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FIRE ALARM SYSTEM SHOP DRAWINGS  
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62 PROGRESSIVE DRIVE  
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FIRE ALARM SYSTEM  
**CAROLINA DIESEL TRUCK**  
62 PROGRESSIVE DRIVE  
FUQUAY VARINA, NORTH CAROLINA

Electrical Contractor: Power Master Elec

Fire Alarm Contractor: BFPE International  
115 Bestwood Drive  
Clayton, NC 27520

Project No.: RA-A6706-A-22

Date: December 14, 2022



# NFW-50X Intelligent Addressable FACP with Communicator

## General

The **FireWarden-50X (NFW-50X)** is the latest intelligent addressable fire alarm control panel (FACP) within the FireWarden Series. The NFW-50X comes with a pre-installed communicator and supports up to 50 addressable devices in any combination of detectors or modules. With an extensive list of powerful features, the NFW-50X programs just like FireWarden-100 products, yet fits into applications previously served only by conventional panels.

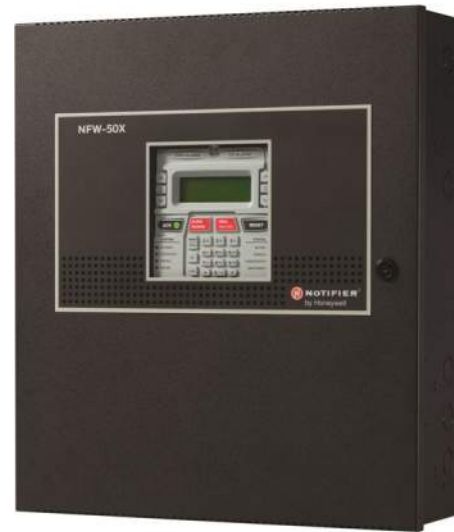
The pre-installed IPOTS-COM is a dual technology (POTS and IP) communicator. The POTS transmits system status (alarms, troubles, AC loss, etc.) to a Central Station via the public switched telephone network. The IP communicator's internet monitoring capability sends alarm signals over the Internet saving the monthly cost of two dedicated business telephone lines. Although not required, the secondary telephone line may be retained providing backup communication over the public switched telephone line. Optional cellular reporting is available using the CELL-MOD or CELL-CAB-N.

Remote and local programming of the control panel is possible using the FS-Tools Upload/Download utility. Programming databases can be uploaded/downloaded via the panel's USB port (and USB cable) or via an ethernet connection using the IPOTS-COM communicator. The USB port also allows for the download or upload of the entire program, history file, walk-test data, current status and system voltages by means of a USB flash drive.

The power supply and all electronics are contained on a circuit board supported on a new quick install chassis and housed in a metal cabinet. Available accessories include local and remote upload/download software, remote annunciators, and reverse polarity/city box transmitter (4XTM).

## Features

- Listed to UL Standard 864, 10th edition
- Pre-installed IPOTS-COM Ethernet IP and POTS (Plain Old Telephone Service) Central Station Communicator
- Optional CELL-MOD or CELL-CAB-N GSM Central Station Communicator over AlarmNet®
- Compatible with SWIFT® wireless devices
- Auto-programming (learn mode) reduces installation time. Reports two devices set to the same address
- Two independently programmable, built-in Style Z (Class A) or Style Y (Class B) NAC circuits
- Selectable strobe synchronization for System Sensor, Wheelock, and Gentex devices
- Notification Appliance Circuit End of Line resistor matching
- Four programmable function keys for ease of maintenance
- Two programmable relays and one fixed trouble relay
- Built-in Programmer
- Integral 80-character LCD display with backlighting
- Real-time clock/calendar with automatic daylight savings control
- History file with 1,000 event capacity
- Addressable sounder base
- Control module delay timer
- Automatic detector sensitivity testing (NFPA 72 compliant)
- Automatic device type-code verification
- Point trouble identification
- Waterflow selection per module point
- Alarm verification selection per detector point
- Maintenance alert warns when smoke detector dust accumulation is excessive
- One-person audible or silent walktest with walktest log & printout



- System alarm verification selection per detector point
- PAS (Positive Alarm Sequence) and Pre-signal per point (NFPA 72 compliant)
- Up to 16 ANN-BUS annunciators- 8 per each ANN-Bus
- Remote Acknowledge, Alarm Silence, Reset and Drill via addressable modules or remote annunciator
- Upload/Download of program and data via USB with optional FS-Tools Programming Utility

## SLC COMMUNICATION LOOP

- Supports FlashScan® and CLIP protocols
- SLC operates up to 10,000 ft. (3,000 m) in FlashScan mode with twisted, unshielded wire
- Single addressable SLC loop which meets NFPA Class B and Class A requirements
- 50 addressable device capacity (any combination of addressable detectors and modules)
- Compatible with NOTIFIER FireWarden & ONYX Series addressable devices (refer to the *FireWarden SLC Wiring Manual*)

## NOTIFICATION APPLIANCE CIRCUITS (NACS)

- Two independently programmable output circuits. Circuits can be configured for the following outputs:
    - Style Y (Class B)
    - Style Z (Class A)
  - Silence Inhibit and Autosilence timer options
  - Continuous, March Time, Temporal, or California code for main circuit board NACs with two-stage capability
  - Selectable strobe synchronization per NAC
  - 2.5 A special application, 250mA regulated, total power for NACs
- NOTE:** Maximum or total 24VDC system power shared between all NAC circuits and the ANN-BUS is 2.7 A

## PROGRAMMING AND SOFTWARE

- Autoprogramming (learn mode) reduces installation time
- Custom English labels (per point) may be manually entered or selected from an internal library file
- Two programmable Form-C relay outputs
- 50 software zones
- Continuous fire protection during online programming

- Program Check automatically catches common errors not linked to any zone or input point
- **OFFLINE PROGRAMMING:** Create the entire program in your office using FS-Tools, a Windows®-based software package, and upload/download system programming locally. Offline programming requires an ethernet connection. FS-Tools is available on [www.notifier.com](http://www.notifier.com).

## User interface

### LED INDICATORS

- Fire Alarm (red)
- AC Power (green)
- Trouble (yellow)
- Battery fault (yellow)
- Maintenance (yellow)
- Alarm Silenced (yellow)
- CO Alarm (red)
- Supervisory (yellow)
- Ground fault (yellow)
- Disabled (yellow)
- Communication (yellow)
- F1-F4 Programmable Function Keys (yellow)

### KEYPAD

- 16 key alpha-numeric pad
- Alarm Silence
- Four (4) programmable function keys
- Acknowledge
- Drill (Manual Evacuate)
- Reset (lamp test)

## Product Line Information

**NFW-50X:** Addressable Fire Alarm Control Panel with one SLC loop. Includes main circuit board with display, pre-installed IPOTS-COM communicator, chassis with transformer, backbox with door, plastic bag containing screws, cables, key, etc.

**FS-Tools:** Programming software for Windows®-based PC computer. Available for download at [www.notifier.com](http://www.notifier.com).

**CELL-CAB-N/CELL-MOD:** Optional GSM communicators.

**IPOTS-COM:** Dual technology (POTS and IP) communicator. (replacement board)

**DP-ES-R:** Optional dress panel for the NFW-50XR (red).

**DP-ES-B:** Optional dress panel for NFW-50X (black).

**TR-CE-B:** Optional trim ring for semi-flush mounting. (Black. For red, order **TR-CE**.)

**BB-XP:** Optional cabinet for one or two modules.

**BB-25:** Optional cabinet for up to six modules mounted on CHS-6 chassis.

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

**NFS-LBB:** Battery box, houses two 55 AH batteries

**CHS-6:** Chassis, mounts up to six multi-modules in a BB-25 cabinet.

**CHG-75:** Battery charger for lead-acid batteries with a rating of 25 to 75 AH.

**CHG-120:** Remote battery charging system for lead-acid batteries with a rating of 55 to 120 AH. Requires additional NFS-LBB for mounting.

**NOTE:** CHG-120 or CHG-75 required for batteries larger than 18AH.

**BAT Series:** Batteries, see data sheet DN-6933.

**PRN Series:** UL listed compatible event printer. Uses tractor-fed paper.

### OPTIONAL MODULES

**4XTM Reverse Polarity Transmitter Module:** Provides a supervised output for local energy municipal box transmitter, alarm and trouble. Includes a disable switch and disable trouble LED.

### COMPATIBLE ANNUNCIATORS

**N-ANN-80:** Remote, black LCD annunciator mimics the information displayed on the FACP LCD display. Recommended wire type is unshielded.

**N-ANN-100:** Remote LCD annunciator mimics the information displayed on the FACP LCD display. Recommended wire type is unshielded. For use in FM applications only. (Basic model is black;

order R for red.)

**N-ANN-IO:** LED Driver Module provides connections to a user supplied graphic annunciator. (See DN-7105.)

**N-ANN-LED:** Annunciator Module provides three LEDs for each zone: Alarm, Trouble, and Supervisory. Ships with red enclosure. (See DN-60242.)

**N-ANN-RLED:** Provides alarm (red) indicators for up to 30 input zones or addressable points. (See DN-60242.)

**N-ANN-RLY:** Relay Module provides 10 programmable Form-C relays. Can be mounted inside the cabinet. (See DN-7107.)

**N-ANN-S/PG:** Serial/Parallel Printer Gateway module provides a connection for a serial or parallel printer. (See DN-7103.)

### ADDRESSABLE DEVICES

**FSP-951:** Addressable low-profile photoelectric smoke detector. FlashScan only.

**FSP-951-IV:** Addressable low-profile photoelectric smoke detector. Ivory. FlashScan and CLIP mode.

**NP-200:** Addressable low-profile photoelectric smoke detector. B300-6 base included, FlashScan only.

**NP-200-IV:** Addressable low-profile photoelectric smoke detector. Ivory, B300-6-IV base included. FlashScan and CLIP mode.

**FSP-951T:** Addressable low-profile photoelectric smoke detector with thermal sensor. FlashScan only.

**FSP-951T-IV:** Addressable low-profile photoelectric smoke detector with thermal sensor. Ivory. FlashScan and CLIP mode.

**NP-200T:** Addressable low-profile photoelectric smoke detector with thermal sensor. B300-6 base included. FlashScan only.

**NP-200T-IV:** Addressable low-profile photoelectric smoke detector with thermal sensor. Ivory, B300-6-IV base included. FlashScan and CLIP mode.

**FSP-951R:** Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing. FlashScan only.

**FSP-951R-IV:** Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing. Ivory. FlashScan and CLIP mode.

**NP-200R:** Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing. FlashScan only.

**NP-200R-IV:** Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing. Ivory, FlashScan and CLIP mode.

**FST-951:** Low-profile 135°F fixed thermal sensor. FlashScan only.

**FST-951-IV:** Low-profile 135°F fixed thermal sensor. Ivory. FlashScan and CLIP mode.

**NH-200:** Low-profile 135°F fixed thermal sensor. B300-6 base included, FlashScan only.

**NH-200-IV:** Low-profile 135°F fixed thermal sensor. Ivory. B300-6-IV base included, FlashScan and CLIP mode.

**FST-951R:** Low-profile, intelligent, rate-of-rise thermal sensor. FlashScan only.

**FST-951R-IV:** Low-profile, intelligent, rate-of-rise thermal sensor. Ivory. FlashScan and CLIP mode.

**NH-200R:** Low-profile 135°F fixed thermal sensor. B300-6 base included, FlashScan only.

**NH-200R-IV:** Low-profile 135°F fixed thermal sensor. Ivory. B300-6-IV base included, FlashScan and CLIP mode.

**FST-951H:** Low-profile intelligent 190°F/88°C fixed thermal sensor. FlashScan only.

**FST-951H-IV:** Low-profile intelligent 190°F/88°C fixed thermal sensor. Ivory. FlashScan and CLIP mode.

**NH-200H:** Low-profile intelligent 190°F/88°C fixed thermal sensor. B300-6 base included, FlashScan only.

**NH-200H-IV:** Low-profile intelligent 190°F/88°C fixed thermal sensor. Ivory. B300-6-IV base included, FlashScan and CLIP mode.

#### **Legacy Devices**

**FSP-851:** Addressable low-profile photoelectric smoke detector.

**NP-100:** Addressable low-profile photoelectric smoke detector.

**FSP-851T:** Addressable low-profile photoelectric smoke detector with thermal sensor.

**NP-100T:** Addressable low-profile photoelectric smoke detector with thermal sensor.

**FSP-851R:** Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing.

**NP-100R:** Remote test capable addressable photoelectric smoke detector for use with DNR(W) duct detector housing.

**FST-851:** Fast-response, low-profile heat detector.

**NH-100:** Fast-response, low-profile heat detector.

**FST-851R:** Fast-response, low-profile heat detector with rate-of-rise option.

**NH-100R:** Fast-response, low-profile heat detector with rate-of-rise option.

**FST-851H:** Fast-response, low-profile heat detector that activates at 190°F/88°C.

**NH-100H:** Fast-response, low-profile heat detector that activates at 190°F/88°C.

**FAPT-851:** Addressable low-profile multi-sensor detector.

**NP-A100:** Addressable low-profile multi-sensor detector.

**B200SR:** Addressable sounder base.

**DNR:** InnovairFlex low-flow non-relay duct-detector housing. (Order FSP-851R, FSP-951R, or NP-100R separately.)

**DNRW:** InnovairFlex low-flow non-relay duct-detector housing, with NEMA-4 rating. Watertight. (Order FSP-851R, FSP-951R, or NP-100R separately.)

#### **Addressable Modules**

**FMM-1:** Addressable Monitor Module for one zone of normally-open dry-contact initiating devices. Mounts in standard 4.0" (10.16 cm.) box. Includes plastic cover plate and end-of-line resistor. Module may be configured for either a Style B (Class B) or Style D (Class A) IDC.

**NMM-100:** Addressable Monitor Module for one zone of normally-open dry-contact initiating devices. Mounts in standard 4.0" (10.16 cm.) box. Includes plastic cover plate and end-of-line resistor. Module may be configured for either a Style B (Class B) or Style D (Class A) IDC.

**FDM-1:** Dual Monitor Module. Same as NMM-100 except it provides two Style B (Class B) only IDCs.

**NDM-100:** Dual Monitor Module. Same as NMM-100 except it provides two Style B (Class B) only IDCs.

**FMM-101:** Miniature version of NMM-100. Excludes LED and Style D option. Connects with wire pigtails. May mount in device backbox.

**NMM-100P:** Miniature version of NMM-100. Excludes LED and Style D option. Connects with wire pigtails. May mount in device backbox.

**FZM-1:** Similar to NMM-100. Addressable Monitor Module for one zone of conventional two-wire detectors. Requires resettable 24 VDC power. Refer to the *Device Compatibility Document* for listed compatible devices and quantity limitation.

**NZM-100:** Similar to NMM-100. Addressable Monitor Module for one zone of conventional two-wire detectors. Requires resettable 24 VDC power. Refer to the *Device Compatibility Document* for listed compatible devices and quantity limitation.

**FCM-1:** Addressable Control Module for one Style Y/Z (Class B/A) zone of supervised polarized Notification Appliances. Mounts directly to a 4.0" (10.16 cm.) electrical box. NAC option requires external 24 VDC to power notification appliances.

**NC-100:** Addressable Control Module for one Style Y/Z (Class B/A) zone of supervised polarized Notification Appliances. Mounts

directly to a 4.0" (10.16 cm.) electrical box. NAC option requires external 24 VDC to power notification appliances.

**FRM-1:** Addressable relay module containing two isolated sets of Form-C contacts, which operate as a DPDT switch. Mounts directly to a 4.0" (10.16 cm.) box, surface mount using the SMB500.

**NC-100R:** Addressable relay module containing two isolated sets of Form-C contacts, which operate as a DPDT switch. Mounts directly to a 4.0" (10.16 cm.) box, surface mount using the SMB500.

**NBG-12LX:** Addressable manual pull station with interface module mounted inside.

**NOT-BG12LX:** Addressable manual pull station with interface module mounted inside.

**ISO-X:** Fault Isolator Module.

**N100-ISO:** Fault Isolator Module.

**ISO-6:** Six-fault isolator module. Mount one or two modules in a BB-XP cabinet (optional). Mount up to six modules on a CHS-6 chassis in a CAB-3/CAB-4 series cabinet.

**SMB500:** Used to mount all modules except FMM-101/NMM-100P.

**NMM-100-10:** Ten-input monitor module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F cabinet.

**NZM-100-6:** Six-zone interface module. Mount one or two modules in a BB-XP cabinet (optional). Mount up to six modules on a CHS-6 chassis in a CAB-3/CAB-4 series cabinet.

#### **SWIFT Wireless Devices**

**FWSG:** Wireless Gateway

**FWD-200P:** intelligent, wireless photo detector.

**FWH-200ROR135:** LiteSpeed intelligent wireless rate of rise (135°) heat detector.

**FWD-200ACCLIMATE:** Wireless Acclimate Detector

**FWH-200FIX135:** intelligent wireless fixed-temperature (135°) heat detector.

**FW-MM:** Intelligent wireless monitor module.

**FW-RM:** Intelligent wireless relay module.

**NBG-12LW:** Intelligent wireless pull station.

**WAV-RL, WAV-WL, WAV-CRL, WAV-CWL:** Intelligent AV bases.

**W-USB:** Wireless USB radio/antenna dongle that plugs into the USB port of a PC running SWIFT Tools.

**SWIFT Tools:** Programming and diagnostic utility for the Wireless Gateway and devices. Available for download from firelite.com.

**NOTE:** For more information on Compatible Addressable Devices for use with the FireWarden-50X, see the following data sheets (document numbers): NP-200 Series (DN-60979), NH-200 Series (DN-60980), FSP-851 Series (DN-6935), FSP-951 Series (DN-60977), FST-851 Series (DN-6936), FST-951 Series (DN-60975), FAPT-851 (DN-6937), N100-ISO (DN-6994), NP-100 series (DN-6995), NH-100/NH-100R (DN-6997), DNR/InnovairFlex (DN-60424, DN-60429), NP-A100 (DN-6998), NMM-100/NMM-100P/NDM-100/NZM-100 (DN-6999), NC-100 (DN-7000), NC-100R (DN-60383), NMM-100-10 (DN-6990), MM-1/FDM-1/FZM-1/FMM-101 (DN-6720), FCM-1/FRM-1 (DN-6724), NOT-BG12LX (DN-7001), NBG-12LX (DN-6726), and FireWarden SLC Manual (52304).

#### **ADDRESSABLE DEVICE ACCESSORIES**

**End-of-Line Resistor Assembly (R-47K and R-3.9K):** The 47k ohm assembly supervises the FMM-1/NMM-100-10, FDM-1/NDM-100, FMM-101/NMM-100P, and FCM-1/NC-100 module circuits. The 3.9k ohm assembly supervises the XP6-MA/NZM-100-6 module circuit. These resistors are included with each module.

**Power Supervision Relay:** Supervises the power to 4-wire smoke detectors and notification appliances.

#### **Wiring Requirements**

While shielded wire is not required, it is recommended that all SLC wiring be twisted-pair to minimize the effects of electrical interference. Refer to the panel manual for wiring details.

## System Capacity

- Intelligent Signaling Line Circuits..... 1
- Addressable device capacity ..... 50
- Programmable software zones ..... 50
- Annunciators..... 16

## Electrical Specifications

**AC Power:** 120/240 VAC, 50/60 Hz, 3.25 A. Wire size: minimum 14 AWG (2.00 mm<sup>2</sup>) with 600 V insulation. Nonpower-limited, supervised.

**Battery:** Two 12 V 18 AH lead-acid batteries. Battery Charger Capacity: 7-18 AH (FireWarden-50X cabinet holds maximum of two 18 AH batteries.)

**Communication Loop:** Supervised and power-limited.

**Notification Appliance Circuits:** Terminal Block provides connections for two NACs, Style Y (Class B) or Style Z (Class A). Special Application power. Power-limited, supervised circuitry. Maximum signaling current per circuit: 2.5 amps special application, 250mA regulated. End-of-Line Resistor: 4.7k ohm, ½ watt (P/N 71252 UL listed) for Style Y (Class B) NAC; system capable of 1.9 kΩ - 22 kΩ ELR range. Refer to the *NOTIFIER Device Compatibility Document* for listed compatible devices.

**Two Programmable Relays and One Fixed Trouble Relay:** Contact rating: 2.0 A @ 30 VDC (resistive), 0.5 A @ 30 VAC (resistive). Form-C relays, non-power-limited, non-supervised.

## 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/B):** 22.00" (55.88 cm.) high x 19.65" (49.91 cm.) wide.

## Shipping Specifications

**Weight:** 26.9 lbs. (12.20 kg.) **Dimensions:** 20.00" (50.80 cm.) high x 22.5" (57.15 cm.) wide x 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.

## NFPA Standards

The FireWarden-50X 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).
- **OT, PSDN** (Other Technologies, Packet-switched Data Network)
- **IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000** (Seismic).
- **CBC 2007** (Seismic)

## Agency Listings and Approvals

The listings and approvals below apply to the basic FireWarden-50X 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:** S635
- **CSFM:** 7165-0028:0505



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.

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Country of Origin: USA

## NOTIFIER

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



# N-ANN-80

## 80-Character LCD Serial Annunciator


**Annunciators**

### General

The N-ANN-80 annunciator is a compact, backlit, 80-character LCD fire annunciator that mimics the Fire Alarm Control Panel (FACP) display. It provides system status indicators for AC Power, Alarm, Trouble, Supervisory, and Alarm Silenced conditions. The N-ANN-80 and the FACP communicate over a two-wire serial interface employing the ANN-BUS communication format. Connected devices are powered, via two additional wires, by either the host FACP or a remote UL-listed, filtered power supply. N-ANN-80 is black; for white order N-ANN-80-W.

The N-ANN-80 displays English-language text of system point information including device type, zone, independent point alarm, trouble or supervisory status, as well as any custom alpha labels programmed into the control panel. It includes control switches for remote control of critical system functions. (A keyswitch prevents unauthorized operation of the control switches.)

Up to eight N-ANN-80s may be connected to the ANN-BUS of each FACP. Minimal programming is required, which saves time during system commissioning. The N-ANN-80 is compatible with NOTIFIER FACP's with an ANN-BUS, such as the NFW-50.



### Features

- Listed to UL Standard 864, 9th Edition.
- Backlit 80-character LCD display (20 characters x 4 lines).
- Mimics all display information from the host panel.
- Control switches for System Acknowledge, Signal Silence, Drill, and Reset.
- Control switches can be independently enabled or disabled at the FACP.
- Keyswitch enables/disables control switches and mechanically locks annunciator enclosure
- Keyswitch can be enabled or disabled at the FACP.
- Enclosure supervised for tamper.
- System status LEDs for AC Power, Alarm, Trouble, Supervisory, and Alarm Silence.
- Local sounder can be enabled or disabled at the FACP.
- N-ANN-80 connects to the ANN-BUS terminal on the FACP and requires minimal panel programming.
- Displays device type identifiers, individual point alarm, trouble, supervisory, zone, and custom alpha labels.
- Time-and date display field.
- Surface mount directly to wall or to single, double, or 4" square electrical box.
- Semi-flush mount to single, double, or 4" square electrical box. Use ANN-SB80KIT for angled view mounting.
- Can be remotely located up to 6,000 feet (1,800 m) from the panel.
- Backlight turns off during AC loss to conserve battery power but will turn back on if an alarm condition occurs.
- May be powered by 24 VDC from the host FACP or by remote power supply (requires 24 VDC).
- Up to eight N-ANN-80s can be connected on the ANN-BUS.

### Controls and Indicators

- AC Power
- Alarm

- Trouble
- Supervisory
- Alarm Silenced

### Specifications

- **Operating voltage range:** 18 VDC to 28 VDC.
- **Current consumption @ 24 VDC nominal (filtered and non-resettable):** 40 mA maximum.
- **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).
- 5.375" (13.65 cm.) high x 6.875" (17.46 cm.) wide x 1.375" (3.49 cm.) deep.
- For use indoors in a dry location.
- All connections are power-limited and supervised.

### Agency Listings and Approvals

The listings and approvals below apply to the N-ANN-80. 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
- **FM approved**
- **CSFM:** 7120-0028:240
- **MEA:** 442-06-E Vol. 2

### The ANN-BUS

#### POWERING THE DEVICES ON THE ANN-BUS FROM AUXILIARY POWER SUPPLY

The ANN-BUS can be powered by an auxiliary power supply when the maximum number of ANN-BUS devices exceeds the ANN-BUS power requirements. See the FACP manual for more information.



### ANN-BUS DEVICE ADDRESSING

Each ANN-BUS device requires a unique address (ID Number) in order to communicate with the FACP. A maximum of 8 devices can be connected to the FACP ANN-BUS communication circuit. See the FACP manual for more information.

### WIRE REQUIREMENTS: COMMUNICATIONS CIRCUIT

The N-ANN-80 connects to the FACP ANN-BUS communications circuit. To determine the type of wire and the maximum wiring distance that can be used with FACP ANN-BUS accessory modules, it is necessary to calculate the total worst case current draw for all modules on a single 4-conductor bus. The total worst case current draw is calculated by adding the individual worst case currents for each module.

**NOTE:** For total worst case current draw on a single ANN-BUS refer to appropriate FACP manual.

After calculating the total worst case current draw, the following table specifies the maximum distance the modules can be located from the FACP on a single wire run. The table ensures 6.0 volts of line drop maximum. In general, the wire length is limited by resistance, but for heavier wire gauges, capacitance is the limiting factor.

These cases are marked in the chart with an asterisk (\*). Maximum length can never be more than 6,000 feet (1,800 m), regardless of gauge used. See table below.

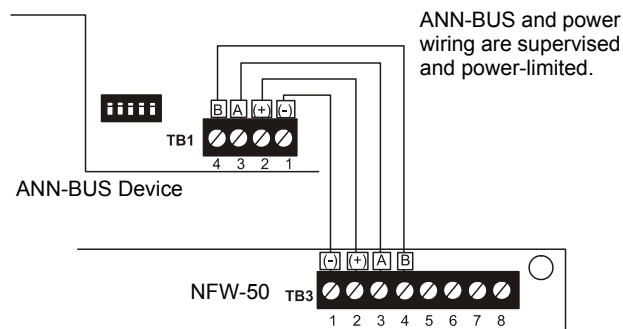
### WIRE REQUIREMENTS: POWER CIRCUIT

- 14 to 18 AWG (0.75 - 2.08 mm<sup>2</sup>) wire for 24 VDC power circuit is acceptable.
- All connections are power-limited and supervised.
- A maximum of eight N-ANN-80 modules may be connected to this circuit.

Communication Pair Wiring Distance: FACP to Last ANN-BUS Module				
Total Worst Case Current Draw (amps)	22 Gauge	18 Gauge	16 Gauge	14 Gauge
0.100	1,852 ft.	4,688 ft.	* 6,000 ft.	*6,000 ft.
0.200	926 ft.	2,344 ft.	3,731 ft.	5,906 ft.
0.300	617 ft.	1,563 ft.	2,488 ft.	3,937 ft.
0.400	463 ft.	1,172 ft.	1,866 ft.	2,953 ft.
0.500	370 ft.	938 ft.	1,493 ft.	2,362 ft.
0.600	309 ft.	781 ft.	1,244 ft.	1,969 ft.
0.700	265 ft.	670 ft.	1,066 ft.	1,687 ft.
0.800	231 ft.	586 ft.	933 ft.	1,476 ft.
0.900	206 ft.	521 ft.	829 ft.	1,312 ft.
1.000 (max.)	185 ft.	469 ft.	746 ft.	1,181 ft.

### WIRING CONFIGURATION

The following figure illustrates the wiring between the FACP and ANN-BUS devices.



FACP Wiring to ANN-BUS Device

### ORDERING OPTIONS:

**N-ANN-80:** Black 80 character LCD Annunciator.

**N-ANN-80-W:** White, 80 character LCD Annunciator.

**ANN-SB80KIT-B:** Black surface mount backbox with angled wedge.

**ANN-SB80KIT-W:** White surface mount backbox with angled wedge.

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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.



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# FSP-951 Series

## Intelligent Plug-In Photoelectric Smoke Detectors



Intelligent/Addressable Devices

### General

The NOTIFIER FSP-951 Series intelligent plug-in smoke detectors are designed for both performance and aesthetics. A new modern, sleek, contemporary design and enhanced optical sensing chamber is engineered to sense smoke produced by a wide range of combustion sources in accordance with more stringent code standards. The FSP-951 Series detector sensitivity can be programmed in the control panel software. Sensitivity is continuously monitored and reported to the panel. Point ID capability allows each detector's address to be set with rotary, decimal address switches, providing exact detector location for selective maintenance when chamber contamination reaches an unacceptable level. Dual electronic thermistors add 135°F (57°C) fixed temperature thermal sensing on the FSP-951T. The FSP-951R is a remote test capable detector for use with DNR Series duct detector housings. FSP-951 series detectors are available for both FlashScan® and CLIP applications as designated.

### Features

- New modern profile for improved aesthetics.
- Designed to meet UL268 7th Edition.
- Stable communication technique with noise immunity.
- Low standby current.
- Two-wire SLC connection.
- Compatible with FlashScan® and CLIP protocol systems.
- Rotary, decimal addressing (1-99 on CLIP systems, 1-159 on FlashScan systems).
- Optional remote, single-gang LED accessory.
- Dual LED design provides 360° viewing angle.
- Visible bi-color LEDs blink green every time the detector is addressed, and illuminate steady red on alarm (*FlashScan systems only*).
- Remote test feature from the panel.
- Walk test with address display (an address on 121 will blink the detector LED: 12-[pause]-1 (*FlashScan systems only*)).
- Built-in functional test switch activated by external magnet.
- Built-in tamper-resistant feature.
- Sealed against back pressure.
- Expanded color options.
- SEMS screws for wiring of the separate base.
- Optional relay, isolator, and sounder bases.

### Specifications

#### Sensitivity:

- UL Applications: 0.5% to 4.0% per foot obscuration.
- ULC Applications: 0.5% to 3.5% per foot obscuration.

**Size:** 2.0" (5.3 cm) high; base determines diameter.

- B300-6: 6.1" (15.6 cm) diameter.
- B501: 4" (10.2 cm) diameter.

For a complete list of detector bases see DN-60981.

**Shipping weight:** 3.4oz (96.4g)

#### Operating Temperature range:

- FSP-951, 0°C to 50°C (32°F to 122°F).
- FSP-951T, 0°C to 38°C (32°F to 100°F).



FSP-951 in B300-6 Base

- FSP-951R installed in a DNR/DNRW, -20°C to 70°C (-4°F to 158°F).

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

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

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

#### DETECTOR SPACING AND APPLICATIONS

NOTIFIER recommends spacing detectors in compliance with NFPA 72. In low airflow applications with smooth ceiling, space detectors 30 feet (9.1m). 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)

#### ELECTRICAL SPECIFICATIONS

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

**Standby Current (max. avg.):** 200µA @ 24VDC (one communication every five seconds with LED enabled).

**LED Current (max.):** 4.5mA @ 24 VDC ("ON").

### Installation

FSP-951 series plug-in detectors use a separate base to simplify installation, service, and maintenance.

Mount base (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see DN-60981.

**NOTE:** 1) Because of inherent supervision provided by the SLC loop, end-of-line resistors are not required. Wiring "T-taps" or branches are permitted for Style 4 (Class "B") wiring. 2) When using relay or sounder bases, consult the ISO-X(A) installation sheet I56-1380 for device limitations between isolator modules and isolator bases.

## Agency Listings and Approvals

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

- UL/ULC Listed: S911
- FM Approved
- CSFM: 7272-0028:0503

## Product Line Information

### NOTE:

- *Detectors must be mounted to one of the Intelligent Bases listed below.*
- *“A” suffix indicates ULC Listed model.*
- *“IV” suffix indicates FlashScan® and CLIP device.*

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

**FSP-951A:** Same as FSP-951 but with ULC listing.

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

**FSP-951A-IV:** Same as FSP-951-IV but with ULC listing.

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

**FSP-951TA:** Same as FSP-951T but with ULC listing.

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

**FSP-951TA-IV:** Same as FSP-951T-IV but with ULC listing.

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

**FSP-951RA:** Same as FSP-951R but with ULC listing. For use with DNRA.

**FSP-951R-IV:** Ivory, low-profile intelligent photoelectric sensor, remote test capable. For use with DNR/DNRW.

**FSP-951RA-IV:** Same as FSP-951R-IV but with ULC listing. For use with DNRA.

### INTELLIGENT BASES

*NOTE: For details on intelligent bases, see DN-60981*

**B300-6:** White, 6” base, standard flanged low-profile mounting base.

**B300-6-IV:** Ivory, 6” base, standard flanged low-profile mounting base.

**B300A-6:** Same as B300-6, ULC listed.

**B300A-6-IV:** Ivory, 6” standard flanged low-profile mounting base, ULC listed.

**B300-6-BP:** Bulk pack of B300-6, package contains 10

**B501-WHITE:** White, 4” standard European flangeless mounting base. UL/ULC listed.

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

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

**B501-WHITE-BP:** Bulk pack of B501-WHITE contains 10.

**B224RB-WH:** White, relay base.

**B224RB-IV:** Ivory, relay base.

**B224RBA-WH:** White, relay base, ULC listing.

**B224RBA-IV:** Ivory, relay base, ULC listing.

**B224BI-WH:** White, *isolator* detector base.

**B224BI-IV:** Ivory *isolator* detector base.

**B224BIA-WH:** White, *isolator* detector base, ULC listing.

**B224BIA-IV:** Ivory *isolator* detector base, ULC listing.

**B200S-WH:** White, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol.

**B200S-IV:** Ivory, Intelligent addressable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone. Uses FlashScan protocol.

**B200SA-WH:** Same as B200S-WH, ULC listing.

**B200SA-IV:** Same as B200S-IV, ULC listing.

**B200SCOA-WH:** White, Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with SO Series detector applications).

**B200SCOA-IV:** Ivory Intelligent, programmable sounder base in English/French (required in Canada for ULC applications with SO Series detector applications, ULC listing).

**B200S-LF-WH:** White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement.

**B200S-LF-IV:** Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement.

**B200SR-WH:** White, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications.

**B200SR-IV:** Ivory, Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Intended for retrofit applications.

**B200SRA-WH:** Same as B200SR-WH with, ULC listing.

**B200SRA-IV:** Same as B200SR-IV in Ivory color, ULC listing.

**B200SR-LF-WH:** White, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications.

**B200SR-LF-IV:** Ivory, Low Frequency Intelligent, programmable sounder base. Produces a fundamental frequency of 520 Hz +/- 10% with a square wave or its equivalent; designed to meet the NFPA 72 sleeping space requirement. Intended for retrofit applications.

### MOUNTING KITS AND ACCESSORIES

**TR300:** White, replacement flange for B210LP(A) base.

**TR300-IV:** Ivory, replacement flange for B210LP(A) base.

**RA100Z(A):** Remote LED annunciator. 3 – 32 VDC. Mounts to a U.S. single-gang electrical box. For use with B501(A) and B300(A)-6.

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

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

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

# HW-AV-LTE-M CLSS PATHWAY

## Connected Life Safety Services (CLSS) Dual-Path LTE Communicator with Dial Capture Interface

The Honeywell® CLSS Pathway is a differentiated communications platform with dual support for AT&T® and Verizon® and integrated features powered by the CLSS Cloud.

The CLSS Pathway combines dial capture functionality with the powerful capabilities of Honeywell's CLSS Cloud. It represents the latest alarm communications technology for the fire industry. The CLSS Pathway allows data transmission by utilizing LTE CAT-M1 networks, serving as a bridge between the fire system and the CLSS Cloud.

This device provides a single site-to-cloud path ensuring all CLSS Cloud services use the same audited and monitored method to access the on-premises life safety system.

### HONEYWELL CONNECTED LIFE SAFETY SERVICES (CLSS)

Honeywell CLSS is an innovative, all-in-one cloud platform that enables systems integrators and facilities managers to deliver an enhanced fire safety service, while maximizing the performance efficiencies offered by Honeywell's trusted detection and alarm systems. The CLSS platform enables users to:

- Get a "bird's eye" view of all accounts
- Obtain real-time information on event generation, enabling diagnosis before dispatch
- Conduct tests and inspections using a mobile app (available in select markets)
- Provide end users with multi-site asset information and event alerts

### DUAL AT&T AND VERIZON SUPPORT

Equipped with dual SIM cards, the CLSS Pathway supports both AT&T and Verizon networks. When first powered on, the communicator selects the strongest signal. If either path is not available, the device provides redundant paths for the cellular signal.

### SIMPLIFIED INSTALLATION

The CLSS Pathway is commissioned via the CLSS mobile app and CLSS Site Manager interface, which also allow for additional remote visibility.

Connection and mounting is simplified using the enclosure kit. The CLSS Pathway is compatible with any fire alarm dialer using Contact ID format and automatically recognizes the format when powered up. Any number can be programmed into the panel phone numbers. Installers can select the central station service they wish to use from a list of approved central station providers. Only account numbers assigned by the central station must be programmed and the dialer selected for tone dialing output.

## FEATURES AND BENEFITS

- Integration with CLSS enables monitoring of event transmission data & management of device inventory from the CLSS mobile app and web portal (available only when using point-based reporting)
- Meets UL 864 requirements for sole primary or backup path communications
- High reliability due to multiple transmission channels (LTE CAT-M1/LAN) and redundant servers
- Universal Panel Compatibility - Dial capture interface supporting Contact ID
- Four supervised inputs for non-dialer panels
- Unique "M1" Network is 5G ready, providing deep signal penetration that allows operation within buildings
- Remote firmware updates
- CLSS mobile app supports push and email notifications
- Monitors event transmission data & manages device inventory from the CLSS mobile app and web portal
- Exceptional Redundancy - Dual-SIM device picks the strongest signal from AT&T or Verizon. If one network becomes unavailable, the communicator connects to the other network
- Powered directly by a 24-volt DC fire alarm power supply. No need for additional batteries, transformer, or power supply
- Connection monitoring - adjustable fault reporting time as low as 20 seconds
- Web-based software and smartphone app for device configuration and administration.



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# HW-AV-LTE-M TECHNICAL SPECIFICATIONS

Characteristics	Imperial Unit	Metric Unit
<b>Electrical</b>		
Supply Voltage	+12 to +29 VDC	
Power Consumption	<ul style="list-style-type: none"> <li>Standby: 60 mA</li> <li>Peak: 200 mA</li> </ul>	
Frequency	LTE CAT-M1 700/850/1700/1900/2100 MHz	
<b>Environment</b>		
Operating Temperature	32°F to 120°F	0°C to 49°C
Relative humidity:	1% to 85% Non-condensing	
<b>Physical</b>		
Dimensions	3.54" L x 2.48" W x 1.26" D	90 mm L x 63 mm W x 32 mm D
Weight (without antenna)	2.56 oz	72.57 gm
RoHS	Yes	
<b>Network Providers</b>		
<ul style="list-style-type: none"> <li>AT&amp;T, North America</li> <li>Verizon, North America</li> <li>Other provider in the area networks</li> </ul>		

## AGENCY LISTINGS AND APPROVALS

The listings and approvals below apply to the HW-AV-LTE-M Communicator. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Contact Honeywell for the latest listings.

### STANDARDS AND CODES

ETL Listed

UL Standards:

- The HW-AV-LTE-M is designed to comply with UL 864 - Control Units and Accessories for Fire Alarm Systems Units

### APPROVALS

- FCC

## ORDERING INFORMATION

- HW-AV-LTE-M:** Dual-Path Communicator with Dial Capture Interface only
- HW-AV-KIT:** Bundled Communicator and Enclosure Kit. Includes the enclosure.

### CUSTOMER SUPPLIED EQUIPMENT

Mobile Device for LTE Communicator configuration (either iOS or Android).

Android™ is a trademark of Google, Inc.

AT&T® is a registered trademark of the AT&T Properties, L.P.

Honeywell® is a registered trademark of Honeywell International, Inc.

iOS® is a registered trademark of Cisco Systems Inc. licensed by Apple Inc.

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

## Monitor Modules with FlashScan®



Intelligent/Addressable Devices

### General

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

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

**FMM-101(A)** is a miniature monitor module a mere 1.3" (3.302 cm) H x 2.75" (6.985 cm) W x 0.65" (1.651 cm) D that supervises a Style B (Class B) circuit of dry-contact input devices. Its compact design allows the FMM-101(A) to be mounted in a single-gang box behind the device it monitors.

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

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

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

### FMM-1(A) Monitor Module

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

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

### FMM-1(A) APPLICATIONS

Use to monitor a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-



FMM-1(A) (Type H)

open dry-contact alarm activation devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 47K Ohm End-of-Line Resistor (provided) terminates the Style B circuit. No resistor is required for supervision of the Style D circuit.

### FMM-1(A) OPERATION

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

### FMM-1(A) SPECIFICATIONS

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

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

**Average operating current:** 375 µA (LED flashing), 1 communication every 5 seconds, 47k EOL.

**Maximum IDC wiring resistance:** 1500 Ohms.

**Maximum IDC Voltage:** 11 Volts.

**EOL resistance:** 47K Ohms.

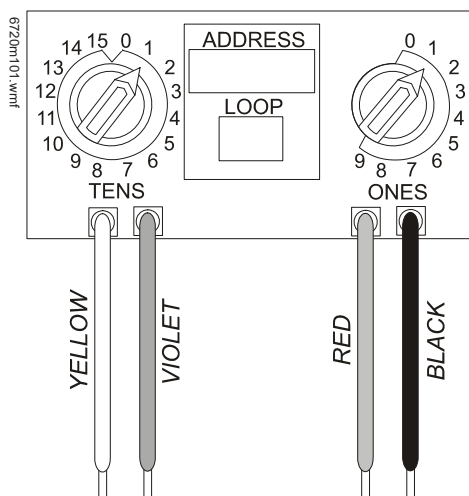
**Temperature range:** 32°F to 120°F (0°C to 49°C).

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

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

## FMM-101(A) Mini Monitor Module

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



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

### FMM-101(A) APPLICATIONS

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

### FMM-101(A) OPERATION

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

### FMM-101(A) SPECIFICATIONS

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

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

**Maximum IDC wiring resistance:** 1500 Ohms.

**Maximum IDC Voltage:** 11 Volts.

**Maximum IDC Current:** 450  $\mu$ A.

**EOL resistance:** 47K Ohms.

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

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

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

**Wire length:** 6" (15.24 cm) minimum.

## FZM-1(A) Interface Module

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

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

### FZM-1(A) APPLICATIONS

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

### FZM-1(A) OPERATION

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

### FZM-1(A) SPECIFICATIONS

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

**Maximum current draw:** 5.1 mA (LED on).

**Maximum IDC wiring resistance:** 25 Ohms.

**Average operating current:** 270  $\mu$ A, 1 communication and 1 LED flash every 5 seconds, 3.9k eol.

**EOL resistance:** 3.9K Ohms.

**External supply voltage (between Terminals T10 and T11):**

- DC voltage: 24 volts power limited.
- Ripple voltage: 0.1 Vrms maximum.
- Current: 90 mA per module maximum.

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



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

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

## FDM-1(A) Dual Monitor Module

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

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

### FDM-1(A) SPECIFICATIONS

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

**Maximum current draw:** 6.4 mA (LED on).

**Average operating current:** 750  $\mu$ A (LED flashing).

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

**Maximum IDC Voltage:** 11 Volts.

**Maximum IDC Current:** 240  $\mu$ A

**EOL resistance:** 47K Ohms.

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

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

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

### FDM-1(A) AUTOMATIC ADDRESSING

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

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



#### CAUTION:

Avoid duplicating addresses on the system.

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## Installation

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

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

## Agency Listings and Approvals

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

- **UL:** S635.
- **ULC:** S635.
- **FM Approved.**
- **CSFM:** 7300-0028:0219, 7165-0028:0224, 7165-0028:0243.
- **MEA:** 457-99-E.
- **U.S. Coast Guard:** 161.002/50/0 (NFS2-640, NFS2-320, NFS2-3030).
- **Lloyd's Register:** 11/600013 (NFS2-640, NFS2-320, NFS2-3030).
- **Fire Dept. of New York:** COA #6121 (NFS2-640, NFS-320), COA# 6114 (NFS2-3030).

## Product Line Information

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

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

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

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

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

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

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

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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)

# NBG-12LX

## Addressable Manual Pull Station



Intelligent/Addressable Devices

### General

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

### Features

- Maintenance personnel can open station for inspection and address setting without causing an alarm condition.
- Built-in bicolor LED, which is visible through the handle of the station, flashes in normal operation and latches steady red when in alarm.
- Handle latches in down position and the word “ACTIVATED” appears to clearly indicate the station has been operated.
- Captive screw terminals wire-ready for easy connection to SLC loop (accepts up to 12 AWG/3.25 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 mechanisms guidelines (Section 4.1.3[13]); meets ADA requirement for 5 lb. maximum activation force.
- Highly visible.
- Attractive shape and textured finish.
- Key reset.
- Includes Braille text on station handle.
- Optional trim ring (BG12TR).
- Meets UL 38, Standard for Manually Actuated Signaling Boxes.
- Up to 99 NBG-12LX stations per loop on CLIP protocol loops.
- Up to 159 NBG-12LX stations per loop on FlashScan® protocol loops.
- Dual-color LED blinks green to indicate normal on FlashScan® systems.

### Construction

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

### Specifications

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



The NBG-12LX  
Addressable Manual Pull Station

### Installation

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

### Operation

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

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

### Architectural/Engineering Specifications

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

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

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

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

## Product Line Information

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

**NBG-12LXSP:** Spanish/English labelled version.

**NBG-12LXP:** Portuguese labelled version.

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

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

**BG12TR:** Optional trim ring.

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

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

## Agency Listings and Approvals

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

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

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

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# Indoor Selectable-Output Strobes and Horn Strobes for Ceiling Applications

*System Sensor L-Series audible visible notification products are rich with features guaranteed to cut installation times and maximize profits with lower current draw and modern aesthetics.*



## Features

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- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela
- Field-selectable candela settings on ceiling units: 15, 30, 75, 95, 115, 150, and 177
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and two volume selections
- Universal mounting plate for ceiling units
- Mounting plate shorting spring feature checks wiring continuity before device installation
- Electrically Compatible with legacy SpectrAlert and SpectrAlert Advance devices
- Compatible with MDL3 sync module
- Listed for ceiling mounting only

**The System Sensor L-Series** offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry with lower current draws and modern aesthetics. With white and red plastic housings, wall and ceiling mounting options, System Sensor L-Series can meet virtually any application requirement.

The entire L-Series product line of ceiling-mount strobes and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature a plug-in design with minimal intrusion into the back box, making installations fast and foolproof while virtually eliminating costly and time-consuming ground faults.

To further simplify installation, the L-Series utilizes a universal mounting plate so installers can mount them to a wide array of back boxes. With an onboard shorting spring, installers can test wiring continuity before the device is installed.

Installers can also easily adapt devices to suit a wide range of application requirements using field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with two volume selections.

## Agency Listings

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# L-Series Specifications

## Architect/Engineer Specifications

### General

L-Series ceiling-mount strobes and horn strobes shall mount to a standard 4 × 4 × 1½-inch back box, 4-inch octagon back box, or double-gang back box. Two-wire products shall also mount to a single-gang 2 × 4 × 17/8-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, L-Series products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Ceiling strobes and horn strobes shall have field-selectable candela settings including 15, 30, 75, 95, 115, 150, and 177.

### Strobe

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

### Horn Strobe Combination

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

### Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize L-Series strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4 11/16 × 4 11/16 × 2 1/8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

## Physical/Electrical Specifications

<b>Standard Operating Temperature</b>	32°F to 120°F (0°C to 49°C)
<b>Humidity Range</b>	10 to 93% non-condensing
<b>Strobe Flash Rate</b>	1 flash per second
<b>Nominal Voltage</b>	Regulated 12 VDC or regulated 24 DC/FWR <sup>1</sup>
<b>Operating Voltage Range<sup>2</sup></b>	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
<b>Operating Voltage Range (MDL3)</b>	8.5 to 17.5V (12 V nominal) or 16.5 to 33 V (24V nominal)
<b>Input Terminal Wire Gauge</b>	12 to 18 AWG
<b>Ceiling-Mount Dimensions (including lens)</b>	6.8" diameter × 2.5" high (173 mm diameter × 64 mm high)
<b>Ceiling-Mount Surface Mount Back Box Skirt Dimensions (SBBCRL, SBBCWL)</b>	6.9" diameter × 3.4" high (175 mm diameter × 86 mm high)

### Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. P, S, PC, and SC products will operate at 12 V nominal only for 15 and 30 cd.

## UL Current Draw Data

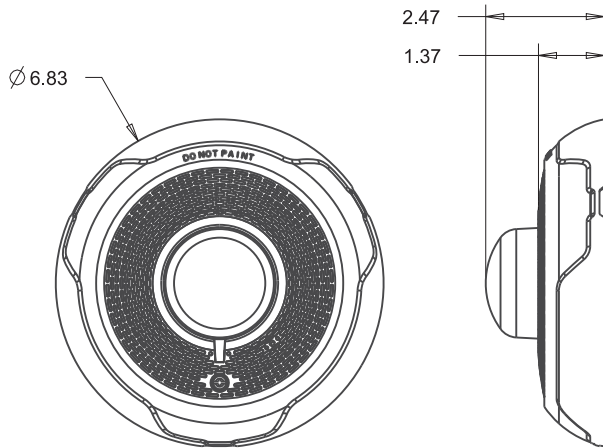
UL Max. Strobe Current Draw (mA RMS)			
Candela	8–17.5 Volts		16–33 Volts
	DC		FWR
15	87	41	60
30	153	63	86
75	N/A	111	142
95	N/A	134	164
115	N/A	158	191
150	N/A	189	228
177	N/A	226	264

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe									
DC Input	8-17.5 Volts		16-33 Volts						
	15cd	30cd	15cd	30cd	75cd	95cd	115cd	150cd	177cd
Temporal High	103	167	71	90	143	165	187	217	254
Temporal Low	96	165	54	71	137	161	185	211	249
Non-Temporal High	106	173	71	90	141	165	187	230	273
Non-Temporal Low	95	166	54	71	124	161	170	216	258
3.1K Temporal High	111	164	69	94	147	163	184	229	257
3.1K Temporal Low	103	163	54	88	143	155	185	212	252
3.1K Non-Temporal High	111	172	69	94	144	164	202	229	271
3.1K Non-Temporal Low	103	169	54	88	131	155	187	217	259
16-33 Volts									
FWR Input	15cd	30cd	75cd	95cd	115cd	150cd	177cd		
Temporal High	107	135	179	198	223	254	286		
Temporal Low	78	101	151	172	199	229	262		
Non-Temporal High	107	135	179	198	223	254	286		
Non-Temporal Low	78	101	151	172	199	229	262		
3.1K Temporal High	108	135	179	200	225	255	289		
3.1K Temporal Low	79	101	150	171	196	229	260		
3.1K Non-Temporal High	108	135	179	200	225	255	289		
3.1K Non-Temporal Low	79	101	150	171	196	229	260		

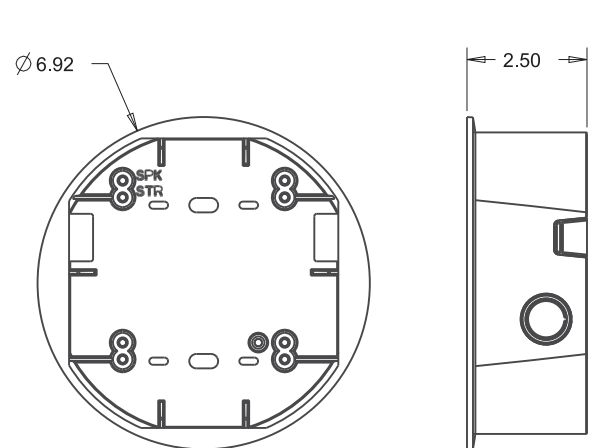
## Horn Strobe Tones and Sound Output Data

Horn and Horn Strobe Output (dBA)					
Switch Position	Sound Pattern	dB	8–17.5	16–33	FWR
			Volts	Volts	
			DC	DC	
1	Temporal	High	84	89	89
2	Temporal	Low	75	83	83
3	Non-Temporal	High	85	90	90
4	Non-Temporal	Low	76	84	84
5	3.1 KHz Temporal	High	83	88	88
6	3.1 KHz Temporal	Low	76	82	82
7	3.1 KHz Non-Temporal	High	84	89	89
8	3.1 KHz Non-Temporal	Low	77	83	83

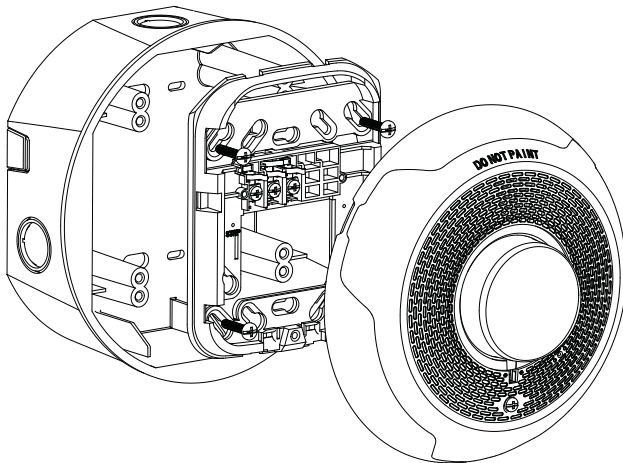
## L-Series Dimensions



Ceiling-Mount Horn Strobes



Ceiling Surface Mount Back Box



Ceiling Mount Horn Strobes with Ceiling Surface Mount Back Box

## L-Series Ordering Information

Model	Description
<b>Ceiling Horn Strobes</b>	
PC2RL	2-Wire, Horn Strobe, Red
PC2WL	2-Wire, Horn Strobe, White

Model	Description
<b>Ceiling Strobes</b>	
SCRL	Strobe, Red
SCWL	Strobe, White
SCWL-CLR-ALERT	Strobe, White, ALERT
<b>Accessories</b>	
TRC-2	Universal Ceiling Trim Ring Red
TRC-2W	Universal Ceiling Trim Ring White
SBBCRL	Ceiling Surface Mount Back Box, Red
SBBCWL	Ceiling Surface Mount Back Box, White







# Indoor Selectable-Output Horns, Strobes, and Horn Strobes for Wall Applications

*System Sensor L-Series audible visible notification products are rich with features guaranteed to cut installation times and maximize profits with lower current draw and modern aesthetics.*

## Features

- Updated Modern Aesthetics
- Small profile devices for Horns and Horn Strobes
- Plug-in design with minimal intrusion into the back box
- Tamper-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 30 candela
- Field-selectable candela settings on wall units: 15, 30, 75, 95, 110, 135, and 185
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and two volume selections
- Mounting plate for all standard and all compact wall units
- Mounting plate shorting spring checks wiring continuity before device installation
- Electrically Compatible with legacy SpectrAlert and SpectAlert Advance devices
- Compatible with MDL3 sync module
- Listed for wall mounting only

## Agency Listings



**The System Sensor L-Series** offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry with lower current draws and modern aesthetics. With white and red plastic housings, standard and compact devices, and plain, FIRE, and FUEGO-printed devices, System Sensor L-Series can meet virtually any application requirement.

The L-Series line of wall-mount horns, strobes, and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature plug-in designs with minimal intrusion into the back box, making installations fast and foolproof while virtually eliminating costly and time-consuming ground faults.

To further simplify installation and protect devices from construction damage, the L-Series utilizes a universal mounting plate for all models with an onboard shorting spring, so installers can test wiring continuity before the device is installed.

Installers can also easily adapt devices to suit a wide range of application requirements using field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with two volume selections.

# L-Series Specifications

## Architect/Engineer Specifications

### General

L-Series standard horns, strobes, and horn strobes shall mount to a standard 2 x 4 x 1 7/8-inch back box, 4 x 4 x 1 1/2-inch back box, 4-inch octagon back box, or double-gang back box. L-Series compact products shall mount to a single-gang 2 x 4 x 1 7/8-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products for all standard models and a separate universal mounting plate shall be used for mounting wall compact models. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, L-Series products, when used with the Sync•Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync•Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 8.5 and 17.5 volts; 24-volt-rated notification appliance circuit outputs shall operate between 16.5 and 33 volts. Indoor L-Series products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 30, 75, 95, 110, 135, and 185.

### Strobe

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

### Horn Strobe Combination

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

### Synchronization Module

The module shall be a System Sensor Sync•Circuit model MDL3 listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectraAlert strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4 1/16 x 4 1/16 x 2 1/8-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

## Physical/Electrical Specifications

<b>Standard Operating Temperature</b>	32°F to 120°F (0°C to 49°C)
<b>Humidity Range</b>	10 to 93% non-condensing
<b>Strobe Flash Rate</b>	1 flash per second
<b>Nominal Voltage</b>	Regulated 12 DC or regulated 24 DC/FWR <sup>1,2</sup>
<b>Operating Voltage Range</b>	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
<b>Operating Voltage Range MDL3 Sync Module</b>	8.5 to 17.5 V (12 V nominal) or 16.5 to 33 V (24 V nominal)
<b>Input Terminal Wire Gauge</b>	12 to 18 AWG
<b>Wall-Mount Dimensions (including lens)</b>	5.6" L x 4.7" W x 1.91" D (143 mm L x 119 mm W x 49 mm D)
<b>Compact Wall-Mount Dimensions (including lens)</b>	5.26" L x 3.46" W x 1.91" D (133 mm L x 88 mm W x 49 mm D)
<b>Horn Dimensions</b>	5.6" L x 4.7" W x 1.25" D (143 mm L x 119 mm W x 32 mm D)
<b>Compact Horn Dimensions</b>	5.25" L x 3.45" W x 1.25" D (133mm L x 88mm W x 32mm D)

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.

2. Strobe products will operate at 12 V nominal only for 15 cd and 30 cd.

## UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)					UL Max. Horn Current Draw (mA RMS)				
Candela Range	Candela	8-17.5 Volts		16-33 Volts	Sound Pattern	dB	8-17.5 Volts		16-33 Volts
		DC	DC	FWR			DC	DC	FWR
Candela Range	15	88	43	60	Temporal	High	39	44	54
	30	143	63	83	Temporal	Low	28	32	54
	75	N/A	107	136	Non-Temporal	High	43	47	54
	95	N/A	121	155	Non-Temporal	Low	29	32	54
	110	N/A	148	179	3.1 KHz Temporal	High	39	41	54
	135	N/A	172	209	3.1 KHz Temporal	Low	29	32	54
	185	N/A	222	257	3.1 KHz Non-Temporal	High	42	43	54
				3.1 KHz Non-Temporal	Low	28	29	54	
				Coded	High	43	47	54	
				3.1 KHz Coded	High	42	43	54	

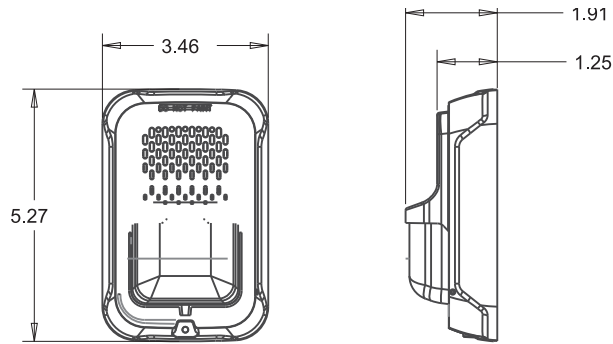
UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, Candela Range (15-115 cd)										
DC Input	8-17.5 Volts		16-33 Volts							
	15cd	30cd	15cd	30cd	75cd	95cd	110cd	135cd	185cd	
Temporal High	98	158	54	74	121	142	162	196	245	
Temporal Low	93	154	44	65	111	133	157	184	235	
Non-Temporal High	106	166	73	94	139	160	182	211	262	
Non-Temporal Low	93	156	51	71	119	139	162	190	239	
3.1K Temporal High	93	156	53	73	119	140	164	190	242	
3.1K Temporal Low	91	154	45	66	112	133	160	185	235	
3.1K Non-Temporal High	99	162	69	90	135	157	175	208	261	
3.1K Non-Temporal Low	93	156	52	72	119	138	162	192	242	
FWR Input	16-33 Volts									
	15cd	30cd	75cd	95cd	110cd	135cd	185cd			
Temporal High	83	107	156	177	198	234	287			
Temporal Low	68	91	145	165	185	223	271			
Non-Temporal High	111	135	185	207	230	264	316			
Non-Temporal Low	79	104	157	175	197	235	283			
3.1K Temporal High	81	105	155	177	196	234	284			
3.1K Temporal Low	68	90	145	166	186	222	276			
3.1K Non-Temporal High	104	131	177	204	230	264	326			
3.1K Non-Temporal Low	77	102	156	177	199	234	291			

## Horn Tones and Sound Output Data

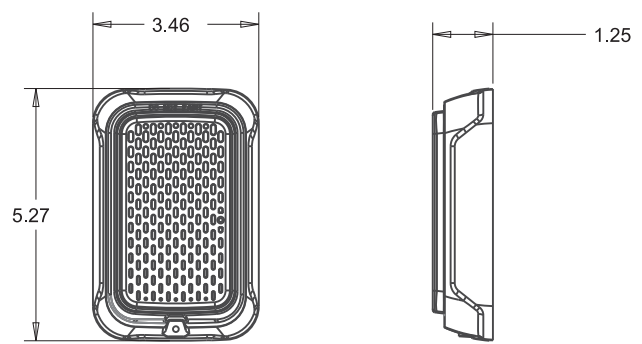
Horn and Horn Strobe Output (dBA)					
Switch Position	Sound Pattern	dB	8-17.5 Volts	16-33 Volts	FWR
			DC	DC	
1	Temporal	High	84	89	89
2	Temporal	Low	75	83	83
3	Non-Temporal	High	85	90	90
4	Non-Temporal	Low	76	84	84
5	3.1 KHz Temporal	High	83	88	88
6	3.1 KHz Temporal	Low	76	82	82
7	3.1 KHz Non-Temporal	High	84	89	89
8	3.1 KHz Non-Temporal	Low	77	83	83
9*	Coded	High	85	90	90
10*	3.1 KHz Coded	High	84	89	89

\* Settings 9 and 10 are not available on the 2-wire horn strobes.

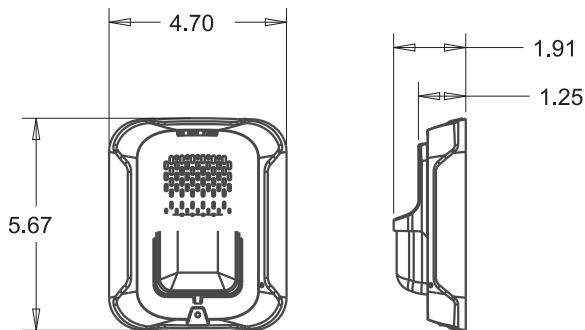
## L-Series Dimensions



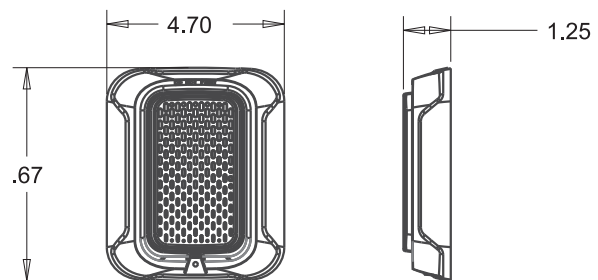
Compact Strobe / Horn Strobe



Compact Horn



Strobe / Horn Strobe



Horn

## L-Series Ordering Information

Model	Description
<b>Wall Horn Strobes</b>	
P2RL	2-Wire, Horn Strobe, Red
P2WL	2-Wire, Horn Strobe, White
P2GRL	2-Wire, Compact Horn Strobe, Red
P2GWL	2-Wire, Compact Horn Strobe, White
P2RL-P	2-Wire, Horn Strobe, Red, Plain
P2WL-P	2-Wire, Horn Strobe, White, Plain
P2RL-SP	2-Wire, Horn Strobe, Red, FUEGO
P2WL-SP	2-Wire, Horn Strobe, White, FUEGO
<b>Wall Strobes</b>	
SRL	Strobe, Red
SWL	Strobe, White
SGRL	Compact Strobe, Red
SGWL	Compact Strobe, White
SRL-P	Strobe, Red, Plain
SWL-P	Strobe, White, Plain
SRL-SP	Strobe, Red, FUEGO
SWL-CLR-ALERT	Strobe, White, ALERT

Model	Description
<b>Horns</b>	
HRL	Horn, Red
HWL	Horn, White
HGRL	Compact Horn, Red
HGWL	Compact Horn, White
<b>Accessories</b>	
TR-2	Universal Wall Trim Ring Red
TR-2W	Universal Wall Trim Ring White
SBBRL	Wall Surface Mount Back Box, Red
SBBWL	Wall Surface Mount Back Box, White
SBBGRL	Compact Wall Surface Mount Back Box, Red
SBBGWL	Compact Wall Surface Mount Back Box, White

### Notes:

- All -P models have a plain housing (no "FIRE" marking on cover)
- All -SP models have "FUEGO" marking on cover
- All -ALERT models have "ALERT" marking on cover



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

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 for current product information, including the latest version of this data sheet.  
 AVDS86502 • 02/17

## PHYSICAL SPECIFICATION

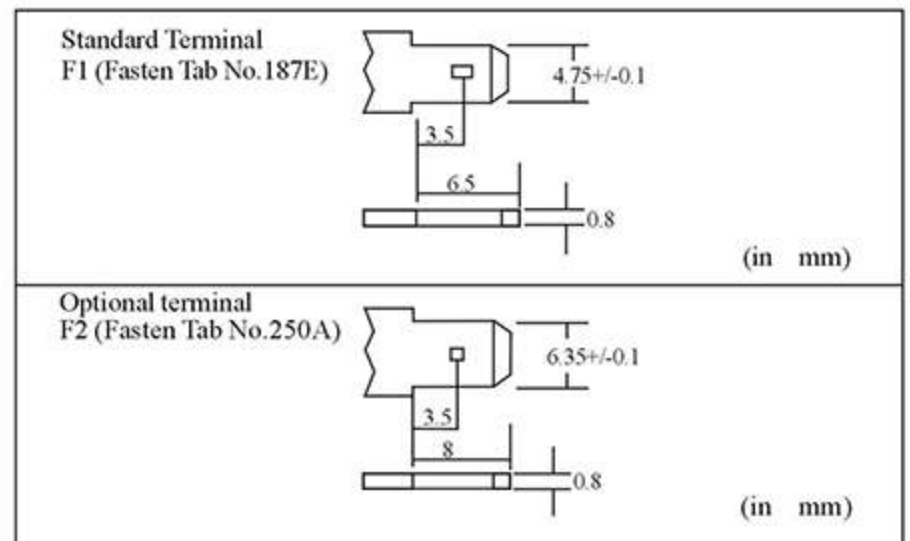
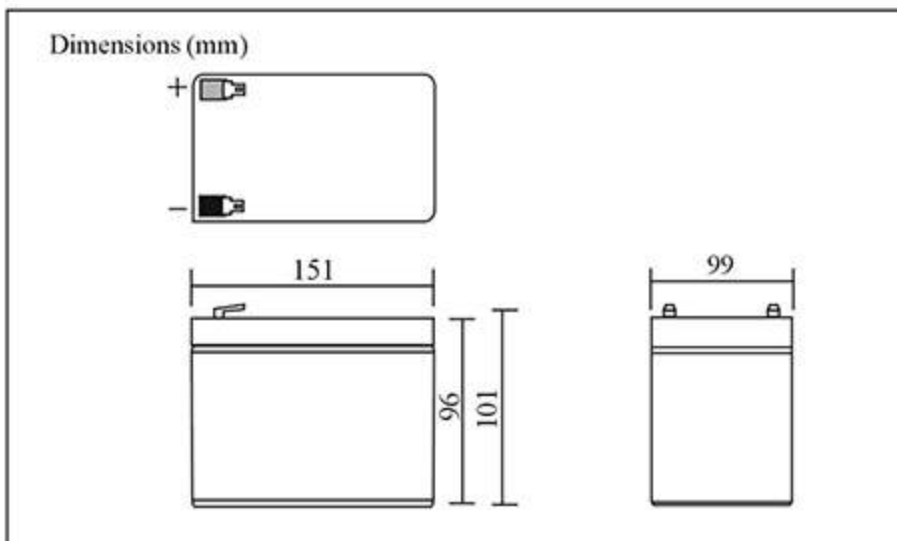
## PRB1212T (12V12AH)

Major Application(s):

Powerpack

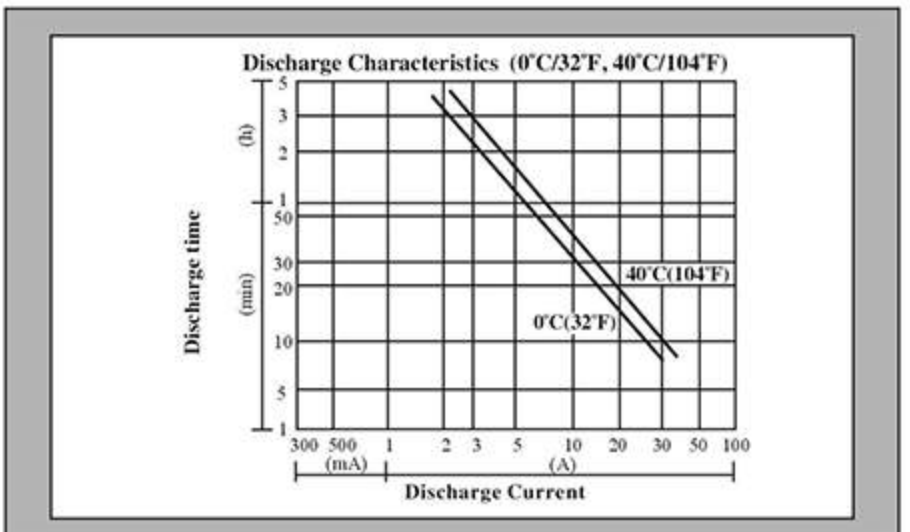
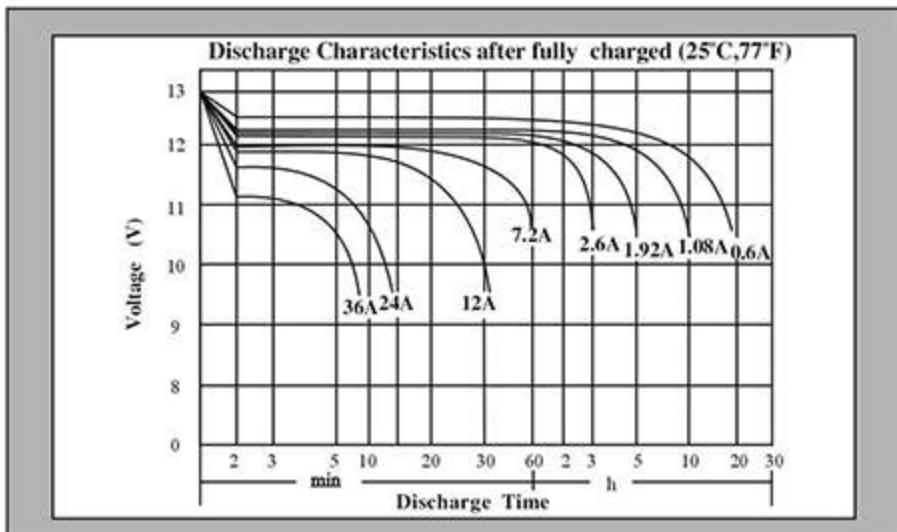


Nominal Voltage Nominal Capacity (20HR)		12V 12AH
Dimensions	Length	151 ± 1mm (5.94 inches)
	Width	99 ± 1mm (3.90 inches)
	Container Height	96 ± 2mm (3.78 inches)
	Total Height	101 ± 2mm (3.98 inches)
Weight		Approx 3.22 kg (7.0 lbs)
Standard Terminal		F1-Fasten Tab No. 187E



## ELECTRICAL SPECIFICATION

Capacity	20 hour rate (0.60A)	12AH	It is recommended to use constant-voltage charge and recharge immediately after use
	10 hour rate (1.08A)	10.8AH	
Capacity affected by Temperature	5 hour rate (1.92A)	9.6AH	
	1 hour rate (7.2A)	7.2AH	
	40°C (104°F)	105%	
Internal Resistance	25°C (77°F)	100%	Constant-Voltage Charge
	0°C (32°F)	85%	
Fully charged battery (25°C, 77°F) 25mΩ			Cycle
			Initial Charging Current less than 3.6 A
			Voltage 14.4V~15.0V at 25°C (77°F)
			Temperature Coefficient -30mV/°C
			Standby
			Voltage 13.5V~13.80V at 25°C (77°F)
			Temperature Coefficient -20mV/°C





# DTK-2MHLP

## Voice, Data and Signaling Circuit Modular Surge Protection General Product Specifications

DITEK's 2MHLP series of signal, data and loop circuit surge protectors provide robust protection in a compact package. Designed for ease of installation, with convenient field-replaceable modules, the **2MHLP** protects two circuit pairs per module. Applications include protection of 4-20mA current loops, alarm panel NAC, SLC and IDC loops, and burglar alarm panels. The DTK-2MHLP is suitable for use on AC and DC circuits.

### DTK-2MHLP

#### Product Features

- Multi-stage, SAD technology, hybrid design provides the best possible protection
- Hard-wire mounting base
- Field replaceable, hot swappable, modular edge card connection design
- Seven voltage levels available to protect all types of voice/data applications
- Two pairs protected per module; when used with mounting base (DTK-MB) modules can be ganged to protect up to ten pairs with a common ground
- Ten Year Limited Warranty

#### Specifications

**Agency Approvals:** UL497B

**Connection Method – Module:** Edge card into DTK-MB mounting base

**Base:** 10AWG max screw terminals

**Max Continuous Current:** 5 Amps

**Max Surge Current:** 20kA

**Data Rate:** 200kbps (5v) to 2Mbps (130V)

**Protection Modes:** Line-Ground (All)

**Operating Temperature:** -40°F - 158°F (-40°C - 70°C)

**Maximum Humidity:** 95% non-condensing

#### Dimensions

– **Module:** 1.9"H x 2.1"W x 1.4"D  
(48mm x 53mm x 36mm)

– **Module with Base:** 2.6"H x 3.25"W x 1.5"D  
(66mm x 83mm x 38mm)

**Weight:** 1.2 oz (34g) without base;  
2.8 oz(79g) with base

**Housing:** ABS



#### Selection Guide

Example: DTK-2MHLP24BWB

**DTK-2MHLP** \_\_\_ **B** \_\_\_

**Select Voltage:** 5, 12, 24, 36, 48, 75

**WB:** 2MHLP with Single Mounting Base

**DTK-MB10:** Hardwire mounting base

**DTK-MBV:** Horizontal wiring across base

Multiple module mounting bases available separately (DTK-MB, DTK-2MB, DTK-3MB, DTK-4MB, DTK-5MB)

**Example:** (3) DTK-2MHLP36B + (1) DTK-3MB

#### Performance Data

Model DTK- 2MHLP	Service Voltage	MCOV	Typical Let Through Voltage
<b>5B</b>	0-5 Volts	5 Volts	6.8 V
<b>12B</b>	12 Volts	18 Volts	21.6 V
<b>24B</b>	24 Volts	33 Volts	39 V
<b>36B</b>	36 Volts	48 Volts	57 V
<b>48B</b>	48 Volts	64 Volts	76 V
<b>75B</b>	75 Volts	90 Volts	108 V



FIRE ALARM SYSTEM CALCULATIONS  
**CAROLINA DIESEL TRUCK**  
62 PROGRESSIVE DRIVE  
FUQUAY VARINA, NORTH CAROLINA

Fire Alarm Contractor: BFPE International  
115 Bestwood Drive  
Clayton, NC 27520

Project No.: RA-A6706-A-22

Date: December 14, 2022



## NFW-50X - AC Branch Current

Select devices using the "Qty" column.  
Use yellow cells to enter quantities and current values.  
To show only selected devices, select "Show Selected Devices".  
To clear selected devices, select "Clear Selections".

Note: These selections only determine the AC branch current. If these devices will affect the battery requirements, you need to select them on the System Current Draw sheet.

120 VAC     220/240 VAC

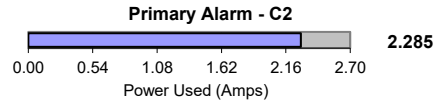
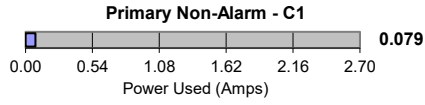
Device	Qty		Current	Total
NFW-50X	1	x	1.75 A	1.75 A
			<b>AC Branch Required:</b>	<b>1.75 A</b>





# System Current Draw - NFW-50X

Current Draw	
C1	0.079 A
C2	2.285 A
C3	0.220 A
C4	2.542 A



Device	C1 - Primary Non-Alarm				C2 - Primary Alarm				C3 - Secondary Non-Alarm					
	Qty		Draw	Total	Qty		Draw	Total	Qty		Draw	Total		
Main Circuit Board	1	x	0.00000	0.00000	0	x	0.00000	0.00000	1	x	0.14100	0.14100		
AV Circuit 1	1	x	0.00000	0.00000	1	x	0.95000	0.95000	1	x	0.00000	0.00000		
AV Circuit 2	1	x	0.00000	0.00000	1	x	0.89500	0.89500	1	x	0.00000	0.00000		
N-ANN-80	1	x	0.01500	0.01500	1	x	0.04000	0.04000	1	x	0.01500	0.01500		
NP-100, NP-200, FSP-851, FSP-951	2	x	0.00030	0.00060					2	x	0.00030	0.00060		
NDM-100, FDM-1	2	x	0.000750	0.00150					2	x	0.000750	0.00150		
NOT-BG12LX, NBG-12X	6	x	0.00030	0.00180					6	x	0.00030	0.00180		
<b>Max Alarm Draw - All Addressable Devices</b>					1	x	0.20000	0.20000						
CLSS DIALER	1	x	0.20000	0.06000	1	x	0.20000	0.20000	1	x	0.06000	0.06000		
<b>Total Non-Alarm Load:</b>				<b>0.079</b>	<b>Total Alarm Load:</b>				<b>2.285</b>	<b>Total Standby Load:</b>				<b>0.220</b>



# System Power Requirements

## NFW-50X Fire Alarm Control Panel

Protected Premises: <u>Carolina Diesel Truck</u>	Date: <u>12/14/2022</u>
Address: <u>62 Progressive</u>	
City: <u>Fuquay Varina</u> State: <u>NC</u>	Zip: <u>27526</u>
Prepared By: <u>BFPE International</u>	Phone: <u>919552699</u>
Address: <u>115 Bestwood Dr</u> Email: _____	
City: <u>Clayton</u> State: <u>NC</u>	Zip: <u>27520</u>

**AC Branch Current Requirements** 1.75 AMPS @ 120 VAC

Current required by source to power the fire alarm system.

**Primary Standby Load** 0.08 Amps

Current load on the primary power supply during non-alarm conditions.

**Primary Alarm Load** 2.29 Amps

Current load on the primary power supply during alarm conditions.

**Secondary Load Requirements** 6.59 Amp Hours

Total Secondary Load from the calculation table below.

Current Draw		Time (hours)	Total (AH)
<b>Secondary Standby Load</b> 0.220 A	x	Required Standby Time	
		24 hours	5.28
<b>Secondary Alarm Load</b> 2.542 A	x	Required Alarm Time	
		0.084 hours	0.21
Total Secondary Load			5.49
Derating factor			x 1.2
<b>Secondary Load Requirements</b>			<b>6.59</b>

AH

**Battery Selection** 7 Amp Hours

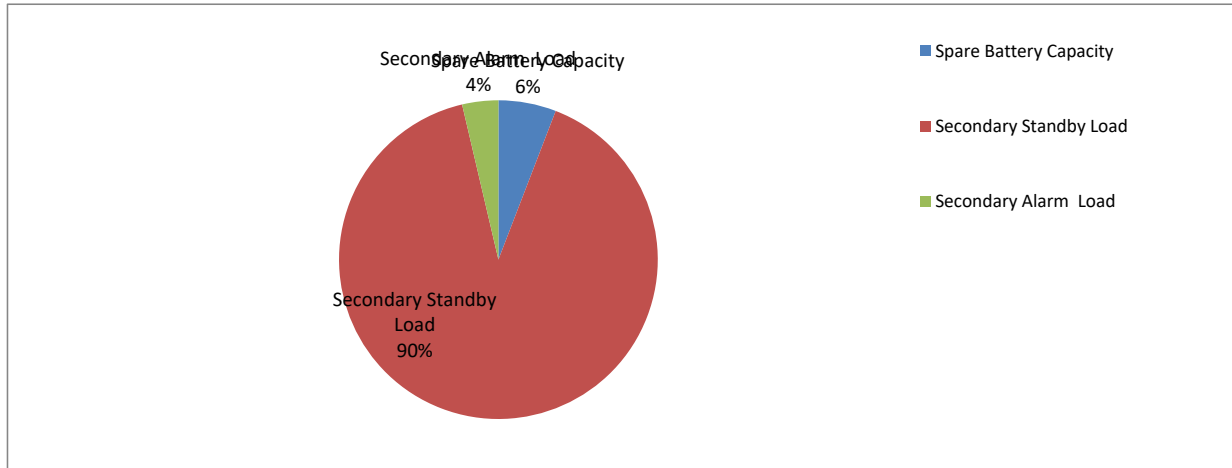
Select batteries from the list below.

7.0 AH BAT-1270 Battery (12 volt)

- Two
- Four (two 12VDC sets in parallel)

### Battery Distribution Chart

Shows amp-hour distribution of your selections.



### Comments

1. Batteries will fit in the FACP cabinet.
2. Selected battery size meets secondary load requirements.
3. The selected batteries (7AH) are within the charger range of this power supply (7-18AH).

Spare Battery Capacity	0.41	Battery Selection (AH) - Secondary Load Requirements (AH)
Secondary Standby Load	6.33	Secondary Standby Load (AH) * Derating Factor
Secondary Alarm Load	0.26	Secondary Alarm Load (AH) * Derating Factor



## Device Current Draw

### NFW-50X Fire Alarm Control Panel

Quantity x [device current draw] = total current draw per device (in amps)

Part Number	Qty	Primary Non-Alarm	Primary Alarm	Secondary Non-Alarm
Main Circuit Board	1	x [0.00000] = 0.00000	x [0.00000] = 0.00000	x [0.14100] = 0.14100
AV Circuit 1	1	x [0.00000] = 0.00000	x [0.95000] = 0.95000	x [0.00000] = 0.00000
AV Circuit 2	1	x [0.00000] = 0.00000	x [0.89500] = 0.89500	x [0.00000] = 0.00000
N-ANN-80	1	x [0.01500] = 0.01500	x [0.04000] = 0.04000	x [0.01500] = 0.01500
NP-100, NP-200, FSP-851, FSP-951	2	x [0.00030] = 0.00060	x [0.00000] =	x [0.00030] = 0.00060
NDM-100, FDM-1	2	x [0.00075] = 0.00150	x [0.00000] =	x [0.00075] = 0.00150
NOT-BG12LX, NBG-12X	6	x [0.00030] = 0.00180	x [0.00000] = 0.00000	x [0.00030] = 0.00180
Max Alarm Draw - All Addressable Devic	1	x [0.00000] = 0.00000	x [0.20000] = 0.20000	x [0.00000] = 0.00000
CLSS DIALER	1	x [0.20000] = 0.06000	x [0.20000] = 0.20000	x [0.06000] = 0.06000
<b>Total (Amperes):</b>		<b>0.0789 A</b>	<b>2.2850 A</b>	<b>0.2199 A</b>

Part Number	Qty	Secondary Alarm
Total Primary Alarm Load - C2	1	x [2.28500] = 2.28500
Main Circuit Board	1	x [0.25700] = 0.25700
<b>Total (Amperes):</b>		<b>2.5420 A</b>

Project: Carolina diesel Truck

**AV1 POINT-TO-POINT REPORT**

Circuit Wiring Properties: 'BP' 14/2 FPLP 14 AWG, 2 Cond. Solid Copper FPLP Analog Unshielded

Distance measured using drawn segment lengths with 10.00 % additional length calculated

**CIRCUIT SETTINGS**

**TOTALS**

Starting Calculation Voltage:	20.4	Max. Voltage Drop:	1.13
Min. Operational Voltage:	16	End Of Line Voltage:	19.27
Max. Circuit Current (A):	2.5	Voltage Drop Percent:	5.52 %
Wire Resistance (Ω/kFt):	3.07	Total FWR Current:	1.201
Total Circuit Length (Ft):	452	Total Circuit Current (A):	0.95
Total Circuit Resistance (Ω):	2.774082	Spare Current (A):	1.55
		Spare Current (A) Percent:	62.00 %

Device Label	Part No.	Description	FWR Device Current	Device Current (A)	Remaining Current (A)	Dist. From Previous (Ft)	Resistance From Previous (Ω)	Voltage Drop From Previous	Voltage At Device	Total Voltage Drop	Voltage Drop Percent
AV1*01	SRL	Strobe, Red 15cd	0.06	0.043	0.95	53	0.322566	0.31	20.09	0.31	1.50 %
AV1*02	PC2RL	2-Wire, Horn Strobe, Red 115cd	0.223	0.187	0.907	28	0.170926	0.16	19.94	0.46	2.26 %
AV1*03	PC2RL	2-Wire, Horn Strobe, Red 115cd	0.223	0.187	0.72	39	0.242018	0.17	19.76	0.64	3.12 %
AV1*04	PC2RL	2-Wire, Horn Strobe, Red 115cd	0.223	0.187	0.533	59	0.3622	0.19	19.57	0.83	4.06 %
AV1*05	PC2RL	2-Wire, Horn Strobe, Red 115cd	0.223	0.187	0.346	41	0.252818	0.09	19.48	0.92	4.49 %
AV1*06	P2RL	2-Wire, Horn Strobe, Red 15cd	0.083	0.054	0.159	197	1.208074	0.19	19.29	1.11	5.43 %
AV1*07	P2RL	2-Wire, Horn Strobe, Red 15cd	0.083	0.054	0.106	19	0.11571	0.01	19.28	1.12	5.49 %
AV1*08 EOL 4.7k	P2RL	2-Wire, Horn Strobe, Red 15cd	0.083	0.054	0.053	16	0.09977	0.01	19.27	1.13	5.52 %

**Calculation Methods:**

Resistance From Previous (Ω) = Wire Resistance (Ω/Ft) x 2 x Dist. From Previous (Ft)

Voltage Drop From Previous = Resistance From Previous (Ω) x Remaining Current (A)

**AV2 POINT-TO-POINT REPORT**

Circuit Wiring Properties: 'BP' 14/2 FPLP 14 AWG, 2 Cond. Solid Copper FPLP Analog Unshielded

Distance measured using drawn segment lengths with 10.00 % additional length calculated

**CIRCUIT SETTINGS**

**TOTALS**

Starting Calculation Voltage:	20.4	Max. Voltage Drop:	0.72
Min. Operational Voltage:	16	End Of Line Voltage:	19.68
Max. Circuit Current (A):	2.5	Voltage Drop Percent:	3.54 %
Wire Resistance (Ω/kFt):	3.07	Total FWR Current:	1.176
Total Circuit Length (Ft):	288	Total Circuit Current (A):	0.895
Total Circuit Resistance (Ω):	1.770631	Spare Current (A):	1.605
		Spare Current (A) Percent:	64.20 %

Device Label	Part No.	Description	FWR Device Current	Device Current (A)	Remaining Current (A)	Dist. From Previous (Ft)	Resistance From Previous (Ω)	Voltage Drop From Previous	Voltage At Device	Total Voltage Drop	Voltage Drop Percent
AV2*01	PC2RL	2-Wire, Horn Strobe, Red 115cd	0.223	0.187	0.895	27	0.167944	0.15	20.25	0.15	0.74 %
AV2*02	PC2RL	2-Wire, Horn Strobe, Red 115cd	0.223	0.187	0.708	41	0.252818	0.18	20.07	0.33	1.61 %
AV2*03	PC2RL	2-Wire, Horn Strobe, Red 30cd	0.135	0.09	0.521	46	0.282789	0.15	19.92	0.48	2.34 %
AV2*04	PC2RL	2-Wire, Horn Strobe, Red 30cd	0.135	0.09	0.431	29	0.180353	0.08	19.85	0.55	2.72 %
AV2*05	SRL	Strobe, Red 15cd	0.06	0.043	0.341	22	0.138123	0.05	19.8	0.6	2.95 %
AV2*06	SRL	Strobe, Red 15cd	0.06	0.043	0.298	18	0.10805	0.03	19.77	0.63	3.11 %
AV2*07	SRL	Strobe, Red 15cd	0.06	0.043	0.255	15	0.093416	0.02	19.74	0.66	3.22 %
AV2*08	P2RL	2-Wire, Horn Strobe, Red 15cd	0.083	0.054	0.212	17	0.106235	0.02	19.72	0.68	3.33 %
AV2*09	P2RL	2-Wire, Horn Strobe, Red 15cd	0.083	0.054	0.159	18	0.113086	0.02	19.7	0.7	3.42 %
AV2*10	P2RL	2-Wire, Horn Strobe, Red 15cd	0.083	0.054	0.106	24	0.144949	0.02	19.69	0.71	3.50 %
AV2*11 EOL 4.7k	P2RL	2-Wire, Horn Strobe, Red 15cd	0.083	0.054	0.053	30	0.182868	0.01	19.68	0.72	3.54 %

**Calculation Methods:**  
 Resistance From Previous (Ω) = Wire Resistance (Ω/Ft) x 2 x Dist. From Previous (Ft)  
 Voltage Drop From Previous = Resistance From Previous (Ω) x Remaining Current (A)