

**SOF RIVERINE AND COMBATANT CRAFT OPERATIONS FACILITY  
STENNIS SPACE CENTER, MS**

**FIRE ALARM / VOICE EVACUATION SYSTEM - NOTIFIER FIRE SYSTEMS**

**OPERATIONS BUILDING 2440 / MAINTENANCE BUILDING 2441**

1	NFS2-640	Intelligent Addressable Voice Evacuation Fire Alarm Control Panel
1	CPU2-640	Central Processing Unit, Power Supply, & Chassis
2	BMP-1	Blank Module Panel
1	DP-DISP2	Dress Plate for CPU2-640
1	CA-1	Chassis, DVC
1	DVC-EM	Digital Voice Command
1	DVC-KD	Digital Voice Command, Keypad
1	DVC-AO	Digital Voice Analog Output
1	DPA-1	Dress Plate, DVC
1	AA-120	120 Watt Amplifier
1	CHS-6	Chassis
1	XP6-C	Control Transponder, 6 Output
2	ACM-8R	Annunciator Relay Module, 8 Relays
2	DP-1B	Blank Plate, Row
1	ADDR-D4	Audio Command Door for CAB-D
1	SBB-D4	Back Box, 4 Chassis, Black
1	NFS-LBB	Large Battery Box
2	PS-12550	Battery, 12 Volt DC, 55 Amp Hour
1	HSP-121BT1RU	120 Vac Surge Suppression
1	Remote Annunciator / Microphone Station	
1	LCD-80	Remote LCD Annunciator
1	RM-1	Remote Microphone Station
1	ACM-24AT	Annunciator Control Module
1	BMP-1	Blank Annunciator Module
1	ADP-4	Annunciator Dress Plate
1	DR-A4	A Size Door with Plexi Window
1	SBB-A4	A Size Back Box
8	NBG-12LX	Addressable Pull Station
7	FSP-851 / B710LP	Intelligent Addressable Photo Detector / Base
2	FSD-751P / ST-5	Intelligent Addressable Duct Photo Detector / Sample Tube
2	FRM-1	Addressable Relay Module
1	FMM-1	Monitor Module
2	FDM-1	Dual Monitor Module
14	SPSW-Alert	Speaker Strobe, Wall Mount, White, Clear Strobe, "Alert" Letters
18	SPSCW-Alert	Speaker Strobe, Ceiling Mount, White, Clear Strobe, "Alert"
2	SPSWK-Alert	WP Speaker Strobe, Wall Mount, White, Clear Strobe, "Alert"

4	SW-Alert	Clear Strobe, Wall Mount, White, "Alert"
4	SCW-Alert	Clear Strobe, Ceiling Mount, White, "Alert"
9	STH-15S / WBB	Weatherproof 15 Watt Horn
1	Monaco BT	Sixteen Zone Transceiver & Antennae Package

#### **BOAT STORAGE BUILDING 2442**

1	SFP-5UD	Five Zone Control Panel
2	PS-12120	12 Volt 12 Amp Hour Battery
1	FAS120AC	120 Vac Surge Suppressor
1	STI-7551	Poly Carbonate Weatherproof Enclosure
6	NBG-12LOB	Weatherproof Manual Station / Back Box
11	P2RK	Weatherproof Horn Strobe / Back Box
1	DECT3020	Fiber Transmitter, 8 Contact Closure
1	DECR3020	Fiber Receiver, 8 Contact Closure
1 lot	Fiber Optic Cable	2 Strand Multi-mode Fiber Optic Cable

#### **Notes:**

- It is our intent to use the Fire Alarm Voice Evacuation System as a Mass Notification System as well. Thus the "ALERT" markings indicated on the speakers and strobes. There are some contradictions within the RFP as to whether the Mass Notification should be a part of the fire alarm system or the public address system. There is an indication in the RFP that the Mass Notification System should be a part of a Bogen Telephone Paging System. If that is the preferred method to provide Mass Notification, then we will change the lettering on the speakers & strobes to "FIRE".
- The fire alarm system for Building 2440/2441 will be a Notifier Fire Systems (Honeywell) NFS2-640 Intelligent Addressable Fire Alarm System with Digital Voice Control. The batteries will be sized to provide a minimum of 60 hours of standby & 15 minutes of alarm. There will be a remote local operator control that will include a remote LCD 80 character display, remote microphone, and control buttons for activation of additional messages. Location to be determined.

The system will include addressable pull stations at all exits from the building; smoke detector at the FACP, and in all Electrical, Mechanical, and Communication Rooms; duct detectors on the supply side of air handling units over 2000cfm, as well as addressable monitor modules for all fire protection flow and tamper switches.

Occupant notification will be provided by speaker strobes, strobes, and speakers. The interior of the building will be covered utilizing speaker strobes and strobes per NFPA 72 and UFC requirements. Speaker horns will be included on the exterior walls in areas that may be occupied.

Transmission of signals to the Fire Department will be via Monaco Transceiver.

3. In Boat Storage Building 2442 we propose to provide a Notifier Five Zone Conventional Panel, with 60 hours of standby battery. This system will monitor the dry pipe sprinkler system, including the alarm pressure switch, valve tamper switch, and the Hi-Low air pressure supervisory switch. There will be manual pull stations at all exits and horn strobes to provide notification. All fire alarm devices will be provided as weatherproof type devices. We will provide a weather proof enclosure for the FACP as well, if need be. It is our intent to use a fiber optic transmitter & receiver and fiber optic cable to interface the FACP in Building 2442 with the Monaco Transceiver in Building 2440; for transmission of signals to the fire department.

# NFS2-640

## Intelligent Addressable Fire Alarm System



Intelligent Fire Alarm Control Panels

### General

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

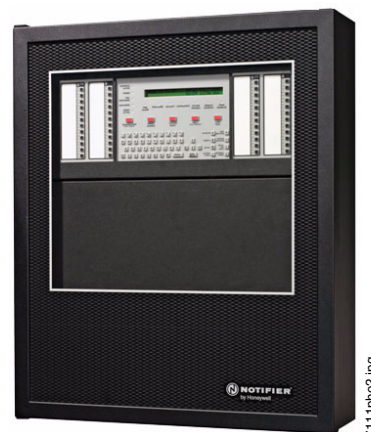
As a stand-alone small-to-large system, or as a large network, the ONYX Series of products meets virtually every application requirement.

Designed with modularity and for ease of system planning, the NFS2-640 can be configured with just a few devices for small building applications, or for a large campus or high-rise application. Simply add additional peripheral equipment to suit the application.

**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

- Listed to UL Standard 864, 9th edition.
- One, expandable to two, isolated intelligent Signaling Line Circuit (SLC) Style 4, 6 or 7.
- Up to 159 detectors (any mix of ion, photo, thermal, or multi-sensor) and 159 modules (Addressable pull stations, normally open contact devices, two-wire smoke, notification, or relay) per SLC. 318 devices per loop/636 per FACP or network node.
- Standard 80-character display, 640-character large display, or display-less (a node on a network).
- Network option — 103 nodes supported (AFP-200, AFP-300/400, NFS-320, NFS-640, NFS2-640, AFP1010, AM2020, NFS-3030, NFS2-3030, NCA/NCA-2 Network Annunciator, DVC-EM, NCS Network Control Station, or ONYXWorks™ Network Control Station) using wire or fiber-optic connections.
- 6.0 amp switch mode power supply with four Class A/B built-in Notification Appliance Circuits (NAC). Selectable System Sensor, Wheelock, or Gentex strobe synchronization.
- Built-in Alarm, Trouble, Security, and Supervisory relays.
- VeriFire® Tools online or offline programming utility. Upload/Download, save, store, check, compare, and simulate panel databases. Upgrade panel firmware.
- Autoprogramming and Walk Test reports.
- Optional universal 636-point DACT.
- 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 tally.
- Autoprogramming and Walk Test reports.
- Presignal/Positive Alarm Sequence (PAS).
- Silence inhibit and Auto Silence timer options.
- March time/temporal/California two-stage coding/strobe synchronization.
- Field-programmable on panel or on PC, with VeriFire Tools program check, compare, simulate.
- Full QWERTY keypad.
- Battery charger supports 18 – 200 amp hour batteries.
- Non-alarm points for lower priority functions.



NFS2-640

- Remote ACK/Signal Silence/System Reset/Drill via monitor modules.
- Automatic time control functions, with holiday exceptions.
- Surface Mount Technology (SMT) electronics.
- Extensive, built-in transient protection.
- Powerful Boolean logic equations.

#### NCA-2 640-CHARACTER DISPLAY FEATURES:

- Backlit, 640-character display.
- Supports SCS Series smoke control system in both HVAC or FSCS modes (not UL-Listed for FSCS).
- Printer and CRT EIA-232 ports.
- EIA-485 annunciator and terminal mode ports.
- Alarm, Trouble, Supervisory, and Security relays.

#### FLASHSCAN® INTELLIGENT FEATURES:

- Poll 318 devices in less than two seconds.
- Activate 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 — nine levels.
- Pre-alarm ONYX intelligent sensing — nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
  - Ion – 0.5 to 2.5%/foot obscuration.
  - Photo – 0.5 to 2.35%/foot obscuration.
  - Laser (VIEW®) – 0.02 to 2.0%/foot obscuration.
  - Acclimate Plus™ – 0.5 to 4.0%/foot obscuration.
  - HARSH™ – 0.5 to 2.35%/foot obscuration.
  - IntelliQuad™ – 1.0 to 4.0%/foot obscuration.
- Drift compensation (U.S. Patent 5,764,142).
- Degraded mode — in the unlikely event that the CPU2-640 microprocessor fails, FlashScan detectors revert to degraded operation and can activate the CPU2-640 NAC circuits and alarm relay. Each of the four built-in panel circuits includes a Disable/Enable switch for this feature.
- Multi-detector algorithm involves nearby detectors in alarm decision (U.S. Patent 5,627,515).

- Automatic detector sensitivity testing (NFPA-72 compliant).
- Maintenance alert (two levels).
- Self-optimizing pre-alarm.

**FSC-851 INTELLIQUAD  
ADVANCED MULTI-CRITERIA DETECTOR**

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

**VIEW (VERY INTELLIGENT EARLY WARNING)  
SMOKE DETECTION TECHNOLOGY:**

- Revolutionary spot laser design.
- Advanced ONYX intelligent sensing algorithms differentiate between smoke and non-smoke signals (U.S. Patent 5,831,524).
- Addressable operation pinpoints the fire location.
- No moving parts to fail or filters to change.
- Early warning performance comparable to the best aspiration systems at a fraction of the lifetime cost.

**ACCLIMATE PLUS  
LOW-PROFILE INTELLIGENT MULTI-SENSOR:**

- Detector automatically adjusts sensitivity levels without operator intervention or programming. Sensitivity increases with heat.
- Microprocessor-based technology; combination photo and thermal technology.
- FlashScan or classic mode compatible.

- Low-temperature warning signal at 40°F ± 5°F (4.44°C ± 2.77°C).

**HARSH HOSTILE-AREA SMOKE HEAD:**

- Provides early warning of smoke detection in environment where traditional smoke detectors are not practical.
- The detector's filters remove particulates down to 30 microns in size.
- Intake fan draws air into photo chamber, while airborne particles and water mist are removed.
- Requires auxiliary 24 VDC from system or remote power supply.

**RELEASING FEATURES:**

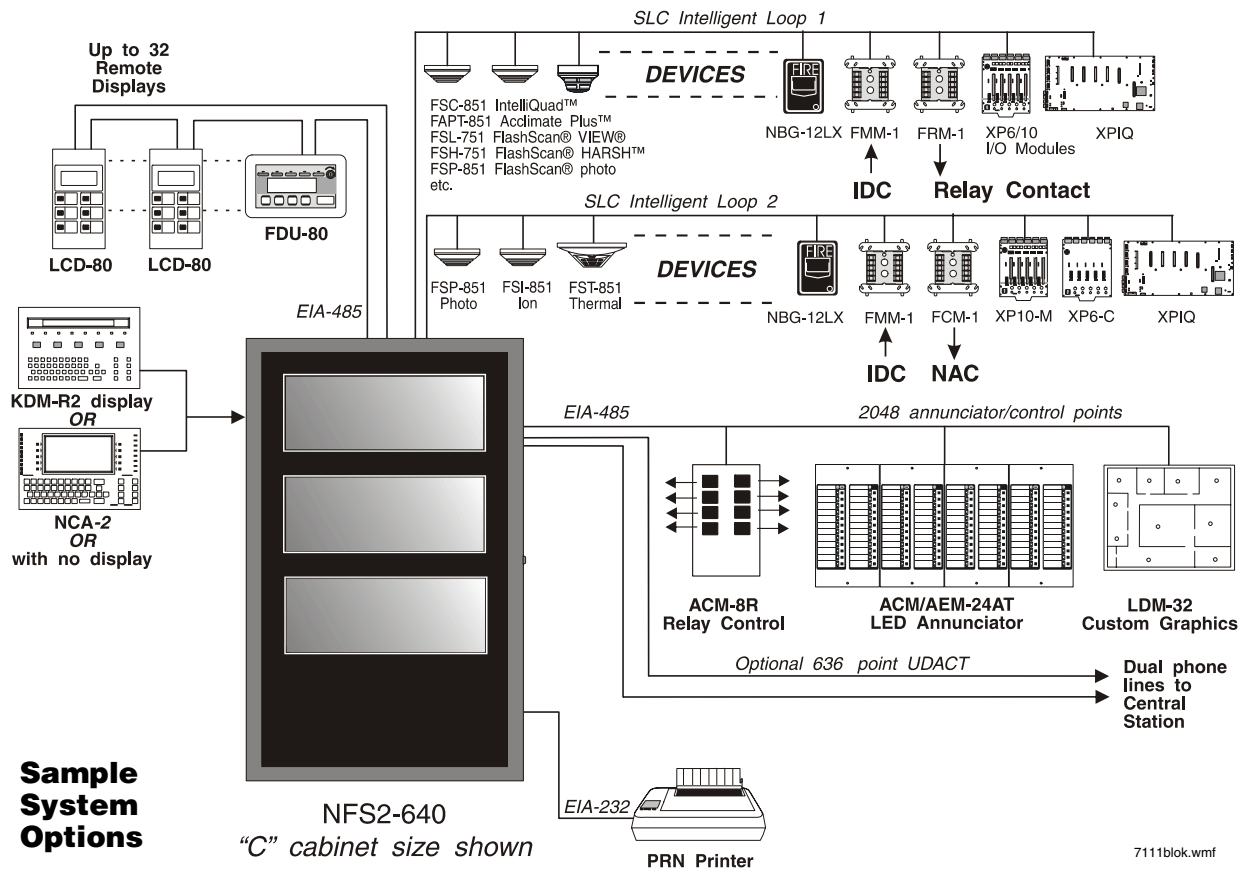
- Ten independent hazards.
- Sophisticated cross-zone (three options).
- Delay timer and Discharge timers (adjustable).
- Abort (four options).
- Low-pressure CO<sub>2</sub> listed.

**VOICE AND TELEPHONE FEATURES:**

- Up to eight channels of digital audio.
- 50 and 75 watt digital amplifiers (DAA series).
- Solid-state digital message generation.
- Firefighter telephone option.
- 30- to 120-watt high-efficiency amplifiers (AA Series).
- Backup tone generator and amplifier option.
- Multichannel voice transponder (XPIQ).

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

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



**Sample System Options**

NFS2-640  
"C" cabinet size shown

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## FlashScan, Exclusive New 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). Flash-Scan 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 new 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 of the NFS2-640. It is a special software routine that allows the NFS2-640 to “learn” what devices are physically connected and automatically load 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.

ENTER PROG OR STAT PASSWORD, THEN ENTER  
<ESCAPE TO ABORT> \*\*\*\*\*

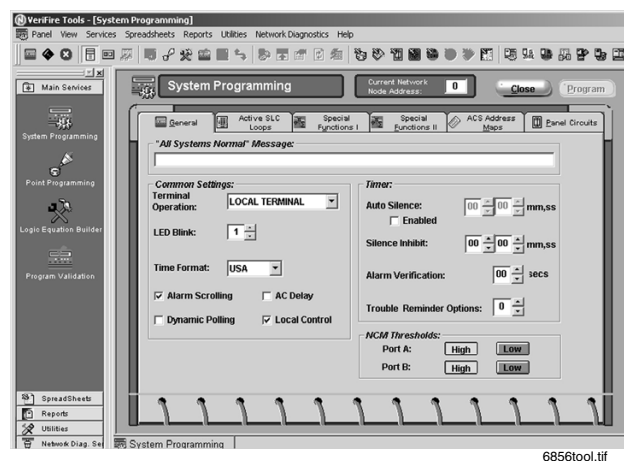
0=CLR 1= AUTO 2=POINT 3=PASSWORD 4=MESSAGE  
5=ZONES 6=SPL FUNCT 7=SYSTEM 8=CHECK PRG

Above: Keypad program editing

Below: Autoprogram function

AUTOPROGRAM PLEASE WAIT

L1:80 DETS, 15 MODS L2:93 DETS, 35 MODS  
BELLS: 04



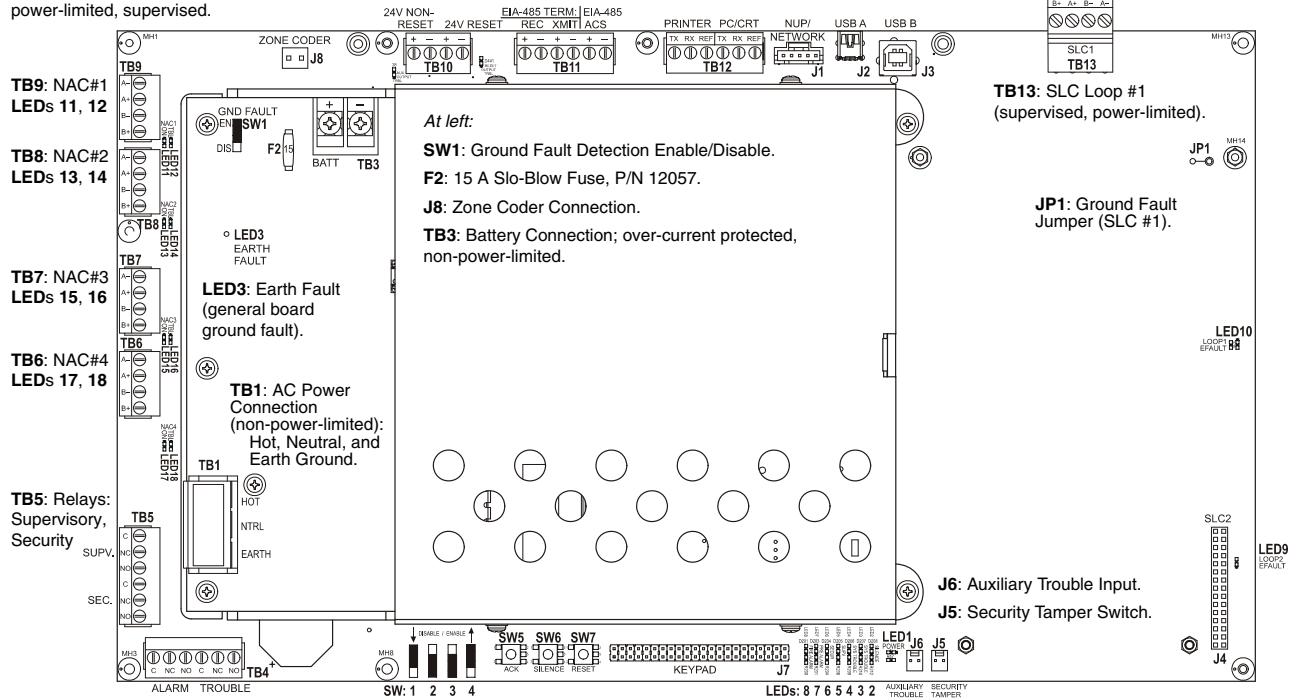
VeriFire Tools System Programming screen

# CPU2-640 Board Diagram

**TB10:** DC Power (24 VDC, power-limited); Non-Resettable, Resettable.  
**TB11:** EIA-485 Connection (supervised); Terminal Mode, ACS Mode.  
**TB12:** EIA-232 Connection; Printer, PC/Terminal (CRT).

**J1:** Network/Service Connection (NUP), power-limited, supervised.  
**J2:** USB A VeriFire Tools Connection.  
**J3:** USB B VeriFire Tools Connection.

All NAC circuits are power-limited, supervised.



**TB4:** Alarm Relay, Trouble Relay. Output relays; power-limited only if connected to a power-limited source.

**SW1, SW2, SW3, SW4:** Disable-Enable switches for Backup Alarm, NACs 1 – 4 respectively.  
**SW5:** Acknowledge  
**SW6:** Silence  
**SW7:** Reset

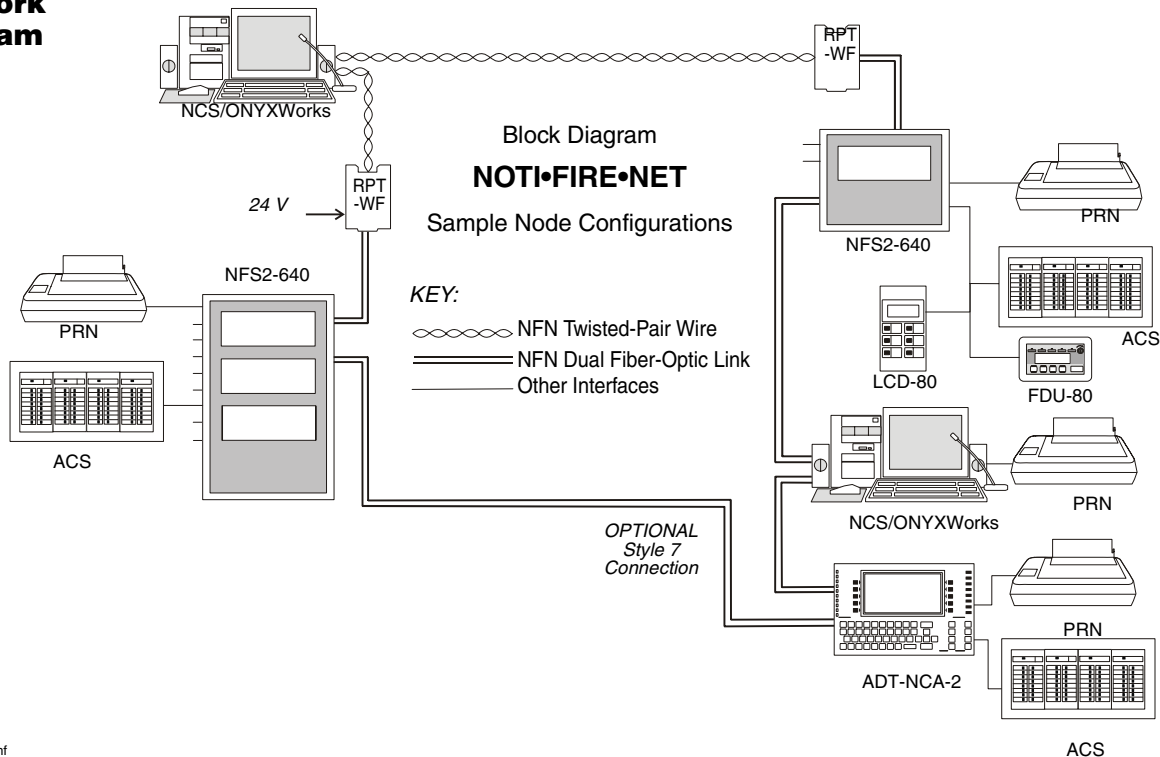
System switches, "No Keyboard Operation":  
**J7:** KDM-R2 Connection

**LED1:** Power On (AC or battery)  
**LED2:** Signals Silenced  
**LED3:** Point Disabled  
**LED4:** System Trouble  
**LED5:** Supervisory  
**LED6:** Security  
**LED7:** Pre-Alarm  
**LED8:** Fire Alarm

**LED10:** SLC Loop #1 Ground Fault.  
**LED9:** SLC Loop #2 Ground Fault.  
**J4:** LEM-320 Connector for SLC Loop #2.

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# Network Diagram



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## 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 chassis **CHS2-M2** (ships with the CPU). Mount the second, third, or fourth rows of equipment in a CHS4 series chassis or, for Digital Voice Command products, in **CA-1** or **CA-2**. (For DVC and DAA components see DVC Manual; for DVC-AO applications, see AA Series Installation Manual).

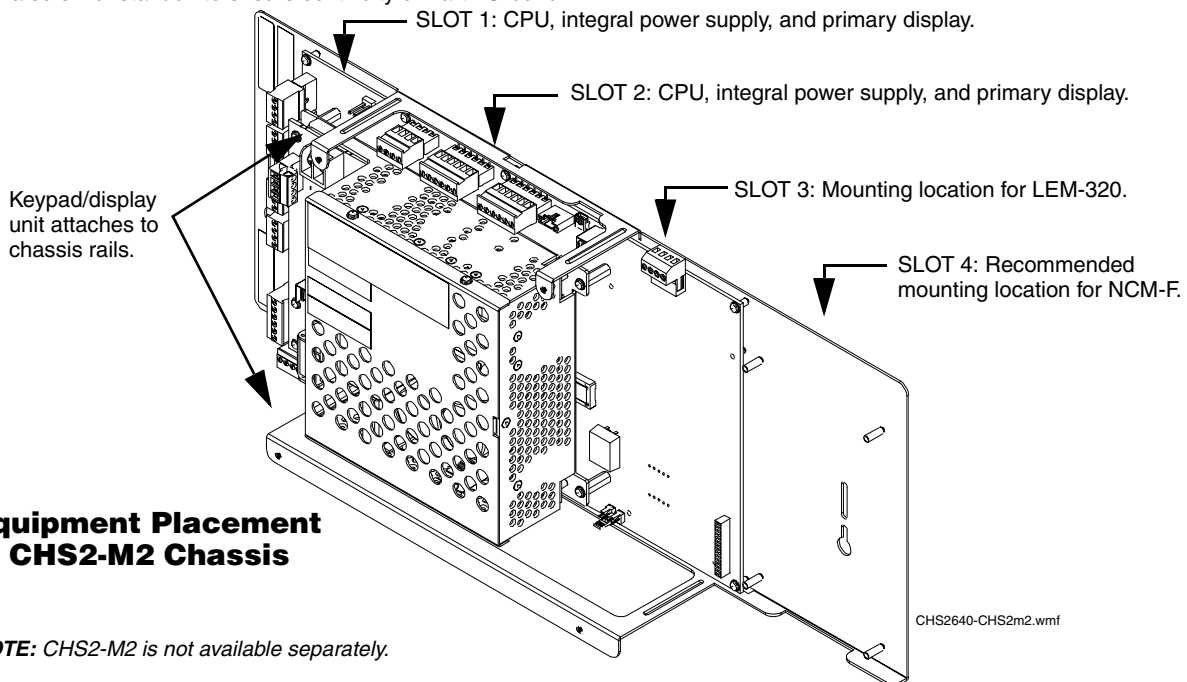
**Wiring:** When designing the cabinet layout, consider separation of power-limited and non-power-limited wiring as discussed in the NFS2-640 Installation Manual.

**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 CHS2-M2 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. If networking two or more control panels, each unit requires a **NCM-W** (wire) or **NCM-F** (fiber) Network Control Module. The NCM-W/-F can be installed in any panel output module position (see manual); the default position is at the back of the chassis next to the control panel. **Option boards** can be mounted in front of the LEM-320 or NCM modules; for ease of access, complete installation of those devices before mounting another layer.



## Equipment Placement in CHS2-M2 Chassis

**NOTE:** CHS2-M2 is not available separately.

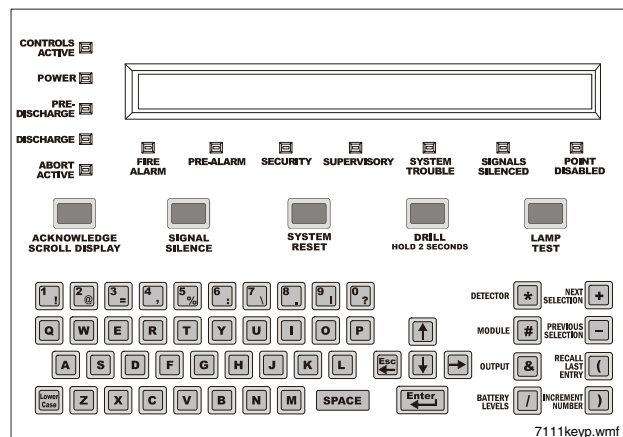
## KDM-R2 Controls and Indicators

**Program Keypad:** QWERTY type (keyboard layout, at right).

**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 (see illustration below).



## Configuration Guidelines

*Stand-alone and network systems require a main display. On single-CPU systems (one CPU2-640/-640E), display options are the KDM-R2 or the NCA-2. On network systems (two or more CPU2-640/640E panels), at least one NCA-2 or NCS/ONYX-Works annunciation device is required. Other options listed as follows:*

**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.*

**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 CPU2-640/-640Es), one network display (either NCA-2 or NCS/ONYX-Works) is required for every system. On network systems, the NCA connects (and requires) an NCM network communications 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 and DAA series amplifiers. *See DN-7047.*

**CPU2-640:** Central processing unit with integral 3.0 amp (6.0 A in alarm) power supply for an NFS2-640 system. Includes CPU factory-mounted to chassis **CHS2-M2**; one Signaling Line Circuit expandable to two; installation, programming and operating manuals. *Order one per system or as necessary (up to 103 network nodes) on a network system.*

**CPU2-640E:** Same as CPU2-640 but requires 240 VAC, 1.5 amp, (3.0 A in alarm).

**NCA/640-2-KIT:** Bracket installation kit required to mount NCA-2 to CHS2-M2 chassis with CPU2-640/-640E.

**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.

### AUDIO OPTIONS

**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 DAA Series amplifiers. *See DN-7045.*

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

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

**DAA-5025:** 25 Vrms Digital Audio Amplifier assembly with DAA-PS power supply board, shipped mounted to its chassis. *See DN-7046.*

**DAA-5070:** 70.7 Vrms Digital Audio Amplifier assembly with DAA-PS power supply board, shipped mounted to its chassis. *See DN-7046.*

**DAA-7525:** 25 Vrms Digital Audio Amplifier assembly with DAA-PS power supply board. Shipped mounted to its chassis (no battery charger on DAA-7525 power supply board). *See DN-60257.*

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

**CA-1:** Chassis, occupies one tier of a CAB-4 Series enclosure. The left side accommodates one DVC 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 mounted on a half-chassis and one NCA-2 or BP-CA2 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).

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

**ADDR-B4NOTE::** 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-C4NOTE::** 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-D4NOTE::** 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. *Please see the DVC application guide for additional configuration information.*

**DPA-1:** Dress panel, used with the CA-1 chassis when configured with a DVC, 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 one of 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, used for NFS2-640 Firefighters Telephone Applications with no NCA-2.

**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.*

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

**AA-30:** Audio Amplifier, 30 watts. Switch-mode power. Includes amplifier and audio input supervision, backup input, and automatic switchover, power supply, cables. *See AA Series data sheet, 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 AA Series data sheet, DN-3224.*

**XPIQ:** The XPIQ quad intelligent voice transponder for distributed multichannel voice evacuation systems, an integrated

audio amplification and distribution subsystem controlled by FACP. Capable of playing up to four simultaneous messages. Accepts up to four 25-watt amplifiers. *See XPIQ data sheet, DN-6823.*

### **POWER SUPPLIES, STANDARD CABINETS**

**ACPS-610:** 6.0 or 10 Amp addressable charging power supply. *See DN-60244.*

**FCPS-24S6/S8:** Remote six-amp and eight-amp power supplies with battery charger. *See FCPS-24S6/-24S8 data sheet, DN-6927.*

**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 or to cover AA-30, AA-120, or one AMG-E and one AA-30.

**CAB-4 Series:** The CAB-4 Series cabinets are fabricated from 16-gauge steel with unique full-front LEXAN®, reverse-silk-screened for durability. The cabinet assembly consists of two basic parts: a Backbox (SBB\_4), and a Locking Door (DR\_4) that may hinge right or left. Cabinets are available in four sizes, "A" through "D", with one to four tiers. A trim ring option is available for semi-flush mounting. *See CAB-4 Series data sheet, DN-6857.*

### **COMPATIBLE DEVICES, EIA-232 PORTS**

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

**VS4095/S2:** Printer, 40-column, 24V. Mounted in external backbox. *See DN-3260.*

### **COMPATIBLE DEVICES, EIA-485 PORTS**

**ACS:** Annunciator Control Modules ACM/AEM-24AT and ACM/AEM-48A; remote serial annunciator/control systems. *See data sheets, DN-0524 and DN-6862.*

**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.*

**LCD-80/FDU-80:** 80-character, backlit LCD display. Mounts up to 6,000 ft. (1828.8 m) from panel. Up to 32 per FACP. *See LCD-80/-80TM (DN-3198) and FDU-80 (DN-6820).*

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

**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 ACM-8R data sheet DN-3558.*

**SCS:** Smoke control stations SCS-8, SCE-8, with lamp drivers SCS-8L, SCE-8L; eight (expandable to 16) circuits. *See SCS data sheet 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:** Universal Digital Alarm Communicator Transmitter, 636 channel. *See DN-4867.*

**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. *See UZC-256 data sheet, DN-3404.*

### **COMPATIBLE INTELLIGENT DEVICES**

**BEAMHK:** Heating kit for transmitter/receiver unit of FSB-200(S) below. *See DN-6985.*

**BEAMHKR:** Heating kit for use with the reflector of FSB-200(S) below. *See DN-6985.*

**BEAMLRK:** Long-range accessory kit, FSB-200(S) below.

**BEAMMKR:** Multi-mount kit, FSB-200(S) below.

**BEAMSMK:** Surface-mount kit, FSB-200(S) below.

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

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

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

**FSP-851:** Low-profile FlashScan photoelectric detector, will replace FSP-751. *See DN-6935.*

**FST-851:** FlashScan thermal detector 135°F (57°C), will replace FST-751. *See DN-6936.*

**FST-851R:** FlashScan thermal detector 135°F (57°C) with rate-of-rise, will replace FST-751R. *See DN-6936.*

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

**FSD-751PL:** Low-flow FlashScan photo duct detector with housing, will replace FSD-751P. *See DN-6955.*

**FSD-751RPL:** Low-flow FlashScan photo duct detector with relay and housing, will replace FSD-751RPL. *See DN-6955.*

**FAPT-851:** FlashScan Acclimate Plus low-profile multi-sensor detector, will replace FAPT-751. *See DN-6937.*

**FSH-751:** FlashScan HARSH Hostile Area Smoke Head. *See DN-6875.*

**FSL-751:** FlashScan VIEW laser photo detector, will replace LPX-751. *See DN-6886.*

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

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

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

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

**B501BH-2:** Standard sounder base. Replaces B501BH. *See DN-60054.*

**B501BHT-2:** Temporal tone sounder base. Replaces B501BHT. *See DN-60054.*

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

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

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

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

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

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

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

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

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

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

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

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

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

## Other Options

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

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

**NCM-W:** Network Communications Module, Wire. Order one NCM per network node (CPU-640, CPU2-640,NCA, NCA-2). See *DN-6861*.

**NCM-F:** Network Communications Module, Fiber. Order one NCM per network node (CPU-640, CPU2-640,NCA, NCA-2). See *DN-6861*.

**RPT-W, RPT-F, RPT-WF:** Repeater board with wire connection (RPT-W), fiber connection (RPT-F), or allowing a change in media type between wire and fiber (RPT-WF). See *DN-6971*.

**NCS5-W-ONYX:** Network Control Station, Wire. UL-Listed graphics PC with mouse, 19" color flat-screen LCD monitor. Order as necessary for network systems. Each NCS consumes one of 103 network addresses. See *DN-6868 (previous NCS-W)*, *ONYX DN-6869*.

**NCS5-F-ONYX:** Network Control Station, Fiber. UL-Listed graphics PC with mouse, 19" color flat-screen LCD monitor. Order as necessary for network systems. Each NCS consumes one of 103 network addresses. See *DN-6868 (previous NCS-F)*, *ONYX DN-6869*.

**ONYXWORKS-NW:** Workstation with NFN **wire** PC card. ONYXWorks workstation GUI software and hardware package for NOTI•FIRE•NET. Includes NFN Gateway (NFNGW-PC-W) wire version. Each ONYXWorks consumes one of 103 network addresses. See *DN-7048*.

**ONYXWORKS-NF:** Workstation with NFN **fiber** PC card. ONYXWorks workstation GUI software and hardware package for NOTI•FIRE•NET. Includes NFN Gateway (NFNGW-PC-F) fiber version. Each ONYXWorks consumes one of 103 network addresses. See *DN-7048*.

**NFN-GW-EM:** NFN Gateway, embedded.

**VeriFire-TCD:** VeriFire Tools CD-ROM. Contains programming software for the ONYX Series. Includes local panel connection cable. See *DN-6871*.

**VeriFireUG-TCD:** VeriFire Tools CD-ROM. Upgrade.

**BAT Series:** Batteries. NFS2-640 utilizes two 12 volt, 18 to 200 AH batteries. This series of products replaces the previous PS Series. See *DN-6933*.

**NFS-LBB:** Battery Box (required for batteries larger than 25 AH).

**NFS-LBBR:** Same as above but red.

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

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



# SYSTEM SPECIFICATIONS

## System Capacity

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

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

## Specifications

- Primary input power, **CPU2-640 board:** 120 VAC, 50/60 Hz, 3.0 A. **CPU2-640E board:** 220/240 VAC, 50/60 Hz, 1.5 A.
- Total output 24 V power: 6.0 A in alarm.

**NOTE:** The power supply has a total of 6.0 Amps of available power. This is shared by all internal circuits.

- Standard notification circuits (4): 1.5 A each.
- Four-wire detector power: 1.25 A.
- Non-resettable regulated power outputs: 1.25 A each.
- Battery charger range: 18 AH – 200 AH. Use separate cabinet for batteries over 25 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.

## Temperature and Humidity Ranges

This system meets NFPA requirements for operation at 0 – 49°C/32 – 120°F and at a relative humidity 93% ± 2% RH

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

## Agency Listings and Approvals

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

- **UL Listed:** S635
- **ULC Listed:** S635
- **FM Approved**
- **MEA:** 128-07-E, **NYFD:** Certificate #6007
- **CSFM:** 7170-0028:244; 7165-0028:243
- **City of Chicago**
- **City and County of Denver**

## Standards

The NFS2-640 complies with the following UL Standards and NFPA 72 Fire Alarm Systems requirements:

- **UL 864, 9th Edition** (Fire).
- **UL 1076** (Burglary).
- **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.**

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# DVC Series

## Digital Voice Command DVC-EM, DVC-EMF, DVC-EMSF



Voice Control Systems

### General

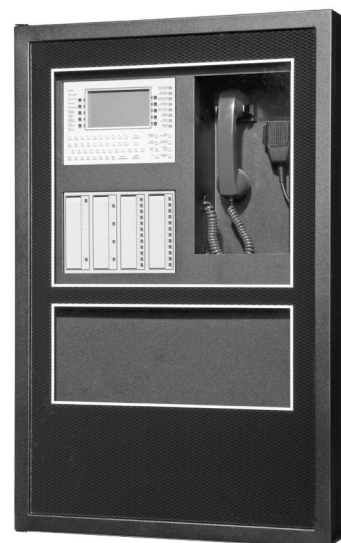
The **DVC** is the heart of an integrated, full-featured Audio Command Center. The DVC Digital Voice Command combines the capabilities of a powerful digital audio processor, an event-driven audio message generator, and a router. Designed for use with **DAA** series Digital Audio Amplifiers, each DVC supports a dedicated audio network with up to eight channels of audio, five channels of firefighters' telephone, and control and supervision for up to 32 DAA series amplifiers. Twisted-pair wire, multi-mode fiber, or single-mode fiber media options are supported. Larger audio systems incorporating hundreds of amplifiers can be created by networking additional DVC units via **NOTI•FIRE•NET™**.

The DVC may be networked with ONYX® Series panels via **NOTI•FIRE•NET** with an **NCA-2**, or used in a stand-alone panel configuration with an **NFS2-640** or **NFS2-3030** Fire Alarm Control Panel (FACP). When used as an Audio Command Center with Emergency Paging capability, the optional **DVC-KD** Keypad Display is required.

**NOTE:** Unless otherwise noted, the term "DVC" refers to the DVC-EM, DVC-EMF, and DVC-EMSF models.

### Features

- Listed to **UL Standard 864, 9th edition**.
- Programmable from NUP port using **VeriFire® Tools** with:
  - **DVC-EM:** up to 32 minutes of standard quality or 4 minutes of high quality digital audio storage of user-selected/created messages and tones.
  - **DVC-EMF:** EM features; supports multi-mode fiber-optic media.
  - **DVC-EMSF:** EM features; supports single-mode fiber-optic media.
- Up to 1000 audio sequences.
- Message prioritization.
- Equations support flexible programming for distribution of messages.
- Electrically isolated digital audio ports for direct connection with up to 32 DAA amplifiers. Style 4 or 7 configurations supported.
- DCC (Display and Control Center) capabilities when used with optional DVC-KD.
- FireFighters' Telephone Communications to local FFT riser on DVC, 32 local DAA FFT risers, and FFT communication to additional command stations via **NOTI•FIRE•NET™**.
- Local paging microphone option.
- Remote microphone option.
- Broad All-Call functionality when used with DVC-KD (DVC-Keyboard Display): All Call, Page Active Evac Areas, Page Active Alert Areas, Page Inactive Areas.
- Auxiliary input for 12 V<sub>p-p</sub> analog low-level audio sources. Includes user audio level adjustment feature.
- Auxiliary input accepts external audio sources such as telephone paging or background music. Hi impedance input accepts 600 ohm, line level, 1.41 VRMS, or 1 V<sub>p-p</sub> low level audio. Selectable AGC, user control of audio level, and audio supervision are supported.
- Associated NCA-2 supports **NOTI•FIRE•NET** applications.



**DVC**  
Shown using **CA-2** mounting option,  
**CAB-C4**, and **ADDR-C4** door.

- Multiple audio command centers supported via **NOTI•FIRE•NET**.
- Distribution of one channel of standard-level paging audio on **NOTI•FIRE•NET**.
- Three stand-alone, non network mode options:
  - NFS2-3030 (NUP to NUP) digital and analog.
  - NFS2-640 (NUP to NUP) analog.
  - NFS2-640 with NCA-2 (NUP to NUP to NUP) digital and analog.
- Push-to-talk relay.
- Isolated alarm bus input, to be used for backup activation of alarm messages when normal digital communication is lost.

### Installation Options

The DVC provides flexible installation options based on two chassis options: the **CA-1** or the **CA-2** (one-row or two-row audio chassis). Both these chassis must into size "B", "C", or "D" CAB-4 Series cabinets. The CA-2 must be installed in the top two rows of the cabinet. The **DPA-1** dress panel is used with chassis CA-1. The **DPA-2** dress panel is required for the CA-2 chassis.

### Specifications

- **24 VDC power (TB1):** 24 VDC, 1.0 A, non-resettable, power-limited by the source. Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm<sup>2</sup>) twisted-pair.
- **Digital audio ports, wire media, A and B (TB2, TB3):** Maximum distance per segment is 1900 feet (579.12 m) on Belden 5320UJ (18 AWG, TP) FPL cable: 18 AWG (0.821 mm<sup>2</sup>) twisted-pair, foil-shielded, power-limited. Consult wiring documentation provided in document P/N 52916ADD:C Addendum to DVC and DAA Manuals.

- **Digital audio ports, single- and multi-mode fiber-optic RXA, TXA, RXB, and TXB (J100, J101, J102, and J103):** ST® style, supervised. Multi-mode fiber-optic cable: 50/125 or 62.5/125 micrometers. Single-mode fiber-optic cable: 9/125 micrometers. Attenuation of cabling between two nodes (fiber-optic circuits are point-to-point) must not exceed the following maximum attenuations: 4.2 dB for multi-mode with 50/125 micrometer cable @ 850 nm. 8.0 dB for multi-mode with 62.5/125 micrometer cable @ 850 nm. 5.0 dB for single-mode with 9/125 micrometer cable @ 1300 nm.
- **Auxiliary input A (AUX A, TB4):** Signal strength from low-level analog audio input: 1 VRMS maximum. Optional supervision is selectable through programming. Recommended wiring: 18 AWG (0.821 mm<sup>2</sup>) twisted-pair; max. 14 AWG (2.08 mm<sup>2</sup>). Auxiliary input must be in the same room as the DVC.
- **Remote microphone interface (TB9):** Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm<sup>2</sup>) twisted-pair. Power-limited. Maximum distance between remote microphone and DVC: 1000 feet (300 m).
- **Push-to-talk interface (TB10):** Dry contact. Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm<sup>2</sup>) twisted-pair.
- **Alarm bus (TB12):** Power-limited by source. Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm<sup>2</sup>) twisted-pair.
- **FFT riser (TB13):** Power-limited output. Class A (Style Z) or Class B (Style Y) operation. Style Y two-wire connections require a 3.9K ohm, 1/2 watt resistor (P/N K-3.9K). Maximum wiring resistance (including individual telephone zone to last handset) permitted is 50 ohms, 10,000 feet (3048 m) maximum wiring distance at 12 AWG (3.31 mm<sup>2</sup>) to last handset.
- **Auxiliary input B (AUX B, TB14):** Signal strength from low-level analog audio input: 12 V<sub>p-p</sub> nominal, 15 V<sub>p-p</sub> maximum. Optional supervision is selected through programming. Recommended wiring: 14 to 18 AWG (2.08 to 0.821 mm<sup>2</sup>) twisted-pair.
- **Optional DVC-AO analog audio output circuits (TB5, TB6, TB7, and TB8):** Supervised, power-limited outputs. Signal strength: +12 V nominal, +15 V maximum. Recommended wiring: 18 AWG (0.821 mm<sup>2</sup>) twisted-pair; max. 14 AWG (2.08 mm<sup>2</sup>). Maximum impedance: 66 ohms.

## Standards and Codes

The Digital Voice Command DVC, DVC-EM, DVC-EMF, and DVC-EMSF comply with the following standards:

- NFPA 72 2002 National Fire Alarm Code.
- Underwriters Laboratories Standard UL 864, 9th edition.
- Underwriters Laboratories of Canada (ULC) ULC-S527-99 Standard of Control Units for Fire Alarm Systems.

## Listings and Approvals

The listings and approvals below apply to the DVC, DVC-EM, DVC-EMF, and DVC-EMSF Digital Voice Command. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL** Listed: file S635.
- **ULC** Listed: file S635.
- FM Approved.
- **CSFM** approved: file 7170-0028:223, 7170-0028:244.
- **MEA** approved: file 232-06-E., 128-07-E (wire only).
- **City of Chicago** approved: High Rise, Class 1, Class 2 (NFS2-3030, NFS2-640, NCA-2).

- **City of Denver** approved (NFS2-3030).
- **PSB Corporation** approved (*Singapore*) (NFS2-3030).

## Product Line Information

**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.

**DVC-EMF:** Digital Voice Command, digital audio processor with message storage for up to 32 minutes of standard quality (4 minutes at high quality) digital audio. *Supports multi-mode fiber-optic ports, requires DAA-5025F, DAA-5070F, or DAA-7525F.*

**DVC-EMSF:** Digital Voice Command, digital audio processor with message storage for up to 32 minutes of standard quality (4 minutes at high quality) digital audio. *Supports single-mode fiber-optic ports, requires DAA-5025SF, DAA-5070SF, or DAA-7525SF.*

**DVC-KD:** Keypad for local annunciation and controls; status LEDs and 24 user-programmable buttons.

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

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

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

**CA-2:** Chassis assembly, occupies two tiers of a CAB-4 Series enclosure. The left side accommodates one DVC 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 a microphone. **DPA-2** dress plate is required (*below*). ADDR Series doors with two-tier visibility are available for use with the CA-2 configuration: ADDR-B4, ADDR-C4, ADDR-D4 (*below*).

**DPA-2:** Dress plate required for CA-2 chassis assembly.

**TELH-1:** Firefighter's Telephone Handset for use with the DVC when mounted in the CA-2 chassis. Order separately.

**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 data sheet 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 data sheet 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 data sheet DN-6857*).

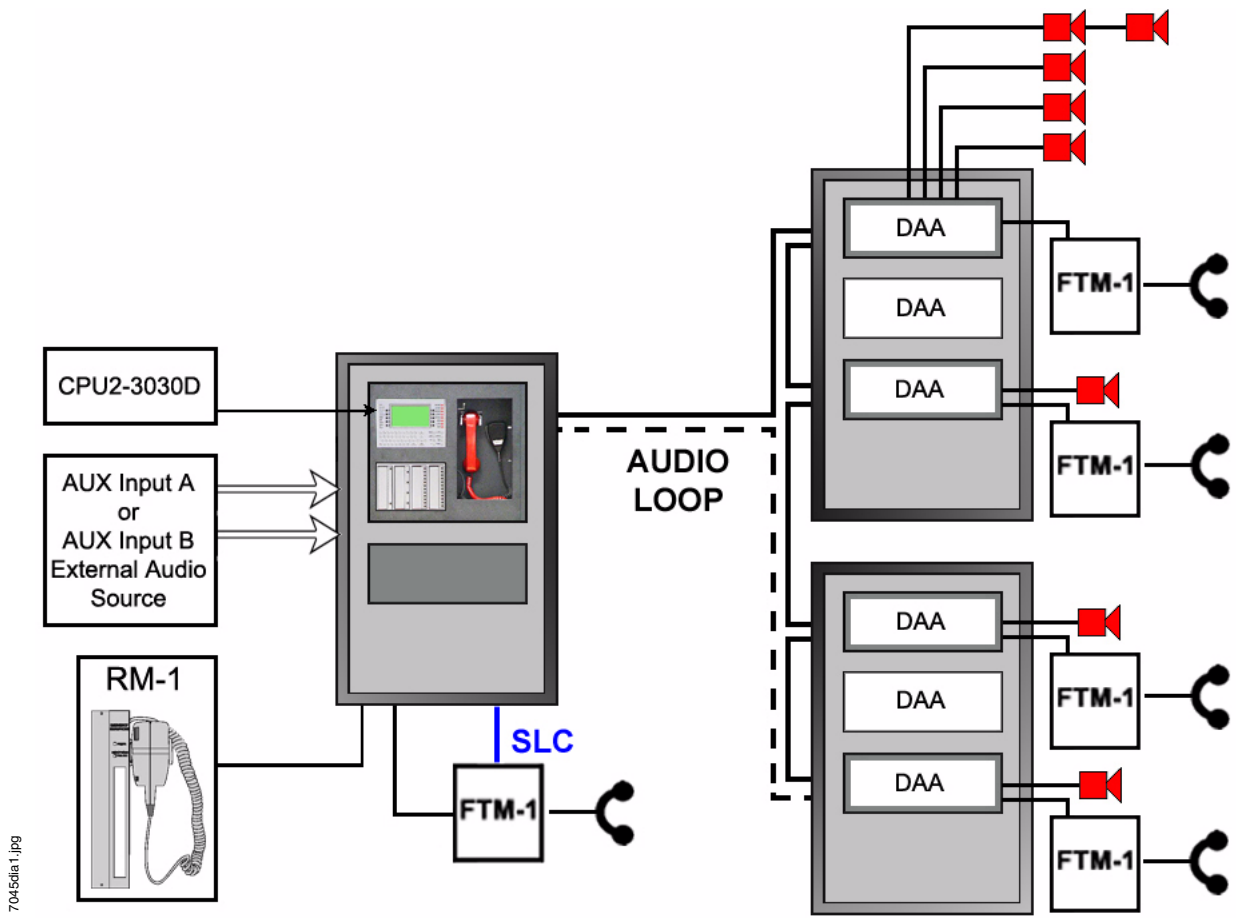
**DPA-1:** Dress panel, can be used with the CA-1 chassis when configured with a DVC, DVC-KD, and CMIC-1.

**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.

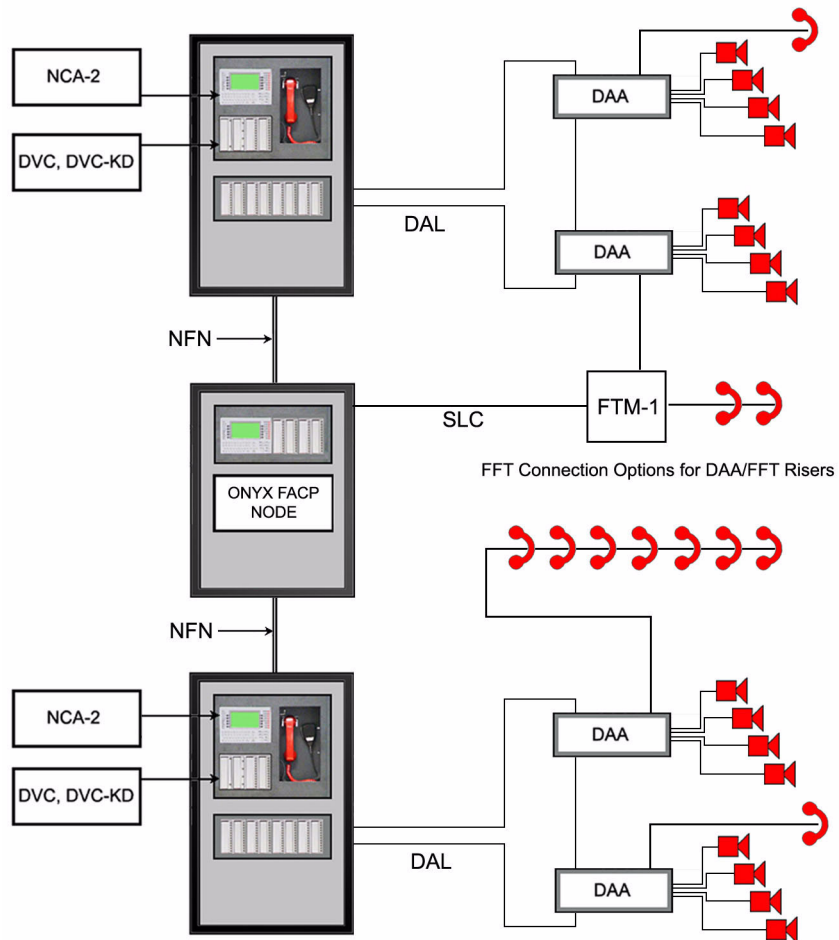
**ACT-4:** Audio-coupling transformer. Used to electronically isolate DVC-AO analog risers.

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

# Stand-Alone NFS2-3030 with DVC

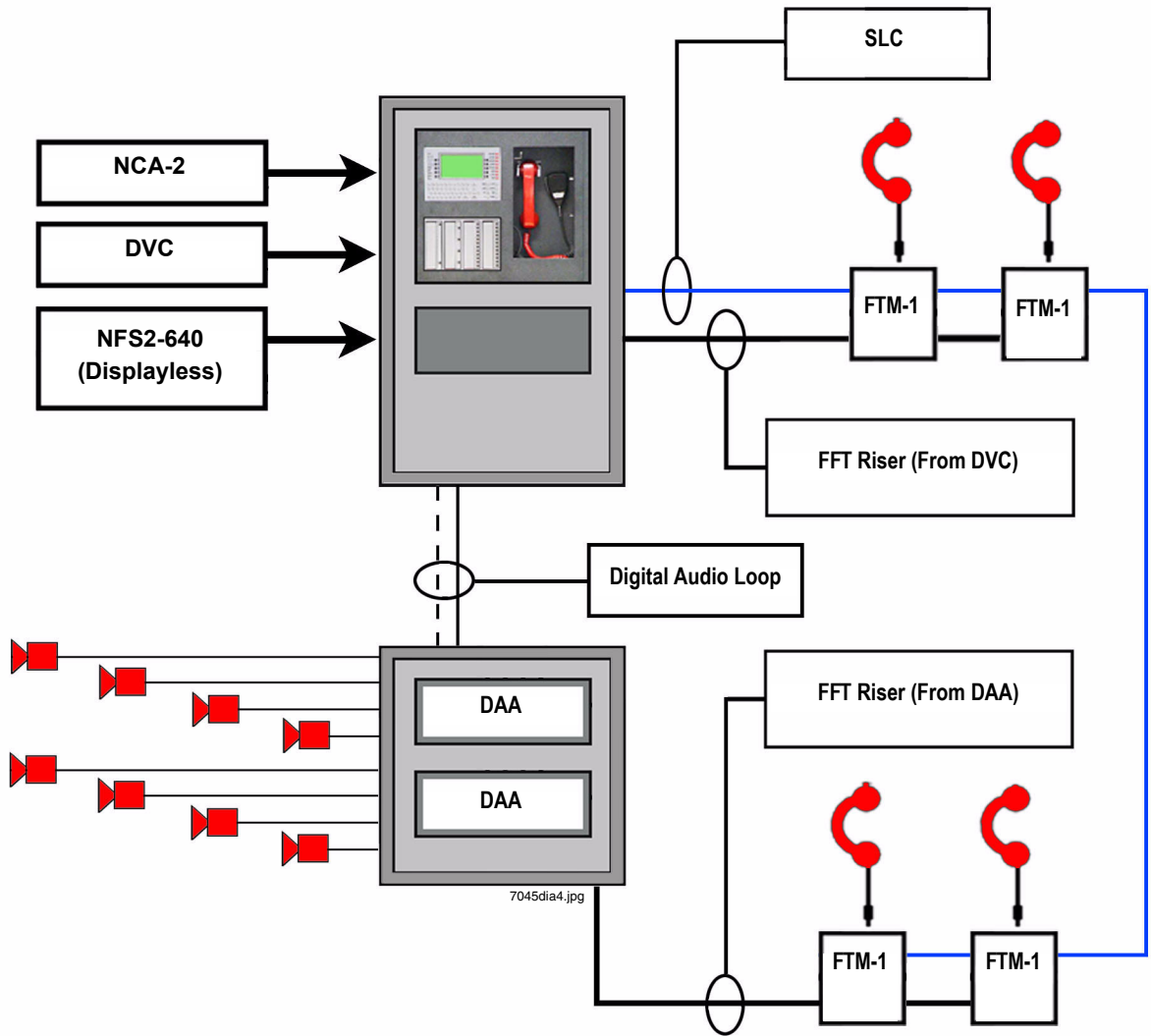


# Networked DVC with NCA-2

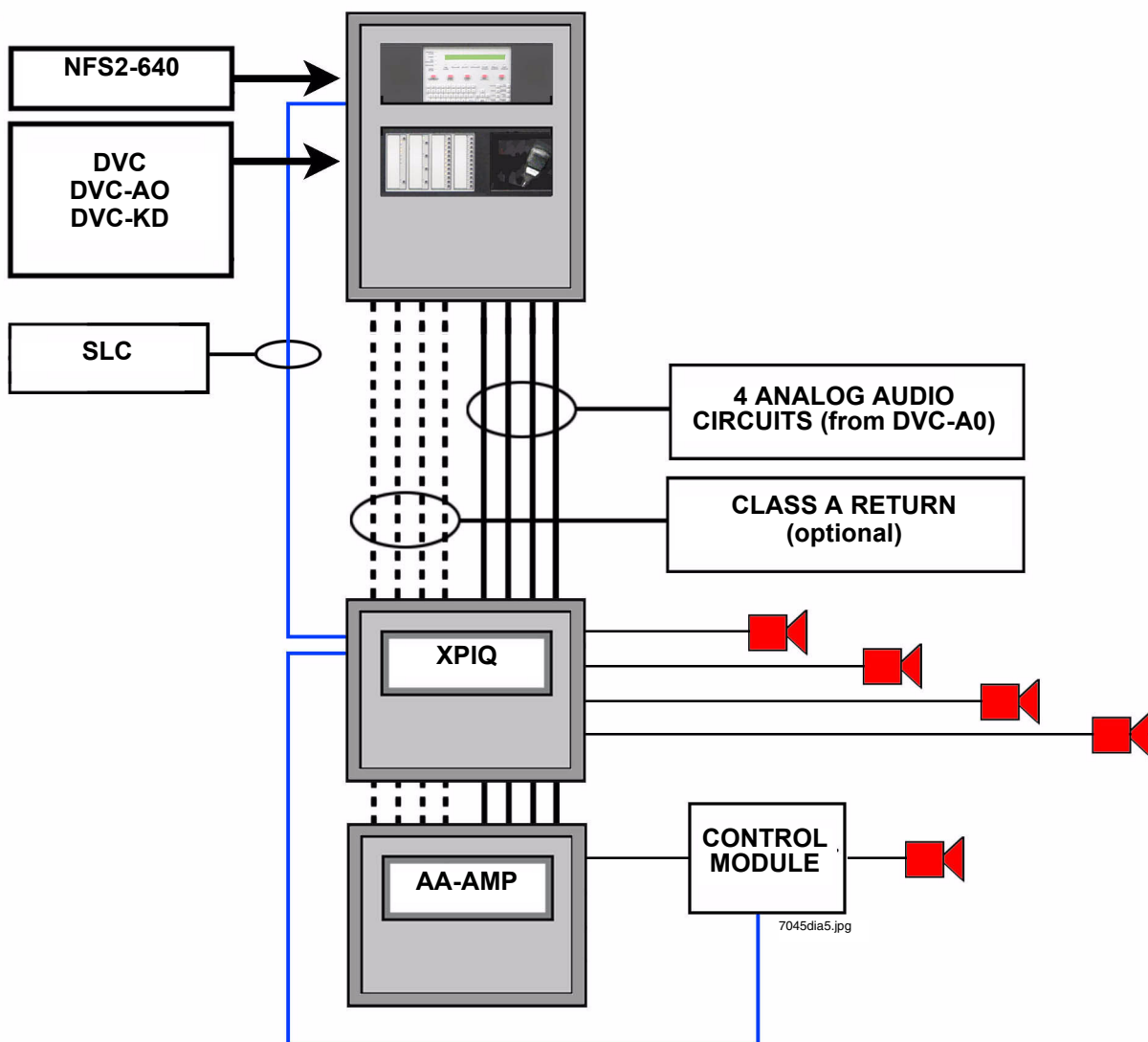


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# Stand-Alone NFS2-640 with DVC



## Standalone NFS2-640 with DVC-AO



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# AA Series

## Audio Amplifiers



Voice Control Systems

### Description

The AA series audio amplifiers provide traditional high level audio technology for use with Notifier's integrated voice evacuation systems. The AA Series is compatible with classic audio systems such as the AMG-1 as well as the DVC (Digital Voice Command Series) when used with the DVC-AO analog audio option.

Three models are available: the AA-30 (30 watts @ 25 Vrms), the AA-120 (120 watts @ 25 Vrms) and the AA-100 (100 watts @ 70.7 Vrms). All use power-switching technology to reduce production of heat and permit mounting in either 19" (48.26 cm) racks or in standard Notifier cabinets (wall mount). All include power supply, battery switch-over control, amplifier supervision, and backup amplifier switch-over control.

### Features of the AA-30

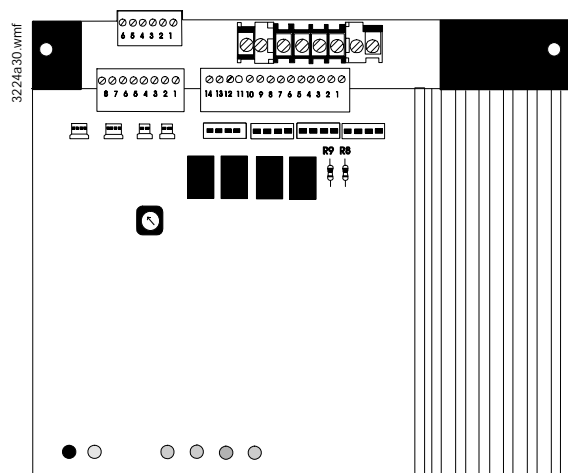
- Provides up to 30 watts of 25 Vrms audio power.
- Low-power standby mode for low battery drain.
- Includes grouped or one-to-one backup amplifier switching bus.
- Battery input and brownout switch-over control.
- High-efficiency switched regulation.
- Plug-in terminal strips and cable connectors for ease of installation.
- 10-position level adjustment and indicator LEDs.
- High-fidelity sound quality.
- Class A output wire supervision option.
- Power-limited per UL requirements and NFPA as dictated by NEC Article 760.
- Mounts in a standard CAB-3/CAB-4, or EQ Cabinet Series enclosure.
- 240 VAC version option (AA-30E).

### Features of the AA-120/AA-100

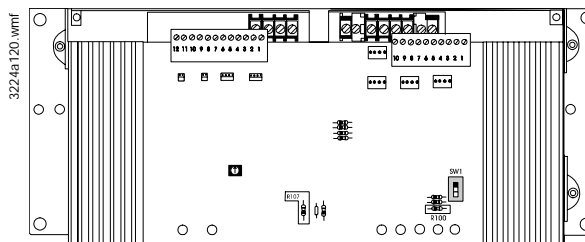
- AA-120 provides up to 120 watts of 25 Vrms audio power.
- AA-100 provides dual outputs of up to 100 watts of 70.7 Vrms audio power (combined outputs not to exceed 100 watts).
- Low-power standby mode for low battery drain.
- Includes grouped or one-to-one backup amplifier switching bus.
- Battery input and brownout switch-over control.
- High-efficiency switched regulation.
- Plug-in terminal strips and cable connectors for ease of installation.
- 10-position level adjust and indicator LEDs.
- Separate mounting chassis is not required (integral chassis for mounting in a CAB-3/CAB-4 Series or EQ Cabinet Series enclosure).
- Includes a built-in automatic backup tone generator (slow whoop or high/low).
- Power-limited per UL requirements and NFPA as dictated by NEC Article 760.
- 240 VAC option (AA-100E/AA-120E)

### Indicators and Controls

- Level Adjustment ..... 10 position switch.
- Normal Level ..... Green LED.
- Incorrect Level ..... Yellow LED.



**AA-30 Audio Amplifier**



**AA-100/AA-120 Audio Amplifier**

- Amplifier Trouble ..... Yellow LED.
- Speaker Trouble ..... Yellow LED.
- Brown Out/AC Failure ..... Yellow LED.
- Battery Supervision ..... Yellow LED.
- AC Overload Protection ..... Circuit Breaker.
- Battery Overload Protection ..... Fuse.

### 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 Listed:** S624
- **ULC Listed:** CS118/CS733/CBP696 Vol. VII
- **MEA:** 17-96-E; 289-91-E; 290-91-E (AA-120); 317-01-E 232-06-E; 317-01-E; 345-02-E
- **CSFM:** 7170-0028:153; 7170-0028:154;7170-0028:216; 7170-0028:223; 7170-0028:182
- **BSA:** 578-81-SA (AA-30)
- **FM Approved**

- City of Chicago
- City of Denver

## Wiring Connections

Signal	Wires	In/Out	Terminals	Connector
AC Power	3	In + Out	Yes (Fixed)	No
Battery	2	In = Out	Yes (Fixed)	No
Audio Input	2 + Shield	In + Out	Yes (Plug)	Yes (Dual)
Audio Output	2 + Shield	Out	Yes (Plug)	Yes
Audio Return (for integral supervision)	2 + Shield	In	Yes (Plug)	Yes
Backup Amp	2 + Shield	In + Out	Yes (Plug)	Yes (Dual)
Trouble Bus	2	In + Out	Yes (Plug) Output Only	Yes (Dual)

## Specifications

	AA-30	AA-120/AA-100
<b>Rated Output</b>	30 watts RMS	120 watts RMS (AA-120) 100 watts RMS (AA-100)
<b>Output Voltage</b>	25 VRMS	25 VRMS (AA-120) 70.7 VRMS (AA-100)
<b>Total Harmonic Distortion at 1 KHz</b>	0.5%	4.0%
<b>Frequency Response (+3, -1 dB)</b>	220 - 22,000 Hz	170 - 7,500 Hz
<b>Supply Voltage</b>	120 V, 60 Hz (AA-30E: 220/240 V, 50Hz)	120 V, 60 Hz (AA-100E/AA-120E: 220/240 V, 50 Hz)
<b>120 VAC Power Consumption</b>	Standby: 208 mA Alarm: 0.9 A	Standby: 306 mA Alarm: 1.85 A
<b>220/240 V Power Consumption</b>	Standby: 120 mA Alarm: 0.5 A	Standby: 160 mA Alarm: 0.925 A
<b>24 VDC (Battery) Power Consumption</b>	Standby: 21 mA Alarm: 3.4 A	Standby: 51 mA Alarm: 7.3 A (AA-120); 6.5 A (AA-100)
<b>Dimensions</b>		
<b>Height</b>	7.0 in. (17.78 cm)	7.0 in (17.78 cm)
<b>Width</b>	8.5 in (21.59 cm)	19.0 in. (48.26 cm)
<b>Depth</b>	4.3 in. (10.92 cm)	4.5 in. (11.43 cm)
<b>Weight</b>	6.0 lbs. (13.22 kg)	16.0 lbs. (35.27 kg)

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# CAB-4 Series Cabinets

## ONYX® Series Backboxes with Locking Doors



Peripheral Devices

### 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 LEXAN® windows. The LEXAN 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.

### 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 BP-4 or 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, LEXAN window, one tier (no battery compartment), BLACK.

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

**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.

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

**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, LEXAN window, one tier, BLACK.

**DR-A4R:** Door assembly, LEXAN window, one tier, RED.

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

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

**SBB-A4:** Backbox assembly, one tier, BLACK.

**SBB-A4R:** Backbox assembly, one tier, RED.



NFS-640 in "B" sized  
CAB-4 cabinet

**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.

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

**BP-4:** Battery panel for NFS-640 and NFS-3030. Used to cover battery and power supply when lower position is used in backbox.

**BP2-4:** Battery panel for NFS2-3030. Used to cover battery and power supply when lower position is used in backbox.

#### TWO TIERS, "B" SIZE:

**DR-B4:** Door assembly, LEXAN window, two tiers, BLACK.

**DR-B4R:** Door assembly, LEXAN window, two tiers, RED.

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

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

**SBB-B4:** Backbox assembly, two tiers, BLACK.

**SBB-B4R:** Backbox assembly, two tiers, RED.

**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.

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

**BP-4:** Battery panel for NFS-640 and NFS-3030. Used to cover battery and power supply when lower position is used in backbox.

**BP2-4:** Battery panel for NFS2-3030. Used to cover battery and power supply when lower position is used in backbox.

#### THREE TIERS, "C" SIZE:

**DR-C4:** Door assembly, LEXAN window, three tiers, BLACK.

**DR-C4R:** Door assembly, LEXAN window, three tiers, RED.

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

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

**SBB-C4:** Backbox assembly, three tiers, BLACK.

**SBB-C4R:** Backbox assembly, three tiers, RED.

**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.

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

**BP-4:** Battery panel for NFS-640 and NFS-3030. Used to cover battery and power supply when lower position is used in backbox.

**BP2-4:** Battery panel for NFS2-3030. Used to cover battery and power supply when lower position is used in backbox.

**FOUR TIERS, "D" SIZE:**

**DR-D4:** Door assembly, LEXAN window, four tiers, BLACK.

**DR-D4R:** Door assembly, LEXAN window, four tiers, RED.

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

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

**SBB-D4:** Backbox assembly, four tiers, BLACK.

**SBB-D4R:** Backbox assembly, four tiers, RED.

**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.

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

**BP-4:** Battery panel for NFS-640 and NFS-3030. Used to cover battery and power supply when lower position is used in backbox.

**BP2-4:** Battery panel for NFS2-3030. Used to cover battery and power supply when lower position is used in backbox.

**ACCESSORIES:**

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

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

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

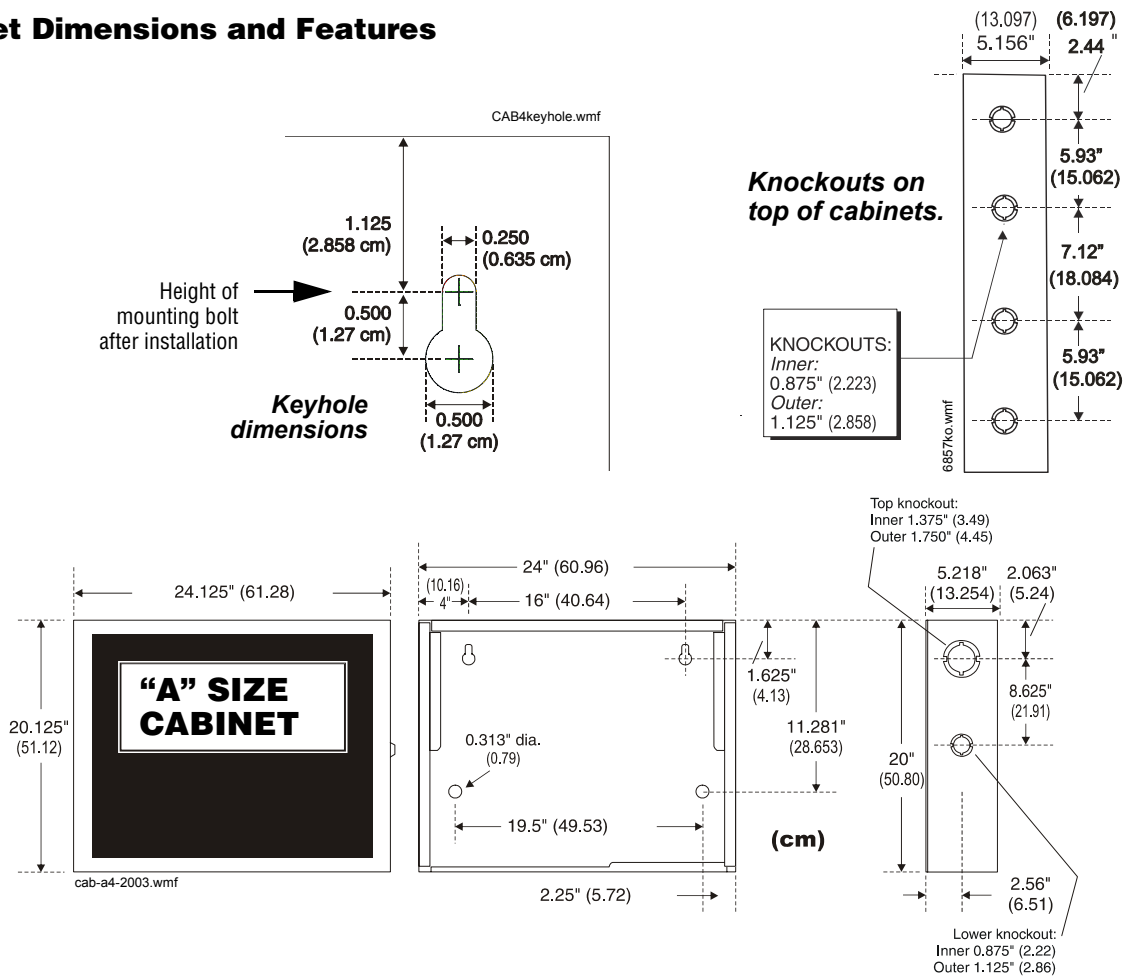
**ADP-4B:** Annunciator dress panel.

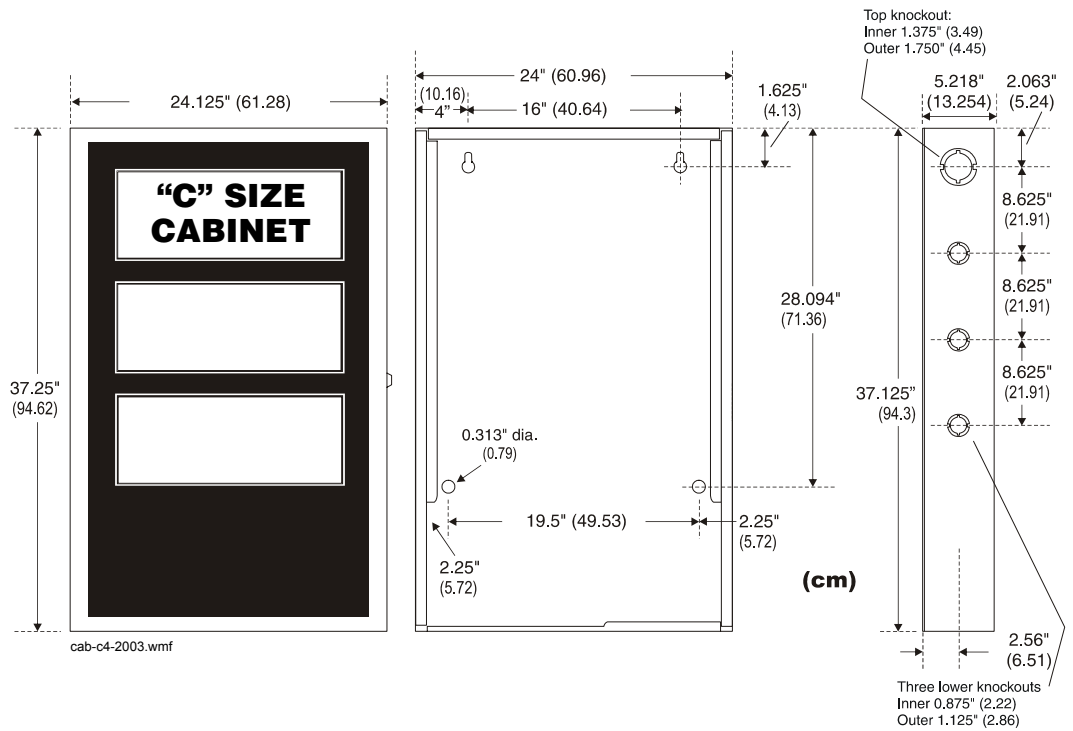
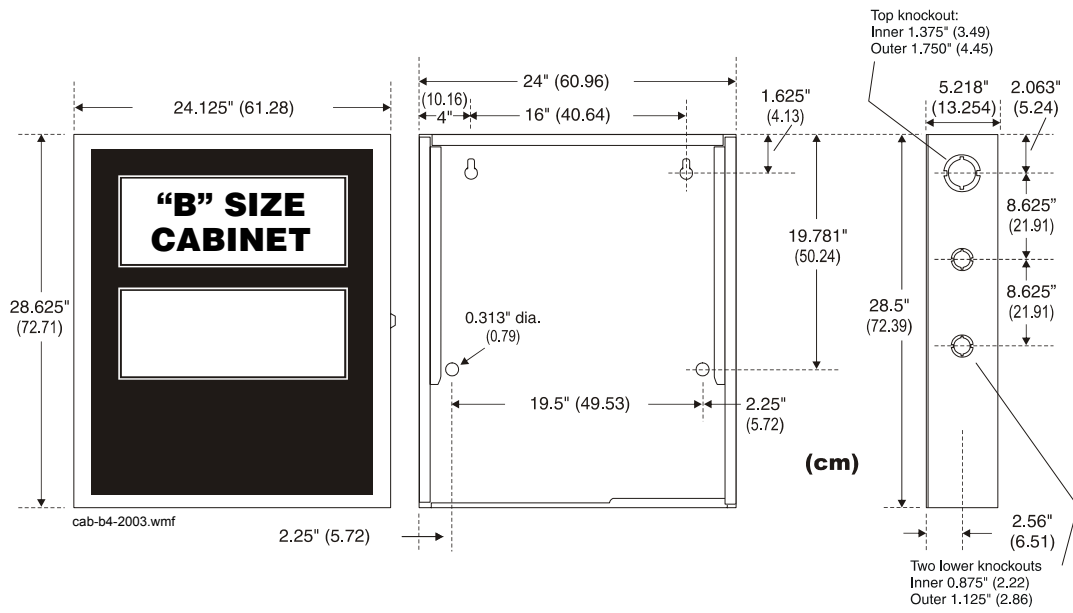
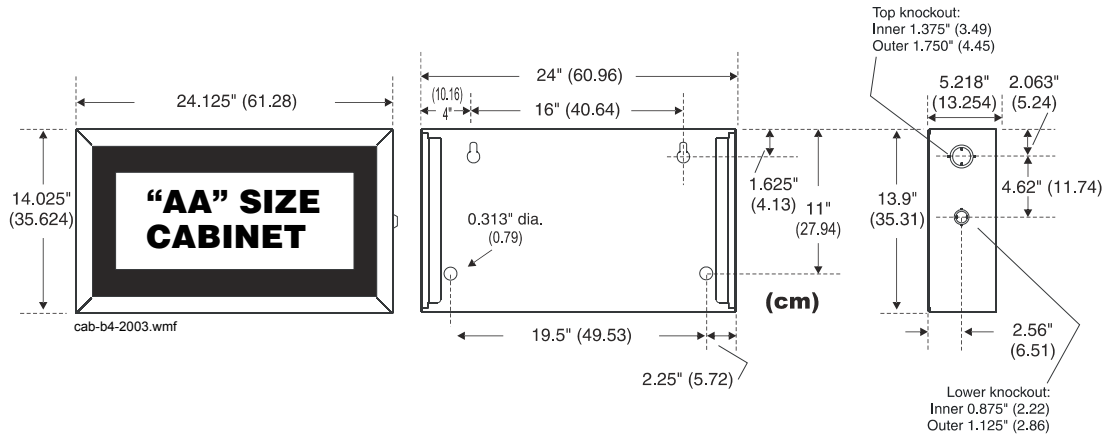
**Agency Listings and Approvals**

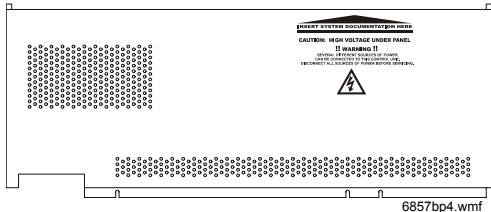
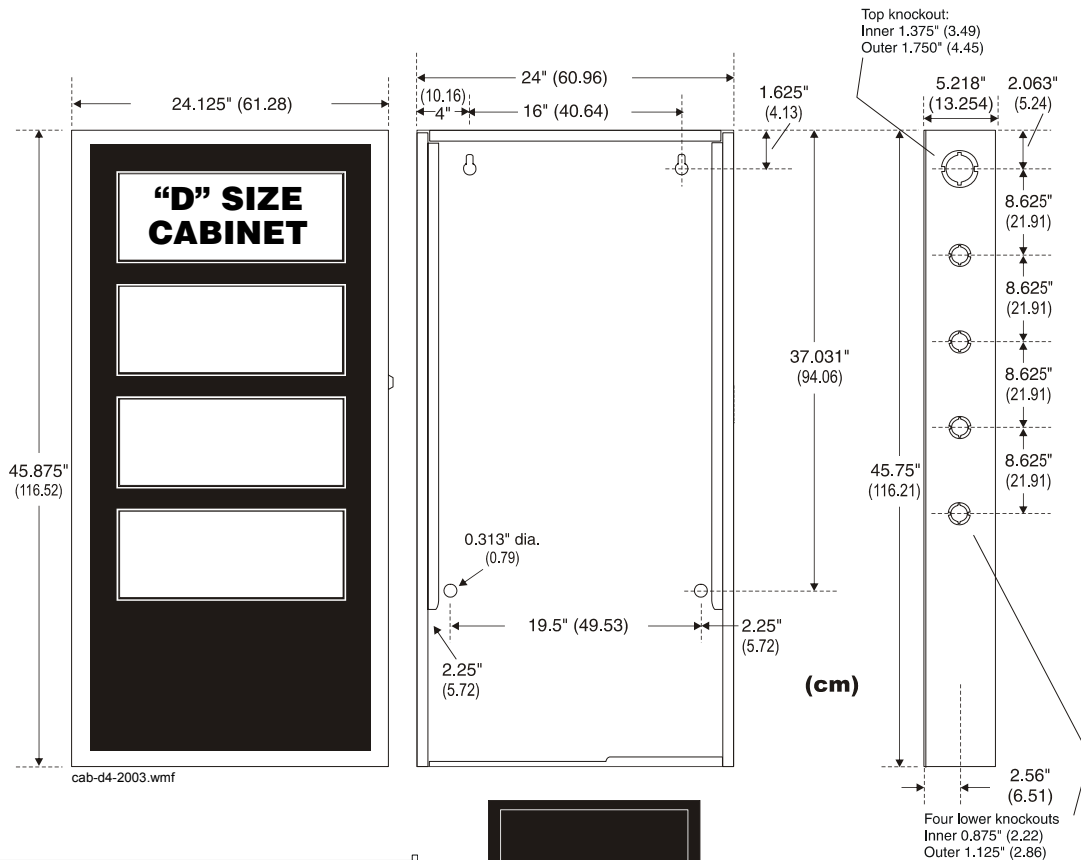
These listings and approvals below apply to the CAB-4 Series Cabinets. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL** Listed: file S635 (except AA size).
- **ULC** Listed: file CS118 (except AA size).
- **MEA** approved: files 317-01-E, 345-02-E (except AA size).
- **CSFM** approved (except AA size): files 7165-0028:214 (NFS-640), 7170-0028:216 (NFS-640), 7165-0028:224 (NFS-3030), 7170-0028:223 (NFS-3030).
- **FM** approved (except AA size).
- **U.S. Coast Guard** approved: 161.002/42/1 (NFS-640).

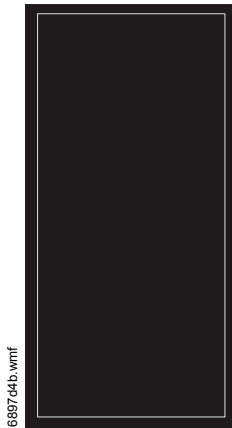
**Cabinet Dimensions and Features**







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



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

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# RM-1 Series

## Remote Microphone and Cabinets RM-1, RM-1SA, CAB-RM, CAB-RMR



Emergency Voice Evacuation

### GENERAL

The **RM-1 Series Remote Microphone** provides a cost-effective microphone interface for paging to selected speaker zones. The Power and Trouble LEDs provide easy-to-understand visual indications of its status. Various mounting options are available. The microphone assembly can be mounted in a small, compact enclosure or located in a comprehensive paging command center.

The RM-1 Series remote microphone can be utilized with the **NFS-3030/NFS2-3030, NFS-640, AM2020, AFP1010, AFP-400, AFP-300**, and **System 5000** Fire Alarm Control Panels (FACPs).

### FEATURES

- Automatic gain control circuit.
- Supervised microphone.
- Form-C trouble contacts.
- Form-C contacts activated when microphone is in use.
- Power On LED.
- Trouble LED.
- Pluggable terminal blocks.
- Low-level audio (LLA) IN and THRU screws.

### CAB-3/CAB-4 SERIES INSTALLATION

The RM-1 can mount to the back of an ADP-4 dress panel inside a CAB-3 or CAB-4 Series cabinet. It can be mounted in any of the four positions on the dress panel, with the following exceptions:

- **Do NOT mount** the RM-1 in front of an AA-100/AA-100E or AA-120/AA-120E; there is not enough room to shut the door of the cabinet if it is placed in front of one of these audio amplifiers.
- **Do NOT mount** the RM-1 in the first position to the right of an AA-30/AA-30E; there is not enough room for the RM-1 wiring in this position. An RM-1 can fit only in the far-right position of a row if an AA-30/AA-30E is in the far-left position of the same row. However, an RM-1 can fit into either of the two left positions of the row if the AA-30/AA-30E is in the far-right position of that row.

See page 2 for illustrations of mounted units.

### SPECIFICATIONS

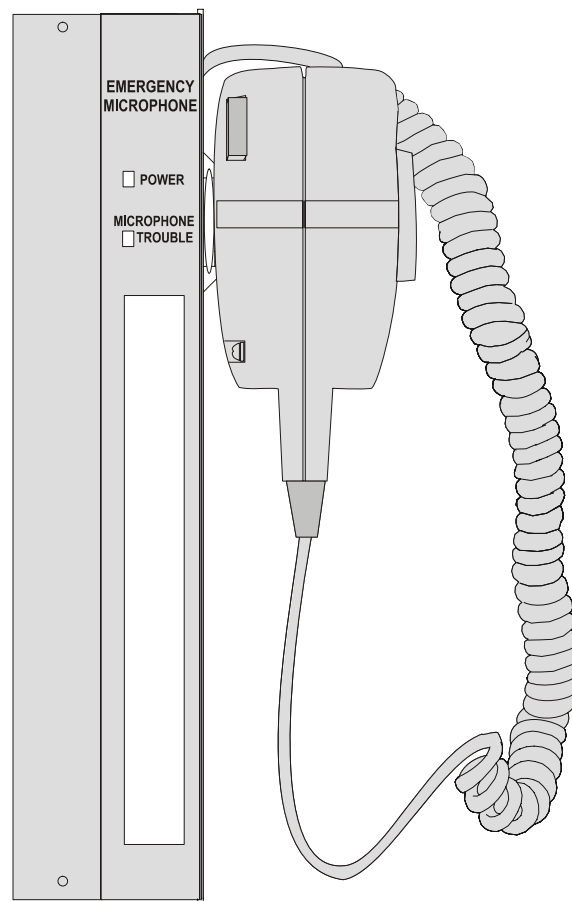
**Power requirements:** 20 mA primary, non-fire alarm current; 66 mA when microphone is activated; 20 mA secondary, non-fire alarm current.

**Operating voltage:** 17 to 26.4 volts.

### PRODUCT LINE INFORMATION

**RM-1:** Remote microphone assembly for mounting on an ADP-4 dress panel.

**RM-1SA:** Remote microphone assembly for mounting in a CAB-RM(R), for remote applications.



6728rmtsa.cdr

**CAB-RM:** Stand-alone cabinet, gray.

**CAB-RMR:** Stand-alone cabinet, red.

### AGENCY LISTINGS AND APPROVALS

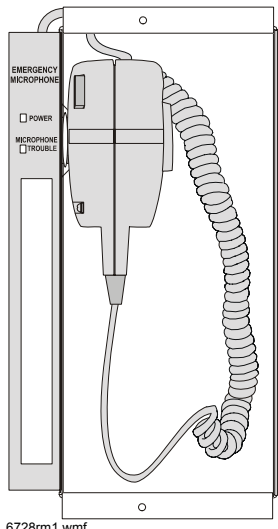
These listings and approvals apply to the RM-1 Series Remote Microphone. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL:** S635
- **ULC:** CS118/CS733 Vol. 12
- **MEA:** 327-94-E Vol.III
- **CSFM:** 7170-0028:223 and 7165-0028:224 (NFS-3030/NFS2-3030)
- **FM:** Approved (RM-1, RM-1SA)

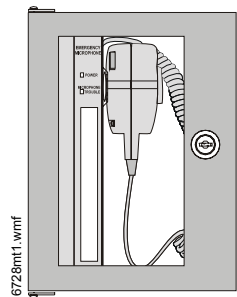
# RM-1 MOUNTING & CABINET DIMENSIONS

AT RIGHT: RM-1SA (right) and in CAB-RM or CAB-RMR.

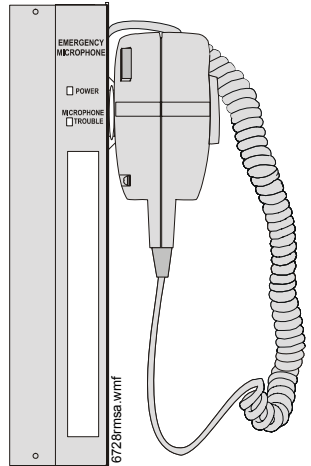
BELOW: RM-1 (left) and on ADP-4 dress panel.



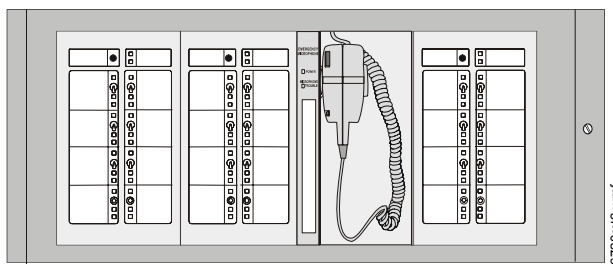
6728rm1.wmf



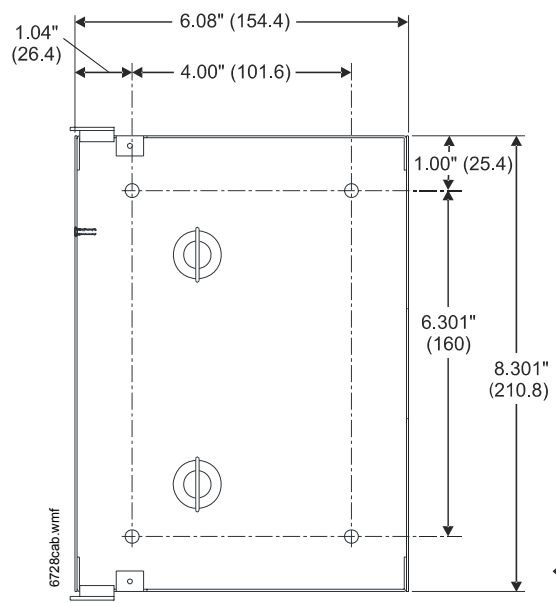
6728mt1.wmf



6728rmtsa.wmf

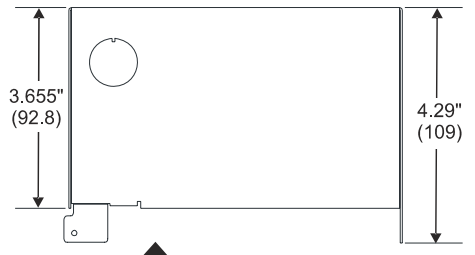


6728mt2.wmf



6728cab.wmf

## CAB-RM/CAB-RMR DIMENSIONS inches (mm)



DEPTH WITHOUT DOOR

HEIGHT/WIDTH WITHOUT DOOR

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# ACS Series Annunciators

## ONYX® Series

### ACM/AEM-24AT, ACM/AEM-48A



#### Annunciator Control Systems

### General

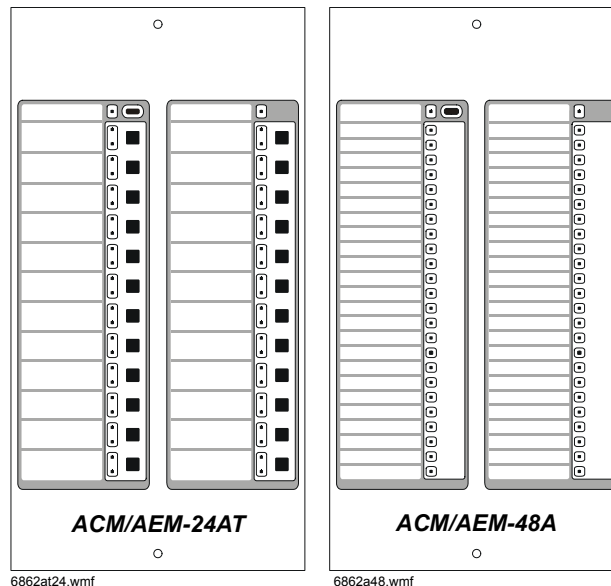
The ONYX® Series ACS Annunciators provide a modular line of products for annunciation and control of the NOTIFIER ONYX® Series NFS-640, NFS-3030, and NFS2-3030 Intelligent Fire Alarm Control Panels, and NCA and NCA-2 Network Control Annunciators, as well as NOTIFIER's AM2020, AFP1010, AFP-400, AFP-300, AFP-200, and AFP-100 fire control panels. The ACS line provides arrays of LEDs to indicate point status and, in some versions, switches to control the state of output circuits. These ACS units use a serial interface and may be located at distances of up to 6,000 feet (1,828.8 meters) from the panel.

### Features

- Speaker control mode for use with XPIQ and the following panels: NFS-3030, NFS2-3030, NFS-640, AM2020, AFP1010, AFP-400, AFP-300. Enables the ACS to control operation of groups of multi-channels mapped to groups of multi-speakers.
- Compatible with existing annunciators.
- Color-programmable LEDs.
- On-board end-of-line resistors can be enabled/disabled by setting a switch.
- Alarm/Circuit On and Trouble LED per-point option or more dense Alarm-only option.
- Touch-pad control switch option for remote control of system relays; or silence, reset, and evacuate.
- LEDs may be programmed to display status of indicating circuits or control relays as well as system status conditions.
- Fan Control (manual/automatic) option for the AM2020 and AFP1010.
- System Trouble LED indicator.
- On-Line/Power LED indicator.
- Alarm and trouble resound with flash of new conditions.
- Local sounder for both alarm and trouble conditions with silence/acknowledge button (program options).
- Serial EIA-485 interface for reduced installation cost.
- May be powered by 24 VDC from the panel or by remote power supplies.
- Microprocessor-controlled electronics, fully supervised.
- Slip-in custom labels, lettered with standard typewriter or LabelEase program.
- Plug-in terminal blocks for ease of installation and service.
- Trouble monitor option for remote power supplies.

### Construction

The ACS modules are provided in two basic controller modules, each with its expander module. The ACM-24AT provides 24 annunciation and control points per module, each with a red, green, or yellow Alarm/Circuit On LED, a yellow Trouble LED, and a touch-key switch. The ACM-48A provides 48 annunciation points per module, each with a red, green, or yellow Alarm/Circuit On LED (for annunciating control relays, the LED indicates ON/OFF).



On the ACM-24AT, each LED point is individually color-programmable. On ACM-48A, each column of 24 LED points can be color-configured using a DIP switch.

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

### Installation

The ACS Series annunciator and control subsystems use modular hardware assemblies which allow the custom configuration of the annunciator panel to fit the individual job requirements.

Standard backboxes and mounting hardware schemes, including special remote cabinets, allow the annunciators to be constructed and configured with other system components.

When used with the NFS(2)-3030, NFS-640, AM2020, AFP1010, AFP-400, or AFP-300, the ACS modules can be used for manual selection of speaker and telephone circuits. In this application, they are typically mounted in the main control near the microphone and telephone handset.

For remote annunciation applications, the modules are typically mounted in special ABF or ABS boxes. Control switch key locks (AKS-1/-1B) and phone jacks (APJ-1/-1B) are available.

Communication between the ACS Series annunciators and the host Fire Alarm Control Panel is made through an EIA-485 multi-drop loop, eliminating the need for costly wiring schemes. Four wires are required, two for the EIA-485 communications (twisted pair), and two for 24 VDC regulated power.

Retrofit of ACS Series annunciators into existing systems is easily accomplished. Software may require upgrading, and the AM2020 or AFP1010 must include a SIB-2048(A)/SIB-NET Serial Interface Board.

All field-wiring terminations use removable, compression-type terminal blocks for ease of installation, wiring, and circuit testing.

## Operation

The ACS Series annunciator and control system provides the NOTIFIER system with up to 32 remote serially connected annunciators, each with a capacity of 96 points, for a total capacity of **3072 points** (subject to the capability of the FACP). The NCA(-2) is capable of using the full 96 points.

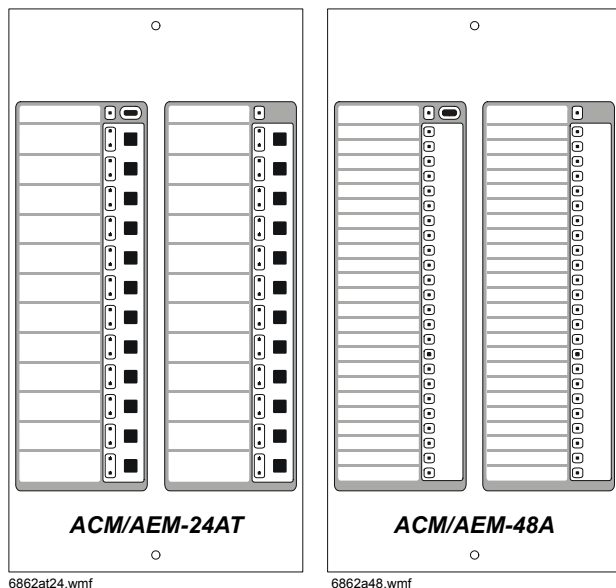
Local or remote power supplies and serial communications allow the ACS to be located virtually anywhere in the protected premises.

AM2020, AFP1010, NFS-640, NFS(2)-3030 and NCA(-2) system alarm and/or trouble conditions may be annunciated on a per-point basis, or in a grouped or zone configuration.

Control of system operational controls, such as Signal Silence, System Reset, and local annunciation controls (such as Local Acknowledge and Lamp Test) may be accomplished through the module's rubber keypad.

## Product Line Information

**ACM-24AT:** (shown below) The Annunciator Control Module-24AT contains 24 color-programmable (red/green/yellow) Active and 24 yellow Trouble LEDs, 24 momentary touch-pad switches, a System Trouble LED, an On-Line/Power LED, and a local piezo sounder with a silence/acknowledge switch for audible indication of alarm and trouble conditions. Includes instructions. 8.375" (21.27 cm) high; 4.375" (11.11 cm) wide.



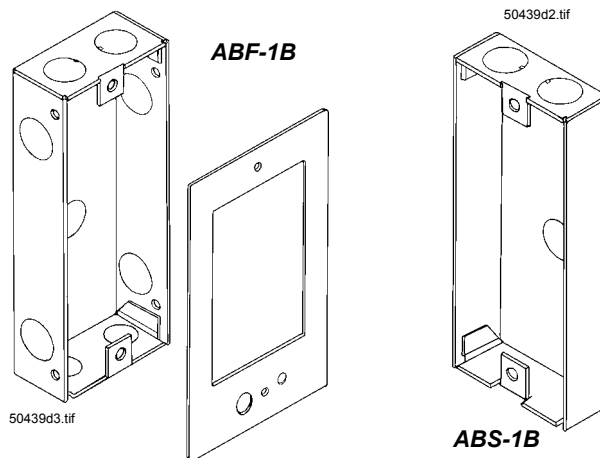
**AEM-24AT:** The Annunciator Expander Module-24AT expands the ACM-24AT by 24 system points. The AEM-24AT is identical in size and in frontal appearance to the ACM-24AT.

Up to three of these expander modules can be supported by an ACM-24AT, for a maximum of 96 system points. 8.375" (21.27 cm) high; 4.375" (11.11 cm) wide. **NOTE:** The AEM-24AT **cannot** be used to expand the ACM-48A.

**ACM-48A:** (shown above) The Annunciator Control Module-48A contains 48 color-programmable (red/green/yellow) Active LEDs, a System Trouble LED, an On-Line/Power LED, and a local piezo sounder with a Silence/Acknowledge switch for audible indication of alarm and trouble conditions. Includes instructions. 8.375" (21.27 cm) high; 4.375" (11.11 cm) wide.

**AEM-48A:** The Annunciator Expander Module-48A expands the ACM-48A by 48 system points. The AEM-48A is identical in frontal appearance to the ACM-48A. One expander module can be supported by an ACM-48A, providing a maximum of 96 points (subject to the capability of the FACP). 8.375" (21.27 cm) high; 4.375" (11.11 cm) wide. **NOTE:** The AEM-48A **cannot** be used to expand the ACM-24AT.

**ABS-1B:** (shown below) The Annunciator Surface Box-1B (black) provides for the remote mounting of one annunciator module in a surface-mount enclosure. Knockouts are provided for use with 1/2" (1.27 cm) conduit. The annunciator mounts directly to the ABS-1B without a dress plate. 8.5" (21.59 cm) high x 4.5" (11.43 cm) wide x 2" (5.08 cm) deep. **NOTE:** The ABS-1B will not support the installation of the AKS-1B Annunciator Key Switch.



**ABS-1TB:** The ABS-1TB is an attractive surface-mount back-box for mounting one ACS Series Annunciator. Unlike the ABS-1B, the ABS-1TB has an increased depth that allows mounting of the APJ-1B Annunciator Phone Jack and AKS-1B Annunciator Key Switch. Black, 9.938" (25.24 cm) high x 4.625" (11.75 cm) wide x 2.5" (6.35 cm) deep. **NOTE:** An earlier gray model, ABS-1T, will not accommodate the ACM/AEM-24AT or ACM/AEM-48A. The slightly deeper ABS-1TB will accommodate both the ACM/AEM-24AT or ACM/AEM-48A models and the ACM-16AT/ACM-32A Series (see DN-0524).

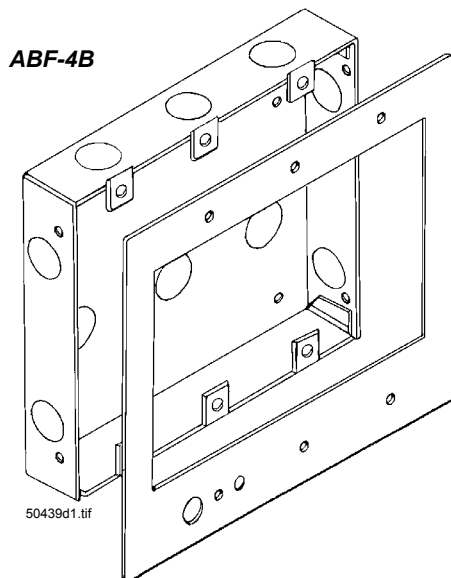
**ABS-2B:** The Annunciator Surface Box-2B (black) provides for the surface mounting of one ACM-24AT/AEM-24AT combination or one ACM-48A/AEM-48A combination. Knockouts are provided for use with 1/2" (1.27 cm) conduit. The annunciators mount directly to the ABS-2B without a dress plate. 8.5" (21.59 cm) high x 8.92" (22.66 cm) wide x 2" (5.08 cm) deep. **NOTE:** The ABS-2B will not support the installation of the AKS-1B Annunciator Key Switch.

**ABF-1B:** (shown above) The Annunciator Flush Box-1B (black) provides for the remote mounting of a single annunciator module in a flush-mount enclosure. Knockouts are provided for use with 1/2" (1.27 cm) conduit. The ABF-1B includes a painted black metal trim plate [11" (27.94 cm) high x 6.25" (15.875 cm) wide], mounting hardware, and an adhesive-backed annunciator label for the dress plate. 9.938"

(25.24 cm) high x 4.625" (11.75 cm) wide x 2.5" (6.35 cm) deep.

**ABF-2B:** The Annunciator Flush Box-2B (black) provides for the flush mounting of two annunciator modules. Includes a painted black metal trim plate [11" (27.94 cm) high x 10.625" (26.99 cm) wide] and adhesive-backed annunciator label. 9.938" (25.24 cm) high x 9.188" (23.34 cm) wide x 3.75" (9.525 cm) deep.

**ABF-4B:** (shown below) The Annunciator Flush Box-4B (black) provides for the remote mounting of one to four annunciator modules. Knockouts are provided for use with 1/2" (1.27 cm) conduit. The flush-mounted ABF-4B includes a painted black metal trim plate [11" (27.94 cm) high x 19.375" (49.21 cm) wide] and an annunciator label. 9.938" (25.24 cm) high x 17.75" (45.09 cm) wide x 2.5" (6.35 cm) deep.



**ABF-1DB, ABF-2DB, ABS-4D:** The ABF-1DB, ABF-2DB and ABS-4D are semi-flush-mount backboxes for ACS Series Annunciators. The ABF-1DB mounts one annunciator module and the ABF-2DB mounts two modules or one NCA(-2). The ABS-4D mounts up to four annunciators **or** two annunciators with an NCA. Black with an attractive smoked glass door with a keylock. The ABS-4D is hinged on the bottom for stability.

**DIMENSIONS, ABF-1DB: Box only:** 9.938" (25.24 cm) high x 4.625" (11.75 cm) wide x 2.5" (6.35 cm) deep.

**Door:** 11" (27.94 cm) high x 6" (15.24 cm) wide x 0.75" (1.9 cm) deep.

**DIMENSIONS, ABF-2DB: Box only:** 9.938" (25.24 cm) high x 9.188" (23.34 cm) wide x 3.75" (9.525 cm) deep. **Door:** 11" (27.94 cm) high x 10.375" (26.35 cm) wide x 0.75" (1.9 cm) deep.

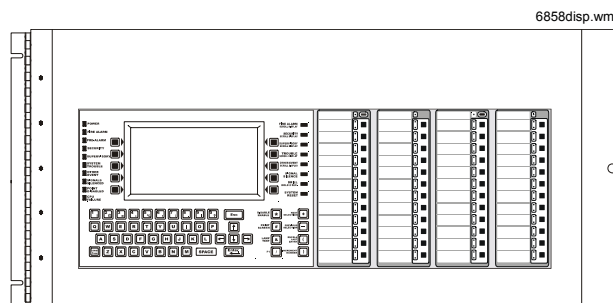
**DIMENSIONS, ABS-4D: Box only:** 11.97" (30.40 cm) high x 19.87" (50.47cm) wide x 3.50" (8.89 cm) deep.

**Door:** 11.97" (30.40 cm) high x 19.87" (50.47 cm) wide x 1.25" (3.18 cm) deep.

**ADP-4B:** The Annunciator Dress Panel-4B (black) provides for the cabinet mounting of one to four modules. The ADP-4B

hinge-mounts to a CAB-4 Series cabinet. Modules mount directly to threaded studs on the ADP-4B.

**DP-DISP:** The Dress Panel-Display provides for the cabinet mounting of one to four modules in the **top row** of a CAB-4 Series backbox. Modules mount directly to threaded studs on the DP-DISP (see illustration below).



**DP-DISP Dress Panel with NCA**  
Network Control Annunciator in left two positions,  
and two ACM-24AT Annunciators at right.

**BMP-1:** Annunciator Blank Module is a flat black dress plate that covers unused module positions in the annunciator backbox or in the ADP-4B. 8.375" (21.27 cm) high x 4.375" (11.11 cm) wide. Studs for a variety of module mounting options are available.

**AKS-1B:** The Annunciator Key Switch-1B (black) provides access security for the control switches on the ACM/AEM-24AT. The key switch kit includes a key and hardware for mounting to the ABF-1B. Also included is an adhesive-backed annunciator label for use with the key switch/dress plate assembly. **NOTE: The AKS-1B can only be employed with the ABS-1TB.**

**APJ-1B:** Annunciator Phone Jack-1B (black) for Fire Fighters Telephone (FFT-7). Includes mounting hardware and adhesive-backed label.

## Agency Listings and Approvals

The listings and approvals below apply to the ACM/AEM-24AT and the ACM/AEM-48A. 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.

*Additional listings relating to recent product or applications to be released shortly.*

- **UL** Listed: file S635.
- **ULC** Listed: file CS118.
- **MEA** approved: files 317-01-E (*NFS-640*), 345-02-E (*NFS-3030*).
- **CSFM** approved: file 7120-0028:156.
- **FM** approved.
- **Lloyd's Register:** type approved 02/60007 (*NFS-640*).
- **U.S. Coast Guard:** file 161.002/42/1 (*NFS-640*).

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# NBG-12LX

## Addressable Manual Pull Station



Intelligent/Addressable Devices

### General

The Notifier NBG-12LX is a state-of-the-art, dual-action (i.e., requires two motions to activate the station) pull station that includes an addressable interface for any Notifier intelligent control panel except FireWarden series panels. 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 mm<sup>2</sup> 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 mechanicsms 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 systems.
- Up to 159 NBG-12LX stations per loop on FlashScan® protocol systems.
- Dual-color LED blinks green to indicate normal on FlashScan® systems.

### Construction

Shell, door, and handle are molded of durable LEXAN® (or polycarbonate equivalent) with a textured finish.

### Specifications

- Normal operating voltage: 24 VDC.
- Maximum SLC loop voltage: 28.0 VDC.
- Maximum SLC loop current: 375 µA.
- Ambient Temperature: 32°F to 120°F (0°C to 49°C)
- Relative Humidity: 93% ± 2% RH (noncondensing) at 32°C ± 2°C (90°F ± 3°F)
- 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 LEXAN (or polycarbonate equivalent) 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.

**SB-10:** Surface backbox; metal.

**SB-I/O:** Surface backbox; plastic.

**BG12TR:** Optional trim ring.

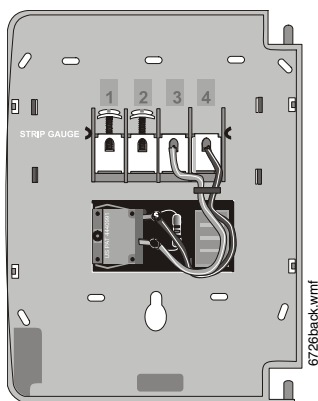
**17021:** Keys, set of two.

**NY-Plate:** New York City trim plate

### Agency Listings and Approvals

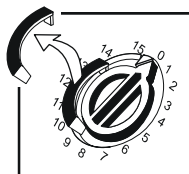
In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S692 (listed for Canadian and non-Canadian applications)
- **MEA:** 67-02-E
- **CSFM:** 7150-0028:199
- **BSMI:** C1313066760047
- **U.S. Coast Guard:** 161.002/23/3 (AFP-200); 161.002/27/3 (AM-2020/AFP-1010); 161.002/42/1 (NFS-640)
- **Lloyd's Register:** 02/6007 (NFS-640); 94/60004 (E2) (AFP-200); 03/60011 (E1); 07/60007 (NFS2-3030)
- **FM Approved**

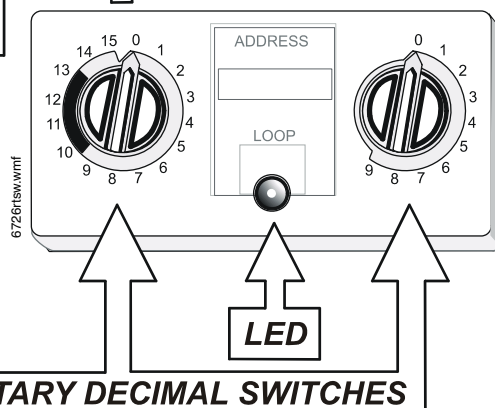


**Back of station without door**

Terminal Connections:  
1 SLC (-); 2 SLC (+)

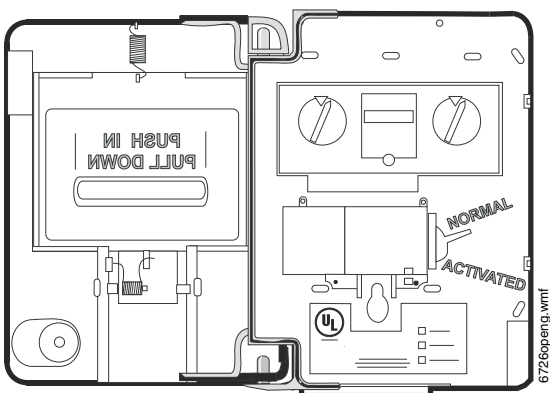


**Detail of BREAKAWAY TAB\***



**ROTARY DECIMAL SWITCHES**

\* Remove tab to select addresses above 99 (FlashScan systems only).



**Cover open to show easy access to miniature monitor module, rotary switch, and UL label.**

**Patented:**

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

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# FSP-851 and FSP-851T

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



Intelligent/Addressable Devices

### General

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

**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 in the group has new information, the panel's CPU stops the group poll and concentrates on single points. The net effect is response speed **greater than five times** that of earlier designs.

### Features

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



FSP-851 with B710LP base



FSP-851T with B710LP base

### Specification

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

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

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

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

**Relative Humidity:** 10%-93% noncondensing.

**Thermal Ratings:** Fixed-temperature setpoint 135°F (57°C).

### DETECTOR SPACING AND APPLICATIONS

Notifier recommends spacing detectors in compliance with NFPA 72. In low airflow applications with smooth ceiling, space detectors 30 feet (9.144m) for ceiling heights 10 feet (3.148m) and higher. For specific information regarding detector spacing, placement, and special applications refer to NFPA 72. *System Smoke Detector Application Guide*, document A05-1003, is available at [systemsensor.com](http://systemsensor.com)

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

## ELECTRICAL SPECIFICATIONS

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

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

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

## BASES AVAILABLE

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

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

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

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

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

## Installation

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

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

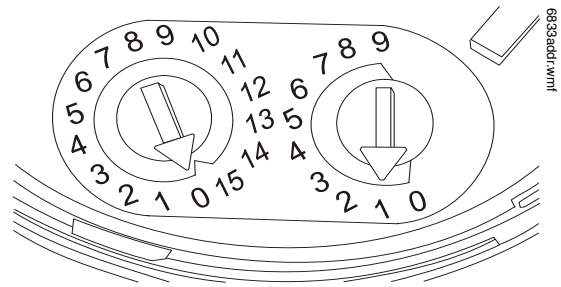
- 4.0" (10.16cm) square box.
- 3.5" (8.89cm) or 4.0" (10.16cm) octagonal box.
- Single-gang box (except relay or isolator base).
- With B501BH or B501BHT base, use a 4.0" (10.16cm) square box.
- With B224RB or B224BI base, use a 3.5" (8.89cm) octagonal box, or a 4.0" (10.16cm) octagonal or square box.

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

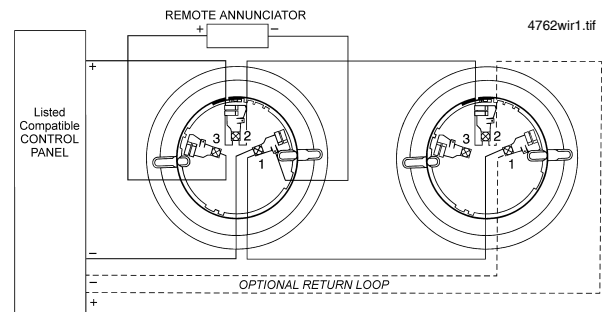
## Agency Listings and Approvals

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

- **UL Listed:** S1115
- **ULC Listed:** CS915 (FSP-962A, FSP-851TA)
- **MEA Listed:** 225-02-E
- **FM Approved**
- **CSFM:** 7272-0028:206
- **Maryland State Fire Marshal:** Permit # 2122
- **BSMI:** CI313066760036
- **CCCF:** Certif. # 2004081801000017 (FSP-851T)  
Certif. # 2004081801000016 (FSP-851)
- **Lloyd's Register:** 03/60011



Address Dial on back of Detector



Wiring Diagram

## Product Line Information

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

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

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

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

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

### BASES

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

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

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

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

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

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

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

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

### ACCESSORIES

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

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

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

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

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

**BCK-200B:**Black detector covers, box of 10. For use with FSP-851 only.

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

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

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

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

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

### DETECTOR GUARDS

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

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

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

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

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

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

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

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

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

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

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



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# FSD-751PL(A), FSD-751RPL(A)

## Intelligent Low-Flow Photoelectric Duct Smoke Detectors with FlashScan®



Intelligent Addressable Devices

### General

NOTIFIER FSD-751PL(A) and FSD-751RPL(A) Intelligent Photoelectric Smoke Duct Detectors provide **low-flow** technology that enables duct smoke detection throughout a broad range of airflow environments in HVAC applications. The low-flow technology can detect smoke at air speed velocities of 100 feet per minute (0.5 m/sec) or greater, while continuing the same reliable performance to 4,000 feet per minute (20.32 m/sec). The intelligent low-flow duct detectors sample air currents passing through a duct and gives dependable performance for shutdown of fans, blowers, and air conditioning systems, preventing the spread of toxic smoke and fire gases through the protected area.

FSD-751PL(A) and FSD-751RPL(A) are compatible with all NOTIFIER addressable panels. FSD-751PL(A) and FSD-751RPL(A) provide a remote alarm output for use with auxiliary devices, such as the RA400Z(A) remote LED annunciator, as well as remote test capability with the RTS451(A) or RTS451KEY(A) Remote Test Stations.

Traditional panels support addresses of 0 – 99. The FlashScan® protocol supports addresses of 0 – 159. The patented FlashScan communication protocol was developed by NOTIFIER Engineering, it greatly enhances the speed of communication between analog intelligent devices and the Notifier control panel. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of earlier designs.

### Applications

Duct smoke detectors have specific limitations, they are:

- **NOT** a substitute for open area smoke detectors.
- **NOT** a substitute for early warning detection.
- **NOT** a replacement for a building's regular fire detection system.

Please call NOTIFIER for a copy of System Sensor's application guide, *Proper Use of Smoke Detectors in Duct Applications*, (A05-1004-00).

### Features

- Air velocity rating from 100 to 4,000 feet per minute (0.5 to 20.32 m/sec).
- Patented telescopic sampling tube.
- Easily accessible code wheels for addressing detector.
- Outside mounting tabs.
- Mounts to round or rectangular ducts from 1' to 12' (0.3 to 3.7 meters) wide.
- Transparent cover for convenient visual inspection.

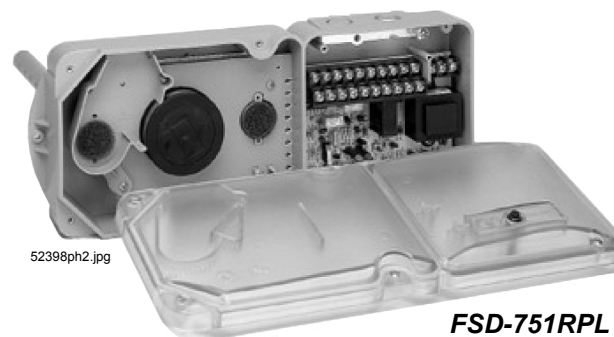
### Installation

Refer to installation manuals for control panel and duct detector for detailed information or to install equipment. Installation manuals for detectors: I561978-003R for FSD-751PL(A), 156-1979-004R for FSD-751RPL(A).

**Wiring:** For signal wiring (the wiring between detectors or from detectors to auxiliary devices), it is recommended that single conductor wire be no smaller than 18 AWG (0.821 mm<sup>2</sup>). The



FSD-751PL



FSD-751RPL



RA400Z



RTS451



RTS451KEY

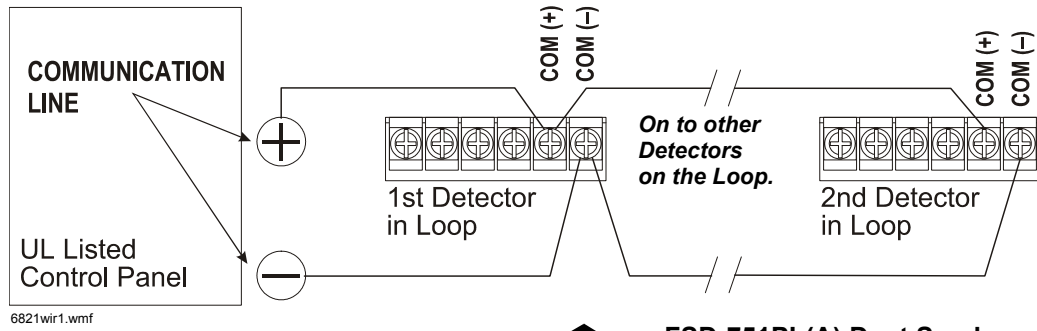
duct smoke detector terminals accommodate wire sizes up to 12 AWG (3.31 mm<sup>2</sup>). Flexible conduit is recommended for the last foot (30.48 cm) of conduit; solid conduit connections may be used if desired.

Smoke detectors and alarm system control panels have specifications for Signaling Line Circuit (SLC) wiring. Consult the control panel specifications for wiring requirements before wiring the detector loop. The FSD-751PL(A) and FSD-751RPL(A) detectors are designed for ease of wiring; their housing provides a terminal strip with clamping plates.

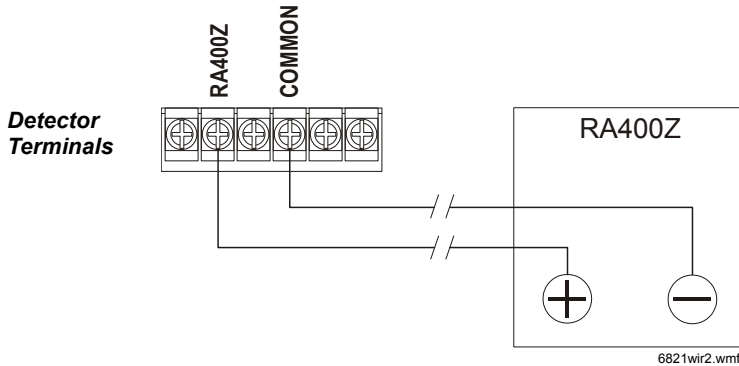
**LED Features:** If programmed with the system control panel, two LEDs on each duct smoke detector light to provide local visible indication.

**Programming specifications/requirements for intelligent system control panels:** The number of devices that can have their LEDs programmed to illuminate is limited by the features of the panel and the individual devices. The actual number of devices is determined by the control panel and its ability to supply LED current. Refer to the control panel installation manual for details.

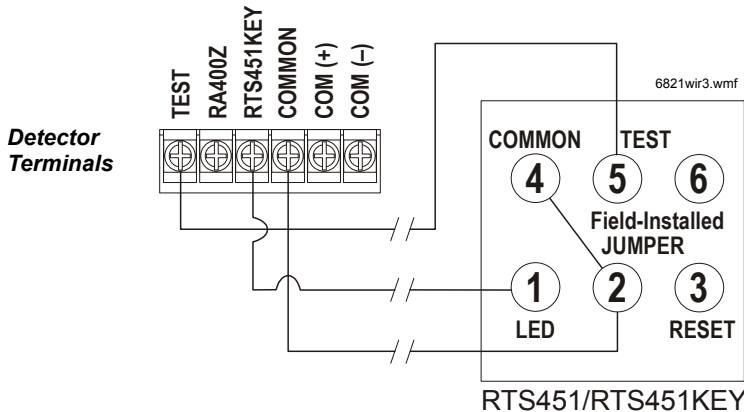
## Wiring Diagrams for FSD-751PL(A)



**FSD-751PL(A) Duct Smoke Detector using a UL or ULC Listed control panel.**



**FSD-751PL(A) Duct Smoke Detector with an optional RA400Z(A).**



**FSD-751PL(A) Duct Smoke Detector with RTS451(A)/RTS451KEY(A).**

**NOTE:** For RTS451(A), Terminal 3 is not used. RTS451(A) does not have a Terminal 6. For RTS451KEY(A), Terminals 3 and 6 are not used.

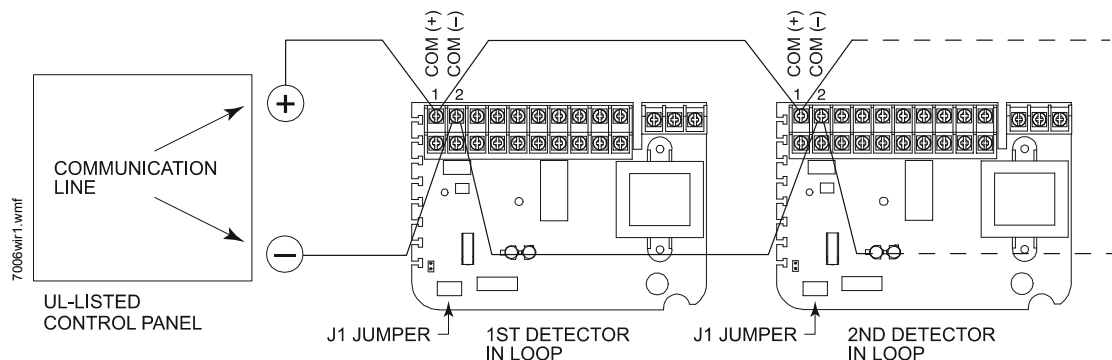
### Inlet Tube Selection

Outside Duct Width	Inlet Tube*
Up to 2 feet (0.6096 m)	ST-1.5(A)
2 to 4 feet (0.6096 to 1.2192 m)	ST-3(A)
4 to 8 feet (1.2192 to 2.4384 m)	ST-5(A)
8 to 12 feet (2.4384 to 3.6576 m)	ST-10(A)

\*Inlet tube is required and must be purchased separately. Order One inlet tube for each duct smoke detector ordered.

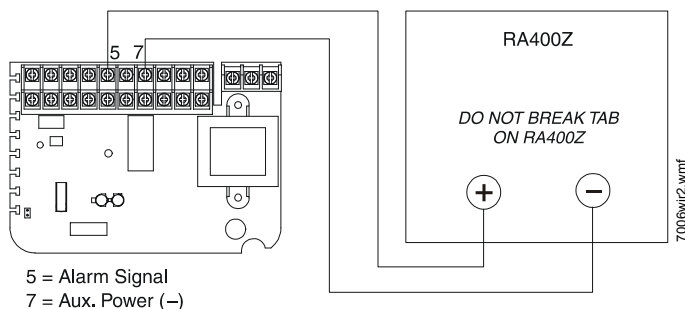
# Wiring Diagrams for FSD-751RPL(A)

## FSD-751RPL(A) Duct Smoke Detector using a UL-Listed control panel:

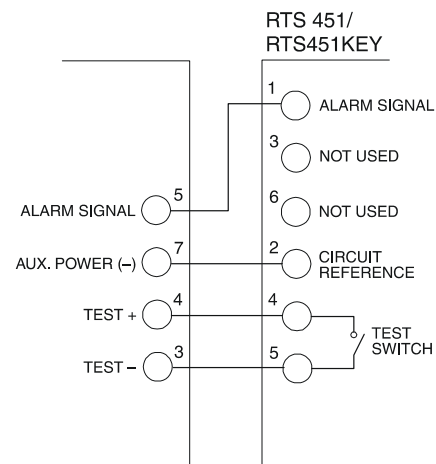


**NOTE:** 1) Jumper J1 shunt must be installed for 2-W applications. J1 shunt must be removed for power PCB supervision. Note that removal of shunt without adding external power will prevent communications to the panel over the SLC. 2) External power of 24 V AC/DC or 120/220 VAC must be connected in order to power all remote horn or strobe accessories.

## FSD-751RPL(A) Duct Smoke Detector with an optional RA400Z(A):

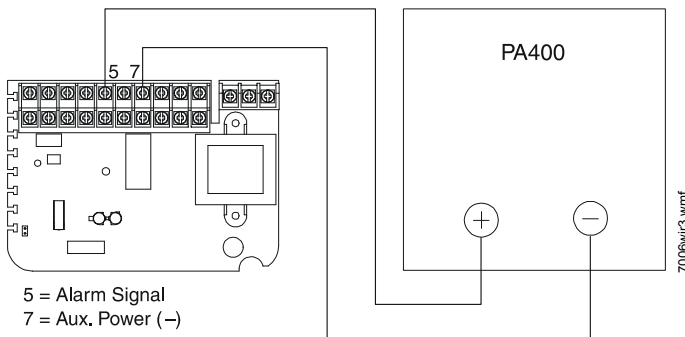


## FSD-751RPL(A) Duct Smoke Detector with RTS451(A)/RTS451KEY(A):



FOR RTS451, TERMINAL 3 IS NOT USED. (RTS451 DOES NOT HAVE A TERMINAL 6.) FOR RTS451KEY, TERMINALS 3 AND 6 ARE NOT USED.

## FSD-751RPL(A) Duct Smoke Detector with an optional PA400:



## Product Line Information

**NOTE:** "A" model suffix is for Canadian models.

**FSD-751PL:** Addressable low-flow duct detector housing with photoelectric smoke detector.

**FSD-751PLA:** Same as above with ULC listing.

**FSD-751RPL:** Addressable low-flow duct detector housing with photoelectric smoke detector with DPDT relay.

**FSD-751RPLA:** Same as above with ULC listing.

**A5053FS:** Replacement photoelectric sensor board.

**A5067:** Replacement power board (without relay).

**A5060:** Replacement power board (with relay).

**ST-1.5(A):** Metal sampling tube, duct widths 1' to 2' (see *Inlet Tube Selection table on page 2 for metric lengths*).

**ST-3(A):** Metal sampling tube, duct widths 2' to 4'.

**ST-5(A):** Metal sampling tube, duct widths 4' to 8'.

**ST-10(A):** Metal sampling tube, duct widths 8' to 12'.

**RA400Z(A):** Remote annunciator alarm LED.

**RTS451(A):** Remote test station. Mounts in single-gang box. Includes red alarm LED and magnet test switch.

**RTS451KEY(A):** Key-activated remote test station.

**F36-09-11:** Replacement filters.

**M02-04-00:** Test magnet.

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

**S08-39-01:** Replacement photo insect screen.

**P48-61-00:** Replacement end cap for plastic sampling tube.

**P48-21-00:** Replacement end cap for metal sampling tube.

**T80-71-00:** Replacement plastic sampling tube.

## Specifications

### FOR FSD-751PL(A)

**Operating voltage range:** 15 to 30 VDC.

**Standby current:** 300  $\mu$ A @ 24 VDC (one communication every 5 seconds with LED blink enabled).

**Operating temperature range:** 32° to 131°F (0° to 55°C).

**Operating humidity range:** 10% to 93% relative humidity (non-condensing).

**Storage temperature range:** -22°F to +158°F (-30°C to +70°C).

**Duct air velocity:** 100 to 4,000 feet/min (0.5 to 20.32 m/s).

**Shipping weight:** 3.35 lbs. (1.5 kg).

**Dimensions:** 14.75" (37 cm) length x 5.50" (14 cm) width x 2.75" (7 cm) deep.

**FSD-751PL(A) accessory current loads @ 24 VDC:**

**RA400Z(A):** 0 mA standby, 10 mA maximum in alarm.

**RTS451(A) and RTS451KEY(A):** 0 mA standby, 7.5 mA maximum in alarm.

### FOR FSD-751RPL(A)

**Operating voltage range:** 20 to 30 VDC, 24 VAC/VDC, 120/240 VAC auxiliary power (requires a separate auxiliary source).

**Standby current:** 300  $\mu$ A @ 24 VDC (one communication every 5 seconds with LED blink enabled).

**Operating temperature range:** 32° to 131°F (0° to 55°C).

**Operating humidity range:** 10% to 93% relative humidity (non-condensing).

**Storage temperature range:** -22°F to +158°F (-30°C to +70°C).

**Duct air velocity:** 100 to 4,000 feet/min (0.5 to 20.32 m/s).

**Shipping weight:** 3.90 lbs. (1.8 kg).

**Dimensions:** 14.75" (37 cm) length x 5.50" (14 cm) width x 2.75" (7 cm) deep.

### FSD-751RPL(A) CONTACT RATINGS

**Alarm auxiliary contacts (DPDT):** 10 A @ 30 VDC; 10 A @ 277 VAC (0.75 power factor); 240 VA @ 249 VAC (0.4 power factor); 1/8 HP @ 120 VAC; 1/4 HP @ 240 VAC.

**Minimum switching current for auxiliary contact** must be 100 mA DC minimum @ 5 VDC.

**Supervisory contact (SPST):** 2.0 A @ 30 VDC (resistive).

**FSD-751RPL(A) accessory current loads @ 24 VDC:** **PA400:** refer to PA400 data sheet DN-2405. **RA400Z(A):** 0 mA standby, 12 mA maximum in alarm. **RTS451(A) and RTS451KEY(A):** 0 mA standby, 10 mA maximum in alarm.

### FSD-751RPL(A) CURRENT REQUIREMENTS (USING NO ACCESSORIES)

**20 – 30 VDC power supply voltage:** 26 mA maximum standby current; 87 mA maximum alarm current; 3 to 10 second alarm response time; 2 second power-up time.

**24 VAC, 50/60 Hz power supply voltage:** 65 mA RMS maximum standby current; 182 mA RMS maximum alarm current; 3 to 10 second alarm response time; 2 second power-up time.

**120 VAC, 50/60 Hz power supply voltage:** 44 mA RMS maximum standby current; 52 mA RMS maximum alarm current; 3 to 10 second alarm response time; 2 second power-up time.

**220/240 VAC, 50/60 Hz power supply voltage:** 25 mA RMS maximum standby current; 30 mA RMS maximum alarm current; 3 to 10 second alarm response time; 2 second power-up time.

## Agency Listings and Approvals

The listings and approvals below apply to FSD-751PL(A) and FSD-751RPL(A) Intelligent Low-Flow Photoelectric Smoke Duct 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** Listed: file S1115 (*FSD-751PL, FSD-751RPL*).
- **ULC** Listed: file S115 (*FSD-751PLA, FSD-751RPLA*).
- **CSFM** approved: file 3240-0028:205.
- **FM** approved.
- **MEA** approved: file 384-02-E.
- **Maryland State Fire Marshal** approved: Permit #2127.

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# FCM & FRM Series

## Control and Relay Modules with FlashScan®



Intelligent/Addressable Devices

### General

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

**FRM-1 Relay Module:** The FRM-1 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.

### 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 module requires power (for horns, strobes, etc.), audio (for speakers), or a telephone riser (for handsets).
- 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 may be used to switch 24-volt NAC power, audio (up to 70.7 Vrms) or telephone.
- 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, audible/visual, and telephone applications may be wired for Class B or A (Style Y or Z).

### Applications

The FCM-1 is used to switch 24 VDC audible/visual power, high-level audio (speakers), or control telephone devices. The FRM-1 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. Refer to the FCM-1-REL datasheet (DN-60390) for more extensive 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).



FCM-1

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

### Operation

Each FCM-1 or FRM-1 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 supervises Class B (Style Y) or Class A (Style Z) notification or control circuits.

Upon code command from the panel, the FCM-1 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

**Normal operating voltage:** 15 to 32 VDC.

**Maximum current draw:** 6.5 mA (LED on).

**Average operating current:** 350  $\mu$ A direct poll (CLIP mode), 375  $\mu$ A group poll (FlashScan® mode) with LED flashing.

**External supply voltage (between Terminals T3 and T4):** maximum 80 volts (RMS or DC).

**Drain on external supply:** 2 mA maximum (using internal EOL relay).

**EOL resistance:** 47K ohms.

**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.

## Specifications for FRM-1

**Normal operating voltage:** 15 to 32 VDC.

**Maximum current draw:** 6.5 mA (LED on).

**Average operating current:** 230  $\mu$ A direct poll (CLIP mode), 255  $\mu$ A group poll (FlashScan® mode) with LED flashing.

**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.

## Contact Ratings

### FOR BOTH FCM-1 AND FRM-1 MODELS

Load Description	Application	Maximum Voltage	Current Rating
Resistive	Non-Coded	30 VDC	3.0 A
Resistive	Coded	30 VDC	2.0 A
Resistive	Non-Coded	110 VDC	0.9 A
Resistive	Non-Coded	125 VAC	0.9 A
Inductive (L/R=5ms)	Coded	30 VDC	0.5 A
Inductive (L/R=2ms)	Coded	30 VDC	1.0 A
Inductive (PF=0.35)	Non-Coded	125 VAC	0.5 A

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

## 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:** S7557 (A version only)
- **FM Approved**
- **CSFM:** 7300-0028:202
- **MEA:** 14-00-E

## 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.

**NOTE:** For installation instructions, see the following documents:

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

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# FMM-1, FMM-101, FZM-1 & FDM-1

## Monitor Modules with FlashScan®



Intelligent/Addressable Devices

### General

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

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

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

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

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

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

### FMM-1 Monitor Module

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

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

#### FMM-1 APPLICATIONS

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



FMM-1 (Type H)

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

#### FMM-1 OPERATION

Each FMM-1 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 SPECIFICATIONS

**Nominal operating voltage:** 15 to 32 VDC.

**Maximum current draw:** 5.0 mA (LED on).

**Maximum operating current:** 375 µA (LED flashing).

**Maximum IDC wiring resistance:** 1,500 ohms.

**EOL resistance:** 47K ohms.

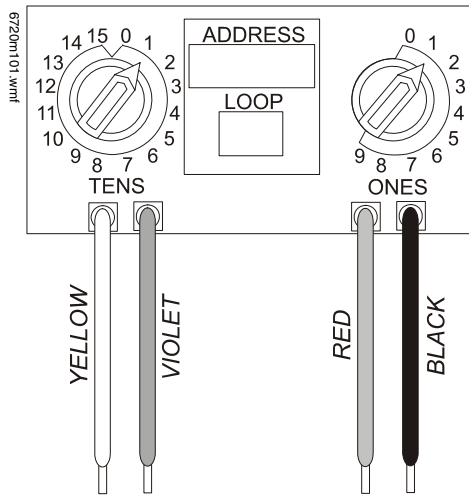
**Temperature range:** 32°F to 120°F (0°C to 49°C).

**Humidity range:** 10% to 93% noncondensing.

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

### FMM-101 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 systems; 01 – 99 on CLIP systems. , 01 – 99 on .



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

#### FMM-101 APPLICATIONS

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

#### FMM-101 OPERATION

Each FMM-101 uses one of 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 SPECIFICATIONS

- Nominal operating voltage:** 15 to 32 VDC.
- Maximum operating current:** 375  $\mu$ A.
- Maximum IDC wiring resistance:** 1,500 ohms.
- 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 Interface Module

- Supports compatible two-wire smoke detectors.
- Supervises IDC wiring and connection of external power source.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on FlashScan systems, 01 – 99 on CLIP systems.

- LED flashes during normal operation; this is a programmable option.
- LED latches steady to indicate alarm on command from control panel.

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

#### FZM-1 APPLICATIONS

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

#### FZM-1 OPERATION

Each FZM-1 uses one of 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 SPECIFICATIONS

- Nominal operating voltage:** 15 to 32 VDC.
- Maximum current draw:** 5.1 mA (LED on).
- Maximum IDC wiring resistance:** 25 ohms.
- Maximum operating current:** 270  $\mu$ A (LED flashing).
- EOL resistance:** 3.9K ohms.
- External supply voltage (between Terminals T3 and T4):** DC voltage: 24 volts power limited. Ripple voltage: 0.1 Vrms maximum. Current: 90 mA per module maximum.
- Temperature range:** 32°F to 120°F (0°C to 49°C).
- Humidity range:** 10% to 93% noncondensing.
- Dimensions:** 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

### FDM-1 Dual Monitor Module

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

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

#### FDM-1 SPECIFICATIONS

- Normal operating voltage range:** 15 to 32 VDC.
- Maximum current draw:** 6.4 mA (LED on).
- Maximum operating current:** 750  $\mu$ A (LED flashing).
- Maximum IDC wiring resistance:** 1,500 ohms.

**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 2.125" (5.398 cm) deep.

### **FDM-1 AUTOMATIC ADDRESSING**

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

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



#### **CAUTION:**

Avoid duplicating addresses on the system.

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## **Installation**

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

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

## **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
- **FM Approved**
- **CSFM:** 7300-0028:202
- **MEA:** 457-99-E, 457-99-E Vol. 3, 143-01-E
- **U.S. Coast Guard:**
  - 161.002/23/3 (AFP-200: FMM-1/-101, FZM-1)
  - 161.002/42/1 (NFS-640: FMM-1/-101)
- **Lloyd's Register:**
  - 03/60011/E1 (FMM-1/-101, FZM-1)
  - 94/60004/E2 (AFP-200: except FDM-1)
  - 02/60007 (NFS-640: FDM-1)

## **Product Line Information**

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

**FMM-1(A):** Monitor module.

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

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

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

**SMB500:** Optional surface-mount backbox.

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

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# SpectrAlert® Advance

## Indoor Selectable Output Speaker Strobes and Dual Voltage Evacuation Speakers



Audio/Visual Devices

### General

The SpectrAlert Advance Series of speakers and speaker strobes is designed to reduce ground faults. The plug-in design allows the installer to pre-wire mounting plates and dress the wires before plugging in the speakers. The plastic cover prevents nicked wires by covering exposed speaker components.

This design also allows faster installations with instant feedback to ensure that wiring is properly connected, rotary switches to select voltage and power settings, and 11 field selectable candela settings for wall and ceiling speaker strobes.

The low total harmonic distortion of the SP speaker offers high fidelity sound output while the SPV speaker offers high volume sound output for use in high ambient noise applications.

*SpectrAlert Advance makes installation easy*

- Attach a universal mounting plate to a 4" x 4" x 2-1/8" back box. Flush mount applications are achievable without the need for an extension ring.
- Connect the notification appliance circuit or speaker wiring to the PEMS 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. Rotate 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
- Protective cover isolates speaker components, reduces ground faults
- Electrical compatibility with existing SpectrAlert products
- Field selectable candela settings on wall and ceiling units:
  - Standard: 15, 15/75, 30, 75, 95, 110, 115
  - High: 135, 150, 177, 185
- Shorting spring on mounting plate tests continuity before installation
- Rotary switch simplifies field selection of speaker voltage and power settings
- Universal mounting plate for wall- and ceiling-mount units
- Compatible with System Sensor synchronization protocol
- SP speakers offer high fidelity sound output
- SPV speakers offer high volume sound output
- Automatic selection of 12 or 24 volt operation at 15 and 15/75 candela
- No extension ring required
- Ceiling and wall mount application
- Optional tamper resistant Torx head screw included

### Specifications

#### PHYSICAL SPECIFICATIONS

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

**Humidity Range:** 10 to 93% non-condensing

#### Dimensions, Wall-Mount:

**SPS Speaker Strobe:** 6.0"L x 5.0"W x 4.7"D  
(includes lens and speaker)



**SPSV Speaker Strobe:** 6.0"L x 5.0"W x 4.9"D  
(includes lens and speaker)

**SP Speaker:** 6.0"L x 5.0"W x 2.8"D

**SPSV Speaker:** 6.0"L x 5.0"W x 2.9"D

#### Dimensions, Ceiling-Mount:

**SPS Speaker Strobe:** 6.8"Dia x 4.7"D  
(includes lens and speaker)

**SPSV Speaker Strobe:** 6.8"Dia x 4.8"D  
(includes lens and speaker)

**SP Speaker:** 6.8"Dia x 2.8"D

**SPSV Speaker:** 6.8"Dia x 2.9"D

#### ELECTRICAL/OPERATING SPECIFICATIONS

**Nominal Voltage (speakers):** 25 Volts or 70.7 Volts (nominal)

**Maximum Supervisory Voltage (speakers):** 50VDC

**Strobe Flash Rate:** 1 flash per second

**Nominal Voltage (strobes):** Regulated 12VDC/FWR or regulated 24DC/FWR

**Operating Voltage Range (includes fire alarm panels with built-in sync):** 8 to 17.5V (12V nominal) or 16 to 33V (24V nominal)

**Operating Voltage with MDL Sync Module:** 9 to 17.5V (12V nominal) or 17 to 33V (24V nominal)

**Frequency Range:** 400 to 4000 Hz

**Power:** ¼, ½, 1, 2 watts

#### Agency Listings and Approvals

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

- **UL Listed:** S4048
- **MEA:** 10-08-E
- **CSFM:** 7320-1653:201
- **FM Approved**

UL Maximum Strobe Current Draw (mA RMS)					
	Candela	8 to 17.5 Volts		16 to 33 Volts	
		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

Sound Output					
UL Reverberant (dBA @ 10ft)	2W	1W	1/2W	1/4W	
Wall Mount SP Series	86	83	80	77	
Wall Mount SPV Series	90	87	84	81	
Ceiling Mount SPC Series	86	83	80	77	
Ceiling Mount SPCV Series	90	87	84	81	
Wall Mount SPS Series	85	82	79	76	
Wall Mount SPSV Series	89	86	83	80	
Ceiling Mount SPSC Series	85	82	79	76	
Ceiling Mount SPSCV Series	89	86	83	80	

## Architectural/Engineering Specifications

### GENERAL

SpectrAlert Advance speaker and speaker strobes shall mount to a 4" x 4" x 2-1/8" backbox. 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, SpectrAlert Advance 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 24volts. When used with the Sync.Circuit Module, 12 volt rated notification appliance circuit outputs shall operate between nine and 17.5 volts; 24 volt rated notification appliance circuit outputs shall operate between 17 and 33 volts. Indoor SpectrAlert Advance products shall operate between 32°F and 120°F from a regulated DC, or full-wave rectified, unfiltered power supply. Speaker strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, 185.

### SPEAKER

The speaker shall be a System Sensor SpectrAlert Advance 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 4000Hz and shall have an operating temperature between 32°F and 120°F. Speaker shall have power taps and voltage that are selected by rotary switches.

### SPEAKER STROBE COMBINATION

The speaker strobe shall be a System Sensor SpectrAlert Advance model \_\_\_\_\_ listed to UL1480 and UL 1971 and be approved for fire protective signaling systems. 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 4000Hz. Speaker shall have power taps which are selected by rotary switch. The strobe shall comply with the NFPA 72 requirements for visible signaling appliances, flashing at 1Hz 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 MDL listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1Hz. The module shall mount to a 4-11/16" x 4-11/16" x 2-1/8" backbox. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

## Ordering Information

**NOTE:** (W) indicates white coloring; (R), red.

### WALL MOUNT

**SP(W)(R):** Speaker only.

**SP(W)(R)V:** Speaker only, high dB; white.

**SPS(W)(R)\*:** Speaker strobe, selectable candela (15, 15/75, 30, 75, 95, 100, 115).

**SPS(W)(R)H\*:** Speaker strobe, selectable candela, high cd (135, 150, 177, 185).

**SPS(W)(R)V\*:** Speaker strobe, selectable candela, high dB.

### CEILING MOUNT

**SPC(W)(R):** Speaker only.

**SPC(W)(R)V:** Speaker only, high dB.

**SPSC(W\*)(R):** Speaker strobe, selectable candela (15, 15/75, 30, 50, 75, 95, 110, 115)

**SPSC(W\*)(R)H:** Speaker strobe, selectable candela, high cd (135, 150, 177, 185)

**SPSC(W\*)(R)V:** Speaker strobe, selectable candela, high dB (15, 15/75, 30, 50, 75, 95, 110, 115).

**SPSC(W\*)(R)VH:** Speaker strobe, selectable candela, high dB, high cd (135, 150, 177, 185).

## ACCESSORIES

**RFP:** Retrofit plate, red.

**RFPW:** Retrofit plate, white.

**SPBBSC:** Ceiling mount backbox skirt, red.

**SPBBSCW:** Ceiling mount backbox skirt, white.

**SPBBS:** Wall mount backbox skirt, red.

**SPBBSW:** Wall mount backbox skirt, white.

**TR:** Wall mount trim ring, red.

**TRW:** Wall mount trim ring, white.

**TRC:** Ceiling mount trim ring, red.

**TRCW:** Ceiling mount trim ring, white.

**\*NOTE:** Add -P to model number for plain housing (no 'FIRE' marking on the cover), e.g. SPSW-P

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# SpectrAlert® Advance

Outdoor Selectable Output Speaker Strobes and Dual Voltage Evacuation Speakers

 **NOTIFIER®**  
by Honeywell

Audio/Visual Devices

## General

The SpectrAlert Advance series offers the broadest line of outdoor speakers and speaker strobes in the industry. From metal and plastic outdoor back boxes, to white and red plastic housings, to wall and ceiling mounting options, virtually every application is covered. SpectrAlert Advance outdoor speakers and speaker strobes offer reliable operation over the entire temperature range of -40°F to 151°F. They may be used indoors or outdoors in wet or dry applications. In addition, these speakers provide a broad frequency response range and low harmonic distortion to provide an accurate and intelligible broadcast of evacuation messages. High sound pressure level at all tap settings ensures that messages are clearly heard.

The plug-in design allows the installer to pre-wire mounting plates and dress the wires before plugging in the speakers to help reduce ground faults. This design also allows faster installations with instant feedback to ensure that wiring is properly connected, rotary switches to select voltage and power settings, and field selectable candela settings for wall and ceiling speaker strobes.

The new weatherproof back boxes have plastic and metal versions. They are now designed to accommodate in-and-out wiring for daisy chaining outdoor devices. The plastic weatherproof back boxes shipped with the product feature removable side flanges and improved resistance to salt water corrosion. The screw hole knockouts located on the back of the weatherproof back box eliminate the need to drill holes for screw-in mounting. Both weatherproof back boxes are available with 3/4 inch top and bottom conduit entries and 3/4 inch knock-outs at the back. Included with each back box is a screw-in NPT plug with an O-ring gasket for a watertight seal. Metal back boxes are available separately.

## Features

- Plug-in design
- Electrical compatibility with existing SpectrAlert products
- Shorting spring on mounting plate tests continuity before installation
- Rotary switch simplifies field selection of speaker voltage and power settings
- Universal mounting plate for wall- and ceiling-mount units
- Weatherproof per NEMA 4x, IP56
- Compatible with System Sensor synchronization protocol
- Automatic selection of 12- or 24-volt operation at 15 and 15/75 candela
- Field selectable candela settings on wall and ceiling units
- Ceiling and wall mount application

## Specifications

### PHYSICAL SPECIFICATIONS

**Operating Temperature:** -40°F to 151°F (-40°C to 66°C)

#### Dimensions, Wall-Mount:

**SPS Speaker Strobe:** 6.0"L x 5.0"W x 4.9"D  
(including lens and speaker)

**SP Speaker:** 6.0"L x 5.0"W x 2.9"D



#### Dimensions, Ceiling-Mount:

**SPS Speaker Strobe:** 6.8"Dia x 4.8"D  
(including lens and speaker)

**SP Speaker:** 6.8"L x 2.9"D

#### Dimensions, Wall-Mount Weatherproof Backbox:

6.5"L x 5.5"H x 2.9"D

#### Dimensions, Ceiling-Mount Weatherproof Backbox:

7.2"Dia x 2.9"D

### ELECTRICAL/OPERATING SPECIFICATIONS

**Nominal Voltage (speakers):** 25 Volts or 70.7 Volts (nominal)

**Maximum Supervisory Voltage (speakers):** 50VDC

**Strobe Flash Rate:** 1 flash per second

**Nominal Voltage (Strobes):** Regulated 12VDC/FWR or 24VDC/FWR

**Operating Voltage Range (includes fire panels with built-in sync):** 8 to 17.5V (12V nominal) or 16 to 33V (24 nominal)

**Operating Voltage with MDL Sync Module:** 9 to 17.5V (12V nominal) or 17 to 33V (24V nominal)

**Frequency Range:** 400 to 4000Hz

**Power:** ¼, ½, 1, 2 watts

## Agency Listings and Approvals

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

- **UL Listed:** S4048
- **MEA:** 10-08-E
- **CSFM:** 7320-1653:201

Sound Output				
UL Reverberant (dBA @ 10ft)	2W	1W	½W	¼W
Outdoor Speaker	90	87	84	81
Outdoor Speaker/Speaker Strobe	89	86	83	80

UL Maximum Strobe Current Draw (mA RMS)					
	Candela	8 to 17.5 Volts		16 to 33 Volts	
		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
	vmvm95	NA	NA	181	176
	110	NA	NA	202	195
High Candela Range	115	NA	NA	210	205
	135	NA	NA	228	207
	150	NA	NA	246	220
	177	NA	NA	281	251
	185	NA	NA	286	258

## Candela Derating

**NOTE:** 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	
75	44
95	70
110	110
115	115
135	135
150	150
177	177
185	185

## Architectural/Engineering Specifications

### GENERAL

SpectrAlert Advance outdoor speaker and speaker 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 and amplifier wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance speaker strobes, when used with the SyncCircuit™ 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 SyncCircuit Module, 12-volt rated notification appliance circuit outputs shall operate between 9 and 17.5 volts; 24-volt rated notification appliance circuit outputs shall operate between 17 and 33 volts. Outdoor SpectrAlert Advance products shall operate between -40°F and 151°F from a regulated DC, or full-wave rectified, unfiltered power supply.

## SPEAKER

The Speaker shall be a System Sensor SpectrAlert Advance Model \_\_\_\_\_ dual voltage transformer speaker capable of operating at 25.0 or 70.7 nominal Vrms. Speaker shall be listed to Underwriter's Laboratories Standard S4048 for outdoor fire protective signaling systems. Speaker shall have a frequency range of 400 to 4000 Hz and shall have an operating temperature from -40°F to 150.8°F. Speaker shall have power taps and wattage settings which are selected by rotary switches. The speaker must be installed with its weatherproof backbox in order to remain outdoor approved per UL listing S4048. The speaker shall be suitable for use in air handling spaces, as well as wet environments.

## SPEAKER STROBE COMBINATION

The Speaker Strobe shall be a System Sensor Model \_\_\_\_\_ listed to UL 1638 and UL 1480 and be approved for fire protective signaling systems. Speaker shall be capable of operating at 25.0 or 70.7 nominal Vrms, and shall have a frequency range of 400 to 4000 Hz. Speaker shall have power taps that are selected by rotary switch. The strobe shall consist of a xenon flash tube with associated lens/reflector system and operate on either 12V or 24V. The strobe shall also feature selectable candela output, providing options for 15 or 15/75 candela when operating on 12V and 15, 15/75, 30, 75, 110, 115, 135, 150, 177 or 185 when operating on 24V. The strobe shall comply with the Americans with Disabilities Act requirement for visible signaling appliances, flashing at 1 Hz over the strobe's entire operating voltage range. The speaker strobe must be installed with its weatherproof back box in order to remain outdoor approved per UL. The speaker strobe shall be suitable for use in wet environments.

## Ordering Information

**SPWK:** Wall mount outdoor speaker; white.

**SPRK:** Wall mount outdoor speaker; red.

**SPSWK:** Wall mount outdoor speaker strobe, selectable candela (15, 15/75, 30, 75, 95, 100, 115); white.

**SPSRK:** Wall mount outdoor speaker strobe, selectable candela (15, 15/75, 30, 75, 95, 100, 115); red.

**SPCWK:** Ceiling mount outdoor speaker; white.

**SPSCWK:** Ceiling mount outdoor speaker strobe, selectable candela (15, 15/75, 30, 50, 75, 95, 110, 115); white.

**SPSCWHK:** Ceiling mount outdoor speaker strobe, selectable candela, high cd (135, 150, 177, 185); white.

## ACCESSORIES

**MWBB:** Wall, metal weatherproof backbox; red.

**MWBBW:** Wall, metal weatherproof backbox; white.

**MWBBCW:** Ceiling, metal weatherproof backbox; white.

**PWBB:** Wall, plastic weatherproof backbox; red.

**PWBBW:** Wall, plastic weatherproof backbox; white.

**PWBBCW:** Ceiling, plastic weatherproof backbox; white.

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www.notifier.com

# SpectrAlert® Advance

## Selectable Output Notification Appliances



### Audio/Visual Devices

#### General

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

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

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

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

#### SpectrAlert Advance products allow you to choose:

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

#### Models available:

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

#### Features

- Plug-in design.
- Same mounting plate for wall- and ceiling-mount units.
- Shorting spring on mounting plate for continuity check before installation.
- Captive mounting screw.
- Tamper-resistance capability.
- Field-selectable candela settings on wall and ceiling units: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, 185.
- Automatic selection of 12 or 24 volt operation at 15 and 15/75 candela.
- Outdoor wall and ceiling products.
- Outdoor products rated from  $-40^{\circ}\text{F}$  and  $151^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$  and  $66^{\circ}\text{C}$ ).

7087pho1.jpg



Indoor Ceiling Horn/Strobe

7087pho2.jpg



Outdoor Ceiling Strobe

7087pho3.jpg



Indoor Wall Horn/Strobe

7087pho4.jpg



Indoor Ceiling Strobe

7087pho5.jpg



Indoor Wall Horn

7087pho6.jpg



Outdoor Wall Strobe

- Minimal intrusion into the backbox.
- Horn rated at 88+ dbA at 16 volts.
- Rotary switch for tone selection.
- Three horn volume settings.
- Electrically compatible with existing SpectrAlert products.

#### Engineering Specifications

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

## STROBE

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

## HORN/STROBE COMBINATION

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

## OUTDOOR PRODUCTS

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

## SYNCHRONIZATION MODULE

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

## Operating Specifications

- **Standard operating temperature:** 32°F to 120°F (0°C to 49°C).
- **K Series operating temperature:** -40°F to 151°F (-40°C to 66°C).
- **Humidity range:** 10% to 93% non-condensing (indoor products).
- **Strobe flash rate:** 1 flash per second.
- **Nominal voltage:** regulated 12 VDC/FWR or regulated 24 VDC/FWR. **NOTE:** Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
- **Operating voltage range:** 8 V to 17.5 V (12 V nominal); or 16 V to 33 V (24 V nominal). **NOTE:** P, S, PC, and SC products will operate at 12 V nominal only for 15 cd and 15/75 cd.
- **Input terminal wire gauge:** 12 to 18 AWG (3.31 to 0.821 mm<sup>2</sup>).
- **Ceiling-mount dimensions (including lens):** 6.8" diameter x 2.5" deep (17.3 cm diameter x 6.4 cm deep).
- **Wall-mount dimensions (including lens):** 5.6" H x 4.7" W x 2.5" D (14.2 cm H x 11.9 cm W x 6.4 cm D).
- **Horn dimensions:** 5.6" H x 4.7" W x 1.3" D (14.2 cm H x 11.9 cm W x 3.3 cm D).

## Agency Listings and Approvals

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

- **UL Listed:** file **S4011** (HR\_\_, HW\_\_, P2\_\_, P4\_\_, PC2\_\_, PC4\_\_ models); file **S5512** (models SCR, SCRH, SCW, SCWH, SR, SRH, SW, SWH); file **S3593** (SCRHK, SCRK, SRHK, SRK).
- **ULC Listed:** file **CS1099** (HRA, HRKA); file **CS1089** (typically "A" models, with exception of outdoor strobes). See *Canadian data sheet for listings and specifications*.
- **FM approved.**
- **MEA approved:** file **452-05-E**.
- **CSFM approved:** file **7125-1653:186** (SCR, SCRH, SCW, SCWH, SR, SRH, SW, SWH); file **7125-1653:188** P2\_\_, P4\_\_, PC2\_\_, PC4\_\_ models); file **7135-1653:189** (HR, HRK, HW); file **7300-1653:187** (SCRHK, SCRK, SRHK, SRK).

## Strobe Current Draw, UL Maximum (mA RMS)

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

## Horn Current Draw, UL Maximum (mA RMS)

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

### Horn and Horn/Strobe Rotary Switch Setting

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

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

### Horn and Horn/Strobe Output (dBA)

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

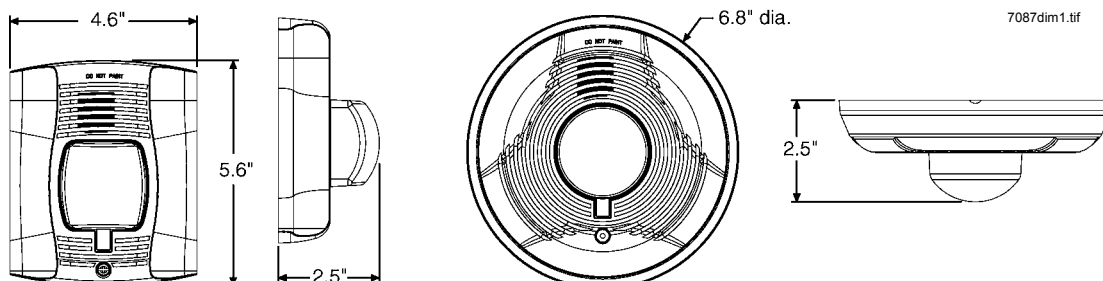
*\*NOTE: Settings 7, 8, and 9 are not available on 2-wire horn/strobe.*

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

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

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

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



## Ordering Information

Model	Description*	Model	Description
<b>WALL HORN/STROBES</b>		<b>CEILING HORN/STROBES</b>	
P2R	2-wire horn/strobe, standard cd, red.	PC2R	2-wire horn/strobe, standard cd, red.
P2RH	2-wire horn/strobe, high cd, red.	PC2RH	2-wire horn/strobe, high cd, red.
P2RK	2-wire horn/strobe, standard cd, red, outdoor.**	PC2RK	2-wire horn/strobe, standard cd, red, outdoor.
P2RHK	2-wire horn/strobe, high cd, red, outdoor.	PC2RHK	2-wire horn/strobe, high cd, red, outdoor.
P2W	2-wire horn/strobe, standard cd, white.	PC2W	2-wire horn/strobe, standard cd, white.
P2WH	2-wire horn/strobe, high cd, white.	PC2WH	2-wire horn/strobe, high cd, white.
P4R	4-wire horn/strobe, standard cd, red.	PC4R	4-wire horn/strobe, standard cd, red.
P4RH	4-wire horn/strobe, high cd, red.	PC4RH	4-wire horn/strobe, high cd, red.
P4RK	4-wire horn/strobe, standard cd, red, outdoor.	PC4RK	4-wire horn/strobe, standard cd, red, outdoor.
P4RHK	4-wire horn/strobe, high cd, red, outdoor.	PC4RHK	4-wire horn/strobe, high cd, red, outdoor.
P4W	4-wire horn/strobe, standard cd, white.	PC4W	4-wire horn/strobe, standard cd, white.
P4WH	4-wire horn/strobe, high cd, white.	PC4WH	4-wire horn/strobe, high cd, white.
<b>WALL STROBES</b>		<b>CEILING STROBES</b>	
SR	Strobe, standard cd, red.	SCR	Strobe, standard cd, red.
SRH	Strobe, high cd, red.	SCRH	Strobe, high cd, red.
SRK	Strobe, standard cd, red, outdoor.	SCRK	Strobe, standard cd, red, outdoor.
SRHK	Strobe, high cd, red, outdoor.	SCRHK	Strobe, high cd, red, outdoor.
SW	Strobe, standard cd, white.	SCW	Strobe, standard cd, white.
SWH	Strobe, high cd, white.	SCWH	Strobe, high cd, white.
<b>ACCESSORIES</b>		<b>HORNS</b>	
BBS-2	Backbox skirt, wall, red.	HR	Horn, red.
BBSW-2	Backbox skirt, wall, white.	HRK	Horn, red, outdoor.
BBSC-2	Backbox skirt, ceiling, red.	HW	Horn, white.
BBSCW-2	Backbox skirt, ceiling, white.	<b>ACCESSORIES, continued</b>	
SA-WBB	Weatherproof backbox, wall.	MP-2W-20BP	2-wire indoor mounting plates, pkg of 20.
SA-WBBC	Weatherproof backbox, ceiling. <i>cont'd at right</i>	MPK-2W-20BP	2-wire outdoor mounting plates, pkg of 20.
<p><b>NOTE:</b> **High cd" refers to strobes that include 135, 150, 177, and 185 candela settings. "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings. **All outdoor models ("K" suffix) include weatherproof backbox.</p>			

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 We cannot cover all specific applications or anticipate all requirements.  
 All specifications are subject to change without notice.

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[www.notifier.com](http://www.notifier.com)

## Series STH-15S Supervised Horn Loudspeaker



**STH-15S (Gray)  
STH-15SR (Red)**



**SHMP-R Adapter  
Plate**

### Description

The Wheelock Series STH-15S supervised horn loudspeakers are equipped with a compression driver providing up to 15 watts RMS power handling capability, superior intelligibility and dispersion to achieve maximum sound projection and penetration.

Weather-resistant metal construction and reentrant acoustic path assure protection against water, humidity, vermin and corrosion. The mounting bracket allows directional sound dispersion via vertical and horizontal positioning. Provisions are also included for surface or strap mounting to pillars and I-beams.

All models include a built-in 25/70/100 V transformer featuring a screwdriver adjustable, 7-position watt/impedance selection switch. Wiring terminals are protected with a vandal-resistant adapter cover for control equipment utilizing cable or conduit.

A built-in, 5 mfd capacitor is provided on both models for line supervision.

All models meet or exceed the UL Listed standards for audible signal appliances and are capable of operating within an ambient temperature range of 66°C (150°F) to -35°C (-30°F). Models comply with UL Standard 1480 — Speakers for Fire Protective Signaling Systems and California State Fire Marshal (Title 19).

### Applications

The Wheelock Series STH-15S supervised horn loudspeakers are surface-mounting, high-efficiency units for life safety and communication system applications. When used with compatible control equipment, they provide high-intelligibility voice reproduction and signal transmission for indoor or outdoor emergency alarm and protective signaling.

### Features

- Approvals include: UL Standard 1480 – (Speakers for Fire Protective Signaling Systems), California State Fire Marshal (CSFM) Title 19
- Meets or exceeds UL Listed standards for audible signal appliances
- 15-Watt High Efficiency Compression Driver
- Weather-resistant, vandal-resistant aluminum construction assures protection against water, humidity, vermin, and corrosion
- Reentrant acoustic path
- 25/70/100 V transformer featuring a screwdriver adjustable, 7-position watt/impedance selection switch
- 5 mfd Capacitor for Line Supervision
- STH-15S Gray baked epoxy finish
- STH-15SR Red baked epoxy finish
- Simplified, universal-mounting bracket adjustable in horizontal and vertical planes with banding slots for beam or pillar mounting
- Installation terminals and power selector are recessed mounted, and protected by the metal interface adapter, or clear plastic shield

### Specifications and Ordering Information

Model Number	Order Code	Product Description	Weight
STH-15S	7937	9" Dia. Supervised, Weatherproof, 15 Watt Horn, Loudspeaker with Transformer, Aluminum, Gray	4.5 lbs. (2.0 kgs.)
STH-15SR	7938	9" Dia. Supervised, Weatherproof, 15 Watt Horn, Loudspeaker with Transformer, Aluminum, Red	4.5 lbs. (2.0 kgs.)
SHMP-R	8154	UL Listed Adapter Plate, Designed to mount the STH-15SR Horn Speaker (7938) to a Series RSSP Strobe Mounting Plate. For Surface Mount Applications, the SBL-2 (6988) Surface mount backbox is required.	
STH-RSSP-KIT	6096	Weatherproof 15 watt supervised 25/70 horn loudspeaker and 15/30/75/110cd strobe with mounting plate, adjustable mounting base for horn and backbox. Red color. This kit includes STH-15SR, SHMP-R, RSSP-24MCW-FR, & SBL-2.	



## Architects and Engineers Specifications

The supervised horn loudspeaker shall be a STH-15S/STH-15SR or approved equal. The horn shall be weather resistant and constructed of heavy gauge, treated aluminum. The horn shall be able to operate within any ambient temperature environment ranging from 66 degrees C (150°F) to -35 degrees C (-30°F). The horn shall be a double reentrant type with a 15 watt RMS audio power rated compression driver producing a UL rated 102 dB measured at 15 watts at 10 feet. The horn shall have an impedance selection via a 7 position switch of 5000, 2500, 1300, 666, 333, 89 & 45. Power taps shall be available at 2.0, 4.0, 7.5 & 15 watts for the 100 volt line, .9, 1.8, 3.8, 7.5 & 15 watts for the 70 volt line and .48, .94, 1.8, 7.5 & 15 watts for the 25 volt line. Each power tap shall have a 3dB incremental rating. The frequency response range shall be 400 - 14000 Hz. The horn shall have a dispersion of 70 degrees. The horn assembly shall be furnished with a mounting bracket that allows adjustment on either a vertical or horizontal plane with a single locking pin and include provisions for mounting, banding or strapping. Wiring terminals shall be fully enclosed and a vandal-resistant adapter cover shall provide connection protection for cable or conduit. The horn shall be 7.875" W x 8.75" H x 9.313" D (200 x 222 x 237 mm). The horn shall be finished in gray (STH-15S) or red (STH-15SR) baked epoxy.

**⚠ WARNING: PLEASE READ THESE SPECIFICATIONS AND INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS, CAUTIONS AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.**

### STH-15S & STH-15SR Power Switch Selections

Setting	Impedance (Ohms)	70.7 Volts		25 Volts		100 Volts	
		Watts	dB @ 10 Feet	Watts	dB @ 10 Feet	Watts	dB @ 10 Feet
1	5,000	0.9W	90	Not Used	Not Used	2.0W	93
2	2,500	1.8W	93	Not Used	Not Used	4.0W	96
3	1,300	3.8W	96	0.48W	87	7.5W	99
4	666	7.5W	99	0.94W	90	15.0W	102
5	333	15.0W	102	1.8W	93	Not Used	Not Used
6	89	Not Used	Not Used	7.5W	99	Not Used	Not Used
7	45	Not Used	Not Used	15.0W	102	Not Used	Not Used

### Specifications (UL RATING)

POWER RATING: 15 Watt Continuous  
 FREQUENCY RESPONSE: 400-14,000 Hz (Nominal)  
 SENSITIVITY: 102 dB @ 15 Watts @ 10'

### Anechoic Measurements:

15 watt tap @ 10 feet

Code-3 Tone	107.2 dBA
Slow Whoop	108.5 dBA
Siren	107.8 dBA

### SPECIFICATIONS GENERAL

DISPERSION ANGLE: 70 Degrees (-6 dB @ 2,000 Hz Octave Band)

NOTE: Due to continuous development of our products, specifications and offerings are subject to change without notice in accordance with Wheelock Inc. standard terms and conditions.



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 F: 941-487-2389

**VA Location**  
 P: 877-459-7726  
 F: 703-294-6560

# SFP-5UD/SFP-10UD(E)

## Five Zone Fire Alarm Control Panel

## Ten Zone Fire Alarm Control Panel



Conventional Fire Alarm Control Panels

### General

The **SFP-5UD** is a five-zone FACP (Fire Alarm Control Panel) and the **SFP-10UD(E)** is a ten-zone FACP. These control panels provide reliable fire signaling protection for small to medium-sized commercial, industrial, and institutional buildings. Both panels include built-in communicators for Central Station Service and remote upload/download.

Each of these FACP is compatible with System Sensor's microprocessor-based i<sup>3</sup> series detectors. These conventional smoke detectors can transmit a maintenance trouble signal to the FACP indicating the need for cleaning and a supervisory "freeze" signal when the ambient temperature falls below the detector rating. Additionally, both the SFP-5UD and SFP-10UD are compatible with conventional input devices such as two- and four-wire smoke detectors, pull stations, waterflow devices, tamper switches, and other normally-open contact devices. Refer to the *Notifier Device Compatibility Document* for a complete listing of compatible devices.

Outputs include four NACs (Notification Appliance Circuits), three programmable Form-C relays (factory programmed for Alarm, Trouble, and Supervisory) and 24 VDC special application resettable and nonresettable power outputs. The FACP's supervise all wiring, AC voltage, battery level and telephone line integrity.

Activation of a compatible smoke detector or any normally-open fire alarm initiating device will activate audible and visual signaling devices, illuminate an indicating LED, sound the piezo sounder at the FACP, activate the communicator and FACP alarm relay, and operate an optional module used to notify a remote station or initiate an auxiliary control function.

**NOTE:** The *SFP-10UDE* offers the same features as the *SFP-10UD* but allows connection to 240 VAC. Unless otherwise specified, the information in this data sheet applies to both the 120 VAC and the 240 VAC versions of these panels.

### Features

- Listed to UL Standard 864, 9th edition.
- Built-in DACT (Digital Alarm Communicator/Transmitter).
- Style B (Class B) IDC (Initiating Device Circuit)
  - SFP-5UD - five IDCs.
  - SFP-10UD - ten IDCs.
- Style Y (Class B) NAC (Notification Appliance Circuit) - special application power
  - SFP-5UD - four NACs.
  - SFP-10UD - four NACs.
- Notification Appliances may be programmed as
  - Silence Inhibit.
  - Auto-Silence.
  - Strobe Synchronization for System Sensor, Wheelock, Gentex, Faraday, or Amseco devices.
  - Selective Silence (horn-strobe mute).
  - Temporal or Steady Signal.
  - Silenceable or Nonsilenceable.
- Optional N-CAC-5X Style Z (Class A) Converter Module for NACs and IDCs (2 required for SFP-10UD).



- Form-C Relays for Alarm, Trouble and Supervisory - Contact Ratings 2.0 A@ 30 VDC or 30 VAC (resistive).
- 3.0 A total system current for SFP-5UD.
- 7.0 A total system current for SFP-10UD.
- Optional Dress Panel DP-51050 (red)
- Optional Dress Panel DP-51050B (black).
- Optional Trim Ring TR-CE/-B for semi-flush mounting.
- 24 volt operation.
- Low AC voltage sense.
- Alarm Verification.
- PAS (Positive Alarm Sequence).
- Automatic battery trickle charger.
- Up to eight ANN-BUS annunciators:
  - Optional 8 zone Relay Module N-ANN-RLY.
  - Optional LED Annunciator Module N-ANN-LED,
  - Optional Remote Annunciator N-ANN-80.
  - Optional Remote Printer Gateway N-ANN-S/PG.
  - Optional LED Annunciator Driver N-ANN-I/O.
- Optional 4XTM module (conventional reverse polarity/city box transmitter).

### PROGRAMMING AND SOFTWARE:

- Can be programmed at the panel with no special software or additional equipment.
- Programmable Make/Break Ratio.
- Upload/Download (local or remote) of program and data via integral DACT.

### USER INTERFACE:

- Built-in DACT (Digital Alarm Communicator/Transmitter).
- Integral 80-character LCD display with backlighting and keypad.
- Real-time clock/calendar with automatic daylight savings adjustments.
- ANN-BUS for connection to remote annunciators.

- Audible or silent walk test capabilities.
- Piezo sounder for alarm, trouble, and supervisory.

## Controls and Indicators

### LED INDICATORS

- FIRE ALARM (red)
- SUPERVISORY (yellow)
- TROUBLE (yellow)
- AC POWER (green)
- ALARM SILENCED (yellow)

### CONTROL BUTTONS

- ACKNOWLEDGE
- ALARM SILENCE
- SYSTEM RESET (lamp test)
- DRILL

## Terminal Blocks

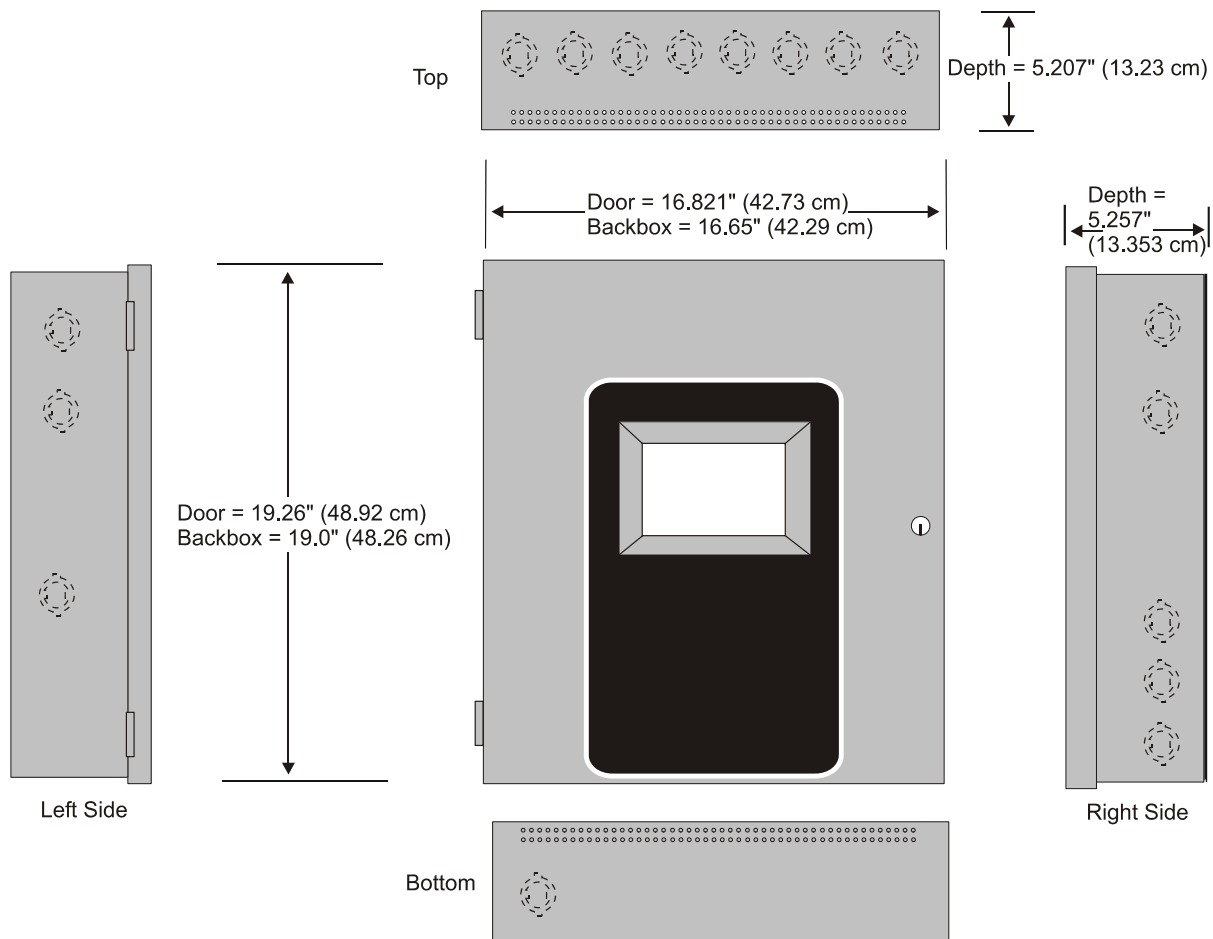
### AC Power – TB1:

- SFP-5UD (FLPS-3 Power Supply): 120 VAC, 50/60 HZ, 1.00 A.
- SFP-10UD (FLPS-7 Power Supply): 120 VAC, 50/60 Hz, 3.8 A.
- SFP-10UDE (FLPS-7 Power Supply): 240 VAC, 50 HZ, 2.20 A.

Wire size: minimum 14 AWG (2.00 mm<sup>2</sup>) with 600 V insulation. Supervised, nonpower-limited.

### Battery (sealed lead acid only) – J12:

- Maximum Charging Circuit - Normal Flat Charge: 27.6 VDC @ 1.4 A. Supervised, nonpower-limited.
- Maximum Charger Capacity: 18 AH battery for SFP-5UD, and 26 AH battery for SFP-10UD(E). [Two 18 Ah batteries can be housed in the FACP cabinet. Larger batteries require separate battery box such as the BB-26 or NFS-LBB.]
- Minimum Battery Size: 7 AH.



## Cabinet Measurements

### Initiating Device Circuits – TB4 (and TB 6 on SFP-10UD only):

- Alarm Zones 1 - 5 on TB 4 (SFP-5UD and SFP-10UD).
- Alarm Zones 6 - 10 on TB6 (SFP-10UD only).
- Supervised and power-limited circuitry.
- Operation: All zones Style B (Class B).
- Normal Operating Voltage: Nominal 20 VDC.
- Alarm Current: 15 mA minimum.
- Short Circuit Current: 40 mA max.
- Maximum Loop Resistance: 100 ohms.
- End-of-Line Resistor: 4.7K ohm, 1/2 watt (P/N 71252 UL-listed).
- Standby Current: 2 mA.

Refer to the *Notifier Device Compatibility Document* for listed compatible devices.

### Notification Appliance Circuits – TB5 (and TB 7 on SFP-10UD only):

- Four NACs
- Operation: Style Y (Class B)
- Special Application power
- Supervised and power-limited circuitry
- Normal Operating Voltage: Nominal 24 VDC
- Maximum Signaling Current: 3.0 A for SFP-5UD, 2.5 A maximum per NAC; 7.0 A for SFP-10UD(E), 3.0 A maximum per NAC.
- End-of-Line Resistor: 4.7K ohm, 1/2 watt (Part #71252)
- Max. Wiring Voltage Drop: 2 VDC

Refer to the *Notifier Device Compatibility Document* for compatible listed devices

### Form C Relays – TB8:

- *Relay 1* (factory default programmed as Alarm Relay)
- *Relay 2* (factory default programmed as fail-safe Trouble Relay)
- *Relay 3* (factory default programmed as Supervisory Relay)

### Special Application Resettable Power – TB9:

- Jumper selectable by JP31 for resettable or nonresettable power.
- Operating voltage: 24 VDC nominal.
- Maximum available current: 500 mA - appropriate for powering four-wire smoke detectors.
- Power-limited circuit.

Refer to the *Notifier Device Compatibility Document* for listed compatible devices.

**Remote Sync Output - TB2:** Remote power supply synchronization output, only required for the SFP-5UD. 24 VDC nominal special application power. Maximum current is 40 mA. End-of-Line Resistor: 4.7K ohm. Supervised and power-limited circuit.

## Ordering Information

**SFP-5UD:** Five-zone, 24-volt Fire Alarm Control Panel (includes black backbox, FLPS-3 power supply, technical manual, and a frame & post operating instruction sheet).

**SFP-5UDR:** Same as above in a red backbox.

**SFP-10UD:** Ten-zone, 24-volt Fire Alarm Control Panel (includes black backbox, FLPS-7 power supply, technical manual, and a frame & post operating instruction sheet).

**SFP-10UDE:** Same as above with 220 VAC FLPS-7.

**SFP-10UDR:** Same as SFP-10UD in a red backbox.

## OPTIONAL MODULES

**N-CAC-5X:** Optional (Class A) Converter Module. Converts Style B (Class B) Initiating Device Circuits to Style D (Class A); and Style Y (Class B) Notification Appliance Circuits to Style Z (Class A). Connects to J2 on the SFP-5UD and SFP-10UD main circuit board and to J7 on the SFP-10UD.

**NOTE:** *Two Class A Converter Modules are required for the ten-zone panel.*

**4XTM:** Transmitter module. Provides a supervised output for local energy municipal box transmitter and alarm and trouble reverse polarity. Includes a disable switch and disable trouble LED. A module jumper option allows the reverse polarity circuit to open with a system trouble condition if no alarm conditions exists. Mounts to the main circuit board connectors J4 and J5.

## COMPATIBLE ANNUNCIATORS

**N-ANN-80:** Remote LCD Annunciator. Mimics the information displayed on the FACP's LCD. Red. (A white version is also available: **N-ANN-80-W**.)

**N-ANN-LED:** Mounts in the DP-51050(B) dress panel and provides three LEDs for each zone: Alarm, Trouble, and Supervisory.

**N-ANN-RLY:** Relay module. Mounts inside the cabinet. Provides ten Form C relays.

**N-ANN-S/PG:** Serial/parallel printer gateway. Provides a connection for a serial or parallel printer.

**N-ANN-I/O:** Driver module. Provides connections to a user-supplied graphic annunciator.

## ACCESSORIES

**DP-51050:** Optional dress panel. Restricts access to the system wiring while allowing access to the membrane switch panel. Red.

**DP-51050B:** Same as DP-51050 except black.

**BB-26:** Battery backbox, holds up to two 25 AH batteries and CHG-75.

**NFS-LBB:** Battery backbox, holds up to two 55 AH batteries. Black.

**NFS-LBBR:** Same as above in red.

**TR-CE-B:** Optional black trim-ring for semi-flush mounted cabinets.

**TR-CE:** Same as above in red.

**PRN-6:** UL listed printer.

# SYSTEM SPECIFICATIONS

## System Capacity

- Annunciators ..... 8

## Electrical Specifications

- **SFP-5UD (FLPS-3 Power Supply):** 120 VAC, 50/60 HZ, 1.0 A
- **SFP-10UD (FLPS-7 Power Supply):** 120 VAC, 50/60 HZ, 3.8 A
- **SFP-10UDE (FLPS-7 Power Supply):** 240 VAC, 50/60 HZ, 2.2 A
- **Wire size:** minimum 14 AWG (2.0 mm<sup>2</sup>) with 600 V insulation, supervised, nonpower-limited

## Cabinet Specifications

**Door:** 19.26" (48.92 cm.) high x 16.82" (42.73 cm.) wide x 0.72" (1.82 cm.) deep. **Backbox:** 19.00" (48.26 cm.) high x 16.65" (42.29 cm.) wide x 5.25" (13.34 cm.) deep. **Trim Ring (TR-CE):** 22.00" (55.88 cm.) high x 19.65" (49.91 cm.) wide.

## Shipping Specifications

### Dimensions:

- 20.00" (50.80 cm.) high
- 22.5" (57.15 cm.) wide
- 8.5" (21.59 cm.) deep.

## 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 SFP-5UD and SFP-10UD control panels. 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:** File S635
- **FM Approved**
- **CSFM:** 7165-0028:246
- **MEA:** MEA: 333-07-E

## NFPA Standards

The SFP-5UD/SFP-10UD(E) complies with the following NFPA 72 Fire Alarm Systems requirements:

- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires 4XTM).
- **REMOTE STATION** (Automatic, Manual and Waterflow) (Where a DACT is not accepted, the alarm, trouble and supervisory relays may be connected to UL 864 listed transmitters. For reverse polarity signaling of alarm and trouble, 4XTM is required.)
- **PROPRIETARY** (Automatic, Manual and Waterflow).
- **CENTRAL STATION** (Automatic, Manual and Waterflow, and Sprinkler Supervised).

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All specifications are subject to change without notice.



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[www.notifier.com](http://www.notifier.com)

# STI PROTECTIVE CABINETS

## Clear Polycarbonate Cabinets Help Protect Against Vandalism and Accidental Damage

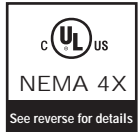
Multipurpose lockable cabinets for remote annunciators, fire alarm control panels, or other electronic products which require physical or environmental protection. Helps guard against vandalism (accidental or intentional), as well as dirt, dust and grime (models without alarm). Covers mount on the wall enabling the unit to be stored in a central location. The cabinets are available with a key or thumb lock, with or without siren alarm or siren/strobe alarm. They also have an additional eyelet for a secondary lock or safety seal.

## How It Works

Cabinets are constructed of a clear polycarbonate that allows the unit within to be highly visible and accessible. When cabinet with siren alarm is opened, the alarm emits an ear piercing siren (model with siren/strobe alarm also flashes), drawing immediate attention to the area. Operator has to unlock the unit and open the lid for access.



STI-7520 with Key Lock



STI-7533 with Thumb Lock



STI-7554 with Key Lock

## Features

- Clear UV-stabilized polycarbonate cover.
- Polycarbonate rated -40°F to 120°F (-40°C to 49°C).
- Includes thumb lock or key lock.
- Steel internal mounting plate provided.
- Design allows visibility at any angle.
- External mounting tabs.
- Complete with mounting hardware and gasket.
- Additional eyelet can be used for secondary padlock or safety seal.
- Models available with or without siren alarm or siren/strobe alarm (see separate spec sheets for specific details. For siren alarm only, see STI-6400. For siren/strobe alarm see SA5000).
- Tamperproof mounting screws available.
- Lifetime guarantee against breakage of polycarbonate in normal use (one year on electronics).

### STI-7520 Cabinet Series

- Frosted polycarbonate backbox.
- STI-7520 and STI-7521 NEMA 4X Approved, UL Listed.

### STI-7530 Cabinet Series

- Internal drill dimples.
- Optional adjustable wire shelf available.

### STI-7550 Cabinet Series

- Two rotary action latches.
- Optional wire shelf available.
- STI-7550 and STI-7551 NEMA 4X Approved, UL Listed.



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# STI PROTECTIVE CABINETS

## Dimensions and Technical Information

### Models Available

<b>STI-7520</b>	NEMA 4X Cabinet with key lock - clear
<b>STI-7521</b>	NEMA 4X Cabinet with thumb lock - clear
<b>STI-7522</b>	Cabinet with key lock and siren alarm - clear
<b>STI-7523</b>	Cabinet with thumb lock and siren alarm - clear
<b>STI-7524</b>	Cabinet with key lock and siren/strobe alarm - clear
<b>STI-7525</b>	Cabinet with thumb lock and siren/strobe alarm - clear
<b>STI-7530</b>	Cabinet with key lock - clear
<b>STI-7531</b>	Cabinet with thumb lock - clear
<b>STI-7532</b>	Cabinet with key lock and siren alarm - clear
<b>STI-7533</b>	Cabinet with thumb lock and siren alarm - clear
<b>STI-7534</b>	Cabinet with key lock and siren/strobe alarm - clear
<b>STI-7535</b>	Cabinet with thumb lock and siren/strobe alarm - clear
<b>STI-7550</b>	Cabinet with key lock - clear
<b>STI-7551</b>	Cabinet with thumb lock - clear
<b>STI-7552</b>	Cabinet with key lock and siren alarm - clear
<b>STI-7553</b>	Cabinet with thumb lock and siren alarm - clear
<b>STI-7554</b>	Cabinet with key lock and siren/strobe alarm - clear
<b>STI-7555</b>	Cabinet with thumb lock and siren/strobe alarm - clear
<b>STI-6453</b>	Replacement siren alarm
<b>05000</b>	Replacement siren/strobe alarm
<b>07530WR</b>	Wire shelf for STI-7530 series
<b>07550WR</b>	Wire shelf for STI-7550 series
<b>18021</b>	NEMA 4X 3/4" rigid conduit hub
<b>18051</b>	Additional key (J236)
<b>18075</b>	Replacement key for siren/strobe alarm
<b>19032</b>	Replacement key #2341 for siren alarm
<b>SUB-82</b>	#8 x 1.5" snake eye tamper resistant stainless steel screw (qty. 4)
<b>19038</b>	Snake eye bit

**NOTE:** End user must verify the alarm and battery every six months and replace battery annually or as required.

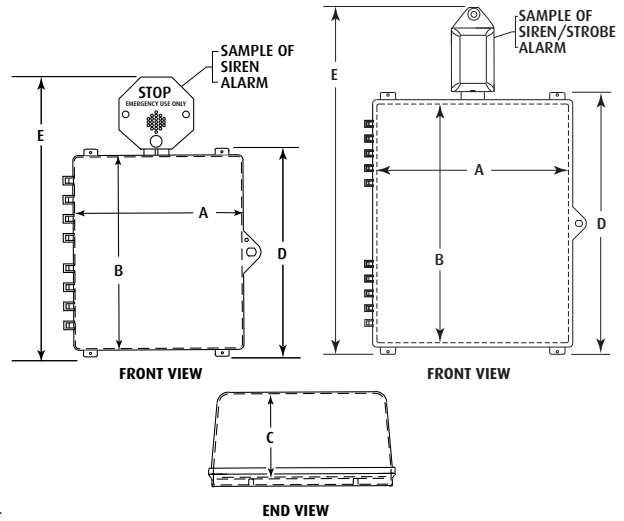
### Testing Approvals

STI-7520 and STI-7521 have been tested and approved or listed by:

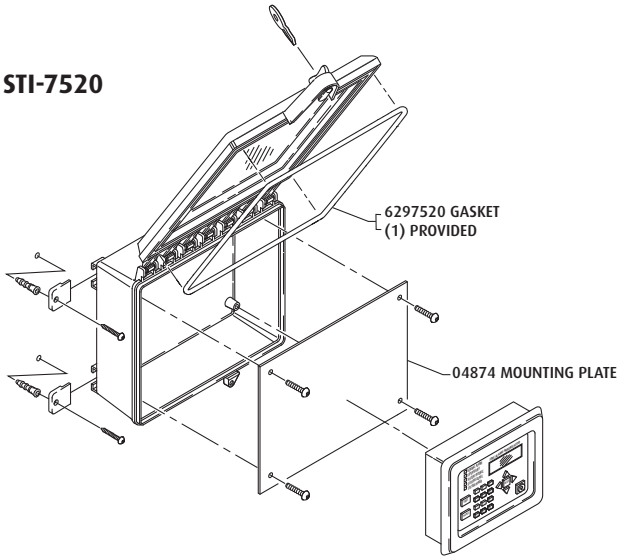
- UL and cUL S7255
- NEMA 4X Certified
- Tested to UL38, UL50 and UL2017

STI-7550 and STI-7551 have been tested and approved or listed by:

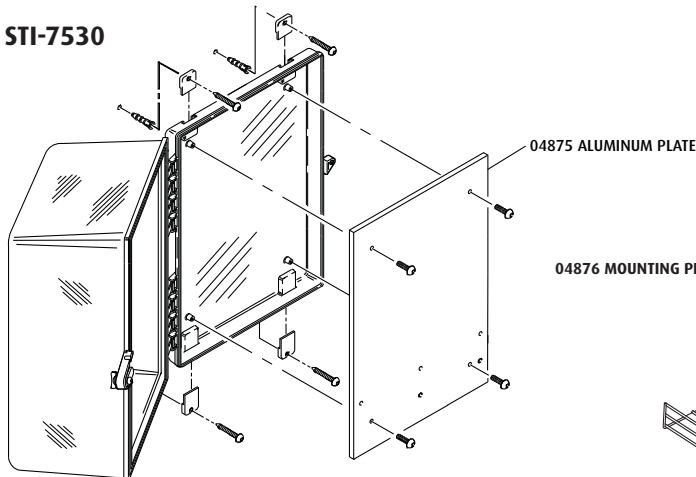
- UL S7255
- NEMA 4X Certified



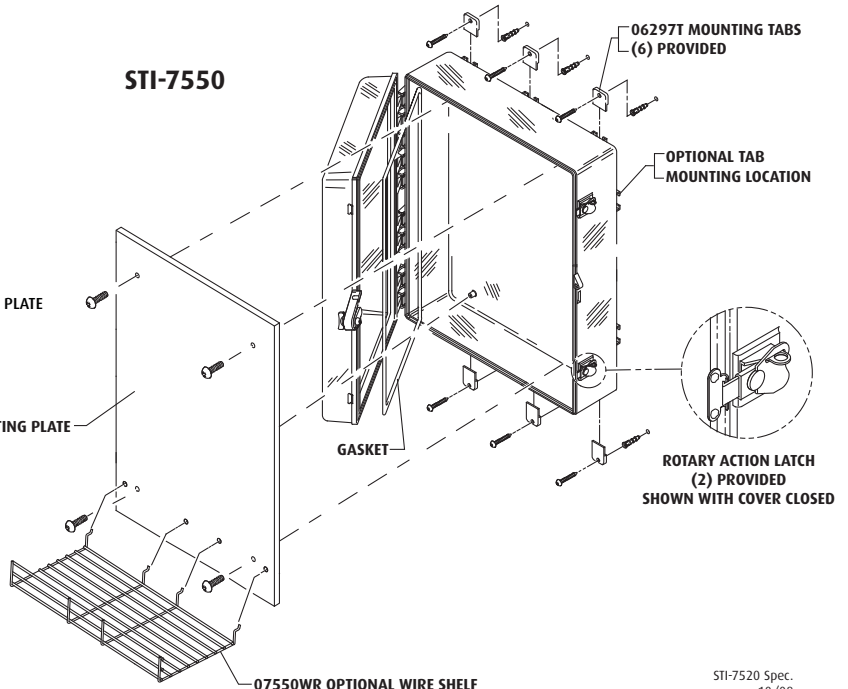
### STI-7520



### STI-7530



### STI-7550



	A	B	C	D	E
STI-7520/7521	8.875 in.	10.875 in.	3.625 in.	12 in.	*
STI-7522/7523	(225mm)	(276mm)	(92mm)	(305mm)	19 in. (483mm)
STI-7524/7525					19.46 in. (494.34mm)
STI-7530/7531	12.2 in.	14.2 in.	6.44 in.	16.5 in.	*
STI-7532/7533	(310mm)	(361mm)	(164mm)	(419mm)	23 in. (584mm)
STI-7534/7535					23.5 in. (597mm)
STI-7550/7551	19.75 in.	24.75 in.	7.31 in.	27.5 in.	*
STI-7552/7553	(502mm)	(629mm)	(186mm)	(699mm)	34.7 in. (881mm)
STI-7554/7555					35 in. (889mm)

\* Models with no alarm

# NBG-12 Series

## Non-Coded Conventional Manual Fire Alarm Pull Stations



Conventional Initiating Devices

### General

The NOTIFIER **NBG-12 Series** is a cost-effective, feature-packed series of non-coded manual fire alarm pull stations. It was designed to meet multiple applications with the installer and end-user in mind. The NBG-12 Series features a variety of models including single- and dual-action versions.

The NBG-12 Series provides an alarm initiating input signal to conventional fire alarm control panels (FACPs) such as the SFP Series, and to XP Transponders. Its innovative design, durable construction, and multiple mounting options make the NBG-12 Series simple to install, maintain, and operate.

### Features

- Aesthetically pleasing, highly visible design and color.
- Attractive contoured shape and light textured finish.
- Meets ADA 5 lb. maximum pull-force.
- Meets UL 38, Standard for Manually Actuated Signaling Boxes.
- Easily operated (single- or dual-action, model dependent), yet designed to prevent false alarms when bumped, shaken, or jarred.
- PUSH IN/PULL DOWN handle latches in the down position to clearly indicate the station has been operated.
- The word "ACTIVATED" appears on top of the handle in bright yellow, further indicating operation of the station.
- Operation handle features white arrows showing basic operation direction for non-English-speaking persons.
- Braille text included on finger-hold area of operation handle and across top of handle.
- Multiple hex- and key-lock models available.
- U.S. patented hex-lock needs only a quarter-turn to lock/unlock.
- Station can be opened for inspection and maintenance without initiating an alarm.
- Product ID label viewable by simply opening the cover; label is made of a durable long-life material.
- The words "NORMAL" and "ACTIVATED" are molded into the plastic adjacent to the alarm switch (located inside).
- Four-position terminal strip molded into backplate.
- Terminal strip includes Phillips combination-head captive 8/32 screws for easy connection to Initiating Device Circuit (IDC).
- Terminal screws backed-out at factory and shipped ready to accept field wiring (up to 12 AWG/3.1 mm<sup>2</sup>).
- Terminal numbers are molded into the backplate, eliminating the need for labels.
- Switch contacts are normally open.
- 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.
- Backplate is large enough to overlap a single-gang backbox cutout by 1/2" (1.27 cm).
- Optional trim ring (**BG12TR**).
- Spanish versions (*FUEGO*) available (**NBG-12LSP**, **NBG-12LPSP**).
- Designed to replace the legacy **NBG-10** Series.
- Models packaged in attractive, clear plastic (PVC), clam-shell-style, Point-of-Purchase packages. Packaging includes a cutaway dust/paint cover in shape of pull station.



6643cov.jpg

### Construction

- Cover, backplate and operation handle are all molded of durable polycarbonate material.
- Cover features white lettering and trim.
- Red color matches System Sensor's popular SpectrAlert® Advance horn/strobe series.

### Operation

The NBG-12 manual pull stations provide a textured finger-hold area that includes Braille text. In addition to PUSH IN and PULL DOWN text, there are arrows indicating how to operate the station, provided for non-English-speaking people.

Pushing in and then pulling down on the handle activates the normally-open alarm switch. Once latched in the down position, the word "ACTIVATED" appears at the top in bright yellow, with a portion of the handle protruding at the bottom as a visible flag. Resetting the station is simple: insert the key or hex (model dependent), twist one quarter-turn, then open the station's front cover, causing the spring-loaded operation handle to return to its original position. The alarm switch can then be reset to its normal (non-alarm) position manually (by hand) or by closing the station's front cover, which automatically resets the switch.

### Specifications

#### PHYSICAL SPECIFICATIONS:

	pull station	SB-10	SB-I/O	WBB	WP-10
H	5.500 in. (13.97 cm)	5.500 in. (13.97 cm)	5.601 in. (14.23 cm)	4.25 in. (10.79 cm)	6.000 in. (15.24 cm)
W	4.121 in. (10.467 cm)	4.125 in. (10.478 cm)	4.222 in. (10.72 cm)	4.25 in. (10.79 cm)	4.690 in. (11.913 cm)
D	1.390 in. (3.531 cm)	1.375 in. (3.493 cm)	1.439 in. (3.66 cm)	1.75 in. (4.445 cm)	2.000 in. (5.08 cm)

6643dim2.tbl

#### ELECTRICAL SPECIFICATIONS:

**Switch contact ratings:** gold-plated; rating 0.25 A @ 30 VAC or VDC. **Auxiliary contact circuit** (Terminals 3 & 4, NBG-12LA): rated to 3.0 A @ 30 VAC or VDC.

## ENGINEERING/ARCHITECTURAL SPECIFICATIONS

Manual Fire Alarm Stations shall be non-code, with a key- or hex-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 or hex. An operated station shall automatically condition itself so as to be visually detected as activated. Manual stations shall be constructed of red colored LEXAN (or polycarbonate equivalent) 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.

**NOTE:** \*The words "FIRE/FUEGO" on the NBG-12LSP and NBG-12LPSP shall appear on the front of the station in white letters, approximately 3/4" (1.905 cm) high.

## Pre-Signal Models

The NBG-12LPS and NBG-12LPSP pull stations are non-coded manual pull stations which provide a FACP with two normally open alarm initiating input signals. "Pre-signal" input is activated by pushing in, then pulling down, the dual-action handle. A "general" alarm input signal can be manually activated via a momentary rocker switch mounted inside the unit. This general alarm switch can only be accessed by opening the cover with the supplied key/lock. See diagram at right.

## Agency Listings and Approvals

The listings and approvals below apply to the NBG-12 Series pull stations. 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.

- **C(UL)US** Listed: file S692.
- **CSFM** approved: file 7150-0028:199.
- **FM** approved (except NBG-12LPS, NBG-12LPSP).
- **MEA** approved: file 67-02-E (NBG-12, NBG-12L, NBG-12LOB, NBG-12LA).
- **Lloyd's Register** type approved: file 93/60141 (E3) (NBG-12, NBG-12L, NBG-12LA, NBG-12LOB, NBG-12S).
- **U.S. Coast Guard** approved: files 161.002/23/3 (AFP-200 with NBG-12, NBG-12L, NBG-12S); 161.002/42/1 (NFS-640 with NBG-12, NBG-12L, NBG-12S); 161.002/27/3 (AFP1010/AM2020 with NBG-12, NBG-12L, NBG-12S).
- **Patented:** U.S. Patent No. D428,351; 6,380,846; 6,314,772; 6,632,108.

## Product Line Information

**NBG-12S:** Single-action pull station with pigtail connections, hex lock.

**NBG-12:** Dual-action pull station with SPST N/O switch, screw terminal connections, **hex lock**.

**NBG-12L:** Dual-action pull station with SPST N/O switch, screw terminal connections, **key lock**.

**NBG-12LSP:** Same as NBG-12L with English/Spanish (FIRE/FUEGO) labeling.

**NBG-12LPS:** Dual-action pull station with pre-signal option.

**NBG-12LPSP:** Same as NBG-12LPS with English/Spanish (FIRE/FUEGO) labeling.

**NBG-12LOB:** Dual-action pull station with key lock, outdoor applications listings (NBG-12LO), and backbox. Includes SB-I/O indoor/outdoor backbox, and sealing gasket. Model will also mount to WP-10 weatherproof backbox in retrofit applications.

**NOTE:** NBG-12LO not available separately;

NBG-12LO + approved backbox = NBG-12LOB.

Outdoor applications listings apply to NBG-12LOB combination.

**NBG-12LA:** Dual-action pull station with key lock and annunciator contacts.

**SB-10:** Surface-mount backbox, metal.

**SB-I/O:** Surface-mount backbox, plastic. (Included with NBG-12LOB.)

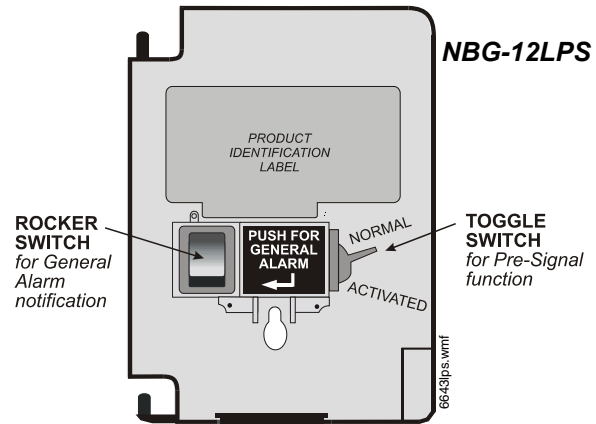
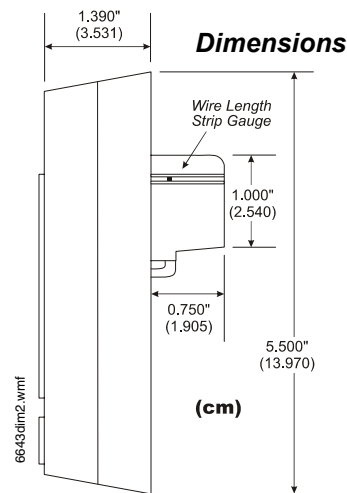
**BG12TR:** Optional trim ring for semi-flush mounting.

**WP-10:** Outdoor use backbox.

**17021:** Keys, set of two. (Included with key-lock pull stations.)

**17007:** Hex key, 9/64". (Included with hex-lock pull stations.)

**NOTE:** For addressable NBG-12LX models, see data sheet DN-6726.



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www.notifier.com

# SpectrAlert® Advance

## Selectable Output Notification Appliances



### Audio/Visual Devices

#### General

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

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

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

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

#### SpectrAlert Advance products allow you to choose:

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

#### Models available:

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

#### Features

- Plug-in design.
- Same mounting plate for wall- and ceiling-mount units.
- Shorting spring on mounting plate for continuity check before installation.
- Captive mounting screw.
- Tamper-resistance capability.
- Field-selectable candela settings on wall and ceiling units: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, 185.
- Automatic selection of 12 or 24 volt operation at 15 and 15/75 candela.
- Outdoor wall and ceiling products.
- Outdoor products rated from  $-40^{\circ}\text{F}$  and  $151^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$  and  $66^{\circ}\text{C}$ ).

7087pho1.jpg



Indoor Ceiling Horn/Strobe

7087pho2.jpg



Outdoor Ceiling Strobe

7087pho3.jpg



Indoor Wall Horn/Strobe

7087pho4.jpg



Indoor Ceiling Strobe

7087pho5.jpg



Indoor Wall Horn

7087pho6.jpg



Outdoor Wall Strobe

- Minimal intrusion into the backbox.
- Horn rated at 88+ dbA at 16 volts.
- Rotary switch for tone selection.
- Three horn volume settings.
- Electrically compatible with existing SpectrAlert products.

#### Engineering Specifications

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

## STROBE

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

## HORN/STROBE COMBINATION

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

## OUTDOOR PRODUCTS

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

## SYNCHRONIZATION MODULE

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

## Operating Specifications

- **Standard operating temperature:** 32°F to 120°F (0°C to 49°C).
- **K Series operating temperature:** -40°F to 151°F (-40°C to 66°C).
- **Humidity range:** 10% to 93% non-condensing (indoor products).
- **Strobe flash rate:** 1 flash per second.
- **Nominal voltage:** regulated 12 VDC/FWR or regulated 24 VDC/FWR. **NOTE:** Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
- **Operating voltage range:** 8 V to 17.5 V (12 V nominal); or 16 V to 33 V (24 V nominal). **NOTE:** P, S, PC, and SC products will operate at 12 V nominal only for 15 cd and 15/75 cd.
- **Input terminal wire gauge:** 12 to 18 AWG (3.31 to 0.821 mm<sup>2</sup>).
- **Ceiling-mount dimensions (including lens):** 6.8" diameter x 2.5" deep (17.3 cm diameter x 6.4 cm deep).
- **Wall-mount dimensions (including lens):** 5.6" H x 4.7" W x 2.5" D (14.2 cm H x 11.9 cm W x 6.4 cm D).
- **Horn dimensions:** 5.6" H x 4.7" W x 1.3" D (14.2 cm H x 11.9 cm W x 3.3 cm D).

## Agency Listings and Approvals

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

- **UL Listed:** file **S4011** (HR\_\_, HW\_\_, P2\_\_, P4\_\_, PC2\_\_, PC4\_\_ models); file **S5512** (models SCR, SCRH, SCW, SCWH, SR, SRH, SW, SWH); file **S3593** (SCRHK, SCRK, SRHK, SRK).
- **ULC Listed:** file **CS1099** (HRA, HRKA); file **CS1089** (typically "A" models, with exception of outdoor strobes). See *Canadian data sheet for listings and specifications*.
- **FM approved.**
- **MEA approved:** file **452-05-E**.
- **CSFM approved:** file **7125-1653:186** (SCR, SCRH, SCW, SCWH, SR, SRH, SW, SWH); file **7125-1653:188** P2\_\_, P4\_\_, PC2\_\_, PC4\_\_ models); file **7135-1653:189** (HR, HRK, HW); file **7300-1653:187** (SCRHK, SCRK, SRHK, SRK).

## Strobe Current Draw, UL Maximum (mA RMS)

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

## Horn Current Draw, UL Maximum (mA RMS)

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

### Horn and Horn/Strobe Rotary Switch Setting

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

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

### Horn and Horn/Strobe Output (dBA)

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

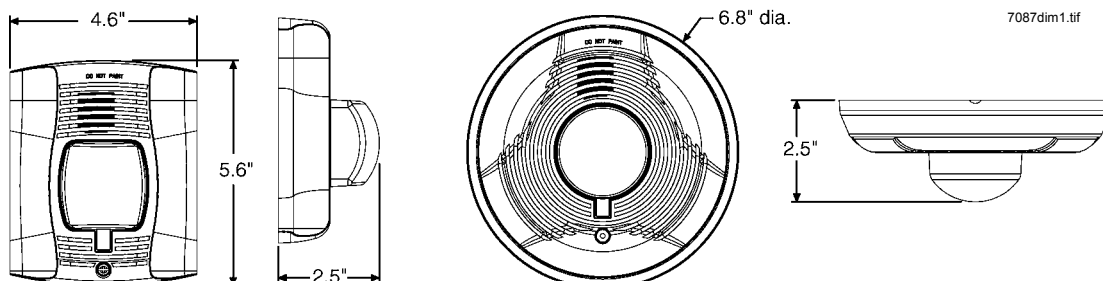
*\*NOTE: Settings 7, 8, and 9 are not available on 2-wire horn/strobe.*

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

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

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

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



## Ordering Information

Model	Description*	Model	Description
<b>WALL HORN/STROBES</b>		<b>CEILING HORN/STROBES</b>	
P2R	2-wire horn/strobe, standard cd, red.	PC2R	2-wire horn/strobe, standard cd, red.
P2RH	2-wire horn/strobe, high cd, red.	PC2RH	2-wire horn/strobe, high cd, red.
P2RK	2-wire horn/strobe, standard cd, red, outdoor.**	PC2RK	2-wire horn/strobe, standard cd, red, outdoor.
P2RHK	2-wire horn/strobe, high cd, red, outdoor.	PC2RHK	2-wire horn/strobe, high cd, red, outdoor.
P2W	2-wire horn/strobe, standard cd, white.	PC2W	2-wire horn/strobe, standard cd, white.
P2WH	2-wire horn/strobe, high cd, white.	PC2WH	2-wire horn/strobe, high cd, white.
P4R	4-wire horn/strobe, standard cd, red.	PC4R	4-wire horn/strobe, standard cd, red.
P4RH	4-wire horn/strobe, high cd, red.	PC4RH	4-wire horn/strobe, high cd, red.
P4RK	4-wire horn/strobe, standard cd, red, outdoor.	PC4RK	4-wire horn/strobe, standard cd, red, outdoor.
P4RHK	4-wire horn/strobe, high cd, red, outdoor.	PC4RHK	4-wire horn/strobe, high cd, red, outdoor.
P4W	4-wire horn/strobe, standard cd, white.	PC4W	4-wire horn/strobe, standard cd, white.
P4WH	4-wire horn/strobe, high cd, white.	PC4WH	4-wire horn/strobe, high cd, white.
<b>WALL STROBES</b>		<b>CEILING STROBES</b>	
SR	Strobe, standard cd, red.	SCR	Strobe, standard cd, red.
SRH	Strobe, high cd, red.	SCRH	Strobe, high cd, red.
SRK	Strobe, standard cd, red, outdoor.	SCRK	Strobe, standard cd, red, outdoor.
SRHK	Strobe, high cd, red, outdoor.	SCRHK	Strobe, high cd, red, outdoor.
SW	Strobe, standard cd, white.	SCW	Strobe, standard cd, white.
SWH	Strobe, high cd, white.	SCWH	Strobe, high cd, white.
<b>ACCESSORIES</b>		<b>HORNS</b>	
BBS-2	Backbox skirt, wall, red.	HR	Horn, red.
BBSW-2	Backbox skirt, wall, white.	HRK	Horn, red, outdoor.
BBSC-2	Backbox skirt, ceiling, red.	HW	Horn, white.
BBSCW-2	Backbox skirt, ceiling, white.	<b>ACCESSORIES, continued</b>	
SA-WBB	Weatherproof backbox, wall.	MP-2W-20BP	2-wire indoor mounting plates, pkg of 20.
SA-WBBC	Weatherproof backbox, ceiling. <i>cont'd at right</i>	MPK-2W-20BP	2-wire outdoor mounting plates, pkg of 20.
<p><b>NOTE:</b> **High cd" refers to strobes that include 135, 150, 177, and 185 candela settings. "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings. **All outdoor models ("K" suffix) include weatherproof backbox.</p>			

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 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](http://www.notifier.com)



### DESCRIPTION

The IFS DECT/DECR3000 series contact mapping transmitter and receiver provides transmission of up to eight independent contact closures over Ethernet electrical 10/100 TX or 100 FX optical fiber. The DECT/DECR3000 utilizes microprocessor-based logic for exceptionally robust communications channel redundancy. Models within this series are available for use with electrical RJ45, multimode or singlemode optical fiber. Plug-and-play design ensures ease of installation requiring no electrical or optical adjustments. Each module incorporates power and individual status indicating LED's for monitoring confirmation of contact closure of each of the eight channels. The modules are available in stand-alone only.

### APPLICATION EXAMPLES

- Alarm Event Triggering
- Building Automation and Environmental Control Systems
- Fire & Alarm Systems
- Lane/Gate Control
- PIR Signal Transmission

### FEATURES

- Transmits Up to Eight Contact Closures Over Fiber or CAT 5.
- Web Based Configuration
- Eight Channel Point-to-Point Transmission Architecture
- Power and Eight Individual Channel Status LED Indicators
- Eight SPST Reed Relays (with individual indicators)
- Designed to Meet the Requirements of NEMA TS-1/TS-2 & Caltrans Specifications (Temperature/Humidity, Shock/Vibration, and Voltage Transient Protection) for Traffic Control Equipment.
- Loss of Carrier Relay for Alarm Notifications
- Relay Contact Rating: 200 VDC, 0.5 Amps, Normally Open
- No In-field Electrical or Optical Adjustments Required
- Automatic Resettable Solid-State Current Limiters
- Hot-Swappable Rack Modules
- Distances up to 28 Miles (45 km)
- Comprehensive Lifetime Warranty



Available at: [www.ifs.com](http://www.ifs.com)

- A & E Specifications, (CSI)
- AutoCAD Drawings
- Operation Manuals
- Technical Bulletins

### ORDERING INFORMATION

	PART NUMBER	DESCRIPTION	FIBERS REQUIRED	OPTICAL PWR BUDGET	MAX. DISTANCE*
<b>ELECTRICAL</b>	DECT3000	10/100 electrical Tx	NA	NA	300 ft. (100 m)
	DECR3000	10/100 electrical Rx			
<b>MULTIMODE 62.5/125µm**</b>	DECT3020	Contact Mapping Transmitter (1310 nm)	2	10 dB	1.2 miles (2 km)
	DECR3020	Contact Mapping Receiver (1310 nm)			
<b>SINGLEMODE 9/125µm</b>	DECT3030	Contact Mapping Transmitter (1310 nm)	2	15 dB	28 miles (45 km)
	DECR3030	Contact Mapping Receiver (1310 nm)			
<b>ACCESSORIES♦</b>	PS-12VDC 12 Volt DC Plug-in Power Supply (Included)				
	PS-12VDC-230 12 Volt DC Plug-in Power Supply, 230 VAC Input (Included if specified at time of order)				
<b>OPTIONS</b>	Add '-R3' to Model Number for R3 Rack Mount (Requires R3 Rack purchased separately) Add '-C' for Conformally Coated Printed Circuit Boards (Extra charge, consult factory)				

\* Optical transmission distance is limited to optical loss of the fiber and any additional loss introduced by connectors, splices and patch panels. Distance can also be limited by fiber bandwidth. \*\* For 50/125 Fiber, subtract 4 dB from Optical Power Budget. ♦ All accessories are third party manufactured.

#### SPECIFICATIONS

##### DATA

Input/Output Channels	8
Contacts:	200 VDC, 0.5 amp, 12 watts.
	Normally open/closed
Response Time:	25 msec maximum, typical

##### WAVELENGTH

DECT3010, DECR3010:	850 nm, Multimode
DECT3020, DECR3020:	1310 nm, Multimode
DECT3030, DECR3030:	1310 nm, Singlemode

##### NUMBER OF FIBERS

2

##### CONNECTORS

Optical:	SC
Data:	RJ45
Power:	Terminal Plug with Screw Clamps

##### ELECTRICAL & MECHANICAL

Power:	11 - 31 VDC @ 350 mA
Surface Mount:	From Rack
Rack:	2
Number of Rack Slots:	Automatic Resettable Solid-State Current Limiters
Current Protection:	Meets IPC Standard
Circuit Board:	7.0 x 4.9 x 2.0 in., 17.8 x 12.5 x 5.0 cm.
Size (in./ cm.) (LxWxH):	7.7 x 5.0 x 2.0 in., 17.8 x 12.5 x 5.0 cm.
Surface Mount:	< 2 lbs./0.9 kg
Rack Mount:	
Shipping Weight:	

##### ENVIRONMENTAL

MTBF:	>100,000 hours
Operating Temp:	-40° C to +74° C*
Storage Temp:	-40° C to +85° C*
Relative Humidity:	0% to 95% (non-condensing)†

† May be extended to condensation conditions by adding suffix '-C' to model number for conformal coating.

##### AGENCY COMPLIANCE

FCC PART 15 COMPLIANT



##### MADE IN THE USA

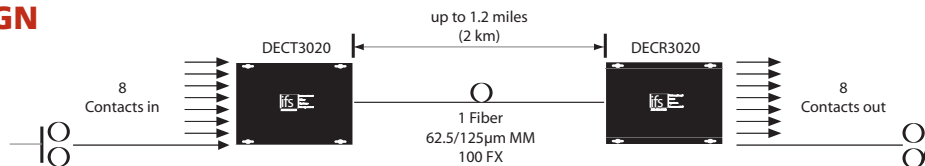
Complies with FDA Performance Standard for Laser Products, Title 21, Code of Federal Regulations, Subchapter J

#### OPTICAL POWER BUDGET

FIBER	WAVELENGTH	TRANSMITTER		RECEIVER		OPTICAL PWR BUDGET	MAX. DISTANCE*
		MODEL	OUTPUT	MODEL	SENSITIVITY		
Electrical	NA	DECT3000	NA	DECR3000	NA	NA	300 ft. (100 m)
Multimode 62.5/125µm**	1310 nm	DECT3020	20 µw (-17 dBm)	DECR3020	1 µw (-30 dBm)	10 dB	1.2 miles (2 km)
Singlemode 9/125µm		DECT3030	25 µw (-16 dBm)	DECR3030		15 dB	28 miles (45 km)

\* Optical transmission distance is limited to optical loss of the fiber and any additional loss introduced by connectors, splices and patch panels. Distance can also be limited by fiber bandwidth. \*\* For 50/125 Fiber, subtract 4 dB from Optical Power Budget.

#### SYSTEM DESIGN





July 7, 2000

DN-1109 • E-200

## PS Series Batteries

Section: Power Supplies

### GENERAL

Power-Sonic PS Series batteries provide secondary power for the whole series of NOTIFIER fire alarm control panels.

### FEATURES

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

### CAPACITY

Battery capacity, expressed in ampere-hours (AH), is the product of a discharge current and the length of time that the current is discharged. Batteries are rated according to their performance during 20 hours of discharge at a constant current.

The rated capacity of a battery is determined by subjecting it to a constant discharge current for 20 hours at 68°F (20°C). After 20 hours the voltage across the terminals is measured. The discharge current which causes a reading of 1.72 volts per cell (5.16 V on a 6 V battery and 10.32 V on a 12 V battery) is called the rated current. This current multiplied by 20 is the rated capacity of the battery.

### APPLICATIONS

Use the PS Series batteries to provide backup power for control panels. Select batteries based on current requirements for your system and the capacity of its charger. These batteries can be used over a temperature range of -76°F to +140°F (-60°C to +60°C).

### CONSTRUCTION

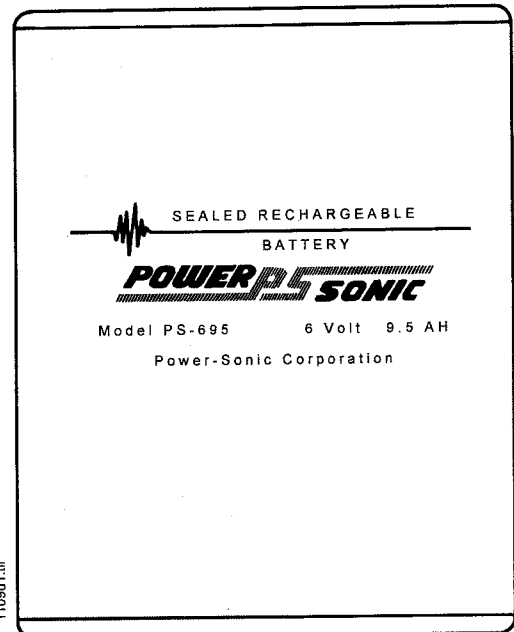
The sealed construction of the Power-Sonic battery allows trouble-free, safe operation in any position. There is no need to add electrolyte, as gases generated during overcharge are recombined in a unique "Oxygen Cycle." The battery is sealed, leakproof, and maintenance-free. The case is of high-impact materials with high resistance to chemicals and flammability.

### INSTALLATION

All panels have space reserved for batteries. See the appropriate panel installation manual for battery size restrictions. Typical interconnection diagrams are shown in the literature accompanying each control panel.



LISTED  
MH14328 (S)



The PS-695 Battery

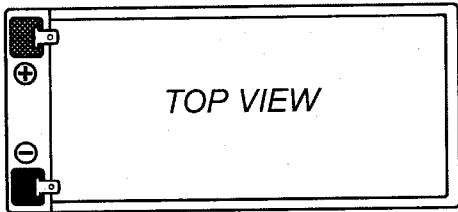
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**NOTIFIER**

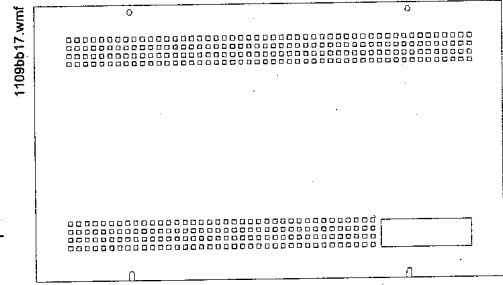
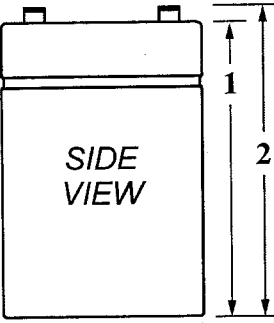
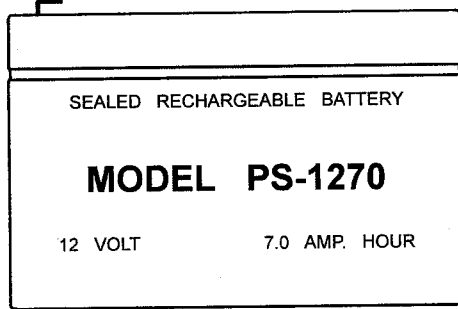
One Fire-Lite Place, Northford, Connecticut 06472

**ISO 9001**  
**CERTIFIED**  
ENGINEERING & MANUFACTURING



HEIGHT 1 BELOW  
3.70 ± 0.08 inches  
(94 ± 2 mm)

HEIGHT 2 BELOW  
3.86 ± 0.08 inches  
(96 ± 2 mm)



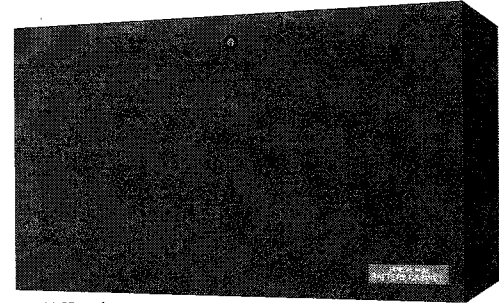
**BB-17: Optional Battery Backbox**  
14-1/2" W x 8-1/4" H x 4-3/4" D  
(mm: 368.3 W x 209.55 H x 120.65 D)  
For remote mounting of two 12-volt  
PS-12180 batteries.

5.94 ± 0.04 inches  
(151 ± 1 mm)

2.56 ± 0.04 inches  
(65 ± 1 mm)

1109dim1.tif

**BB-55: Optional Battery Backbox**  
See CHG-120 data sheet for details.



6040bb55.wmf

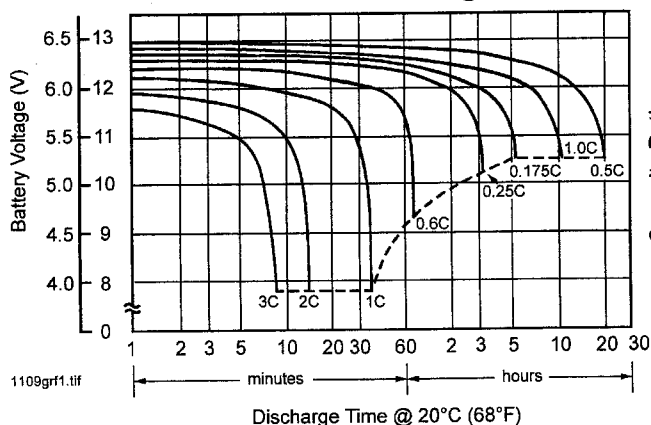
### ENGINEERING SPECIFICATIONS

The fire control panel shall be equipped with secondary power provided by gelled-electrolyte batteries. The batteries shall be maintenance-free and shall be capable of powering the system in a manner and for a length of time determined by the governing regulations and the authority having jurisdiction.

MODEL	Nominal Voltage V	Nominal Capacity @ 20 hr. rate A.H.	Discharge Current @ 20 hr. rate mA	DIMENSIONS									
				Width		Depth		Height		Height over terminal		Weight	
				in.	mm.	in.	mm.	in.	mm.	in.	mm.	lbs.	kg.
PS-695	6	9.5	475	4.26	108	2.75	70	5.54	141	5.54	141	4.9	2.2
PS-1250	12	5.0	250	3.54	90	2.76	70	4.02	102	4.21	107	4.1	1.9
PS-1270	12	7.0	325	5.94	151	2.56	65	3.70	94	3.86	98	5.7	2.6
PS-12120	12	12	600	5.94	151	3.86	98	3.70	94	3.86	98	8.8	4.0
PS-12180	12	18	875	7.13	181	2.99	76	6.57	167	6.57	167	12.8	5.8
PS-12250	12	25	1300	6.89	175	6.54	166	4.92	125	4.92	125	18.7	8.5
PS-12550	12	55	3000	10.25	260	6.60	168	8.20	208	9.45	240	39.7	18.0
PS-121000	12	100	5000	12.00	305	6.60	168	8.20	208	9.45	240	65.7	29.8

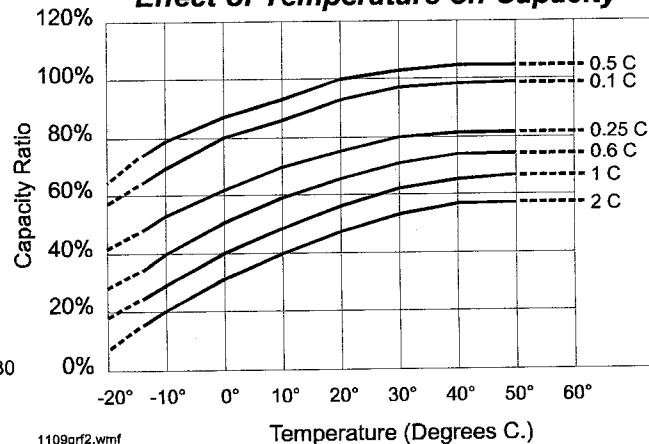
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**Characteristic Discharge Curves**



1109grf1.tif

**Effect of Temperature on Capacity**



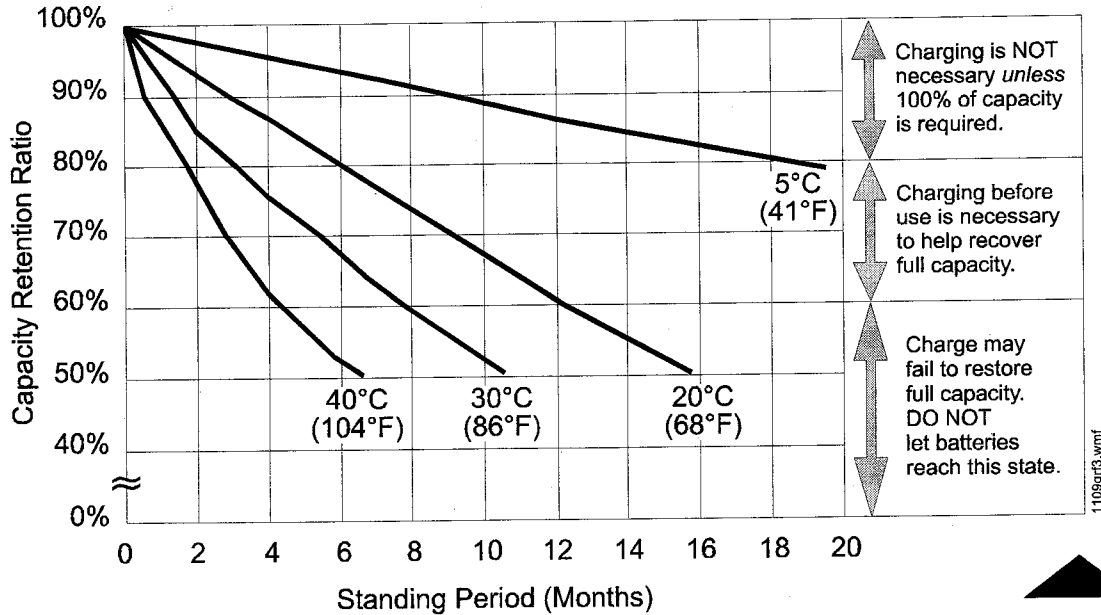
1109gr2.wmf

# PS-121000 RECHARGEABLE BATTERY: APPLICATIONS AND CHARGING

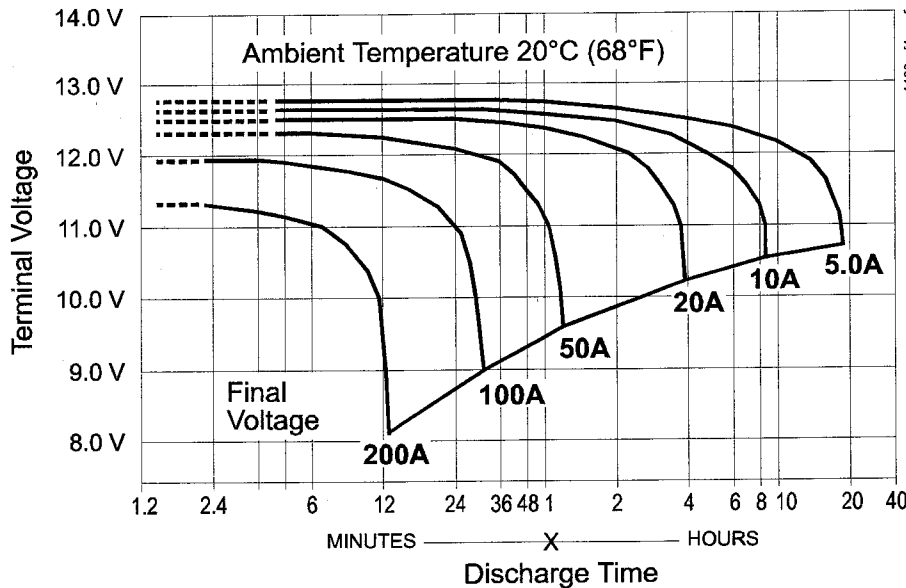
**CYCLE APPLICATIONS:** Limit initial current to 20A. Charge until battery voltage (under charge) reaches 14.40 to 14.70 volts at 68°F (20°C). Hold at 14.40 to 14.70 volts until current drops to approximately 1000 mA. Battery is fully charged under these conditions, and charger should either be disconnected or switched to "float" voltage.

**"FLOAT" OR "STAND-BY" SERVICE:** Hold battery across constant voltage source or 13.50 to 13.80 volts continuously. When held at this voltage, the battery will seek its own current level and maintain itself in a fully charged position.

**NOTE:** Due to the self-discharge characteristics of this type of battery, it is imperative that the battery be charged after six to nine months of storage, otherwise permanent loss of capacity might result from sulfation.



**PS-121000  
Shelf-Life  
and Storage**



**PS-121000  
Discharge  
Characteristics**



July 19, 2004

DN-3198 • D-120

# LCD-80 and LCD-80TM Liquid Crystal Displays

Section: Annunciator Control Systems

## GENERAL

The **LCD-80** is an 80-character, backlit LCD display annunciator for the NOTIFIER NFS-640, NFS-3030 (ACS mode only), AM2020, AFP1010, AFC-600, AFP-400, AFP-300, AFP-200, System 5000, and System 500 fire alarm control panels, or the NCA network control annunciator. Up to 32 LCD-80s may be connected onto the two-wire EIA-485 port. The LCD-80 has two basic modes of operation, "Terminal" and "ACS" mode.

The **LCD-80TM** shares all the features of the LCD-80, but only utilizes "Terminal" mode, where it mimics the panel display.

## COMMON FEATURES

- 80-character backlit Liquid Crystal Display (20 characters x 4 lines).
- Control switches for System Acknowledge, Signal Silence and System Reset.
- Time and date display field.
- Enable Key switch and phone jack options.
- Can be remotely located up to 6,000 ft. (1828.8 m) from the control panel.
- Local piezo sounder with alarm/trouble resound.
- Flush/surface/panel mount option.
- Optional RPT-485 repeater increases the distance and number of LCD-80s in a system (see RPT-485 data sheet).
- Optional transmission over fiber optics (see RPT-485 data sheet).

## ACS MODE

When operated in "ACS" mode, the LCD-80 provides a remote or local digital display and printer interface for the System 5000 and System 500. For the NFS-640, NFS-3030, NCA, AM2020, AFP1010, AFC-600, AFP-400, AFP-300, and AFP-200, the LCD-80 provides a vectored annunciation capability. Individual devices/zones can be installer-defined to only display and print at specific locations (*EXAMPLE: A maintenance office receives only non-alarm point activations. These inputs could be sump pump on, high water, backup AHU on, low temperature in freezer, etc.*).

- Alarm/trouble count.
- Custom "normal" message.
- European option: first alarm/last alarm/alarm count.
- Field-programmable messages from CRT or PC-compatible computer (PK-LCD-80 Programming Kit required).
- EIA-485 interface: up to 32 per system.
- Printer output port: EIA-232, compatible with PRN Series printers.
- Field-programmable messages in nonvolatile memory in two options: 128 points, 40 character labels; or 256 points, 20 character labels.
- Internal nonvolatile clock for time and date in ACS mode.
- NFS-640, NFS-3030, AM2020, AFP1010, AFC-600, AFP-400, and AFP-300 "vectored" printer capability.
- Can be mounted in a System 5000 cabinet module position.

**NOTE:** The NFS-3030 operates with the LCD-80 in ACS mode only.

## TERMINAL MODE

In "Terminal" mode, the LCD-80 mimics the NFS-640, NCA, AM2020, AFP1010, AFC-600, AFP-400, AFP-300 and AFP-200 displays. Up to 32 LCD-80s can annunciate and provide remote reset, acknowledge, and silence of the control panel



**U.S. Coast Guard**

161.002/23/2

(AFP-200)

161.002/27/3

(AFP1010, AM2020)

94/60004 (E2)

(AFP-200)

93/60140 (E2)

(AFP1010, AM2020)

## MEA

290-91-E (LCD-80)

289-91-E (LCD-80)

104-93-E Vol. III

(LCD-80TM)

317-01-E (NFS-640)

345-02-E (LCD-80)

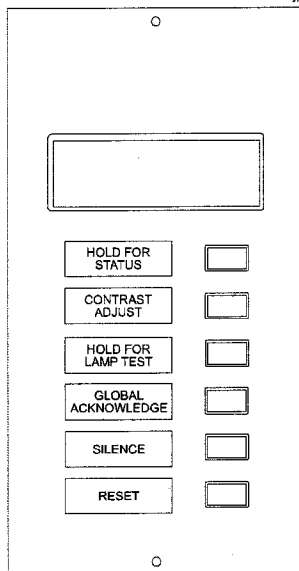


California  
State Fire  
Marshal

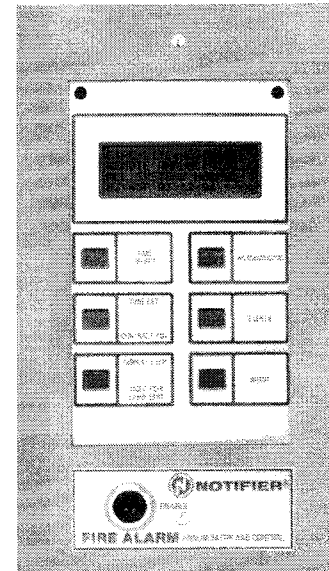
7120-0028:156

3198lcd8.jpg

3198lcd8.jpg



LCD-80TM



LCD-80 with ABF-1B

from remote locations. The DIA-1010 and DIA-2020 (Display Interface) include a Terminal mode driver port for LCD-80s in Terminal mode. The Terminal mode port is standard on the NFS-640, AFC-600, AFP-400, AFP-300, and AFP-200 main PC/CPU boards.

- Displays device type identifiers.
- Device and zone custom alpha labels.
- Time/date and Device address.
- May operate in addition to CRT.
- No programming necessary. LCD-80 displays time, date, and custom messages received from NFS-640, AM2020, AFP1010, AFC-600, AFP-400, AFP-300, or AFP-200.

**NOTE:** The NFS-3030 does NOT use LCD-80 in terminal mode, or the LCD-80TM.

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

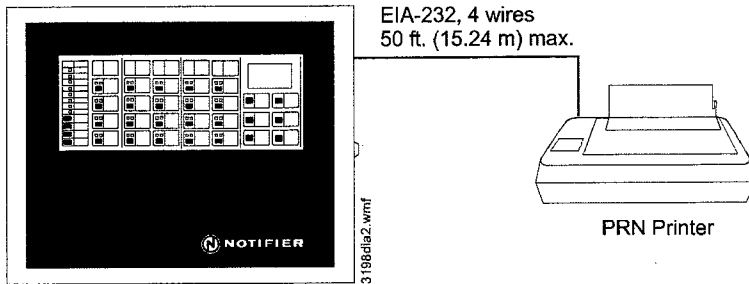


12 Clintonville Road, Northford, Connecticut 06472



Made in the U.S.A.

## The LCD-80 in ACS Mode

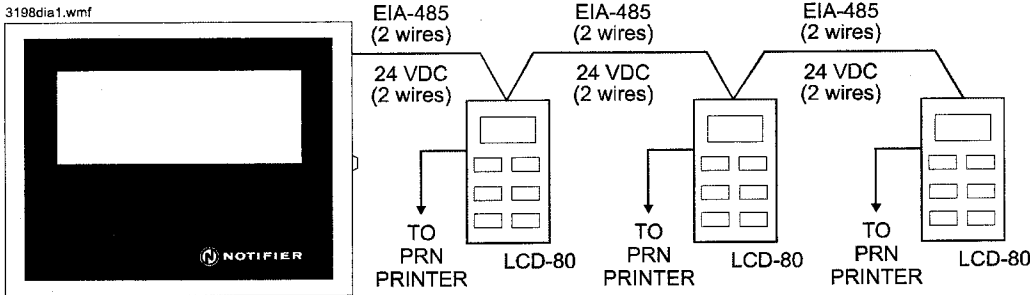


System 5000 with panel-mounted LCD-80

- LCD-80 is 8.25" (20.96 cm) high, 4.375" (11.11 cm) wide, and 1.75" (4.45 cm) deep.
- Up to 32 LCD-80s may be used on one EIA-485 circuit.

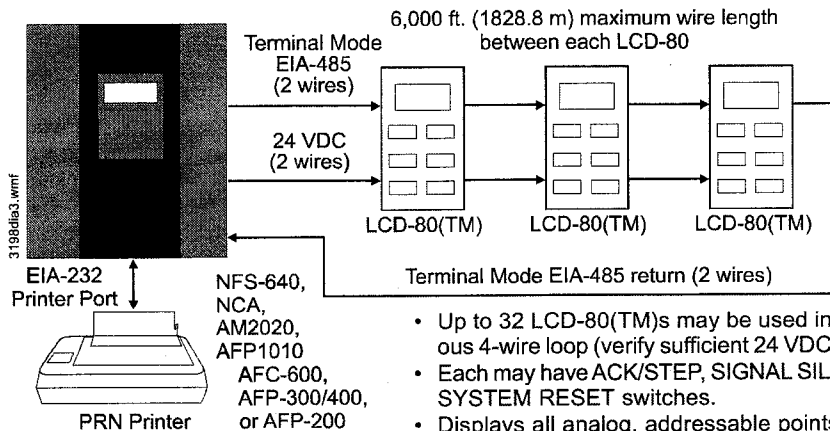
**NOTE:** Must have sufficient regulated 24 volt power. Certain NOTIFIER systems may have limits to the amount of LCD-80s with ACK/STEP, Signal Silence, and Reset switches.

- LCD-80 mounts with any CHS-4 chassis slot.
- The LCD-80 may display all System 5000 circuits. Alternately, it may display up to 192 AIM-200 points and two rows of modules.



NFS-3030, NFS-640, AM2020, AFP1010, AFC-600, AFP-300/400, AFP-200, System 5000, System 500, or NCA

## The LCD-80 or LCD-80TM in Terminal Mode



- Up to 32 LCD-80(TM)s may be used in a continuous 4-wire loop (verify sufficient 24 VDC available).
- Each may have ACK/STEP, SIGNAL SILENCE, and SYSTEM RESET switches.
- Displays all analog, addressable points.
- No programming required for LCD-80(TM)s.

**ABF-1DB** — The ABF-1DB is a semi-flush-mount backbox for the NOTIFIER LCD-80 Series Annunciator. The ABF-1DB mounts one LCD-80(TM). It includes an attractive smoked-glass door with NOTIFIER keylock.

**Dimensions, BOX only:**  
9.938" (25.24 cm) high,  
4.625" (11.75 cm) wide,  
2.5" (6.35 cm) deep.

**Dimensions, DOOR only:**  
10.713" (27.21 cm) high,  
6.0" (15.24 cm) wide,  
0.75" (1.9 cm) deep.

## RELATED OPTIONS

**PK-LCD-80 (order VERIFIRE-CD):** Off-Line Programming Kit for LCD-80. Allows PC programming messages when LCD-80 is used in the ACS mode.

**CCM-1:** Converter Module. Required for terminal mode operation on older AM2020s or AFP1010s that do not include the DIA-2020 or DIA-1010 Display Interfaces. Also required for AM2020 and AFP1010 systems which require a CRT with keyboard. Uses one ICA-4L chassis slot or two CHS-4 chassis slots.

See ACS Series (DN-524) or ONYX™ ACS Series (DN-6862) data sheets for additional information on items below.

**ABF-1DB:** Semi-flush box with alternative smoked-glass door, any keylock.

**ADP-4:** Annunciator Dress Plate, gray. Allows panel mounting of up to four LCD-80(TM) modules in a CAB-3 Series cabinet.

**ADP-4B:** Annunciator Dress Plate, black. Allows panel mounting of up to four LCD-80(TM) modules in a CAB-4 Series cabinet.

**ABF-1B:** Annunciator Flush Box, 9.938" (25.24 cm) high, 4.625" (11.75 cm) wide, and 2.5" (6.35 cm) deep. Order AKS-1B key switch and APJ-1B phone jack if desired. Can also be mounted in **ABF-2B** or **ABF-4B** annunciator backboxes.

**ABS-1TB:** Deep Surface Backbox (mounts one LCD-80/-80TM).

**AKS-1B:** Key Switch (black) to enable/disable controls when mounted in ABF or ABS-1TB.

**APJ-1B:** Annunciator Phone Jack, black. Mounts to ABF flush box or ABS-1TB.

**PRN Series:** 80-Column Serial Printer (see PRN data sheet).

**RPT-485W:** EIA-485 Wire Repeater. Increases wire distance between LCD-80s in ACS mode (see RPT-485 data sheet).

**RPT-485F:** EIA-485 Fiber-Optics Repeater. Increases distance and converts EIA-485 wire to fiber-optics in ACS mode (see RPT-485 data sheet).