibility, the NFC-50/100(E) supports both 25V and 70V speaker output operation. By adding a 70V transformer conversion module (NFC-XRM-70V) or an additional 70 volt secondary amplifier (NFC-BDA-25/70V) the system supports 70 volt speaker devices.

The NFC-50/100(E) can expand in order to accommodate larger or more complex installations. To add more control and increase system capacity, any combination of up to eight external remote consoles (including the NFC-LOC, NFC-RPU, and NFC-RM) and up to eight distributed audio amplifiers (including the NFC-50DA(E), NFC-100DA(E) and NFC-125-DA(E) can be connected on the external data bus and audio riser data bus to create a fully integrated command center. A fully loaded system supports up to 1100 watts of total audio power and up to 24 speaker circuit outputs.

TYPICAL APPLICATIONS

- Schools
- Theaters
- Auditoriums
- Nursing Homes
- Military facilities
- Places of Worship
- Factories
- Restaurants
- Office Buildings

Features

- UL Listed to UL 2572 Communication (Control Units Mass Notification Systems) and UL 864 (emergency voice evacuation for fire)
- Modular design for system flexibility and easy expansion
- Removable terminal blocks
- 50 watts of 25V audio power (expandable to 100 watts) RMS
- 2 amp Notification Appliance Circuit (NAC) output, sync generator, or follower for System Sensor, Wheelock or Gentex protocols
- Optional 70Vtransformer available for the primary amplifier. (Note that speaker wiring continues to be supervised in standby, alarm and when background music is playing with this optional transformer installed)
- Eight Command Input Circuits to activate messages 1 to 8:
  - CMD1 and CMD2 are field selectable to be activated from 12 or 24 VDC Notification Appliance Circuits (reverse polarity) or contact closures
  - CMD3-CMD8 are activated by contact closures
- Speaker Circuits
  - Single Style Y (Class B) or Style Z (Class A) speaker Circuit
  - Two Style Y (Class B) or Style Z (Class A) speaker circuits (with optional NFC-BDA-25/70V Audio Amplifier installed)
  - Eight Style Y (Class B) or Style Z (Class A) speaker circuits (with optional NFC-BDA-25/70V and NFC-CE6 installed)
- 520Hz square wave tones available, which can be uploaded to the NFC-50/100 to meet NFPA Low Frequency requirements (*Refer to the Device Compatibility Document 15378 for listed compatible speakers.*)
- NFC-50/100(E) can be controlled by an FACP via the ANN/ACS (EIA-485) link of the NFW-100X and NFW2-100, and via the ACS (EIA-485) link of the NFS-320 or NFS2-640. The NFS-320 or NFS2-640 must be firmware version 20.0 or higher.

- Certified for seismic applications when used with the appropriate seismic mounting kit
- Integral supervised microphone
- Microphone time-out feature which reverts back to prerecorded message if emergency page exceeds the programmed time
- 14 recorded messages
- Field-selectable message and custom message recording capability using the local microphone, a USB port, or an external audio input
- External Audio Input can be used for background music
- Up to 60 second message duration for all messages
- Integral tone generators field selectable for multiple tone types
- Powered by integral AC power supply or batteries during AC fail
- Programmable delay of immediate, 2 hours or 6 hours reporting of AC Loss
- Piezo sounder for local trouble
- 100 event history log
- Three Form-C relays:
  - AC Power Loss Relay - TB1
  - System Trouble Relay - TB2
  - MNS Active - TB3
- 500mA (0.5A) Special Application (auxiliary power) output for addressable modules when interfaced with compatible addressable FACPs and End-of-Line power supervision relays
- System Status LEDs (*Refer to "Controls and Indicators" in product manual LS10001-001NF-E*.)
- Integral Dress Panel
- Optional TR-CE-B semi-flush trim ring
- Any combination of up to eight (8) external remote consoles:
  - Optional NFC-RM Remote Microphone (includes cabinet) *See DN-60778*.
  - Optional NFC-RPU Remote Page Unit (includes cabinet) *See DN-60775*.
  - Optional NFC-LOC Local operator console (includes cabinet) *See DN-60777*.
- Any combination of up to eight (8) distributed audio amplifiers:
- Optional NFC-50DA(E) distributed amplifier, 50 watts. *See DN-60776*.
- Optional NFC-125DA(E) distributed amplifier, 125 watts. *See DN-60776.*
- Optional NFC-50/100 distributed amplifier with backup capability, 50/100 watts. *See* DN-60776.

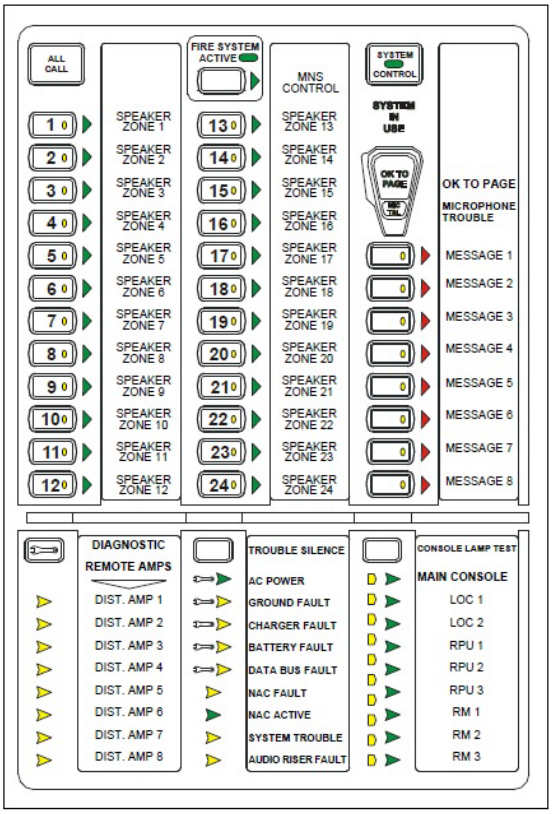
Optional Internal Expansion Modules

NFC-CE6: Circuit Expander Module provides connections for up to six Style Z (Class A) or Style Y (Class B) speaker circuits. Circuits are configured through the web-based programming utility.

NFC-BDA-25V: 25V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total NFC-50/100 power output to 100 watts or can also be used as a backup amplifier.

NFC-BDA-70V: 70V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total NFC-50/100 power output to 100 watts or can also be used as a backup amplifier.

NFC-XRM-70V: 70V Transformer Conversion Module. Converts the NFC-50/100(E) primary amplifier to a 70V output. This transformer mounts directly to the NFC-50/100(E) main control board by two metal brackets.



Control and Indicators

PUSH BUTTON CONTROLS

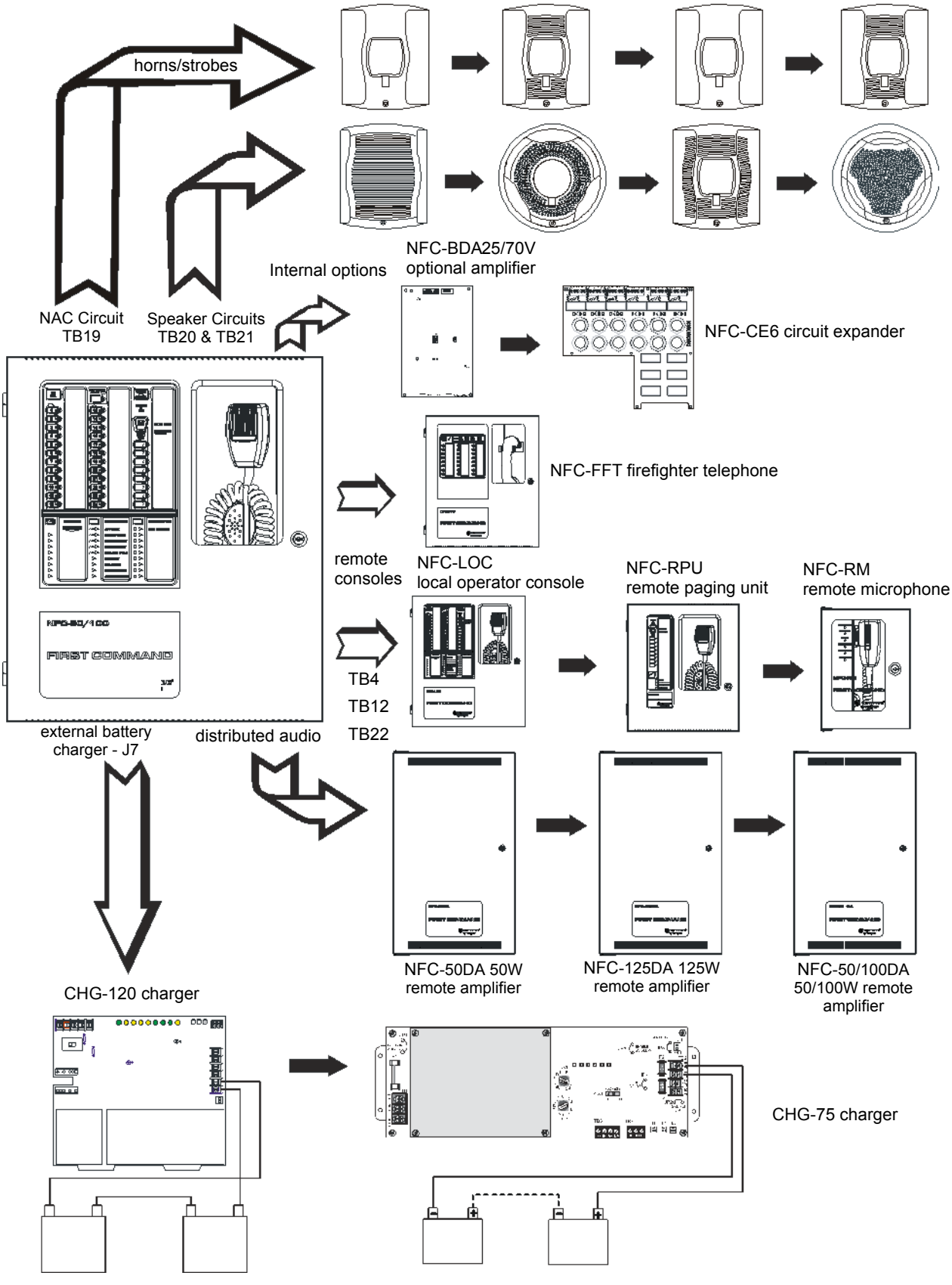
- All Call
- MNS Control
- System Control
- Speaker Select 1-24
- Message Select 1-14
- Diagnostic Select
- Trouble Silence
- Console Lamp Test

LED Status Indicators (visible with door closed)

- Fire System Active (green)
- MNS Control (green)
- System Control (green)
- System in Use (green)
- Speaker Zone 1-24 Active (green)
- Speaker Zone 1-24 Fault (yellow)
- OK to Page (green)
- Microphone Trouble (yellow)
- Message 1-8 Active (red)
- Message 1-8 Fault (yellow)
- Remote Amplifier 1-8 Fault (yellow)
- LOC/RPU/RM 1-8 Fault (yellow)
- LOC/RPU/RM 1-8 Active (green)
- Main Console Fault (yellow)
- AC Power (green)
- Ground Fault (yellow)
- Charger Fault (yellow)
- Battery Fault (yellow)
- Data Bus Fault (yellow)
- NAC Fault (yellow)
- NAC Active (green)
- System Trouble (yellow)
- Audio Riser Fault (yellow)

LED Indicators (visible with door and dress panel open)

- Speaker Volume Control Fault (yellow)
- Option Card Fault (yellow)
- Amplifier Over Current Fault (yellow)



NFC-50/100(E) First Command (Possible Configurations)

Product Line Information

NFC-50/100: (Primary Operating Console) 50 Watt, 25V single speaker zone emergency voice evacuation system, integral microphone, built in tone generator and 14 recordable messages.

NFC-50/100E: Export version (Primary Operating Console) 50 Watt, 25V single speaker zone emergency voice evacuation system, integral microphone, built in tone generator and 14 recordable messages. (240 VAC, 50Hz).

NFC-CE6: Speaker Circuit/Zone Expander Module.

NFC-BDA-25V: 25V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total NFC-50/100 power output to 100 watts or can also be used as a backup amplifier.

NFC-BDA-70V: 70V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total NFC-50/100 power output to 100 watts or can also be used as a backup amplifier.

NFC-XRM-70V: 70V Transformer Conversion Module. Converts the NFC-50/100(E) primary amplifier to a 70V output. This transformer mounts directly to the NFC-50/100(E) main control board by two metal brackets.

NFC-LOC: Local Operator Console (Complete user interface), *Please refer to the data sheet DN-60777 for more information.*

NFC-RPU: Remote Page Unit Hand held microphone, 14 message buttons. *Please refer to the data sheet DN-60775 for more information.*

NFC-RM: Remote Microphone only. *Please refer to the data sheet DN-60778 for more information.*

NFC-50DA: Distributed (Remote) Audio Amplifier, 50 watts. *Please refer to the data sheet DN-60776 for more information.*

NFC-50DAE: Export version. Distributed (Remote) Audio Amplifier, 50 watts. (240 VAC, 50Hz). *Please refer to the data sheet DN-60776 for more information.*

NFC-125DA: Distributed (Remote) Audio Amplifier, 125 watts. *Please refer to the data sheet DN-60776 for more information.*

NFC-125DAE: Export version. Distributed (Remote) Audio Amplifier, 125 watts. (240 VAC, 50Hz). *Please refer to the data sheet DN-60776 for more information.*

NFC-50/100DA: Distributed (Remote) Audio Amplifier with back up, 50 watts/100 watts at 25Vrms or 70Vrms. *Please refer to the data sheet DN-60776 for more information.*

NFC-50/100DAE: Export version. Distributed (Remote) Audio Amplifier with back up, 50 watts/100 watts (240 VAC, 50Hz). *Please refer to the data sheet DN-60776 for more information.*

NFC-BDA-BU: Expander card for ECC-50BDA remote amplifier for 100 watt primary / 50 watt back up operation.*Please refer to the data sheet DN-60776 for more information.*

NFC-CE4: Distributed Audio Speaker Circuit/Zone expander module.

NFC-FFT: Fire Fighter Telephone System. *Please refer to the data sheet DN-60779 for more information.*

NFC-RTZM: Remote Telephone Zone Module. *Allows for secure access to the* NFC via cell phone or remote telephone means; not UL listed.*Please refer to the data sheet DN-60818 for more information.*

SEISKIT-COMMENC: Seismic kit for the NFC-50/100. Includes battery bracket for two 12 AH or 18 AH batteries.

N-FPJ: Remote Phone Jack.

FHS-F: Fire Fighters Remote Handset.

FHSC-R: Fire Fighters Handset Cabinet Recessed.

FHSC-S: Fire Fighters Handset Cabinet Surface Mount

TR-CE-B: Optional Trim Ring.

THUMBLTCH: Optional Thumb Latch. (Non UL-Listed).

CHG-75: 25 to 75 ampere-hours (AH) External Battery Charger.

CHG-120: 25-120 ampere-hours (AH) External Battery Charger.

ECC-MICROPHONE: Replacement Microphone only.

BAT-1270: Battery,12 volt,7.0 AH (Two required).

BAT-12120: Battery,12 volt,12.0 AH (Two required).

BAT-12180: Battery,12 volt, 18.0 AH (Two required).

BAT-12260: Battery, 12 volt, 26.0 AH (Two required).

BB-26: Battery cabinet mounts up to two 26 AH batteries.

Wiring Requirements

See product manual, part number LS10001-001NF-E for detailed wiring requirements.

Total System Capacity: (NFC-50/100(E) only)

- Total Built-in Audio Power: 50 Watts.
- Total Expandable Audio Power: 100 Watts.
- Total Built-in Speaker Circuits: 2.
- Total Expandable Speaker Circuits: 8.
- Audio Message Max Time Duration: 60 seconds.
- External Audio Input: 1.

Total System Capacity: (Fully Loaded System)

- Total Distributed Audio Power: 1100 Watts.
- Total Speaker Circuits Per System: 24.
- Total Remote Consoles Supported: 8.
- Total Distributed Audio Amplifiers Supported: 8.

Electrical Specifications

PRIMARY (AC) POWER (TB15)

NFC-50/100: 120 VAC, 60 Hz, 3.5 amps.

NFC-50/100E: 240 VAC, 50 Hz, 2.0 amps.

Wire size: minimum #14 AWG (2.00mm2) with 600 V insulation.

SECONDARY POWER (BATTERY) CHARGING CIRCUIT (J7)

- Supports lead-acid batteries only.
- Float charge voltage at 27.3V
- Maximum charge current: 1.0 Amp
- Maximum battery charge capability: 2.8 Amps, 26AH (NFC cabinet holds max. 18AH battery).
- Minimum Battery size:12 Amp Hour.

AC LOSS RELAY CONTACT RATING (TB3)

- 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 30 VAC (resistive).

FORM C - TROUBLE RELAY CONTACT RATING (TB2)

- 2.0 amps @ 30 VDC (resistive), 0.5 amp @ 30 VAC (resistive).

MNS ACTIVE RELAY CONTACT RATING (TB1)

- 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 30 VAC (resistive).

NOTIFICATION APPLIANCE CIRCUIT (NAC) OUTPUT RATING (TB19)

- One (1) Style Y (Class B) or Style Z (Class A) circuit.
- Power-limited circuitry, (Class 2) supervised.
- Nominal operating voltage: 24 VDC.

- Maximum signaling current for special application power: 2.0A.
- Maximum signaling current for regulated power: 200mA.
- Maximum wiring impedance: 1Ω.
- Current limit: fuse-less, electronic, power-limited.
- End-Of-Line Resistor: 4.7 KΩ, ½ watt, (P/N 71252) required for Style Y (Class B) operation.

Refer to the Device Compatibility Document 15378 for listed compatible devices.

NAC FOLLOWER OUTPUT REMOTE SYNC (TB18)

- Connections for FACP NAC synchronization trigger signal.
- Output terminals: pass-through to other system components.
- Trigger input voltage: 9 to 32 VDC, 24 VDC rated.
- Input current draw in Alarm condition: 10 mA at rated voltage.

SPECIAL APPLICATION POWER (AUX. POWER) (TB17)

- 500 mA @ 24 VDC.
- Used for powering addressable modules and associated End-of-Line power supervision relays.

Power-limited circuitry. Refer to the Device Compatibility Document 15378 for a list of compatible devices.

SPEAKER VOLUME CONTROL OVERRIDE (TB23)

- Style Y (Class B) or Style Z (Class A) circuit.
- Special application power.
- Power-limited circuitry, supervised.
- Nominal operating voltage: 24 VDC.
- Maximum signaling current: 0.25 amps.
- Current limit: fuse-less, electronic, power-limited.
- End-Of-Line Resistor: 4.7 KΩ, ½ watt, (P/N 71252) required for Style Y (Class B) operation.

SPEAKER CIRCUITS

- Primary Speaker Circuit (TB20)
- Secondary Speaker Circuit (TB21) (with optional amplifier only).
  - Circuit can be wired Style Y (Class B) or Style Z (Class A).
  - Power-limited circuitry.
  - Normal Operating Voltage: 25 VRMS @ 2 amps max and maximum Load Impedance of 12.5Ω (70V @ 700 mA max. with maximum load Impedance of 100Ω operation possible by plugging optional NFC-XRM-70V conversion transformer into J12 of the main control board).
  - Output Power: 50 watts (10 watts when background music is employed).
  - Frequency Range: 400Hz - 4,000Hz.
  - Maximum total capacitance for each speaker circuit: 250 µF.
  - End-of-Line Resistor required for Style Y circuit: 15 KΩ, 1 watt (P/N: ELR-15K).

COMMAND INPUT CIRCUITS (ALARM POLARITIES SHOWN)

CMD1 - TB4 Terminals 3(+) & 4(-) are input terminals and Terminals 1(-) and 2(+) are output terminals which provide feed through of the NAC circuits to NAC devices down stream.

CMD2 - TB5 Terminals 3(+) & 4(-) are input terminals and Terminals 1(-) and 2(+) are output terminals which provide feed through of the NAC circuits to NAC devices downstream.

CMD3 - TB6 Terminals 1(+) & 2(-) are input terminals for contact closure only.

CMD4 - TB6 Terminals 3(+) & 4(-) are input terminals for contact closure only.

CMD5 - TB7 Terminals 1(+) & 2(-) are input terminals for contact closure only.

CMD6 - TB7 Terminals 3(+) & 4(-) are input terminals for contact closure only.

CMD7 - TB8 Terminals 1(+) & 2(-) are input terminals for contact closure only.

CMD8 - TB8 Terminals 3(+) & 4(-) are input terminals for contact closure only.

- Power-limited and supervised circuitry.
- Normal Operating Voltage Range: 10.5 VDC - 29 VDC; (Maximum Voltage: 29 VDC).
- NAC Reverse Polarity Current (requires End-of-Line Resistor from NAC): 1.6 mA maximum.
- Contact Closure Operation Current (requires 4.7KΩ, ½ watt End-of-Line Resistor P/N 27072): 6.6 mA maximum.
- Maximum Wiring Impedance CMD1 - CMD8 (Contact Closure Operation): 200Ω.

NOTE: *When the system is programmed for Mass Notification, CMD1and CMD2 will be programmed for Reverse Polarity only. See manual P/N LS10001-001NF-E for more details.*

MAXIMUM INPUT IMPEDANCE:

- CMD1 & CMD2 (Reverse Polarity Operation): 20KΩ.
- CMD1 - CMD8 (Contact Closure Operation): 4.75KΩ.

NIGHT RING INPUT - TB16, TERMINALS 1 (+) & 2 (-)

- Contact closure input.
- Isolated, non-supervised.
- Operation current: 3.8 mA, maximum.
- Maximum wiring impedance: 30KΩ.
- Minimum isolation withstand voltage: 1500 VRMS.

EXTERNAL OPERATOR INTERFACE POWER OUTPUT (TB24)

- Non-resettable power for external operator interface components.
- Power-limited circuitry, non-supervised.
- Nominal operating voltage: 24 VDC.
- Maximum output current: 0.80 amps.
- Current limit: fuse-less, electronic, power-limited circuit.

EXTERNAL DATA BUS (EIA-485) (TB12)

- Data connections for external operator interface components.
- Redundant transceiver circuitry for Class A operability.
- Power-limited circuitry, supervised.
- Maximum wiring impedance: 13.2Ω

FACP DATA BUS (EIA-485) (TB13)

- Dedicated connection to FACP serial bus.
- Output terminals: pass-through to other system components.
- Isolated, supervised.
- Minimum isolation withstand voltage: 1500 VRMS.
- Maximum wiring impedance: 40Ω (ANN-BUS), 26Ω (ACS-BUS).
- External Audio Riser (TB22).
- Style Y (Class B) or Style Z (Class A) audio connections to external operator interface components.
- Power-limited circuitry, supervised.
- Audio signal level: 3.85 V, maximum.
- Frequency range: 400 Hz - 4 KHz RMS.
- Frequency range (NFC-50/125DA): 800Hz - 2KHz RMS.

Electrical Specifications Display Board

EXTERNAL AUDIO INPUT (TB5)

- Input Impedance: 8.5KΩ nominal @1KHz
- Input Voltage: 700 mV rms maximum
- Input Current: 0.1 mA maximum @ 700 mV

NOTE: *Some laptops/personal computers only provide an audio output for headphones. It may be necessary to adjust the headphone output level for proper recording of voice messages.*

NFC-CE6 Circuit Expander Module Specifications

- Power-limited circuitry.
- Up to six (6) circuits on the NFC-CE6 can be wired as Style Y (Class B) or Style Z (Class A).
- Normal Operating Voltage for Speaker Circuits: 25 V@ 2.0 amps max. (Maximum Load Impedance of 12.5Ω).
- 70.0 V @ 700 mA max. with maximum Load Impedance of 100Ω operation possible for the primary circuit by plugging in an optional NFC-XRM-70V conversion transformer into J12 of the main control board. The same operation is possible for the optional 50W amplifier by selecting the NFC-BDA-70V model.
- Speaker circuit wiring is supervised during standby, background music, and alarm.
- Output Power: 50 watts total; Frequency Range: 400Hz - 4,000Hz.
- Maximum total capacitance: 250 µF. (Note that the total capacitance for the speaker outputs must not exceed the maximum of 250 µF.)
- End-of-Line Resistor required for Style Y (Class B) speaker circuit: 15 KΩ, 1 watt (P/N: ELR-15K) TB13 on the main control board: ACS/ANN (EIA-485) electrically isolated link to FACP provides programmed speaker control.

Cabinet Specifications

- Backbox: 19.0"(48.26 cm) high x 16.65"(42.29 cm) wide x 5.20"(13.23 cm) deep.
- Door: 19.26" (48.92 cm) high x 16.82"(42.73 cm) wide x 0.12"(0.30 cm) deep.
- Trim Ring (TR-CE-B): 22.00" (55.88 cm) high x 19.65" (49.91 cm) wide.

Shipping Specifications

Base Unit Weight: 27.85 lbs (12.63 kg).

Temperature and Humidity ranges

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

Agency Listings and Approvals

The listings and approvals below apply to the basic NFC-50/100(E) control panel. In some cases, certain modules may not be listed by certain approval agencies or listing may be in process. Consult factory for latest listing status.

- UL/ULC Listed: S635
- CSFM: 6911-0028:0265
- NYC Fire Dept. Certificate of Approval: #6163

Standards and Codes

The NFC-50/100(E) complies with the following UL Standards, NFPA 72, International Building Codes, and California Building Codes.

- UL 864
- UL 2572
- UFC 4-021-01
- IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000 (Seismic)
- CBC 2007 (Seismic)

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

Country of Origin: USA

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

NOTIFIER® by Honeywell

NOTIFIER® by Honeywell

Notifier FirstCommand

NFC-50/100 & NFC-50/100E

Instruction Manual

Document LS10001-001NF-E Rev: H
1/8/2018 ECN: 18-117

Fire Alarm & Emergency Communication System Limitations

While a life safety system may lower insurance rates, it is not a substitute for life and property insurance!

An automatic fire alarm system—typically made up of smoke detectors, heat detectors, manual pull stations, audible warning devices, and a fire alarm control panel (FACP) with remote notification capability—can provide early warning of a developing fire. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire.

An emergency communication system—typically made up of an automatic fire alarm system (as described above) and a life safety communication system that may include an autonomous control unit (ACU), local operating console (LOC), voice communication, and other various interoperable communication methods—can broadcast a mass notification message. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire or life safety event.

The Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premises following the recommendations of the current edition of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer's recommendations, State and local codes, and the recommendations contained in the Guide for Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. This document can be found at http://www.systemsensor.com/appguides/. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off in as many as 35% of all fires. While fire alarm systems are designed to provide early warning against fire, they do not guarantee warning or protection against fire. A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons:

Smoke detectors may not sense fire where smoke cannot reach the detectors such as in chimneys, in or behind walls, on roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level or floor of a building. A second-floor detector, for example, may not sense a first-floor or basement fire.

Particles of combustion or "smoke" from a developing fire may not reach the sensing chambers of smoke detectors because:

- Barriers such as closed or partially closed doors, walls, chimneys, even wet or humid areas may inhibit particle or smoke flow.
- Smoke particles may become "cold," stratify, and not reach the ceiling or upper walls where detectors are located.
- Smoke particles may be blown away from detectors by air outlets, such as air conditioning vents.
- Smoke particles may be drawn into air returns before reaching the detector.

The amount of "smoke" present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm at various levels of smoke density. If such density levels are not created by a developing fire at the location of detectors, the detectors will not go into alarm.

Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast-flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.

Smoke detectors cannot be expected to provide adequate warning of fires caused by arson, children playing with matches (especially in bedrooms), smoking in bed, and violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).

Heat detectors do not sense particles of combustion and alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Rate-of-rise heat detectors may be subject to reduced sensitivity over time. For this reason, the rate-of-rise feature of each detector should be tested at least once per year by a qualified fire protection specialist. Heat detectors are designed to protect property, not life.

IMPORTANT! Smoke detectors must be installed in the same room as the control panel and in rooms used by the system for the connection of alarm transmission wiring, communications, signaling, and/or power. If detectors are not so located, a developing fire may damage the alarm system, compromising its ability to report a fire.

Audible warning devices such as bells, horns, strobes, speakers and displays may not alert people if these devices are located on the other side of closed or partly open doors or are located on another floor of a building. Any warning device may fail to alert people with a disability or those who have recently consumed drugs, alcohol, or medication. Please note that:

- An emergency communication system may take priority over a fire alarm system in the event of a life safety emergency.
- Voice messaging systems must be designed to meet intelligibility requirements as defined by NFPA, local codes, and Authorities Having Jurisdiction (AHJ).
- Language and instructional requirements must be clearly disseminated on any local displays.
- Strobes can, under certain circumstances, cause seizures in people with conditions such as epilepsy.
- Studies have shown that certain people, even when they hear a fire alarm signal, do not respond to or comprehend the meaning of the signal. Audible devices, such as horns and bells, can have different tonal patterns and frequencies. It is the property owner's responsibility to conduct fire drills and other training exercises to make people aware of fire alarm signals and instruct them on the proper reaction to alarm signals.
- In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.

A life safety system will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time and only if the batteries have been properly maintained and replaced regularly.

Equipment used in the system may not be technically compatible with the control panel. It is essential to use only equipment listed for service with your control panel.

Telephone lines needed to transmit alarm signals from a premises to a central monitoring station may be out of service or temporarily disabled. For added protection against telephone line failure, backup radio transmission systems are recommended.

The most common cause of life safety system malfunction is inadequate maintenance. To keep the entire life safety system in excellent working order, ongoing maintenance is required per the manufacturer's recommendations, and UL and NFPA standards. At a minimum, the requirements of NFPA 72 shall be followed. Environments with large amounts of dust, dirt, or high air velocity require more frequent maintenance. A maintenance agreement should be arranged through the local manufacturer's representative. Maintenance should be scheduled as required by National and/or local fire codes and should be performed by authorized professional life safety system installers only. Adequate written records of all inspections should be kept.

Limit-D2-2016

Installation Precautions

Adherence to the following will aid in problem-free installation with long-term reliability:

WARNING - Several different sources of power can be connected to the fire alarm control panel. Disconnect all sources of power before servicing. Control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or interconnecting cables while the unit is energized. Do not attempt to install, service, or operate this unit until manuals are read and understood.

CAUTION - System Re-acceptance Test after Software Changes: To ensure proper system operation, this product must be tested in accordance with NFPA 72 after any programming operation or change in site-specific software. Re-acceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring. All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

This system meets NFPA requirements for operation at 0-49º C/ 32-120º 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 15-27º C/60-80º F.

Verify that wire sizes are adequate for all initiating and indicating device loops. Most devices cannot tolerate more than a 10% I.R. drop from the specified device voltage.

Like all solid state electronic devices, this system may operate erratically or can be damaged when subjected to lightning induced transients. Although no system is completely immune from lightning transients and interference, proper grounding will reduce susceptibility. Overhead or outside aerial wiring is not recommended, due to an increased susceptibility to nearby lightning strikes. Consult with the Technical Services Department if any problems are anticipated or encountered.

Disconnect AC power and batteries prior to removing or inserting circuit boards. Failure to do so can damage circuits.

Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, or printed circuit board location.

Do not tighten screw terminals more than 9 in-lbs. Over-tightening may damage threads, resulting in reduced terminal contact pressure and difficulty with screw terminal removal.

This system contains static-sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use static suppressive packaging to protect electronic assemblies removed from the unit.

Follow the instructions in the installation, operating, and programming manuals. These instructions must be followed to avoid damage to the control panel and associated equipment. FACP operation and reliability depend upon proper installation.

Precau-D1-9-2005

FCC Warning

WARNING: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause interference to radio communications. It has been tested and found to comply with the limits for class A computing devices pursuant to Subpart B of Part 15 of FCC Rules, which is designed to provide reasonable protection against such interference when devices are operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his or her own expense.

Canadian Requirements

This digital apparatus does not exceed the Class A limits for radiation noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la classe A prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

Software Downloads

In order to supply the latest features and functionality in fire alarm and life safety technology to our customers, we make frequent upgrades to the embedded software in our products. To ensure that you are installing and programming the latest features, we strongly recommend that you download the most current version of software for each product prior to commissioning any system. Contact Technical Support with any questions about software and the appropriate version for a specific application.

Documentation Feedback

Your feedback helps us keep our documentation up-to-date and accurate. If you have any comments or suggestions about our online Help or printed manuals, you can email us.

Please include the following information:

- Product name and version number (if applicable)
- Printed manual or online Help
- Topic Title (for online Help)
- Page number (for printed manual)
- Brief description of content you think should be improved or corrected
- Your suggestion for how to correct/improve documentation

Send email messages to:

FireSystems.TechPubs@honeywell.com

Please note this email address is for documentation feedback only. If you have any technical issues, please contact Technical Services.

Table of Contents

This control panel has been designed to comply with standards set forth by the following regulatory agencies:

- Underwriters Laboratories/Underwriters Laboratories Canada
- National Fire Protection Association

Before proceeding, the installer should be familiar with the following documents.

NFPA Standards

This Fire Alarm Control Panel complies with the following NFPA Standards:

NFPA 72 National Fire Alarm Code

Note: Audible signal appliances used in public mode applications, are required to have minimum sound levels of 75 dBA at 10 feet (3 meters) and a maximum level of 120 dBA at the minimum hearing distance from the audible appliance.

To ensure that the appliance is clearly heard, the audible appliance sound level must be at least 15 dBA above the average ambient sound level or 5 dBA above the maximum sound level with a duration of at least 60 seconds, depending on which level is greater, with the sound level being measured 5 feet (1.5 meters) above the floor.

Underwriters Laboratories Documents:

UL 38 Manually Actuated Signaling Boxes

UL 464 Audible Signaling Appliances

UL 864 Standard for Control Units for Fire Protective Signaling Systems

UL 1480 Speakers for Fire Protective Signaling Systems

UL 1638 Visual Signaling Appliances

UL 1711 Amplifiers for Fire Protective Signaling Systems

UL 1971 Signaling Devices for Hearing Impaired

UL 2572 Communication and Control Units for Mass Notification Systems

CAN/ULC - S524-01 Standard for Installation of Fire Alarm Systems

CAN/ULC - S527-11 Standard for Control Units for Fire Alarm Systems

This Class (A) digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe (A) est conforme à la norme NMB-003 du Canada.

Other:

Canadian Electrical Code, Part 1

NEC Article 250 Grounding

NEC Article 300 Wiring Methods

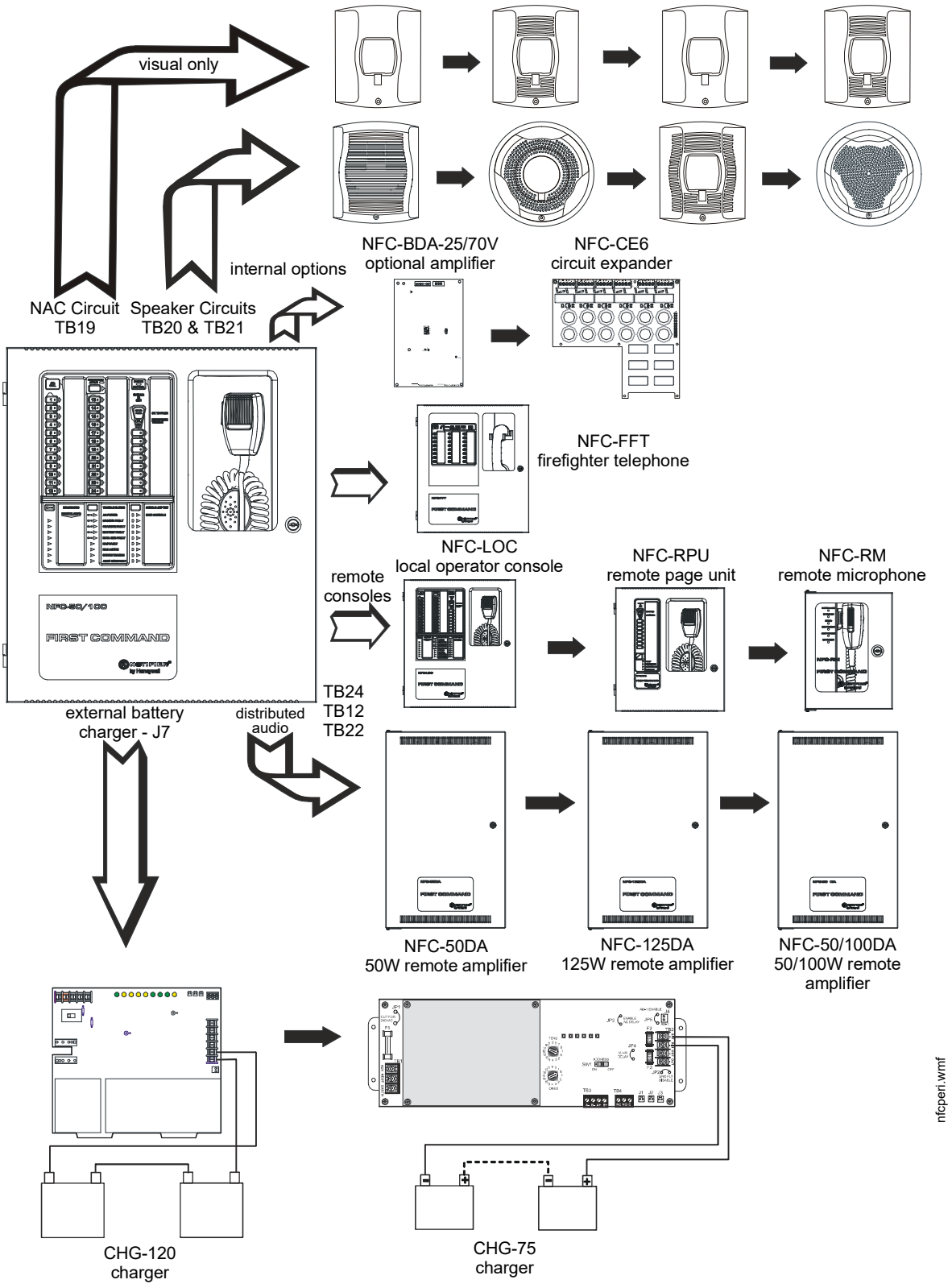
NEC Article 760 Fire Protective Signaling Systems

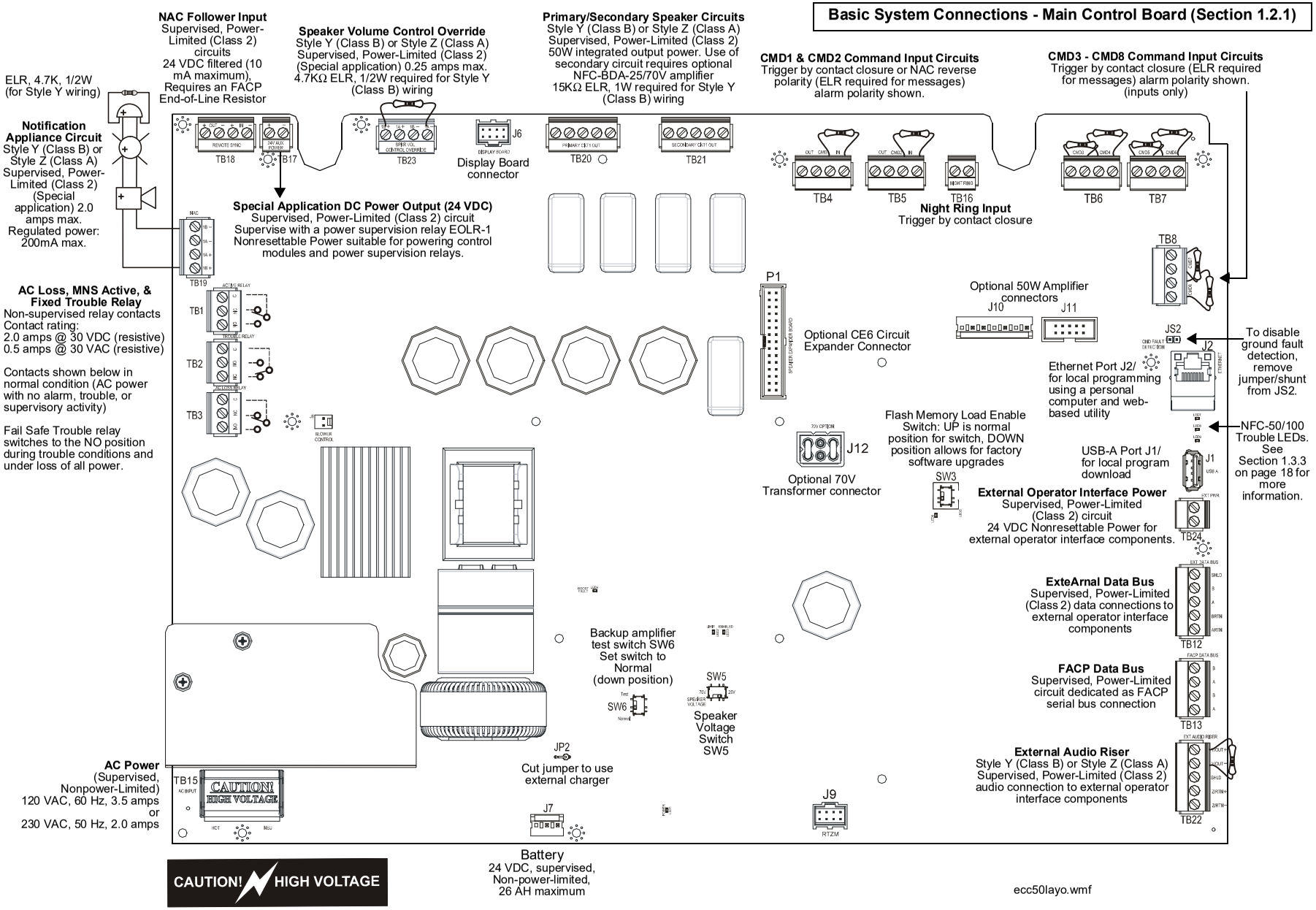
Applicable Local and State Building Codes

Requirements of the Local Authority Having Jurisdiction (LAHJ)

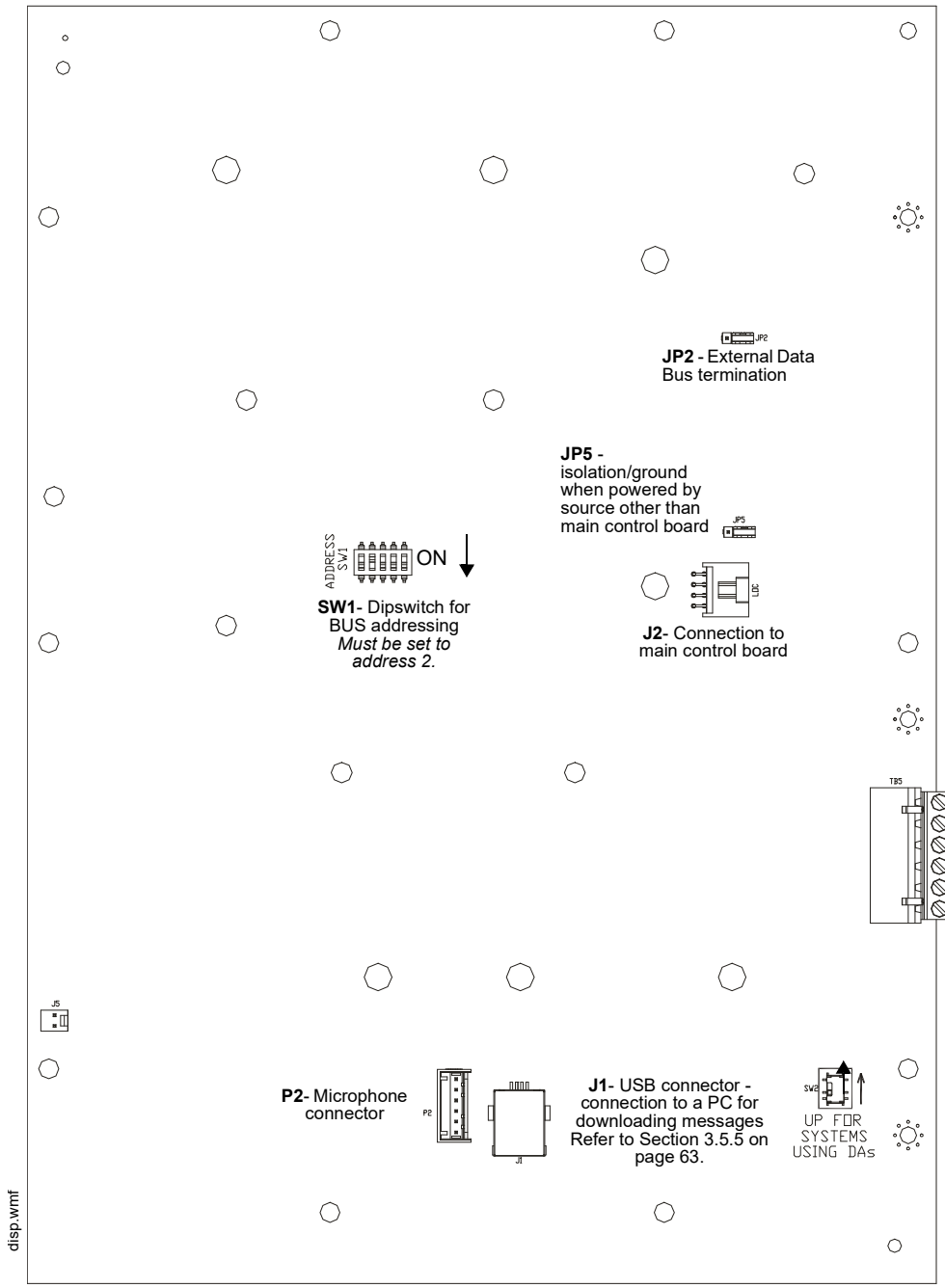
Notifier Documents:

Notifier Device Compatibility Document	Document #15378
NFC Distributed Audio Manual	Document #LS10027-001NF-E
NFC-FFT Manual	Document #LS10031-001NF-E
NFC-LOC Installation Document	Document #LS10028-001NF-E
NFC-RPU Installation Document	Document #LS10030-001NF-E
NFC-RM Installation Document	Document #LS10029-001NF-E
NFC-CE6 Installation Document	Document #LS10033-001NF-E
NFC-CE4 Installation Document	Document #LS10002-001NF-E
NFC-BDA-25/70V Installation Document	Document #LS10035-001NF-E
NFC-XRM-70V Installation Document	Document #LS10032-001NF-E
NFW-100X Manual	Document #LS10131-001NF-E
NFS2-640 Listing Document	Document # 52741LD
NFS-320 Listing Document	Document # 52745LD
FireWarden-100-2 Series Manual	Document #52778


visual only
NAC Circuit
TB19
Speaker Circuits
TB20 & TB21
internal options
NFC-BDA-25/70V
optional amplifier
NFC-CE6
circuit expander
NFC-FFT
firefighter telephone
NFC-LOC
local operator console
remote
consoles
NFC-RPU
remote page unit
NFC-RM
remote microphone
external battery
charger - J7
distributed
audio
TB24
TB12
TB22
NFC-50DA
50W remote amplifier
NFC-125DA
125W remote amplifier
NFC-50/100DA
50/100W remote
amplifier
CHG-120
charger
CHG-75
charger
nfcperi.wmf


Basic System Connections - Main Control Board (Section 1.2.1)
NAC Follower Input
Supervised, Power-Limited (Class 2) circuits
24 VDC filtered (10 mA maximum), Requires an FACP End-of-Line Resistor
Speaker Volume Control Override
Style Y (Class B) or Style Z (Class A) Supervised, Power-Limited (Class 2) (Special application) 0.25 amps max. 4.7KΩ ELR, 1/2W required for Style Y (Class B) wiring
Primary/Secondary Speaker Circuits
Style Y (Class B) or Style Z (Class A) Supervised, Power-Limited (Class 2) 50W integrated output power. Use of secondary circuit requires optional NFC-BDA-25/70V amplifier 15KΩ ELR, 1W required for Style Y (Class B) wiring
CMD1 & CMD2 Command Input Circuits
Trigger by contact closure or NAC reverse polarity (ELR required for messages) alarm polarity shown.
CMD3 - CMD8 Command Input Circuits
Trigger by contact closure (ELR required for messages) alarm polarity shown. (inputs only)
ELR, 4.7K, 1/2W (for Style Y wiring)
Notification Appliance Circuit
Style Y (Class B) or Style Z (Class A) Supervised, Power-Limited (Class 2) (Special application) 2.0 amps max. Regulated power: 200mA max.
TB18
TB17
TB23
J6
Display Board connector
TB20
TB21
TB4
TB5
TB16
NIGHT RING
TB6
TB7
Night Ring Input
Trigger by contact closure
Special Application DC Power Output (24 VDC)
Supervised, Power-Limited (Class 2) circuit
Supervise with a power supervision relay EOLR-1
Nonresettable Power suitable for powering control modules and power supervision relays.
TB19
TB8
P1
Optional 50W Amplifier connectors
J10
J11
Optional CE6 Circuit Expander Connector
JS2
To disable ground fault detection, remove jumper/shunt from JS2.
J2
Ethernet Port J2/ for local programming using a personal computer and web-based utility
NFC-50/100 Trouble LEDs. See Section 1.3.3 on page 18 for more information.
AC Loss, MNS Active, & Fixed Trouble Relay
Non-supervised relay contacts
Contact rating:
2.0 amps @ 30 VDC (resistive)
0.5 amps @ 30 VAC (resistive)
Contacts shown below in normal condition (AC power with no alarm, trouble, or supervisory activity)
Fail Safe Trouble relay switches to the NO position during trouble conditions and under loss of all power.
TB1
TB2
TB3
Flash Memory Load Enable Switch: UP is normal position for switch, DOWN position allows for factory software upgrades
J12
Optional 70V Transformer connector
SW3
USB-A Port J1/ for local program download
J1
External Operator Interface Power
Supervised, Power-Limited (Class 2) circuit
24 VDC Nonresettable Power for external operator interface components.
TB24
ExteArnal Data Bus
Supervised, Power-Limited (Class 2) data connections to external operator interface components
TB12
FACP Data Bus
Supervised, Power-Limited circuit dedicated as FACP serial bus connection
TB13
External Audio Riser
Style Y (Class B) or Style Z (Class A) Supervised, Power-Limited (Class 2) audio connection to external operator interface components
TB22
Backup amplifier test switch SW6 Set switch to Normal (down position)
SW6
SW5
Speaker Voltage Switch SW5
JP2
Cut jumper to use external charger
J7
J9
AC Power
(Supervised, Nonpower-Limited)
120 VAC, 60 Hz, 3.5 amps
or
230 VAC, 50 Hz, 2.0 amps
TB15
CAUTION! HIGH VOLTAGE
Battery
24 VDC, supervised, Non-power-limited, 26 AH maximum
CAUTION! HIGH VOLTAGE
ecc50layo.wmf

Basic System Connections - Display Board (Section 1.2.2)



JP2 - External Data Bus termination

JP5 - isolation/ground when powered by source other than main control board

SW1- Dipswitch for BUS addressing *Must be set to address 2.*

J2- Connection to main control board

TB5- External Audio Input/ Audio Riser

P2- Microphone connector

J1- USB connector - connection to a PC for downloading messages Refer to Section 3.5.5 on page 63.

SW2- Distributed Audio Switch set to UP position if any NFC-50/125DAs are installed in the system.
Default is the DOWN position.

Section 1: Product Description

The Notifier FirstCommand NFC-50/100 is a single channel, 50 watt, 25 V_{RMS}, emergency voice evacuation panel that may be used for fire applications, mass notification applications, or both. The NFC-50/100 comes standard with one speaker circuit. The panel provides the ability to record fourteen field programmable messages (up to 60 seconds each) with an integral microphone or from an external audio source. An integral power supply with battery charger supplies operational power. A 50 watt audio amplifier is built into each panel. An optional second 50 watt amplifier (NFC-BDA-25/70V) is also available for backup purposes or to provide an additional 50 watts. The backup amplifier is available in either 25 volts or 70 volts depending on which application is necessary.

Automatic activation of the NFC-50/100 by an FACP is possible via eight Command Input Circuits (CMD) or via the ACS/ANN Bus serial communications link from the FireWarden-100X, FireWarden-100-2, NFS2-640, and NFS-320 FACPs.

Two Command Input Circuits can be independently field programmed for activation by an FACP Notification Appliance Circuit reverse polarity or by closure of a supervised normally open contact and six Command Input Circuits activate on contact closure. CMD 1 and CMD 2 provide terminals for NAC input and output to allow installation of the audio panel anywhere along the NAC circuit being used to activate it.

If the message generator fails, the system automatically reverts to a backup tone generator.

Power is fed independently to each amplifier so that a short circuit in one amplifier will not shut down the other. Full output power of 50 watts per amplifier is generated while in a low battery condition. Power is not diminished when the optional 70 V_{RMS} transformer module is installed. Audio is amplified utilizing modern integrated circuits as opposed to transformer technology. This provides for very low signal distortion for crystal clear audio.

Primary applications for the audio panels include protecting structures such as military facilities, restaurants, schools, auditoriums, places of worship, buildings with occupancies over 50, etc. The NFC-50/100 is designed to interface directly to addressable or conventional (CMD inputs 1-8) fire alarm control panels or can be used with the NFC-50/125DA panel to distribute audio in systems that require more than 100 watts.

For Canadian applications, refer to Appendix C on page 83.

1.1 Product Features

- Modular design for maximum system flexibility and easy expansion
- Removable terminal blocks for ease of servicing and module replacement
- 50 watts of 25 V_{RMS} audio power (expandable to 100 watts)
- 2 amp Notification Appliance Circuit (NAC) output, sync generator, or follower for protocols:
  - System Sensor
  - Wheelock
  - Gentex
- Optional 70.7 V_{RMS} conversion transformer available for the primary amplifier (note that speaker wiring continues to be supervised in standby, alarm and when background music is playing with this optional transformer installed)
- Eight Command Input Circuits to activate messages 1 to 8:
  - CMD1 and CMD2 are field selectable to be activated from 12 or 24 VDC Notification Appliance Circuits (reverse polarity) or contact closures
  - CMD3-CMD8 are activated by contact closures
- Speaker Circuits
  - single Style Y (Class B) or Style Z (Class A) speaker circuit
  - two Style Y (Class B) or Style Z (Class A) speaker circuits (with optional NFC-BDA-25/70V Audio Amplifier installed)
  - eight Style Y (Class B) or Style Z (Class A) speaker circuits (with optional NFC-BDA-25/70V *and* NFC-CE6 installed)
- NFC-50/100 can be controlled by an FACP via the ANN/ACS (EIA-485) link. ACS compatible FACPs include the FireWarden-100X, FireWarden-100-2, NFS2-640, and NFS-320. ANN compatible FACPs include the FireWarden-100-2.
- Integral supervised microphone
- Microphone time-out feature which reverts back to prerecorded message if emergency page exceeds the programmed time
- Up to 14 recorded messages
- 14 prerecorded messages for fire, emergency, and weather alerts
- Field-selectable message and custom message recording capability using the local microphone, a USB port, or an external audio input
- External Audio Input can be used for background music
- Up to 60 second message duration for all messages
- Integral tone generators field selectable for multiple tone types
- Powered by integral AC power supply or batteries during AC fail
- Programmable delay of immediate, 2 hours or 6 hours reporting of AC Loss
- Piezo sounder for local trouble
- 100 event history log
- Three Form-C relays:
  - AC Power Loss Relay - TB1
  - System Trouble Relay - TB2
  - MNS Active - TB3
- 500 mA (0.5A) Special Application (auxiliary power) output for addressable modules when interfaced with compatible addressable FACPs and End-of-Line power supervision relays

- System Status LEDs (refer to “Controls and Indicators” on page 17)
- Integral Dress Panel
- Optional TR-CE-B semi-flush trim ring
- Any combination of up to eight (8) of:
  - Optional NFC-RM Remote Microphone (includes cabinet).
  - Optional NFC-RPU Remote Page Unit (includes cabinet)
  - Optional NFC-LOC (includes cabinet)
- Optional NFC-CE6 Circuit Expander
- Optional NFC-BDA-25V amplifier, 50 watts, 25 volts
- Optional NFC-BDA-70V amplifier, 50 watts, 70 volts
- Optional NFC-50DA distributed amplifier, 50 watts
- Optional NFC-125DA distributed amplifier, 125 watts
- Optional NFC-50/100DA distributed amplifier, 50/100 watts

1.2 Input/Output Circuit Specifications

1.2.1 NFC-50/100 Main Control Board

AC Power - TB15

NFC-50/100: 120 VAC, 60 Hz, 3.5 amps (HOT, NEU)
NFC-50/100E: 240 VAC, 50 Hz, 2.0 amps (HOT=HotLeg1, NEU=HotLeg2)
Wire size: minimum #14 AWG (2.00mm^2) with 600 V insulation.

Battery (lead acid only) - J7

Maximum Charging Circuit: Normal Flat Charge - 27.3V @ 2.8 amps
Maximum Charger Capacity: 26 Amp Hour battery. (NFC cabinet holds max. 18 Amp Hour Battery.
Minimum Battery Size: 12 Amp Hour

MNS Active Relay - TB1

Form-C relay contact rating: 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 30 VAC (resistive),

Form-C Trouble Relay - TB2

Form-C relay contact rating: 2.0 amps @ 30 VDC (resistive), 0.5 amp @ 30 VAC (resistive).

AC Loss Relay - TB3

Form-C relay contact rating: 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 30 VAC (resistive),

NAC Output - TB19, Terminals 1 (B+), 2 (A+), 3 (A-), & 4 (B-)

One (1) Style Y (Class B) or Style Z (Class A) circuit
Power-limited circuitry (Class 2), supervised
Nominal operating voltage: 24 VDC
Maximum signaling current for special application power: 2.0 amps
Maximum signaling current for regulated power: 200mA
Current limit: fuseless, electronic, power-limited
Maximum wiring impedance: 1 Ω
End-Of-Line Resistor: 4.7 KΩ, ½ watt, (P/N 71252) required for Style Y (Class B) operation
Refer to the *Device Compatibility Document* for listed compatible devices.

NAC Follower - TB18, Terminals 3 (IN+), 4 (IN-), 1 (OUT+) & 2 (OUT-)

Connections for FACP NAC synchronization trigger signal
Output terminals: pass-through to other system components
Trigger input voltage: 9 to 32 VDC, 24 VDC rated
Input current draw in Alarm condition: 10 mA at rated voltage

Special Application Power (Aux. Power) - TB17 Terminals 1(+) & 2(-)

Up to 500 mA @ 24 VDC of special application power is available for powering addressable modules and associated End-of-Line power supervision relays.
Power-limited (Class 2) circuitry. Refer to the *Device Compatibility Document* for a list of compatible devices.

Speaker Volume Control Override - TB23, Terminals 1 (B+), 2 (A+), 3 (A-), & 4 (B-)

Style Y (Class B) or Style Z (Class A) circuit
Special Application power
Power-limited (Class 2) circuitry, supervised
Nominal operating voltage: 24 VDC
Maximum signaling current: 0.25 amps
Current limit: fuseless, electronic, power-limited
End-Of-Line Resistor: 4.7 KΩ, ½ watt, (P/N 71252) required for Style Y (Class B) operation

Speaker Circuits

Primary Speaker Circuit - TB20, Terminals 1(+) & 2(-) Style Y (Class B), 4(+) & 5(-) Style Z (Class A), 3 Shield (Standby and Alarm Polarity Shown) on main control board

Secondary Speaker Circuit (with optional amplifier only) - TB21, Terminals 1(+) & 2(-) Style Y (Class B), 4(+) & 5(-) Style Z (Class A), 3 Shield (Standby and Alarm Polarity Shown) on main control board

Power-limited (Class 2) circuitry
Operation: Circuit can be wired Style Y (Class B) or Style Z (Class A)
Normal Operating Voltage: 25 V_{RMS} @ 2 amps max. and maximum Load Impedance of 12.5Ω
(70.7 V_{RMS} @ 700 mA max. with maximum Load Impedance of 100Ω operation possible by plugging optional NFC-XRM-70V conversion transformer into J12 of the main control board).
Output Power: 50 watts, standard; 100 watts with optional amplifier (100 watts total, maximum, allowed in standby for background music)
Frequency Range: 800 - 2,800 Hz
Maximum total capacitance for each speaker circuit: 250 µF.
End-of-Line Resistor required for Style Y circuit: 15 KΩ, 1 watt (P/N: ELR-15K)

Command Input Circuits (alarm polarities shown)

- CMD1 - TB4 Terminals 3(+) & 4(-) are input terminals and Terminals 1(-) and 2(+) are output terminals which provide feed through of the NAC circuits to NAC devices downstream; provides internal trouble relay rated at 3.0 amps maximum
- CMD2 - TB5 Terminals 3(+) & 4(-) are input terminals and Terminals 1(-) and 2(+) are output terminals which provide feed through of the NAC circuits to NAC devices downstream
- CMD3 - TB6 Terminals 1(+) & 2(-) are input terminals for contact closure only
- CMD4 - TB6 Terminals 3(+) & 4(-) are input terminals for contact closure only
- CMD5 - TB7 Terminals 1(+) & 2(-) are input terminals for contact closure only
- CMD6 - TB7 Terminals 3(+) & 4(-) are input terminals for contact closure only
- CMD7 - TB8 Terminals 1(+) & 2(-) are input terminals for contact closure only
- CMD8 - TB8 Terminals 3(+) & 4(-) are input terminals for contact closure only

Power-limited (Class 2) and supervised circuitry
Normal Operating Voltage Range: 10.5 VDC - 29 VDC; Maximum Voltage: 29 VDC
NAC Reverse Polarity Current (requires End-of-Line Resistor from NAC): 1.6 mA maximum.
Contact Closure Operation Current (requires 4.7K, ½ watt End-of-Line Resistor P/N 27072 only when messages have been assigned to the command input): 6.6 mA maximum
Maximum Wiring Impedance CMD1 - CMD8 (Contact Closure Operation): 200Ω
Maximum Input Impedance:

- CMD1 & CMD2 (Reverse Polarity Operation): 20KΩ
- CMD1 - CMD8 (Contact Closure Operation): 4.75KΩ

Night Ring Input - TB16, Terminals 1 (+) & 2 (-)

Contact closure input
Isolated, nonsupervised
Operation current: 3.8 mA, maximum
Maximum wiring impedance: 30K Ω
Minimum isolation withstand voltage: 1500 V_{RMS}

External Operator Interface Power Output - TB24, Terminals 1 (PWR, +) & 2 (GND, -)

Non-resettable power for external operator interface components
Power-limited (Class 2) circuitry, Supervised
Nominal operating voltage: 24 VDC
Maximum output current: 0.80 amps
Current limit: fuseless, electronic, power-limited circuitry

External Data Bus (EIA-485) - TB12, Terminals 2 (B), 3 (A), 4 (BRTN), 5 (ARTN), & 1 (SHLD)

Data connections for external operator interface components
Redundant transceiver circuitry for Class A operability
Power-limited (Class 2) circuitry, supervised
Maximum wiring impedance: 13.2 Ω

FACP Data Bus (EIA-485) - TB13, Terminals 1 (B IN), 2 (A IN), 3 (B OUT), & 4 (A OUT)

Dedicated connection to FACP serial bus
Output terminals: pass-through to other system components
Isolated, supervised
Minimum isolation withstand voltage: 1500 V_{RMS}
Maximum wiring impedance: 40 Ω (ANN-BUS)/26 Ω (ACS BUS)

External Audio Riser TB22, Terminals 1 (OUT+), 2 (OUT-), 4 (IN+), 5 (IN-), & 3 (SHLD)

Style Y (Class B) or Style Z (Class A) audio connections to external operator interface components
Power-limited (Class 2) circuitry, supervised
Audio signal level: 3.85 V_{RMS}, maximum
Frequency range: 800 - 2,800 Hz
Frequency range (NFC-50/125DA): 800 Hz - 2.8 KHz

NOTE: Zero impedance to ground will cause a ground fault.

■ Current Availability

The following figures illustrate the maximum current allowed for each output circuit in the panel and the total output current available from the power supply. Refer to Section 6, "Power Supply Calculations" for additional current draw by option cards that must be considered when determining total standby and alarm currents.

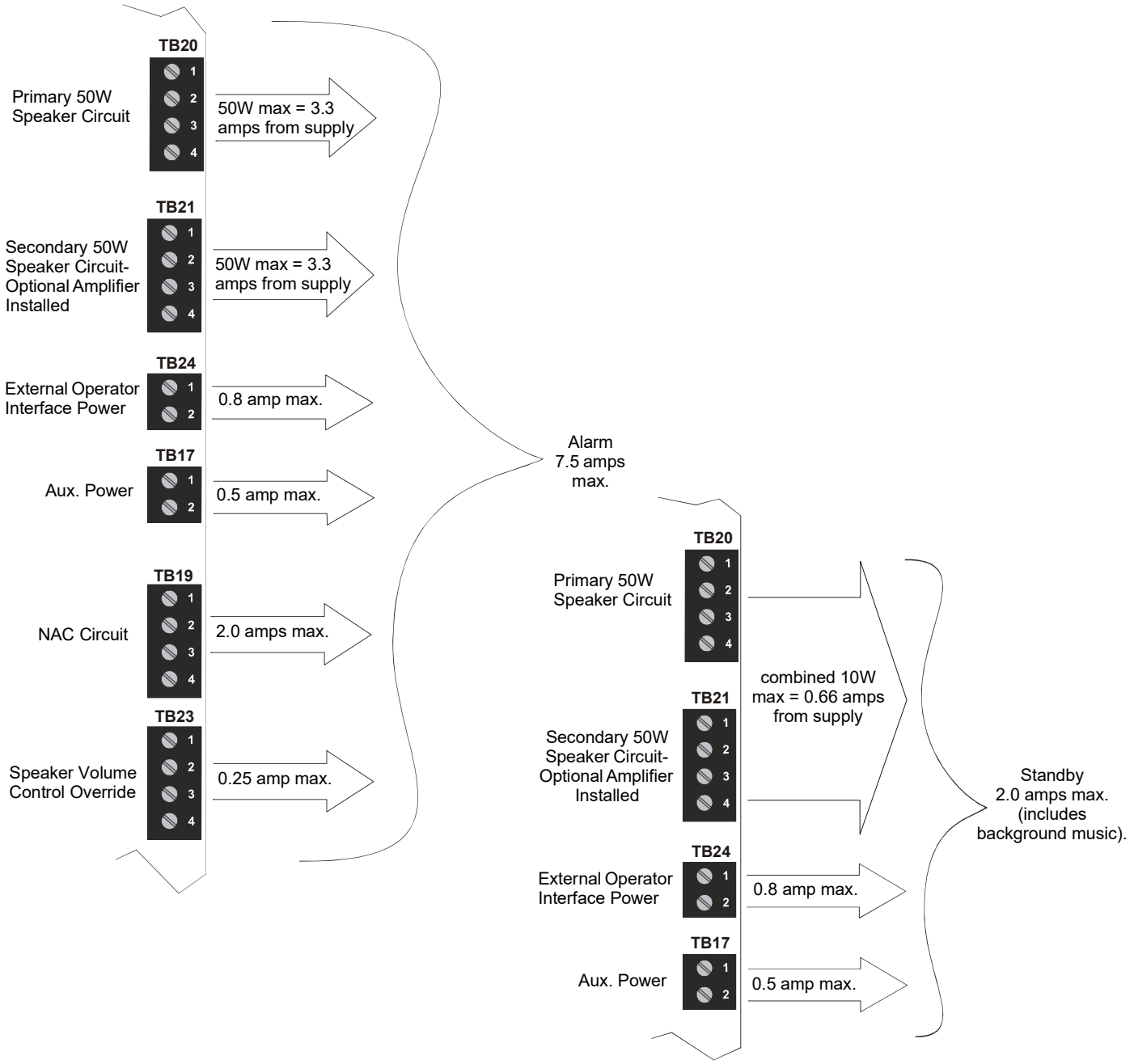


Figure 1.1 Current Availability - 100 Watt System

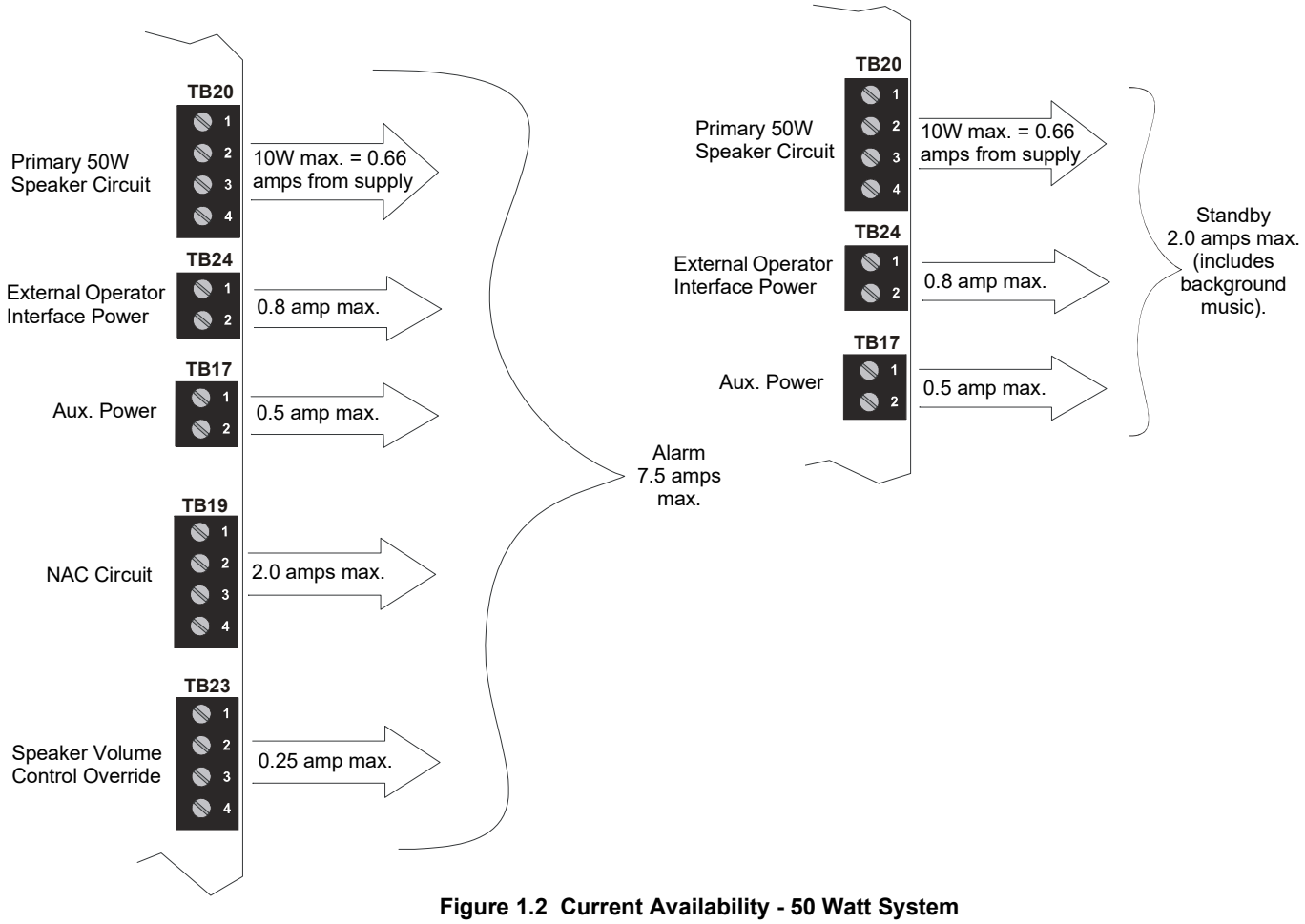


Figure 1.2 Current Availability - 50 Watt System

1.2.2 Display Board

External Audio Input - TB5, Terminals 1(-), 2 (+)

Input Impedance: 8.5KΩ, nominal @ 1 KHz
Input Voltage: 700 mV_{RMS} maximum
Input Current: 0.1 mA, maximum @ 700 mV
Background Music Input Voltage (Non-Canadian applications): 225$mV_{RMS,}$ maximum

NOTE: Some laptops/personal computers only provide an audio output for headphones. It may be necessary to adjust the headphone output level for proper recording of voice messages.

1.2.3 NFC-CE6 Circuit Expander Module

Power-limited (Class 2) circuitry
Up to six (6) circuits on the NFC-CE6 can be wired as Style Y (Class B) or Style Z (Class A).
Normal Operating Voltage for Speaker Circuits: 25 V_{RMS} @ 2 amps max. and maximum Load Impedance of 12.5Ω

(70.0 V_{RMS} @ 700 mA max. with maximum Load Impedance of 100Ω operation possible for the primary circuit by plugging optional NFC-XRM-70V conversion transformer into J12 of the main control board. The same operation is possible for the optional 50W amplifier by selecting the NFC-BDA-70V model.)

Speaker circuit wiring is supervised during standby, background music, and alarm.
Output Power: 50 watts total; Frequency Range: 800 - 2,800 Hz
Maximum total capacitance: 250 µF. *(Note that the <u>total</u> capacitance for the speaker outputs must not exceed the maximum of 250 µF).*
End-of-Line Resistor required for Style Y (Class B) speaker circuit: 15 KΩ, 1 watt (P/N: ELR-15K)
TB13 on the main control board: ACS/ANN (EIA-485) electrically isolated link to FACP provides programmed speaker control

1.3 Controls and Indicators

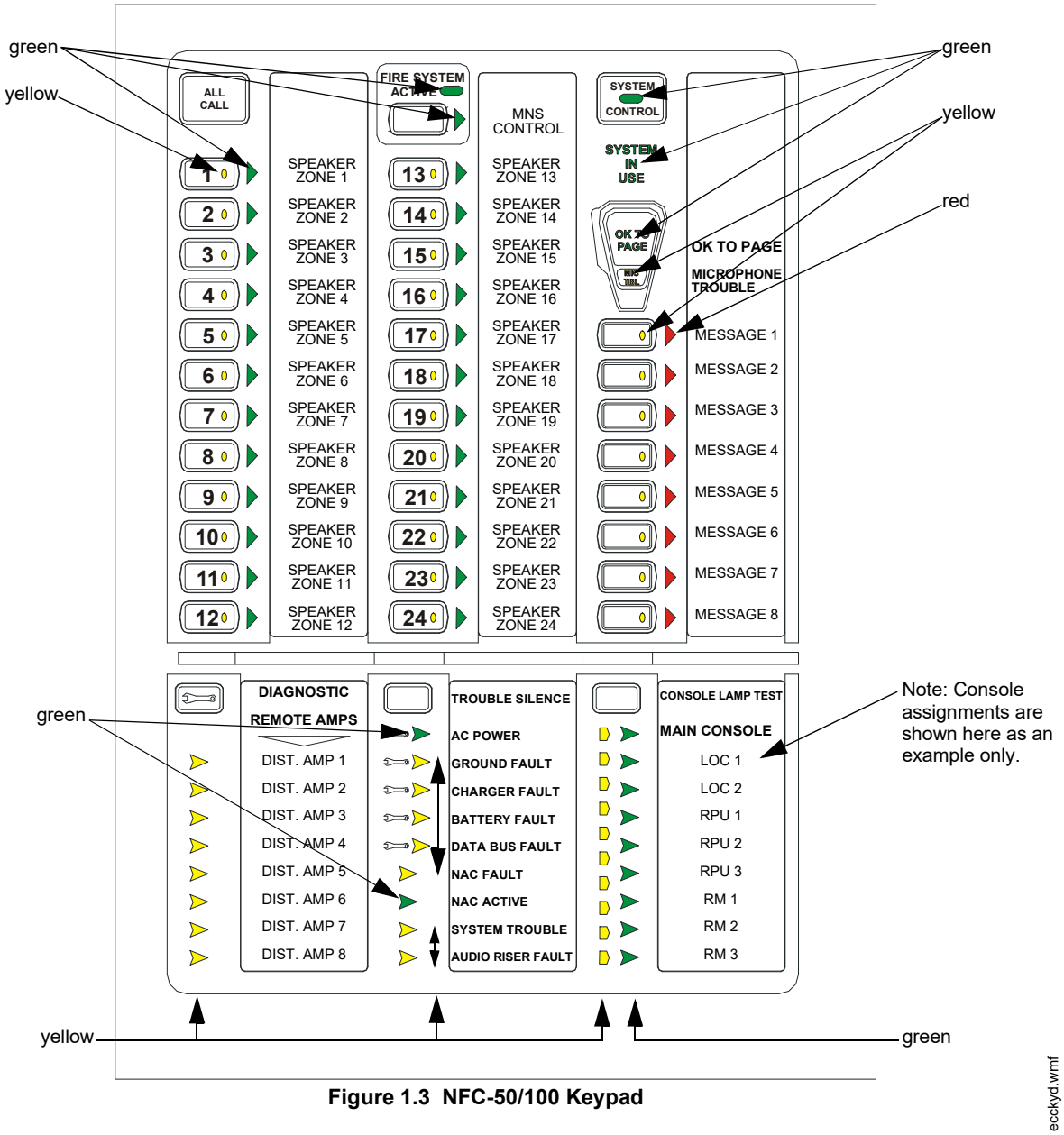


Figure 1.3 NFC-50/100 Keypad

1.3.1 Push-Button Controls

- All Call
- MNS Control
- System Control
- Speaker Select 1-24
- Message Select 1-8
- Diagnostic Select
- Trouble Silence
- Console Lamp Test

1.3.2 LED Indicators (visible with door closed)

- Fire System Active (green)
- MNS Control (green)
- System Control (green)
- System in Use (green)
- Speaker Zone 1-24 Active (green)

- Speaker Zone 1-24 Fault (yellow)
- OK to Page (green)
- Microphone Trouble (yellow)
- Message 1-8 Active (red)
- Message 1-8 Fault (yellow)
- Remote Amplifier 1-8 Fault (yellow)
- LOC/RPU/RM 1-8 Fault (yellow)
- LOC/RPU/RM 1-8 Active (green)
- Main Console Fault (yellow)
- AC Power (green)
- Ground Fault (yellow)
- Charger Fault (yellow)
- Battery Fault (yellow)
- Data Bus Fault (yellow)
- NAC Fault (yellow)
- NAC Active (green)
- System Trouble (yellow)
- Audio Riser Fault (yellow)

1.3.3 LED Indicators (visible with door and dress panel open)

- MCB Trouble (yellow)
  - Integral 50W amplifier electronics fault
- Option Card Trouble (yellow)
  - NFC-CE6 card missing
  - NFC-BDA-25/70V card missing
  - NFC-BDA-25/70V electronics fault
- Amplifier Over Current Fault (yellow)
  - Missing or incorrect EOL resistor
  - Short circuit on volume control module

1.4 Components

Main Control Board

The NFC-50/100 main control board contains the system's CPU, power supply, battery charger, other primary components and wiring interface components. One 50W amplifier is integrated into the main control board.

Display Board

The display board contains the user interface along with tone generators, digital message recorder/generator, integral microphone input, and preamplifier.

Cabinet

The cabinet is black with an attractive grey front overlay. A clear window allows viewing of the display board, status LEDs and location of microphone. The backbox measures 16.65" x 19.0" x 5.2" D (42.29cm x 48.26cm x 13.23cm) and provides space for two 12AH or two 18AH batteries.

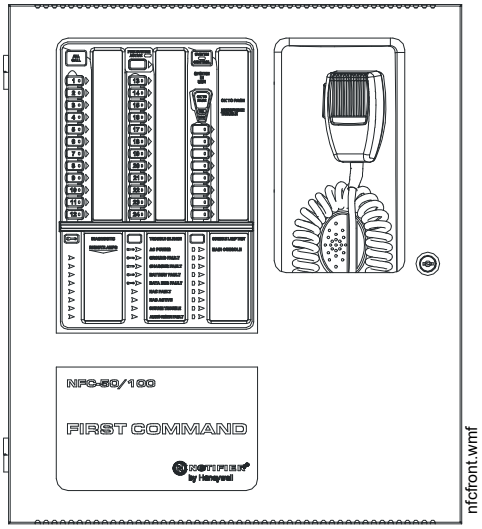


Figure 1.4 Cabinet

Batteries

The cabinet provides space for up to 18 Amp Hour batteries (charged by integral Power Supply/Battery Charger) with all options installed.

Dress Panel

The Dress Panel is supplied standard with the system. It mounts to the cabinet with two supplied screws. The Dress Panel protects the user from high voltages and circuit boards from accidental damage.

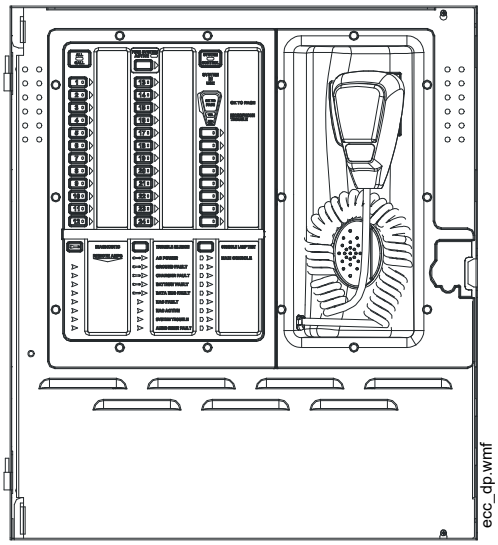


Figure 1.5 Dress Panel

Trim Ring

An optional TR-CE-B trim ring is available for semi-flush mounting of the audio panel.

1.5 Optional Equipment

NFC-BDA-25/70V Audio Amplifier Modules

An optional second audio amplifier can be plugged into connectors J10 & J11 located in the upper right of the main control board in the NFC-50/100. This amplifier also provides 50 watts of power at 25 V_{RMS} or 70 V_{RMS}, depending on the model, and can therefore be used to expand system power to 100 watts (providing dual 50 watt speaker circuits) or it can be used as a backup amplifier. The output is power-limited (Class 2) and speaker circuit connections to it are provided on the main control board and optional speaker circuit expander module. The circuit can be wired for Style Y (Class B) or Style Z (Class A) operation.

LEDs are provided to indicate Amplifier Supervision (green indicates amplifier is functional) and Circuit Trouble (yellow indicates field wiring fault or amplifier fault). The LEDs are only visible with the panel door open.

NFC-CE6 Circuit Expander Module

This optional module plugs into connector P1 in the upper middle of the main control board. The NFC-CE6 adds three primary speaker circuits to the NFC-50/100. The NFC-CE6 adds three secondary circuits to the system when the NFC-BDA-25/70V Audio Amplifier Module is also installed.

NFC-XRM-70V Transformer 70.7 V_{RMS}

This optional module plugs into connector J12 of the main control board and provides conversion for the integral audio amplifier from 25 V_{RMS} to 70.7 V_{RMS} at full rated 50 watts output power.

NFC-FFT Fire Fighter Telephone

The NFC-FFT has a telephone handset and user interface that allows an operator to communicate with remotely located telephone handsets in a building. It is housed in its own cabinet with key lock. It requires an external operator interface power connection (24 volts DC) from the NFC-50/100 main console or it may be powered from an external 24 VDC power supply such as HP300ULX. The NFC-FFT provides supervision, annunciation, and control for the local handset and for up to 24 remote telephone handsets. It provides indications of phone activation and corresponding trouble conditions. Refer to the *NFC-FFT Fire Fighter Telephone* manual. Not for use in UL2572 Mass Notification or Canadian applications.

NFC-50DA Distributed (Remote) Audio

The NFC-50DA is a 50-watt audio amplifier (audio booster) with its own cabinet and key lock. It requires an external data bus connection and an external audio riser connection from the NFC-50/100 main console. The unit comes standard with 4 speaker circuits. An option card, NFC-CE4, provides 4 more speaker circuits for a total of 8. Speaker circuits are activated/de-activated manually or automatically by the NFC-50/100 main console. The unit is capable of either 25 V_{RMS} or 70.7 V_{RMS} operation. Refer to the *NFC-50/125DA Distributed Audio* manual. Not for use in Canadian applications.

NFC-125DA Distributed (Remote) Audio

The NFC-125DA is a 125-watt audio amplifier (audio booster) with its own cabinet and key lock. It requires an external data bus connection and an external audio riser connection from the NFC-50/100 main console. The unit comes standard with four (4) speaker circuits. An option card, NFC-CE4, provides 4 more speaker circuits for a total of eight (8). Speaker circuits are activated/de-activated manually or automatically by the NFC-50/100 main console. The unit is capable of 25 V_{RMS} operation. Refer to the *NFC-50/125DA Distributed Audio* manual. Not for use in Canadian applications.

NFC-50/100DA Distributed (Remote) Audio

The NFC-50/100DA is a 50/100-watt audio amplifier (audio booster) with its own cabinet and key lock. It requires an external data bus connection and an external audio riser connection from the NFC-50/100 main console. The NFC-50/100DA is capable of producing up to 100 watts of audio power. The amplifier functions as 50 watts with 50 watts as backup, 100 watts with no backup or 100 watts with 50 watts backup using NFC-BDA-BU. The unit comes standard with 8 speaker circuits. Speaker circuits are activated/de-activated manually or automatically by the NFC-50/100 main console. The unit is capable of either 25 V_{RMS} or 70.7 V_{RMS} operation. Refer to the *NFC Distributed Audio* manual. Not for use in Canadian applications.

NOTE: Any combination of up to eight audio boosters comprised of NFC-50DA, NFC-125DA, and NFC-50/100DA can be used in the system. Their external data bus addresses must be unique and must be sequential. Addresses are set via dipswitches on each unit's PC board. Refer to Section 2.14 on page 48.

NFC-RM Remote Microphone

The NFC-RM has a hand held microphone and is housed in its own cabinet with keyed lock. It requires an external data bus connection, an external audio riser connection, and an external operator interface power connection (24 volts DC) from the NFC-50/100 main console. ALL CALL paging can be broadcast over the speaker circuits by depressing the microphone's push-to-talk switch. Not for use in UL2572 Mass Notification or Canadian applications.

NFC-RPU Remote Page Unit

The NFC-RPU has a hand held microphone and 8 message buttons. It is housed in its own cabinet with a keyed lock or thumb lock (requires AHJ approval). It also has a 9th button that will activate a monitor module mounted inside the cabinet. This may be used for HVAC shutdown applications when the monitor module is connected to the FACP SLC polling loop. The remote page unit requires an external data bus connection, an external audio riser connection, and an external operator interface power connection (24 volts DC) from the NFC-50/100 main console. ALL CALL paging can be broadcast over the speaker circuits by depressing the microphone's push-to-

talk switch. ALL CALL broadcast of a stored message can be done by pressing a message button. The message buttons operate in the same fashion as the message buttons on the NFC-50/100 main console. Not for use in UL2572 Mass Notification or Canadian applications.

NFC-LOC Local Operator Console

The NFC-LOC has a complete operator interface like the NFC-50/100 main console and is housed in its own cabinet with a keyed lock or thumb lock (requires AHJ approval). The local operator console requires an external data bus connection, an external audio riser connection, and an external operator interface power connection (24 volts DC) from the NFC-50/100 main console.

NOTE: Any combination of up to eight remote consoles comprised of NFC-RM(s), NFC-RPU(s), and NFC-LOC(s) can be used in the system. Their external data bus addresses must be set via dip switches on each unit's PC board. Refer to Section 2.14 on page 48.

1.6 UL 464 Low Frequency Sounders

This product complies with the requirements for a low frequency sounder (520Hz) as specified in UL 464 when used as part of a system with the following items.

Amplifiers:

Amplifier/Audio Product	Description
NFC-50/100	Main console
NFC-50/100 with NFC-BDA-25V	Main console with optional second 25V amplifier installed
NFC-50/100 with NFC-XRM-70V	Main console with 70V transformer installed
NFC-50/100 with NFC-XRM-70V and NFC-BDA-70V	Main console with 70V transformer and optional second 70V amplifier installed
NFC-50/100 with NFC-50/100DA	Main console with 50/100 watt remote amplifier (with or without internal options listed above), 25V or 70V
NFC-50/100 with NFC-50/100DA and NFC-BDA-BU	Main console with 50/100 watt remote amplifier and optional backup amplifier (with or without internal options listed above), 25V or 70V

Audio File:

The 520 Hz audio file is available for download at esd.notifier.com.

Speakers:

For a complete list of speakers that can be used in a Notifier FirstCommand system with the above specifications, refer to the current version of the Device Compatibility document, p/n 15378.

Section 2: Installation

2.1 Mounting Options

The cabinet may be semi-flush or surface mounted. The cabinet mounts using three key slots at the top of the backbox and two additional 0.250" diameter holes located at the bottom.

Carefully unpack the system and check for shipping damage. Mount the cabinet in a clean, dry, vibration-free area where extreme temperatures are not encountered. The area should be readily accessible with sufficient room to easily install and maintain the panel. Locate the top of the cabinet approximately five feet above the floor with the hinge mounting on the left. Determine the number of conductors required for the devices to be installed. Sufficient knockouts are provided for wiring convenience. Select the appropriate knockout(s) and pull the required conductors into the box. Note that knockouts are also located on the back of the cabinet. All wiring should be in accordance with the National and/or Local codes for fire alarm systems. Refer to Figure 2.4 for knockouts that cannot be used.

2.2 Backbox Installation

CAUTION: STATIC SENSITIVE COMPONENTS

THE CIRCUIT BOARD CONTAINS STATIC-SENSITIVE COMPONENTS. ALWAYS GROUND YOURSELF WITH A PROPER WRIST STRAP BEFORE HANDLING ANY BOARDS SO THAT STATIC CHARGES ARE REMOVED FROM THE BODY. USE STATIC SUPPRESSIVE PACKAGING TO PROTECT ELECTRONIC ASSEMBLIES.

Removing the Dress Panel

1. Open the door and lift the door off the pin hinges.
2. Loosen the two (2) screws that secure the dress panel to the backbox. Then, lift up to swing the dress panel open.
3. Disconnect the ground wire from the dress panel.
4. Unplug the cable on the display board at J2. This is the connection to the main control board on the chassis.
5. Lift the dress panel up and gently pull the lower hinge out of the backbox. Gently pull down to remove the top hinge. Store the dress panel in a safe place.

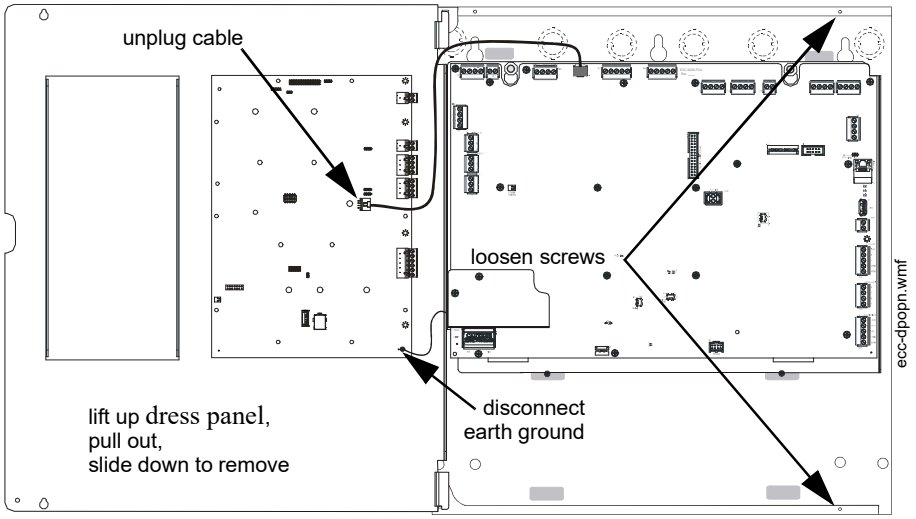


Figure 2.1 Dress Panel Removal

Removing the Chassis Assembly

1. If present, remove the two (2) screws which fasten the lower chassis tabs to the backbox. These are for shipping purposes only and do not need to be reinstalled.
2. Loosen the two nuts which secure the top of the chassis with an 11/32” socket.
3. Carefully lift up and remove the chassis assembly from the backbox and store in a safe, clean place. Avoid static discharge which may damage static sensitive components on the board.

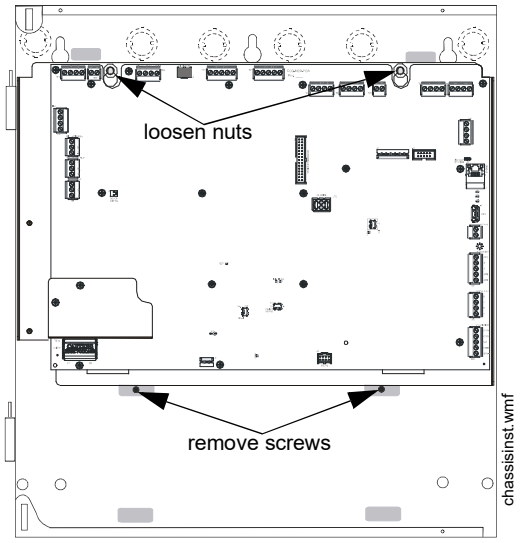


Figure 2.2 Chassis Removal

Mounting the Backbox

1. Mark and predrill hole in the wall for the center top keyhole mounting bolt using the dimensions illustrated in Figure 2.4 on page 24.
2. Install center top fastener in the wall with the screw head protruding.
3. Place backbox over the top screw, level and secure.
4. Mark and drill the left and right upper and lower mounting holes.
   Note: Outer holes (closest to sidewall) are used for 16” O.C. stud mounting.
5. Install remaining fasteners and tighten.
6. Carefully reinstall the chassis assembly and dress panel by reversing the steps above. Use appropriate precautions to prevent damage to components due to static discharge. When reinstalling the chassis assembly, be sure that all four (4) tabs are seated properly in the slots of the backbox to avoid possible damage to the unit.

CAUTION: POSSIBLE EQUIPMENT DAMAGE
REINSTALL THE CHASSIS ASSEMBLY CAREFULLY, MAKING SURE TO PROPERLY SEAT THE UNIT TO THE BACKBOX.

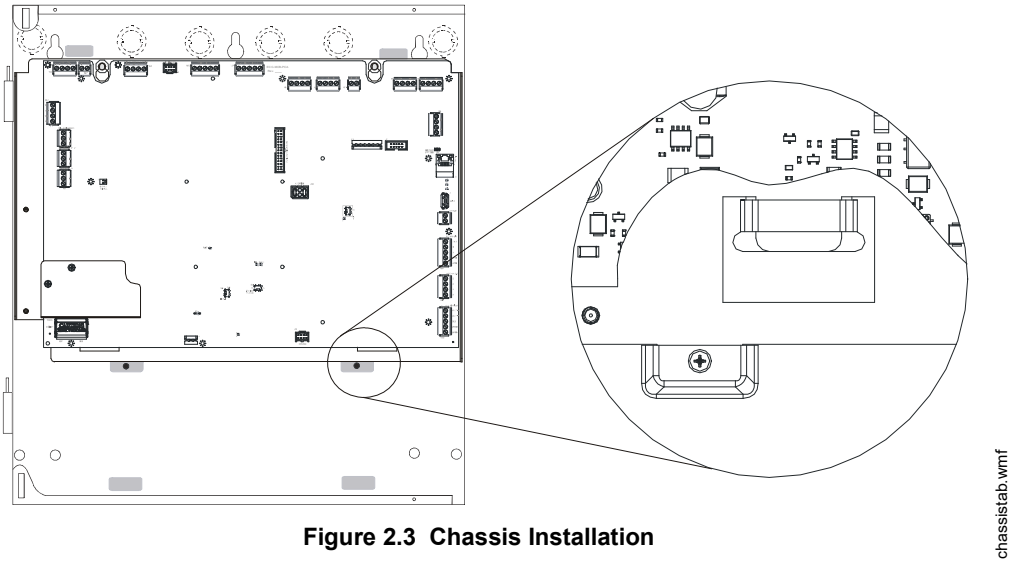


Figure 2.3 Chassis Installation

7. Draw wires through the respective knockout locations.

An optional Trim Ring (P/N TR-CE-B) is available for semi-flush mount installations.

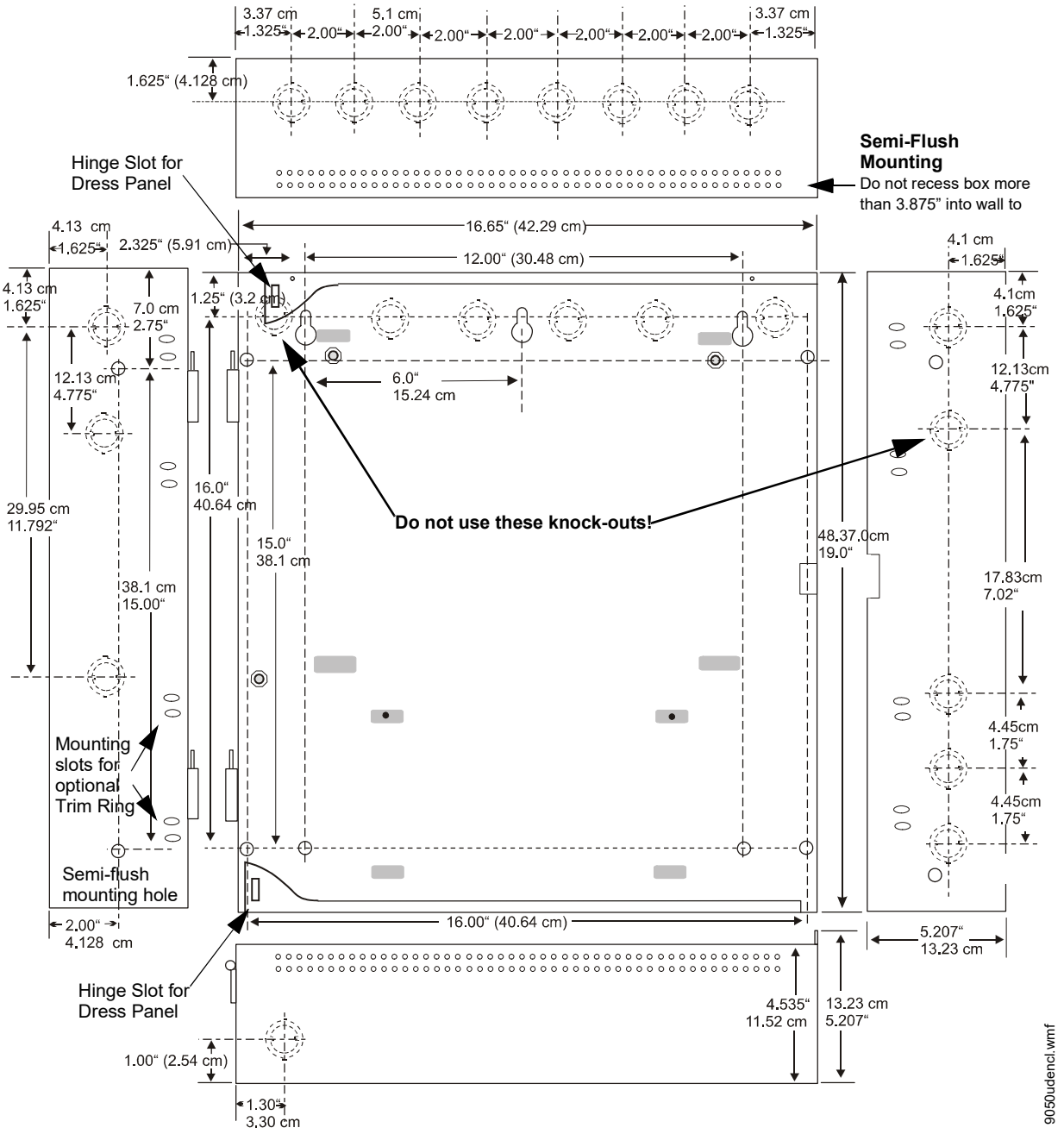


Figure 2.4 Cabinet Dimensions & Knockout Locations

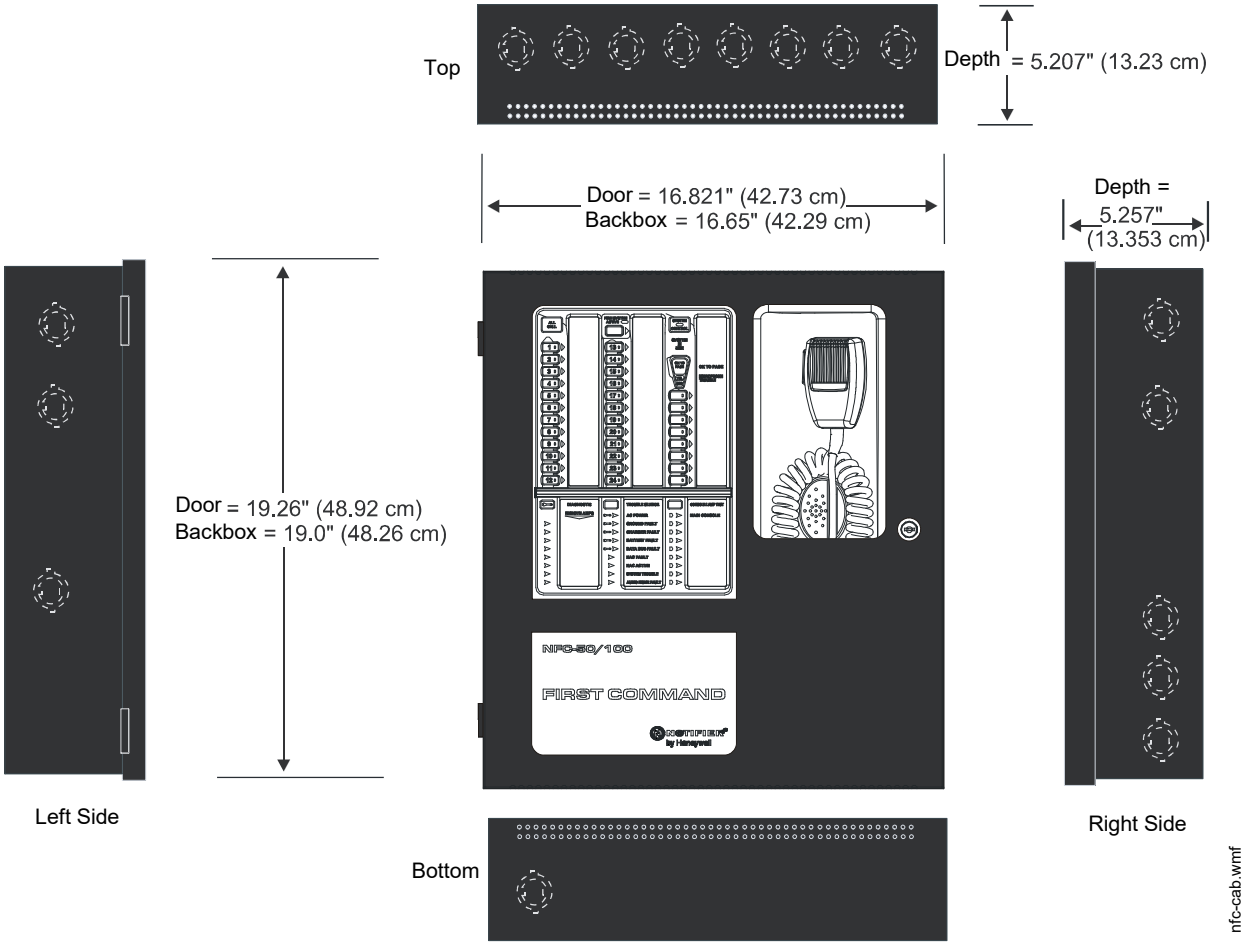


Figure 2.5 NFC-50/100 Backbox Dimensions

2.3 Operating Power

WARNING: RISK OF EQUIPMENT DAMAGE AND PERSONAL INJURY

SEVERAL DIFFERENT SOURCES OF POWER CAN BE CONNECTED TO THIS PANEL. DISCONNECT ALL SOURCES OF POWER BEFORE SERVICING. THE PANEL AND ASSOCIATED EQUIPMENT MAY BE DAMAGED BY REMOVING AND/OR INSERTING CARDS, MODULES OR INTERCONNECTING CABLES WHILE THIS UNIT IS ENERGIZED. BE SURE TO OBSERVE PROPER GROUNDING AND HANDLING PROCEDURES.

2.3.1 AC Power and Earth Ground Connection

Primary power source for the NFC-50/100 is 120 VAC, 60 Hz, 3.5 amps. Primary power source for the NFC-50/100E is 240 VAC, 50 Hz, 2.0 amps. Over-current protection for this circuit must comply with Article 760 of the National Electrical Code (NEC) and/or local codes. Make certain that the AC mains circuit breaker is off before making any wiring connections between the mains and the panel. Connect AC mains wiring from the protected premises main breaker box to TB15 of the main control board. Use 14 AWG (2.0 mm2, 1.6 mm O.D.) or heavier gauge wire with 600V insulation. No other equipment may be connected to this circuit and it may not contain any power disconnect devices. A separate Earth Ground connection must be made to ensure proper panel operation and lightning and transient protection. Do not use conduit for the Earth Ground connection since this does not provide reliable protection. Remove the two keps nuts from the grounding stud in the backbox. Connect the incoming earth ground wire to supplied cable #71073 with a wire nut. Position the ring terminal end over the grounding stud. Secure with one of the keps nuts. Place the ring terminal from the other supplied

cable to TB15. Refer to Figure 2.6 for the location of the stud. Apply AC power to the panel only after the system is completely installed and visually checked. *Note that AC power must be applied to the panel before installing the battery interconnect cable (refer to the following section)*.

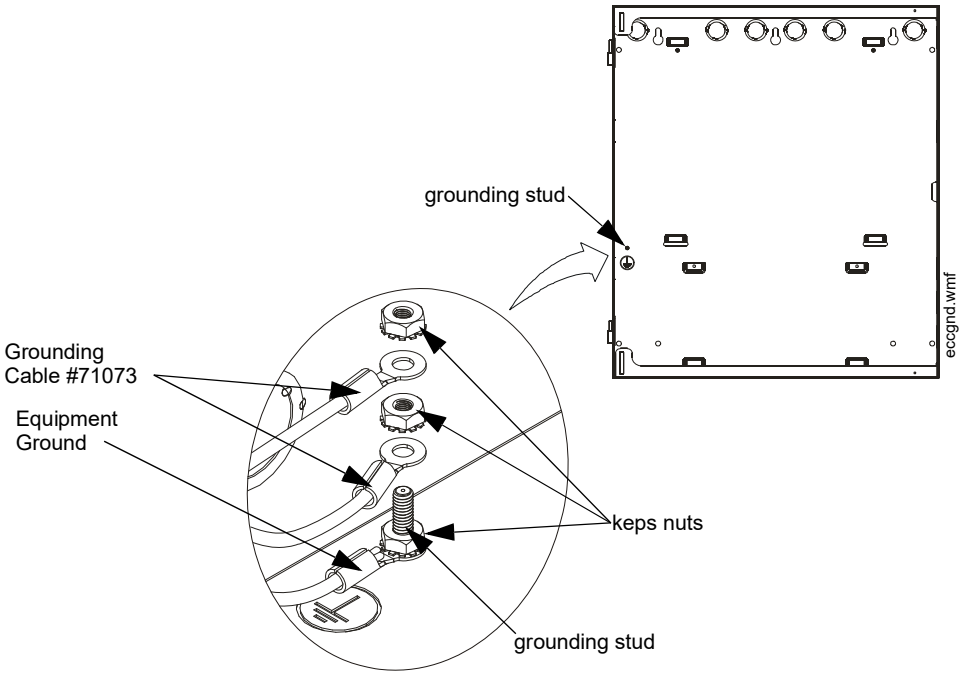
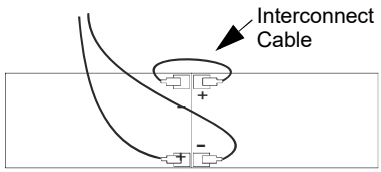


Figure 2.6 Earth Ground Connection

2.3.2 Secondary Power Source (Batteries)

The batteries must be sealed lead acid type. Before connecting the batteries to the FACP, make certain that the interconnect cable between the batteries is ***not*** connected. Do not connect the interconnect cable until the system is completely installed.



WARNING: RISK OF PERSONAL INJURY

BATTERY CONTAINS SULFURIC ACID WHICH CAN CAUSE SEVERE BURNS TO THE SKIN AND EYES AND CAN DESTROY FABRICS. IF CONTACT IS MADE WITH SULFURIC ACID, IMMEDIATELY FLUSH THE SKIN OR EYES WITH WATER FOR 15 MINUTES AND SEEK IMMEDIATE MEDICAL ATTENTION.

Observe polarity when connecting the batteries. Connect the battery cable to J7 on the main control board, using the plug-in connector and cable provided. The battery charger is current-limited and capable of recharging sealed lead acid type batteries (See Figure 2.7 for battery orientation). The charger shuts off when the system is in alarm. See page 78 for calculation of the correct battery rating.

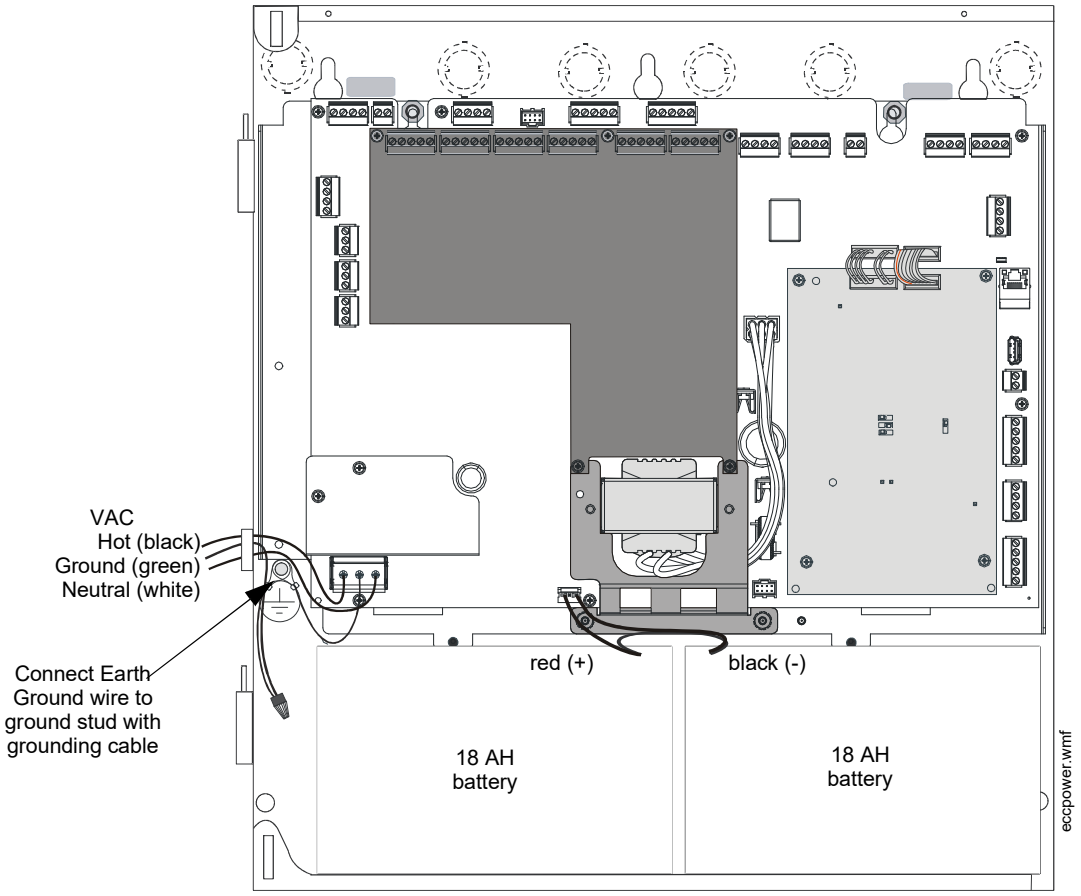


Figure 2.7 Operating Power Connections

2.4 Auxiliary DC Power Output Connections

The Special Application Auxiliary DC power output is power-limited (Class 2).

Special Application Power (500 mA @ 24 VDC nominal) is non-resettable power suitable for powering control modules and End-of Line Power supervision relays. See Device Compatibility Document for compatible devices.

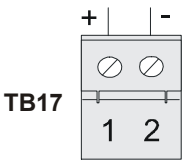


Figure 2.8 Auxiliary Power Connection

2.5 Input/Initiating Circuits

2.5.1 CMD Inputs

The NFC-50/100 has eight Command Input circuits, which are used to activate the panel amplifiers which, in turn, transmit an audio signal over the system speakers. All field wiring for the circuits is power-limited (Class 2) and supervised for opens and ground faults. Note that zero impedance to ground will cause a ground fault.

CMD1 and CMD2 Command Input circuits can be field programmed to be triggered by a contact closure or by the reverse polarity of a Notification Appliance Circuit. Their configurations can be independently set so that both circuits are triggered by the same type of input or by different types of inputs. See Figure 2.9 below.

IMPORTANT! When CMD1 and CMD2 are configured for reverse polarity, the NAC cannot be Coded (including NAC Sync).

Note that CMD1 has internal relay contacts in series with its OUT terminals which are used in the reverse polarity configuration to open the outgoing NAC circuit during an NFC-50/100 trouble condition. In standby, this generates a NAC trouble at the host FACP (feature is bypassed in alarm condition). These contacts *do not* open during AC loss at the NFC-50/100, however they are fail-safe, meaning that a *complete* loss of power there will open the circuit..

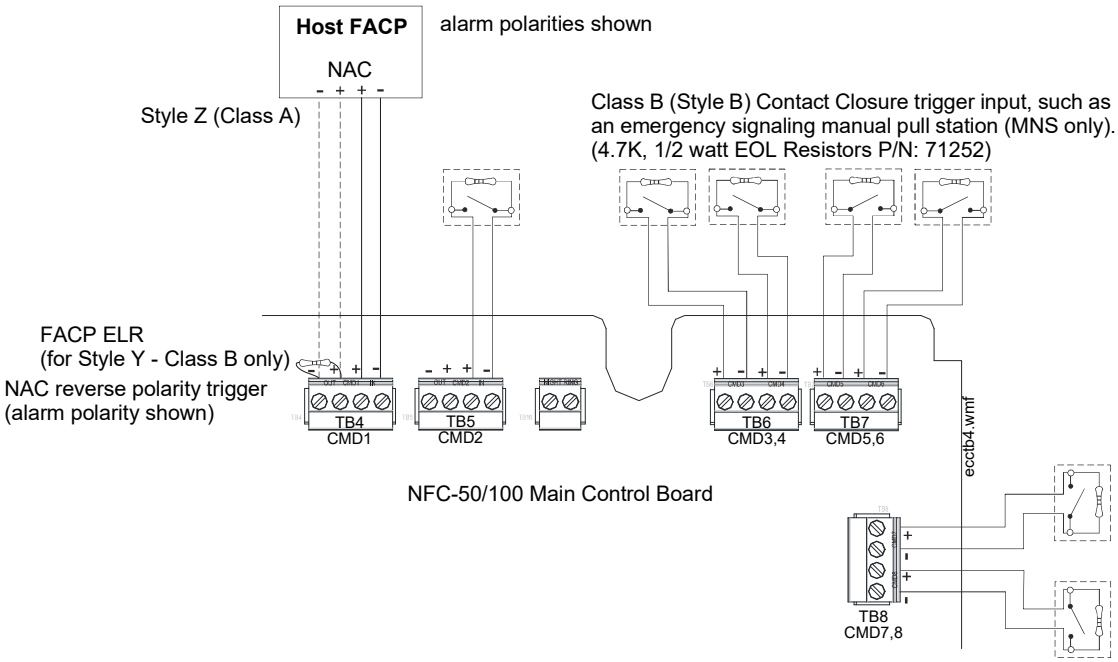


Figure 2.9 Command Input Circuits

CMD3, CMD4, CMD5, CMD6, CMD7, and CMD8 Command Input circuits are triggered by a contact closure only. Each Command input will activate various messages and amplifiers depending on the Message Control selection configured in user programming (refer to Section 3).

NOTE: CMD8 cannot be used when the system is programmed to provide more than eight (8) messages.

When configured with a compatible, addressable FACP, the NFC-50/100 may be triggered either by the FACP main NAC output or from addressable control modules. Figure 2.1 illustrates CMD1 triggered by an addressable control module. The addressable control module may trigger the NFC-50/100 via reverse polarity (shown) or relay contact. The FACP monitors the NFC-50/100 for faults while in the standby or alarm state by wiring a monitor module to the trouble contacts as shown in Figure 2.1. Activation of the addressable control module is controlled by the FACP. Refer to the appropriate FACP manual for additional information.

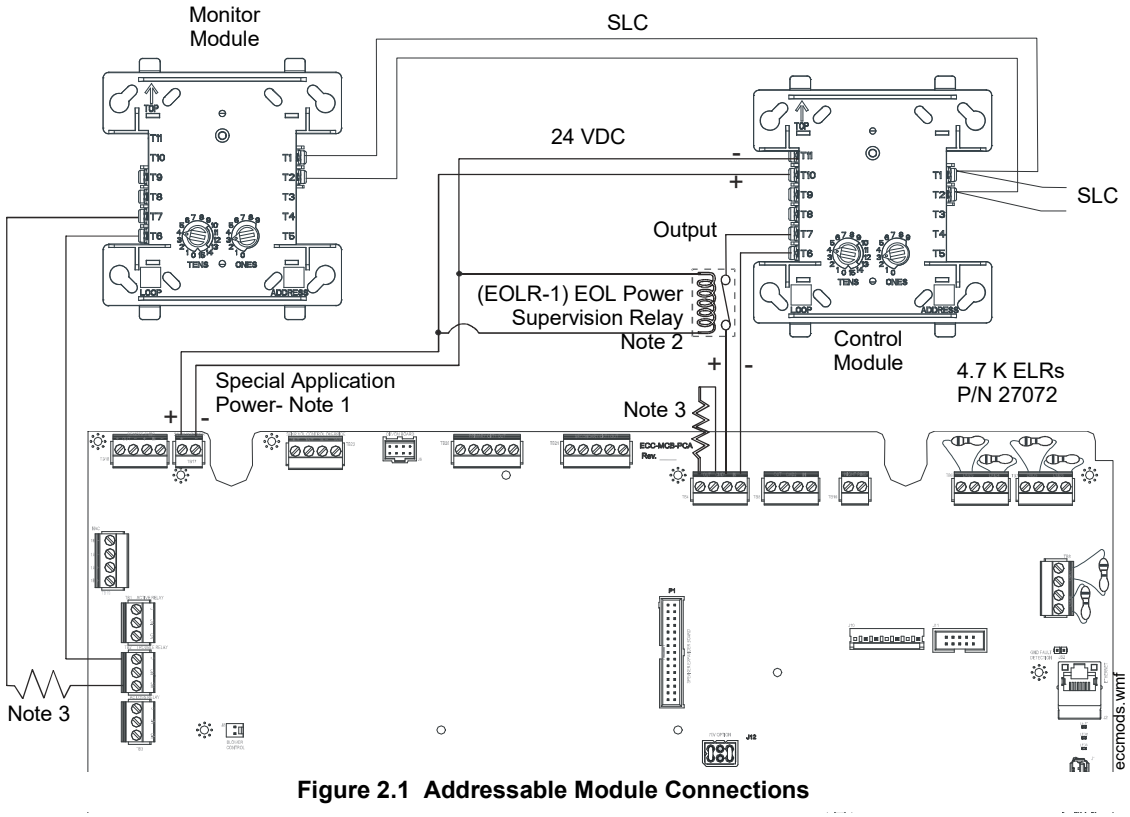


Figure 2.1 Addressable Module Connections

Notes:

1. 24 VDC Auxiliary Power terminals for special application power only. Wiring must remain in the room.
2. Supervise the wiring between the NFC-50/100 Auxiliary Power output and the control module with an EOL relay (EOLR-1).
3. End-of-Line resistor supplied with modules.

2.5.2 External Audio Input

The display provides connection to various ancillary sources. See Sections 2.5.4 on page 30, 3.5.2 on page 61, and 4.4.15 on page 76 for more information.

2.5.3 NAC Follower Input

For fire-only applications, the NAC follower input may be used to trigger the onboard NAC. Strobes driven by the onboard NAC must be visibly isolated from FACP NAC(s).

This can be accomplished by connecting the NAC Follower input at TB18 of the control board to the FACP's NAC output. The NFC-50/100 NAC output will then follow the FACP's NACs. A redundant pair of terminals is provided at TB18 for convenient connection of an EOL resistor, or for wiring to any additional equipment requiring this feature (such as an FCPS-S6/8 remote power supply).

The NAC Follower input is power-limited (Class 2) (refer to Section 2.12, “UL Power-limited Wiring Requirements”, on page 42) and supervised by the host FACP. Supervision requires that a 4.7 KΩ EOL resistor be connected to the last device in the NAC Follower chain.

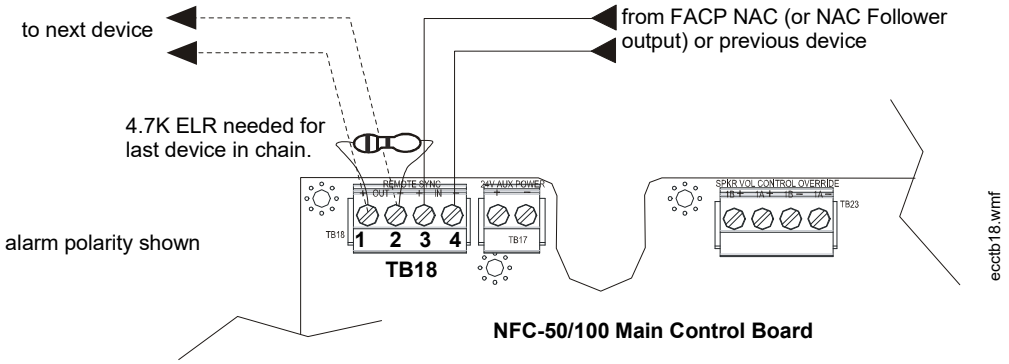


Figure 2.10 NAC Follower Wiring

2.5.4 Night Ring

The external audio input allows a building’s Private Branch Exchange (PBX) to activate the NFC-50/100. Connections need to be made to TB16 on the main control board and to TB5.1 and TB5.2 on the display board. Refer to Section 1.2.2 for electrical specifications to the external audio input.

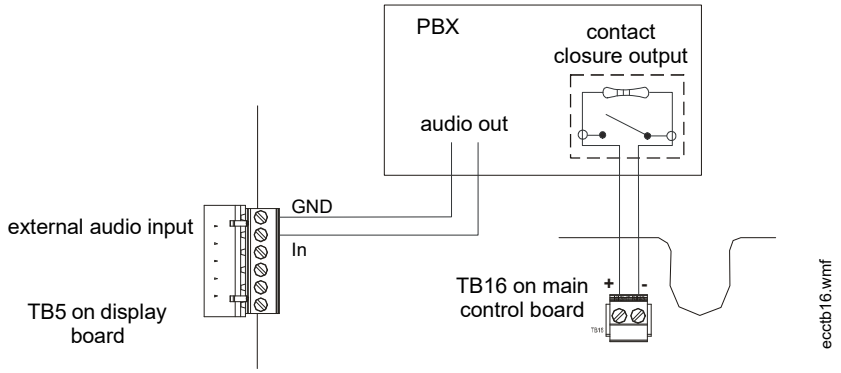


Figure 2.11 Night Ring Wiring

2.6 Output Circuits

2.6.1 Relays

MNS Active Relay - TB1

The main control board provides a Form-C MNS Active relay. The MNS Active Relay will transfer state when any Mass Notification (MNS) event occurs. The system must be enabled for Mass Notification in programming for use of this relay.

Figure 2.12 MNS Active Relay

Trouble Relay - TB2

The main control board provides a Form-C Trouble relay for independent, general system fault monitoring. This relay is 'fail safe', meaning that it is normally energized. Should system power shut off, this relay will de-energize, transferring its contacts.

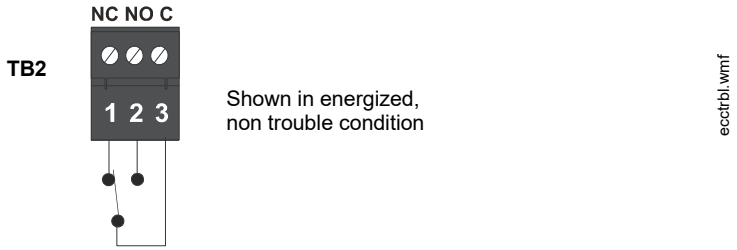


Figure 2.13 Trouble Relay

AC Power Loss Relay - TB3

The main control board provides a Form-C AC Power Loss relay.

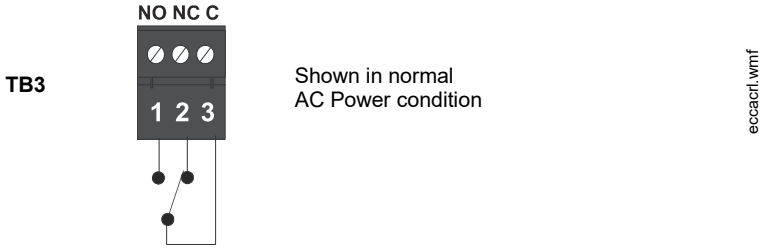


Figure 2.14 AC Power Loss Relay

2.6.2 Speaker Circuits

- One Speaker Circuit Style Y (Class B) or Style Z (Class A) standard
- Two Speaker Circuits Style Y (Class B) or Style Z (Class A) with NFC-BDA-25/70V
- Four Speaker Circuits Style Z (Class B) or Style Z (Class A) or Style Y with NFC-CE6
- Eight Speaker Circuits Style Z (Class B) or Style Z (Class A) or Style Y with NFC-BDA-25/70V and NFC-CE6

The integral amplifier and optional amplifier each provide audio for one Speaker Circuit. The circuit can be wired Style Y (Class B) or Style Z (Class A). Each supervised and power-limited (Class 2) circuit is capable of 50 watts of power. Refer to the Notifier Device Compatibility Document for a listing of compatible speakers.

CAUTION: OBSERVE POLARITY

MATCH PROPER POLARITY CONNECTIONS TO FIELD WIRING AND SPEAKERS. POLARITY SHOWN IS IN THE STANDBY AND ALARM CONDITIONS.

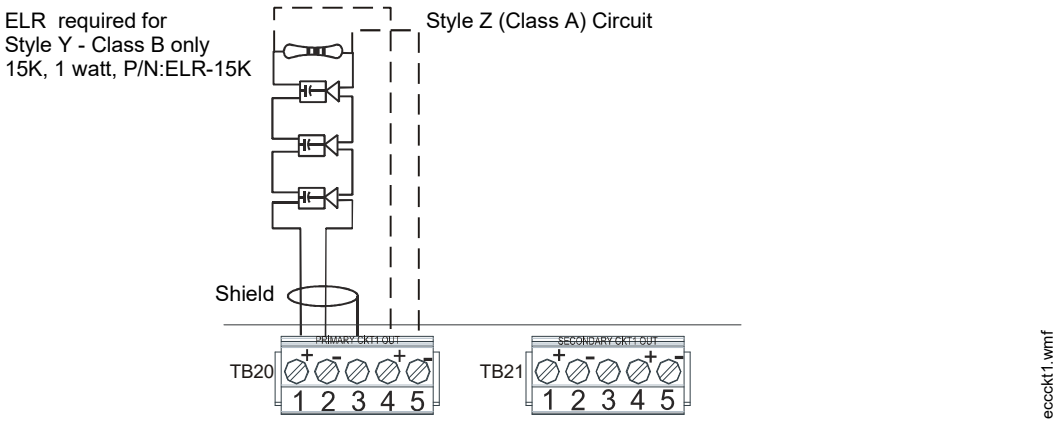


Figure 2.15 Speaker Circuit Connections

Shielded cable is not required, however, shielded cable will reduce RFI/EMI emissions and susceptibility. For additional information, refer to "Wiring Requirements" on page 82.

2.6.3 Notification Appliance Circuit

The NFC-50/100 provides a Style Y (Class B) or Style Z (Class A) NAC (Notification Appliance Circuit). Use UL-listed 24 VDC visual notification appliances only. Circuit is supervised and power-limited (Class 2). Refer to the Notifier Device Compatibility Document for a listing of compatible notification appliances.

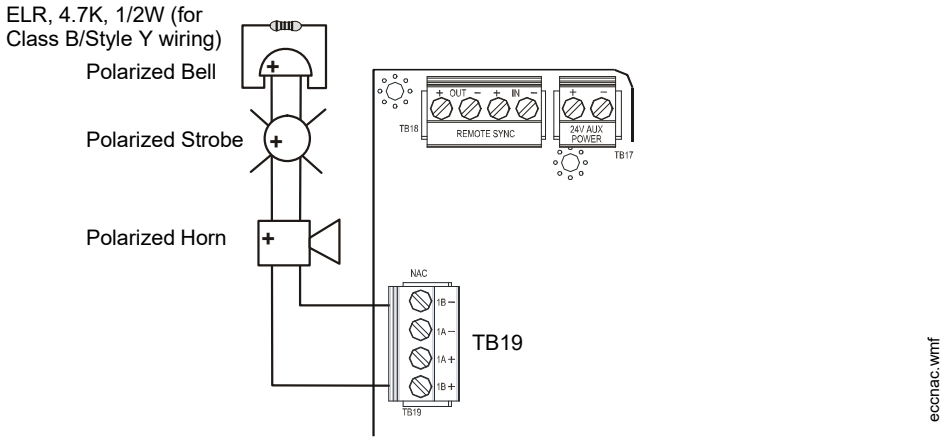


Figure 2.16 NAC Wiring - Style Y (Class B)

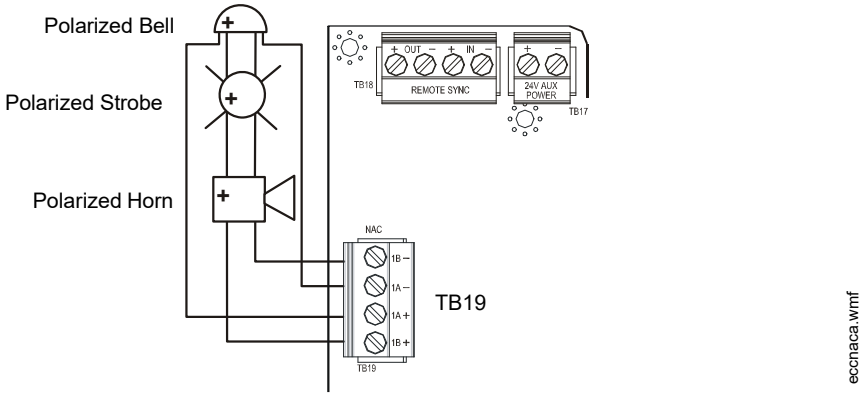
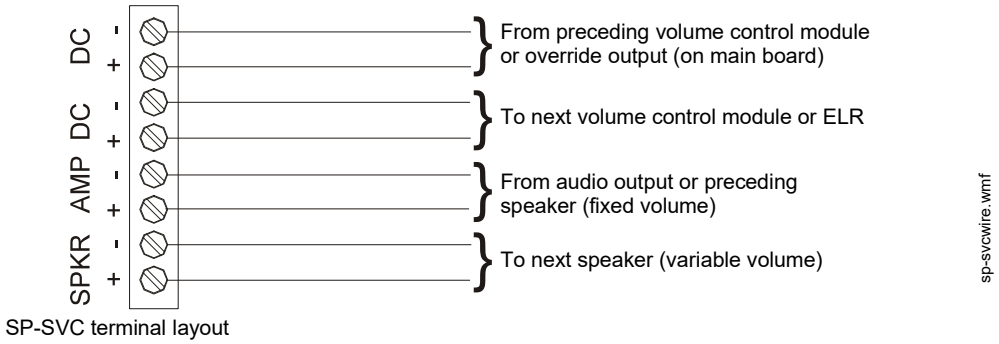


Figure 2.17 NAC Wiring - Style Z (Class A)

2.6.4 Speaker Volume Control

Speaker Volume Control requires use of the Cooper Wheelock SP-SVC module. The Supervised Volume Control (SP-SVC) allows manual volume setting for telephone paging and background music for a specific speaker or speaker zone. The selected adjustment will not affect the volume setting of emergency prerecorded messages or live microphone usage. Refer to the *Cooper Wheelock Safepath SP-SVC Installation Instructions* (P/N: P84598) for more information.



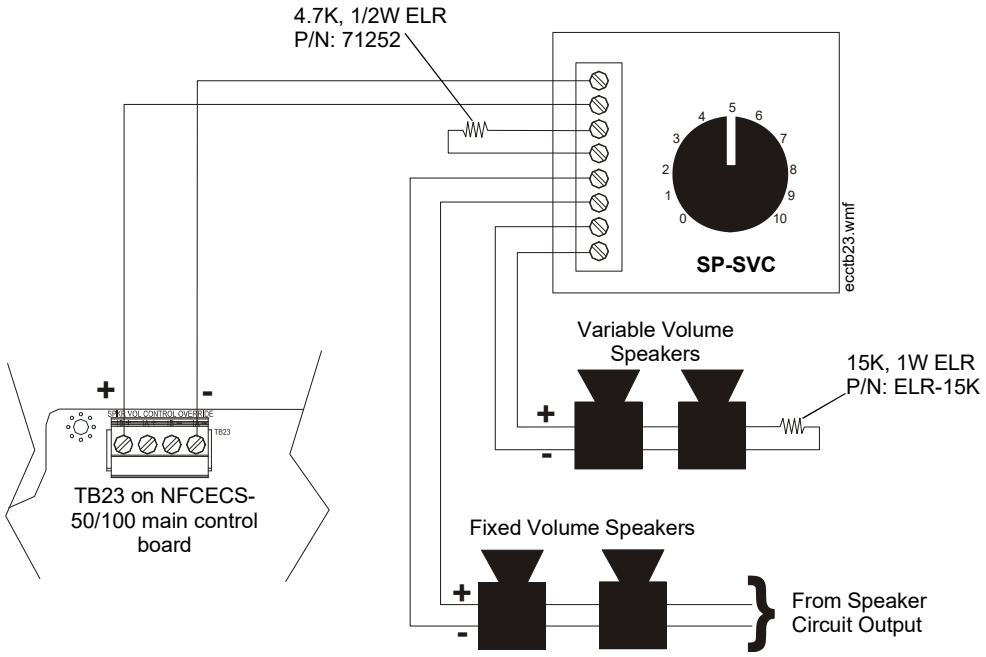


Figure 2.18 Speaker Volume Control Wiring

Notes:

1. Only one (1) SP-SVC can be installed per audio zone; however, multiple speakers can be controlled by the same speaker volume control override output.
2. All fixed volume speakers must be placed before the SP-SVC in the speaker circuit. Any speakers placed after the SP-SVC module will be able to be attenuated.
3. An end-of-line resistor (ELR) must be installed on the last speaker connected to the SP-SVC.
4. Attach wires according to the label on the terminal block. The DC input/output terminals are interchangeable. If the SP-SVC is the last unit in the Speaker Volume Control Override circuit, then an ELR must be installed.
5. The maximum wire impedance between devices must not exceed 35 ohms.

2.6.5 FACP Data Bus

NFW-100X

The FACP communicates with the NFC-50/100 over the ANN-BUS annunciator bus. Wiring must be connected between the primary ANN-Bus terminal TB9 *or* the secondary ANN-BUS terminal TB10 on the FACP and Terminal TB13 on the NFC-50/100 panel.

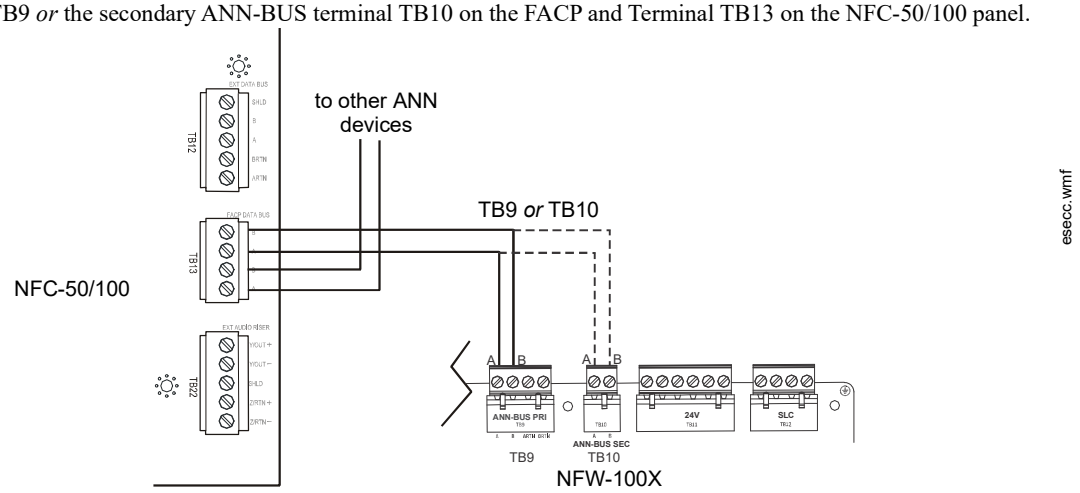


Figure 2.19 Connection for NFW-100X to NFC-50/100

FireWarden-100-2

The FireWarden-100-2 FACP communicates with the NFC-50/100 over the ACS or ANN-BUS annunciator link. Wiring must be connected between Terminal TB9 on the FACP and Terminal TB13 on the NFC-50/100 panel.

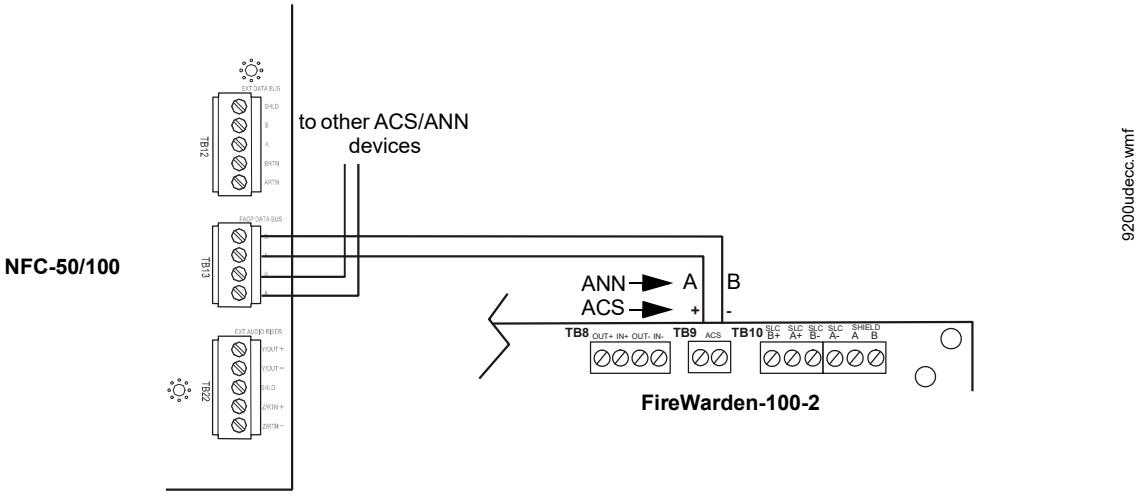


Figure 2.20 Connection for FireWarden-100-2 to NFC-50/100

NFS2-640 and NFS-320

The NFS2-640 and NFS-320 FACPs communicate with the NFC-50/100 over the ACS annunciator link. Wiring must be connected between Terminal TB11 on the FACP and Terminal TB13 on the NFC-50/100 panel.

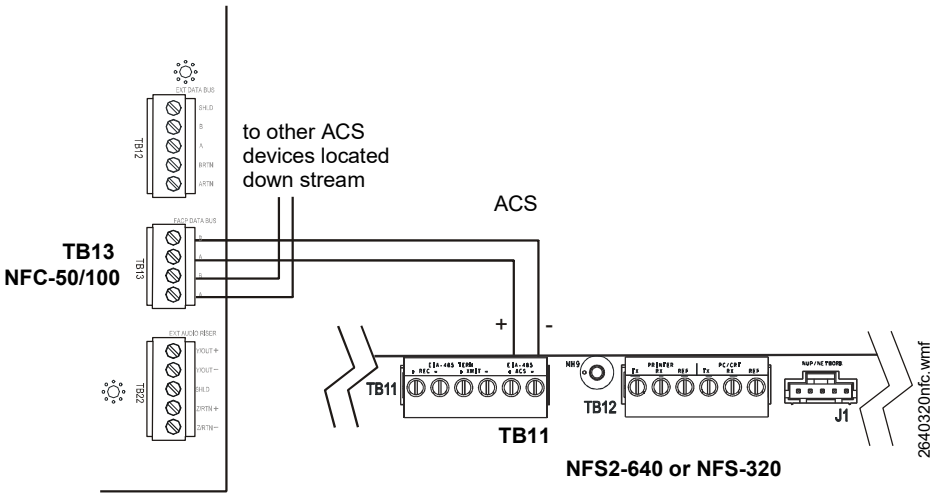


Figure 2.21 ACS Connection for NFS2-640 or NFS-320 to NFC-50/100

ACS Mode Wiring

When communication is wired over the ACS annunciator link, a monitor module must be used to monitor mass notification events. Wire the monitor module to the NFC at TB1 MNS Active Relay in addition to the Data Bus wiring shown above. Refer to “FACP Programming” on page 68 for information on type IDs.

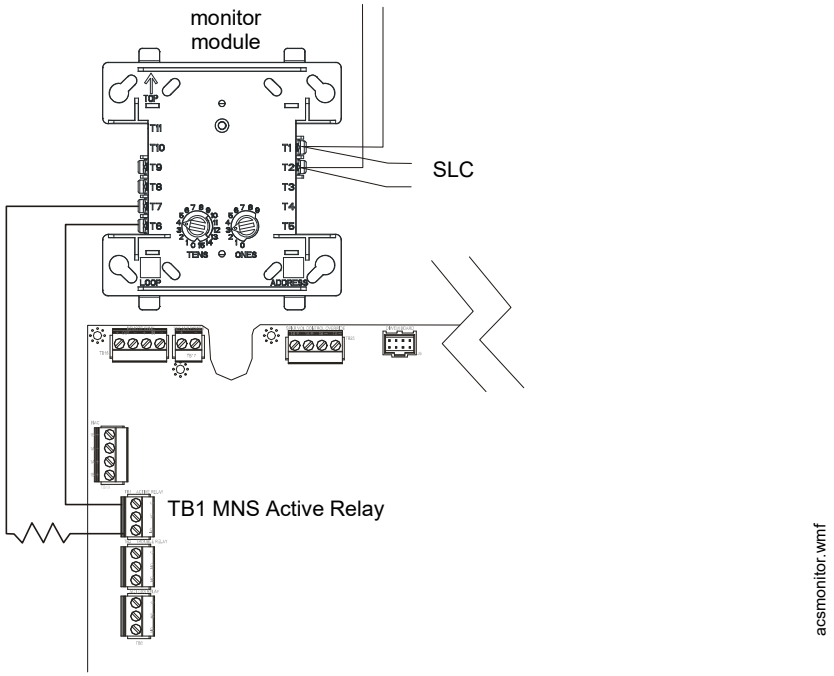


Figure 2.22 Monitor Module Wiring for ACS Communication

2.7 NFC-LOC Local Operator Console

CAUTION: EXTERNAL WIRING CONNECTIONS
THE NFC-LOC IS A SEPARATE DEVICE, NOT PART OF THE NFC-50/100 ASSEMBLY!

Wiring for the Local Operator Console is accomplished between TB24, TB12, and TB22 on the NFC-50/100 main control board to TB3, TB4, and TB5 on the LOC. If the NFC-LOC is the last device on the audio and data bus chain, signal terminations are required. For the external data bus, a removable jumper must be on pins 1 and 2 of JP2 when the LOC is the last device on the chain. If the NFC-LOC is not the last device, the jumper must be on pins 2 and 3 of JP2 as shown below. For the external audio riser, when the LOC is the last device, termination ELR-15K must be connected to pins 5 and 6 on TB5. T-taps and multiple home runs to the main control board are not allowed for the external data bus or the external data riser.

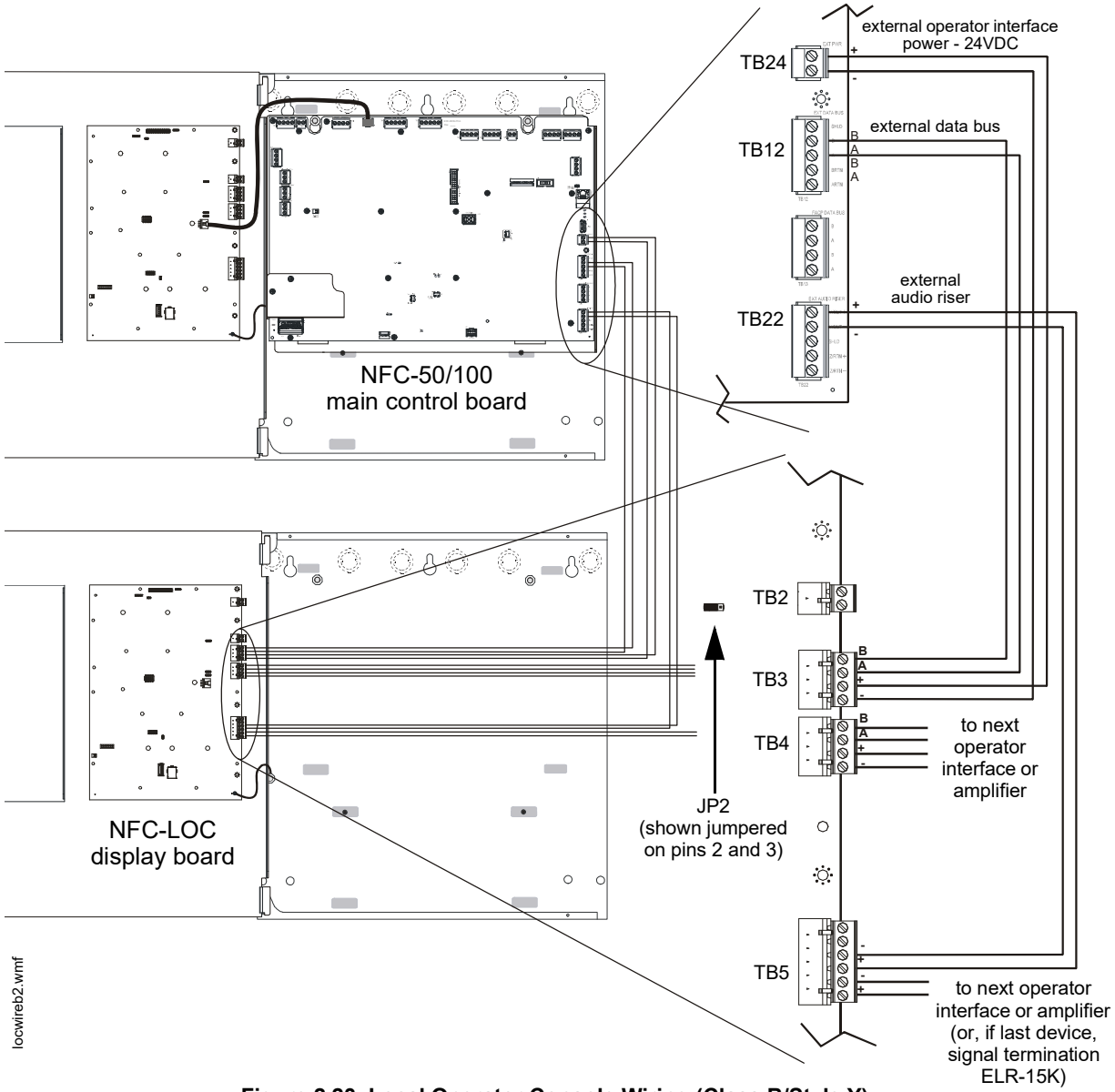


Figure 2.23 Local Operator Console Wiring (Class B/Style Y)

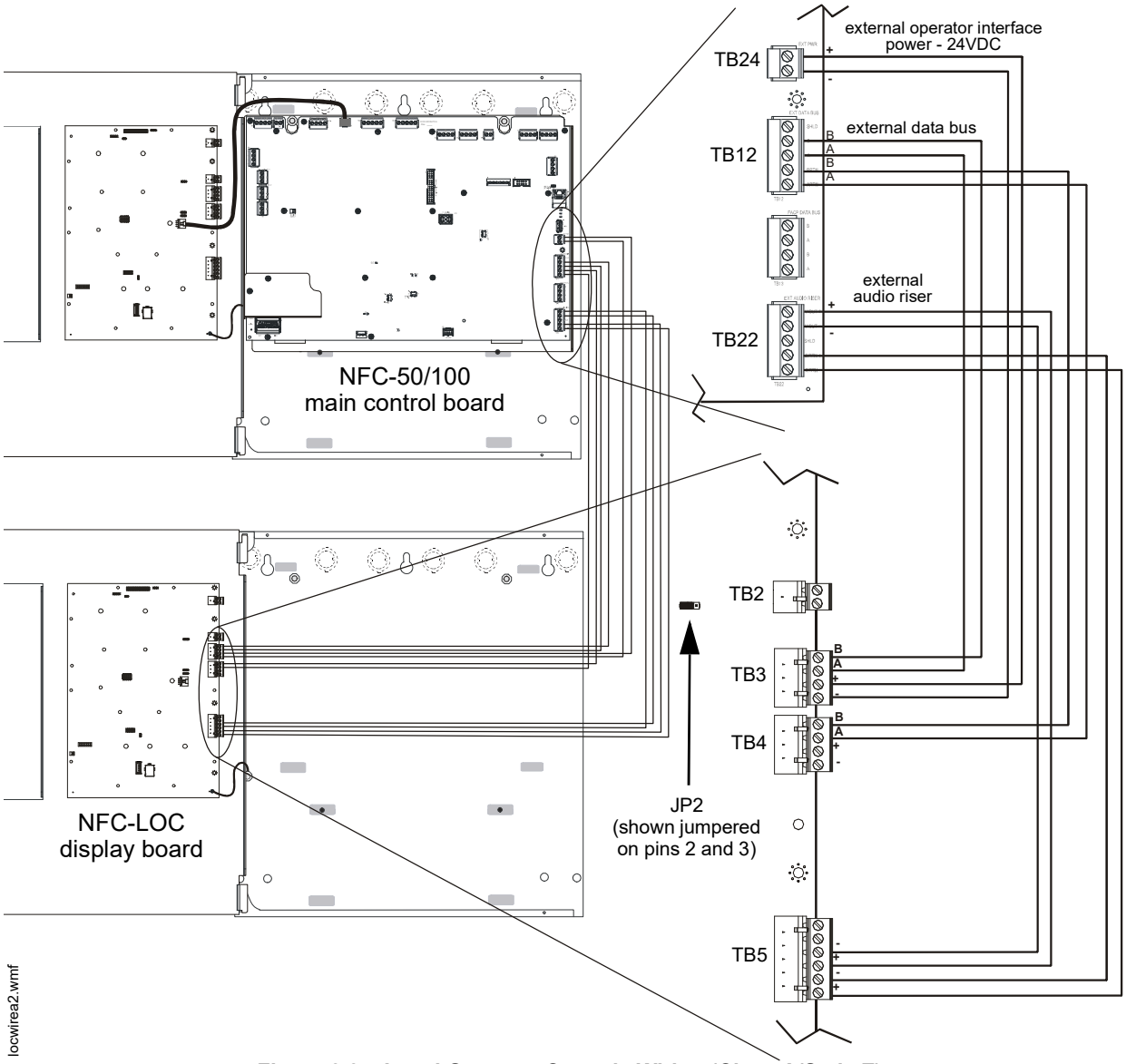


Figure 2.24 Local Operator Console Wiring (Class A/Style Z)

2.8 NFC-RPU Remote Page Unit

Connections are made from TB24, TB12, and TB22 on the NFC-50/100 main control board to TB1, TB3, and TB2 on the RPU. If the NFC-RPU is the last device on the audio and data bus chain, signal terminations are required. For the external data bus, a removable jumper must be on pins 1 and 2 of JS4. If the NFC-RPU is not the last device, the jumper must be on pins 2 and 3 of JS4 as shown below. For the external audio riser, when the NFC-RPU is the last device, termination ELR-15K must be connected to pins 4 and 5 on TB2. T-taps and multiple home runs to the main control board are not allowed for the external data bus or the external data riser.

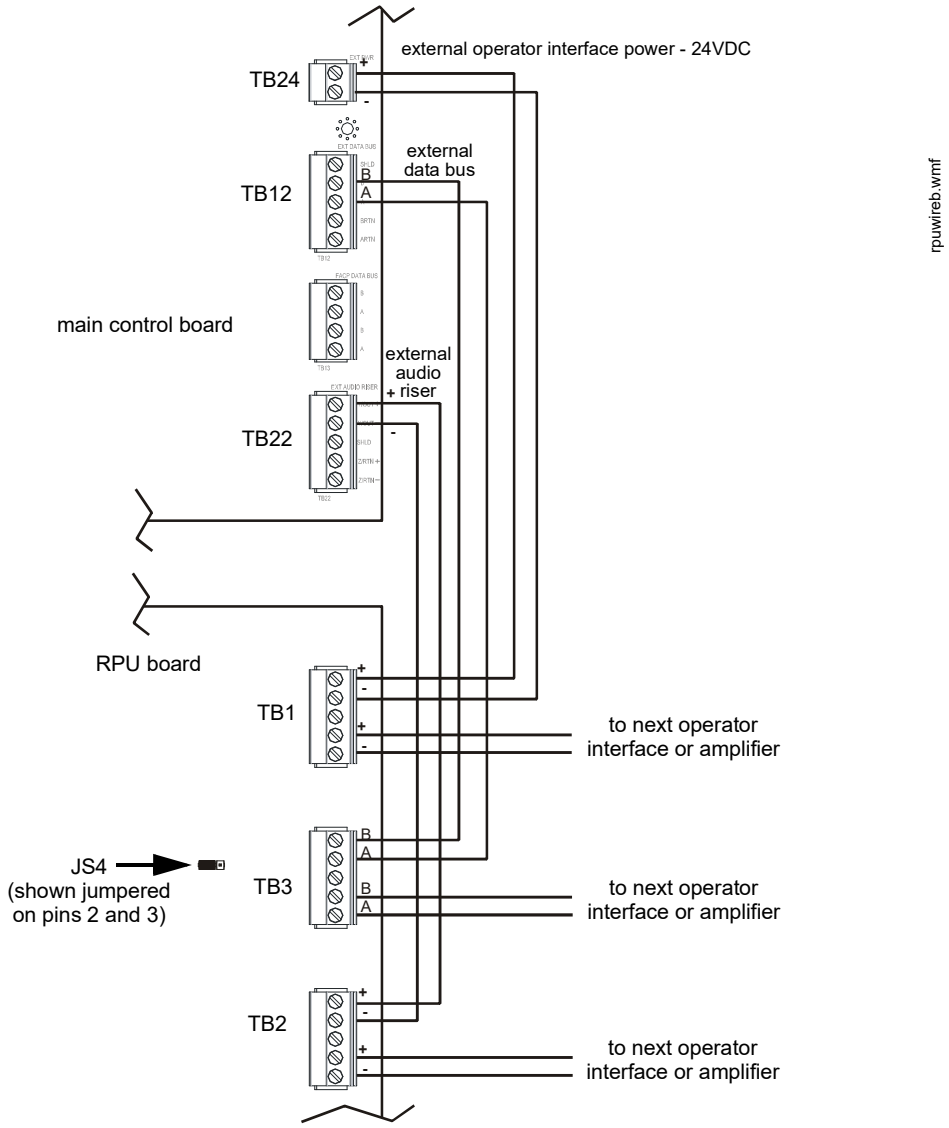


Figure 2.25 Remote Page Unit Wiring (Class B/Style Y)

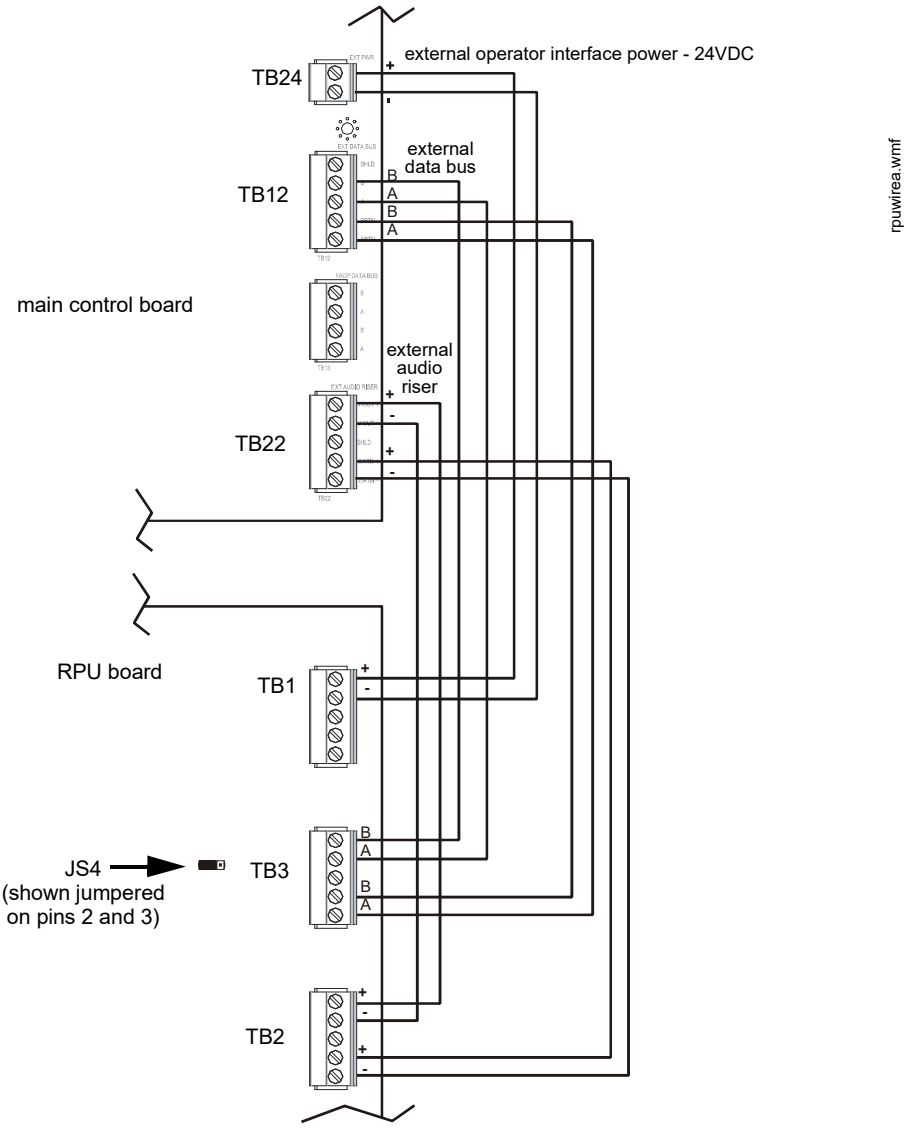


Figure 2.26 Remote Page Unit Wiring (Class A/Style Z)

2.9 NFC-RM Remote Microphone

Connections are made from TB24, TB12, and TB22 on the NFC-50/100 main control board to TB3, TB2, and TB1 on the RM. If the NFC-RM is the last device on the audio and data bus chain, signal terminations are required. For the external data bus, a removable jumper must be on pins 1 and 2 of JS4. If the NFC-RM is not the last device, the jumper must be on pins 2 and 3 of JS4. For the external audio riser, For the external audio riser, when the NFC-RM is the last device, termination ELR-15K must be on pins 4 and 5 on TB2. T-taps and multiple home runs to the main control board are not allowed for the external data bus or the external data riser.

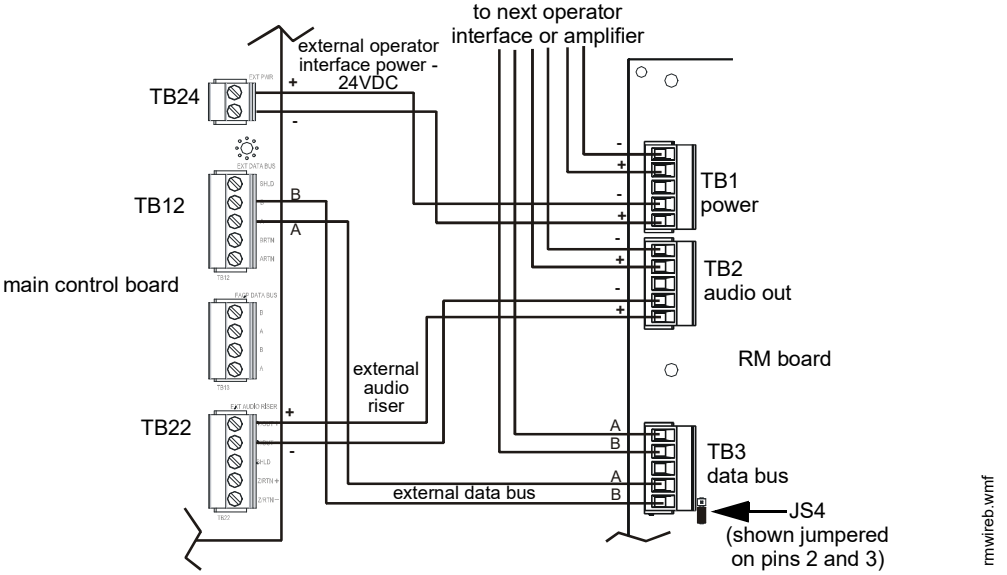


Figure 2.27 Remote Microphone Wiring (Class B/Style Y)

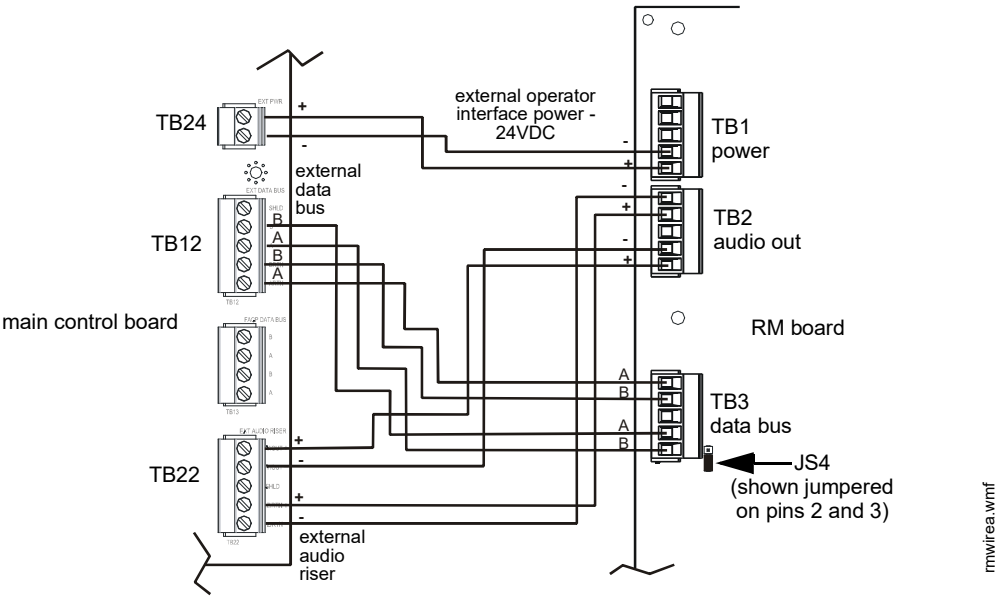


Figure 2.28 Remote Microphone Wiring (Class A/Style Z)

2.10 NFC-50DA, NFC-125DA, NFC-50/100DA Distributed Audio Amplifiers

SW2 on the NFC-50/100's display board must be set to the UP position if *any* remote audio boosters are installed on the system. Refer to the *NFC Distributed Audio Amplifier Manual*, LS10027-001NF-E, for installation instructions.

2.11 Shielding for External Device Wiring

The external data bus and external audio riser circuits must be wired using twisted pair cable. Shielded cable is optional but is recommended for sites with electric machinery, electric motors, etc. to minimize the effects of electrical interference. Do not run either cable adjacent to or in the same conduit as 120 VAC service, noisy electrical circuits that are powering mechanical bells or horns, speaker circuits, motor control circuits or SCR power circuits. External operator interface power (24VDC) may be run adjacent to or in the same conduit as the external data bus and external audio riser circuits.

At the NFC-50/100 unit, the cable shields must be connected to the same connectors where the signals originate. If only one external device (i.e. an NFC-RM) is used in the system, the shield in the external device must be left floating. It must not touch anything. If multiple external devices are used in the system then the shields must "pass through" (connect to the outgoing shield using wire nuts without touching anything else). For Class A (Style Z) installations, the shield from the last external operator interface must be connected to the same NFC-50/100 terminal that the shield originated from.

NOTE: Never use a cable shield as an enclosure's earth ground. The EIA-485 shield is for radiated noise emission protection (RFI, EMI).Refer to the following illustrations for details on shield termination.

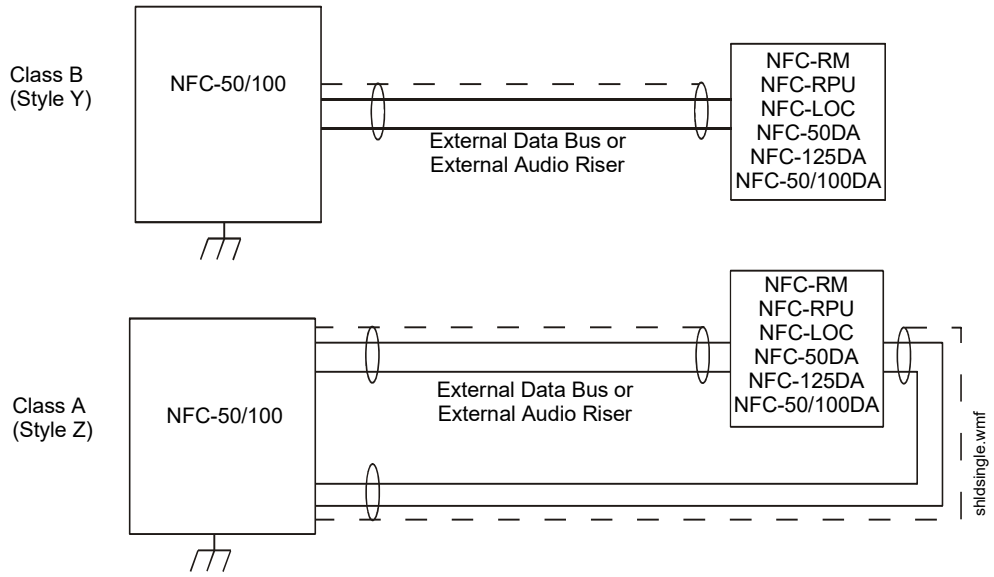


Figure 2.29 Shielding for One External Device

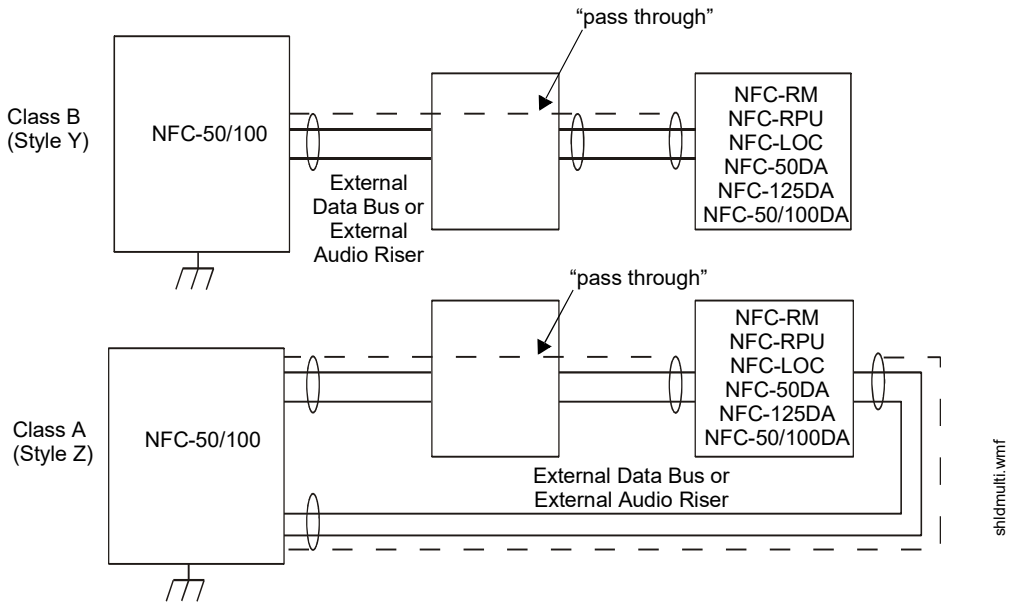


Figure 2.30 Shielding for Multiple External Devices

2.12 UL Power-limited Wiring Requirements

Power-limited and nonpower-limited circuit wiring must remain separated in the cabinet. All power-limited circuit wiring must remain at least 0.25" away from any nonpower-limited circuit wiring. Furthermore, all power-limited and nonpower-limited circuit wiring must enter and exit the cabinet through different knockouts and/or conduits. A typical wiring diagram for the NFC-50/100 with two speaker circuits is shown below.

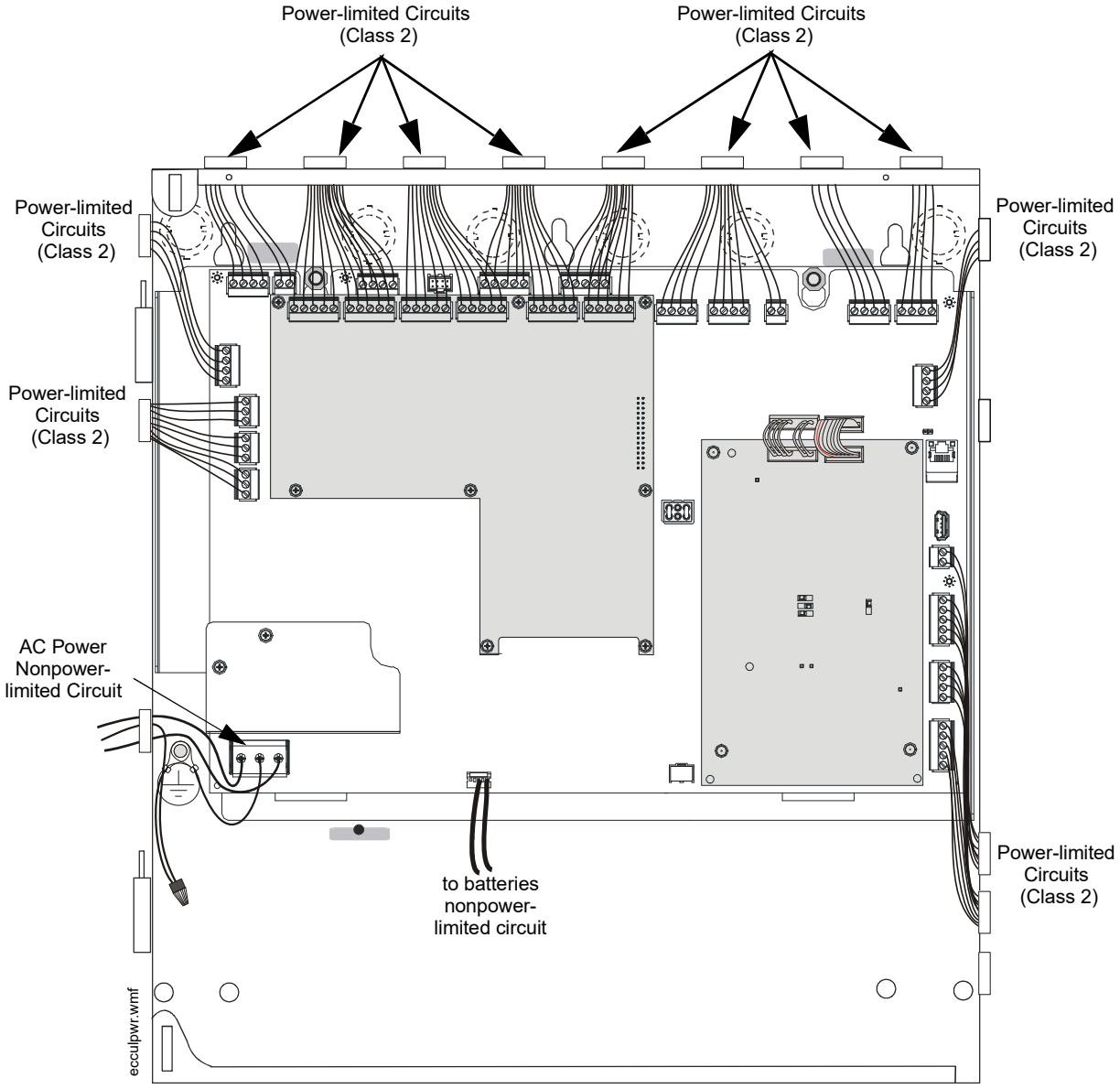


Figure 2.31 Typical Wiring Diagram for UL Power-limited Requirements

NOTE: Use of the 70V transformer makes all power-limited circuits Class 3.

2.13 Installation of Option Modules

CAUTION: DISCONNECT POWER

BEFORE INSTALLING ANY MODULES OR CABLES, MAKE CERTAIN ALL POWER (AC AND DC) HAS BEEN REMOVED AND BE SURE TO OBSERVE PROPER GROUNDING AND HANDLING PROCEDURES.

2.13.1 NFC-CE6 Circuit Expander Module

The NFC-CE6 Circuit Expander Module provides connections for up to six Style Z (Class A) or Style Y (Class B) speaker circuits. Circuits are configured through the web-based programming utility. Refer to Section 3.2.2 on page 53.

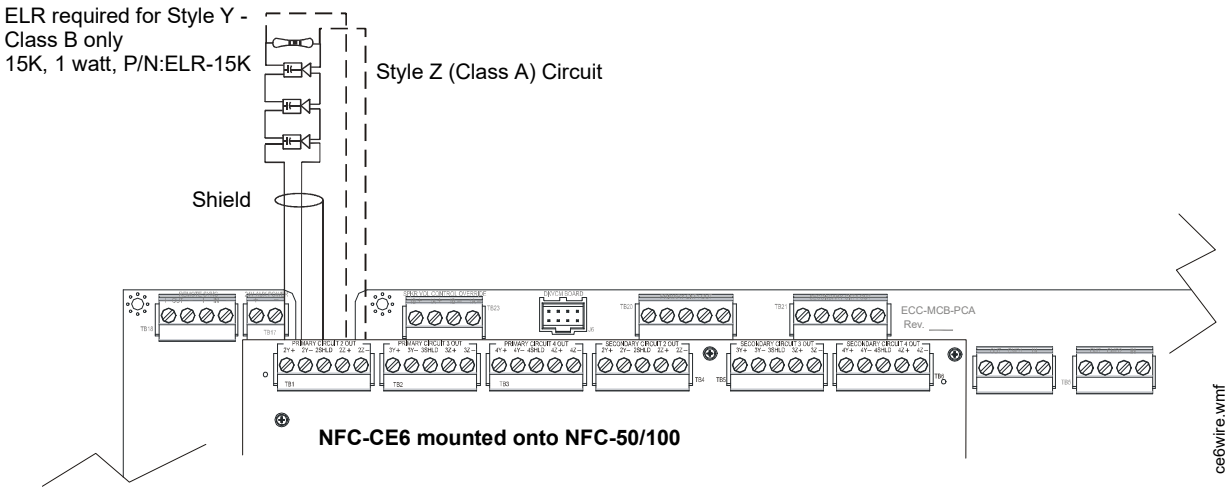


Figure 2.32 Circuit Expander Module Wiring

2.13.2 Audio Amplifier Module (NFC-BDA-25/70V)

Installation

The optional audio amplifier module can be used to provide a second 50 watt speaker circuit, increasing the total NFC-50/100 power to 100 watts, or it can be used as a backup amplifier. Refer to Section 3.2.2 on page 53 for programming the amplifier's operation. Connectors J1 & J2 of the audio amplifier module plug into connectors J10 & J11, respectively, located at the upper right of the main control board.

Figure 2.34 shows the installation of a NFC-BDA-25/70V onto an NFC-50/100 panel. The optional amplifier may be programmed and wired for backup or for providing a second audio channel.

NOTE: Both the primary and secondary amplifiers must be same voltage output (25V or 70V).

1. Remove mounting screws shown, from the main control board, and save (refer to Figure 2.34).
2. Install four supplied metal standoffs in locations from which mounting screws were removed in Step 1.
3. Secure the Audio Amplifier Module with the screws removed in Step 1. It is important to secure the module with the metal screws in order to help protect against electrical transients.
4. Plug the supplied power cable into J10 on the main control board, then into J1 on the audio amplifier. Plug the supplied control cable into J11 on the main control board, then into J2 on the audio amplifier.
5. Configure the slide switches, SW6 and SW7, per Figure 2.36. Do *not* use any other setting.
6. Configure the slide switch, SW5, on the main control board for 25V or 70V operation. (70V operation requires Amplifier model NFC-BDA-70V and the NFC-XRM-70V transformer.)
7. Connect field wiring to TB21 on the main control board (if not using the amplifier as backup). Refer to Figure 2.15 on page 31 for illustration of speaker connections if the amplifier is being used to expand system power to 100 watts (providing dual 50 watt speaker circuits).
8. Configure the Audio Amplifier for primary or backup amplifier operation through the web-based programming utility.

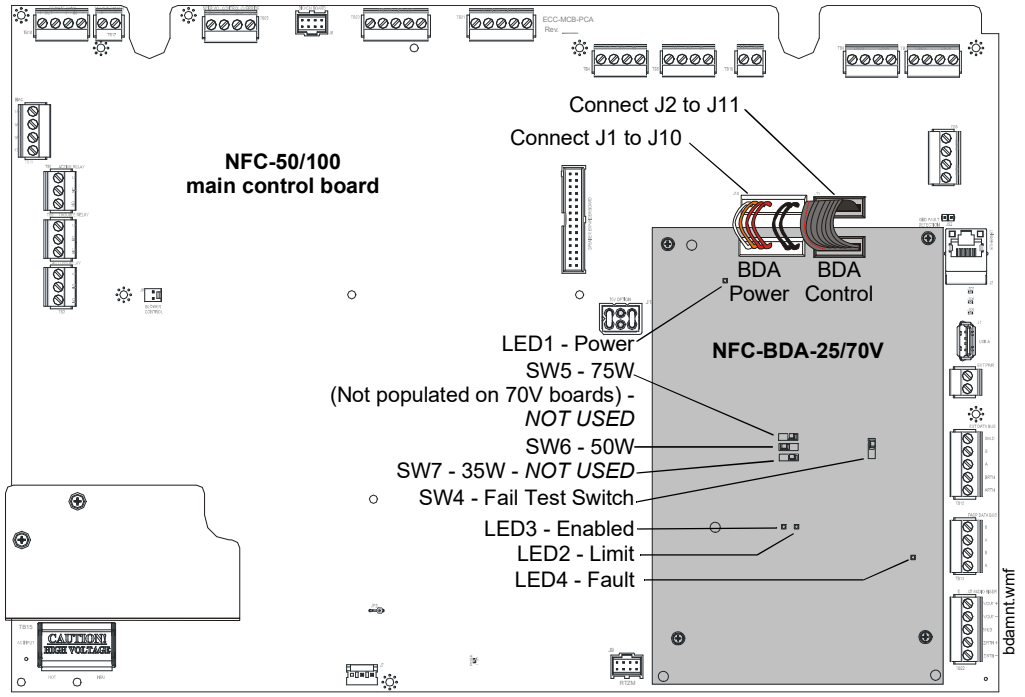


Figure 2.33 Installation of the Optional Audio Amplifier

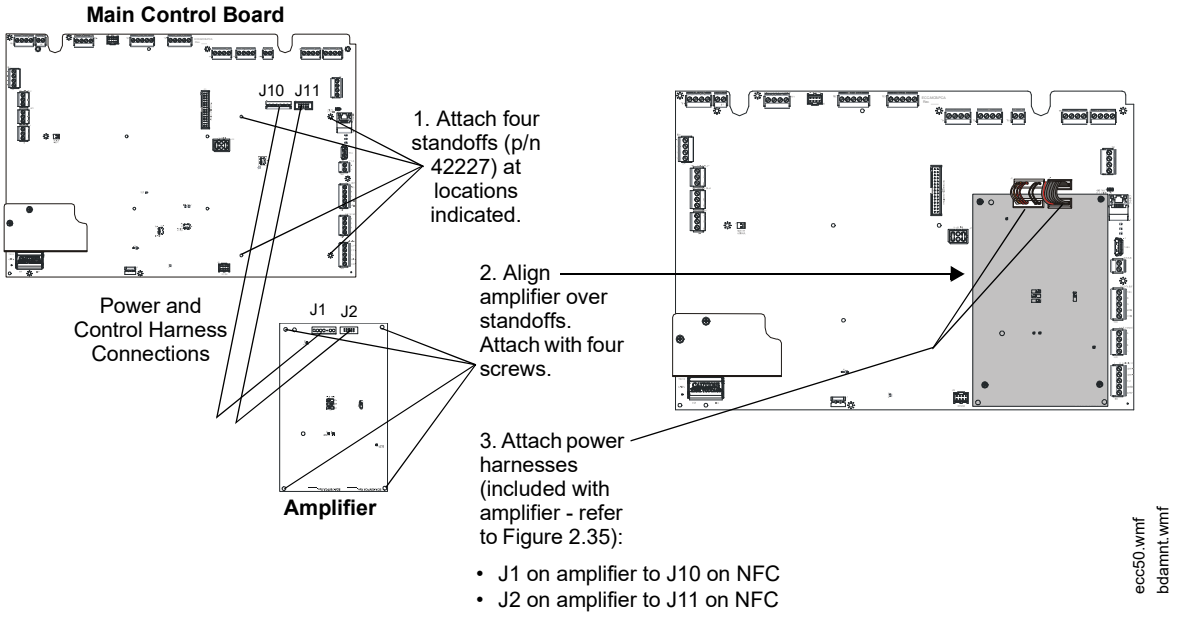


Figure 2.34 NFC-BDA-25/70V Installation

Power and Control Cables

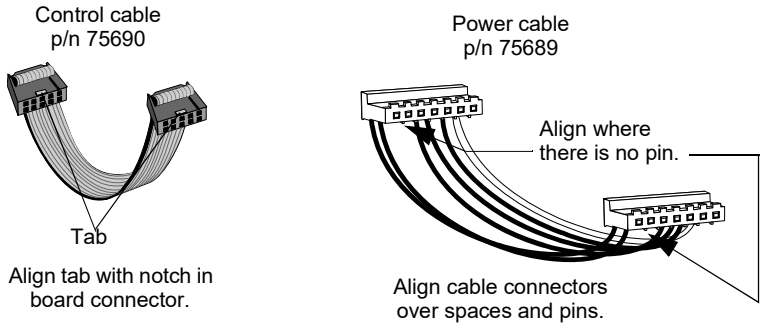


Figure 2.35 Control and Power Cables

Configuration

Enable Switches, SW6 & SW7

SW6 must be enabled. *Do not enable SW7. Do not confuse this switch from SW6 on the main circuit board!*

Switches come from the factory disabled.

Note that the board is installed upside-down. Pay close attention when setting switches. Figure 2.36 shows the amplifier in its installed position, not the actual silk-screening on the board.

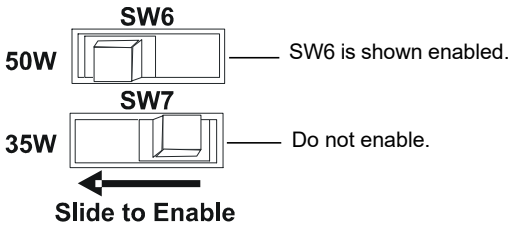


Figure 2.36 Enable Switches

FAIL TEST Switch, SW4

This switch is not used. It should always be set to "Normal".

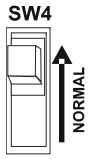


Figure 2.37 FAIL TEST Switch

NFC-50/100 Configurations with NFC-BDA-25/70V

Following are descriptions of audio speaker circuit configurations with optional amplifier and optional NFC-CE6 circuit expander.

■ Applications Without Backup

Primary
- 50W
- One Class B or Class A Output
- No Backup

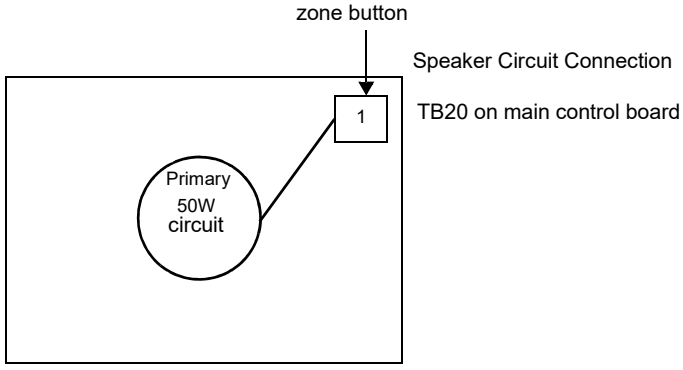


Figure 2.38 Basic (No Optional Amplifier)

Primary/Secondary
- Two amps at 50W each
- Two Class B or Class A Outputs
- Optional amplifier is the secondary
- No Backup

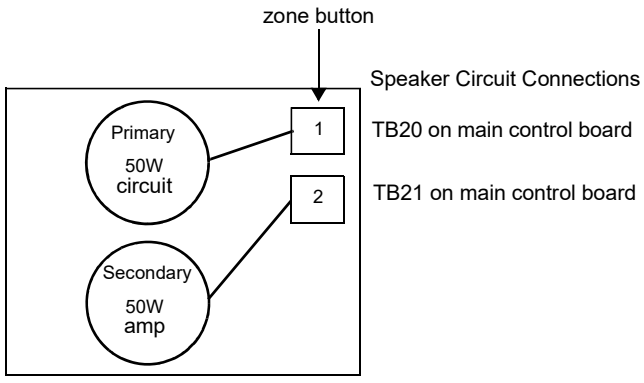


Figure 2.39 Primary/Secondary

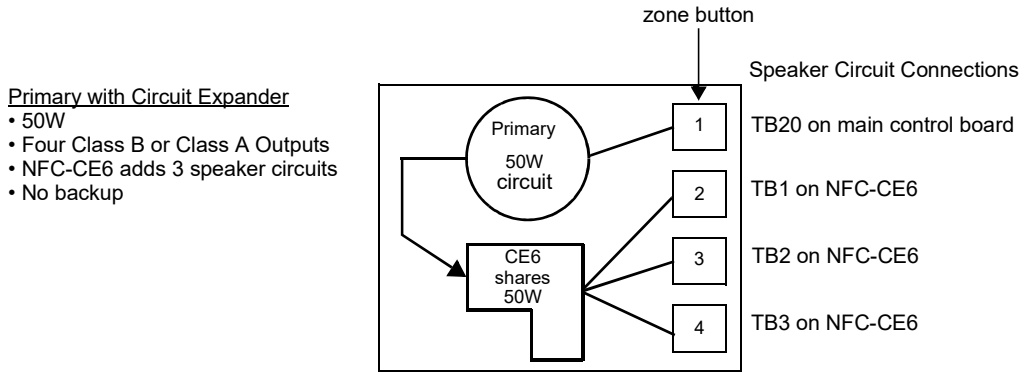


Figure 2.40 Primary with Expander

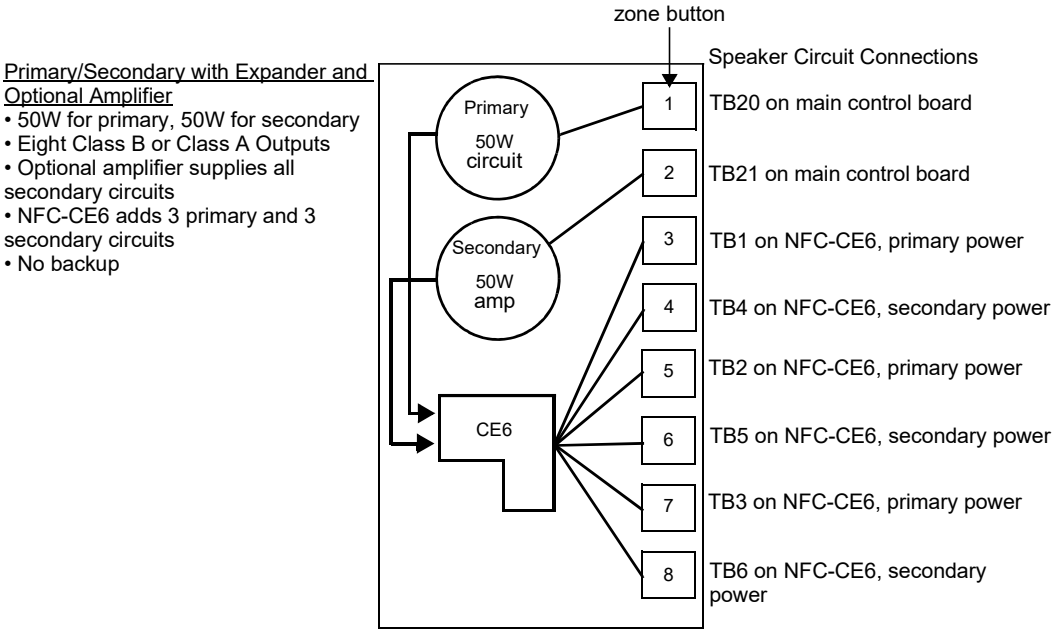


Figure 2.41 Primary/Secondary with Expander and Optional Amplifier

■ Applications With Backup

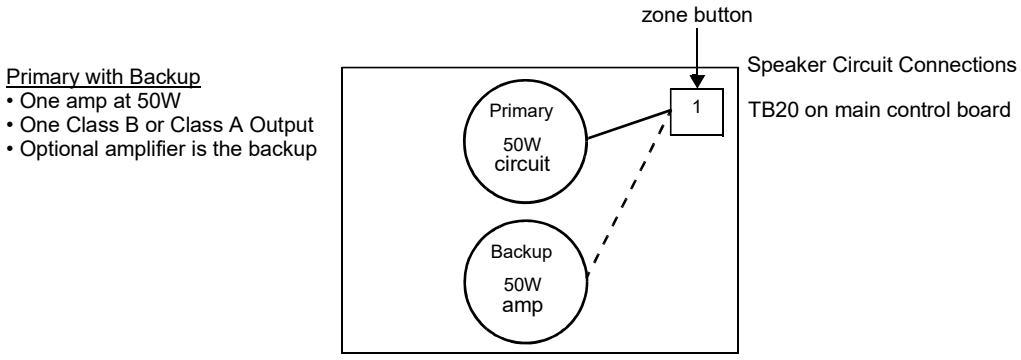


Figure 2.42 Primary with Optional Amplifier Backup

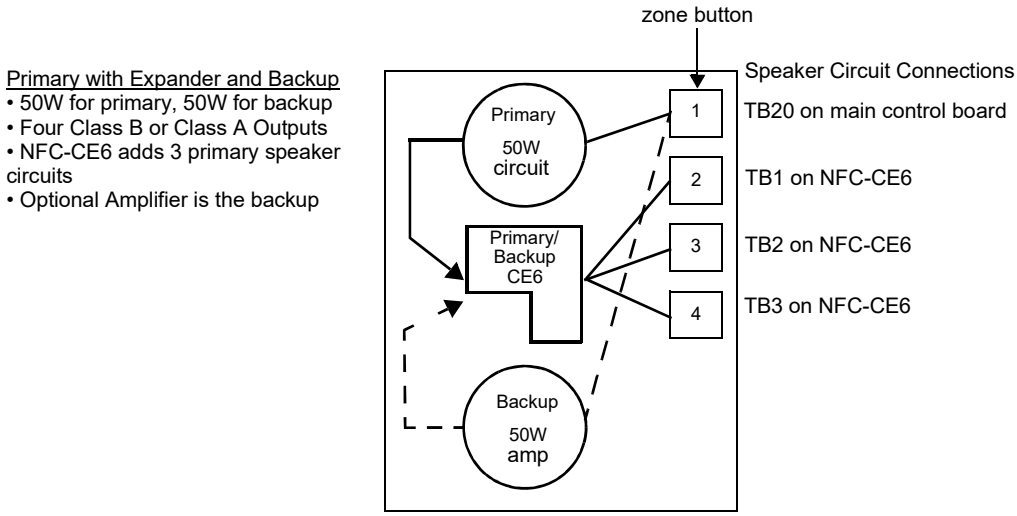


Figure 2.43 Primary with Expander and Optional Amplifier Backup

2.13.3 70.7 V_{RMS} Transformer (NFC-XRM-70V)

The 70.7 V_{RMS} Transformer can be used to convert the integral 25 V_{RMS} amplifier for installations where 70.7 V_{RMS} speakers already exist or are to be installed. Speaker wiring continues to be supervised during standby, alarm and while background music is playing when transformer is installed. The transformer comes pre-installed onto a bracket for mounting to the chassis. Installation onto the chassis depends on what other option modules are installed. See the *NFC-XRM-70V Installation Document*. Refer to the drawing below.

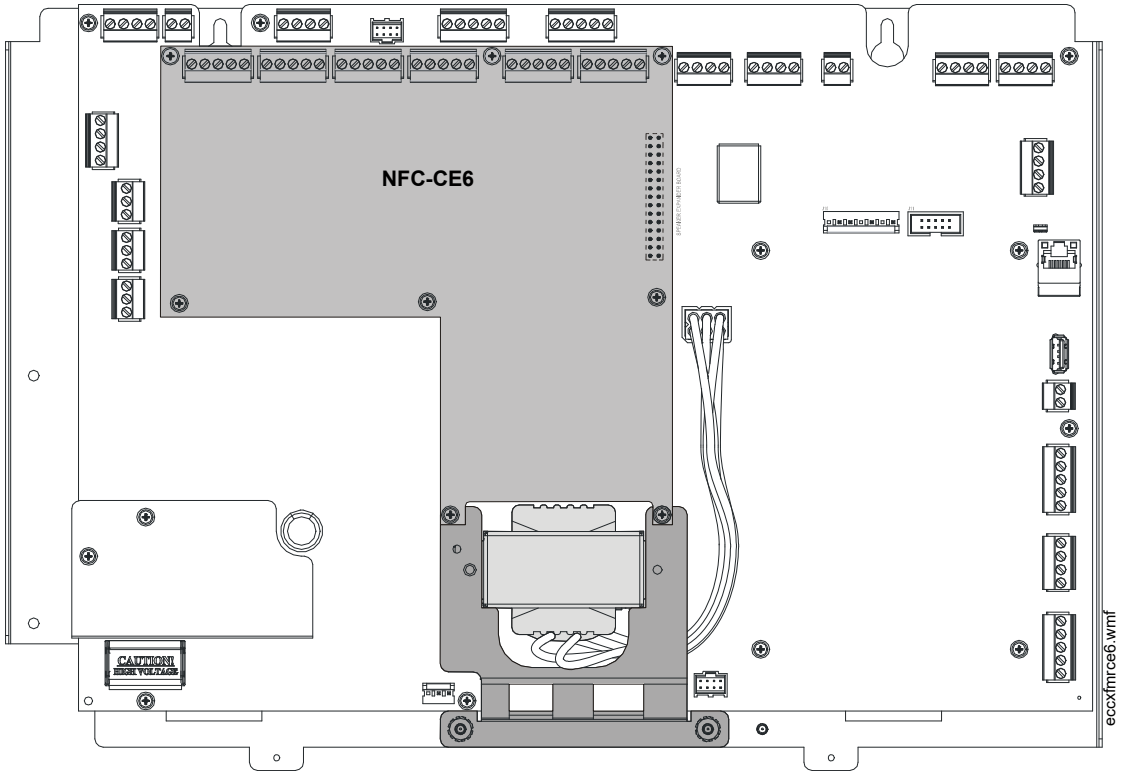


Figure 2.44 70.7 V_{RMS} Transformer Installation

NOTE: For 70.7V_{RMS} operation with the optional amplifier, use model NFC-BDA-70V.

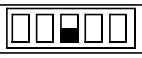
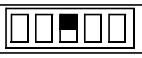
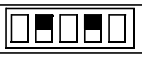
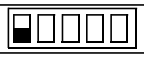
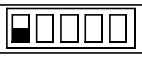
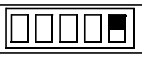
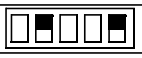
CAUTION: DISCONNECT POWER
BEFORE INSTALLING ANY MODULES, MAKE CERTAIN ALL POWER (AC AND DC) HAS BEEN REMOVED.

When installing the NFC-XRM-70V, be sure to:

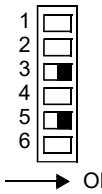
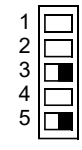
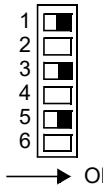
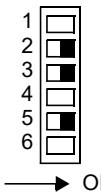
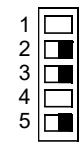
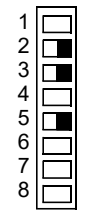
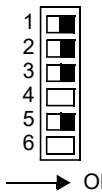
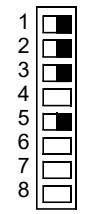
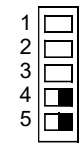
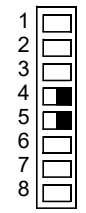
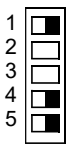
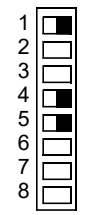
- ✓ carefully remove the factory-installed jumper plug from connector J12 on the main control board.
- ✓ set SW5 on the NFC-50/100 main control board to 70V operation.

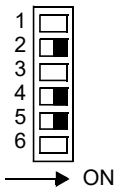
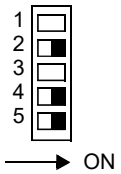
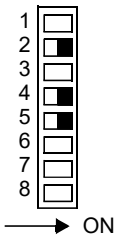
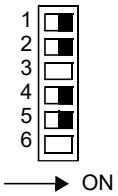
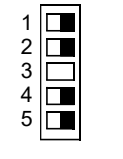
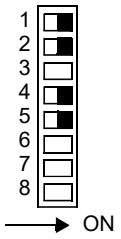
2.14 Addressing External Data Bus Devices

The table below defines an address map for the external data bus devices which include the NFC-LOC, NFC-RPU, NFC-RM, NFC-50DA, and NFC-125DA. Dipswitches are used on each of these devices to set the bus address in order to properly communicate with the NFC-50/100 panel. Any combination of up to eight (8) remote consoles (NFC-LOC, NFC-RPU, and NFC-RM) can be used in the system. Their external data bus addresses must be unique. Note that these four (4) consoles occupy two (2) data bus addresses each. The second address is already "reserved" in the system for each console. Up to eight (8) distributed amplifiers (NFC-50DA and NFC-125DA) can be used in the system. Their external data bus addresses must also be unique and sequential. All addressing must also be set in user programming. Refer to Section 3.2.3 on page 55.

Bus Address	Device	Dipswitch Setting on LOC (SW1) ON 5 4 3 2 1	Dipswitch Setting on RPU (S11) ON 5 4 3 2 1	Dipswitch Setting on RM (S1) ON 1 2 3 4 5
0	reserved	n/a	n/a	n/a
1	reserved	n/a	n/a	n/a
2	reserved for POC	n/a	n/a	n/a
3	reserved	n/a	n/a	n/a
4	LOC or RPU or RM #1			
5	reserved	n/a	n/a	n/a
6	LOC or RPU or RM #2			
7	reserved	n/a	n/a	n/a
8	LOC or RPU or RM #3			
9	reserved	n/a	n/a	n/a
10	LOC or RPU or RM #4			
11	reserved	n/a	n/a	n/a
12	LOC or RPU or RM #5			
13	reserved	n/a	n/a	n/a
14	LOC or RPU or RM #6			
15	reserved	n/a	n/a	n/a
16	LOC or RPU or RM #7			
17	reserved	n/a	n/a	n/a
18	LOC or RPU or RM #8			
19	reserved	n/a	n/a	n/a

The table below shows the dipswitch settings for all possible addresses. Note that some devices have a 5-position dipswitch while others have a 6-position dipswitch. The sixth switch on these dipswitches are not used. Dipswitches are shown as they are oriented in the cabinet. Pay close attention when setting addresses.

Bus Address	Device	Dipswitch Setting on NFC-50DA(SW1)	Dipswitch Setting on NFC-125DA (SW1)	Dipswitch Setting on NFC-50/100DA (SW3)
20	External Amp #1			
21	External Amp #2			
22	External Amp #3			
23	External Amp #4			
24	External Amp #5			
25	External Amp #6			

Bus Address	Device	Dipswitch Setting on NFC-50DA(SW1)	Dipswitch Setting on NFC-125DA (SW1)	Dipswitch Setting on NFC-50/100DA (SW3)
26	External Amp #7			
27	External Amp #8			

Section 3: Programming

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION AND OTHER INVOLVED PARTIES			
This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, and in the standard for Communication and Control Units for Mass Notification Systems, UL 2572, certain programming features or options must be limited to specific values or not used at all as indicated below:			
Program feature or option	**Permitted in UL 864/UL 2572? (Y/N)**	**Possible settings**	**Settings permitted in UL 864/UL 2572**
AC Loss Delay	Y	AC Loss Delay = 0, 2 (factory default), 6, 12, or 23 hours Refer to “AC Loss Delay” on page 53.	AC Loss Delay = 2 hours
24 Hour Resound	Y	24 Hour Resound = Enabled 24 Hour Resound = Disabled Refer to “24 Hour Resound” on page 53	24 Hour Resound Enabled
Active With Page	N	Enable/Disable	Disabled
Page Timeout	N	0-60 in 15 second increments	0 seconds

All NFC programming is done using the built-in web-based programming utility. It is recommended that tone selection, message repeat cycles and background music options be reviewed and approved by the local AHJ.

To start programming, use a standard CAT5e Ethernet (patch) cable to connect a personal computer’s IP port (Ethernet) to the IP port (Ethernet) J2 on the main control board (right side of the board). Set the computer’s local area network connection address as follows:
IP address: 169.254.3.5
Subnet mask: 255.255.0.0

NOTE: Be sure to record the computer’s original addresses so they can be restored when NFC programming is complete.

Activate the PC’s web browser (Google Chrome or Mozilla Firefox). Enter the following in the browser’s navigation bar:
http://169.254.3.3

The main menu will display and allow further menu navigation.

NOTE: All screen shots reflect default programming.

Security and Data Protection:

NO ENCRYPTION EMPLOYED

- Communication Security:
  - a. Level 1
- Stored Data Security:
  - a. Level 0
- Access Control Security:
  - a. Level 1
- Physical Security:
  - a. Level 1

Audit Control: not provided

3.1 NFC-50/100 Panel Installation/Maintenance Security Checklist

System Description:_____

System Location: _____

Installer: _____ **Date:** _____

Complete the following security tasks for each NFC-50/100 installation.

- ☐ Install the NFC-50/100 panel in a secure location considering both software and hardware vulnerabilities.
- ☐ Change the default password to a unique password.
- ☐ Securely configure networks and firewalls.
- ☐ Assess security risks.
- ☐ Develop a Disaster and Recovery Plan.
- ☐ Develop a Backup and Recovery Strategy.
- ☐ Install, configure, and maintain anti-virus software on all computers which access the panel.
- ☐ Keep the operating system updated and maintain version compatibility with the panel.
- ☐ Deliver all required system information upon delivery to the system owner.
- ☐ Train end-users on security maintenance tasks upon system delivery.
- ☐ For decommissioning, dispose of data securely.
- ☐ Ensure the Ethernet cable is removed from the NFC-50/100 when not being utilized for configuration.

3.2 Main Menu - User Programming

This screen shows the main menu for the NFC user programming options. Changes to programming require a valid password for system login. Note that a password is NOT required to change the date/time, view the informational screens, or view the panel history.

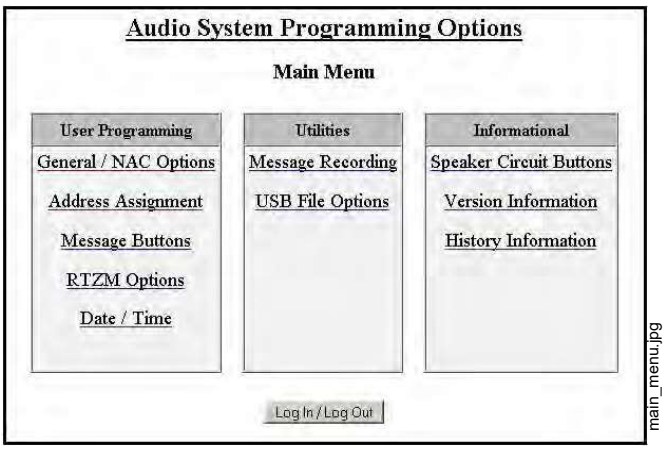


Figure 3.1 Main Menu

3.2.1 Password Options

Changes to NFC programming require a valid password login. Programming changes *cannot* be made when there is an active event in the system.

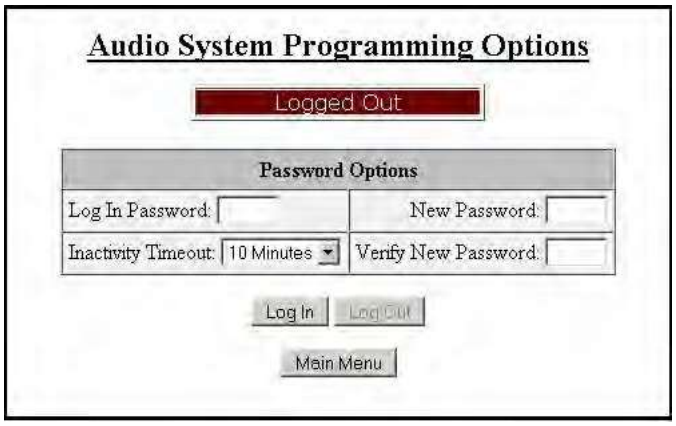


Figure 3.2 Password Options

Log In Password The default password for the NFC-50/100 is *0000*.

New Password It is recommended that the password be changed to increase system security. Valid passwords contain four digits from 0000-9999.

Verify New Password Re-enter the new password for confirmation.

Inactivity Timeout Select the amount of time, *5 minutes*, *10 minutes*, *20 minutes*, *30 minutes*, or *60 minutes*, the system is allowed to remain idle before automatic user log out. The timeout feature helps the system protect against unauthorized programming changes.

Log Out When all programming has been successfully completed, the user must *fully* log out, with a green indicator at the login screen, to allow the system to reboot and apply the programming changes.

3.2.2 General/NAC Options

General Options

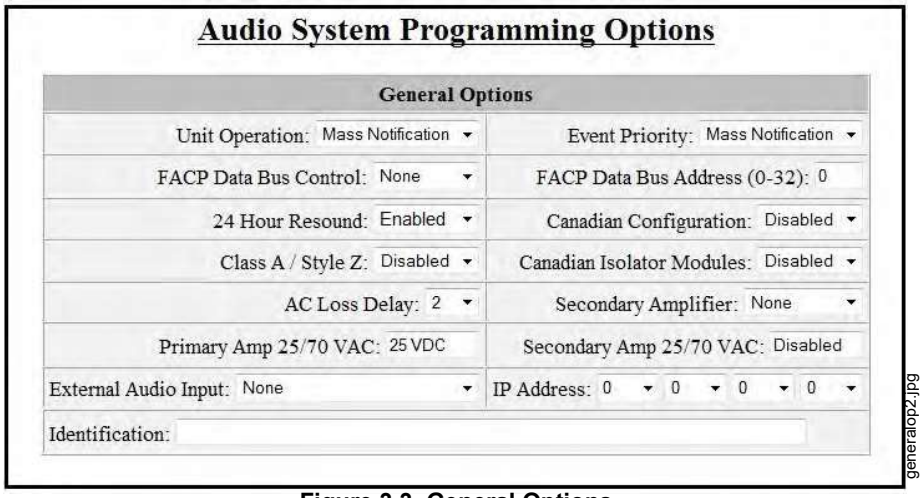


Figure 3.3 General Options

Unit Operation Select whether the NFC will function for *Fire Evacuation*, *Mass Notification*, or a *Combination* of both.

Event Priority When *Combo* or *Mass Notification* is selected for Unit Operation, select whether *Mass Notification* events or *Fire Evacuation* events will take priority in the system. If *Mass Notification* is selected as the Unit Operation with the Event Priority set to *Fire Evacuation*, the NFC will be a mass notification only system but will allow the FACP to override it if a fire alarm sounds. If *Mass Notification* is selected as the Unit Operation with the Event Priority also set to *Mass Notification*, the NFC will not have any fire evacuation capabilities and will report mass notification events to the FACP. In this configuration, FACP outputs can be turned off for mass notification events if desired.

FACP Data Bus Control If an FACP will directly communicate with the NFC, select which communication protocol will be used, *ACS-Bus* or *ANN-Bus*.

FACP Data Bus Address *This field has no effect on programming and is used for informational purposes only.* When using the FACP ACS-bus protocol, address *01* must be enabled in the FACP programming. When using the ANN-Bus protocol, the FACP will automatically detect the audio system connection during annunciator auto-configuration. No ANN-Bus address selection is necessary at the FACP. Enter the NFC's address (1-8) here. If FACP control of the NFC is not selected, enter *0*.

24 Hour Resound As *enabled* (default), the 24 Hour Resound feature causes the piezo on the NFC to sound a reminder 'beep' for alarms and troubles after the panel has been silenced.

Canadian Configuration Selecting *enable* will configure the panel to comply with Canadian requirements. See Appendix C for more information.

Class A / Style Z Select *enable* if all circuits on the NFC will operate in Class A (Style Z) or *disabled* if all circuits will operate in Class B (Style Y).

Canadian Isolator Modules If audio isolator modules are required in the system, select *enabled*. Refer to "Audio Room Isolator Modules" on page 83 for more information.

AC Loss Delay The reporting of a loss of AC power using the AC Loss relay output can be delayed by programming the length of the desired delay. The factory default setting is 2 hours. Options are *0, 2, 6, 12,* or *23* hours.

Secondary Amplifier if an NFC-BDA-25/70V is installed, select whether it will be used as a *backup* amplifier or for *secondary* speaker circuits. If an NFC-BDA-25/70V is not installed, select *none*.

Primary Amp 70 VAC *This field has no effect on programming and is used for informational purposes only.* The system can be converted from 25V to 70V by installing the NFC-XRM-70V. If this transformer has been installed, be sure that SW5 on the main control board has been set to "70V" operation. Use this field to record the amplifier's settings.

Secondary Amp 70 VAC *This field has no effect on programming and is used for informational purposes only.* When the NFC-XRM-70V has been installed and a secondary amplified is required, model number NFC-BDA-70V must be used. Use this field to record which model has been installed in the system.

External Audio Input If there is a permanent connection to TB5 on the display board, select whether the external audio input will function as *Background Music* or *External Paging - Night Ring*. See Section 4.4.15 for more information.

IP Address The default IP address of 169.254.3.3 can be changed to another address with numbers from 0-255. Changing the IP address is suggested for a higher level of security on the system's programming. This number should be written down and stored in a safe location.

Identification Enter a label for this NFC system. Up to 80 character may be entered.

NAC Options

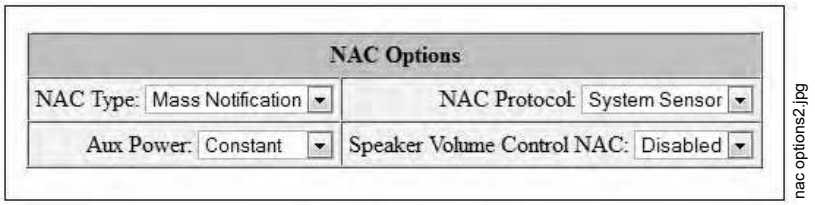


Figure 3.4 NAC Options

NAC Type The NAC circuit can be programmed to activate for specific applications. Select *Mass Notification* to turn on the NAC circuit only for a mass notification event, *Fire Evacuation* to turn on the NAC circuit only for a fire evacuation event, *Both* to turn on the NAC circuit for both mass notification and fire evacuation events, or *Follow Input* to have the NAC follow the input from an external source (connections to TB18). To use *Both,* the Unit Operation must be set to Combination. Refer to "Unit Operation" on page 53.

NAC Protocol The programmer can select the notification appliance coding or strobe synchronization by selecting the corresponding drop-down box. Select *System Sensor* for System Sensor synchronization, *Wheelock*, for Wheelock synchronization, *Gentex* for Gentex synchronization, or *Steady*, for a continuous output with no coding.

To ensure proper strobe and circuit operation, there is also a limit to the number of strobes that can be attached to each circuit. Following is a list of the strobes that have been tested with the NFC and the maximum number that can be connected to each NAC. Make sure that the NAC maximum current is not exceeded.

Strobe Manufacturer	Maximum Number of Strobes
System Sensor	31
Wheelock	34
Gentex	26

Table 3.1 Maximum Number of Strobes by Manufacturer

Aux Power Selects whether this power is *Constant* or *Resettable* use from TB17.

Speaker Volume Control NAC If the Cooper Wheelock SP-SVC module is installed on TB23 of the main control board, allowing manual volume setting for telephone paging and background music for a specific speaker or speaker zone, select *Enabled*.

Console Control

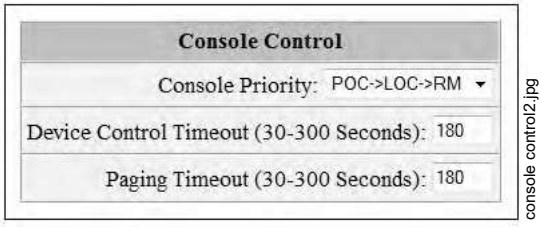


Figure 3.5 Console Control

Console Priority Priority can be assigned to the operator consoles so that the primary operator interface can always override the functions at the local operator consoles or remote microphones. Select *POC->LOC->RM* for console priority. Selecting *Equal* for priority allows users with access to the system on a a "first come, first served" basis.

Device Control Timeout Enter the maximum amount of time (*30-300* seconds) that one of the devices (Primary Operator Console, Local Operator Console, Remote Page Unit, or Remote Microphone) can remain in manual control of the NFC system.

Paging Timeout Enter the maximum amount of time (*30-300* seconds) that the microphone's PTT switch can be held.

3.2.3 Address Assignment

Remote Microphone / Operator Console Address Assignments

Figure 3.6 RM/Console Address Assignments

Any combination of up to eight (8) remote consoles (NFC-LOC, NFC-RPU, and NFC-RM) can be used in the system. Odd numbered addresses are not selectable. Addresses must be sequential, even numbers. Identify which consoles are installed at addresses 4, 6, 8, 10, 12, 14, 16, and 18 as either *Local Operator Console* or *Remote Microphone.* Note that the NFC-RPU and NFC-RM are both considered remote microphones. Refer to Section 2.14, "Addressing External Data Bus Devices" for information on dipswitch settings. Note that Address 2 is reserved for the POC.

Mic Gain is the microphone's transmitting "volume control". The gain number is automatically entered when a remote console is programmed.

Speaker Circuit Address Assignment

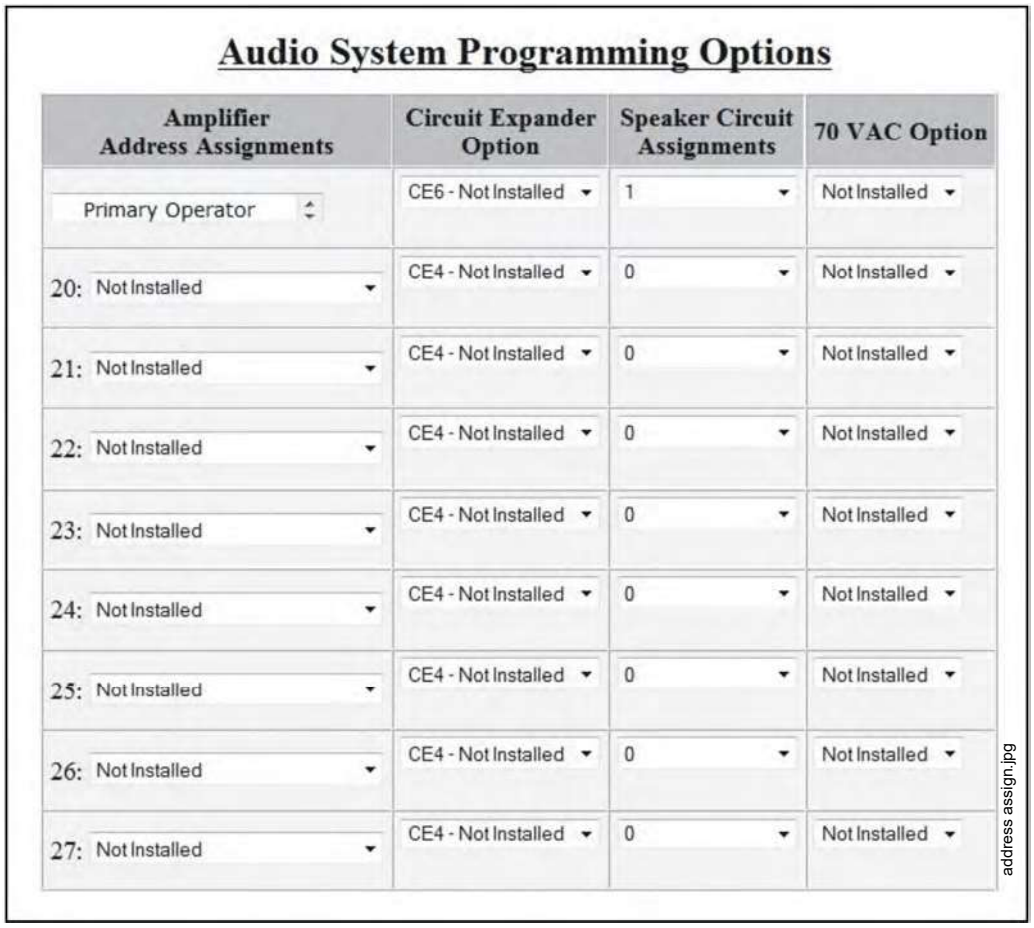


Figure 3.7 Remote Amplifier Address Assignments

Primary Operator Console - Circuit Expander If the NFC-CE6 has been installed on P1 of the main circuit board, select *CE6 - Installed* from the drop down box. The NFC-50/100 comes with one (1) integrated speaker circuit. Adding the CE6 gives the system three (3) more speaker circuits for a total option of four (4) from the drop-down box. If the optional amplifier (NFC-BDA-25/70V) has been installed and programmed as a *secondary* speaker circuit on the General / NAC Options page, then the total available speaker circuits allowed for the POC will be eight (8). Refer to application examples on pages 45–46.

Remote Amplifiers Identify which, if any, remote amplifiers are *Installed* on the system in addresses 20-27. The remote amplifiers must be installed sequentially. If, for example, remote amplifiers are installed on addresses 20 and 21, address 22 must be *Disabled* if address 23 is to be used. If no remote amplifiers are installed at a given address, select *Not Installed*.

Circuit Expander Option For any installed remote amplifier, select whether any circuit expanders (NFC-CE4) have been *Installed*.

Speaker Circuit Assignments Select how many speaker circuits will be used for each amplifier. Each amplifier offers four (4) speaker circuits standard. If the CE4 has been installed, eight (8) speaker circuits will be available. Note the the NFC allows a maximum of 24 speaker circuits in the system.

70VAC Option For every programmed 50W remote amplifier, select whether a 70V transformer has been *Installed* or *Not Installed*. 70V operation is not available on the 125W model.

3.2.4 Message Buttons

Message Buttons

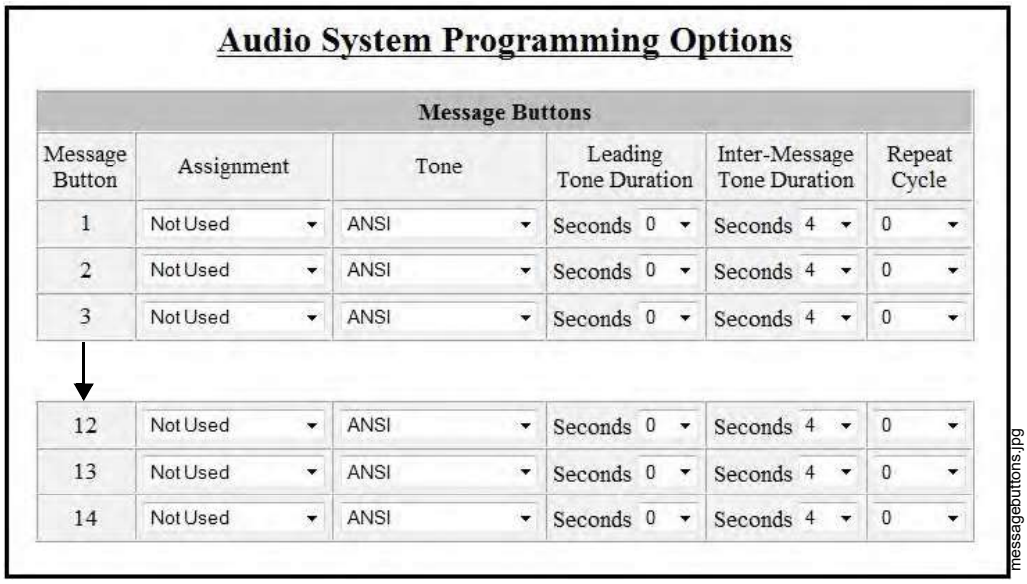


Figure 3.8 Message Buttons

Assignment Message buttons 1-14 can be used to broadcast prerecorded messages over the system. They must be designated as *Fire Evacuation* or *Mass Notification* in the Assignment field.

For combination fire and MNS applications, messages must be organized per the system priority setting. For example, if MNS has priority over fire, all MNS messages must be assigned/recorded to higher priority message buttons than the fire messages. If fire has priority, then all fire messages must be assigned/recorded to higher priority message buttons than the MNS messages. Message button 1 has highest priority.

Tone Prior to transmitting a message, the NFC can be programmed to produce a pre-announce and post-announce tone. In the Tone field, select the desired tone pattern: *ANSI*, *March Code*, *California*, *Steady*, *Alert Tone*, *Hi-Lo*, *ANSI Whoop*, *Continuous Whoop*, or *No Tone*.

Leading Tone Duration If a pre-announce tone is desired, select the length of time it will play before a message is broadcasted. Select *4*, *8*, *12*, *16*, *20*, *24*, or *28* seconds. In a pre-announce tone is not desired, select *0* seconds.

Inter-Message Tone Duration Select the length of time for the tone in between message broadcast. Select *4*, *8*, *12*, *16*, *20*, *24*, *28*, or *32* seconds from the drop-down menu.

Repeat Cycle Select the number of times the message will be repeated during an alarm. A message can be repeated *0*, *1*, *2*, *3*, *4*, *5*, 6, *7*, *8*, *9*, *10*, *11*, *12*, *13*, *14*, or an *Infinite* amount of times.

CMD Input Style

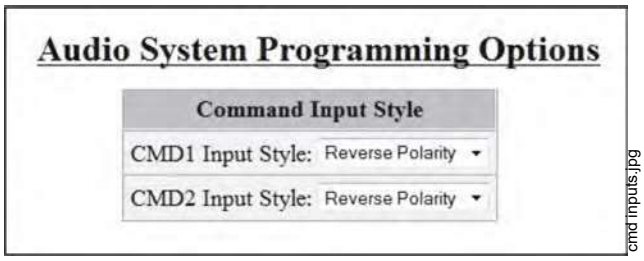
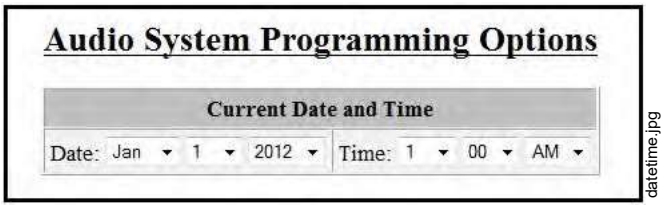


Figure 3.9 Tone Duration / CMD Input Types

CMD Input Style CMD1 and CMD2 Command Input circuits can be independently programmed to be triggered by a *Contact Closure* or by the *Reverse Polarity* of a Notification Appliance Circuit. When the system is programmed for Mass Notification, CMD1 and CMD2 will be programmed for Reverse Polarity only. See Section 2.5.1 for more information.

3.2.5 Date / Time



Set the local time and date for the panel using the drop-down boxes. Pressing the *Refresh* button automatically fills these fields with current information.

3.2.6 Send to Panel

After completing the desired programming on each page, click the *Send to Panel* button to save changes to the panel. Selecting the *Load Defaults* button will apply default programming to the given page. To then save the applied default settings to the panel, press the *Send to Panel* button. The *Main Menu* button will disregard any programming selections and jump back to the main menu screen. Changes made to panel programming will not be applied until *complete* log out of user programming, with a green indicator at the login screen. After a successful log out from the programming utility, the panel will reboot and the changes will become effective.

3.3 Main Menu - Utilities

Services for recording messages and software file transfers via USB are located in the Utilities menu. These program utilities require a valid password for system login. Refer to Section 3.2.1.

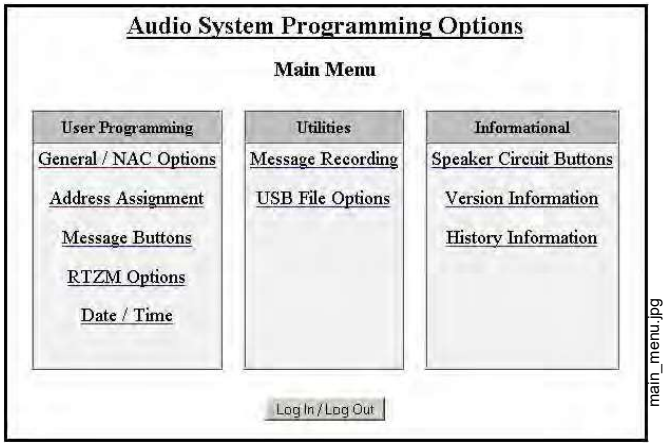


Figure 3.10 Main Menu

3.3.1 Message Recording

The NFC allows up to 14 recorded messages. These custom messages can be recorded using the local microphone, external audio input, or via USB port using a third party audio editing program. Clicking the *Enable Recording* will put the system in message record mode. Refer to Section 3.5. When the button has been clicked, the background screen will turn dark red, giving a visual cue that the system is ready to record. After all messages have been successfully recorded, message recording must then be disabled. Simply click the *Disable Recording* button.

3.3.2 USB File Options

The NFC system allows software files to be saved, shared, and transferred via the computer's USB port. The program file must be named CONFIG.TXT. ***When saving the program file to USB, it is vital that no other files with the same name exist on the drive. The existing file will be completely overwritten.*** Only files named CONFIG.TXT can be recalled from a USB drive. The NFC system will verify that the file is compatible.

After a *Save* or *Recall* has been performed, the screen will show "Processing USB Request". Once this is complete, the screen will show either a success message in green or a failure message in red. If a failure message appears, correct the issue and try again.

3.4 Main Menu - Informational

From the main screen, programmed information for the 24 possible speaker circuits can be viewed without accidentally making changes. Viewing this information does *not* require login to the system.

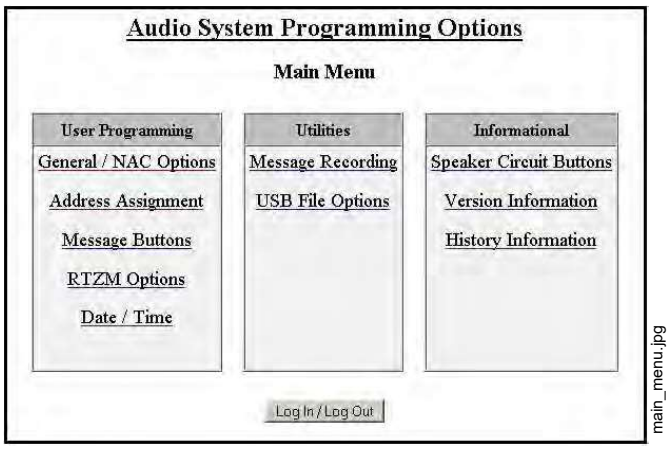


Figure 3.11 Main Menu

3.4.1 Informational

Speaker Circuit Buttons

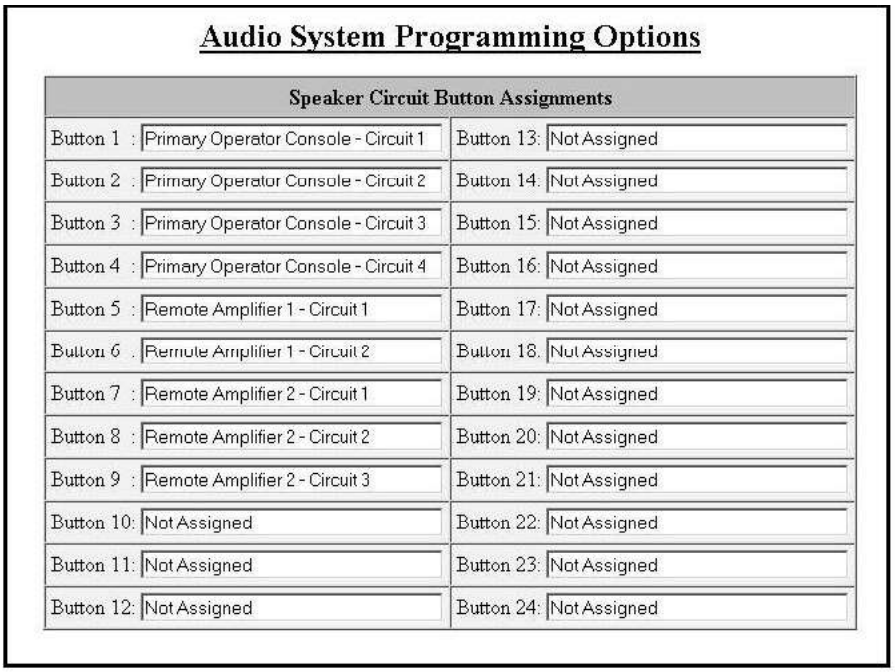
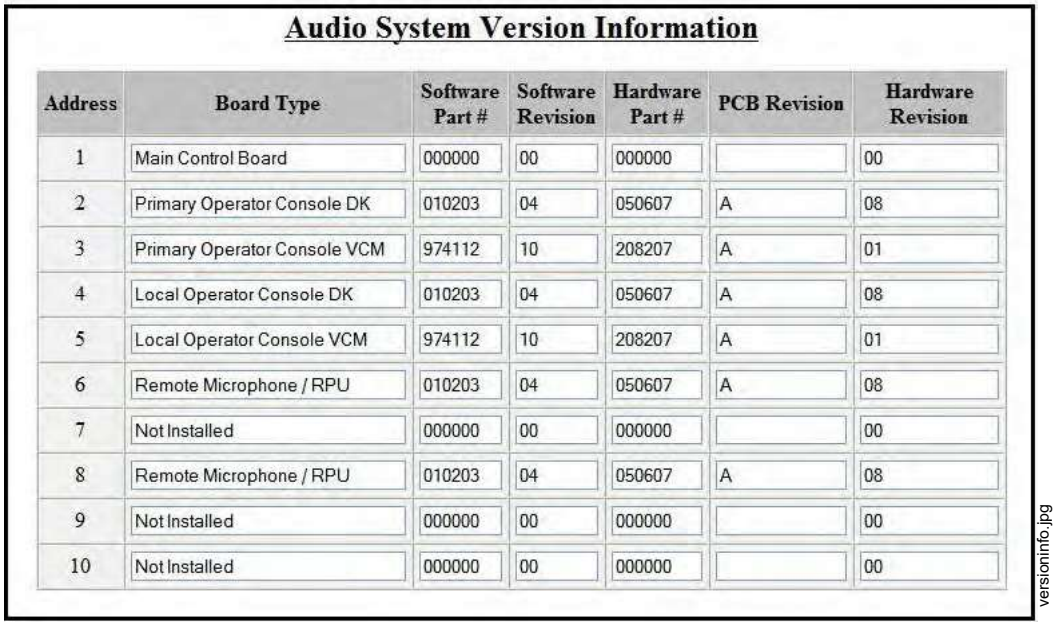


Figure 3.12 Speaker Circuit Button Assignments

The *Speaker Circuit Button Assignment* page reflects what has been programmed into the *Address Assignment* page. (Refer to "Speaker Circuit Address Assignment" on page 55.) Based on the example above, the NFC system's primary operator console has four (4) programmed speaker circuits, a remote amplifier at address 20 has two (2) speaker circuits, and a second remote amplifier at address 21 has three (3) speaker circuits. There is a maximum of 24 speaker circuits allowed in the system.

Version Information



Address	Board Type	Software Part #	Software Revision	Hardware Part #	PCB Revision	Hardware Revision
1	Main Control Board	000000	00	000000		00
2	Primary Operator Console DK	010203	04	050607	A	08
3	Primary Operator Console VCM	974112	10	208207	A	01
4	Local Operator Console DK	010203	04	050607	A	08
5	Local Operator Console VCM	974112	10	208207	A	01
6	Remote Microphone / RPU	010203	04	050607	A	08
7	Not Installed	000000	00	000000		00
8	Remote Microphone / RPU	010203	04	050607	A	08
9	Not Installed	000000	00	000000		00
10	Not Installed	000000	00	000000		00

Figure 3.13 Version Information

The *Version Information* screen lists the devices programmed to the NFC system by address. All software and hardware revision information can be viewed here. This screen is updated every time a device is added or changed.

History Information

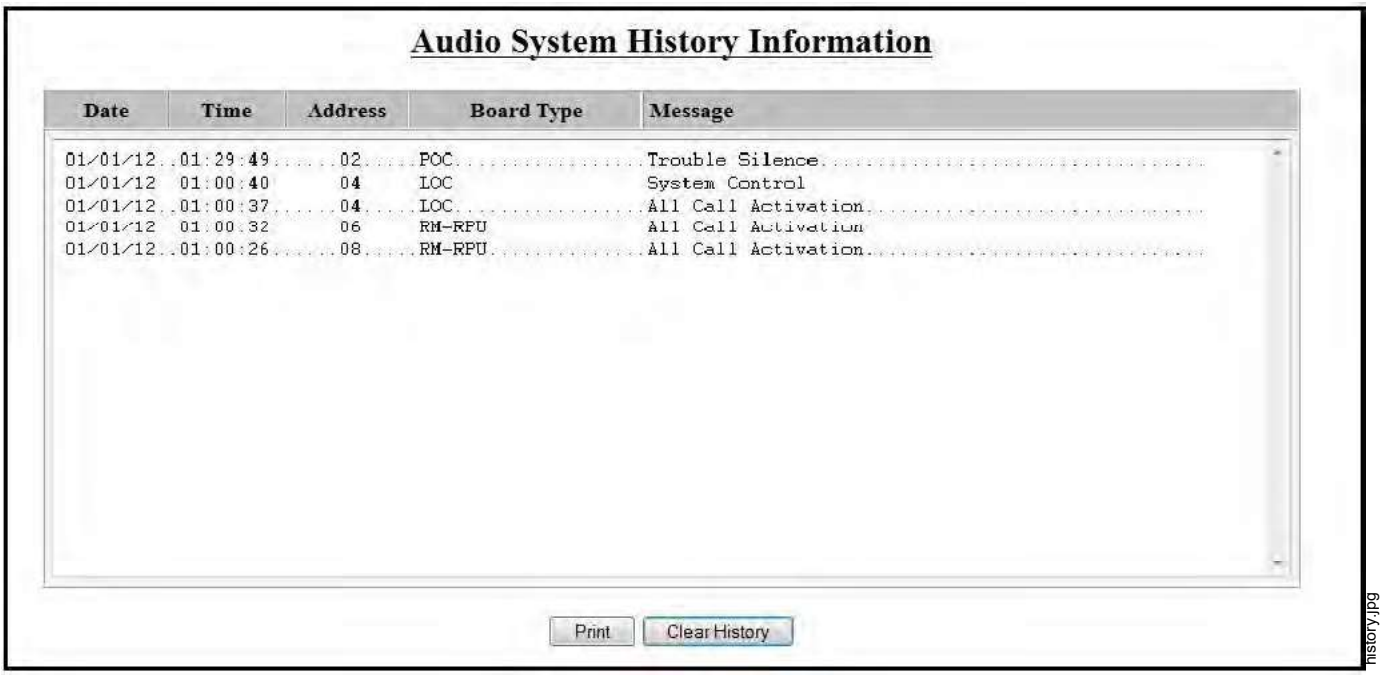


Figure 3.14 History Information

The History Information screen shows the system's event history. A maximum of 100 events can be viewed, starting with the most recent. This information can be erased by clicking the *Clear History* button. Clicking the *Print* button will activate the print dialog box. Print options are selected in this box. Note that the Date and Time in the heading of the print screen correspond to those of the panel and not the computer. The Unit ID reflects the name of the panel assigned in the General Options page. Refer to "General Options" on page 53.

3.5 Recording Custom Messages

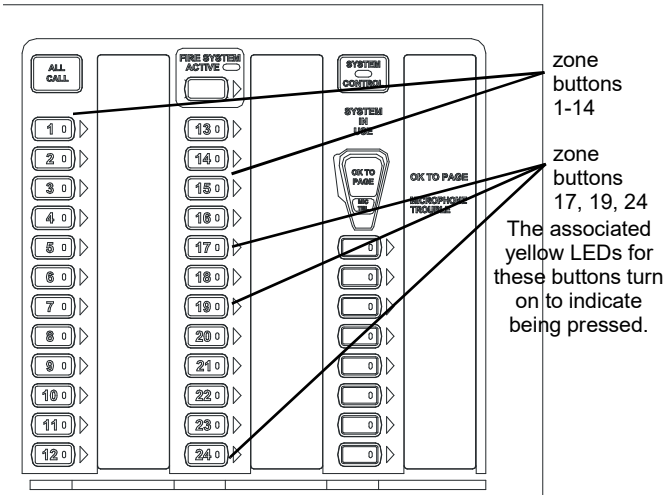
The system has 14 recordable message slots. Messages can be recorded from the microphone, external audio input, or uploaded via USB using the Voice Loader (VL) software. Each message can be up to one minute in duration.

3.5.1 Message Record Mode

Enable *Recording Mode* in the system's message recording programming section. Refer to Section 3.3.1 on page 58.

While in Local Record mode, zone buttons 1-14 are used to reference message slots 1-14. The associated green zone LED will indicate whether a message is currently programmed in the corresponding slot. The associated yellow zone LED will indicate a recording in progress. The zone buttons 1-14 will be used to play back a recorded message or to reference a message slot that needs to be recorded or erased.

Zone buttons 17, 19, and 24 are used to control the recording/erasing process.



Button	Function
Zone Button 17	Select message slot
Zone Button 19	Start and stop recording from External Audio Input terminals
Zone Button 24	Erase selected message slot

When in Local Record mode, the display board's LEDs will function as follows:

LED	Active LED Status	Meaning
Zone Button 1-14 Green LED	On	Message is currently programmed in this slot.
Zone Button 1-14 Yellow LED	On	LED will turn on until recording is complete or the 1 minute slot is full.
Zone Button 1-14 Green LEDs	Off	Slot is available to record.

3.5.2 External Audio Input

The external audio input allows customized, pre-recorded messages to be loaded into a message slot.

1. Wire a speaker cable with 1/8" mini plug (Radio Shack p/n 42-2454) to EXT Audio GND and IN terminals on the display board.
2. Plug the mini plug into the Line Out/Headphone Jack on a PC or laptop. See Figure 3.15.

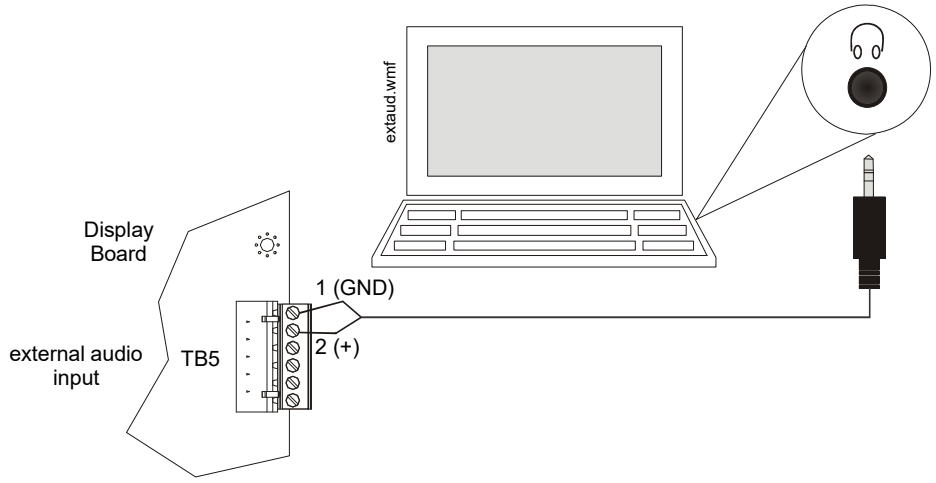


Figure 3.15 External Audio Connection for Recording

3. Enter programming mode at the main control board.
4. Enable *Recording Mode* in the system's message recording programming section. Refer to Section 3.5.1 on page 61.

NOTE: The display board will light green LEDs for message slots that are occupied. If a message is already stored in that message slot, it must first be erased prior to recording a new message. See Section 3.5.4.

5. Press zone button 17 to record. Then press zone button 1-14 that will be the designated message slot. The yellow zone LED will blink.
6. Simultaneously, press zone button 19 and start the external audio channel. The yellow zone LED will be on steady.
7. When the audio file from the PC is finished playing, press zone button 19 again. The green zone LED will light and the yellow zone LED will turn off.
8. Press the zone button that was previously selected in step 5 to play back your recorded message.
9. Enter programming mode again and deselect *Message Record Mode.*

Recording with External Audio - Example

To record into message slot 2 via the external audio input:

Enter the Local Recording mode via the the online programming utility. Select the *Message Record Mode* option. The display board will light green zone 1-14 LEDs for all message slots that are occupied.

If a message already exists in message slot 2, it must first be erased. Press zone button 24, then zone button 2. (See Section 3.5.4.) When the message has been erased, the green zone LED will turn off.

To record the message, press zone button 17, then zone button 2. The yellow zone LED will blink.

Press zone button 19 and PLAY on the PC simultaneously to start recording. When the PC message is done, press zone button 19 again to stop recording. The yellow zone LED 2 will stay lit until completed. The green LED for zone button 2 will light after the recording is complete.

Enter programming mode again and deselect *Message Record Mode.*

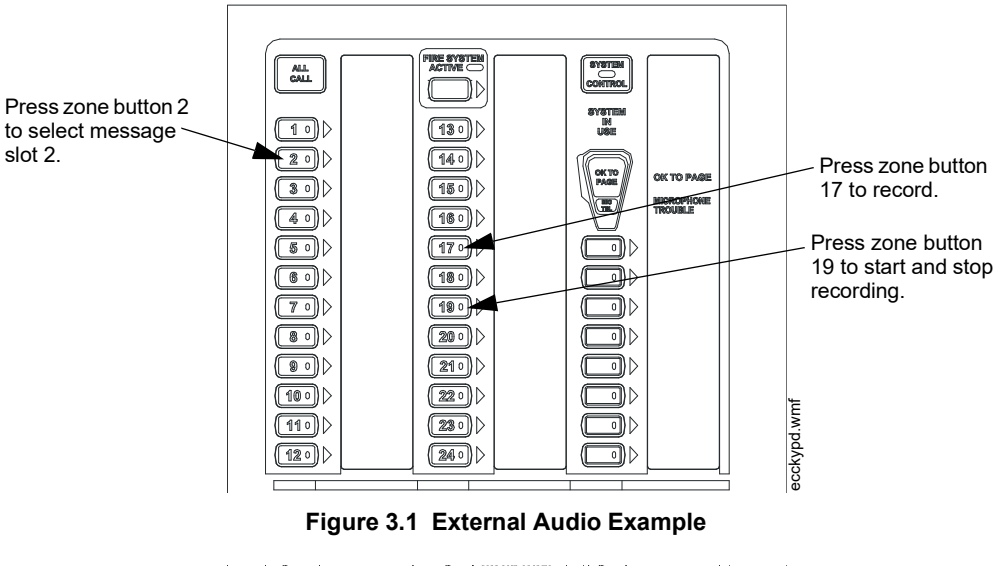


Figure 3.1 External Audio Example

3.5.3 Microphone

Messages can be recorded into the system using the onboard microphone.

1. Enter programming mode at the main control board.
2. Enable *Recording Mode* in the system's message recording programming section. Refer to Section 3.5.1 on page 61.

NOTE: The display board will light green zone LEDs for message slots that are occupied. If a message is already stored in that message slot, it must first be erased. See Section 3.5.4.

3. Press zone button 17 to record. Then press zone button 1-14 that will be the designated message slot. The yellow zone LED will light.
4. Press the push-to-talk (PTT) button on the microphone and speak the message.
5. Release the PTT button on the microphone to save the message. The green LED for this message slot will light.
6. Press the zone button selected in step 3 to play back the recorded message.
7. If the recorded message is not satisfactory, it can be erased (see Section 3.5.4) and re-recorded by following these steps.
8. Enter programming mode again and deselect *Message Record Mode.*

Recording with Microphone - Example

To record into message slot 5 via the microphone:

Enter the Local Recording mode via the online programming utility. Select the *Message Record Mode* option. The display board will light green zone 1-14 LEDs for all message slots that are occupied.

If a message already exists in message slot 5, it must first be erased. Press zone button 24, then zone button 5. (See Section 3.5.4) When the message has been erased, the green zone LED will turn off.

To record the message, press zone button 17, then zone button 5. The yellow zone LED will blink.

Press the PTT button on the microphone and speak the message. Release the PTT button to save the message. The yellow zone 5 LED will stay lit while recording. The green LED for zone button 5 will light after the recording is complete.

Enter programming mode again and deselect *Message Record Mode.*

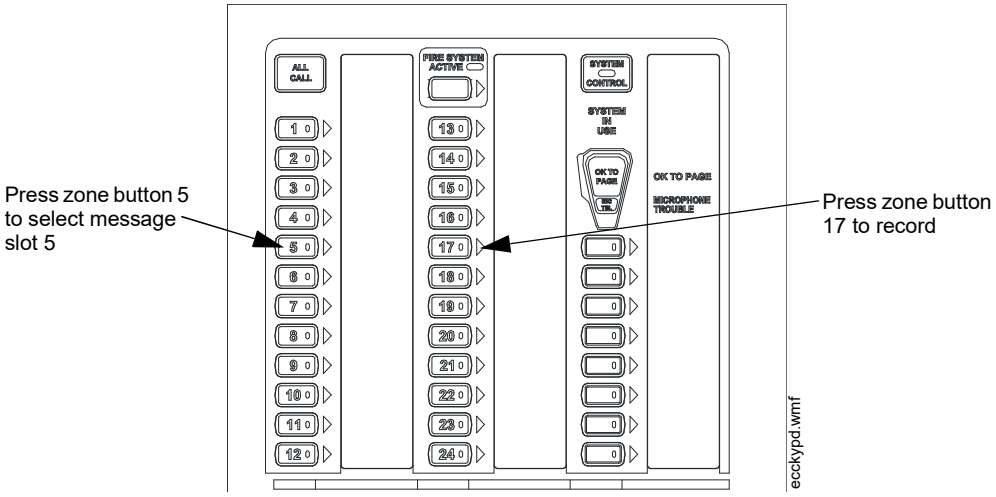


Figure 3.1 Microphone Recording Example

3.5.4 Erasing a User Message

Messages stored in message slots 1-14 can be erased.

1. Enter programming mode at the main control board.
2. Enable *Recording Mode* in the system's message recording programming section. Refer to Section 3.5.1 on page 61. The display board will then light the green zone 1-14 LEDs for all message slots that contain messages.
3. Press zone button 24 on the display board, then zone button 1-14 for the slot to be erased. The associated green zone LED will stay lit until complete.
4. Enter programming mode and deselect *Message Record Mode*.

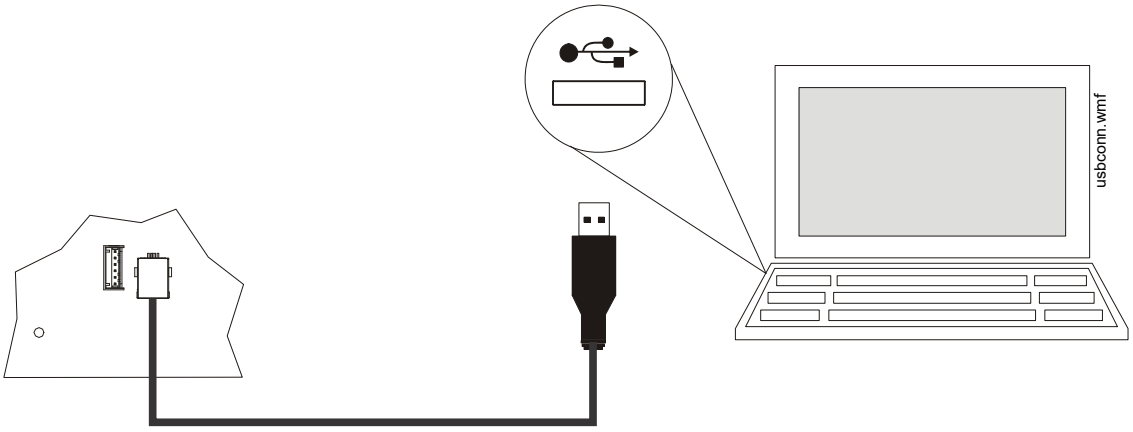
3.5.5 Voice Loader Software

The Voice Loader (VL) software is used to download recorded messages (in .ske format stored on a computer's hard drive) to the various message slots of the NFC-50/100. Messages can be uploaded, stored, and used again in similar installations.

Make sure the system is in Normal Standby mode.

To write a message to the panel follow steps 1 through 5. To read a message from the panel follow steps 1 through 4. To move a message from one message slot location to another, follow the combination of steps.

1. Connect the PC to the panel using a standard Male A to Male B USB cable.



2. Run the VL software.
3. Assure that the USB icon in the VL application window is *green*. If the icon is *black* then the VL software has not established communication with the panel. Recheck the USB cable connection. If the USB icon turns *red* while using the VL, then the VL has determined that the USB connection has become “disconnected”.

Writing a Message to the Panel

1. From the “Source/Destination Message” drop-down box select any one of the message slot locations “Message 01" through “Message 14".
2. From the “File Select” browse button search for and select the desired message (in .ske format) stored on the PC to be written to the panel.
3. Select “Write File To Panel” in the application window.
4. Answer “Yes” in the “Confirm Write” box that appears.
5. Repeat steps 1 through 4 for any addition messages to be written, or close VL software if finished.

Reading a Message from the Panel

1. From the “Source/Destination Message” drop-down box select any one of the message slot locations “Message 01" through “Message 14".
2. In the “File Select” box specify the directory and filename (type in or use browse button) in which to store the desired message from the panel to the PC. Filenames should have a .ske extension. Provide a unique filename as needed to avoid overwriting existing message files.
3. Select “Read File From Panel” in the application window. *The VL will alert the user if there is no message stored (blank) in the selected message slot location*.
4. Repeat steps 1 through 3 for any addition messages to be read, or close VL software if finished.

Moving a Message to a Different Slot

To move a message from one message slot location to another - first read the desired message from its current message location into the PC, and then write this message file from the PC to the new message slot location. Follow steps 1 through 3 in , "Reading a Message from the Panel" above to read the message and steps 1 through 4 in , "Writing a Message to the Panel" to write the message.

3.6 Programmed Activation by FACP

The table below defines the capabilities for the Notifier FACPs that can automatically trigger the audio system using the audio system’s “FACP Data Bus”. The FACP annunciator bus serves as “FACP Data Bus” to the audio system. Note that automatic triggering capability is dependent upon the FACP model, FACP version, and which annunciator bus protocol is used.

When using the FACP ACS-bus protocol, address 01 must be enabled in the FACP programming. (Refer to the FACP user manual.) When using the ANN-Bus protocol, the FACP will automatically detect the audio system connection during annunciator auto-configuration. No ANN-Bus address selection is necessary at the FACP.

Once the FACP can communicate with the audio system, FACP zones Z33 through Z56 become dedicated as output zones for speaker circuits 1 through 24 respectively. FACP zone Z32 is dedicated to turn on all speaker circuits. FACP programming allows association between any addressable SLC input device (module, detectors) with any of the speaker circuits. In addition, 1 of 14 messages can be generated over the selected speaker circuit.

Any fault in the audio system is sent to the FACP via the FACP Data Bus and is indicated as an annunciator fault on the FACP display.

FACP	Individual Audio Zone Control via FACP Data Bus		Individual Control of All Messages			Simultaneous Activation of All Audio Zones
	ACS	ANN	ACS	ANN	CMD	
FireWarden-100X	N/A	Yes	N/A	Yes	Yes	Yes
FireWarden-100-2 software version 6 or higher (hardware revision 3)	Yes	Yes	Yes	Yes	Yes	Yes
FireWarden-100-2 software version 4 (hardware revision 2)	Yes	No	Yes (Limited)[1]	No	Yes	Yes
FireWarden-100-2 software version 2 or 3 (hardware revsion 1)	Yes	No	Yes (Limited)[1]	No	Yes	Yes
NFS-320 or NFS2-640 version 2 or higher	Yes	N/A	Yes	N/A	Yes	Yes

Table 3.2 FACP Message/Zone Control Capability

1 Limited to five (5) messages- fire only.

Column Descriptions for Table 3.2:

- *FACP* - the Fire Alarm Control Panel being used
- *Individual Audio Zone Control via FACP Data Bus* - ACS or ANN-BUS compatible FACPs can control each audio zone on the NFC-50/100 (refer to Section 3.6.1 and Section 3.6.2.)
- *Individual Control of All Messages* - control of all voice messages in the NFC-50/100 can be accomplished through the FACP Data Bus or by triggering the CMD inputs (refer to Section 3.6.1 and Section 3.6.2.)
- *Simultaneous Activation of All Audio Zones* - this is a single trip mechanism via a zone on the FACP Data Bus or CMD input trigger that activates all the audio zones at the same time (refer to Section 3.6.1 and Section 3.6.2.)

3.6.1 FireWarden-100X and FireWarden-100-2

Important Notes:

1. For proper operation, a message must be assigned to each FACP zone that is programmed to activate an audio speaker circuit.
2. The message repeat setting on the NFC-50/100 should be set to infinite. This will ensure that lower priority activated zones will continue to broadcast the voice message.
3. CMD inputs are not used for activation when the FACP Data Bus is being used, however, 4.7KΩ ELRs must still be connected across CMD3 - CMD8.
4. When using the ACS communication protocol, a monitor module must be wired to TB1 of the NFC-50/100. Type Code, “MNS EVENT” must be assigned to the monitor module for mass notification event monitoring. See Figure 2.22 for wiring information.

FACP Programming

The FireWarden-100X and FireWarden-100-2 FACPs must be programmed to operate with the NFC-50/100. The following table summarizes the steps involved in programming the FACPs.

1. Enable the ACS or ANN-BUS annunciator at FACP	refer to FACP manual Option Module Programming
2. Assign zone(s) to each SLC input device at FACP	refer to FACP manual Point Programming
3. Program message to be generated over each speaker circuit at FACP	refer to Message Assignment in following section
4. Activate individual SLC devices to ensure proper programming	compare to desired programming

Table 3.3 FACP Programming Steps

Note 1: Zone 32 is assigned to all speaker circuits. If an addressable device programmed to Zone 32 is activated, the message programmed to Zone 32 will be generated to **all** speaker circuits. The exception is when one or more devices programmed to Zones 33 through 40 is also activated. If the newly activated zone is programmed to a message with a higher priority then Zone 32, the higher priority message will be generated to all circuits.

Note 2: Messages have a priority scheme with Message 1 having the highest priority and Message 14 having the lowest priority. For example, If an addressable device activates a speaker circuit programmed to generate Message 14, that message will be generated over the selected speaker zone. If later, another device activates a speaker circuit programmed to generate Message 3, Message 3 has a higher priority then Message 5 and will therefore be generated over both activated speaker zones. The highest priority message will always be generated over all activated speaker circuits.

Note 3: It is important to note that Message 1 is assigned to Zone 00 (General Alarm) as a default. A message, however, will not be generated over the speaker circuits unless one of the following programming steps is completed:

- For General Alarm applications, all input points must have an audio zone assigned to it:
  - ✓ Z32 to activate all audio zones

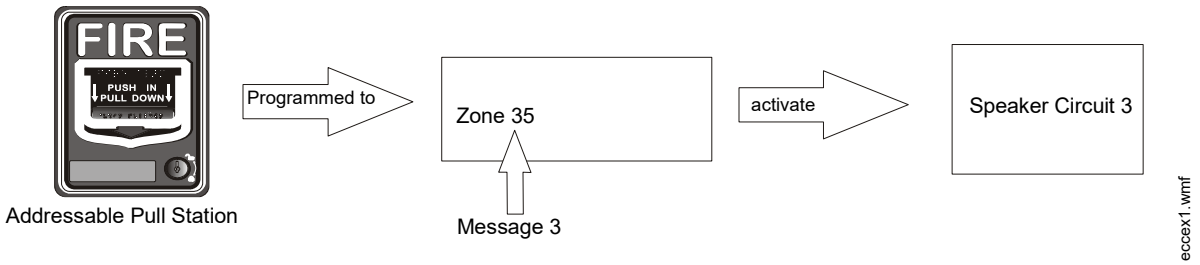
    OR
  - ✓ Z33 to Z56 for specific audio zone control

- For non-General Alarm applications where input devices and/or messages are mapped to specific zones, Message 1 must be removed from Zone 00 programming.

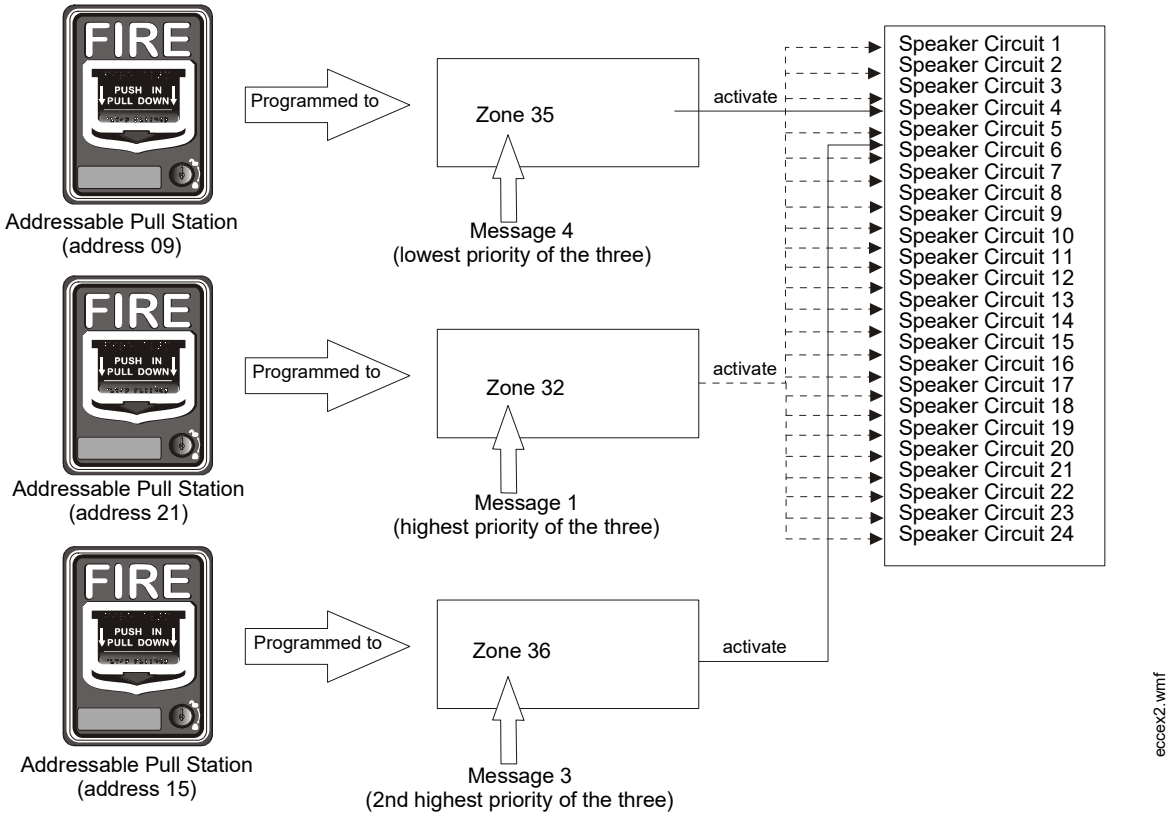
FACP Message Assignment - Speaker Specific

The NFC-50/100 has the capability of generating up to fourteen different messages. Any one of the fourteen messages can be programmed to each of the speaker circuit zones Z32 through Z56.

Example 1: If an addressable device programmed to Zone 35 is activated and no other devices are active, the message programmed for Zone 35 will be generated over speaker circuit 3.



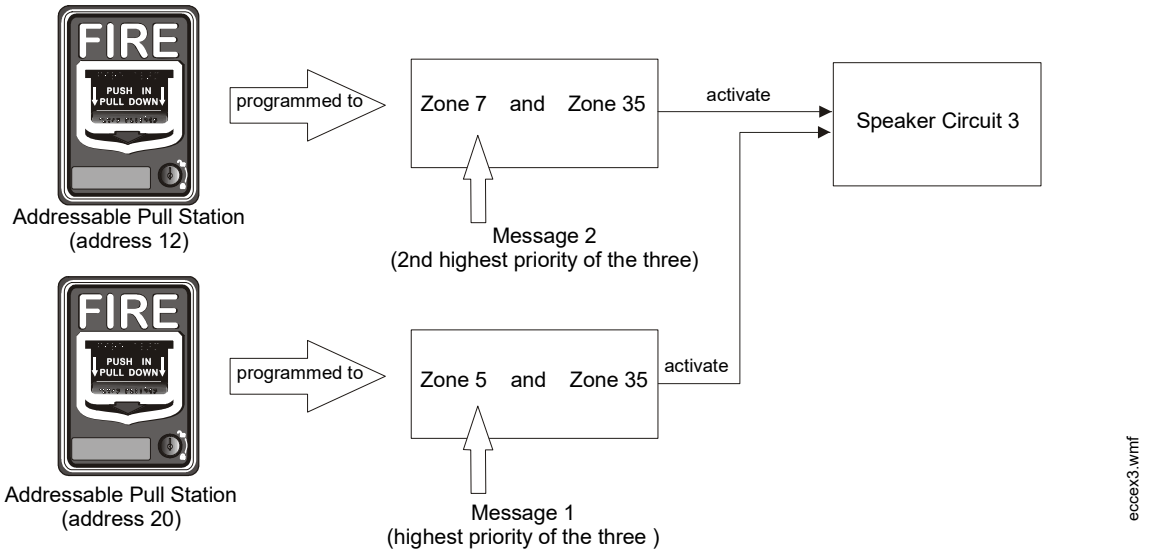
Example 2: If an addressable device (address 09 in example below) programmed to Zone 35 is activated and a second addressable device (address 15 in example below) programmed to Zone 36 is activated, the highest priority message programmed to either Zone 35 or Zone 36 (Message 3 in example below) will be generated over speaker circuits 3 and 4. If an addressable device (address 21 in example below) programmed to Zone 32 is then activated, the highest priority message programmed to Zone 32, 35, or 36 (Message 1 in example below) will be generated over all speaker circuits.



FACP Message Assignment - Zone Specific

The FACP can be programmed to allow a specific addressable input device to generate one of fourteen messages over any speaker circuit. Any one of the fourteen messages can be programmed to each of the available zones (Zone 1 through Zone 99). In the following example, assume that Zone 5 is programmed to Message 1, Zone 7 is programmed to Message 2, and Zone 35 is not programmed to a message.

Example 3: If two devices are being programmed and the *first* addressable input device is programmed to Zone 7 and Zone 35, and a *second* addressable input device is programmed to Zone 5 and Zone 35, activation of the first addressable input device (address 12 in the example below) will cause Message 2 to be generated over speaker circuit 3. If the second addressable device (address 20 in the example below) is also activated, Message 1 will now be transmitted over speaker circuit 3 since Message 1 has a higher priority then Message 2.



FACP Programming Menus

To Program one of fourteen messages to a speaker zone, press the *ENTER* key at the FACP. The following screen will be displayed:

```
1=READ STATUS
2=PROGRAMMING
3=
4=
```

Access Programming Mode by pressing the *2* key. The following screen will be displayed:

```
PROGRAMMING
ENTER PASSWORD
*****
```

Entering the ***Master*** level password (default *00000*) will cause the following screen to appear:

```
   PROGRAMMING
1=AUTOPROGRAM
2=POINT PROGRAM
3=ZONE SETUP
```

Select the *Zone Setup* option by pressing *3*. The following screens will be displayed.

```
   ZONE SETUP
1=ENABLE
2=DISABLE
3=ZONE 97 98 99
```

Zone Setup Screen #1

```
   ZONE SETUP
1=ZONES INSTALLED
2=ZONES ENABLED
3=ZONES DISABLED
```

Zone Setup Screen #2

```
   ZONE SETUP
1=ZONE TYPES
2=ZONES AVAILABLE
3=ZONE MESSAGE
```

Zone Setup Screen #3

Pressing *3* while viewing Zone Setup Screen #3 will cause the following screen to be displayed:

```
   ZONE MESSAGE
1=Z00 NO MESSAGE
2=Z01 NO MESSAGE
3=Z02 NO MESSAGE
```

Press the down arrow key until the following screen is displayed.

The default setting is *No Message* for each speaker circuit. As shown in the screen above, Z32 is the zone dedicated for all speaker circuits (all call). To change from No Message, press *3* to display the following screens:

Select the message (Message 1 through Message 14) by pressing the number corresponding to the desired message. After the selection is made, the display will return to the screen displaying Z32 which will have changed from No Message to the selected message.

Repeat the procedure outlined above for each speaker zone (Z32 through Z56) and then exit Programming by pressing the Escape (ESC) key to save the programming changes. Test the system to ensure proper operation.

3.6.2 NFS2-640 and NFS-320

Important Notes:

1. For proper operation, a message must be assigned to each FACP zone that is programmed to activate an audio speaker circuit.
2. The message repeat setting on the NFC-50/100 should be set to infinite. This will ensure that lower priority activated zones will continue to broadcast the voice message.
3. The NFS2-640 or NFS-320 communicates with the NFC-50/100 over the ACS annunciator terminals. Annunciator Group M must be selected for annunciator address number 1 in FACP programming using VeriFire® Tools.

FACP Programming

The NFS2-640 or NFS-320 must be programmed to operate with the NFC-50/100. The following table summarizes the steps involved in programming the FACP.

1.	Enable the ACS annunciator at FACP or in VeriFire® Tools	refer to FACP Programming Manual, Annunciator Options section
2.	Assign ACS points using VeriFire® Tools	refer to FACP Programming Manual, Annunciator Options section
3.	Activate individual devices to ensure proper programming	compare to desired programming

Table 3.4 FACP Programming Steps

ACS Annunciator

The NFC-50/100 communicates with the FACP via the ACS link. Enable the ACS Annunciator as described in the NFS2-640 or NFS-320 manual. The ACS programming options can be accessed by entering Programming Mode and selecting option *7=SYS* from the list of programming options. This can also be accomplished using VeriFire Tools.

A monitor module must be wired to TB1 of the NFC-50/100 for ACS protocol. Type Code, “ECS/MN SUPT” must be assigned to the monitor module for mass notification event monitoring. See Figure 2.22 for wiring information.

VeriFire Tools Programming

Map ACS Address 1 to M. Assign desired panel points (SLC devices, zones, logic zone, releasing zones, etc) to ACS Points in User Map 1.

FireVoice Speaker Circuit/Message Assignment	Panel ACS Point
	1 - 9 (Do Not Use)
NFC Message 0	No Message (Message Off)
NFC Message 1	11
NFC Message 2	12
NFC Message 3	13
NFC Message 4	14
NFC Message 5	15
NFC Message 6	16
NFC Message 7	17
NFC Message 8	18
NFC Message 9	19
NFC Message 10	20
NFC Message 11	21
NFC Message 12	22
NFC Message 13	23
NFC Message 14	24
	25 - 39 (Do Not Use)
All Speaker Circuits - All-Call (1-24)	40
Speaker Circuit 1 (on NFC)	41
• • •	• • •
Speaker Circuit 24 (on NFC)	64

Table 3.5 Speaker Circuit and Message Assignments

ACS Point 40 is assigned to all speaker circuits. If an addressable device programmed to ACS Point 40 is activated, the message will be generated to **all** speaker circuits. If the newly activated point is programmed to activate a message with a higher priority, the higher priority message will be generated to all circuits.

Panel Programming

If VeriFire Tools is not used and Group M is programmed at the panel, Zone 00 (general alarm) will be mapped to A1p11 and A1p40. A general alarm will play message 1 and activate an all-call on the FirstCommand. VeriFire Tools must be used for speaker and circuit and message control.

IMPORTANT! *Messages have a priority scheme with Message 1 having the highest priority and Message 14 having the lowest priority. The highest priority message will always be generated over all activated speaker circuits.*

Section 4: Operating Instructions

4.1 Main Control Panel Keypad Labels

The NFC-50/100 is shipped with slide-in labels installed in the keypad as illustrated in the following figure. Blank labels are provided to allow the user to customize the zone and message description. Remove the center piece to access the label slots. Using a small, flat screwdriver, press and release the small plastic latch located on the left side of the center piece. The top row of labels can be easily removed by sliding them down through the slots in the middle of the keypad and installed by sliding them up. The bottom row of labels can be removed by sliding them up through the slots in the middle of they keypad and installed by sliding them down into position.

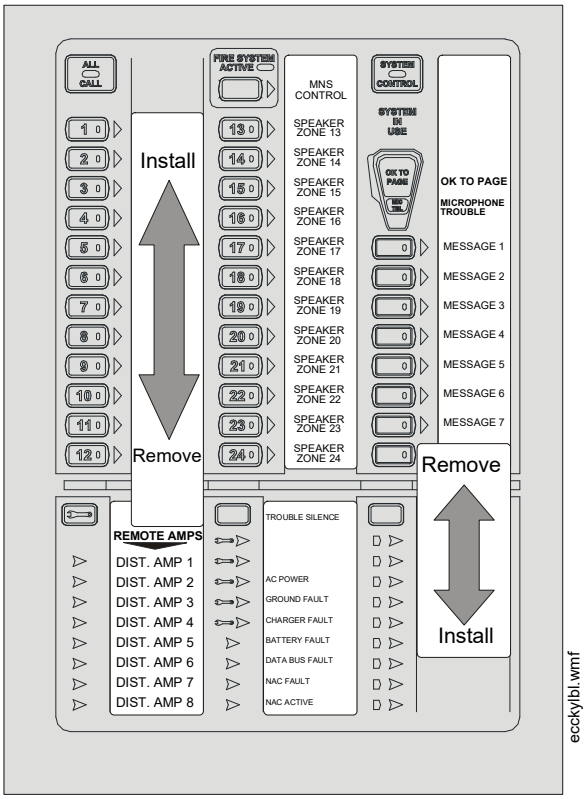


Figure 4.1 Keypad Labels

4.2 NFC-50/100 Switch Functions

The NFC-50/100 display consists of 38 tactile push-button keys. Pressing one or more of the keys while the panel is not in alarm will select the corresponding circuit for paging or to generate a manually activated evacuation or drill signal. If the panel is in alarm, pressing a key corresponding to an activated speaker circuit will turn off the circuit and turn on the Trouble LED.

All Call

Pressing this button activates all speaker circuits (that were not manually deactivated) for broadcast. ALL CALL paging from the main console's microphone will override paging/manual activation operations initiated from the other consoles (NFC-LOC, NFC-RPU, NFC-RM) or from a FACP (if programmed for priority to do so). If all consoles in the system are programmed for equal priority then the ALL CALL will only occur when the system is not already in use (“System in Use” LED is not on, remote console active LED is not on). Refer to the SYSTEM CONTROL button description. When the operator completes the page, any previously interrupted emergency broadcast will resume. Previously initiated emergency broadcast will also resume after the push-to-talk (PTT) switch is held for more than 3 minutes (timer is programmable).

MNS Control

This button is only used when the system is configured for combination fire/mass notification operation or mass notification only operation.

For mass notification only operation, pressing this button will activate the “MNS active” relay and the onboard NAC. A second press will de-activate the “MNS active” relay, turn main control board NAC off, and cancel all broadcasting.

For combination systems (fire and mass notification) where mass notification has a higher priority through user programming, pressing this button will result in the shutdown of audible FACP NACs and audio system speakers if they were active for fire. Pressing the button again causes the FACP to re-activate audible FACP NACs and audio system speakers if they were previously active for fire.

System Control

This button is used to manually gain control of the audio system in preparation for an ALL CALL, message activation, or general page. The main console will have system priority based upon user programming. If the main console has higher priority than other system consoles (NFC-LOC, NFC-RPU, NFC-RM) then the green LED will turn on steady to confirm control. If no other console is in control then pressing this button is not necessary to gain system control. A second press is required after paging to relinquish control of the system.

Speaker Select 1-24

These buttons are used to manually activate or deactivate speaker zones (circuits).

Message Select 1-14

These buttons are used to manually activate or deactivate stored messages. If the system has been programmed for greater than 8 messages then button 8 (the bottom button) becomes a "shift" button. To activate messages 8 through 14, the user must press the "shift" button followed by a message button physically above it. Messages are in priority order where message 1 (the top button) has highest priority. Pressing a higher priority message button after pressing a lower priority message button will result in a message override.

For combination fire and MNS applications, messages must be organized per the system priority setting. For example, if MNS has priority over fire, all MNS messages must be assigned/recorded to higher priority message buttons than the fire messages. If fire has priority, then all fire messages must be assigned/recorded to higher priority message buttons than the MNS messages.

Diagnostic Select

This button is used to examine specific trouble conditions for the remote amplifiers (distributed audio amplifiers). The button is used to select or "scroll" to a specific remote amplifier. The fault LEDs in the lower center of the display with "wrench" graphics will represent the amplifier selected. When no amplifier is selected, those fault LEDs represent the main console status.

Trouble Silence

This button is used to manually silence the local trouble sounder.

Console Lamp Test

This button is used to test the console LEDs and local sounder. When pressed, all LEDs temporarily light and the local sounder is turned on temporarily.

4.3 LED Indicators

Refer to Figure 1.3, "NFC-50/100 Keypad" on page 17.

Fire System Active

A green LED that turns on steady when the FACP is in alarm. This LED is used when the FACP to NFC data bus has signaled a fire alarm or when any of the command inputs (CMD1-CMD8) has activated for a fire alarm.

MNS Control

A green LED that turns on steady when an operator has initiated a mass notification event by pressing the MNS Control button or by pressing an MNS message button

System Control

A green LED that turns on steady when the main console has control of the audio system

System in Use

Green LED text that turns on steady when the main console, an LOC, an RPU, or an RM has control of the audio system

Speaker Zones 1-24

A green LED per speaker circuit button that turns on steady when a speaker circuit has been selected and is active

A yellow LED per speaker circuit button that turns on steady when a speaker circuit fault exists or when the speaker circuit has been turned off after having been automatically turned on by the FACP

OK to Page

Green LED text that turns on steady to instruct the operator that he/she may start paging

Microphone Trouble

A yellow LED that turns on steady to indicate a microphone wiring fault

Messages

A red LED per message button that turns on steady when the message has been selected and blinks when the message has been overridden

A yellow LED per message button that turns on steady when no message has been recorded or there is an associated command input fault. All eight (8) message button LEDs will turn on steady to indicate a message generator fault.

When more than eight (8) messages are enabled, the 8th message button becomes a "shift" key. The red LED turns on when viewing messages 8-14 and off when viewing 1-7. The yellow LED will turn on indicating an overridden message or message trouble in the group of messages *not* currently being viewed.

Remote Amplifiers 1-8 Fault

A yellow LED per remote amplifier (distributed audio) that turns on steady when an amplifier has a fault. Specific, additional fault indication is annunciated via the fault LEDs with the "wrench" graphic next to them on the keypad.

LOC/RPU/RM 1-8 Fault

A yellow LED per remote console that turns on steady when a remote console has a fault. Specific, additional fault indication is annunciated by LEDs at the remote consoles.

A green LED per remote console that turns on steady when a remote console is active

Main Console Fault

A yellow LED that turns on steady when the main (or primary operator) console has a fault

AC Power

A green LED that turns on steady when AC power is present

Ground Fault

A yellow LED that turns on steady when a ground fault exists in the system

Charger Fault

A yellow LED turns on steady when the battery charger voltage is too high or low

Battery Fault

A yellow LED that turns on steady when battery voltage is too low

Data Bus Fault

A yellow LED turns on steady when the main and remote console(s) cannot communicate

NAC Fault

A yellow LED that turns on steady when the onboard NAC wiring is open or short-circuited.

NAC Active

A green LED that turns on steady when the NAC output is on

System Trouble

A yellow LED that turns on steady when any fault exists in the system

Audio Riser Fault

A yellow LED that turns on steady when the audio riser wiring is open or short-circuited

4.4 Operation

The NFC-50/100 continuously monitors system status. When no system alarm or local trouble conditions exist, all LEDs are off except the AC Power On LED located on the front panel keypad. The Notification Appliance Circuits are off and all relays are in their normal state.

4.4.1 Paging from the Microphone

1. The NFC-50/100 main console must be in control of the system to perform a page. If the green System in Use LED is lit, press the SYSTEM CONTROL button. The NFC-50/100 is ready to page once the System in Use LED turns off and the System Control LED lights steady. If the System Control LED is already lit, this action is not required.
2. Activate desired paging areas. Press either the ALL CALL button, to page to *all* speaker zones, or individual speaker zone buttons (1-24). This will override the evacuation tone/message if the panel is in alarm and activate desired speaker circuits.
3. Key the microphone by pressing the push-to-talk switch on side of microphone. Speak clearly into the microphone.
4. When finished speaking, release the push-to-talk switch.
5. Press the ALL CALL button (or individual speaker zone buttons pressed in step 2) to end the broadcast and continue the evacuation tone/message.
6. Press the SYSTEM CONTROL button to relinquish control of the audio system.

4.4.2 Manual Message Control

1. The NFC-50/100 main console must be in control of the system to perform a page. If the green System in Use LED is lit, press the SYSTEM CONTROL button. The NFC-50/100 is ready to page once the System in Use LED turns off and the System Control LED lights steady. If the System Control LED is already lit, this action is not required.
2. Activate desired message areas. Press either the ALL CALL button, to broadcast to *all* speaker zones, or individual speaker zone buttons. This will override the evacuation tone/message if the panel is in alarm and activate desired speaker circuits.
3. Press the desired message button.
4. When the message has finished playing, press the ALL CALL button (or individual speaker zone buttons pressed in step 2) to deactivate the message areas and continue the evacuation tone/message.
5. Press the SYSTEM CONTROL button to relinquish control of the audio system.

4.4.3 Fire Alarm Response, System Configured for Fire Only

Upon detection of an alarm condition (any of CMD1 to CMD8 inputs active or automatic activation from the FACP Data Bus) the system will:

- Turn the appropriate speaker zone LED(s) on steady
- Turn the appropriate speaker circuits on
- Turn the appropriate audio amplifier(s) on
- Turn the 24 VDC aux. power output on (if programmed)
- Turn the speaker volume control override on
- Turn the “System in Use” LED on steady
- Turn the “Fire System Active” LED on steady
- Play a leading tone (if programmed)
- Play and repeat the appropriate audio message (if programmed to repeat)
- Play an inter-message tone (if programmed)
- Play a primary evacuation tone only (if programmed)
- Store the event in the history log

4.4.4 Fire Alarm Restoral, System Configured for Fire Only

Upon restoral the system will:

- Turn the speaker zone LED(s) off
- Turn the speaker circuits off
- Turn the audio amplifier(s) off
- Turn the 24 VDC aux. power output off (if programmed)
- Turn the speaker volume control override off
- Turn the “System in Use” LED off
- Turn the “Fire System Active” LED off

4.4.5 Manual Activation

Upon pressing speaker zone button(s) followed by pressing a message button the system will:

- Turn the appropriate speaker zone LED(s) on steady
- Turn the appropriate speaker circuit(s) on
- Turn the appropriate message LED on steady
- Turn the appropriate audio amplifier(s) on
- Turn the 24 VDC aux. power output on (if programmed)
- Turn the speaker volume control override on
- Turn the “System in Use” LED on steady
- Activate the “MNS active” relay (if the system is programmed for mass notification)
- Activate the NAC output (if programmed to do so for mass notification)
- Play a leading tone (if programmed)
- Play and repeat the appropriate audio message (if programmed to repeat)
- Play an inter-message tone (if programmed)
- Play a primary evacuation tone only (if programmed)
- Store the event in the history log

4.4.6 Manual Activation Restoral

Upon restoral the system will:

- Turn the speaker zone LED(s) off
- Turn the speaker circuit(s) off
- Turn the audio amplifier(s) off
- Turn the 24 VDC aux. power output off (if programmed)
- Turn the speaker volume control override off
- De-activate the “MNS active” output relay
- De-activate the NAC output (if programmed to do so for mass notification)
- Turn the “System in Use” LED off

4.4.7 Alarm/Alert Response, System Configured for Mass Notification Only

Upon detection of an alarm/alert condition (any of CMD1 to CMD8 inputs active) the system will:

- Turn all speaker zone LEDs on steady
- Turn all speaker circuits on
- Turn the appropriate audio amplifier(s) on
- Turn the 24 VDC aux. power output on (if programmed)
- Turn the speaker volume control override on

- Turn the “System in Use” LED on steady
- Activate the “MNS active” relay (if the system is programmed for mass notification)
- Activate the NAC output (if programmed to do so for mass notification)
- Play and repeat a leading tone (if programmed)
- Play and repeat the appropriate audio message (if programmed to repeat)
- Play an inter-message tone (if programmed)
- Play a primary alert tone only (if programmed)
- Store the event in the history log

4.4.8 Alarm/Alert Restoral, System Configured for Mass Notification Only

Upon restoral the system will:

- Turn the speaker zone LEDs off
- Turn the speaker circuits off
- Turn the audio amplifier(s) off
- Turn the 24 VDC aux. power output off (if programmed)
- Turn the speaker volume control override off
- De-activate the “MNS active” output relay
- De-activate the NAC output (if programmed to do so for mass notification)
- Turn the “System in Use” LED off

4.4.9 Alarm/Alert Response, System Configured for Combo Fire/Mass Notification with Fire Priority

If a fire alarm **only** occurs under this configuration, then the system will respond as in Section 4.4.3 above.

If a mass notification alarm/alert **only** occurs under this configuration, then the system will respond as in Section 4.4.7 above and additionally will:

- Signal the FACP of the alarm/alert using the FACP Data Bus such that the FACP can annunciate the alarm/alert and notify a central station (if programmed to do so).

If a fire alarm is active in the system and a subsequent mass notification alarm/alert occurs, then the system will not respond until the fire alarm has been restored.

4.4.10 Alarm/Alert Restoral, System Configured for Combo Fire/Mass Notification with Fire Priority

If the restoral is for a fire alarm **only** under this configuration then the system will respond as in Section 4.4.4 above.

If the restoral is for a mass notification alarm/alert **only** under this configuration then the system will respond as in Section 4.4.8 above and additionally will:

- Signal the FACP of the restoral using the FACP Data Bus such that the FACP can stop annunciation of the alarm/alert and notify a central station (if programmed).

If the restoral is for a fire alarm that overrode an earlier active mass notification alarm/event then the system will:

- Stop playing the fire alarm message
- Turn the “Fire System Active” LED off
- Return the system to the active state of the earlier mass notification alarm/event

4.4.11 Alarm/Alert Response, System Configured for Combo Fire/Mass Notification with Mass Notification Priority

If a fire alarm **only** occurs under this configuration then the system will respond as in Section 4.4.3 above.

If a mass notification alarm/alert **only** occurs under this configuration then the system will respond as in Section 4.4.7 above. and additionally will:

- Signal the FACP of the alarm/alert using the FACP Data Bus such that the FACP can annunciate the alarm/alert and notify a central station (if programmed to do so).

If a fire alarm is active in the system and a subsequent mass notification alarm/alert occurs, then the system will:

- Stop playing the current fire message
- Signal the FACP of the alarm/alert using the FACP Data Bus such that the FACP can annunciate the alarm/alert, notify a central station (if programmed), and turn off audible NACs (if programmed).
- Respond as in Section 4.4.7 above

If a mass notification alarm/alert is active in the system and a subsequent fire alarm occurs, then the system will not respond until the mass notification alarm/alert is restored.

4.4.12 Alarm/Alert Restoral, System Configured for Combo Fire/Mass Notification with Mass Notification Priority

If the restoral is for a fire alarm **only** under this configuration then the system will respond as in Section 4.4.4 above.

If the restoral is for a mass notification alarm/alert **only** under this configuration then the system will respond as in Section 4.4.8 above.

If the restoral is for a fire alarm that was over ridden by a currently active mass notification alarm/event then the system will:

- Continue playing the current mass notification message
- Turn the “Fire System Active” LED off

4.4.13 Trouble Condition Response

Upon detection of any trouble condition the system will:

- Activate (de-energize) the trouble relay
- Turn the local sounder on
- Turn the system trouble LED on
- Open command input 1 (CMD1) only if command input 1 is not in the alarm state
- Store the event in the history log

The following will occur on the display for more specific indication.

- For speaker circuit faults, the appropriate speaker zone fault LED(s) turns on steady
- For message faults, the appropriate message fault LED(s) turns on steady
- For a microphone fault, the microphone fault LED turns on steady
- For AC loss the AC power LED turns off, the AC loss and system trouble relays activate (de-energize) (after a programmable time out).
- For a earth ground fault, the ground fault LED turns on steady
- For a battery charger fault, the battery charger fault LED turns on steady
- For a battery voltage fault, the battery fault LED turns on steady
- For a fault on the data bus to peripheral consoles, the data bus fault LED turns on steady
- For an onboard NAC fault, the NAC fault LED turns on steady
- For an audio riser fault, the audio riser fault LED turns on steady
- For a peripheral console fault, the associated peripheral console fault LED turns on steady
- For a distributed amplifier fault, the associated distributed fault LED turns on steady

For distributed amplifier faults, the following will occur on the display when the operator uses the DIAGNOSTIC button to select a distributed amplifier for more specific indication.

- For a power fault, the AC power LED turns off
- For a ground fault, the ground fault LED turns on steady
- For a battery charger fault, the battery charger fault LED turns on steady
- For a battery voltage fault, the battery fault LED turns on steady
- For a fault on the data bus to peripheral consoles, the data bus fault LED turns on steady

The following will occur on the main control board for more specific indication.

- For speaker volume control fault, the speaker volume control fault LED(s) turns on steady
- For an amplifier over current fault, the amplifier over current fault LED turns on steady and all associated speaker circuit fault LEDs turn on steady
- For an option card missing (NFC-XRM-70V, NFC-BDA-25/70V, NFC-CE6), the option card LED turns on steady

The following actions will occur on the NFC-BDA-25/70V optional amplifier for more specific indication.

- For an over current condition, the over current LED turns on steady

4.4.14 Trouble Condition Restoral

Upon complete restoral the system will:

- De-Activate (energize) the trouble relay
- Turn the local sounder off
- Turn the system trouble LED off
- Close command input 1 (CMD1) only if command input 1 is not in the alarm state
- Store the event in the history log

The following will occur on the display for more specific indication when the specific fault restores.

- For speaker circuits, the appropriate speaker zone fault LED(s) turns off
- For messages, the appropriate message fault LED(s) turns off
- For the microphone, the microphone fault LED turns off
- For AC power, the AC power LED turns on, the AC loss and system trouble relays de-activate (energize)
- For earth ground, the ground fault LED turns off
- For the battery, the battery charger fault LED turns off
- For battery voltage, the battery fault LED turns off

- For the data bus to peripheral consoles, the data bus fault LED turns off
- For the onboard NAC, the NAC fault LED turns off
- For the audio riser, the audio riser fault LED turns off
- For a peripheral console, the associated peripheral console fault LED turns off
- For a distributed amplifier, the associated distributed fault LED turns off

For distributed amplifier restorals, the following will occur on the display when the operator uses the DIAGNOSTIC button to select a distributed amplifier for more specific indication.

- For power present, the AC power LED turns on
- For earth ground, the ground fault LED turns off
- For the battery charger, the battery charger fault LED turns off
- For battery voltage, the battery fault LED turns off
- For the data bus to peripheral consoles, the data bus fault LED turns off

The following will occur on the main control board for more specific indication when the specific fault restores.

- For the speaker volume control, the speaker volume control fault LED(s) turns off
- For the amplifier over current, the amplifier over current fault LED turns off and all associated speaker circuit fault LEDs turn off
- For the option cards (NFC-XRM-70V, NFC-BDA-25/70V, NFC-CE6) the option card missing LED turns off

The following actions will occur on the NFC-BDA-25/70V optional amplifier for more specific indication when the condition restores.

- For over current, the over current LED turns off

4.4.15 External Audio Input Operation

The external audio input (aux. audio) located on the display board terminal TB5 can serve as any one of the following:

- A background music input
- A message recording input from an audio source
- A general paging input from a paging microphone or telephone system
- A night ring input from a telephone system

The function of the external audio input must be selected in programming. Refer to “External Audio Input” on page 61. For external audio input electrical requirements, “Input/Output Circuit Specifications” on page 13.

When programmed, background music will play on all NFC-50/100 speaker circuits only when the audio system is in a normal, standby condition. During alarm or alert operation of the audio system, background music is suspended. Background music is also suspended during an AC power loss condition to preserve the batteries. Speaker circuits on the main NFC-50/100 panel are fully supervised while background music is playing. Speaker circuits on the NFC-50DA or NFC-125DA distributed amplifiers are not supervised while playing background music.

For programming messages using the external audio input, refer to “Recording Custom Messages” on page 61.

When programmed, the external audio input may be used for general paging or night ring operation. The building's “Private Branch Exchange (PBX)” telephone system or a third party microphone system must provide the audio signal along with a contact closure to trigger the paging or night ring. Paging or night ring will occur only when the audio system is in a normal, standby condition. During alarm or alert operation of the audio system, paging or night ring is suspended. All speaker circuits are fully supervised during paging or night ring operation. Refer to “Input/Output Circuit Specifications” on page 13 for night ring electrical requirements. Refer to “Night Ring” on page 30 for wiring requirements.

Section 5: Getting Started

This section describes the basic guidelines for setting up the various NFC-50/100 systems, assuming that the speaker and FACP cabling has been installed.

5.1 System Requiring up to 50 Watts of Audio Power

1. Install backbox and chassis assembly as described in Section 2, “Installation”, on page 22.
2. Connect laptop or PC to Ethernet port (J2) and launch the web-based programming utility.
3. Configure the NFC-50/100 for Single Zone operation, if individual speaker circuit control is not required. The factory default setting is Single Zone output control. Refer to Section 3, “Programming”, on page 51.
4. Record any new voice messages as described in Section 4, “Operating Instructions”, on page 70.

5.2 System Requiring Up to 100 Watts of Audio Power

1. Install backbox, chassis assembly, and NFC-BDA-25/70V and circuit boards as described in Section 2, “Installation”, on page 22.
2. Connect laptop or PC to Ethernet port (J2) and launch the web-based programming utility.
3. Configure the NFC-50/100 for Single Zone operation. Refer to Section 3, “Programming”, on page 51.
4. Record any new voice messages as described in Section 4, “Operating Instructions”, on page 70.

5.3 System Requiring Greater Than 100 Watts of Audio Power

1. Install backbox and chassis assembly as described in Section 2, “Installation”, on page 22.
2. Connect the external Audio Riser and external Data Bus (for All-Call) cabling between the NFC-50/100 and NFC-125DA and/or NFC-50DA panels.
3. Connect laptop or PC to Ethernet port (J2) and launch the web-based programming utility.
4. Configure the NFC-50/100 for Single Zone operation. Refer to Section 3, “Programming”, on page 51.
5. Record any new voice messages as described in Section 4, ”Operating Instructions” on page 70.
6. Program the FACP to operate with the NFC-50/100 per the FACP manual.
   - Enable the ACS-BUS serial link or ANN-BUS serial link.
   - Assign audio zones where applicable (see Section 3.6, “Programmed Activation by FACP”, on page 64).
   - Assign message numbers (1 - 5) where applicable (refer to Section 3.6, “Programmed Activation by FACP”, on page 64).
7. Connect the external Audio Riser and NFC external Data Bus cabling between the NFC-50/100 and the NFC-125DA and/or NFC-50DA.

Section 6: Power Supply Calculations

6.1 Overview

This section contains instructions and tables for calculating power supply currents in alarm and standby conditions. This is a four-step process, consisting of the following:

1. Calculating the total amount of AC branch circuit current required to operate the system
2. Calculating the power supply load current for non-fire and fire alarm conditions and calculating the secondary (battery) load
3. Calculating the size of batteries required to support the system if an AC power loss occurs
4. Selecting the proper batteries for your system

6.2 Calculating the AC Branch Circuit

The audio distribution panel requires connection to a separate, dedicated AC branch circuit, which must be labeled **FIRE ALARM**. This branch circuit must connect to the line side of the main power feed of the protected premises. No other non-fire alarm equipment may be powered from the fire alarm branch circuit. The branch circuit wire must run continuously, without any disconnect devices, from the power source to the transponder. Over-current protection for this circuit must comply with Article 760 of the National Electrical Codes as well as local codes. Use 14 AWG (2.00 mm^2) wire with 600 volt insulation for this branch circuit.

The NFC-50/100 requires 3.5 amps from the AC branch circuit. The NFC-50/100E requires 2.0 amps from the AC branch circuit.

6.3 Calculating the System Current Draw

6.3.1 Overview

The secondary power source (batteries) must be able to power the system during a primary power loss. To calculate the non-fire alarm load on the secondary power source, use Calculation Column 1 in Table 6.3. The NFC-50/100 must support a larger load current during a fire alarm condition and primary power loss. To calculate the fire alarm load on the secondary power source, use Calculation Column 2 in Table 6.3.

When calculating current draw and the battery size, note the following:

- 'Primary' indicates that the audio panel is being powered by AC
- 'Secondary' indicates that the audio panel is being powered by battery backup during AC failure
- All currents are given in amperes (A) and refer to the DC current being supplied by the panel. Table 6.1 shows how to convert milliamperes and microamperes to full amperes

To convert....	Multiply	Example
Milliamperes (mA) to amperes (A)	mA x 0.001	3 mA x 0.001 = 0.003 A
Microamperes (µA) to amperes (A)	µA x 0.000001	300 µA x 0.000001 = 0.0003 A

Table 6.1 Converting to Full Amperes

6.3.2 How to use Table 6.2 to calculate system current draws

1. Enter the quantity of devices in both columns.
2. Enter the DC current draw where required. Refer to the *Notifier Device Compatibility Document* for compatible devices and their current draw.
3. Calculate the current draws for each in both columns.
4. Sum the total current for each column.
5. Copy the totals from Column 1 and Column 2 to Table 6.3 on page 80.

Following are the types of current that can be entered into Table 6.2:

- ✓ **Calculation Column 1** - The standby current load that the audio panel must support (from the batteries) during a non-fire alarm condition and a loss of AC power.
- ✓ **Calculation Column 2** - The alarm current draw that the audio panel must support (from the batteries) during a fire alarm condition and a loss of AC power

Table 6.2 contains two columns for calculating current draws. For each column, calculate the current and enter the total (in amps) in the bottom row. When finished, copy the totals from Calculation Column 1 and Calculation Column 2 to Table 6.3 on page 80.

Device Type	Calculation Column 1 Secondary (Battery) Power Source Standby Current (amps)			Calculation Column 2 Secondary (Battery) Power Source Alarm Current (amps)		
	Qty	X [current draw] =	total	Qty	X [current draw] =	total
NFC-50/100 Primary Console (Not including speaker load)	1	X [0.272]=	0.272	1	X [0.446]=	0.446
NFC-BDA-25/70V Optional Audio Amplifier Module[1]	[ ] (1 max.)	X [0.100]=	[ ]	[ ] (1 max.)	X [0.235]=	[ ]
NFC-CE6 Speaker Circuit Expander	[ ] (1 max.)	X [0.020]=	[ ]	[ ] (1 max.)	X [0.189]=	[ ]
NFC-LOC Local Operator Console [2]	[ ]	X [0.085]=	[ ]	[ ]	X [0.100]=	[ ]
NFC-RM Remote Microphone [2]	[ ]	X [0.050]=	[ ]	[ ]	X [0.064]=	[ ]
NFC-RPU Remote Page Unit [2]	[ ]	X [0.050]=	[ ]	[ ]	X [0.068]=	[ ]
NFC-50DA, NFC-125DA, NFC-50/100DA Remote Amplifiers[3]	[ ]	X [0.012]=	[ ]	[ ]	X [0.012]=	[ ]
NFC-FFT Firefighter Telephone	[ ]	X[0.120]=	[ ]	[ ]	X[0.230]=	[ ]
Speakers (50 watts maximum/amplifier)						
1/4 Watt				[ ]	X[0.017]=	[ ]
1/2 Watt				[ ]	X[0.033]=	[ ]
3/4 Watt				[ ]	X[0.050]=	[ ]
1 Watt				[ ]	X[0.068]=	[ ]
2 Watts				[ ]	X[0.132]=	[ ]
Additional Current Draw from TB17 Special Application Auxiliary Power Output (0.5 amp maximum)	[ ]	X [ ]=	[ ]	[ ]	X [ ]=	[ ]
NAC Circuit Output (2.0 amps maximum)				[ ]	X [ ]=	[ ]
Power Supervision Relays [4]	[ ]	X [0.025]=	[ ]	[ ]	X [0.025]=	[ ]
AIM-1A, RSM-1A Isolators	[ ]	X [0.0145]=	[ ]	[ ]	X [0.0145]=	[ ]
SP-SVC Volume Control	[ ]	X[0.010]=	[ ]	[ ]	X[0.010]=	[ ]
Sum each column for totals	**Secondary Standby:**			**Secondary Alarm:**		

Table 6.2 System Current Draw Calculations

1 In backup configurations, the optional amplifier draws no additional current in alarm.
2 Maximum combined total of eight (8) operator interface devices.
3 Maximum combined total of eight (8) remote amplifiers.
4 Must use a compatible, UL-listed Power Supervision Relay

6.4 Calculating the Battery Size

Use Table 6.3 to calculate the total Standby and Alarm load in ampere hours (AH). This total load determines the battery size (in AH), required to support the NFC-50/100 under the loss of AC power. Complete Table 6.3 as follows:

1. Enter the totals from Table 6.2 on page 79 Calculation Columns 1 and 2 where shown.
2. Enter the NFPA Standby and Alarm times (refer to Section 6.4.1, "NFPA Battery Requirements").
3. Calculate the ampere hours for Standby and Alarm, then sum the Standby and Alarm ampere hours.
4. Multiply the sum by the derating factor of 1.2 to get the proper battery size (in AH).
5. Write the ampere hour requirements on the Protected Premises label located inside the cabinet door

Secondary Standby Load (total from Table 6.2 Calculation Column 1) [ ]	Required Standby Time (24 or 60 hours) [ ]	= AH
Secondary Alarm Load (total from Table 6.2 Calculation Column 2) [ ]	Required Alarm Time (for 5 min., enter 0.084, for 10 min., enter 0.168, for 15 min., enter 0.250) for 30 min., enter 0.50) [ ]	= AH
Sum of Standby and Alarm Ampere Hours		= AH
Multiply by the Derating Factor		X 1.2
Battery Size, Total Ampere Hours Required		= AH

Table 6.3 Total Secondary Power Requirements at 24 VDC

6.4.1 NFPA Battery Requirements

NFPA requires 24 hours of standby plus 15 minutes activation for audio systems. The total ampere hours required cannot exceed 26 AH with an internal charger. An external charger can be used to increase the total ampere hours (internal charger must be disabled).

6.4.2 Selecting and Locating Batteries

Select batteries that meet or exceed the total ampere hours calculated in Table 6.3. The audio panel can charge batteries in the 12 AH to 26 AH range. The NFC-50/100 can house up to 18 AH batteries.

Appendix A: Digital Voice Messages

The FirstCommand digital message generator provides up to 14 messages each with up to 60 seconds of record time. The NFC-50/100 is provided with factory recorded messages which can be changed in the field. The prerecorded messages (female voice) are:

Fire Evacuation Messages:

- "May I have your attention, please? May I have your attention, please? A fire has been reported in the building. A fire has been reported in the building. Please proceed to the stairways and exit the building. Do not use the elevators."
- Su atención por favor. Su atención por favor. Un incendio se ha reportado en el edificio. Un incendio se ha reportado en el edificio. Por favor, proceder a las escaleras y salir del edificio. No use los ascensores.
- "May I have your attention, please? May I have your attention, please? There has been a fire reported in the building. Please proceed to the nearest exit and leave the building."
- Su atención por favor. Su atención por favor. Un incendio se ha reportado en el edificio. Un incendio se ha reportado en el edificio. Por favor, proceder a la salida más cercana y salir del edificio.
- "May I have your attention, please? May I have your attention, please? An alarm has been activated in the building. Please proceed to the stairways and exit the building. Do not use the elevators."
- "May I have your attention, please? May I have your attention, please? There has been a fire reported on your floor. There has been a fire reported on your floor. Please proceed to the stairways and exit the building. Do not use the elevators."
- "May I have your attention, please? May I have your attention, please? A fire has been reported in the building. A fire has been reported in the building. Please proceed to the nearest exit and leave the building. Do not use the elevator, but proceed to the nearest exit and leave the building."

Fire Alert Message:

- "May I have your attention please? An alarm has been activated. We are investigating the cause. Please remain calm and stand by near the speakers for further instructions."

Emergency Evacuation Messages:

- "May I have your attention, please? May I have your attention, please? There has been an emergency reported in this area. Please proceed to the closest exit or stairwell and leave the building. Do not use the elevators."
- Su atención por favor. Su atención por favor. Una emergencia se ha reportado en este área. Por favor, proceder a la salida más cercana o escaleras y salir del edificio. No use los ascensores.

Emergency Alert Message:

- "Attention, please. This signal tone you have just heard indicates a report of an emergency in this building. If your floor evacuation signal sounds after this message, walk to nearest stairway and leave the floor. While the report is being verified, occupants on other floors should await further instructions."

All Clear Emergency Messages:

- "Attention. Your attention, please. The building emergency condition has been cleared. You may return to your normal activities. The building emergency has been cleared. You may return to your normal activities."
- Atención. Su atención por favor. La condición de emergencia del edificio se ha resuelto. Regrese a sus actividades normales. La emergencia del edificio se ha resuelto. Regresa a su actividades normales.

Severe Weather Message:

- "Your attention please. A severe weather warning has been received. Please walk to the nearest safe area and wait for further instructions. Elevator lobbies, stairwells, bathrooms and auditoriums are designated safe areas in the event of severe weather. Stay away from windows and glass. Do not use the elevators"

New messages can be recorded in the field. Be certain to get the approval of the local Authority Having Jurisdiction prior to recording new messages.

Appendix B: Wiring Requirements

Connecting external system accessories to the NFC-50/100 main circuits must be carefully considered to ensure proper operation. It is important to use the correct type of wire, wire gauge and wire run length per each circuit. Refer to the following table to specify wire requirements and limitations.

NOTE: If an SLC loop is to be run in conduit with NFC-50/100 Notification Appliance Circuits, the risk of encountering problems can be greatly reduced by using twisted, shielded cable on the SLC and NACs.

Circuit Type	Wire Type & Limitations	Maximum Distance (feet)	Wire Gauge (terminals support)
CMD1-CMD2 TB4, TB5: polarity reversal	untwisted/unshielded, twisted/shielded, see note [1]	depends on trigger circuit, 9-32 VDC, 1.6 mA	12-18 AWG
CMD1-CMD2 TB4, TB5: contact closure	untwisted/unshielded, twisted/shielded, see note [1]	max loop impedance 200 ohms	12-18 AWG
CMD3-CMD8 TB6-TB8: contact closure	untwisted/unshielded, twisted/shielded, see note [1]	max loop impedance 200 ohms	12-18 AWG
speaker circuits TB20, TB21	untwisted/unshielded, twisted/shielded, see note [2]	determine using Lite-Calcs utility see note [3]	12-18 AWG
ECC-CE6 speaker circuits TB1 - TB6	untwisted/unshielded, twisted/shielded, see note [2]	determine using Lite-Calcs utility see note [3]	12-18 AWG
external data bus: TB12	twisted/shielded	max loop impedance 13.2 ohms	12-18 AWG
external audio riser: TB22	twisted/shielded	max loop impedance 13.2 ohms	12-18 AWG
external operator interface power: TB24	untwisted/unshielded, twisted/unshielded	max loop impedance 13.2 ohms	12-18 AWG
NAC output: TB19	untwisted/unshielded, twisted/unshielded	refer to Section 2.6.3 , max loop impedance 120 ohms	12-18 AWG
speaker volume control override: TB23	untwisted/unshielded, twisted/unshielded	max loop impedance 120 ohms	12-18 AWG
night ring input: TB16	untwisted/unshielded, twisted/unshielded	max impedance 30 K ohms	12-18 AWG
external audio input TB5 (on display board)	twisted/shielded	max loop impedance 100 ohms	12-18 AWG
MNS active, AC loss, and trouble output relays: TB1 - TB3	untwisted/unshielded, twisted/shielded, see note [1]	depends on the panel monitoring these outputs	12-18 AWG
auxiliary power: TB17	untwisted/unshielded, see note [1]	distance set by 4 VDC max line drop	12-18 AWG

Table B.1 Wiring Requirements

1 Refer to NEC Standards.
2 Twisted, shielded wire is recommended for maximum protection against EMI and AFI emissions and susceptibility.
3 Must also meet NFPA 72 Standards for minimum and maximum sound levels.

NOTE: Wire to wire short circuit trouble = zero ohms.
Open circuit trouble = infinite ohms.
Ground fault trouble = zero ohms to ground.

Appendix C: Canadian Applications

When using the NFC in Canadian Applications, note the following:

- The NFC-50/100 is for fire evacuation use only.
- The NFC-50DA, NFC-125DA, and NFC-50/100DA amplifiers are not permitted for use in Canada.
- The NFC-RPU and NFC-RM are not permitted for use in Canada.
- The NFC-50/100 must be mounted next to the FACP.

C.1 Audio Room Isolator Modules

C.1.1 Description

The audio isolator modules described below may be used to isolate short circuits during alarm signaling.

AIM-1A This module provides isolation to a separate circuit on an audio riser. A short circuit on an AIM-1A speaker circuit will not disable other speaker circuits on the riser.

RSM-1A This module works the same as the AIM-1A, with the exception that there is a silence button for in-suite operation. The silence button will silence the audible signal to the module's circuit for ten minutes during alarm. Resounding will occur automatically after ten minutes or upon activation of a new audio alert.

C.1.2 Panel Programming

"Canadian Configuration" and "Canadian Isolator Modules" must be enabled in ECCNFC programming. Refer to "General/NAC Options" on page 53. In addition, "NAC Type" must be set for steady operation. See "NAC Options" on page 54.

C.1.3 Applications

The following figures illustrate typical applications for audio isolator modules. Jumper settings are specified below to configure operation with speaker circuits. Jumpers are located on the back side of each module.

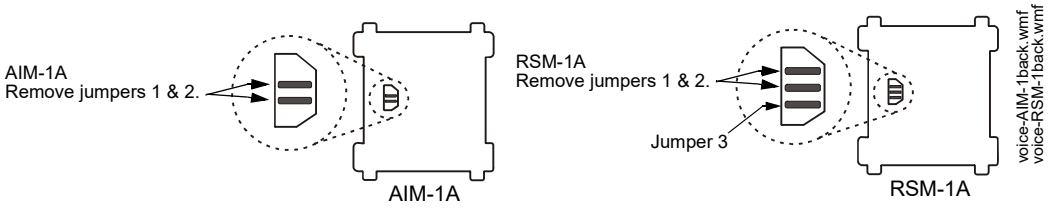


Figure C.1 Jumper Settings

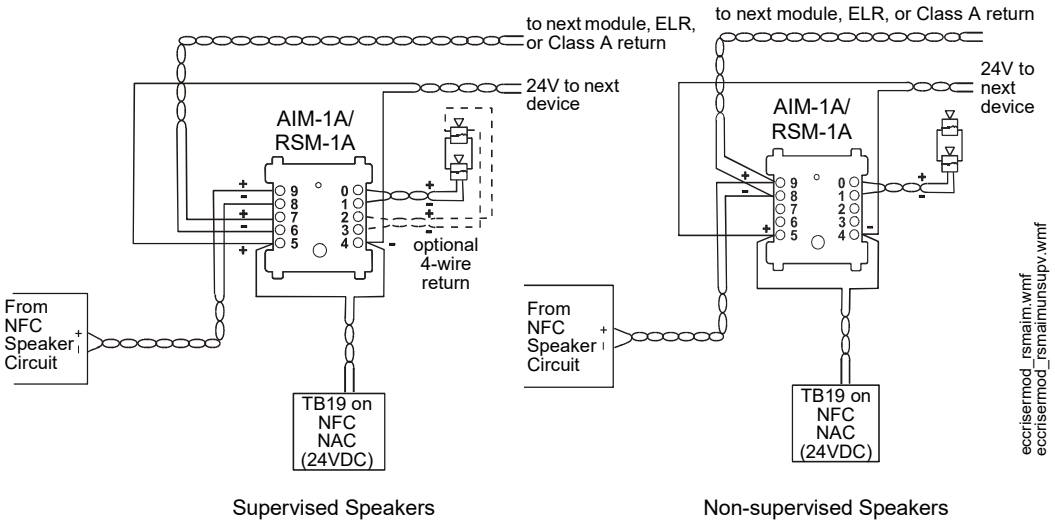


Figure C.2 RSM-1A/AIM-1A Module Wiring

Notes

Slide-in Labels - Upper Portion

Carefully cut along the outside of each label. Identify keypad buttons as desired and slide the labels in. Refer to Section 4.1 on page 70 for installation instructions.

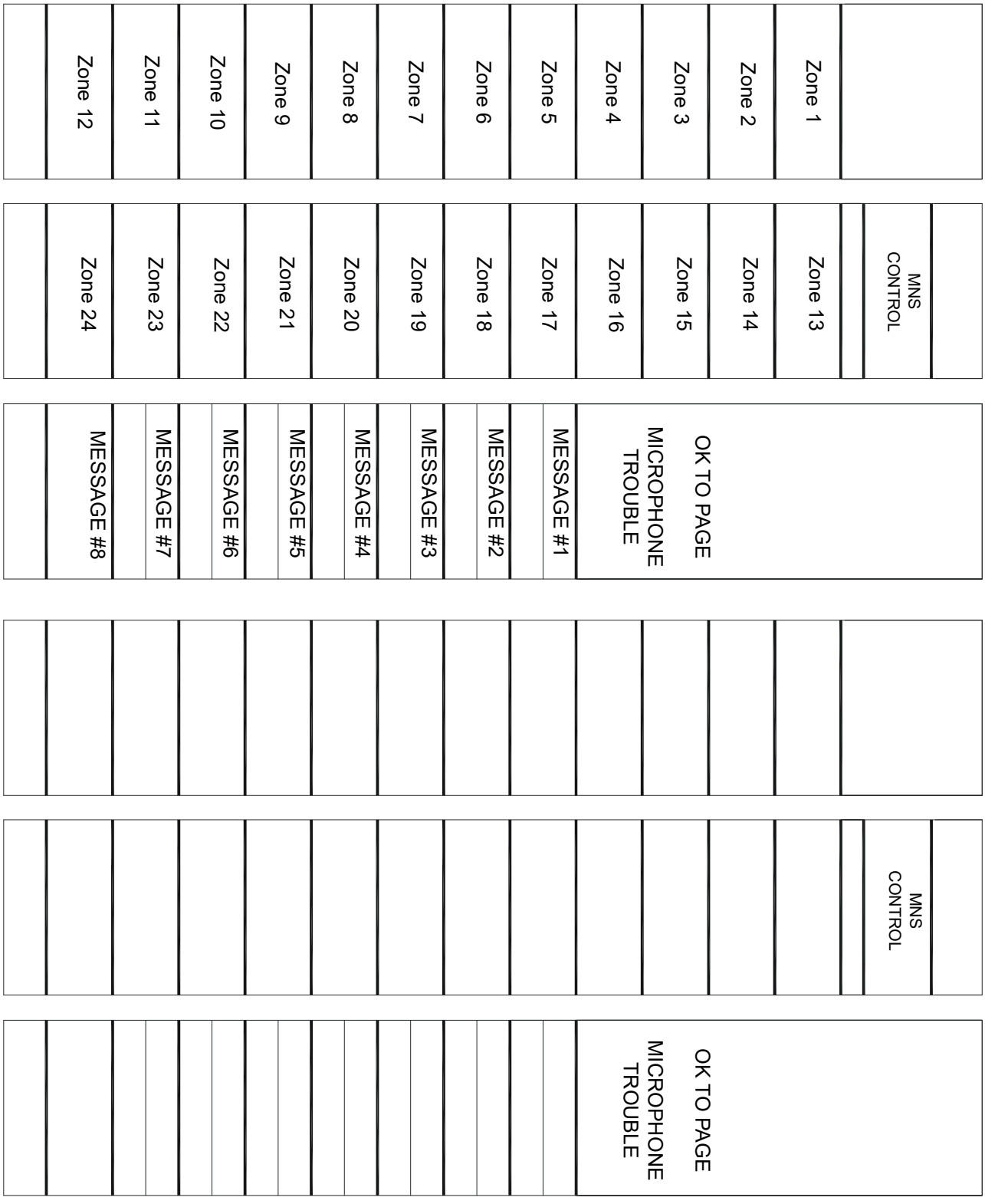


Figure 1.1 Slide-in Labels - Top Row of Keypad

Cut along dotted line.

Cut along dotted line.

Slide-in Labels - Lower Section

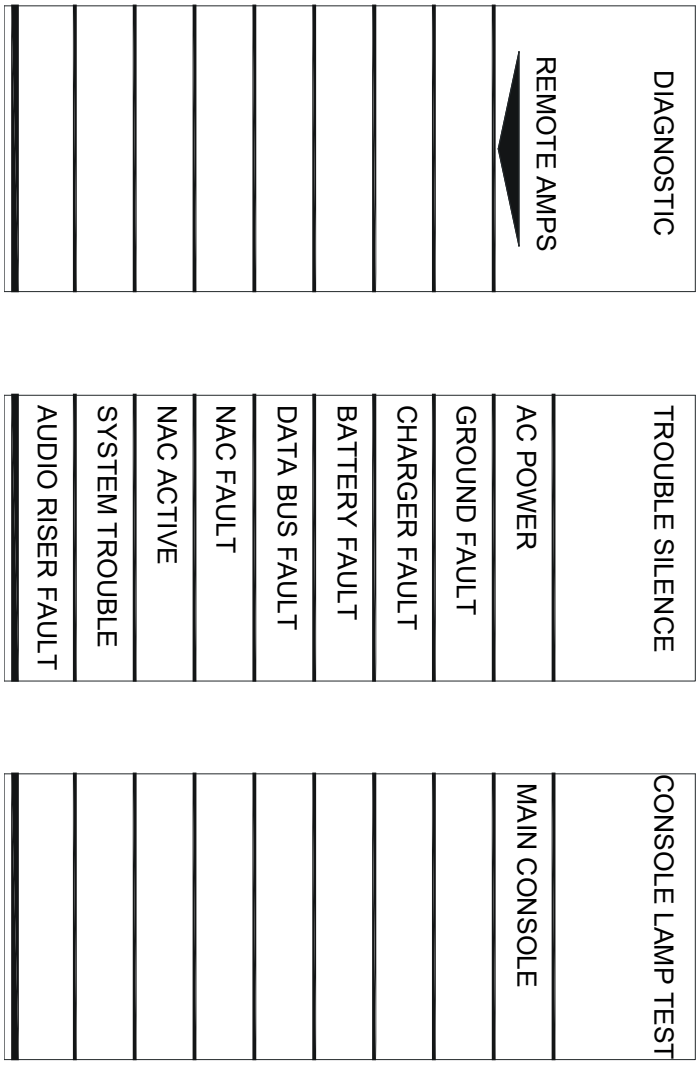


Figure 1.2 Slide-in Labels - Bottom Row of Keypad

Cut along dotted line.

Cut along dotted line.

Index

L

M

N

O

P

R

S

T

U

V

W

Z

Notes

NFC-50/100 and NFC-LOC OPERATING INSTRUCTIONS

Section 1 Operating Information

NORMAL STANDBY OPERATION.

1. Green AC POWER indicator lit steadily.
2. Yellow TROUBLE indicators off.
3. Green speaker zone indicators off.

ALARM CONDITION.

1. Green speaker zone indicator(s) lit steadily.
2. Green SYSTEM IN USE indicator lit steadily.
3. Audio message plays.
4. Green FIRE SYSTEM ACTIVE indicator lit steadily (when FACP is in alarm).
5. Green MNS CONTROL indicator lit steadily and relay activated (for mass notification events).

ALARM RESET. After locating and correcting a fire alarm condition at the FACP, the system will return to Normal Standby Operation. After correcting a mass notification event, press the MNS CONTROL button to clear the system and return to Normal Standby Operation.

TROUBLE CONDITION. Activation of trouble signal under normal operation indicates a condition that requires **immediate** attention. Contact your local service representative. Silence the audible signal by pressing the TROUBLE SILENCE switch. The trouble indicator will remain illuminated.

Section 2 Paging and Manual Message Control

1. Press the SYSTEM CONTROL button if the green LED is not lit.
2. Press either the ALL CALL button or individual speaker zone buttons. This will override the evacuation tone/message if panel is in alarm and activate desired speaker circuits.
3. Once the OK TO PAGE lights green, broadcast:
   - By paging: Key the microphone by pressing the push-to-talk switch on side of microphone and speak clearly into the microphone.
   - By prerecorded message: Press the desired message button.
4. Press the ALL CALL switch (or individual speaker zone buttons) to end broadcast and continue evacuation tone/message.
5. Press the SYSTEM CONTROL button to relinquish control of the audio system.

Section 3 Switch Functions

ALL CALL. Activates all speaker circuits for broadcast.

MNS CONTROL (for systems configured for mass notification operation which has higher priority)**.** Activates the MNS Active Relay and the onboard NAC. A second press turns these back off. For a combination fire and mass notification system, pressing MNS CONTROL will result in the shutdown of audible FACP NACs and audio system speakers, allowing the system to override the system. Pressing MNS CONTROL again causes the FACP to re-activate audible FACP NACs and audio system speakers.

SYSTEM CONTROL. Manually gains control of the audio system in preparation for an ALL CALL, message activation, or general page. The green LED will turn on steadily to confirm control. A second press is required after paging to relinquish control of the system. The main console will have system priority based upon user programming. In order for the LOC to gain control, the ECC must first relinquish control of the system.

SPEAKER SELECT 1-24. Manually activates or deactivates speaker zones (circuits).

MESSAGE SELECT 1-8. Manually activates or deactivates stored messages. 8th button becomes a "shift" for messages 9-14.

DIAGNOSTIC SELECT. selects a specific remote amplifier to examine specific trouble conditions for the remote amplifiers. The fault LEDs with wrench graphics represent the amplifier selected.

TROUBLE SILENCE. Manually silences the local trouble sounder.

CONSOLE LAMP TEST. Tests the local LEDs and sounder.

Section 4 LED Indicators

FIRE SYSTEM ACTIVE. Green LED that turns on steady when the FACP is in alarm.

MNS CONTROL. Green LED that turns on steady when an operator has initiated a mass notification event by pressing the MNS Control button or by pressing an MNS message button.

SYSTEM CONTROL. Green LED that turns on steady when the main console has control of the audio system.

SYSTEM IN USE. Green LED text that turns on steady when the main console, an LOC, an RPU, or an RM has control of the audio system.

SPEAKER ZONES 1-24. Green LED per speaker circuit button that turns on steady when a speaker circuit has been selected and is active. Yellow LED per speaker circuit button that turns on steady when a speaker circuit fault exists or when the speaker circuit has been turned off after having been automatically turned on by the FACP.

OK TO PAGE. Green LED text that turns on steady when the system is ready for paging.

MICROPHONE TROUBLE. Yellow LED text that turns on steady to indicate a microphone wiring fault.

MESSAGES 1-8. Red LED per message button that turns on steady when the message has been selected and blinks when the message has been overridden. Yellow LED per message button that turns on steady when no message has been recorded or there is an associated command input fault. All eight message button LEDs will turn on steady to indicate a message generator fault. 8th button "shift" key red off when viewing messages 1-7 and on steady when viewing messages 8-14. Yellow LED will turn on indicating a message trouble in the group of messages not currently being viewed.

REMOTE AMPLIFIERS 1-8 FAULT. Yellow LED per remote amplifier that turns on steady when an amplifier has a fault.

LOC/RPU/RM 1-8 FAULT. Yellow LED per remote console that turns on steady when a remote console has a fault. Green LED per remote console that turns on steady when a remote console is active.

MAIN CONSOLE FAULT. Yellow LED that turns on steady when the main (or primary operator) console has a fault.

AC POWER. Green LED that turns on steady when AC power is present.

GROUND FAULT. Yellow LED that turns on steady when a ground fault exists in the system.

CHARGER FAULT. Yellow LED turns on steady when the battery charger voltage is too high or low.

BATTERY FAULT. Yellow LED turns on steady when battery voltage is too low.

DATA BUS FAULT. Yellow LED that turns on steady when the main and remote console(s) cannot communicate.

NAC FAULT. Yellow LED that turns on steady when the onboard NAC wiring is open or short-circuited.

NAC ACTIVE. Green LED that turns on steady when the NAC output is on.

SYSTEM TROUBLE. Yellow LED that turns on steady when any fault exists in the system.

AUDIO RISER FAULT. Yellow LED that turns on steady when the audio riser wiring is open or short-circuited.

Section 5 Periodic Testing and Maintenance

To ensure proper and reliable operation, system inspection and testing should be scheduled monthly, or as required by NFPA 72 or local fire codes. A qualified Service Representative should perform testing.

BEFORE TESTING: Notify fire department and/or central alarm receiving station if alarm condition is transmitted. Notify facility personnel of the test so alarm sounding devices are ignored during the test period.

AFTER TESTING: Notify all fire, central station, and/or building personnel when testing is complete.

NOTIFIER®
by Honeywell

In the event of trouble, contact the local Notifier Service Representative.

Name: _____

Address: _____

Telephone Number: _____

This sheet must be framed and mounted adjacent to the control panel.

Document LS10039-001NF-E Rev A ECN 13-187 4/19/2013

Cut along dotted line.

Cut along dotted line.

Manufacturer Warranties and Limitation of Liability

Manufacturer Warranties. Subject to the limitations set forth herein, Manufacturer warrants that the Products manufactured by it in its Northford, Connecticut facility and sold by it to its authorized Distributors shall be free, under normal use and service, from defects in material and workmanship for a period of thirty six months (36) months from the date of manufacture (effective Jan. 1, 2009). The Products manufactured and sold by Manufacturer are date stamped at the time of production. Manufacturer does not warrant Products that are not manufactured by it in its Northford, Connecticut facility but assigns to its Distributor, to the extent possible, any warranty offered by the manufacturer of such product. This warranty shall be void if a Product is altered, serviced or repaired by anyone other than Manufacturer or its authorized Distributors. This warranty shall also be void if there is a failure to maintain the Products and the systems in which they operate in proper working conditions.

MANUFACTURER MAKES NO FURTHER WARRANTIES, AND DISCLAIMS ANY AND ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE PRODUCTS, TRADEMARKS, PROGRAMS AND SERVICES RENDERED BY MANUFACTURER INCLUDING WITHOUT LIMITATION, INFRINGEMENT, TITLE, MERCHANTABILITY, OR FITNESS FOR ANY PARTICULAR PURPOSE. MANUFACTURER SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY OR DEATH WHICH MAY ARISE IN THE COURSE OF, OR AS A RESULT OF, PERSONAL, COMMERCIAL OR INDUSTRIAL USES OF ITS PRODUCTS.

This document constitutes the only warranty made by Manufacturer with respect to its products and replaces all previous warranties and is the only warranty made by Manufacturer. No increase or alteration, written or verbal, of the obligation of this warranty is authorized. Manufacturer does not represent that its products will prevent any loss by fire or otherwise.

Warranty Claims. Manufacturer shall replace or repair, at Manufacturer's discretion, each part returned by its authorized Distributor and acknowledged by Manufacturer to be defective, provided that such part shall have been returned to Manufacturer with all charges prepaid and the authorized Distributor has completed Manufacturer's Return Material Authorization form. The replacement part shall come from Manufacturer's stock and may be new or refurbished. THE FOREGOING IS DISTRIBUTOR'S SOLE AND EXCLUSIVE REMEDY IN THE EVENT OF A WARRANTY CLAIM.

Warn-HL-08-2009.fm

NOTIFIER
12 Clintonville Road
Northford, CT 06472-1610 USA
203-484-7161
www.notifier.com

NOTIFIER®
by Honeywell

NFC-RM

Notifier FirstCommand Remote Microphone

NOTIFIER® by Honeywell

Emergency Voice Evacuation

General

Notifier's FirstCommand NFC-RM is an optional Remote Microphone that is compatible with the NFC-50/100(E) Emergency Voice Evacuation for fire protection applications. It is part of a family of external remote consoles that allows for extending the operator interface to remote locations within a building. It is housed in a cabinet with a keyed lock to limit access to qualified personnel.

The NFC-RM remote microphone allows for ALL CALL paging to be broadcast over the speaker circuits when depressing the microphone's push-to talk switch. The RM requires an external data bus connection, an external audio riser connection, and an external operator interface power connection (24 Volts DC) from the NFC-50/100 main console.

Typical Applications

- Schools
- Theaters
- Auditoriums
- Nursing Homes
- Military facilities
- Places of Worship
- Factories
- Restaurants
- Office Buildings

Features

- External remote console that provides ALL CALL paging broadcasts over the speaker zones of the NFC-50/100(E) primary operating console.
- Modular design for maximum system flexibility and easy expansion.
- Supports both Class A (Style Z) and Class B (Style Y) wiring.
- A maximum of eight NFC-RMs can be connected to an NFC-50/100(E) primary operating console.
- Built-in microphone with push-to-talk feature that can be used for ALL CALL paging.
- Sturdy cabinet design with a keyed lock to prevent unauthorized access. Optional thumb lock is available.
- Simple and straightforward user interface.

Electrical Specifications

Primary Power Requirements:

Voltage 24VDC non-resettable power from the NFC-50/100(E). External Operator Interface Power **(**Non-supervised).

See NFC-50/100(E) Product Manual P/N LS10001-001NF-E for standby and alarm current requirements as well as battery calculations.

Wiring Requirements

See Product Installation Document PN: LS10029-000FL-E for detailed wiring requirements.

Agency Listings and Approvals

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

UL Listed S635

CSFM: 6912-0028:0268

FDNY: COA #6163

Standards and Codes

The NFC-RM complies with NFPA 101 Life Safety Code and with the following UL Standards and with NFPA 72 Fire Alarm system requirements.

UL 864.

Temperature and Humidity ranges

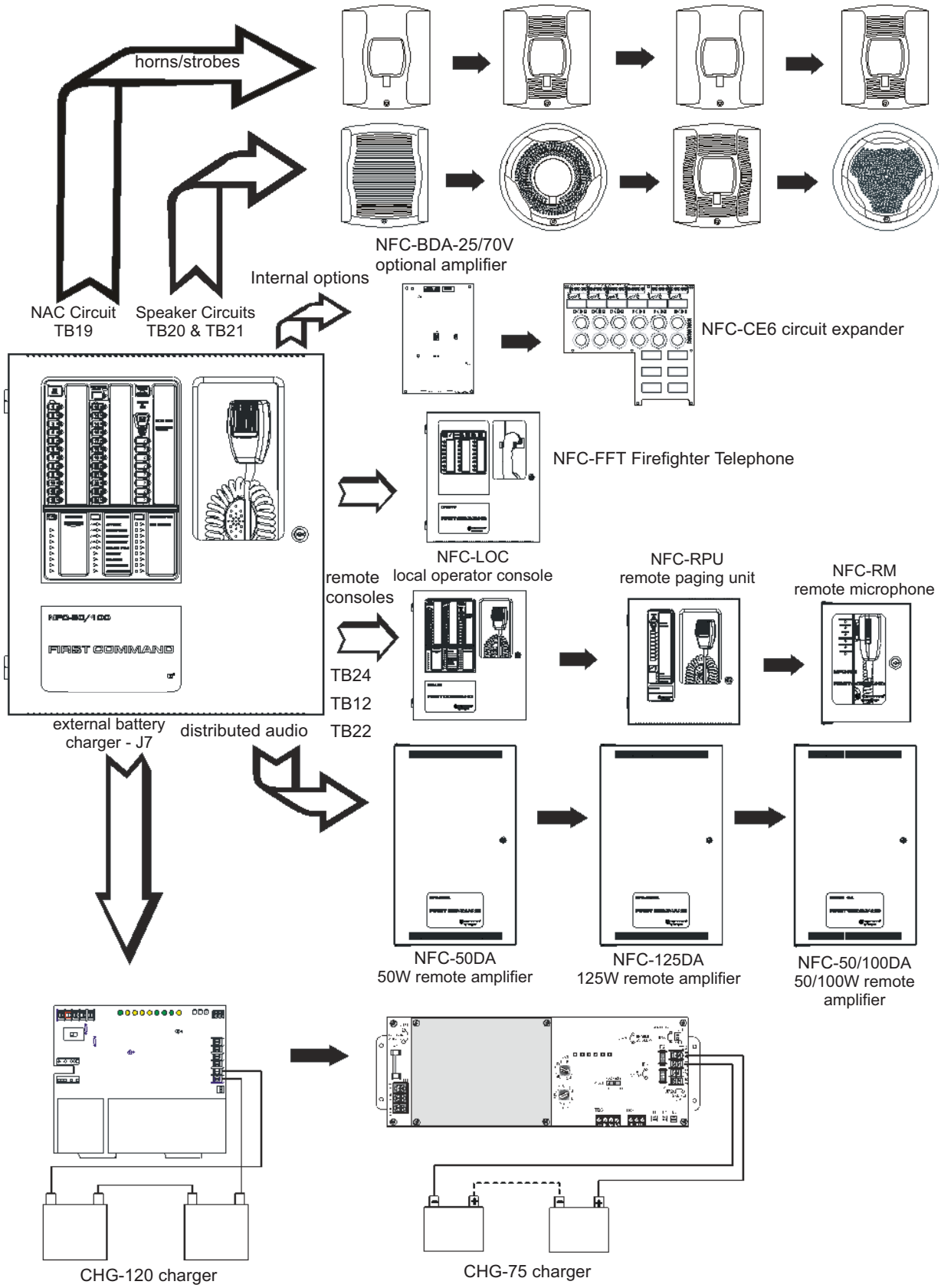
This system meets NFPA requirements for operation at 0-49º C/32-120º F and at a relative humidity 93% ± 2% RH (non-condensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and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

Cabinet Specifications

8.3" (21.082 cm) high x 6.080" (15.44 cm) wide x 4.337" (11.02 cm) deep (Door attached and closed).

Shipping Specifications

Weight: 4 lbs (1.81 kg).



NFC-50/100(E) FirstCommand (Possible Configurations)

Control and Indicators

PUSH BUTTON CONTROLS

- Microphone
- Push to talk switch

LED STATUS INDICATORS (VISIBLE WITH DOOR CLOSED)

- System in Use (green)
- OK to Page (green)
- AC Power (green)
- Data Trouble (yellow)
- Audio Trouble (Yellow)
- Microphone Trouble (yellow)

Product Line Information (Ordering Information)

NFC-RM: Remote Microphone only.

NFC-50/100: (Primary operating Console) 50 Watt, 25VRMS single speaker zone emergency voice evacuation system, Integral microphone, built in tone generator and 14 recordable messages. *Please refer to the data sheet DN-60772 for more information.*

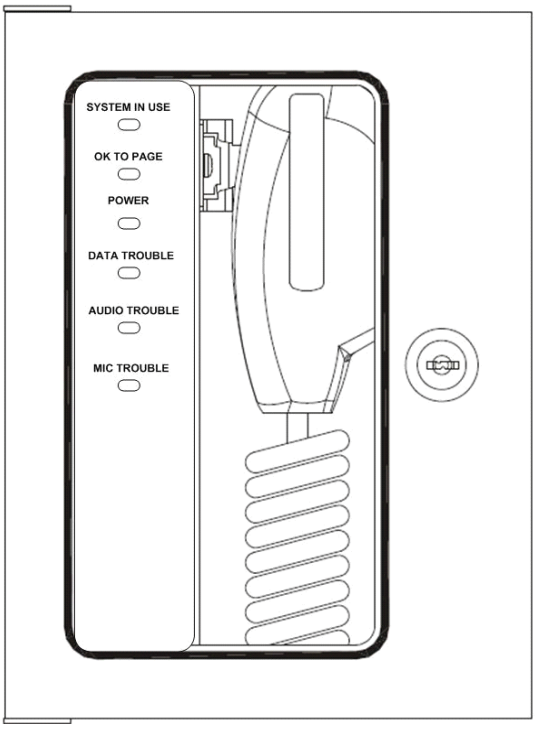
NFC-50/100E: Export version (Primary operating Console) 50 Watt, 25VRMS single speaker zone emergency voice evacuation system, Integral microphone, built in tone generator and 14 recordable messages, 240 VAC, 50Hz. *Please refer to the data sheet DN-60772 for more information.*

N-FPJ: Remote Phone Jack.

ECC-MICROPHONE: Replacement Microphone Only.

CHG-75: 25 to 75 ampere-hours (AH) external battery charger**.**

ECC-THUMBLTCH: Optional Thumb Latch. (Non UL-Listed).



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.

Assembled in the USA

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

UDACT-2

Universal Digital Alarm Communicator Transmitter

NOTIFIER® by Honeywell

Annunciator Control System

General

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

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

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

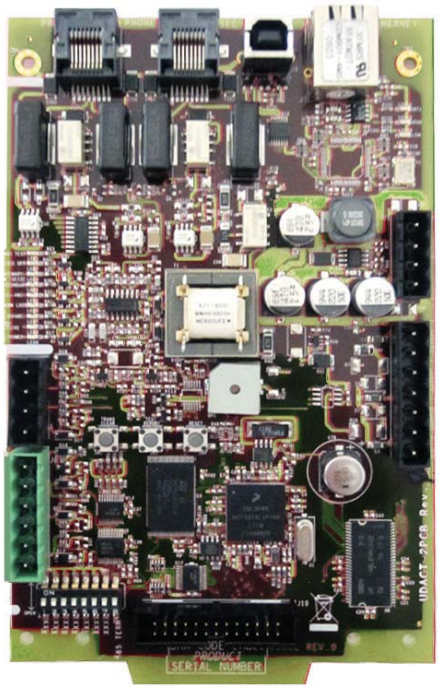
The UDACT-2 is capable of transmitting the status of software zones (Alarm and Trouble), System Trouble, Panel Off-Normal, Supervisory, Bell Trouble, Low Battery, and AC Fail. The UDACT-2 is capable of transmitting all of the zone and point status associated with each panel.

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

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

Features

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



UDACT-2

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

Programming

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

Communication Formats

- Ademco Contact ID
- 4+2 Standard
- SIA

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

Type Mode Feature

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

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

Electrical Specifications

Standby current: 40 mA.

Current while communicating: 75 mA.

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

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

Agency Listings and Approvals

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

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

Ordering Information

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

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

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

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

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

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

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

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

UL Listed Receivers

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

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

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

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

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

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

(5) With software V3.9

(6) With V.7301 Receiver S/W

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

(8) With software V1.86

(9) With sotware V1.72

(10) With DSP4016 and V1.6 Line Card

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

Sealed Lead-Acid Battery

UPG No. D5779

UB1280

Maintenance-Free

Absorbant Glass Mat (AGM) technology for superior performance. Valve regulated, spill proof construction allows safe operation in any position. Approved for transport by air. D.O.T., I.A.T.A., F.A.A. and C.A.B. certified. U.L. recognized under file number MH 20567.

Specification

Nominal Voltage	12 volts
Nominal Capacity	77º F (25º C)
20-hr. (0.4A)	8.00 Ah
10-hr. (0.744A)	7.44 Ah
5-hr. (1.36A)	6.80 Ah
1-hr. (4.8A)	4.80 Ah
Approximate Weight	4.74 lbs (2.14 kgs)
Internal Resistance (approx.)	23mΩ

Shelf Life (% of normal capacity at 68º F (20º C)

3 Months	6 Months	12 Months
91%	83%	64%

Temperature Dependancy of Capacity (20 hour rate)

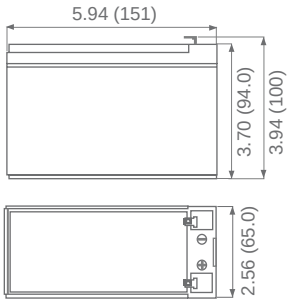
104˚ F (40˚C)	77˚F (25˚C)	32˚F (0˚C)	5˚F (-15˚C)
102%	100%	85%	65%

AGM Operational Temperature	
Charge	32˚F to 104˚F (0˚C to 40˚C)
Discharge	5˚F to 113˚F (-15˚C to 45˚C)
AGM Storage Temperature	5˚F to 104˚F (-15˚C to 40˚C)

Due to continuous improvements to our products, product may vary slightly from depiction.

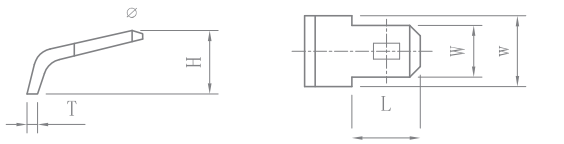
Charge Method (Constant Voltage)	
Cycle Use (Repeating Use)	
Initial Current	2.4 A or smaller
Control Voltage	14.6 - 14.8 V
Float Use	
Control Voltage	13.6 - 13.8 V

Physical Dimensions: in (mm)



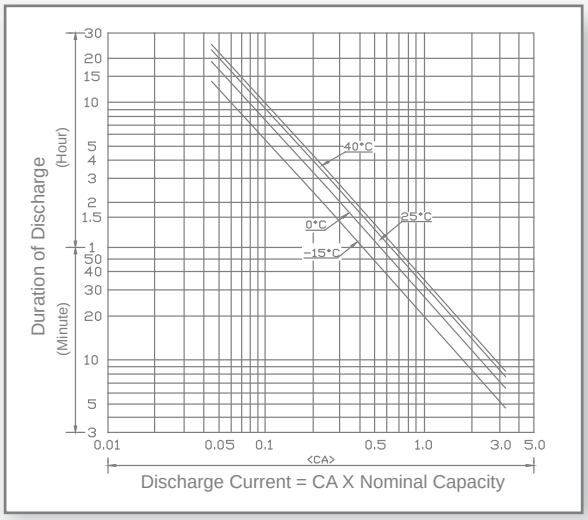
L: 5.94 in (151 mm)
W: 2.56 in (65.0 mm)
H: 3.70 in (94.0 mm)
TH: 3.94 in (100 mm)
Tolerances are +/- 0.04 in. (+/- 1mm) and +/- 0.08 in. (+/- 2mm) for height dimensions. All data subject to change without notice.

Terminals

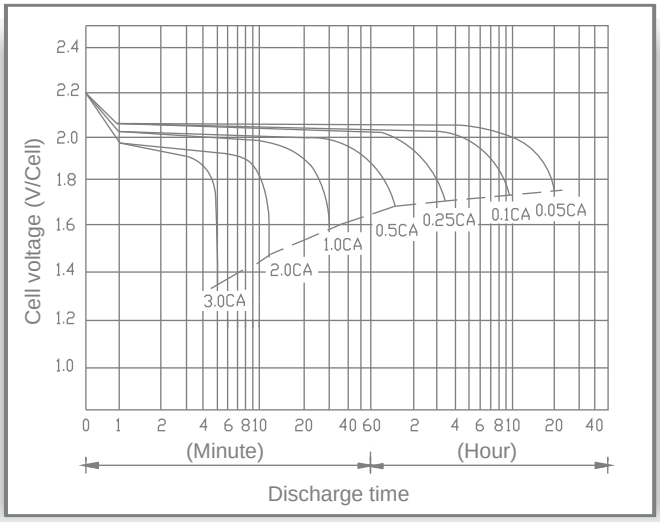


Dimension / Type	L	W	w	H	T
F2	7.80	6.35	7.80	6.00	0.80

Discharge Time vs. Discharge Current



Discharge Characteristics



ISO 9001

www.upgi.com

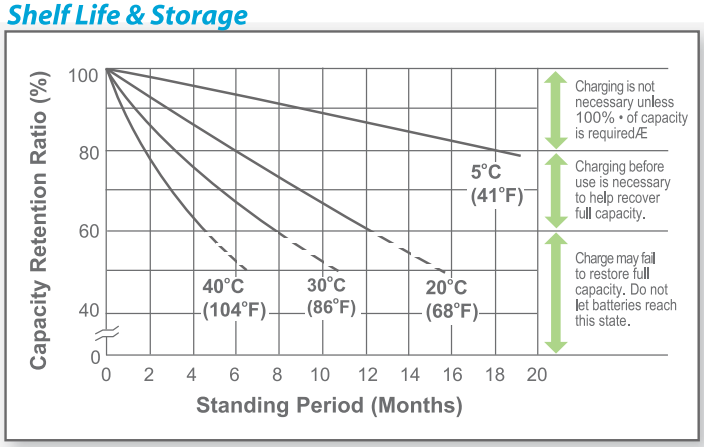
All specifications subject to change without notice.

488 S. Royal Lane | Coppell, Texas 71906 | P 469.892.1122 | T 866.892.1122 | F 469.892.1123 | sales@upgi.com

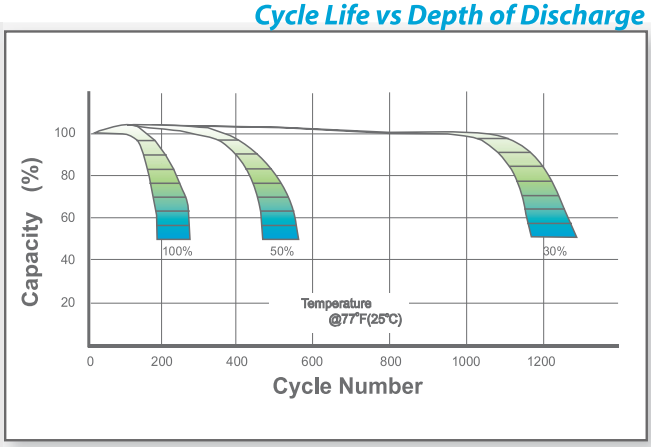
UB1280

Maintenance-Free

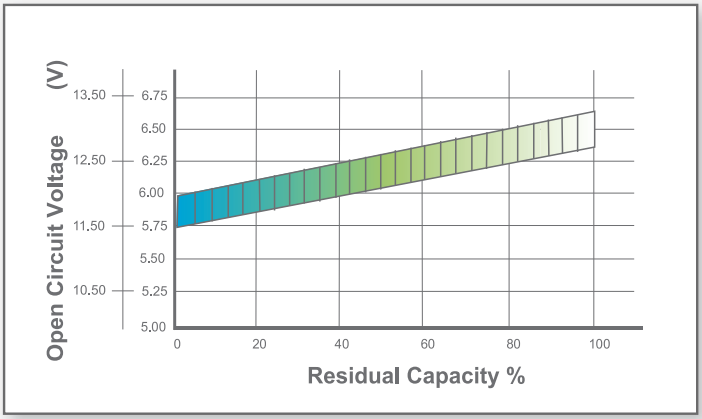
Shelf Life & Storage



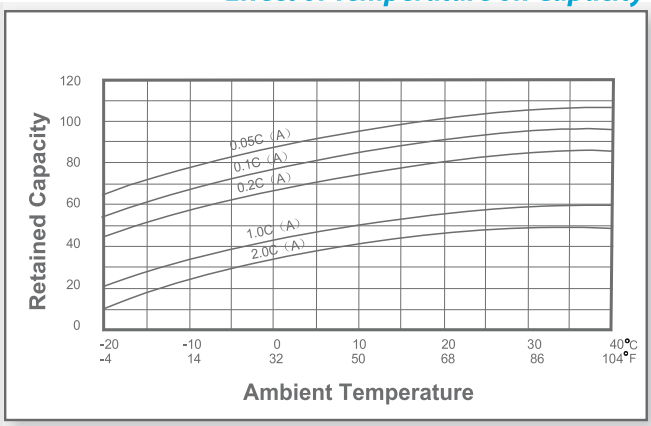
Cycle Life vs Depth of Discharge



Open Circuit Voltage vs Residual Capacity



Effect of Temperature on Capacity



Charge Current & Final Discharge Voltage

Application	Charge Voltage(V/Cell)			Max.Charge Current
	Temperature	Set Point	Allowable Range	
Cycle Use	25℃(77℉)	2.45	2.40~2.50	.3C
Standby	25℃(77℉)	2.30	2.3 ~2.35	

Final Discharge Voltage V/Cell	1.75	1.70	1.60	1.30
Discharge Current(A)	0.2C>(A)	0.2C<(A)<0.5C	0.5C<(A)<1.0C	(A)>1.0C

FDU-80C

80 Character Liquid Crystal Display

NOTIFIER® by Honeywell

Annunciators

General

The **FDU-80C** is a compact, cost-effective, 80-character, backlit LCD remote Fire Indicator for use with the NOTIFIER NFS2-640 and NFS-320C Fire Alarm Control Panels (FACPs). The FDU-80C mimics the display of the control panel and displays complete system point status information.

Up to 32 FDU-80Cs may be connected onto the EIA-485 terminal port of each FACP. The FDU-80C requires no programming, which saves time during system commissioning.

Features

- 80-character Liquid Crystal Display.
- Mimics all display information from the host panel.
- Control switches for local piezo silence and lamp test.
- System status LEDs for Power, Alarm, Trouble, Supervisory and Alarm Silenced.
- No programming necessary — FDU-80C connects to the terminal port on the FACP.
- Displays device type identifiers, individual point alarm, trouble or supervisory, zone and custom alpha labels.
- Time-and-date display field.
- Aesthetically pleasing design.
- May be powered from the host FACP or by remote power supply (requires 24 VDC).
- Up to 32 FDU-80C annunciators per FACP.
- Plug-in terminal blocks for ease of installation and service.
- Can be remotely located up to 1828.8 m from the FACP.
- Local piezo sounder with alarm and trouble resound.
- Semi-flush mounts to 5.556 cm minimum deep, three-gang electrical box (NOTIFIER P/N 10103) or three-gangable electrical switchbox.
- Surface-mounts to NOTIFIER SBB-3 surface backbox.

Operation

The FDU-80C annunciator provides the FACP with point annunciation with full display text on an 80-character LCD display. The FDU-80C also provides an array of LEDs to indicate system status.

The FDU-80C provides the FACP with up to 32 remote serially connected annunciators. All field-wiring terminations on the FDU-80C use removable, compression-type terminal blocks for ease of wiring and circuit testing.

Communication between the FACP and the annunciators is accomplished over an EIA-485 serial interface, which greatly reduces wire and installation cost over traditional systems. Six wires total are required: four for the EIA-485 communications (two in and two return); and two for the 24 VDC regulated power. Dip switches control local functions such as: piezo disable, and transmit/receive mode.

Installation

The FDU-80C can be semi-flush mounted to a 5.556 cm minimum deep, three-gang electrical box or three-gangable electrical switchboxes. Alternately, an SBB-3 surface backbox is available for surface-mount applications.

FDU-80C.JPG

FDU-80C

Product Line Information

FDU-80C: 80 character, backlit, LCD Fire Indicator with control switches for remote control of system functions, and key-switch lock.

10103: Three-gang electrical box, minimum 5.556 cm deep, for semi-flush mount applications.

SBB-3: Three-gang surface backbox for surface-mount applications.

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.

- **ULC Listed:** S635

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.
(888) 289-1114
10 Whitmore Road
Woodbridge, Ontario L4L 7Z4
www.notifier.com

FIRE·LITE ALARMS
by Honeywell

Fire-Lite Alarms
One Fire-Lite Place
Northford, CT 06472
www.firelite.com

Product Announcement: New FL-PS Series Remote Power Supplies
April 2021

Fire-Lite Alarms is pleased to announce the availability of the FL-PS Series remote power supplies with both 6-Amp and 10-Amp models for the US and Canadian markets. These next generation power supplies are direct replacements for the FCPS-24FS Series and have been designed to meet the growing needs of today's installation and servicing requirements by offering more capabilities than ever before. The new FL-PS Series features:

- **More Power, Inputs and Outputs**
  - 10-Amp model includes 7 outputs and 3 inputs (Class A or Class B)
  - 6-Amp model includes 5 outputs and 2 inputs (Class A or Class B)
- **More Flexibility**
  - Includes fully configurable inputs that can be paired with any output
  - Offers configurable outputs as either Class B or Class A (requires ZNAC-PS card)
- **More Ways to Sync**
  - Supports System Sensor®, Wheelock®, Gentex®, and Amseco® AV sync protocols
  - Provides synchronized cascading for up to 4 levels
- **More Efficient Installation**
  - Features removable door and 10 concentric knockouts for easier access and setup
  - Compatible with wide range of end-of-line resistors for easy retrofit
- **More Maintenance Diagnostics**
  - Features intuitive diagnostic and troubleshooting LEDs
  - Includes Display Trouble History Mode to review all trouble conditions
- **More Cabinet Space**
  - Space for a ZNAC card AND a control module
  - Accommodates up to two 7 Ah or 18 Ah batteries with maximum 33 Ah charging capacity

The new FL-PS remote power supplies are available to order now! Contact your preferred Fire-Lite Alarms authorized wholesale distributor for ordering and pricing information and visit firelite.com for more information.

NEW MODEL NO.	DESCRIPTION	DIRECTLY REPLACES
FL-PS6	POWER SUPPLY; 6 AMPS, 5 OUTPUTS; 2 INPUTS	FCPS-24FS6
FL-PS6C	POWER SUPPLY; 6 AMPS, 5 OUTPUTS; 2 INPUTS (CANADA)	FCPS-24FS6C
FL-PS10	POWER SUPPLY; 10 AMPS, 7 OUTPUTS; 3 INPUTS	FCPS-24FS8
FL-PS10C	POWER SUPPLY; 10 AMPS, 7 OUTPUTS; 3 INPUTS (CANADA)	FCPS-24FS8C
ZNAC-PS	PS SERIES CLASS A CONVERTER MODULE	ZNAC-4
SEISKIT-MULTI-1	PS SERIES SEISMIC KIT (BRACKET & HARDWARE)	SEISKIT-PS/2/4

With the release of the FL-PS Series, we are also announcing the immediate discontinuation of the Fire-Lite FCPS-24FS Series and several Honeywell Power Products HPF Series power supplies due to a core component end-of-life. Please see the following table for a complete list of discontinued models and their recommended replacements as well as the legacy models that will continue to remain available.

Legacy Power Supply Status:

LEGACY MODEL NO.	DESCRIPTION	STATUS	RECOMMENDED REPLACEMENT
FCPS-24FS6	6 AMP POWER SUPPLY	DISCONTINUED	FL-PS6
FCPS-24FS6C	6 AMP POWER SUPPLY (CANADA)	DISCONTINUED	FL-PS6C
FCPS-24FS6E	6 AMP POWER SUPPLY (240 VAC)	DISCONTINUED	N/A
FCPS-24FS8	8 AMP POWER SUPPLY	DISCONTINUED	FL-PS10
FCPS-24FS8C	8 AMP POWER SUPPLY (CANADA)	DISCONTINUED	FL-PS10C
FCPS-24FS8E	8 AMP POWER SUPPLY (240 VAC)	DISCONTINUED	N/A
HPF24S6	6 AMP POWER SUPPLY	DISCONTINUED	FL-PS6
HPF24S6C	6 AMP POWER SUPPLY (CANADA)	DISCONTINUED	FL-PS6C
HPF24S6E	6 AMP POWER SUPPLY (240 VAC)	DISCONTINUED	N/A
HPF24S8	8 AMP POWER SUPPLY	DISCONTINUED	FL-PS10
HPF24S8C	8 AMP POWER SUPPLY (CANADA)	DISCONTINUED	FL-PS10C
HPF24S8E	8 AMP POWER SUPPLY (240 VAC)	DISCONTINUED	N/A
HPF602ULADA	6 AMP POWER SUPPLY	WHILE SUPPLIES LAST	FL-PS6
HPF902ULADA	9 AMP POWER SUPPLY	WHILE SUPPLIES LAST	FL-PS10
HPFF8	8 AMP POWER SUPPLY	WHILE SUPPLIES LAST	FL-PS10
HPFF8E	8 AMP POWER SUPPLY (240 VAC)	DISCONTINUED	N/A
HPFF8CM	8 AMP POWER SUPPLY	WILL REMAIN AVAILABLE	N/A
HPFF8CME	8 AMP POWER SUPPLY (240 VAC)	WILL REMAIN AVAILABLE	N/A
HPFF12	12 AMP POWER SUPPLY	WILL REMAIN AVAILABLE	N/A
HPFF12E	12 AMP POWER SUPPLY (240 VAC)	DISCONTINUED	N/A
HPFF12CM	12 AMP POWER SUPPLY	WILL REMAIN AVAILABLE	N/A
HPFF12CME	12 AMP POWER SUPPLY (240 VAC)	WILL REMAIN AVAILABLE	N/A

We appreciate your business and continued support of Fire-Lite Alarms products.

Sealed Lead-Acid Battery

UPG No. D5779

UB1280

Maintenance-Free

Absorbant Glass Mat (AGM) technology for superior performance. Valve regulated, spill proof construction allows safe operation in any position. Approved for transport by air. D.O.T., I.A.T.A., F.A.A. and C.A.B. certified. U.L. recognized under file number MH 20567.

Specification

Nominal Voltage	12 volts
Nominal Capacity	77º F (25º C)
20-hr. (0.4A)	8.00 Ah
10-hr. (0.744A)	7.44 Ah
5-hr. (1.36A)	6.80 Ah
1-hr. (4.8A)	4.80 Ah
Approximate Weight	4.74 lbs (2.14 kgs)
Internal Resistance (approx.)	23mΩ

Shelf Life (% of normal capacity at 68º F (20º C)

3 Months	6 Months	12 Months
91%	83%	64%

Temperature Dependancy of Capacity (20 hour rate)

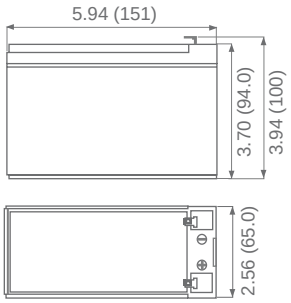
104˚ F (40˚C)	77˚F (25˚C)	32˚F (0˚C)	5˚F (-15˚C)
102%	100%	85%	65%

AGM Operational Temperature	
Charge	32˚F to 104˚F (0˚C to 40˚C)
Discharge	5˚F to 113˚F (-15˚C to 45˚C)
AGM Storage Temperature	5˚F to 104˚F (-15˚C to 40˚C)

Due to continuous improvements to our products, product may vary slightly from depiction.

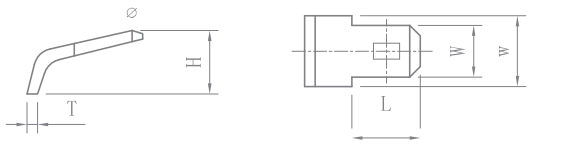
Charge Method (Constant Voltage)	
Cycle Use (Repeating Use)	
Initial Current	2.4 A or smaller
Control Voltage	14.6 - 14.8 V
Float Use	
Control Voltage	13.6 - 13.8 V

Physical Dimensions: in (mm)



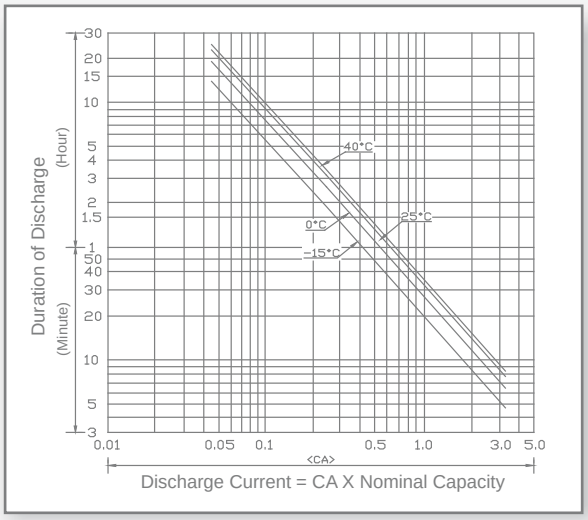
L: 5.94 in (151 mm)
W: 2.56 in (65.0 mm)
H: 3.70 in (94.0 mm)
TH: 3.94 in (100 mm)
Tolerances are +/- 0.04 in. (+/- 1mm) and +/- 0.08 in. (+/- 2mm) for height dimensions. All data subject to change without notice.

Terminals

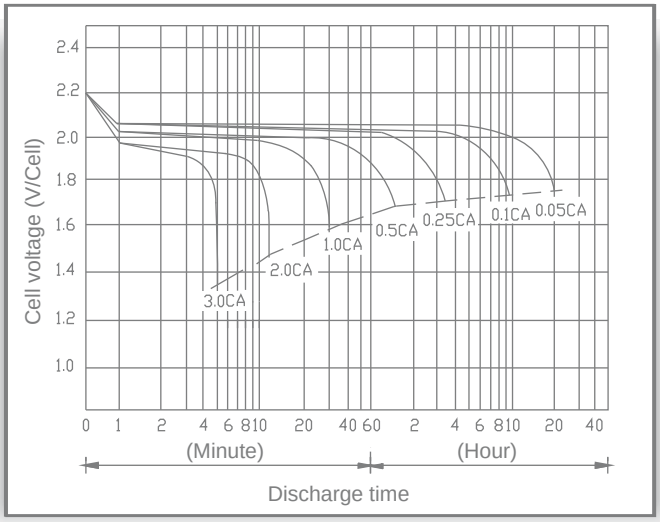


Dimension / Type	L	W	w	H	T
F2	7.80	6.35	7.80	6.00	0.80

Discharge Time vs. Discharge Current



Discharge Characteristics



ISO 9001

www.upgi.com

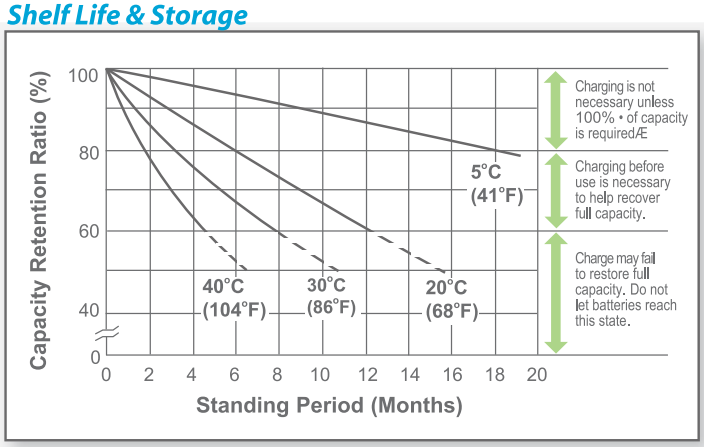
All specifications subject to change without notice.

488 S. Royal Lane | Coppell, Texas 71906 | P 469.892.1122 | T 866.892.1122 | F 469.892.1123 | sales@upgi.com

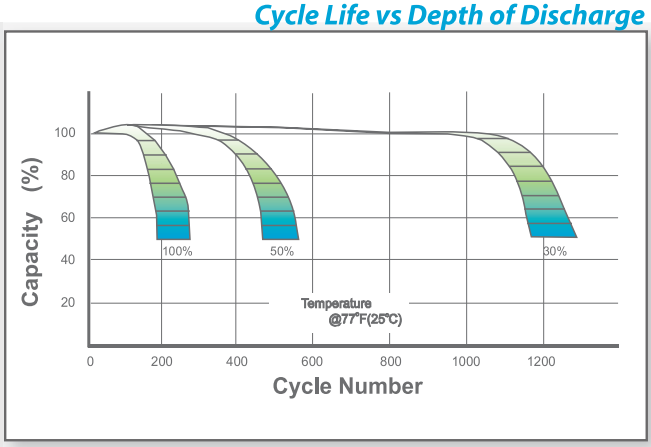
UB1280

Maintenance-Free

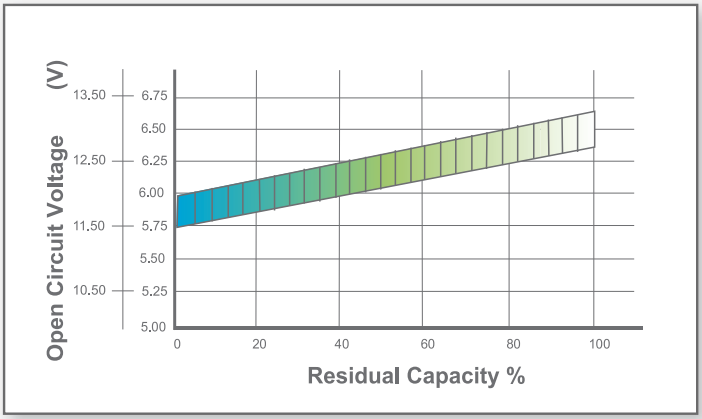
Shelf Life & Storage



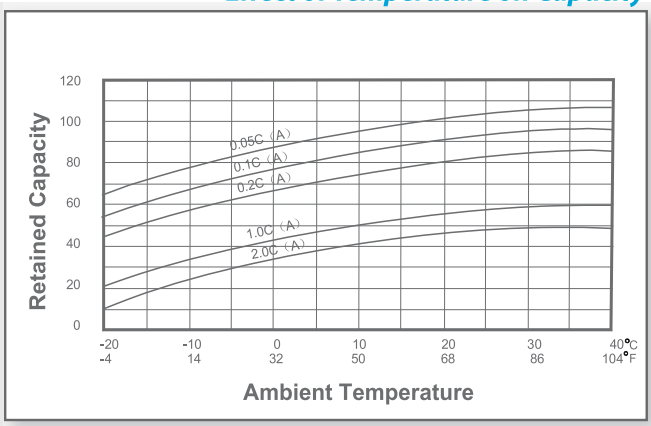
Cycle Life vs Depth of Discharge



Open Circuit Voltage vs Residual Capacity



Effect of Temperature on Capacity



Charge Current & Final Discharge Voltage

Application	Charge Voltage(V/Cell)			Max.Charge Current
	Temperature	Set Point	Allowable Range	
Cycle Use	25℃(77℉)	2.45	2.40~2.50	.3C
Standby	25℃(77℉)	2.30	2.3 ~2.35	

Final Discharge Voltage V/Cell	1.75	1.70	1.60	1.30
Discharge Current(A)	0.2C>(A)	0.2C<(A)<0.5C	0.5C<(A)<1.0C	(A)>1.0C

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.

Made in the U.S. A.

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

D355PL(A)/DNRW InnovairFlex

Intelligent Non-Relay Photoelectric Duct Smoke Detector

FIRE-LITE ALARMS by Honeywell

Intelligent Addressable Devices

General

The Fire•Lite InnovairFlex® **D355PL(A)** intelligent non-relay photoelectric duct smoke detector and DNRW watertight non-relay photoelectric duct smoke detector feature a pivoting housing that fits both square and rectangular footprints capable of mounting to a round or rectangular duct.

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

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

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

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

Features

- Photoelectric, integrated low-flow technology.
- Air velocity rating from 100 ft/min to 4,000 ft/min (0.5 m/s to 20.32 m/s).
- Versatile mounting options: square or rectangular configuration.
- Broad ranges for operating temperature (-4°F to 158°F, -20°C to 70°C) and humidity (0% to 95% non-condensing).
- Patented sampling tube installs from front or back of the detector with no tools required.
- Cover tamper signal.
- Increased wiring space with a newly added 3/4” conduit knockout.
- Available space within housing to accommodate mounting of a relay module.
- Easily accessible code wheels on sensor head (sold separately).
- Clear cover for convenient visual inspection.
- Remote testing capability.
- Requires com line power only.
- Accommodates the installation of an addressable relay module, sold separately, (CRF-300) for applications requiring a Form-C relay.

Specifications

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

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

Weight: 1.6 lb (0.73 kg).

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

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

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

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

Accessories

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

D355PLs and DNRWs with a date code of 0013 or higher do not require external 24VDC for remote test applications when used with a remote-test-capable detector.

ACCESSORY CURRENT LOADS AT 24 VDC

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

Agency Listings and Approvals

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

- **UL:** S1059.
- **ULC:** S1059

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

Product Line Information

D355PL: Intelligent non-relay photoelectric low flow smoke detector housing. Includes SD355R Detector.

DNRW: Watertight intelligent non-relay photoelectric low flow duct smoke detector housing. Does not include detector head.

SD355R(A): Remote test capable addressable low-profile photoelectric smoke detector.

SD355(A): Addressable low-profile photoelectric smoke detector.

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

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

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

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

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

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

DH400OE-1: Weatherproof enclosure.

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

M02-04-00: Test magnet.

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

RA100Z: Remote annunciator alarm LED.

RTS151: Remote test station.

RTS151KEY: Remote test station with key lock.

Important Note

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

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 Fire•Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.
www.firelite.com

NOTIFIER® by Honeywell

FSP-951 Series Addressable Photoelectric Smoke Detectors

The NOTIFIER® FSP-951 Series intelligent plug-in smoke detectors are designed for both performance and aesthetics, and are direct replacements for the FSP-851 Series. A new modern, sleek, contemporary design and enhanced optical sensing chamber is engineered to sense smoke produced by a wide range of combustion sources in accordance with more stringent code standards.

The FSP-951 Series 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. Dual electronic thermistors add 135°F (57°C) fixed temperature thermal sensing on the FSP-951T. The FSP-951R is a remote test capable detector for use with DNR Series duct detector housings. FSP-951 series detectors are available for both FlashScan® and CLIP applications as designated.

Features

SLC LOOP:

- Two-wire SLC loop connection
- Unit uses base for wiring
- Compatible with FlashScan® and CLIP protocol systems
- Stable communication technique with noise immunity

ADDRESSING:

- Addressable by device
- Rotary, decimal addressing
  (Refer to the *NOTIFIER panel manuals* for device capacity.)

ARCHITECTURE:

- Sleek, low-profile, stylish design
- Unique single-source design to respond quickly and dependably to a broad range of fires
- Integral communications and built-in device-type identification
- Built-in tamper resistant feature
- 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
- Removable cover and insect-resistant screen for simple field cleaning
- Expanded color options

OPERATION:

- Designed to meet UL 268 7th Edition
- Factory preset at 1.5% nominal sensitivity for panel alarm threshold level
- LED "blinks" when the unit is polled (communicating with the fire panel) and latches in alarm.
- Low standby current

MECHANICALS:

- Sealed against back pressure
- SEMS screws for wiring of the separate base
- Designed for direct-surface or electrical-box mounting
- Plugs into separate base for ease of installation and maintenance
- Separate base allows interchange of photoelectric, ionization and thermal sensors

OPTIONS:

- Optional relay, isolator, and sounder bases

Installation

FSP-951 Series plug-in intelligent smoke detectors use a detachable base to simplify installation, service and maintenance. Installation instructions are shipped with each detector.

Mount detector 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: *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 Class "B" wiring only.*
When using relay or sounder bases, consult the ISO-X(A) installation sheet I56-1380 for device limitations between isolator modules and isolator bases.

Construction

These detectors are constructed of fire-resistant plastic. The FSP-951 Series plug-in intelligent smoke detectors are designed to commercial standards and offer an attractive appearance.

Operation

Each FSP-951 Series detector uses one of the panel's addresses (total limit is panel dependent) on the NOTIFIER Signaling Line Circuit (SLC). It responds to regular polls from the control panel and reports its type and the status. If it receives a test command from the panel (or a local magnet test), it stimulates its electronics and reports an alarm. It blinks its LEDs when polled and turns the LEDs on when commanded by the panel. The FSP-951 Series offers features and performance that represent the latest in smoke detector technology.

Product Line Information

NOTE: *"-IV" suffix indicates CLIP and FlashScan device.*

FSP-951: White, low-profile intelligent photoelectric sensor, FlashScan only

FSP-951A: Same as FSP-951 but with ULC listing

FSP-951-IV: Ivory, low-profile intelligent photoelectric sensor

FSP-951A-IV: Same as FSP-951-IV but with ULC listing

FSP-951T: White, same as FSP-951 but includes a built-in 135°F (57°C) fixed-temperature thermal device, FlashScan only

FSP-951TA: Same as FSP-951T but with ULC listing

FSP-951T-IV: Ivory, same as FSP-951T but includes a built-in 135°F (57°C) fixed-temperature thermal device

FSP-951TA-IV: Same as FSP-951T-IV but with ULC listing

FSP-951R: White, low-profile intelligent photoelectric sensor, remote test capable, for use with DNR/DNRW, FlashScan only

FSP-951RA: Same as FSP-951R but with ULC listing, for use with DNRA

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable, for use with DNR/DNRW

FSP-951RA-IV: Same as FSP-951R-IV but with ULC listing, for use with DNRA

INTELLIGENT BASES

NOTE: *For details on intelligent bases, see DN-60981.*

B300-6: White, 6" base, standard flanged low-profile mounting base *(CSFM: 7300-1653:0109)*

B300-6-IV: Ivory,6" base, standard flanged low-profile mounting base *(CSFM: 7300-1653:0109)*

B300A-6: Same as B300-6, ULC listed

B300A-6-IV: Ivory, 6" standard flanged low-profile mounting base, ULC listed

B300-6-BP: Bulk pack of B300-6, package contains 10

B501-WHITE: White, 4" standard European flangeless mounting base. UL/ULC listed *(CSFM: 7300-1653:0109)*

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed *(CSFM: 7300-1653:0109)*

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed *(CSFM: 7300-1653:0109)*

B501-WHITE-BP: Bulk pack of B501-WHITE contains 10

B224RB-WH: White, relay base (*CSFM: 7300-1653:0216)*

B224RB-IV: Ivory, relay base (*CSFM: 7300-1653:0216)*

B224RBA-WH: White, relay base, ULC listing

B224RBA-IV: Ivory, relay base, ULC listing

B224BI-WH: White, isolator detector base (CSFM: 7300-1653:0216)

B224BI-IV: Ivory isolator detector base (CSFM: 7300-1653:0216)

B224BIA-WH: White, isolator detector base, ULC listing

B224BIA-IV: Ivory isolator detector base, ULC listing

B200S-WH: White, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol. *(CSFM: 7300-1653:0213)*

B200S-IV: Ivory, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol. *(CSFM: 7300-1653:0213)*

B200SA-WH: Same as B200S-WH, ULC listing

B200SA-IV: Same as B200S-IV, ULC listing

B200SCOA-WH: White, Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO Series detector applications

B200SCOA-IV: Ivory Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO Series detector applications, ULC listing

B200S-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. (*CSFM: 7300-1653:0238)*

B200S-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. (*CSFM: 7300-1653:0238)*

B200SR-WH: White, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications. *(CSFM: 7300-1653:0213)*

B200SR-IV: Ivory, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications. *(CSFM: 7300-1653:0213)*

B200SRA-WH: Same as B200SR-WH with, ULC listing

B200SRA-IV: Same as B200SR-IV in Ivory color, ULC listing

B200SR-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications. (*CSFM: 7300-1653:0238)*

B200SR-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications. (*CSFM: 7300-1653:0238)*

MOUNTING KITS AND ACCESSORIES

TR300: White, replacement flange for B210LP(A) base

TR300-IV: Ivory, 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 B300-6(A).

M02-04-00: Test magnet

M02-09-00: Test magnet with telescoping handle

CK300: Color Kit (includes cover and trim ring), white, 10-pack

CK300-IV: Color Kit (includes cover and trim ring), ivory, 10-pack

CK300-BL: Color Kit (includes cover and trim ring), black, 10-pack

Sensitivity:

- UL Applications: 0.5% to 4.0% per foot obscuration.
- ULC Applications: 0.5% to 3.5% per foot obscuration

Size: 2.0" (51mm) high; base determines diameter

  – **B300-6 series:** 6.1" (15.6 cm) diameter

  – **B501 series:** 4" (10.2 cm) diameter

For a complete list of detector bases see DN-60981

Shipping weight: 3.4 oz. (95 g)

Operating temperature range:

- FSP-951 Series: 32°F to 122°F (0°C to 50°C)
- FSP-951T Series: 32°F to 100°F(0°C to 38°C)
- FSP-951R Series installed in DNR/DNRA/DNRW, -4°F to 158°F (-20°C to 70°C)

UL/ULC Listed Velocity Range: 0-4000 ft/min. (1219.2 m/min.), suitable for installation in ducts

Relative humidity: 10% – 93% non-condensing

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

ELECTRICAL SPECIFICATIONS

Voltage range: 15 - 32 volts DC peak

Standby current (max. avg.): 200µA @ 24 VDC (one communication every 5 seconds with LED enabled)

Max current: 4.5 mA @ 24 VDC (“ON”)

DETECTOR SPACING AND APPLICATIONS

NOTIFIER recommends spacing detectors in compliance with NFPA 72. In low airflow applications with smooth ceiling, space detectors 30 feet (9.1m). For specific information regarding detector spacing, placement, and special applications refer to NFPA 72. A *System Smoke Detector Application Guide*, document SPAG91, is available at **www.systemsensor.com.**

Listings and Approvals

Listings and approvals below apply to the FSP-951 Series detectors. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL/ULC Listing: S1115
- FM Approved
- CSFM: 7272-0028:0503

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

Country of Origin: Mexico

NOTIFIER® by Honeywell

DNR(A) and DNRW Intelligent Photoelectric Duct Detectors

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

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

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

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

The Notifier DNR(A) duct smoke detectors can be customized to meet local codes and specifications without additional wiring and are compatible with all previous models, including remote test accessories.

Features

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

Specifications

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

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

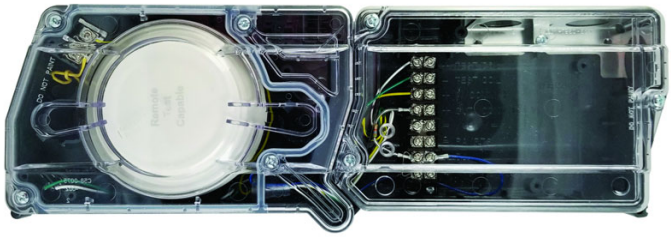
Weight: 1.6 lb (0.73 kg)

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

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

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

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



Accessories

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

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

ACCESSORY CURRENT LOADS AT 24 VDC

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

Agency Listings and Approvals

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

- **UL:** S635, S3705
- **ULC:** S635
- **CSFM:** 3240-1653:0209
- **FM approved**

Product Line Information

NOTE: *“A suffix indicates ULC listed model.*

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

DNRW: Watertight intelligent non-relay photoelectric low flow duct smoke detector housing. Requires photoelectric smoke detector (sold separately). NEMA-4 rated.

FSP-951R(A)-IV: Remote test capable addressable low-profile photoelectric smoke detector; ivory; supports CLIP and FlashScan® protocols

FSP-951R(A): Remote test capable addressable low-profile photoelectric smoke detector; white; supports FlashScan protocol only

FSP-951(A)-IV: Addressable low-profile photoelectric smoke detector; ivory; supports CLIP and FlashScan protocols

FSP-951R(A): Addressable low-profile photoelectric smoke detector; white; supports FlashScan protocol only

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

DUCTCOV: Retrofit DNR cover for manufactured prior to April 2014

DUCTCOVW: Retrofit DNRW cover for manufactured prior to April 2014

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

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

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

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

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

DH400OE-1: Weatherproof enclosure

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

M02-04-00: Test magnet

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

RA100Z(A): Remote annunciator alarm LED

RTS151(A): Remote test station

RTS151KEY(A): Remote test station with key lock

Important Notes

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

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

Country of Origin: Mexico

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

NOTIFIER® by Honeywell

NOTIFIER® by Honeywell

FSP-951 Series Addressable Photoelectric Smoke Detectors

The NOTIFIER® FSP-951 Series intelligent plug-in smoke detectors are designed for both performance and aesthetics, and are direct replacements for the FSP-851 Series. A new modern, sleek, contemporary design and enhanced optical sensing chamber is engineered to sense smoke produced by a wide range of combustion sources in accordance with more stringent code standards.

The FSP-951 Series 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. Dual electronic thermistors add 135°F (57°C) fixed temperature thermal sensing on the FSP-951T. The FSP-951R is a remote test capable detector for use with DNR Series duct detector housings. FSP-951 series detectors are available for both FlashScan® and CLIP applications as designated.

Features

SLC LOOP:

- Two-wire SLC loop connection
- Unit uses base for wiring
- Compatible with FlashScan® and CLIP protocol systems
- Stable communication technique with noise immunity

ADDRESSING:

- Addressable by device
- Rotary, decimal addressing
  (Refer to the *NOTIFIER panel manuals* for device capacity.)

ARCHITECTURE:

- Sleek, low-profile, stylish design
- Unique single-source design to respond quickly and dependably to a broad range of fires
- Integral communications and built-in device-type identification
- Built-in tamper resistant feature
- 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
- Removable cover and insect-resistant screen for simple field cleaning
- Expanded color options

OPERATION:

- Designed to meet UL 268 7th Edition
- Factory preset at 1.5% nominal sensitivity for panel alarm threshold level
- LED "blinks" when the unit is polled (communicating with the fire panel) and latches in alarm.
- Low standby current

MECHANICALS:

- Sealed against back pressure
- SEMS screws for wiring of the separate base
- Designed for direct-surface or electrical-box mounting
- Plugs into separate base for ease of installation and maintenance
- Separate base allows interchange of photoelectric, ionization and thermal sensors

OPTIONS:

- Optional relay, isolator, and sounder bases

Installation

FSP-951 Series plug-in intelligent smoke detectors use a detachable base to simplify installation, service and maintenance. Installation instructions are shipped with each detector.

Mount detector 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: *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 Class "B" wiring only.*
When using relay or sounder bases, consult the ISO-X(A) installation sheet I56-1380 for device limitations between isolator modules and isolator bases.

Construction

These detectors are constructed of fire-resistant plastic. The FSP-951 Series plug-in intelligent smoke detectors are designed to commercial standards and offer an attractive appearance.

Operation

Each FSP-951 Series detector uses one of the panel's addresses (total limit is panel dependent) on the NOTIFIER Signaling Line Circuit (SLC). It responds to regular polls from the control panel and reports its type and the status. If it receives a test command from the panel (or a local magnet test), it stimulates its electronics and reports an alarm. It blinks its LEDs when polled and turns the LEDs on when commanded by the panel. The FSP-951 Series offers features and performance that represent the latest in smoke detector technology.

Product Line Information

NOTE: *"-IV" suffix indicates CLIP and FlashScan device.*

FSP-951: White, low-profile intelligent photoelectric sensor, FlashScan only

FSP-951A: Same as FSP-951 but with ULC listing

FSP-951-IV: Ivory, low-profile intelligent photoelectric sensor

FSP-951A-IV: Same as FSP-951-IV but with ULC listing

FSP-951T: White, same as FSP-951 but includes a built-in 135°F (57°C) fixed-temperature thermal device, FlashScan only

FSP-951TA: Same as FSP-951T but with ULC listing

FSP-951T-IV: Ivory, same as FSP-951T but includes a built-in 135°F (57°C) fixed-temperature thermal device

FSP-951TA-IV: Same as FSP-951T-IV but with ULC listing

FSP-951R: White, low-profile intelligent photoelectric sensor, remote test capable, for use with DNR/DNRW, FlashScan only

FSP-951RA: Same as FSP-951R but with ULC listing, for use with DNRA

FSP-951R-IV: Ivory, low-profile intelligent photoelectric sensor, remote test capable, for use with DNR/DNRW

FSP-951RA-IV: Same as FSP-951R-IV but with ULC listing, for use with DNRA

INTELLIGENT BASES

NOTE: *For details on intelligent bases, see DN-60981.*

B300-6: White, 6" base, standard flanged low-profile mounting base *(CSFM: 7300-1653:0109)*

B300-6-IV: Ivory,6" base, standard flanged low-profile mounting base *(CSFM: 7300-1653:0109)*

B300A-6: Same as B300-6, ULC listed

B300A-6-IV: Ivory, 6" standard flanged low-profile mounting base, ULC listed

B300-6-BP: Bulk pack of B300-6, package contains 10

B501-WHITE: White, 4" standard European flangeless mounting base. UL/ULC listed *(CSFM: 7300-1653:0109)*

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed *(CSFM: 7300-1653:0109)*

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed *(CSFM: 7300-1653:0109)*

B501-WHITE-BP: Bulk pack of B501-WHITE contains 10

B224RB-WH: White, relay base (*CSFM: 7300-1653:0216)*

B224RB-IV: Ivory, relay base (*CSFM: 7300-1653:0216)*

B224RBA-WH: White, relay base, ULC listing

B224RBA-IV: Ivory, relay base, ULC listing

B224BI-WH: White, isolator detector base (CSFM: 7300-1653:0216)

B224BI-IV: Ivory isolator detector base (CSFM: 7300-1653:0216)

B224BIA-WH: White, isolator detector base, ULC listing

B224BIA-IV: Ivory isolator detector base, ULC listing

B200S-WH: White, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol. *(CSFM: 7300-1653:0213)*

B200S-IV: Ivory, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol. *(CSFM: 7300-1653:0213)*

B200SA-WH: Same as B200S-WH, ULC listing

B200SA-IV: Same as B200S-IV, ULC listing

B200SCOA-WH: White, Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO Series detector applications

B200SCOA-IV: Ivory Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO Series detector applications, ULC listing

B200S-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. (*CSFM: 7300-1653:0238)*

B200S-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. (*CSFM: 7300-1653:0238)*

B200SR-WH: White, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications. *(CSFM: 7300-1653:0213)*

B200SR-IV: Ivory, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications. *(CSFM: 7300-1653:0213)*

B200SRA-WH: Same as B200SR-WH with, ULC listing

B200SRA-IV: Same as B200SR-IV in Ivory color, ULC listing

B200SR-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications. (*CSFM: 7300-1653:0238)*

B200SR-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications. (*CSFM: 7300-1653:0238)*

MOUNTING KITS AND ACCESSORIES

TR300: White, replacement flange for B210LP(A) base

TR300-IV: Ivory, 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 B300-6(A).

M02-04-00: Test magnet

M02-09-00: Test magnet with telescoping handle

CK300: Color Kit (includes cover and trim ring), white, 10-pack

CK300-IV: Color Kit (includes cover and trim ring), ivory, 10-pack

CK300-BL: Color Kit (includes cover and trim ring), black, 10-pack

Sensitivity:

- UL Applications: 0.5% to 4.0% per foot obscuration.
- ULC Applications: 0.5% to 3.5% per foot obscuration

Size: 2.0" (51mm) high; base determines diameter

  – **B300-6 series:** 6.1" (15.6 cm) diameter

  – **B501 series:** 4" (10.2 cm) diameter

For a complete list of detector bases see DN-60981

Shipping weight: 3.4 oz. (95 g)

Operating temperature range:

- FSP-951 Series: 32°F to 122°F (0°C to 50°C)
- FSP-951T Series: 32°F to 100°F(0°C to 38°C)
- FSP-951R Series installed in DNR/DNRA/DNRW, -4°F to 158°F (-20°C to 70°C)

UL/ULC Listed Velocity Range: 0-4000 ft/min. (1219.2 m/min.), suitable for installation in ducts

Relative humidity: 10% – 93% non-condensing

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

ELECTRICAL SPECIFICATIONS

Voltage range: 15 - 32 volts DC peak

Standby current (max. avg.): 200µA @ 24 VDC (one communication every 5 seconds with LED enabled)

Max current: 4.5 mA @ 24 VDC (“ON”)

DETECTOR SPACING AND APPLICATIONS

NOTIFIER recommends spacing detectors in compliance with NFPA 72. In low airflow applications with smooth ceiling, space detectors 30 feet (9.1m). For specific information regarding detector spacing, placement, and special applications refer to NFPA 72. A *System Smoke Detector Application Guide*, document SPAG91, is available at **www.systemsensor.com.**

Listings and Approvals

Listings and approvals below apply to the FSP-951 Series detectors. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL/ULC Listing: S1115
- FM Approved
- CSFM: 7272-0028:0503

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

Country of Origin: Mexico

NOTIFIER® by Honeywell

NOTIFIER® by Honeywell

FST-951 Series Intelligent Addressable Heat Detectors

The NOTIFIER® FST-951 Series intelligent thermal detectors are designed for both performance and aesthetics, and are direct replacements for the FST-851 Series. A new modern, sleek, contemporary design and advanced thermal technologies make the FST-951 Series ideal for both system operation and building design. The point ID address, set using rotary decimal switches, provide specific detector locations.

The series includes a 135°F/57°C fixed-temperature, rate-of-rise, and a 190°F/88°C fixed high-temperature detectors. These thermal detectors provide effective, intelligent property protection in a variety of applications. Detectors are available for both FlashScan® and CLIP applications as designated.

Features

SLC LOOP:

- Two-wire SLC loop connection
- Unit uses base for wiring

ADDRESSING:

- Addressable by device
- Rotary, decimal addressing
  (Refer to the *NOTIFIER panel manuals* for device capacity.)

ARCHITECTURE:

- Designed to meet UL 268 7th Edition
- Sleek, low-profile, stylish design
- State-of-the-art thermistor technology for fast response
- Integral communications and built-in device-type identification
- Built-in tamper resistant feature
- Built-in functional test switch activated by external magnet

OPERATION:

- Fixed temperature model (FST-951) factory preset to 135°F (57°C)
- Rate-of-rise model (FST-951R),15°F (8.3°C) per minute
- High-temperature model FST-951H) factory preset to 190°F (88°C)
- 360°-field viewing angle of the two visual alarm indicators, LEDs blink red in Normal condition and turn on steady red in Alarm
- LEDs blink every time the unit is polled

MECHANICALS:

- Sealed against back pressure
- SEMS screws for wiring of the separate base
- Designed for direct-surface or electrical-box mounting
- Plugs into separate base for ease of installation and maintenance
- Separate base allows interchange of photoelectric, ionization and thermal sensors

OTHER SYSTEM FEATURES:

- Remote test feature from the panel
- Walk test with address display
- Low standby current

OPTIONS:

- Remote LED output connection to optional RA100Z remote LED annunciator

Installation

FST-951 Series plug-in intelligent thermal detectors use a detachable base to simplify installation, service and maintenance. Installation instructions are shipped with each detector.

Mount detector 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: *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 only.*
When using relay or sounder bases, consult the ISO-X(A) installation sheet I56-1380 for device limitations between isolator modules and isolator bases.

Applications

Use thermal detectors for protection of property. For further information, refer to I56-6522, Applications Manual for System Smoke Detectors, which provides detailed information on detector spacing, placement, zoning, wiring, and special applications.

Construction

These detectors are constructed of fire-resistant plastic. The FST-951 Series plug-in intelligent thermal detectors are designed to commercial standards and offer an attractive appearance.

Operation

Each FST-951 Series detector uses one of the panel's addresses (total limit is panel dependent) on the NOTIFIER Signaling Line Circuit (SLC). It responds to regular polls from the control panel and reports its type and the status. If it receives a test command from the panel (or a local magnet test), it stimulates its electronics and reports an alarm. It blinks its LEDs when polled and turns the LEDs on when commanded by the panel. The FST-951 Series offers features and performance that represent the latest in thermal detector technology.

Product Line Information

***NOTE:** "-IV" suffix indicates CLIP and FlashScandevice.*

FST-951: White, low-profile intelligent 135°F fixed thermal sensor, FlashScan only

FST-951A: Same as FST-951 but with ULC listing

FST-951-IV: Ivory, low-profile intelligent 135°F fixed thermal sensor, FlashScan and CLIP

FST-951A-IV: Same as FST-951-IV but with ULC listing

FST-951R: White, low-profile intelligent rate-of-rise thermal sensor, FlashScan only

FST-951RA: Same as FST-951 but with ULC listing

FST-951R-IV: Ivory, low-profile intelligent rate-of-rise fixed thermal sensor, FlashScan and CLIP

FST-951RA-IV: Same as FST-951R-IV but with ULC listing

FST-951H: White, low-profile intelligent 190°F fixed thermal sensor, FlashScan only

FST-951HA: Same as FST-951H but with ULC listing

FST-951H-IV: Ivory, low-profile intelligent 190°F thermal sensor, FlashScan and CLIP

FST-951HA-IV Same as FST-951 but with ULC listing

INTELLIGENT BASES

***NOTE:** For details on intelligent bases, see DN-60981.*

B300-6: White, 6" base, standard flanged low-profile mounting base *(CSFM: 7300-1653:0109)*

B300-6-IV: Ivory,6" base, standard flanged low-profile mounting base *(CSFM: 7300-1653:0109)*

B300A-6: Same as B300-6, ULC listed

B300A-6-IV: Ivory, 6" standard flanged low-profile mounting base, ULC listed

B300-6-BP: Bulk pack of B300-6, package contains 10

B501-WHITE: White, 4" standard European flangeless mounting base. UL/ULC listed *(CSFM: 7300-1653:0109)*

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed *(CSFM: 7300-1653:0109)*

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed *(CSFM: 7300-1653:0109)*

B501-WHITE-BP: Bulk pack of B501-WHITE contains 10

B224RB-WH: White, relay base (*CSFM: 7300-1653:0216)*

B224RB-IV: Ivory, relay base (*CSFM: 7300-1653:0216)*

B224RBA-WH: White, relay base, ULC listing

B224RBA-IV: Ivory, relay base, ULC listing

B224BI-WH: White, isolator detector base (CSFM: 7300-1653:0216)

B224BI-IV: Ivory isolator detector base (CSFM: 7300-1653:0216)

B224BIA-WH: White, isolator detector base, ULC listing

B224BIA-IV: Ivory isolator detector base, ULC listing

B200S-WH: White, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol. *(CSFM: 7300-1653:0213)*

B200S-IV: Ivory, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol. *(CSFM: 7300-1653:0213)*

B200SA-WH: Same as B200S-WH, ULC listing

B200SA-IV: Same as B200S-IV, ULC listing

B200SCOA-WH: White, Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO Series detector applications

B200SCOA-IV: Ivory Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with CO Series detector applications, ULC listing

B200S-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. (*CSFM: 7300-1653:0238)*

B200S-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. (*CSFM: 7300-1653:0238)*

B200SR-WH: White, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications. *(CSFM: 7300-1653:0213)*

B200SR-IV: Ivory, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications. *(CSFM: 7300-1653:0213)*

B200SRA-WH: Same as B200SR-WH with, ULC listing

B200SRA-IV: Same as B200SR-IV in Ivory color, ULC listing

B200SR-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications. (*CSFM: 7300-1653:0238)*

B200SR-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications. (*CSFM: 7300-1653:0238)*

MOUNTING KITS AND ACCESSORIES

TR300: White, replacement flange for B210LP(A) base

TR300-IV: Ivory, 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 B300-6(A).

M02-04-00: Test magnet

M02-09-00: Test magnet with telescoping handle

CK300: Color Kit (includes cover and trim ring), white, 10-pack

CK300-IV: Color Kit (includes cover and trim ring), ivory, 10-pack

CK300-BL: Color Kit (includes cover and trim ring), black, 10-pack

Sensitivity: UL Applications: 0.5% to 4.0% per foot obscuration. ULC is 0.5% to 3.5%

Size: 2.0" (5.3 cm) high; base determines diameter

- **– B300-6:** 6.1" (15.6 cm) diameter
- **– B501:** 4" (10.2 cm) diameter

For a complete list of detector bases see DN-60981

Shipping weight: 3.4 oz. (95 g)

Operating temperature range:

- FST-951, FST-951R Series: –4°F to 100°F (–20°C to 38°C)
- FST-951H Series: –4°F to 150°F (–20°C to 66°C)

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% non-condensing

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

Mounting: B300-6(A) flanged base, included

See **"Product Line Information: Intelligent Bases,"** if using a different base.

ELECTRICAL SPECIFICATIONS

Voltage range: 15 - 32 volts DC peak

Standby current (max. avg.): 200µA @ 24 VDC (one communication every 5 seconds with LED enabled)

Max current: 4.5 mA @ 24 VDC ("ON")

Listings and Approvals

Listings and approvals below apply to the FST-951 Series detectors. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL/ULC Listing: S747
- FM Approved
- CSFM: 7270-0028:0502

ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

Country of Origin: Mexico

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

NOTIFIER® by Honeywell

Intelligent Bases Standard, Relay, Isolator, Sounder, and Low-Frequency Sounder Bases

General

To meet local code and application requirements, NOTIFIER® offers standard 4" and 6" bases, as well as, specialty base designs including relay, isolator, sounder and low frequency sounder options for the new 900 Series of addressable detectors as well as previous generations.

The standard 4" and 6" bases offer a plug-in detector base intended for use in intelligent systems, with screw terminals identified with a (+ and –). The 4" base offers a compact design while the 6" base provides compatibility with a wider range of junction boxes.

The specialty bases support application driven requirements. These bases employ a separate mounting plate that installs on various junction box sizes to eliminate unsightly surface-mount boxes. The mounting plate enables pre-wiring of all connections to speed and simplify installation.

Relay bases provide one form-C contact relay for control of auxiliary functions, such as door closure and elevator recall. The relay can operate in two different modes (short and long delay). The activation time for the short delay is 60-100 milliseconds, while the activation time for the long delay is 6-10 seconds. A shunt with pin headers, located on the base PC board, is used to set the delay timing.

Isolator bases allow the Signaling Line Circuit (SLC) loop to operate under fault conditions created from a short circuit preventing an entire communication loop from being disabled. The base isolates the section of the loop containing the short circuit from the remainder of the circuit and automatically restores when the fault is corrected.

Sounder and low frequency sounder bases are designed for new and existing dwelling unit applications. They offer maximum flexibility in installation, configuration, and operation to meet or exceed UL 268 and UL 464 requirements. The low frequency sounder bases are designed to meet the NFPA 72 sleeping space requirement to produce a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent. Studies show that a lower frequency, centered around 520 Hz, is the most ideal to wake sleeping occupants, even those with mild to severe hearing loss.

The B200SR sounder and -LF sounder bases (B200SR-WH/B200SR-IV/B200SR-LF-WH/B200SR-LF-IV) are fully compatible with existing B501BH Series sounder base installations. The device enables users to select one of two B501-supported tones (ANSI Temporal 3 or Continuous) through a jumper.

The B200S sounder and -LF sounder bases (B200S-WH/B200S-IV/B200S-LF-WH/B200S-LF-IV) adopt the same address as the detector, but use a unique device type on the loop. The Fire Alarm Control Panel (FACP) can use that address to command an individual sounder — or a group of sounders — to activate. The command set from the FACP can be tailored to multiple event-driven tone outputs allowing selection of volume (75 or 85 dBA), tone (ANSI Temporal 3, ANSI Temporal 4, or March Time) and group. In addition, some FACPs will enable custom tone patterns. The B200S series sounder bases recognize the System Sensor synchronization protocol. This enables them to be used as a component of the general evacuation signal — along with other System Sensor AV appliances — when connected to a power supply or FACP output capable of generating the System Sensor synchronization pulses.

B300-6 Standard
6” Base (White)

B200S-WH
Sounder Base (White)

B501-WHITE Flangeless
4” Base (White)

B501-BL Flangeless
4” Base (Black)

Specifications

NOTE: *Specifications applies to all model variants “A”, “-BL”, “-LF”, “-IV”, -WH, -WHITE. See Product Line Information for detailed model description.*

Diameter

- B501-WHITE: 4" (10.16 cm) diameter.
- B300-6: 6.1" (15.49 cm) diameter.
- B224BI, B224RB: 6.2" (15.748 cm) diameter.
- B200S, B200SR, B200SCOA: 6.875" (17.46 cm) diameter.

Wire gauge:

- B224BI, B224RB: 14 to 24 AWG.
- B300-6, B210LP, B501, B200S, B200SR, B200SCOA: 12 to 24 AWG

Temperature range:

- B224BI, B224RB, B200S, B200SR, B200SCOA: 32°F to 120°F (0°C to 49°C).
- B300-6, B210LP, B501: -4°F to 150°F (-20°C to 66°C).

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

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

Electrical Ratings

FOR B300-6 SERIES BASES:

Operating voltage: 15 to 32 VDC

Standby current: 170 µA maximum

FOR B501 SERIES BASES:

Operating voltage: 15 to 32 VDC

Standby current: 150 µA maximum

FOR B200 SERIES BASES:

External supply voltage: 16 to 33 VDC (FWR)

Standby current:

500 µA maximum.

Alarm current:

- B200S(A)(-IV)(-WH)
  - – 35 mA maximum at high-volume setting
  - – 15 mA maximum at low-volume setting
- B200S-LF(-IV)(-WH) High-volume setting:
  - – 70 mA maximum @ 33.0 VDC
  - – 90 mA maximum @ 24.0 VDC
  - – 140 mA maximum @16.0 VDC
- B200S-LF(-IV)(-WH) Low-volume setting:
  - – 15 mA maximum @ 33.0 VDC
  - – 20 mA maximum @ 24.0 VDC
  - – 25 mA maximum @ 16.0 VDC
- B200SR(A)(-IV)(-WH)
  - – 35 mA maximum
- B200SR-LF(-IV)(-WH)
  - – 65 mA maximum @ 33.0 VDC
  - – 90 mA maximum @ 24.0 VDC
  - – 125 mA maximum @16.0 VDC
- B200SCOA(-IV)(-WH)
  - – 40mA Max (DC)
  - – 70mA Max (FWR)

SLC operating voltage: 15 to 32 VDC

SLC standby current: See applicable sensor specification.

Sound output:

- B200S(A)(-LF)(-IV)(-WH), high-volume*: Greater than 85 dBA minimum.
- B200S(A)(-LF)(-IV)(-WH), low-volume*: Greater than 75 dBA minimum.
- B200SR(A)(-LF)(-IV)(-WH)*: Greater than 85 dBA minimum.
- B200SCOA(-IV)(-WH), high-volume**: Greater than 87 dBA minimum.
- B200SCOA(-IV)(-WH), low-volume**: Greater than 85 dBA minimum

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

FOR B224BI, B224RB (A) (-IV) (-WH):

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

Standby ratings: <450 µA maximum @ 24 VDC

Set time (B224RB(A)(-IV)(-WH) only): short delay 60-100 milliseconds; long delay 6-10 seconds

Reset time (B224RB(A)(-IV)(-WH) only): 20 milliseconds maximum

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

Product Line Information

INTELLIGENT BASES

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

NOTE: *"-IV" suffix indicates Ivory color model.*

NOTE: *"-BL" suffix indicates Black color model.*

NOTE: *"-WH" and "-WHITE" suffix indicates White color model.*

B210LP: Flanged mounted base.

B210LPA: Same as B210LP; ULC listed.

B210LPBP: Bulk pack of B210LP, contains 10.

B300-6: White, 6" base, standard flanged low-profile mounting base.

B300A-6: Same as B300-6, ULC listed.

B300-6-BP: Bulk pack of B300-6, package contains 10;.

B300-6-IV: Ivory,6" base, standard flanged low-profile mounting base.

B300A-6-IV: Ivory, 6" standard flanged low-profile mounting base, ULC listed.

B501-WHITE: White, 4" standard European flangeless mounting base. UL/ULC listed.

B501-WHITE-BP: Bulk pack of B501-WHITE contains 10.

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed.

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed.

B224RB-WH: White, relay base.

B224RB-IV: Ivory, relay base.

B224RBA-WH: White, relay base, ULC listed.

B224RBA-IV: Ivory, relay base, ULC listed.

B224BI-WH: White, isolator detector base.

B224BI-IV: Ivory isolator detector base.

B224BIA-WH: White, isolator detector base, ULC listed.

B224BIA-IV: Ivory isolator detector base, ULC listed.

B200S-WH: White, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan® protocol.

B200S-IV: Ivory, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan® protocol.

B200SA-WH: Same as B200S-WH, ULC listed.

B200SA-IV: Same as B200S-IV, ULC listed.

B200SCOA-WH: White, Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with SO Series detector applications.

B200SCOA-IV: Ivory Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with SO Series detector applications, ULC listing.

B200S-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement.

B200S-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement.

B200SR-WH: White, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications.

B200SR-IV: Ivory, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications.

B200SRA-WH: Same as B200SR-WH, ULC listed.

B200SRA-IV: Same as B200SR-IV in Ivory color, ULC listed.

B200SR-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications.

B200SR-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications.

MOUNTING KITS AND ACCESSORIES

TR300: White, replacement flange for B210LP(A), B300(A)-6 bases.

TR300-IV: Ivory, replacement flange for B210LP(A), B300(A)-6-IV bases.

RA100Z(A): Remote LED annunciator. 3 – 32 VDC. Mounts to a U.S. single-gang electrical box. For use with B501(A) and B300(A)-6.

M02-04-00: Test magnet.

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

CK300: White, detector color kit. Pack of 10.

CK300-IR: White, detector color kit for use with FPTI and FCO Series detectors. Pack of 10.

CK300-IV: Ivory, detector color kit. Pack of 10.

CK300-IR-IV: Ivory, detector color kit for use with FPTI and FCO Series detectors. Pack of 10.

CK300-BL: Black, detector color kit. Pack of 10.

CK300-IR-BL: Black, detector color kit for use with FPTI and FCO Series detectors. Pack of 10.

Agency Listings and Approvals

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

- **UL/ULC Listed**: S1115
- **FM Approved**
- **CSFM**: 7300-1653:0109, 7300-1653:0126, 7300-1653:0213, 7300-1653:0236

Junction Box Selection Guide

Base Models	Single Gang	Double Gang	3.5" Oct.	4.0" Oct.	4.0" Sq.	4.0" Sq. with 3.0" mud ring	50 mm	60 mm	70 mm	75 mm
B200S, B200SR, B200SCOA	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
B501	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No
B210LP, B300-6	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No
B224BI, B224RB	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No

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

NOTE: *Applies to all model variants "A", "-BL", "-LF", "-IV", "-WH", and "-WHITE". See Product Line Information for detailed model description.*

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

Country of Origin: Mexico

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

NOTIFIER® by Honeywell

Intelligent Bases Standard, Relay, Isolator, Sounder, and Low-Frequency Sounder Bases

General

To meet local code and application requirements, NOTIFIER® offers standard 4" and 6" bases, as well as, specialty base designs including relay, isolator, sounder and low frequency sounder options for the new 900 Series of addressable detectors as well as previous generations.

The standard 4" and 6" bases offer a plug-in detector base intended for use in intelligent systems, with screw terminals identified with a (+ and –). The 4" base offers a compact design while the 6" base provides compatibility with a wider range of junction boxes.

The specialty bases support application driven requirements. These bases employ a separate mounting plate that installs on various junction box sizes to eliminate unsightly surface-mount boxes. The mounting plate enables pre-wiring of all connections to speed and simplify installation.

Relay bases provide one form-C contact relay for control of auxiliary functions, such as door closure and elevator recall. The relay can operate in two different modes (short and long delay). The activation time for the short delay is 60-100 milliseconds, while the activation time for the long delay is 6-10 seconds. A shunt with pin headers, located on the base PC board, is used to set the delay timing.

Isolator bases allow the Signaling Line Circuit (SLC) loop to operate under fault conditions created from a short circuit preventing an entire communication loop from being disabled. The base isolates the section of the loop containing the short circuit from the remainder of the circuit and automatically restores when the fault is corrected.

Sounder and low frequency sounder bases are designed for new and existing dwelling unit applications. They offer maximum flexibility in installation, configuration, and operation to meet or exceed UL 268 and UL 464 requirements. The low frequency sounder bases are designed to meet the NFPA 72 sleeping space requirement to produce a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent. Studies show that a lower frequency, centered around 520 Hz, is the most ideal to wake sleeping occupants, even those with mild to severe hearing loss.

The B200SR sounder and -LF sounder bases (B200SR-WH/B200SR-IV/B200SR-LF-WH/B200SR-LF-IV) are fully compatible with existing B501BH Series sounder base installations. The device enables users to select one of two B501-supported tones (ANSI Temporal 3 or Continuous) through a jumper.

The B200S sounder and -LF sounder bases (B200S-WH/B200S-IV/B200S-LF-WH/B200S-LF-IV) adopt the same address as the detector, but use a unique device type on the loop. The Fire Alarm Control Panel (FACP) can use that address to command an individual sounder — or a group of sounders — to activate. The command set from the FACP can be tailored to multiple event-driven tone outputs allowing selection of volume (75 or 85 dBA), tone (ANSI Temporal 3, ANSI Temporal 4, or March Time) and group. In addition, some FACPs will enable custom tone patterns. The B200S series sounder bases recognize the System Sensor synchronization protocol. This enables them to be used as a component of the general evacuation signal — along with other System Sensor AV appliances — when connected to a power supply or FACP output capable of generating the System Sensor synchronization pulses.

B300-6 Standard
6” Base (White)

B200S-WH
Sounder Base (White)

B501-WHITE Flangeless
4” Base (White)

B501-BL Flangeless
4” Base (Black)

Specifications

NOTE: *Specifications applies to all model variants “A”, “-BL”, “-LF”, “-IV”, -WH, -WHITE. See Product Line Information for detailed model description.*

Diameter

- B501-WHITE: 4" (10.16 cm) diameter.
- B300-6: 6.1" (15.49 cm) diameter.
- B224BI, B224RB: 6.2" (15.748 cm) diameter.
- B200S, B200SR, B200SCOA: 6.875" (17.46 cm) diameter.

Wire gauge:

- B224BI, B224RB: 14 to 24 AWG.
- B300-6, B210LP, B501, B200S, B200SR, B200SCOA: 12 to 24 AWG

Temperature range:

- B224BI, B224RB, B200S, B200SR, B200SCOA: 32°F to 120°F (0°C to 49°C).
- B300-6, B210LP, B501: -4°F to 150°F (-20°C to 66°C).

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

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

Electrical Ratings

FOR B300-6 SERIES BASES:

Operating voltage: 15 to 32 VDC

Standby current: 170 µA maximum

FOR B501 SERIES BASES:

Operating voltage: 15 to 32 VDC

Standby current: 150 µA maximum

FOR B200 SERIES BASES:

External supply voltage: 16 to 33 VDC (FWR)

Standby current:

500 µA maximum.

Alarm current:

- B200S(A)(-IV)(-WH)
  - – 35 mA maximum at high-volume setting
  - – 15 mA maximum at low-volume setting
- B200S-LF(-IV)(-WH) High-volume setting:
  - – 70 mA maximum @ 33.0 VDC
  - – 90 mA maximum @ 24.0 VDC
  - – 140 mA maximum @16.0 VDC
- B200S-LF(-IV)(-WH) Low-volume setting:
  - – 15 mA maximum @ 33.0 VDC
  - – 20 mA maximum @ 24.0 VDC
  - – 25 mA maximum @ 16.0 VDC
- B200SR(A)(-IV)(-WH)
  - – 35 mA maximum
- B200SR-LF(-IV)(-WH)
  - – 65 mA maximum @ 33.0 VDC
  - – 90 mA maximum @ 24.0 VDC
  - – 125 mA maximum @16.0 VDC
- B200SCOA(-IV)(-WH)
  - – 40mA Max (DC)
  - – 70mA Max (FWR)

SLC operating voltage: 15 to 32 VDC

SLC standby current: See applicable sensor specification.

Sound output:

- B200S(A)(-LF)(-IV)(-WH), high-volume*: Greater than 85 dBA minimum.
- B200S(A)(-LF)(-IV)(-WH), low-volume*: Greater than 75 dBA minimum.
- B200SR(A)(-LF)(-IV)(-WH)*: Greater than 85 dBA minimum.
- B200SCOA(-IV)(-WH), high-volume**: Greater than 87 dBA minimum.
- B200SCOA(-IV)(-WH), low-volume**: Greater than 85 dBA minimum

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

FOR B224BI, B224RB (A) (-IV) (-WH):

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

Standby ratings: <450 µA maximum @ 24 VDC

Set time (B224RB(A)(-IV)(-WH) only): short delay 60-100 milliseconds; long delay 6-10 seconds

Reset time (B224RB(A)(-IV)(-WH) only): 20 milliseconds maximum

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

Product Line Information

INTELLIGENT BASES

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

NOTE: *"-IV" suffix indicates Ivory color model.*

NOTE: *"-BL" suffix indicates Black color model.*

NOTE: *"-WH" and "-WHITE" suffix indicates White color model.*

B210LP: Flanged mounted base.

B210LPA: Same as B210LP; ULC listed.

B210LPBP: Bulk pack of B210LP, contains 10.

B300-6: White, 6" base, standard flanged low-profile mounting base.

B300A-6: Same as B300-6, ULC listed.

B300-6-BP: Bulk pack of B300-6, package contains 10;.

B300-6-IV: Ivory,6" base, standard flanged low-profile mounting base.

B300A-6-IV: Ivory, 6" standard flanged low-profile mounting base, ULC listed.

B501-WHITE: White, 4" standard European flangeless mounting base. UL/ULC listed.

B501-WHITE-BP: Bulk pack of B501-WHITE contains 10.

B501-BL: Black, 4" standard European flangeless mounting base. UL/ULC listed.

B501-IV: Ivory color, 4" standard European flangeless mounting base. UL/ULC listed.

B224RB-WH: White, relay base.

B224RB-IV: Ivory, relay base.

B224RBA-WH: White, relay base, ULC listed.

B224RBA-IV: Ivory, relay base, ULC listed.

B224BI-WH: White, isolator detector base.

B224BI-IV: Ivory isolator detector base.

B224BIA-WH: White, isolator detector base, ULC listed.

B224BIA-IV: Ivory isolator detector base, ULC listed.

B200S-WH: White, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan® protocol.

B200S-IV: Ivory, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan® protocol.

B200SA-WH: Same as B200S-WH, ULC listed.

B200SA-IV: Same as B200S-IV, ULC listed.

B200SCOA-WH: White, Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with SO Series detector applications.

B200SCOA-IV: Ivory Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with SO Series detector applications, ULC listing.

B200S-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement.

B200S-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement.

B200SR-WH: White, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications.

B200SR-IV: Ivory, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications.

B200SRA-WH: Same as B200SR-WH, ULC listed.

B200SRA-IV: Same as B200SR-IV in Ivory color, ULC listed.

B200SR-LF-WH: White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications.

B200SR-LF-IV: Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications.

MOUNTING KITS AND ACCESSORIES

TR300: White, replacement flange for B210LP(A), B300(A)-6 bases.

TR300-IV: Ivory, replacement flange for B210LP(A), B300(A)-6-IV bases.

RA100Z(A): Remote LED annunciator. 3 – 32 VDC. Mounts to a U.S. single-gang electrical box. For use with B501(A) and B300(A)-6.

M02-04-00: Test magnet.

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

CK300: White, detector color kit. Pack of 10.

CK300-IR: White, detector color kit for use with FPTI and FCO Series detectors. Pack of 10.

CK300-IV: Ivory, detector color kit. Pack of 10.

CK300-IR-IV: Ivory, detector color kit for use with FPTI and FCO Series detectors. Pack of 10.

CK300-BL: Black, detector color kit. Pack of 10.

CK300-IR-BL: Black, detector color kit for use with FPTI and FCO Series detectors. Pack of 10.

Agency Listings and Approvals

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

- **UL/ULC Listed**: S1115
- **FM Approved**
- **CSFM**: 7300-1653:0109, 7300-1653:0126, 7300-1653:0213, 7300-1653:0236

Junction Box Selection Guide

Base Models	Single Gang	Double Gang	3.5" Oct.	4.0" Oct.	4.0" Sq.	4.0" Sq. with 3.0" mud ring	50 mm	60 mm	70 mm	75 mm
B200S, B200SR, B200SCOA	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
B501	No	No	Yes	No	No	Yes	Yes	Yes	Yes	No
B210LP, B300-6	Yes	No	Yes	Yes	Yes	Yes	No	No	No	No
B224BI, B224RB	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No

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

NOTE: *Applies to all model variants "A", "-BL", "-LF", "-IV", "-WH", and "-WHITE". See Product Line Information for detailed model description.*

ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

Country of Origin: Mexico

NOTIFIER
12 Clintonville Road
Northford, CT 06472
203.484.7161
www.notifier.com

NOTIFIER® by Honeywell

MR Series
Control Relays

Section: Miscellaneous

GENERAL

The Air Products & Controls **MR Series Multivoltage Control Relays** offer SPDT or DPDT 10-amp contacts which may be operated by one of four input control voltages. A single relay may be energized from a voltage source of 24 VDC, 24 VAC, 115 VAC, or 230 VAC by wiring to appropriate input terminals.

Each relay contains a red light-emitting diode (LED) which indicates the relay coil is energized. Relays may be "snapped apart" from a standard four-module assembly and used independently.

These devices are ideal for applications where local contacts are required for system status, remote contacts for control of electrical loads and general purpose switching. They are suitable for use with HVAC, Temperature Control, Fire Alarm, Security, Energy Management, and Lighting Control Systems.

The Air Products & Controls **MR-199 Heavy Duty Power Relays** are designed for control applications where 30 amp DPDT contacts are required. The 24 VDC and 120 VAC relays are mounted in a rugged steel enclosure.

MR SERIES FEATURES (Excluding MR-199 Series)

- Each relay position may be energized from one of four input control voltages.
- Each relay position contains a red LED which illuminates when the coil is energized. This provides a timesaving convenience when checking an installed system, no metering is required.
- Single, dual, or triple relay modules may be "snapped apart" from a standard four-position master.
- SPDT or DPDT relays available.
- Available in dust-proof metal enclosures (with gray plastic cover on MR-101/C and MR-201/C) with LED viewing port.
- Red enclosure available on some models.
- Track mounting hardware to facilitate installation in standard cabinets.
- UL recognized relays rated at 10,000,000 mechanical operations.

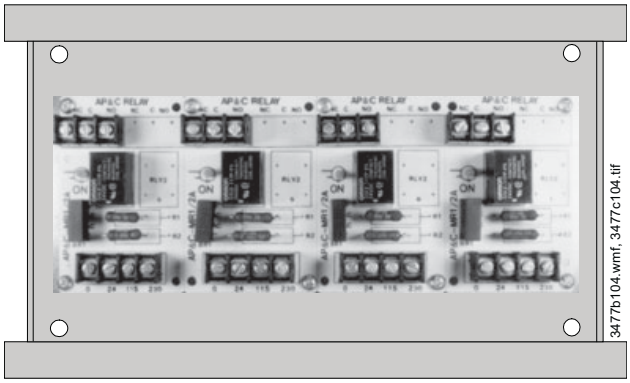
S3403
(MR-101/C or CR, MR-104/C or CR, MR-201/C or CR, MR-204/C or CR)

CS118/ CS733
(MR-104 and MR-204 Series *ONLY*)

MEA
73-92-E (MR-101/C or CR, MR-104/C or CR)
73-92-E, Vol. III (MR-201/C or CR, MR-204/C or CR)

California State Fire Marshal
7300-1004:101
(MR-101/C, MR-104/C, MR-201/C, MR-204/C)

The MR-101/C



The MR-104/C

NOTIFIER 12 Clintonville Road, Northford, Connecticut 06472

ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING

PRODUCT SPECIFICATIONS FOR MULTIVOLTAGE CONTROL RELAYS

Power requirements:

MR-101 Position is rated at 0.015 amps (15 milliamps) @ 24 VAC, 24 VDC, 115 VAC, 230 VAC.

MR-201 Position is rated at 0.035 amps (35 milliamps) @ 24 VAC, 24 VDC, 115 VAC, 230 VAC.

Relays: All relays are UL ***recognized*** components. ***NOTE:*** *Only models with enclosures ("C" suffix) are UL* ***listed*** *assemblies (excludes MR-199X-13C and MR-199X-14C).*

Enclosure: 18 gauge CRS, plated with 1/2" conduit knockouts (top and bottom). The ***MR-101/C and MR-201/C*** include a metal backbox with durable plastic cover.

Contact rating: 10.0 A @ 115 VAC resistive.

Ambient temperature: -50°C to +85°C (-50°F to +185°F).

Dimensions:

MR-101/T and MR-201/T are 3.0" (82 mm) H x 2.125" (54 mm) W x 1.5" (38.1 mm) D.

MR-104/T and MR-204/T are 3.0" (82 mm) H x 8.5" (215 mm) W x 1.5" (38.1 mm) D.

MR-101/C and MR-201/C are 6.125" (130.2 mm) H x 3.25'' (82 mm) W x 2.5" (63.5 mm) D.

MR-104/C and MR-204/C are 6.125" (130.2 mm) H x 9.5" (241.3 mm) W x 2.5" (63.5 mm) D.

PRODUCT SPECIFICATIONS FOR HEAVY-DUTY POWER RELAYS

Contact arrangement: DPDT standard.

Contact rating: 30 Amps @ 240 VAC; 20 Amps @ 277 VAC; 2 HP @ 250 VAC.

Coil power: ***MR-199X-13*** is rated at 24 VDC @ 85 mA. ***MR-199X-14*** is rated at 120 VAC @ 85 mA.

Temperature range: -30°C to +50°C (-22°F to +122°F). ***For MR-199X-13:*** -55°C to +80°C (-67°F to +176°F). ***For MR-199X-14:*** -55°C to +45°C (-67°F to +113°F).

Dimensions: ***MR-199X-13*** *and* ***MR-199X-14*** is 3.13" (79.4 mm) high x 2.5" (63.5 mm) wide x 2.31" (58.7 mm) deep. ***MR-199X-13C*** *and* ***MR-199X-14C*** is 5.31" (134.9 mm) high x 3.38" (85.9 mm) wide x 3.13" (96.8 mm) deep.

PRODUCT LINE INFORMATION

Model	*Description*
MR-101/T	Single SPDT Relay with LED and track-mounting hardware (UL recognized).
MR-101/C	Single SPDT Relay with LED, mounted in metal backbox with plastic cover (UL listed).
MR-101/CR	Single SPDT Relay with LED, mounted in metal backbox with ***red*** plastic cover (UL listed).
MR-104/T	Four-Position SPDT Relay with LEDs and track-mounting hardware (UL recognized).
MR-104/C	Four-Position SPDT Relay with LEDs, mounted in metal enclosure (UL listed).
MR-104/CR	Four-Position SPDT Relay with LEDs, mounted in a metal backbox with a ***red*** cover (UL listed).
MR-201/T	Single DPDT Relay with LED and track-mounting hardware (UL recognized).
MR-201/C	Single DPDT Relay with LED, mounted in metal backbox with plastic cover (UL listed).
MR-201/CR	Single DPDT Relay with LED, mounted in metal backbox with ***red*** plastic cover (UL listed).
MR-204/T	Four-Position DPDT Relay with LEDs and track-mounting hardware (UL recognized).
MR-204/C	Four-Position DPDT Relay with LEDs, mounted in a metal enclosure (UL listed).
MR-204/CR	Four-Position DPDT Relay with LEDs, mounted in metal backbox with a ***red*** cover (UL listed).
MR-199X-13	Heavy-duty DPDT Relay only, 24 VDC coil input (UL recognized).
MR-199X-13C	Heavy-duty DPDT Relay, 24 VDC coil input, mounted in enclosure (UL recognized).
MR-199X-14	Heavy-duty DPDT Relay only, 120 VAC coil input (UL recognized).
MR-199X-14C	Heavy-duty DPDT Relay, 120 VAC coil input, mounted in enclosure (UL recognized).

MR SERIES RELAYS

MODEL NUMBER	COIL VOLTAGE				CONTACTS			MOUNTING			LISTINGS		RED COVER (Add "R" suffix.)
	24 VDC	24 VAC	120 VAC	230 VAC	SPDT (10A)	DPDT (10A)	DPDT (30A)	Track	Spacer	Enclosure	UL, CSFM, & MEA	ULC	
MR-101/T	X	X	X	X	1			X					
MR-101/C	X	X	X	X	1					X	X		X
MR-104/T	X	X	X	X	4			X				X	
MR-104/C	X	X	X	X	4					X	X	X	X
MR-201/T	X	X	X	X		1		X					
MR-201/C	X	X	X	X		1				X	X		X
MR-204/T	X	X	X	X		4		X				X	
MR-204/C	X	X	X	X		4				X	X	X	X
MR-199X-13	X						1		X				
MR-199X-13C	X						1			X			
MR-199X-14			X				1						
MR-199X-14C			X				1			X			

347711.tbl

FIRE·LITE® ALARMS

www.firelite.com

July 15, 2004

DF-51131 • I-300

MR Series
Control Relays

Section: Miscellaneous

GENERAL

The Air Products & Controls **MR Series Multivoltage Control Relays** offer SPDT or DPDT 10-amp contacts which may be operated by one of four input control voltages. A single relay may be energized from a voltage source of 24 VDC, 24 VAC, 115 VAC, or 230 VAC by wiring to appropriate input terminals.

Each relay contains a red light-emitting diode (LED) which indicates the relay coil is energized. Relays may be "snapped apart" from a standard four-module assembly and used independently.

These devices are ideal for applications where local contacts are required for system status, remote contacts for control of electrical loads and general purpose switching. They are suitable for use with HVAC, Temperature Control, Fire Alarm, Security, Energy Management, and Lighting Control Systems.

The Air Products & Controls **MR-199 Heavy Duty Power Relays** are designed for control applications where 30-amp DPDT contacts are required. The 24 VDC and 120 VAC relays are mounted in a rugged steel enclosure.

MR SERIES FEATURES (Excluding MR-199 Series)

- Each relay position may be energized from one of four input control voltages.
- Each relay position contains a red LED which illuminates when the coil is energized. This provides a timesaving convenience when checking an installed system, no metering is required.
- Single, dual, or triple relay modules may be "snapped apart" from a standard four-position master.
- SPDT or DPDT relays available.
- Available in dust-proof metal enclosures (with gray plastic cover on MR-101/CR and MR-201/CR) with LED viewing port.
- Red enclosure available on some models.
- Track mounting hardware to facilitate installation in standard cabinets.
- UL recognized relays rated at 10,000,000 mechanical operations.

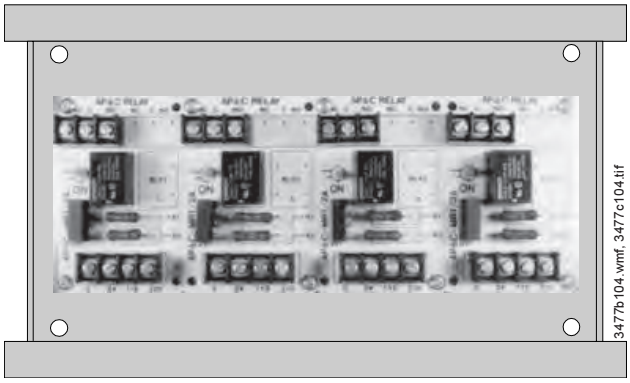
UL LISTED
S3403
(MR-101/CR, MR-104/CR, MR-201/CR, MR-204/CR)

ULC
CS118/ CS733
(MR-104 and MR-204 Series *ONLY*)

MEA
73-92-E (MR-101/C or CR, MR-104/C or CR)
73-92-E, Vol. III (MR-201/C or CR, MR-204/C or CR)

California State Fire
7300-1004:101
(MR-101/CR, MR-104/CR, MR-201/CR, MR-204/CR)

The MR-101/CR



The MR-104/CR

PRODUCT SPECIFICATIONS FOR MULTIVOLTAGE CONTROL RELAYS

Power requirements:

MR-101 Position is rated at 0.015 amps (15 milliamps) @ 24 VAC, 24 VDC, 115 VAC, 230 VAC.

MR-201 Position is rated at 0.035 amps (35 milliamps) @ 24 VAC, 24 VDC, 115 VAC, 230 VAC.

Relays: All relays are UL ***recognized*** components. ***NOTE:*** *Only models with enclosures ("C" suffix) are UL* ***listed*** *assemblies (excludes MR-199X-13C and MR-199X-14C).*

Enclosure: 18 gauge CRS, plated with 1/2" conduit knockouts (top and bottom). The ***MR-101/CR and MR-201/CR*** include a metal backbox with durable plastic cover.

Contact rating: 10.0 A @ 115 VAC resistive.

Ambient temperature: -50°C to +85°C (-50°F to +185°F).

Dimensions:

MR-101/T and MR-201/T are 3.0" (82 mm) H x 2.125" (54 mm) W x 1.5" (38.1 mm) D.

MR-104/T and MR-204/T are 3.0" (82 mm) H x 8.5" (215 mm) W x 1.5" (38.1 mm) D.

MR-101/CR and MR-201/CR are 6.125" (130.2 mm) H x 3.25" (82 mm) W x 2.5" (63.5 mm) D.

MR-104/CR and MR-204/CR are 6.125" (130.2 mm) H x 9.5" (241.3 mm) W x 2.5" (63.5 mm) D.

PRODUCT SPECIFICATIONS FOR HEAVY-DUTY POWER RELAYS

Contact arrangement: DPDT standard.

Contact rating: 30 Amps @ 240 VAC; 20 Amps @ 277 VAC; 2 HP @ 250 VAC.

Coil power: ***MR-199X-13*** is rated at 24 VDC @ 85 mA. ***MR-199X-14*** is rated at 120 VAC @ 85 mA.

Temperature range: -30°C to +50°C (-22°F to +122°F). ***For MR-199X-13:*** -55°C to +80°C (-67°F to +176°F). ***For MR-199X-14:*** -55°C to +45°C (-67°F to +113°F).

Dimensions: ***MR-199X-13*** *and* ***MR-199X-14*** is 3.13" (79.4 mm) high x 2.5" (63.5 mm) wide x 2.31" (58.7 mm) deep. ***MR-199X-13C*** *and* ***MR-199X-14C*** is 5.31" (134.9 mm) high x 3.38" (85.9 mm) wide x 3.13" (96.8 mm) deep.

PRODUCT LINE INFORMATION

Model	*Description*
MR-101/T	Single SPDT Relay with LED and track-mounting hardware (UL recognized).
MR-101/CR	Single SPDT Relay with LED, mounted in metal backbox with ***red*** plastic cover (UL listed).
MR-104/T	Four-Position SPDT Relay with LEDs and track-mounting hardware (UL recognized).
MR-104/CR	Four-Position SPDT Relay with LEDs, mounted in a metal backbox with a ***red*** cover (UL listed).
MR-201/T	Single DPDT Relay with LED and track-mounting hardware (UL recognized).
MR-201/CR	Single DPDT Relay with LED, mounted in metal backbox with ***red*** plastic cover (UL listed).
MR-204/T	Four-Position DPDT Relay with LEDs and track-mounting hardware (UL recognized).
MR-204/CR	Four-Position DPDT Relay with LEDs, mounted in a metal enclosure with red cover (UL listed).
MR-199X-13	Heavy-duty DPDT Relay only, 24 VDC coil input (UL recognized).
MR-199X-13C	Heavy-duty DPDT Relay, 24 VDC coil input, mounted in enclosure (UL recognized).
MR-199X-14	Heavy-duty DPDT Relay only, 120 VAC coil input (UL recognized).
MR-199X-14C	Heavy-duty DPDT Relay, 120 VAC coil input, mounted in enclosure (UL recognized).

MR SERIES RELAYS

MODEL NUMBER	COIL VOLTAGE				CONTACTS			MOUNTING			LISTINGS	
	24 VDC	24 VAC	120 VAC	230 VAC	SPDT (10A)	DPDT (10A)	DPDT (30A)	Track	Spacer	Enclosure	UL, CSFM, & MEA	ULC
MR-101/T	X	X	X	X	1			X				
MR-101/CR	X	X	X	X	1					X	X	
MR-104/T	X	X	X	X	4			X				X
MR-104/CR	X	X	X	X	4					X	X	X
MR-201/T	X	X	X	X		1		X				
MR-201/CR	X	X	X	X		1				X	X	
MR-204/T	X	X	X	X		4		X				X
MR-204/CR	X	X	X	X		4				X	X	X
MR-199X-13	X						1		X			
MR-199X-13C	X						1			X		
MR-199X-14			X				1					
MR-199X-14C			X				1			X		

51131t1.tbl

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

Control and Relay Modules

NOTIFIER® by Honeywell

Intelligent / Addressable Devices

General

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

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

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

FCM-1(A)

Features

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

Applications

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

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

Construction

- The face plate is made of off-white heat-resistant plastic.
- Controls include two rotary switches for direct-dial entry of address (01-159).
- The FCM-1(A) is configured for a single Class B (Style Y) or Class A (Style Z) Notification Appliance Circuit.
- The FRM-1(A) provides two Form-C dry contacts that switch together.

Operation

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

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

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

Specifications for FCM-1(A)

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

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

Maximum NAC Line Loss: 4 VDC.

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

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

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

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

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

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

Accessories: SMB500 Electrical Box; CB500 Barrier

Specifications for FRM-1(A)

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

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

EOL resistance: not used.

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

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

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

Accessories: SMB500 Electrical Box; CB500 Barrier

Agency Listings and Approvals

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

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

Contact Ratings for FRM-1(A)

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

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

Product Line Information

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

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

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

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

SMB500: Optional Surface-Mount Backbox.

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

NOTE: *For installation instructions, see the following documents:*

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

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

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

Control and Relay Modules

NOTIFIER® by Honeywell

Intelligent / Addressable Devices

General

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

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

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

FCM-1(A)

Features

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

Applications

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

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

Construction

- The face plate is made of off-white heat-resistant plastic.
- Controls include two rotary switches for direct-dial entry of address (01-159).
- The FCM-1(A) is configured for a single Class B (Style Y) or Class A (Style Z) Notification Appliance Circuit.
- The FRM-1(A) provides two Form-C dry contacts that switch together.

Operation

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

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

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

Specifications for FCM-1(A)

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

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

Maximum NAC Line Loss: 4 VDC.

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

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

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

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

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

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

Accessories: SMB500 Electrical Box; CB500 Barrier

Specifications for FRM-1(A)

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

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

EOL resistance: not used.

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

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

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

Accessories: SMB500 Electrical Box; CB500 Barrier

Agency Listings and Approvals

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

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

Contact Ratings for FRM-1(A)

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

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

Product Line Information

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

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

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

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

SMB500: Optional Surface-Mount Backbox.

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

NOTE: *For installation instructions, see the following documents:*

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

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

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 0.65" (1.651 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 communication protocols.

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 (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 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) (Type H)

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: 375 µA (LED flashing), 1 communication every 5 seconds, 47k EOL.

Maximum IDC wiring resistance: 1500 Ohms.

Maximum IDC Voltage: 11 Volts.

EOL resistance: 47K Ohms.

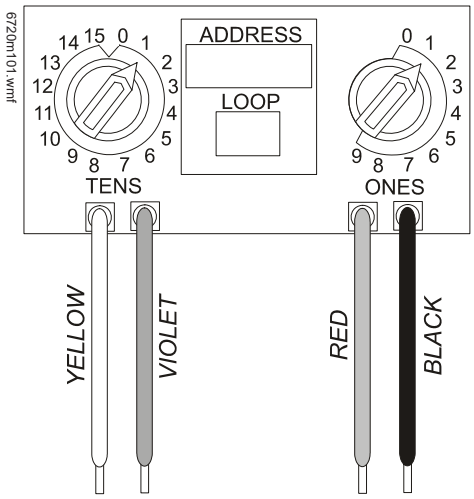
Temperature range: 32°F to 120°F (0°C to 49°C).

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: 1500 Ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 450 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 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: 270 µA, 1 communication and 1 LED flash every 5 seconds, 3.9k eol.

EOL resistance: 3.9K Ohms.

External supply voltage (between Terminals T10 and T11):

- 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.

FDM-1(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.

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 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

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, 7165-0028:0224, 7165-0028:0243.
- **MEA:** 457-99-E.
- **U.S. Coast Guard:** 161.002/50/0 (NFS2-640, NFS2-320, NFS2-3030).
- **Lloyd’s Register:** 11/600013 (NFS2-640, NFS2-320, NFS2-3030).
- **Fire Dept. of New York:** COA #6121 (NFS2-640, NFS-320), COA# 6114 (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.*

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

Indoor Selectable-Output Speaker Strobes and Dual Voltage Evacuation Speakers for Ceiling Applications

NOTIFIER® by Honeywell

Audio/Visual Devices

General

The L-Series of speakers and speaker strobes reduce costly ground faults using a plug-in design and universal mounting plate. The installer can pre-wire mounting plates, dress the wires, and confirm wiring continuity before plugging in the speakers. In addition, a protective plastic cover prevents nicked wires by covering exposed speaker components.

These devices also enable faster installations by providing instant feedback to ensure that wiring is properly connected, rotary switches to select voltage and power settings, and 7 field-selectable candela settings for both wall and ceiling speaker strobes.

The low total harmonic distortion of the SP speaker offers high fidelity sound output while still offering high volume sound output for use in high ambient noise applications.

L-SERIES MAKES INSTALLATION EASY

- Attach a universal mounting plate to a 4" × 4" × $2^{1}/_{8}$" back box. Flush-mount applications do not require an extension ring.
- Connect the notification appliance circuit or speaker wiring to the terminals on the mounting plate.
- Attach the speaker or speaker strobe to the mounting plate by inserting the product tabs into the mounting plate grooves. Hinge the device into position to lock the product pins into the mounting plate terminals. The device will temporarily hold in place with a catch until it is secured with a captured mounting screw.

Features

- Plug-in design and protective cover reduce ground faults.
- Universal mounting plate with an onboard shorting spring tests wiring continuity before installation.
- No extension ring required.
- Field selectable candela settings on ceiling units: 15, 30, 75, 95, 115, 150, and 177.
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela.
- Rotary switch simplifies field selection of speaker voltage (25 and 70.7 Vrms) and power settings (¼, ½, 1 and 2 watts).
- Speakers offer high fidelity and high volume sound output.
- UL 464 (520 Hz) listed and complies with NFPA 72 requirements for low frequency with compatible fire alarm control panel.
- Compatible with System Sensor synchronization protocol.
- Electrical compatibility with existing SpectrAlert and SpectrAlert Advance products.
- Tamper-resistant construction.
- Updated modern aesthetics.

SPSCRL, SPSCWL

Architectural/Engineering Specifications

General. L-Series speaker and speaker strobes shall mount to a 4" × 4" × $2^{1}/_{8}$" back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit and amplifier wiring shall terminate at the universal mounting plate. Also, L-Series speaker strobes, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32°F and 120°F from a regulated DC, or full-wave rectified, unfiltered power supply. Speaker strobes shall have field-selectable candela settings including 15, 30, 75, 95, 115, 150, 177.

Speaker. The speaker shall be a System Sensor L-Series model dual-voltage transformer speaker capable of operating at 25.0 or 70.7 nominal Vrms. It should be listed to UL 1480 and shall be approved for fire protective service. The speaker shall have a frequency range of 400 to 4,000 Hz and shall have an operating temperature between 32°F and 120°F. The speaker shall have power taps and voltage that are selected by rotary switches.

Speaker Strobe Combination. The speaker strobe shall be a System Sensor L-Series model listed to UL1480 and UL 1971 and be approved for fire protective signaling systems. The speaker shall be capable of operating at 25.0 or 70.7 nominal Vrms selected via rotary switch, and shall have a frequency range of 400 to 4,000 Hz. The speaker shall have power taps that are selected by rotary switch. The strobe shall comply with the NFPA 72 requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

Synchronization Module. The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz. The module shall mount to a $4^{11}/_{16}$" × $4^{11}/_{16}$" × $2^{1}/_{8}$" back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining

two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical Specifications

- **Standard Operating Temperature:** 32°F to 120°F (0°C to 49°C).
- **Humidity Range:** 10 to 93% non-condensing.
- **Dimensions, Ceiling-Mount:**
  - **SPC Speaker:** Diameter 6.8 in, 173 mm. Depth: 1.0 in, 25 mm.
  - **SPC Speaker with Surface Mount Back Box:** Diameter: 6.9 in, 176 mm. Depth: 3.5 in, 89 mm.
  - **SPSC Speaker Strobe:** Diameter: 6.8 in, 173 mm. Depth: 2.8 in, 73 mm.
  - **SPSC Speaker Strobe with Surface Mount Back Box:** Diameter 6.9 in, 176 mm. Depth: 5.37 in, 136 mm.

Electrical/Operating Specifications

- **Nominal Voltage (speakers):** 25 Volts or 70.7 Volts (nominal).
- **Maximum Supervisory Voltage (speakers):** 50 VDC.
- **Strobe Flash Rate:** 1 flash per second.
- **Nominal Voltage (strobes):** Regulated 12 DC or regulated 24 DC/FWR (full wave rectified).
- **Operating Voltage Range (includes fire alarm panels with built in sync):** 8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal).
- **Operating Voltage with MDL3 Sync Module:** 8.5 V to 17.5 V (12 V nominal) or 16.5 V to 33 V (24 V nominal).
- **Frequency Range:** 400 to 4,000 Hz.
  520Hz capable with compatible fire alarm control panel.
- **Power:** ¼, ½, 1, 2 watts.

UL Current Draw Data

UL MAX. STROBE CURRENT DRAW (MA RMS)

Candela	8-17.5 Volts	16-33 Volts	
	DC	DC	FWR
15	87	41	60
30	153	63	86
75	NA	111	142
95	NA	134	164
115	NA	158	191
150	NA	189	228
177	NA	226	264

CEILING-MOUNT SPEAKER SOUND OUTPUT

Setting	UL Reverberant (dBA @10 ft)	UL Anechoic (dBA @10 ft)
¼ W	79	79
½ W	82	82
1 W	85	85
2 W	88	88

CEILING-MOUNT SPEAKER STROBE SOUND OUTPUT

Setting	UL Reverberant (dBA @10 ft)	UL Anechoic (dBA @10 ft)
¼ W	77	77
½ W	80	80
1 W	83	83
2 W	86	86

Agency Listings and Approvals

The listings and approvals below apply to L-series devices. 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:**
  - S4048 Plain Speaker Strobes (Ceiling)
  - S4048 Spanish-labeled Speaker Strobes (Ceiling)
  - S4048 Speaker Strobe ALERT devices
- **UL/ULC-Listed:**
  - S4048 Speakers (Ceiling)
  - S4048 Speaker Strobes (Ceiling)
- **FM Approved** (All except ALERT models)
- **CSFM Listed:** 7320-1653:0505

Product Line Information

CEILING MOUNT SPEAKER STROBES

SPCWL(A), SPCRL(A). Speaker only (White, Red).

SPSCWL(A)(-E)(-F), SPSCRL(A)(-E)(-F). Speaker strobe (White, Red).

SPSCWL(A)-P. Plain speaker strobe (White).

SPSCWL-SP. Spanish-labeled "Fuego" speaker strobe (White) UL/ULC Listed.

SPSCWL-TE. English with trim ring.

SPSCWL-CLR-ALERT. Speaker Strobe, Ceiling, Clear Lens, ALERT (White).

ACCESSORIES

SBBCWL, SBBCRL. Universal Ceiling Surface Mount Back Box (White, Red).

TRC-2W, TRC-2. Universal Ceiling Trim Ring (White, Red).

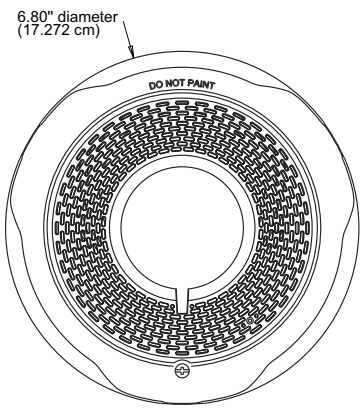
NOTE: *"A" suffix indicates ULC-Listed model. ULC-listed devices include required French labeling. See Agency Listings for listing details.*

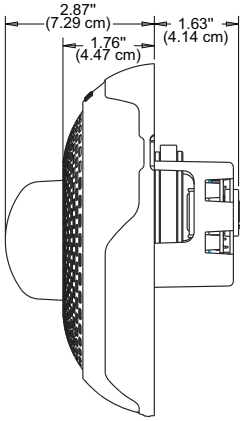
NOTE: *"A" suffix indicates ULC-listed models, ULC models have FIRE/FEU marking on cover.*

NOTE: *ULC-listed models add "-E" suffix for English only "FIRE" marking on cover.*

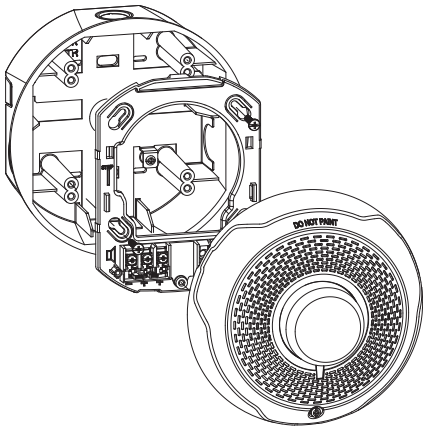
NOTE: *ULC-listed models add "-F" suffix for French only "FEU" marking on cover.*

Product Drawings



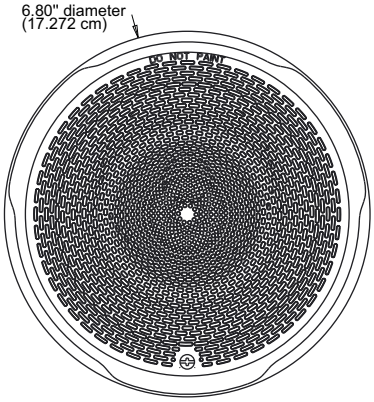


Speaker Strobe Dimensions

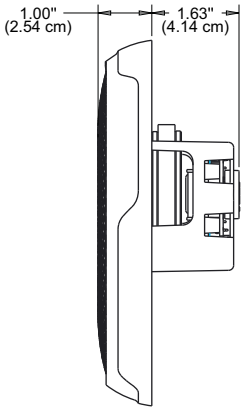


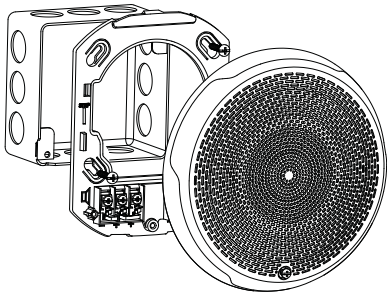
A0520-00.eps

Speaker Strobe with SBBCRL/ SBBCWL Surface Mount Back Box



Speaker Dimensions





A0501-00.eps

Speaker with SBBCRL/SBBCWL Surface Mount Back Box

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

Indoor Selectable-Output Speaker Strobes and Dual Voltage Evacuation Speakers for Wall Applications

System Sensor L-Series selectable output speaker strobes and dual-voltage evacuation speakers can reduce ground faults and enable faster installation with lower current draw and modern aesthetics.

Features

- Plug-in design and protective cover reduce ground faults
- Universal mounting plate with an onboard shorting spring tests wiring continuity before installation
- No extension ring required
- Field selectable candela settings on wall units: 15, 30, 75, 95, 110, 135, 185
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela
- Rotary switch simplifies field selection of speaker voltage (25 and 70.7 Vrms) and power settings (¼, ½, 1 and 2 watts)
- Speakers offer high fidelity and high volume sound output
- 520 Hz +/- 10% square wave tone capable with compatible FACP
- Compatible with System Sensor synchronization protocol
- Electrical compatibility with existing SpectrAlert and SpectrAlert Advance products
- Tamper-resistant construction
- Updated modern aesthetics

Agency Listings

SIGNALING UL LISTED
S4048

FM APPROVED
FM approved except for ALERT models
3057493

7320-1653:0505

The System Sensor L-Series of speakers and speaker strobes reduce costly ground faults using a plug-in design and universal mounting plate that allow the installer to pre-wire mounting plates, dress the wires, and confirm wiring continuity before plugging in the speakers. In addition, a protective plastic cover prevents nicked wires by covering exposed speaker components.

These devices also enable faster installations by providing instant feedback to ensure that wiring is properly connected, rotary switches to select voltage and power settings, and 7 field-selectable candela settings for wall speaker strobes.

The low total harmonic distortion of the speaker offers high fidelity sound output while still offering high volume sound output for use in high ambient noise applications.

System Sensor L-Series makes installation easy

- Attach a universal mounting plate to a 4 × 4 × 2 1/8 inch back box. Flush-mount applications do not require an extension ring.
- Connect the notification appliance circuit or speaker wiring to the terminals on the mounting plate.
- Attach the speaker or speaker strobe to the mounting plate by inserting the product tabs into the mounting plate grooves. Hinge the device into position to lock the product pins into the mounting plate terminals. The device will temporarily hold in place with a catch until it is secured with a captured mounting screw.

L-Series Speaker and Speaker Strobe Specifications

Architectural/Engineering Specifications

General

L-Series speaker and speaker strobes shall mount to a 4 × 4 × 2 1/8-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit and amplifier wiring shall terminate at the universal mounting plate. Also, L-Series speaker strobes, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32°F and 120°F from a regulated DC, or full-wave rectified, unfiltered power supply. Wall-mount speaker strobes shall have field-selectable candela settings including 15, 30, 75, 95, 110, 135, 185.

Speaker

The speaker shall be aSp System Sensor L-Series model _____ dual-voltage transformer speaker capable of operating at 25.0 or 70.7 nominal Vrms. It should be listed to UL 1480 and shall be approved for fire protective service. The speaker shall have a frequency range of 400 to 4,000 Hz and shall have an operating temperature between 32°F and 120°F. The speaker shall have power taps and voltage that are selected by rotary switches.

Speaker Strobe combination

The speaker strobe shall be a System Sensor L-Series model _____ listed to UL1480 and UL 1971 and be approved for fire protective signaling systems. The speaker shall be capable of operating at 25.0 or 70.7 nominal Vrms selected via rotary switch, and shall have a frequency range of 400 to 4,000 Hz. The speaker shall have power taps that are selected by rotary switch. The strobe shall comply with the NFPA 72 requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize strobes at 1 Hz. The module shall mount to a 4 11/16 × 4 11/16 × 2 1/8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical Specifications

Operating Temperature	32°F to 120°F (0°C to 49°C)		
Humidity Range	10 to 93% non-condensing		
Dimensions, Wall-Mount	**Length**	**Width**	**Depth**
SPL Speaker	6.5 in, 165 mm	5 in, 127 mm	0.97 in,23 mm
With Surface Mount Back Box	6.6 in, 168 mm	5.1 in, 130 mm	3.2 in, 82 mm
SPSL Speaker/Strobe (including lens and speaker)	6.5 in, 165 mm	5.0 in, 127 mm	2.3 in, 58 mm
With Surface Mount Back Box	6.6 in, 168 mm	5.1 in, 130 mm	4.5 in, 116 mm

*When using 12AWG, 14 AWG, or adding extra wires in the box, a deeper box or extension ring is recommended.

Electrical/Operating Specifications

Nominal Voltage (speakers)	25 Volts or 70.7 Volts (nominal)
Maximum Supervisory Voltage (speakers)	50 VDC
Strobe Flash Rate	1 flash per second
Nominal Voltage (strobes)	Regulated 12 VDC or regulated 24 DC/FWR[1,2]
Operating Voltage Range (includes fire alarm panels with built in sync)	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Operating Voltage with MDL3 Sync Module	8.5 to 17.5 V (12 V nominal) or 16.5 to 33 V (24 V nominal)
Frequency Range	400 to 4000 Hz[3]
Power	¼, ½, 1, 2 watts

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. Strobe products will operate at 12 V nominal only for 15 and 30 cd
3. 520 Hz +/- 10% square wave tone capable with compatible FACP.

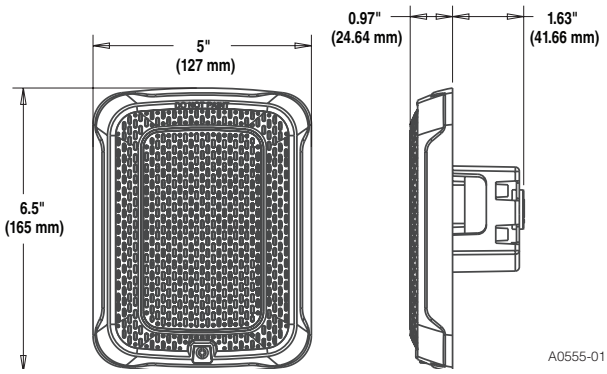
UL Current Draw Data

UL Max Strobe Current Draw (mA RMS)			
	8 to 17.5 Volts	16 to 33 Volts	
Candela	DC	DC	FWR
15	88	43	60
30	143	63	83
75	N/A	107	136
95	N/A	121	155
110	N/A	148	179
135	N/A	172	209
185	N/A	222	257

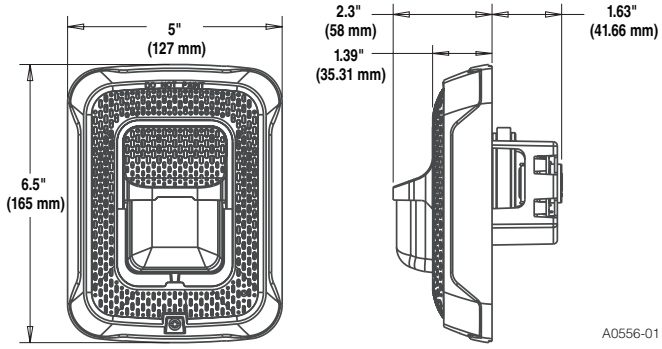
Sound Output Speaker Strobe				
	¼ W	½ W	1 W	2 W
UL Reverberant (dBA @10 ft)	77	80	83	86
UL Anechoic (dBA @10 ft)	77	80	83	86

Sound Output Speaker				
	¼ W	½ W	1 W	2 W
UL Reverberant (dBA @10 ft)	79	82	85	88
UL Anechoic (dBA @10 ft)	79	82	85	88

L-Series Dimensions

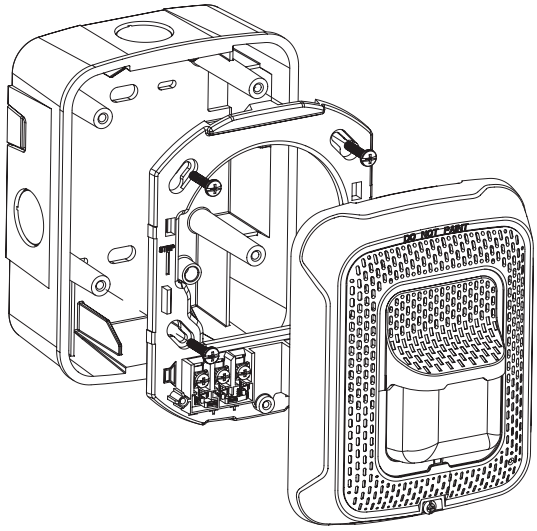


Wall-Mount Speaker



Wall-Mount Speaker Strobe

Surface Mounting



A0523-01

Wall-Mount Speaker Strobe
with SBBSPRL/ SBBSPWL Surface Mount Back Box

L-Series Ordering Information

Wall Mount		
White	**Red**	**Description**
SPWL	SPRL	Speaker only
SPSWL	SPSRL	Speaker Strobe
SPSWL-P	SPSRL-P	Plain Speaker Strobe
SPSWL-ALERT	—	Speaker Strobe, Amber Lens
SPSWL-CLR-ALERT	—	Speaker Strobe Clear Lens
—	SPSRL-SP	Speaker Strobe, Fuego

Accessories		
White	**Red**	**Description**
RFPW	RFP	7 in × 9.5 in Retrofit Plate
SBBSPWL	SBBSPRL	Surface Mount Back Box for Speakers and Speaker Strobes
TR-2W	TR-2	Wall Mount Trim Ring

Notes:
All -P models have a plain housing (no “FIRE” marking on the cover)

SYSTEM SENSOR®

3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495
www.systemsensor.com

AVDS867-03 • 6/6/2019

Indoor Selectable-Output Speaker Strobes and Dual Voltage Evacuation Speakers for Wall Applications

System Sensor L-Series selectable output speaker strobes and dual-voltage evacuation speakers can reduce ground faults and enable faster installation with lower current draw and modern aesthetics.

Features

- Plug-in design and protective cover reduce ground faults
- Universal mounting plate with an onboard shorting spring tests wiring continuity before installation
- No extension ring required
- Field selectable candela settings on wall units: 15, 30, 75, 95, 110, 135, 185
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela
- Rotary switch simplifies field selection of speaker voltage (25 and 70.7 Vrms) and power settings (¼, ½, 1 and 2 watts)
- Seakers offer high fidelity and high volume sound output
- Compatible with System Sensor synchronization protocol
- Electrical compatibility with existing SpectrAlert and SpectrAlert Advance products
- Tamper-resistant construction
- Updated modern aesthetics

Agency Listings

SIGNALING UL LISTED
S4048

FM APPROVED
FM approved except for ALERT models
3057493

7320-1653:0505

The System Sensor L-Series of speakers and speaker strobes reduce costly ground faults using a plug-in design and universal mounting plate that allow the installer to pre-wire mounting plates, dress the wires, and confirm wiring continuity before plugging in the speakers. In addition, a protective plastic cover prevents nicked wires by covering exposed speaker components.

These devices also enable faster installations by providing instant feedback to ensure that wiring is properly connected, rotary switches to select voltage and power settings, and 7 field-selectable candela settings for wall speaker strobes.

The low total harmonic distortion of the speaker offers high fidelity sound output while still offering high volume sound output for use in high ambient noise applications.

System Sensor L-Series makes installation easy

- Attach a universal mounting plate to a 4 × 4 × 21⁄8 inch back box. Flush-mount applications do not require an extension ring.
- Connect the notification appliance circuit or speaker wiring to the terminals on the mounting plate.
- Attach the speaker or speaker strobe to the mounting plate by inserting the product tabs into the mounting plate grooves. Hinge the device into position to lock the product pins into the mounting plate terminals. The device will temporarily hold in place with a catch until it is secured with a captured mounting screw.

L-Series Speaker and Speaker Strobe Specifications

Architectural/Engineering Specifications

General

L-Series speaker and speaker strobes shall mount to a 4 × 4 × 21⁄8-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit and amplifier wiring shall terminate at the universal mounting plate. Also, L-Series speaker strobes, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32°F and 120°F from a regulated DC, or full-wave rectified, unfiltered power supply. Wall-mount speaker strobes shall have field-selectable candela settings including 15, 30, 75, 95, 110, 135, 185.

Speaker

The speaker shall be a System Sensor L-Series model _____ dual-voltage transformer speaker capable of operating at 25.0 or 70.7 nominal Vrms. It should be listed to UL 1480 and shall be approved for fire protective service. The speaker shall have a frequency range of 400 to 4,000 Hz and shall have an operating temperature between 32°F and 120°F. The speaker shall have power taps and voltage that are selected by rotary switches.

Speaker Strobe combination

The speaker strobe shall be a System Sensor L-Series model _____ listed to UL1480 and UL 1971 and be approved for fire protective signaling systems. The speaker shall be capable of operating at 25.0 or 70.7 nominal Vrms selected via rotary switch, and shall have a frequency range of 400 to 4,000 Hz. The speaker shall have power taps that are selected by rotary switch. The strobe shall comply with the NFPA 72 requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz. The module shall mount to a 411⁄16 × 411⁄16 × 21⁄8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical Specifications			
Operating Temperature	32°F to 120°F (0°C to 49°C)		
Humidity Range	10 to 93% non-condensing		
Dimensions, Wall-Mount	**Length**	**Width**	**Depth**
SPL Speaker	6.5 in, 165 mm	5 in, 127 mm	.97 in,23 mm
With Surface Mount Back Box	6.6 in, 168 mm	5.1 in, 130 mm	3.2 in, 82 mm
SPSL Speaker/Strobe (including lens and speaker)	6.5 in, 165 mm	5.0 in, 127 mm	2.3 in, 58 mm
With Surface Mount Back Box	6.6 in, 168 mm	5.1 in, 130 mm	4.5 in, 116 mm
Electrical/Operating Specifications			
Nominal Voltage (speakers)	25 Volts or 70.7 Volts(nominal)		
Maximum Supervisory Voltage (speakers)	50 VDC		
Strobe Flash Rate	1 flash per second		
Nominal Voltage (strobes)	Regulated 12 VDC or regulated 24 DC/FWR[1,2]		
Operating Voltage Range (includes fire alarm panels with built in sync)	8 to 17.5 V (12 V nominal) or 16 to 33V (24 V nominal)		
Operating Voltage with MDL3 Sync Module	8.5 to 17.5 V (12 V nominal) or 16.5 to 33V (24 V nominal)		
Frequency Range	400 to 4000 Hz		
Power	¼, ½, 1, 2 watts		

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. Strobe products will operate at 12 V nominal only for 15 and 30 cd

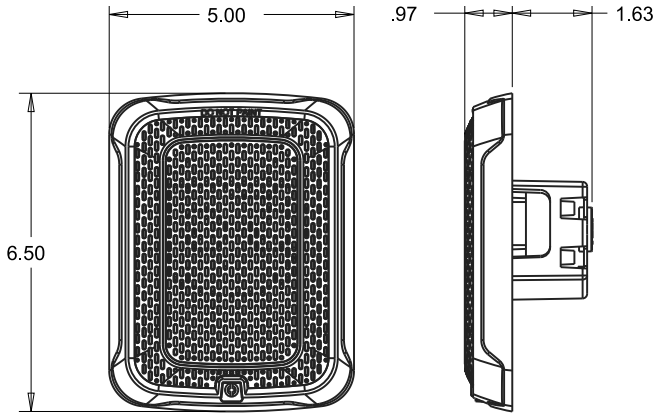
UL Current Draw Data

UL Max Strobe Current Draw (mA RMS)			
	8 to 17.5 Volts	16 to 33 Volts	
Candela	DC	DC	FWR
15	88	43	60
30	143	63	83
75	N/A	107	136
95	N/A	121	155
110	N/A	148	179
135	N/A	172	209
185	N/A	222	257

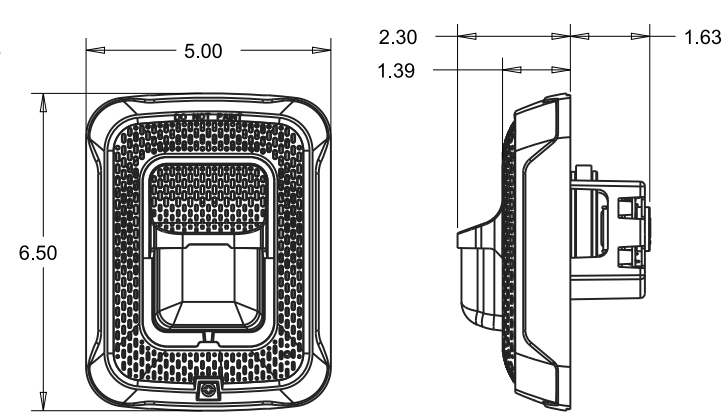
Sound Output Speaker Strobe				
	¼ W	½ W	1 W	2 W
UL Reverberant (dBA @10 ft)	77	80	83	86
UL Anechoic (dBA @10 ft)	77	80	83	86

Sound Output Speaker				
	¼ W	½ W	1 W	2 W
UL Reverberant (dBA @10 ft)	79	82	85	88
UL Anechoic (dBA @10 ft)	79	82	85	88

L-Series Dimensions

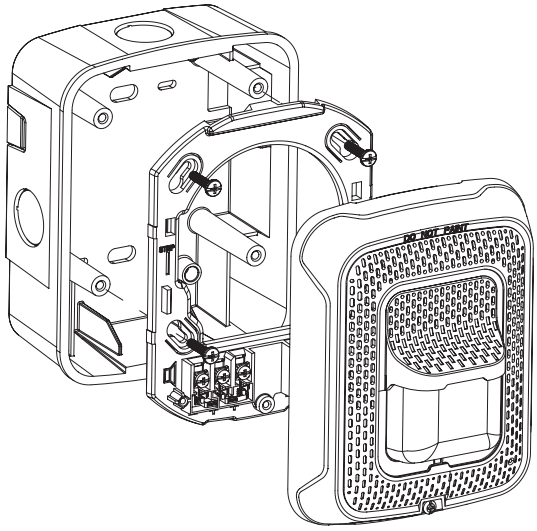


Wall-Mount Speaker



Wall-Mount Speaker Strobe

Surface Mounting



Wall-Mount Speaker Strobe with SBBSPL Surface Mount Back Box

L-Series Ordering Information

Wall Mount		
White	**Red**	**Description**
SPWL	SPRL	Speaker only
SPSWL	SPSRL	Speaker Strobe
SPSWL-P	SPSRL-P	Plain Speaker Strobe
SPSWL-ALERT	—	Speaker Strobe, Amber Lens
SPSWL-CLR-ALERT	—	Speaker Strobe Clear Lens
—	SPSRL-SP	Speaker Strobe, Fuego
Accessories		
White	**Red**	**Description**
RFPW	RFP	7 in × 9.5 in Retrofit Plate
SBBSPWL	SBBSPRL	Surface Mount Back Box for Speakers and Speaker Strobes
TR-2W	TR-2	Wall Mount Trim Ring

Notes:
All -P models have a plain housing (no “FIRE” marking on the cover)

SYSTEM SENSOR®
3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495
www.systemsensor.com

AVDS86701 • 03/17

Indoor Selectable-Output Speaker Strobes and Dual Voltage Evacuation Speakers for Ceiling Applications

System Sensor L-Series selectable-output speaker strobes and dual-voltage evacuation speakers can reduce ground faults and enable faster installation with lower current draw and modern aesthetics.

Features

- Plug-in design and protective cover reduce ground faults
- Universal mounting plate with an onboard shorting spring tests wiring continuity before installation
- No extension ring required
- Field selectable candela settings on ceiling units: 15, 30, 75, 95, 115, 150, and 177
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela
- Rotary switch simplifies field selection of speaker voltage (25 and 70.7 Vrms) and power settings (¼, ½, 1 and 2 watts)
- Speakers offer high fidelity and high volume sound output
- 520 Hz +/- 10% square wave tone capable with compatible FACP
- Compatible with System Sensor synchronization protocol
- Electrical compatibility with existing SpectrAlert and SpectrAlert Advance products
- Tamper-resistant construction
- Updated modern aesthetics

Agency Listings

SIGNALING UL LISTED
S4048

FM APPROVED
FM approved except for ALERT models 3057493

7320-1653:0505

System Sensor L-Series of speakers and speaker strobes reduce costly ground faults using a plug-in design and universal mounting plate that allow the installer to pre-wire mounting plates, dress the wires, and confirm wiring continuity before plugging in the speakers. In addition, a protective plastic cover prevents nicked wires by covering exposed speaker components.

These devices also enable faster installations by providing instant feedback to ensure that wiring is properly connected, rotary switches to select voltage and power settings, and 7 field-selectable candela settings for both wall and ceiling speaker strobes.

The low total harmonic distortion of the SP speaker offers high fidelity sound output while still offering high volume sound output for use in high ambient noise applications.

L-Series makes installation easy

- Attach a universal mounting plate to a 4 × 4 × 2⅛ inch back box . Flush-mount applications do not require an extension ring.
- Connect the notification appliance circuit or speaker wiring to the terminals on the mounting plate.
- Attach the speaker or speaker strobe to the mounting plate by inserting the product tabs into the mounting plate grooves. Hinge the device into position to lock the product pins into the mounting plate terminals. The device will temporarily hold in place with a catch until it is secured with a captured mounting screw.

L-Series Speaker and Speaker Strobe Specifications

Architectural/Engineering Specifications

General

L-Series speaker and speaker strobes shall mount to a 4 × 4 × 2 1/8-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit and amplifier wiring shall terminate at the universal mounting plate. Also, L-Series speaker strobes, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32°F and 120°F from a regulated DC, or full-wave rectified, unfiltered power supply. Speaker strobes shall have field-selectable candela settings including 15, 30, 75, 95, 115, 150, 177.

Speaker

The speaker shall be a System Sensor L-Series model _____ dual-voltage transformer speaker capable of operating at 25.0 or 70.7 nominal Vrms. It should be listed to UL 1480 and shall be approved for fire protective service. The speaker shall have a frequency range of 400 to 4,000 Hz and shall have an operating temperature between 32°F and 120°F. The speaker shall have power taps and voltage that are selected by rotary switches.

Speaker Strobe combination

The speaker strobe shall be a System Sensor L-Series model _____ listed to UL1480 and UL 1971 and be approved for fire protective signaling systems. The speaker shall be capable of operating at 25.0 or 70.7 nominal Vrms selected via rotary switch, and shall have a frequency range of 400 to 4,000 Hz. The speaker shall have power taps that are selected by rotary switch. The strobe shall comply with the NFPA 72 requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz. The module shall mount to a 4 11/16 × 4 11/16 × 2 1/8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical Specifications

Operating Temperature	32°F to 120°F (0°C to 49°C)	
Humidity Range	10 to 93% non-condensing	
Dimensions, Ceiling-Mount	**Diameter**	**Depth**
SPC Speaker	6.8 in, 173 mm	1.0 in, 25 mm
With Surface Mount Back Box	6.9 in, 176 mm	3.5 in, 89 mm
SPSC Speaker Strobe	6.8 in, 173 mm	2.8 in, 73 mm
With Surface Mount Back Box	6.9 in, 176 mm	5.37 in, 136 mm

*When using 12AWG, 14 AWG, or adding extra wires in the box, a deeper box or extension ring is recommended.

Electrical/Operating Specifications

Nominal Voltage (speakers)	25 Volts or 70.7 Volts (nominal)
Maximum Supervisory Voltage (speakers)	50 VDC
Strobe Flash Rate	1 flash per second
Nominal Voltage (strobes)	Regulated 12 VDC or regulated 24 VDC/FWR [1,2]
Operating Voltage Range (includes fire alarm panels with built in sync)	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Operating Voltage with MDL3 Sync Module	8.5 to 17.5 V (12 V nominal) or 16.5 to 33 V (24 V nominal)
Frequency Range	400 to 4,000 Hz[3]
Power	¼, ½, 1, 2 watts

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. Strobe products will operate at 12 V nominal only for 15 and 30 cd.
3. 520 Hz +/- 10% square wave tone capable with compatible FACP.

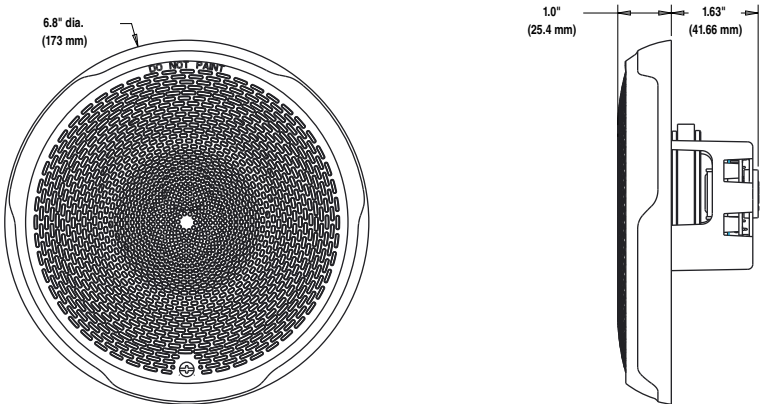
UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)			
	8 to 17.5 Volts	16 to 33 Volts	
Candela	DC	DC	FWR
15	87	41	60
30	153	63	86
75	NA	111	142
95	NA	134	164
115	NA	158	191
150	NA	189	228
177	NA	226	264

Ceiling-Mount Speaker Sound Output		
Setting	UL Reverberant (dBA @10 ft)	UL Anechoic (dBA @10 ft)
1/4 W	79	79
1/2 W	82	82
1 W	85	85
2 W	88	88

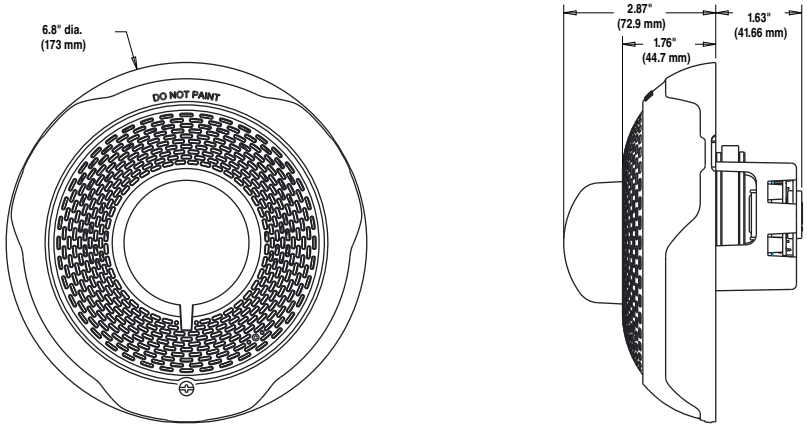
Ceiling-Mount Speaker Strobe Sound Output		
Setting	UL Reverberant (dBA @10 ft)	UL Anechoic (dBA @10 ft)
1/4 W	77	77
1/2 W	80	80
1 W	83	83
2 W	86	86

L-Series Dimensions



A0543-00

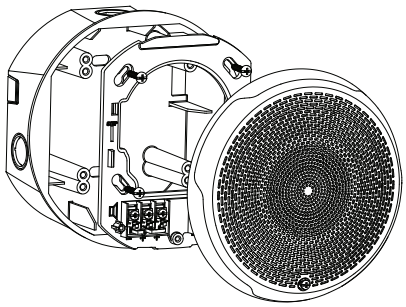
Ceiling Speaker



A0544-00

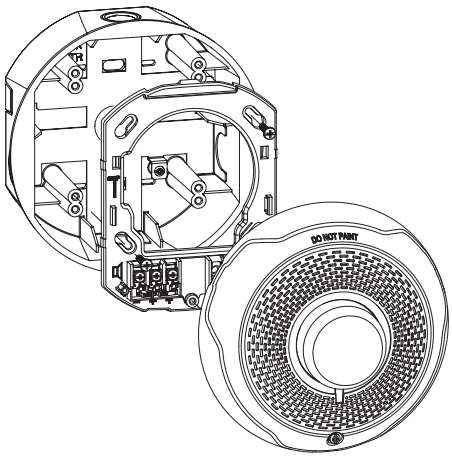
Ceiling Speaker Strobe

Surface Mounting



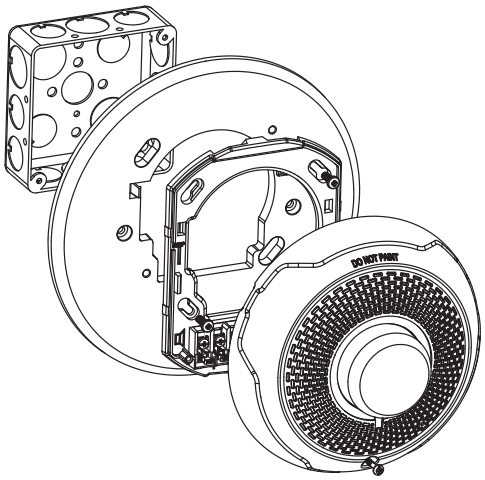
A0504-01

Ceiling Speaker with Surface Mount Back Box



A0520-01

Ceiling Speaker Strobe with Surface Mount Back Box



A0542-00

Ceiling Speaker Strobe with Trim Ring and 4" Square Electrical Box

L-Series Ordering Information

Ceiling Mount		
White	**Red**	**Description**
SPCWL	SPCRL	Speaker only
SPSCWL	SPSCRL	Speaker Strobe
SPSCWL-P	—	Plain, Speaker Strobe
SPSCWL-SP	—	Fuego, Speaker Strobe
SPSCWL-CLR-ALERT	—	Alert, Speaker Strobe, Clear Lens

Accessories		
White	**Red**	**Description**
SBBCWL	SBBCRL	Universal Ceiling Surface Mount Back Box
TRC-2W	TRC-2	Universal Ceiling Trim Ring

SYSTEM SENSOR®

3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495
www.systemsensor.com

AVDS866-03 • 03/23/2018

Indoor Selectable-Output Strobes and Horn Strobes for Ceiling Applications

System Sensor L-Series audible visible notification products are rich with features guaranteed to cut installation times and maximize profits with lower current draw and modern aesthetics.

Features

- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela
- Field-selectable candela settings on ceiling units: 15, 30, 75, 95, 115, 150, and 177
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and two volume selections
- Universal mounting plate for ceiling units
- Mounting plate shorting spring feature checks wiring continuity before device installation
- Electrically Compatible with legacy SpectrAlert and SpectrAlert Advance devices
- Compatible with MDL3 sync module
- Listed for ceiling mounting only

The System Sensor L-Series offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry with lower current draws and modern aesthetics. With white and red plastic housings, wall and ceiling mounting options, System Sensor L-Series can meet virtually any application requirement.

The entire L-Series product line of ceiling-mount strobes and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature a plug-in design with minimal intrusion into the back box, making installations fast and foolproof while virtually eliminating costly and time-consuming ground faults.

To further simplify installation, the L-Series utilizes a universal mounting plate so installers can mount them to a wide array of back boxes. With an onboard shorting spring, installers can test wiring continuity before the device is installed.

Installers can also easily adapt devices to a suit a wide range of application requirements using field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with two volume selections.

Agency Listings

SIGNALING UL LISTED
S5512
S4011

FM APPROVED
FM approved except for ALERT models
3057383

7125-1653:0504
7135-1653:0503

L-Series Specifications

Architect/Engineer Specifications

General

L-Series ceiling-mount strobes and horn strobes shall mount to a standard 4 × 4 × 1½-inch back box, 4-inch octagon back box, or double-gang back box. Two-wire products shall also mount to a single-gang 2 × 4 × 17⁄8-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, L-Series products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Ceiling strobes and horn strobes shall have field-selectable candela settings including 15, 30, 75, 95, 115, 150, and 177.

Strobe

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

Horn Strobe Combination

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

Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize L-Series strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4 11⁄16 × 4 11⁄16 × 2 1⁄8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical/Electrical Specifications	
Standard Operating Temperature	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 VDC or regulated 24 DC/FWR[1]
Operating Voltage Range[2]	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Operating Voltage Range (MDL3)	8.5 to 17.5V (12 V nominal) or 16.5 to 33 V (24V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Ceiling-Mount Dimensions (including lens)	6.8" diameter × 2.5" high (173 mm diameter × 64 mm high)
Ceiling-Mount Surface Mount Back Box Skirt Dimensions (SBBCRL, SBBCWL)	6.9" diameter x 3.4" high (175 mm diameter x 86 mm high)

Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. P, S, PC, and SC products will operate at 12 V nominal only for 15 and 30 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)

		8–17.5 Volts	16–33 Volts	
	Candela	DC	DC	FWR
Candela Range	15	87	41	60
	30	153	63	86
	75	N/A	111	142
	95	N/A	134	164
	115	N/A	158	191
	150	N/A	189	228
	177	N/A	226	264

UL Max. Horn Current Draw (mA RMS)

		8–17.5 Volts	16–33 Volts	
Sound Pattern	dB	DC	DC	FWR
Temporal	High	39	44	54
Temporal	Low	28	32	54
Non-Temporal	High	43	47	54
Non-Temporal	Low	29	32	54
3.1 KHz Temporal	High	39	41	54
3.1 KHz Temporal	Low	29	32	54
3.1 KHz Non-Temporal	High	42	43	54
3.1 KHz Non-Temporal	Low	28	29	54
Coded	High	43	47	54
3.1 KHz Coded	High	42	43	54

UL Max. Current Draw (mA RMS), Ceiling Horn Strobe, Candela Range (15–177 cd)

	8–17.5 Volts		16–33 Volts						
DC Input	15cd	30cd	15cd	30cd	75cd	95cd	115cd	150cd	177cd
Temporal High	103	167	71	90	143	165	187	217	254
Temporal Low	96	165	54	71	137	161	185	211	249
Non-Temporal High	106	173	71	90	141	165	187	230	273
Non-Temportal Low	95	166	54	71	124	161	170	216	258
3.1K Temporal High	111	164	69	94	147	163	184	229	257
3.1K Temporal Low	103	163	54	88	143	155	185	212	252
3.1K Non-Temporal High	111	172	69	94	144	164	202	229	271
3.1K Non-Temporal Low	103	169	54	88	131	155	187	217	259

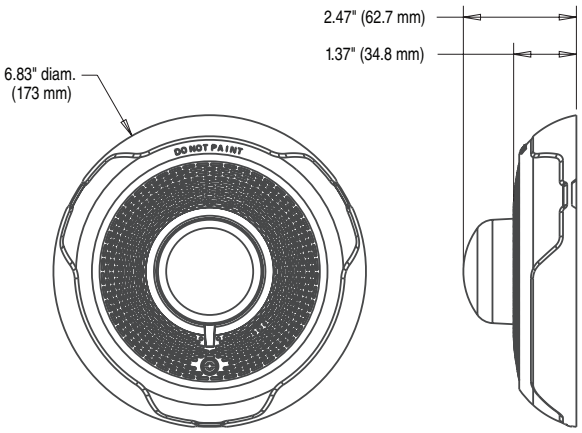
	16–33 Volts						
FWR Input	15cd	30cd	75cd	95cd	115cd	150cd	177cd
Temporal High	107	135	179	198	223	254	286
Temporal Low	78	101	151	172	199	229	262
Non-Temporal High	107	135	179	198	223	254	286
Non-Temportal Low	78	101	151	172	199	229	262
3.1K Temporal High	108	135	179	200	225	255	289
3.1K Temporal Low	79	101	150	171	196	229	260
3.1K Non-Temporal High	108	135	179	200	225	255	289
3.1K Non-Temporal Low	79	101	150	171	196	229	260

Horn Strobe Tones and Sound Output Data

Horn Strobe Output (dBA)

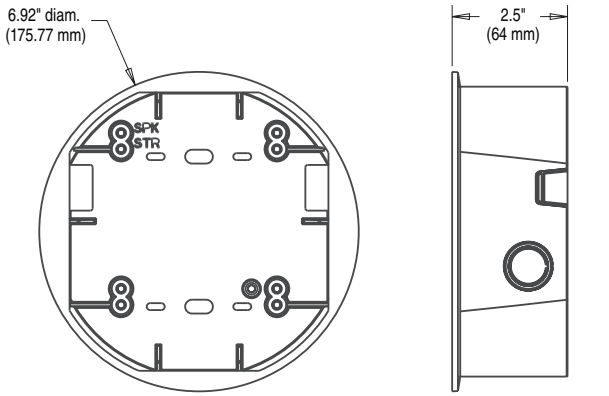
			8–17.5 Volts	16–33 Volts	
Switch Position	Sound Pattern	dB	DC	DC	FWR
1	Temporal	High	84	89	89
2	Temporal	Low	75	83	83
3	Non-Temporal	High	85	90	90
4	Non-Temporal	Low	76	84	84
5	3.1 KHz Temporal	High	83	88	88
6	3.1 KHz Temporal	Low	76	82	82
7	3.1 KHz Non-Temporal	High	84	89	89
8	3.1 KHz Non-Temporal	Low	77	83	83

L-Series Dimensions



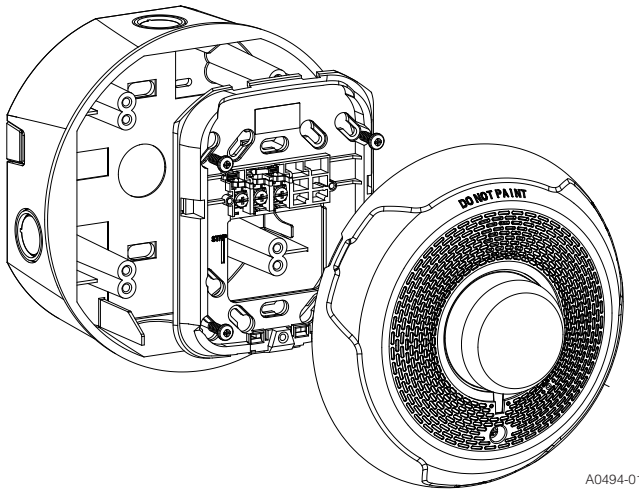
A0545-00

Ceiling-Mount Horn Strobes



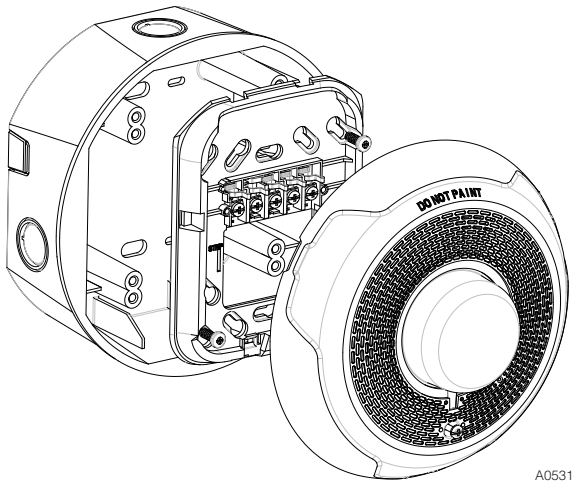
A0546-00

Ceiling Surface Mount Back Box



A0494-01

2-Wire Ceiling Mount Horn Strobes with Ceiling Surface Mount Back Box



A0531-01

4-Wire Ceiling Mount Horn Strobes with Ceiling Surface Mount Back Box

L-Series Ordering Information

Model	Description
Ceiling Horn Strobes	
PC2RL	2-Wire, Horn Strobe, Red
PC2WL	2-Wire, Horn Strobe, White
PC4RL	4-Wire, Horn Strobe, Red
PC4WL	4-Wire, Horn Strobe, White

Model	Description
Ceiling Strobes	
SCRL	Strobe, Red
SCWL	Strobe, White
SCWL-CLR-ALERT	Strobe, White, ALERT
Accessories	
TRC-2	Universal Ceiling Trim Ring Red
TRC-2W	Universal Ceiling Trim Ring White
SBBCRL	Ceiling Surface Mount Back Box, Red
SBBCWL	Ceiling Surface Mount Back Box, White

For a ceiling-listed horn-only device, see AVDS865 “Indoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications”.

SYSTEM SENSOR®

3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495

AVDS868-02 • 12/01/2017

Outdoor Selectable-Output Strobes and Horn Strobes for Ceiling Applications

SpectrAlert® Advance outdoor audible visible products are rich with features that cut installation times and maximize profits.

Features

- Weatherproof NEMA 4X, IP56 rated
- Listed to UL 1638 (strobe) and UL 464 (horn)
- Compatible with System Sensor synchronization protocol and legacy SpectrAlert products
- Field-selectable candela settings: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185
- Automatic selection of 12- or 24-volt operation at 15 and 15/75 candela
- Rotary switch for horn tone and three volume selections
- Horn rated at 88+ dBA at 16 volts
- Rated from –40°F to 151°F
- Universal mounting plate with an onboard shorting spring that tests wiring continuity before devices are installed
- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Listed for ceiling or wall mounting

Agency Listings

SIGNALING UL LISTED
S4011 (chimes, horn strobes, horns)
S3593 (outdoor and alert strobes)

FM APPROVED
3023572

MEA approved
MEA452-05-E

7300-1653:187 (outdoor strobes)
7125-1653:188 (horn strobes, chime strobes)
7135-1653:189 (horns, chimes)

SpectrAlert Advance offers the broadest line of outdoor horns, strobes, and horn strobes in the industry. With white or red plastic housings, wall or ceiling mounting options, and plain or FIRE-printed devices, SpectrAlert Advance can meet virtually any application requirement, including indoor, outdoor, wet, and dry applications in temperatures from –40°F to 151°F.

Like the entire SpectrAlert Advance line, outdoor strobes and horn strobes for ceiling applications include a variety of features that increase application flexibility and simplify installation. First, field-selectable settings, including candela, automatic selection of 12- or 24-volt operation, horn tones, and three volume options enable installers to easily adapt devices to meet requirements.

Next, SpectrAlert Advance devices use a universal mounting plate for both wall and ceiling applications. This mounting plate includes an onboard shorting spring that ensures wiring continuity before devices are installed, so installers can verify proper wiring without mounting the devices and exposing them to potential construction damage. Once the plates are mounted, all SpectrAlert Advance devices utilize a plug-in design with a single captured screw to speed installation and virtually eliminate costly ground faults.

Outdoor devices ship with weatherproof plastic back boxes (metal back boxes are available separately) that accommodate in-and-out wiring for daisy chaining devices. Plastic back boxes feature removable side flanges and improved resistance to saltwater corrosion. Plastic and metal weatherproof back boxes come with ¾-inch top and bottom conduit entries and ¾-inch knock-outs at the back. Three screw-in NPT plugs with O-ring gaskets for a watertight seal is included with each back box.

SpectrAlert Advance Outdoor Strobe, and Horn Strobe Specifications

Architect/Engineer Specifications

General

SpectrAlert Advance outdoor horns, strobes, and horn strobes shall mount to a weatherproof back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Outdoor SpectrAlert Advance products shall operate between –40 and 151 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185.

Strobe

The strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1638 and shall be approved for fire protective service. The strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The strobe must be installed with its weatherproof back box in order to remain outdoor approved per UL. The strobe shall be suitable for use in wet environments.

Horn Strobe Combination

The horn strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1638 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have three audibility options and an option to switch between a temporal three pattern and a non-temporal (continuous) pattern. These options shall be set by a multiple position switch. On four-wire products, the strobe shall be powered independently of the sounder. The horn strobe on a 2-wire model shall work on a non-coded power supply. The horn on 4-wire horn strobe models shall operate on a coded or non-coded power supply. The horn strobe must be installed with its weatherproof back box in order to remain outdoor listed per UL. The horn strobe shall be suitable for use in wet environments.

Physical/Electrical Specifications

Operating Temperature	–40°F to 151°F (–40°C to 66°C)
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC/FWR or regulated 24 DC/FWR[1]
Operating Voltage Range[2]	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Operating Voltage Range with MDL3 Sync Module	8.5 to 17.5V (12 V nominal) or 16.5 to 33V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Ceiling-Mount Dimensions (including lens)	6.8″ diameter × 2.5″ high (173 mm diameter × 64 mm high)
Strobe / Horn Strobe Dimensions	5.6″ L × 4.7″ W × 1.3″ D (142 mm L × 119 mm W × 33 mm D)
Strobe / Horn Strobe Dimensions with Back Box	5.6″ L × 4.7″ W × 1.3″ D (142 mm L × 119 mm W × 33 mm D)
Ceiling-Mount Weatherproof Back Box Dimensions	7.1″ diameter × 2.0″ high (180 mm diameter × 51 mm high)

Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. Products will operate at 12 V nominal only for 15 and 15/75 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)

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

UL Max. Horn Current Draw for 4-Wire Horn Strobes (mA RMS)

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

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, Standard Candela Range (15–115 cd)

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

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, High Candela Range (135–185 cd)

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

Candela Derating

For K series products used at low temperatures, listed candela ratings must be reduced in accordance with this table.

Strobe Output (cd)	
Listed Candela	Candela rating at –40°F
15	Do not use below 32°F
15/75	
30	
75	44
95	70
110	110
115	115
135	135
150	150
177	177
185	185

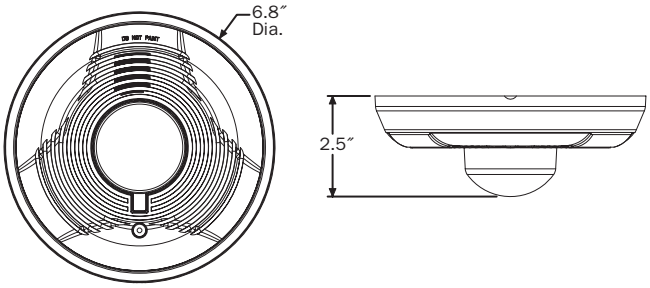
Horn Tones and Sound Output Data

Horn Strobe Output (dBA)

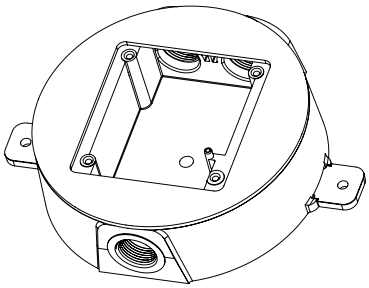
			8–17.5 Volts		16–33 Volts		24-Volt Nominal			
							Reverberant		Anechoic	
Switch Position	Sound Pattern	dB	DC	FWR	DC	FWR	DC	FWR	DC	FWR
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	74	74	80	80	86	86	96	96
3	Temporal	Low	71	73	76	76	83	80	94	89
4	Non-Temporal	High	82	82	88	88	93	92	100	100
5	Non-Temporal	Medium	78	78	85	85	90	90	98	98
6	Non-Temporal	Low	75	75	81	81	88	84	96	92
7†	Coded	High	82	82	88	88	93	92	101	101
8†	Coded	Medium	78	78	85	85	90	90	97	98
9†	Coded	Low	75	75	81	81	88	85	96	92

†Settings 7, 8, and 9 are not available on 2-wire horn strobe.

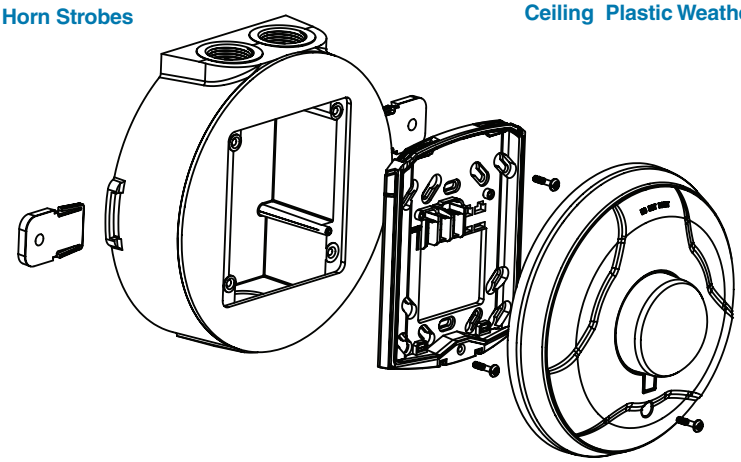
SpectrAlert Advance Diagrams



Ceiling-Mount Horn Strobes



Ceiling Plastic Weatherproof Back Box



Ceiling-Mount Horn Strobe with Plastic Weatherproof Back Box

SpectrAlert Advance Ordering Information

Model	Description
Ceiling Horn Strobes	
PC2RK	2-Wire Horn Strobe, Standard cd, Red, Outdoor (includes plastic weatherproof back box)
PC2RHK	2-Wire Horn Strobe, High cd, Red, Outdoor (includes plastic weatherproof back box)
PC2WK	2-Wire, Horn Strobe, Standard cd, White, Outdoor (includes plastic weatherproof back box)
PC2WHK	2-Wire, Horn Strobe, High cd, White, Outdoor (includes plastic weatherproof back box)
Ceiling Strobes	
SCRK	Strobe, Standard cd, Red, Outdoor (includes plastic weatherproof back box)
SCRHK	Strobe, High cd, Red, Outdoor (includes plastic weatherproof back box)
SCWK	Strobe, Standard cd, White, Outdoor (includes plastic weatherproof back box)
SCWHK	Strobe, High cd, White, Outdoor (includes plastic weatherproof back box)
Accessories	
SA-WBBC	Red, Metal Weatherproof Back Box
SA-WBBCW	White, Metal Weatherproof Back Box
MP120K	

Notes:
"Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings. "High cd" refers to strobes that include 135, 150, 177, and 185 candela settings. **When replacing outdoor units, both the device and back box must be replaced.**

SYSTEM SENSOR®

3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495

AVDS11402 • 02/15

RATH

SmartRescue System Call Box
2100-958NSR

Part #: 2100-958NSR

Specifications:	
Dimensions:	Face Plate: 9-1/2” H x 7-1/2” W Back Box: 8” H x 6” W x 3” D
Mounting:	Flush Mount
Design:	Brushed Stainless Steel
Warranty:	2 Years

Code Compliance:
- International Building Code (IBC)
- National Fire Protection Association (NFPA)
- Americans Disabilities Act (ADA)
- ETL Listing Number: 5013373
- Conforms to UL Standard 2017 for Attendant Monitored Signaling Devices
- Complies with Section 6.4 of UL 60950-1

Power Requirements:
- 24vdc from part # 2500-PWR24U

Programming Features:
- Programmable with up to 5 emergency numbers
- Recordable location message (18 seconds)
- On-site keypad programming or remote programming

Phone Capabilities:
- Requires analog telephone line (POTS, PBX, or central office line)
- Phone checks every 24 hours for an active phone line, if one is not detected, phone will provide a relay trip
- Automatic answer feature with audible ring
- Touch Tone operation only (Touch Tone is an AT&T registered trademark)

Additional Features:
- Compatible with SmartRescue Base Station or Command Center for in-building rescue coordination
- Built-in 10 phone consolidator feature allows you to install 10 Call Boxes and 1 Base Station on a single telephone line
- Remote or on-site diagnostic test
- Automatic dialer (31 digit programmable memory)
- Built-in battery backup recharges from 24vdc power (allows for a minimum of 4 hours of talk time upon power loss)
- 7.2V 300mAH battery (part # RP7300110)

Optional Features:
- Strobe interface and relay
- Mushroom push button

Intertek

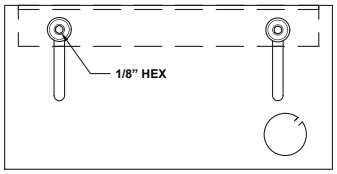
N56 W24720 N. Corporate Circle • Sussex, WI 53089
800-451-1460 • www.rathcommunications.com

RATH 2100-958NSR

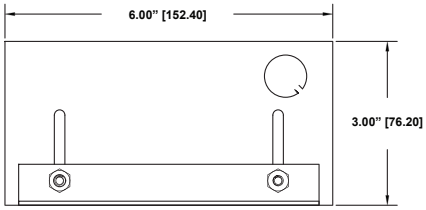
Side View

Back View

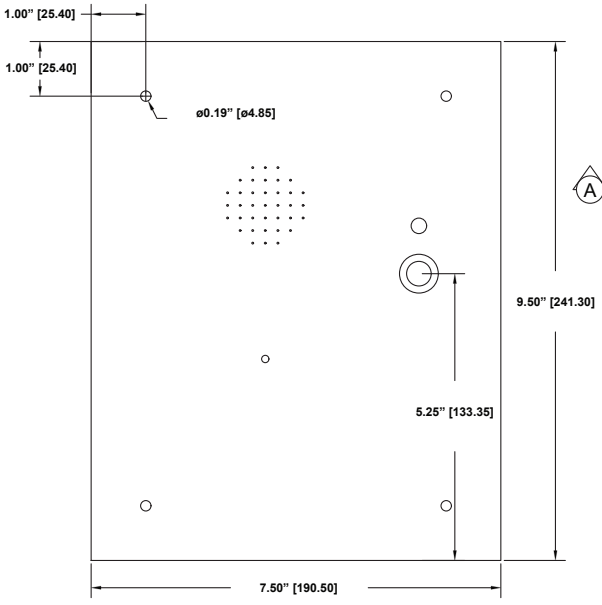
Top View



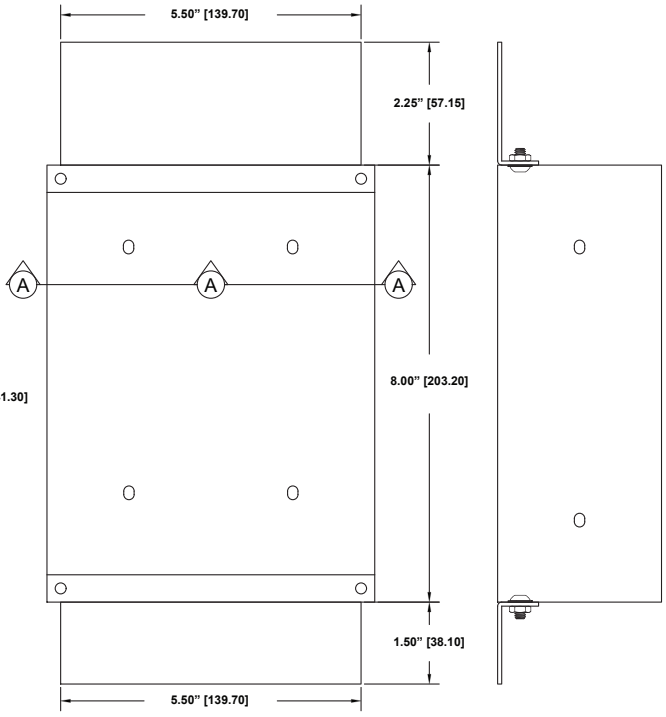
A INTERIOR ELEVATION



BACK BOX TOP

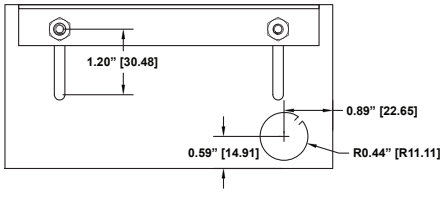


COVER FRONT



BACK BOX FRONT

BACK BOX SIDE



BACK BOX BOTTOM

N56 W24720 N. Corporate Circle • Sussex, WI 53089
800-451-1460 • www.rathcommunications.com

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 0.65" (1.651 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 communication protocols.

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 (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 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) (Type H)

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: 375 µA (LED flashing), 1 communication every 5 seconds, 47k EOL.

Maximum IDC wiring resistance: 1500 Ohms.

Maximum IDC Voltage: 11 Volts.

EOL resistance: 47K Ohms.

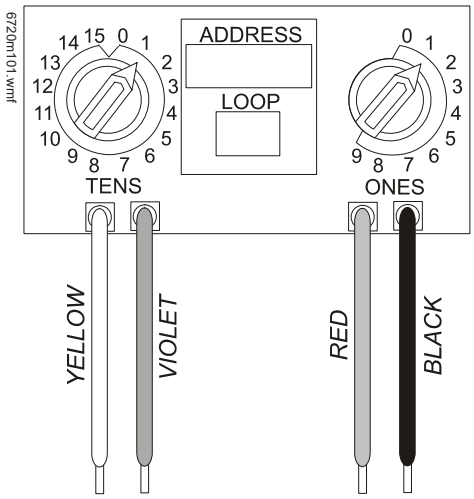
Temperature range: 32°F to 120°F (0°C to 49°C).

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: 1500 Ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 450 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 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: 270 µA, 1 communication and 1 LED flash every 5 seconds, 3.9k eol.

EOL resistance: 3.9K Ohms.

External supply voltage (between Terminals T10 and T11):

- 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.

FDM-1(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.

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 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

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, 7165-0028:0224, 7165-0028:0243.
- **MEA:** 457-99-E.
- **U.S. Coast Guard:** 161.002/50/0 (NFS2-640, NFS2-320, NFS2-3030).
- **Lloyd’s Register:** 11/600013 (NFS2-640, NFS2-320, NFS2-3030).
- **Fire Dept. of New York:** COA #6121 (NFS2-640, NFS-320), COA# 6114 (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.*

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

ISO-X(A)

Fault Isolator Module

NOTIFIER® by Honeywell

Intelligent/Addressable Devices

General

The Notifier ISO-X(A) Fault Isolator Module is used with Notifier Onyx and CLIP series Fire Alarm Control Panels (FACPs) to protect the system against wire-to-wire short circuits on the SLC loops.

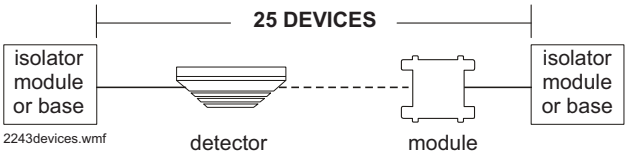
Features

- Powered by SLC loop directly, no external power required.
- Base mounts on standard junction boxes (4.0"/10.16 cm square by 2.125"/5.398 cm deep).
- Integral LED blinks to indicate normal condition. Illuminates steady when short circuit condition is detected.
- High noise (EMF/RFI) immunity.
- Wide viewing angle of LED.
- SEMS screws with clamping plates for ease of wiring.
- Opens SLC loop automatically on detection of short, preventing the short from causing failure of the entire loop.
- Automatically resets on correction of short.
- Supports Style 4, 6, or 7 wiring.

Applications

The Fault Isolator Modules should be spaced between groups of sensors in a loop to protect the rest of the loop. Use to isolate short circuit problems within a section of a loop so that other sections can continue to operate normally. The ISO-X(A) supports a maximum of 25 devices in-between isolators, except when using relay bases or legacy IPX multisensors.

NOTE: *ON LOADS PER RELAY BASE AND* LEGACY *MULTISENSOR DETECTORS/ISOLATORS/ISOLATOR BASES:* the maximum number of addressable devices between isolators (or B224BI isolator bases) is 25 devices.



B224RB relay bases and legacy IPX-751 multisensor detectors draw more current than all other intelligent devices. When calculating the 25-device maximum: B224RB.

- B224RB represents 2.5 devices.
- IPX-751 in a standard base represents 12 devices.
- IPX-751 in a relay base represents 14.5 devices.
- All other addressable devices represent 1 device.

See examples on page 2.

NOTE: *ON MAXIMUM NUMBER OF DEVICES:* See the SLC Manual (PN 51253) for information on loss of addresses due to current limitations. Each module or base added reduces the capacity of address positions in an SLC. All SLC field devices must have been purchased after February 1995 to meet the aforementioned requirements. If the SLC field devices were purchased prior to February 1995, each ISO-X(A) used reduces the capacity of an SLC by two address positions. Requirements differ as applied to relay bases (see note above).

ISO-X_left_rgb.jpg

ISO-X(A)

Construction

The face plate is made of off-white plastic. Includes yellow LED indicator that pulses when normal and illuminates steady when a short is detected.

Operation

Automatically opens circuit when the line voltage drops below four volts. Fault Isolator Modules should be spaced between groups of addressable devices (maximum 25, see notes on page 1) in a loop to protect the rest of the loop. If a short occurs between any two isolators, then both isolators immediately switch to an open circuit state and isolate the groups of sensors between them. The remaining units on the loop continue to fully operate.

In Style 4 loops, the ISO-X(A) is generally used at each T-tap branch, to limit the effect of short circuits on a branch to the devices on that branch. The LED indicator is on continuously during a short circuit condition.

The ISO-X(A) Fault Isolator Module automatically restores the shorted portion of the communications loop to normal condition when the short circuit condition is removed.

Installation

- Mount on a standard junction box (4.0"/10.16 cm square) which is at least 2.125"/5.398 cm deep.
- Terminal screws are provided for “in and out” wiring.
- Installation instructions are provided with each module.
- Surface-mount box is available as an option.

Specifications

Normal operating voltage: 15 – 32 VDC (peak).

Standby current: 450 µA (not isolating) .

Maximum current draw: 17 mA (device in isolation, LED latched in alarm).

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

Relative humidity: 10% to 93% (non-condensing).

Weight: 5 oz. (150 grams).

Dimensions: 4.5"H x 4.5"W x 0.25" D (11.43 cm H x 11.43 cm W x 0.635 cm D).

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 (UOXX); BP6480 (AMCX, APOU).
- **ULC:** S635 (OUOXXC, ISO-XA).
- **FM Approved.**
- **CSFM:** 7165-0028:0214; 7165-0028:0224; 7165-0028:0243.
- **MEA:** 17-96-E; 104-93-E Vol. VI; 290-91-E Vol. V; 317-01-E; 447-99-E.
- **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)).
- **BSA:** 578-81-SA.

Architectual/Engineering Specifications

Fault Isolator Modules shall be provided to automatically isolate wire-to-wire short circuits on an SLC loop. The Fault Isolator Module shall limit the number of modules or detectors that may be rendered inoperative by a short circuit fault on the SLC Loop. If a wire-to-wire short occurs, the Fault Isolator Module shall automatically open-circuit (disconnect) the SLC loop. When the short circuit condition is corrected, the Fault Isolator Module shall automatically reconnect the isolated section of the SLC loop. The Fault Isolator Module shall not require any address-setting, and its operations shall be totally automatic. It shall not be necessary to replace or reset an Fault Isolator Module after its normal operation. The Fault Isolator Module shall mount in a standard 4.0" (10.16 cm) deep electrical box, in a surface-mounted backbox, or in the Fire Alarm Control Panel. It shall provide a single LED which shall flash to indicate that the Isolator is operational and shall illuminate steadily to indicate that a short circuit condition has been detected and isolated.

Product Line Information

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

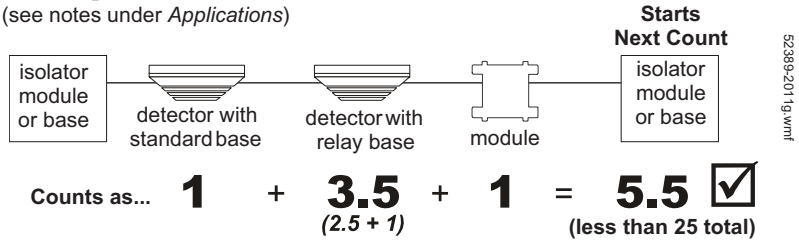
ISO-X: Isolator Module.

ISO-XA: Isolator Module. Canadian (ULC) version.

SMB500: Surface Mount Backbox

Examples of Device Counts

(see notes under *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