

NCA-2

ONYX® Series

Network Control Annunciator



Network Systems

General

The NOTIFIER NCA-2 is a second-generation Network Control Annunciator for the **NOTI•FIRE•NET™** network, compatible for use with ONYX® Series nodes such as the NFS2-3030, NFS-3030, NFS-320, NFS-640 and NFS2-640 fire alarm control panels, as well as first-generation NCA Network Control Annunciators. Additionally, the NCA-2 may be configured with DVC Series products (DVC, DVC-EM, DVC-EMF, and DVC-EMSF) to create one or more Digital Audio Command Centers on **NOTI•FIRE•NET**. The NCA-2 provides system control and display capabilities for all, or for selected network nodes.

The NCA-2 display consists of a 640-character backlit LCD display, and a control interface consisting of “soft” keys used to navigate screen menus, “hard” keys with fixed control functions, and a QWERTY keypad.

When connected to one or more networked panels the NCA-2 provides network control and status/history display capabilities. It may also be configured as the Primary Display for displayless nodes on the network.



7047photo1.jpg

NCA-2 in ABS-2D backbox

Hardware Features

- Listed to UL Standard 864, 9th edition.
- Full supervision of all inputs and network integrity.
- Enhanced-format 640-character LCD display with backlighting.
- ACS bus for LED or graphic annunciators (EIA-485).
- Optically isolated printer interface (EIA-232).
- 11 LED status indicators: Power, Controls Active, Fire Alarm, Pre-Alarm, Security, Alert, Supervisory, Trouble, Signal, Silence, CPU Failure, Point Disabled, Other Event.
- Alphanumeric QWERTY rubber keypad.
- Four status relays: Alarm, Trouble, Supervisory, Security (Form-C).
- Nonvolatile real-time clock can be synchronized with network by master node.
- Optional Security Keyswitch enable Keypad functions.
- Optional Security Tamper switch.
- Supports up to 32 remote ACS annunciators and modules.
- Requires 24 VDC, and a network connection.
- RDP port for LCD-160 or terminal mode LCD-80.

NOTE: NCA-2 Firmware version 14.0 (and higher) can support LCD-160 on the RDP port, or LCD-80 in terminal mode, but not both at the same time.

Function Features

- Individual Enable/Disable or Group Enable/Disable local for networked ONYX series panels.
- Control ON/OFF networked ONYX series panel control points.
- Read Status networked ONYX series panel points and zones.
- Network paging control/HVAC control .
- Network-wide: Acknowledge, Silence, Reset.
- Lamp Test (local to NCA-2).
- History Buffer (1000 Alarm events; 4000 System events).
- Print NCA-2 programming and history reports.
- Report status of networked panels and their respective field devices to a central station via a single UDACT (see data sheet DN-4867).
- One Master level, nine User level passwords. The Master can assign each User access levels (programming, alter status).
- Interactive Summary Event Count display, event handling package.
- Online programming and alter-status programs.
- Intuitive user guidance program including interactive soft keys.
- Enhanced Read Status/Alter Status displays.

- New history filters for report displaying and printing: All Events, Only Alarms, Only Troubles, Only Supervisory, Only Security, Time Interval, Point Range.
- Fully programmable node-mapping subsystem.
- Advanced/Basic Walk-Test program.
- Timer control for Auto Silence, AC Fail Delay.
- Meets Canadian ULC display requirements.
- Environmental adjustment controls to maximize LCD legibility.
- Meets NFPA requirements for Firefighter Smoke Control Station (FSCS) and HVAC.

NCA-2 Indicators and Controls

LED INDICATORS

- **POWER** (green) illuminates when 24 VDC power is applied; LED goes out if power is removed and NCA-2 is using a battery.
- **CONTROLS ACTIVE** (green) illuminates to indicate that the NCA-2 control functions are active.
- **FIRE ALARM** (red) illuminates when at least one fire alarm event exists; flashes when any of these events remain unacknowledged.
- **PRE-ALARM** (red) illuminates when at least one pre-alarm event exists; flashes when any of these events remain unacknowledged.
- **SECURITY** (blue) illuminates when at least one security event exists; flashes when any of these events remain unacknowledged.
- **SUPERVISORY** (yellow) illuminates when at least one supervisory event exists (i.e., sprinkler valve off normal, low pressure, fire pump running, guard's tour, etc.); flashes when any of these events remain unacknowledged.
- **SYSTEM TROUBLE** (yellow) illuminates when at least one trouble event exists; flashes when any of these events remain unacknowledged.
- **OTHER EVENT** (yellow) illuminates for any category of event not listed above; flashes when any of these events remain unacknowledged.

- **SIGNALS SILENCED** (yellow) illuminates if the NCA-2 Silence key has been pressed or if any other node sent a Network Silence command; flashes if only some points on a node are silenced.
- **POINT DISABLED** (yellow) illuminates when at least one disable exists on the network or in the system.
- **CPU FAILURE** (yellow) activated by the watchdog timer hardware, indicates an abnormal hardware or software condition. Contact technical support.

FIXED FUNCTION KEYS

- **ACKNOWLEDGE**
- **SIGNAL SILENCE**
- **SYSTEM RESET**
- **DRILL**
- **FIRE ALARM SCROLL/DISPLAY**
- **SECURITY SCROLL/DISPLAY**
- **SUPERVISORY SCROLL/DISPLAY**
- **TROUBLE SCROLL/DISPLAY**
- **OTHER EVENT SCROLL/DISPLAY**

The five keys labeled SCROLL/DISPLAY allow the user to scroll through messages for the particular event type. For example, pressing the FIRE ALARM SCROLL/DISPLAY key will scroll through all fire alarm events, as details of each are shown in the display area of the NCA-2.

NOTE: The OTHER EVENT SCROLL/DISPLAY key also scrolls between Pre-Alarm and Disabled events.

- **ACKNOWLEDGE** – press this key to acknowledge off all active events.
- **SIGNAL SILENCE** – press this key to turn off all control modules, notification appliance circuits, and panel output circuits that have been programmed as Silenceable.
- **SYSTEM RESET** – press this key to clear all latched alarms and other events and turn off event LEDs.
- **DRILL HOLD 2 SEC** – press this key, holding it down for two seconds, to activate all silenceable output circuits.

SPECIAL FUNCTION KEYS

- **PRINT SCREEN** – press this key to print what is currently on the LCD screen.
- **LAMP TEST** – press this key to test the LED indicators on the left of the keypad and to check firmware revision numbers.
- **NEXT SELECTION/PREVIOUS SELECTION** – these keys are used when setting parameters in NCA-2 data fields; for example, choosing a device type as a filter for requesting a Node History.
- **BATTERY LEVEL** – press this key to display voltage and charging current level for system batteries. Displays levels for local AMPS-24(E) or AMPS-24(E) connected to associated NFS2-3030 or NFS-3030 node.

Specifications

Temperature and humidity ranges: This system meets NFPA requirements for operation at 0°C to 49°C (32°F to 120°F); and at a relative humidity (noncondensing) of 85% at 30°C (86°F) per NFPA, and 93% ± 2% at 32°C ± 2°C (89.6°F ± 1.1°F) per ULC. However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and all peripherals be installed in an environment with a nominal room temperature of 15°C to 27°C (60°F to 80°F). Product weight is 3 lbs (1.36 kilograms).

ELECTRICAL REQUIREMENTS

The NCA-2 may be powered from a Main Power Supply AMPS-24(E) (see data sheet DN-6883) mounted in a separate cabinet (see specifications below); or from any UL Listed non-resettable 24 VDC source from a NOTIFIER fire panel (see panel data sheets). The battery on the NCA-2 motherboard is for RTC and SRAM; holds the history memory through power failure. Replacements are available (P/N 31004). Power source: 1) AMPS-24 (120 VAC, 50/60 Hz, 4.5 A maximum) or AMPS-24E (240 VAC, 50/60 Hz, 2.25 A maximum) power supply; 2) the NFS-640, NFS2-640 and NFS-320 on-board power supply; or 3) a supervised +24 VDC power supply that is UL/ULC-listed for fire protective service. The current of the NCA-2 is 400 mA with backlight and 200 mA with the backlight off.

Agency Listings and Approvals

These listings and approvals apply to the NCA-2. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL Listed: file S635.
- ULC Listed: file S635.
- CSFM approved: files 7165-0028:224, 7170-0028:223.
- MEA approved: file 232-06-E.

Product Line Information

NCA-2: Network Control Annunciator. Requires a NCM-W or NCM-F network communications module for networking. In direct connect applications NCM not required.

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

HS-NCM-W/MF/SF/WMF/WSF/MFSF: High-speed network communications modules. Wire, single-mode fiber, multi-mode fiber, and media conversion models are available. See DN-60454.

ABS-2D: Annunciator Backbox, Surface, black. Mounts one NCA-2 and one NCM-W/F.

ABS-2DR: Same as above, but red.

CHS-2D: Chassis, required whenever the NCA-2 is mounted in an ABS-2D(R).

CHS-M3: Chassis, mounts an NCA-2 in a single row of a CAB-4 Series cabinet.

CA-2: Chassis, Audio, 2 rows. Mounts an NCA-2 and the DVC Digital Voice Command in two rows of a CAB-4 Series cabinet.

DP-DISP: Annunciator Dress Plate. Dress plate is used when NCA-2 is mounted in the top row of a CAB-4 Series cabinet with a CHS-M3 chassis.

NCA-2RETRO: Kit for retrofit mounting the NCA-2 to a DP-DISP dress plate.

NCA/640-2-KIT: Mounting kit for directly mounting the NCA-2 to NFS2CPU2-640 chassis.

LCD-160: 160 character LCD annunciator

LCD-80: 80 character LCD annunciator

TR-ABS2D: Trim ring for semi-flush mounting of ABS-2D

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We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
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For more information, contact Notifier. Phone: (203) 484-7161, FAX: (203) 484-7118.
www.notifier.com

DVC Series

Digital Voice Command

DVC, DVC-EM, DVC-EMF, DVC-EMSF



Voice Control Systems

General

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

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

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

Features

- Listed to **UL Standard 864, 9th edition**.
- Programmable from NUP port using **VeriFire® Tools** with:
 - **DVC:** up to 16 minutes of standard quality or 2 minutes of high quality digital audio storage of user-selected/created messages and tones.
 - **DVC-EM:** up to 32 minutes of standard quality or 4 minutes of high quality digital audio storage of user-selected/created messages and tones.
 - **DVC-EMF:** EM features; supports multi-mode fiber-optic media.
 - **DVC-EMSF:** EM features; supports single-mode fiber-optic media.
- Up to 1000 audio sequences.
- Message prioritization.
- Equations support flexible programming for distribution of messages.
- Electrically isolated digital audio ports for direct connection with up to 32 DAA amplifiers. Style 4 or 7 configurations supported.
- DCC (Display and Control Center) capabilities when used with optional DVC-KD.
- FireFighters Telephone Riser.
- Local paging microphone option.
- Remote microphone option.
- Broad All-Call functionality when used with DVC-KD (DVC-Keyboard Display): All Call, Page Active Evac Areas, Page Active Alert Areas, Page Inactive Areas.
- Auxiliary input for 12 V_{p-p} analog low-level audio sources. Includes user audio level adjustment feature.
- Auxiliary input for 1 VRMS, to be used for background music input, an interface with a telephone paging source, or other compatible audio sources. Audio levels can be adjusted by end user.
- Associated NCA-2 supports **NOTI•FIRE•NET** applications.



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DVC shown using CA-2 mounting option, CAB-C4, and ADDR-C4 door

- Multiple audio command centers supported via **NOTI•FIRE•NET**.
- Distribution of one channel of standard-level paging audio on **NOTI•FIRE•NET**.
- **NFS2-3030** connects directly (NUP to NUP) for stand-alone, non-networked mode.
- Push-to-talk relay.
- Isolated alarm bus input, to be used for backup activation of alarm messages when normal digital communication is lost.

Installation Options

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

Specifications

- **24 VDC power (TB1):** 24 VDC, 1.0 A, non-resettable, power-limited by the source. Recommended wiring: 14 to 22 AWG (2.08 to 0.326 mm²) twisted-pair.
- **Digital audio ports, wire media, A and B (TB2, TB3):** Maximum distance per segment is 1900 feet (579.12 m) on Belden 5320UJ (18 AWG, TP) FPL cable: 18 AWG (0.821 mm²) twisted-pair, foil-shielded, power-limited. Consult wiring documentation provided in document P/N 52916ADD:C *Addendum to DVC and DAA Manuals*.
- **Digital audio ports, single- and multi-mode fiber-optic RXA, TXA, RXB, and TXB (J100, J101, J102, and J103):** ST® style, supervised. Multi-mode fiber-optic cable: 50/125 or 62.5/125 micrometers. Single-mode fiber-optic cable: 9/

- 125 micrometers. Attenuation of cabling between two nodes (fiber-optic circuits are point-to-point) must not exceed the following maximum attenuations: 4.2 dB for multi-mode with 50/125 micrometer cable @ 850 nm. 8.0 dB for multi-mode with 62.5/125 micrometer cable @ 850 nm. 5.0 dB for single-mode with 9/125 micrometer cable @ 1300 nm.
- **Auxiliary input A (AUX A, TB4):** Signal strength from low-level analog audio input: 1 VRMS maximum. Optional supervision is selectable through programming. Recommended wiring: 18 to 22 AWG (0.821 to 0.326 mm²) twisted-pair. Auxiliary input must be in the same room as the DVC.
 - **Remote microphone interface (TB9):** Recommended wiring: 14 to 22 AWG (2.08 to 0.326 mm²) twisted-pair. Power-limited. Maximum distance between remote microphone and DVC: 1000 feet (300 m).
 - **Push-to-talk interface (TB10):** Dry contact. Recommended wiring: 14 to 22 AWG (2.08 to 0.326 mm²) twisted-pair.
 - **Alarm bus (TB12):** Power-limited by source. Recommended wiring: 14 to 22 AWG (2.08 to 0.326 mm²) twisted-pair.
 - **FFT riser (TB13):** Power-limited output. Class A (Style Z) or Class B (Style Y) operation. Style Y two-wire connections require a 3.9K ohm, 1/2 watt resistor (P/N K-3.9K). Maximum wiring resistance (including individual telephone zone to last handset) permitted is 50 ohms, 10,000 feet (3048 m) maximum wiring distance at 12 AWG (3.31 mm²) to last handset.
 - **Auxiliary input B (AUX B, TB14):** Signal strength from low-level analog audio input: 12 V_{p-p} nominal, 15 V_{p-p} maximum. Optional supervision is selected through programming. Recommended wiring: 14 to 22 AWG (2.08 to 0.326 mm²) twisted-pair.
 - **Optional DVC-AO analog audio output circuits (TB5, TB6, TB7, and TB8):** Supervised, power-limited outputs. Signal strength: +12 V nominal, +15 V maximum. Recommended wiring: 18 AWG (0.821 mm²) maximum, twisted-pair. Maximum impedance: 66 ohms.

Standards and Codes

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

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

UL 864 NINTH EDITION COMPLIANCE

This product has been certified to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864 9th Edition. Operation of this product with products not tested for UL 864 9th Edition has not been evaluated. Such operation requires the approval of the Authority Having Jurisdiction (AHJ).

Listings and Approvals

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

- **UL Listed:** file S635.
- **ULC Listed:** file S635.

- **CSFM approved:** file 7170-0028:223.
- **MEA approved:** file 232-06-E.
- **City of Chicago approved:** High Rise, Class 1, Class 2.
- **City of Denver approved.**
- **PSB Corporation approved (Singapore).**

Product Line Information

DVC: Digital Voice Command, digital audio processor with message storage for up to 16 minutes of standard quality (2 minutes at high quality) digital audio.

DVC-EM: Digital Voice Command, digital audio processor with message storage for up to 32 minutes of standard quality (4 minutes at high quality) digital audio.

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

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

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

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

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

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

CA-2: Chassis assembly, occupies two tiers of a CAB-4 Series enclosure. The left side accommodates one DVC mounted on a half-chassis and one NFS2-3030 or NCA-2 mounted on a half-chassis. The right side houses a microphone/handset well. The CA-2 assembly includes a microphone. **DPA-2B** dress plate is required (*below*). ADDR Series doors with two-tier visibility are available for use with the CA-2 configuration: ADDR-B4, ADDR-C4, ADDR-D4 (*below*).

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

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

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

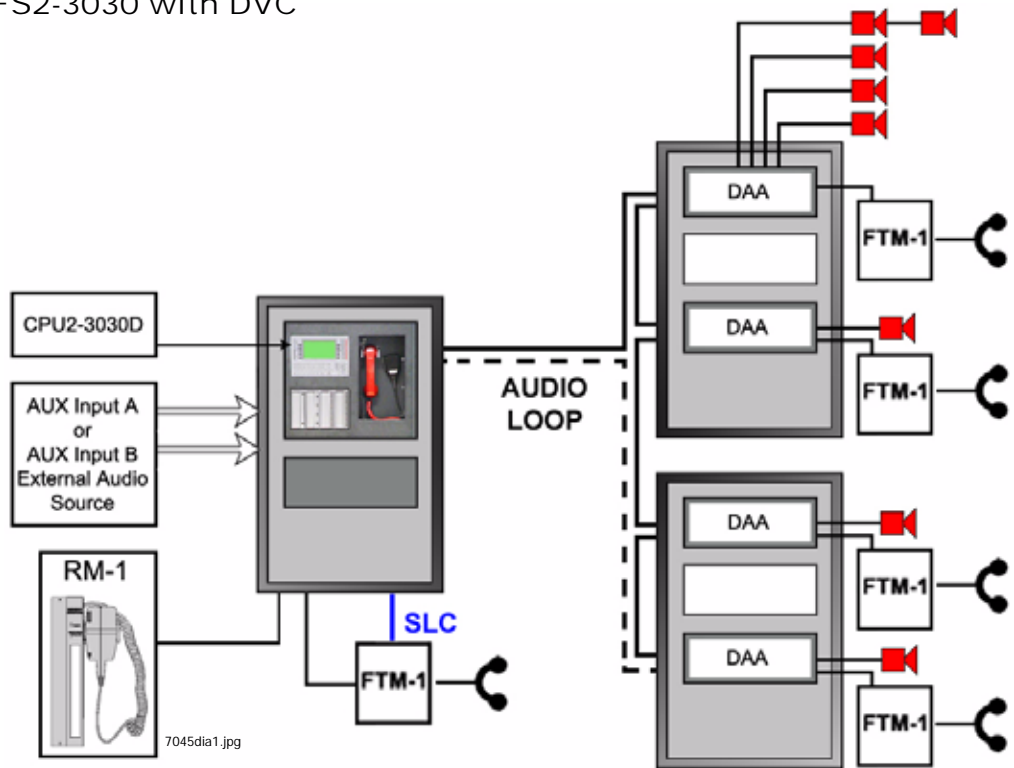
ADDR-C4: Three-tier-sized door designed for use with the CA-2 chassis configuration. ADDR Series doors are similar to CAB-4 Series "DR" doors, but a clear window space exposes the top two tiers of the CAB-4 enclosure. Use an SBB-C4 backbox with the ADDR-C4 (*see data sheet DN-6857*).

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

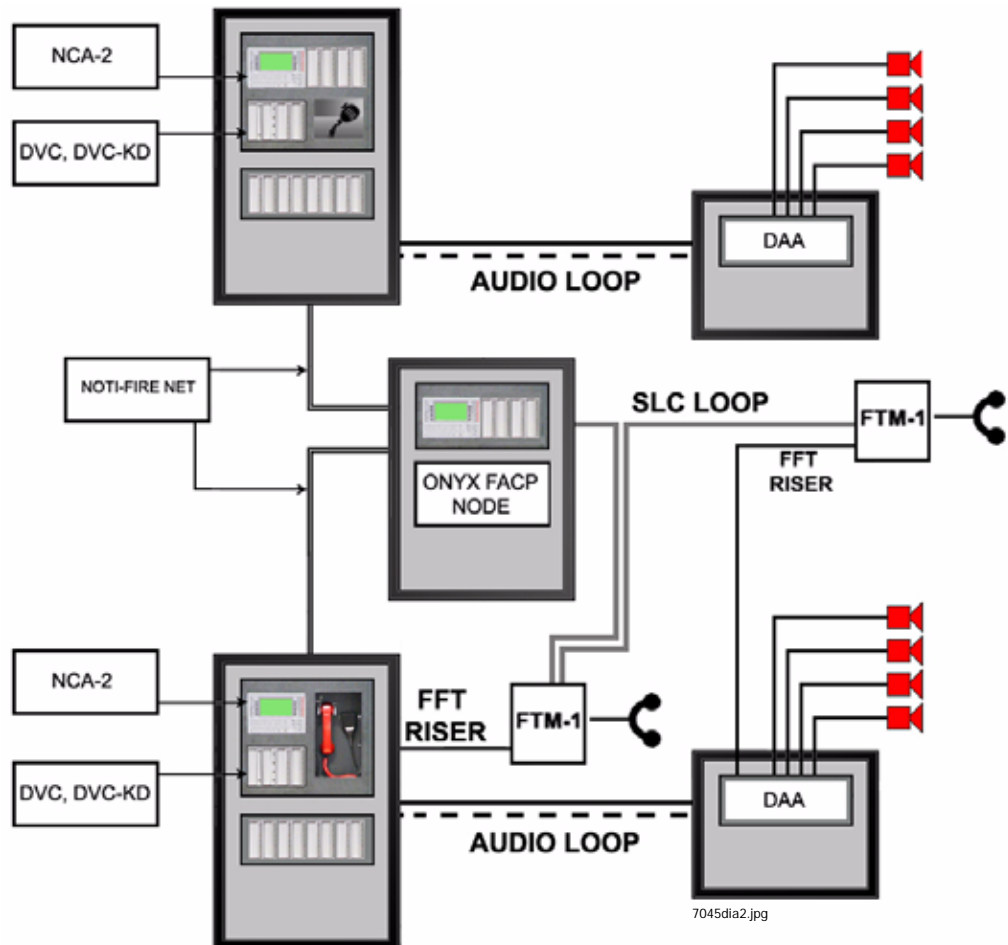
DPA-1: Dress panel, can be used with the CA-1 chassis when configured with a DVC, DVC-KD, and CMIC-1.

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

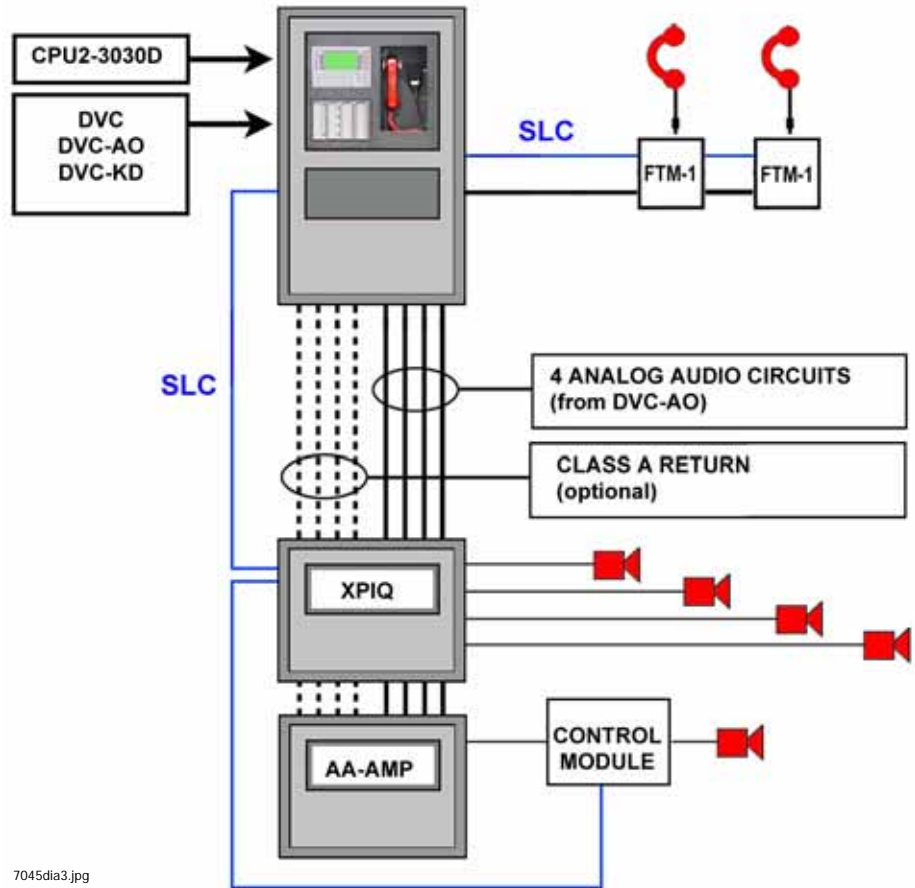
Stand-Alone NFS2-3030 with DVC



DVC with NCA-2



Application with DVC-AO



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DAA2 Series

Digital Audio Amplifiers



Voice Control Systems

General

The DAA2 Series amplifiers are multi-featured amplifiers with digital audio functionality. Each DAA2 is capable of accessing and processing one of up to eight audio channels on the DVC audio loop, amplifying the signal, and distributing it via four Class B or two Class A outputs. A DAA2-50 or DAA2-75 series amplifier is capable of mounting an optional BDA Digital amplifier, which can be used to provide one-to-one amplifier backup, or to support two-channel operation, or increased output wattage to 100W (100W option applies to DAA2-50 series only, other rules apply).

The DAA2 has two wire digital audio ports to connect to wire DAL (digital audio loop) segments. Either or both ports may be converted to fiber using fiber option modules.

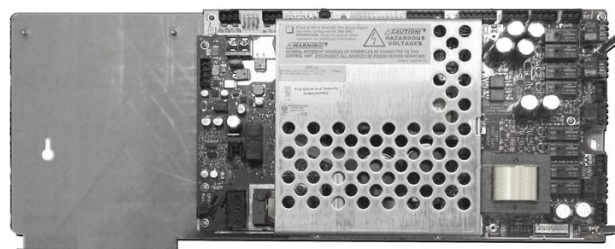
Up to 32 devices, such as DAA2 amplifiers, can be connected to the DAL on one DVC Digital Voice Command unit. DAA2 amplifiers may be mixed with DAX and DAA series amplifiers on the same DAL.

An optional Firefighter telephone riser on the DAA2 supports local and network FFT communications. A DAA2 also supports use of an RM-1 remote microphone.

DAA2 amplifiers can store backup alarm and trouble messages, and provide an adjustable background music input.

Features

- Listed to UL Standard 864, 9th edition.
- 50 W total output power at 25 V_{RMS} (all DAA2-5025 models) or 70 V_{RMS} (all DAA2-5070 models).
- 75 W total output power at 25 V_{RMS} (all DAA2-7525 models).
- Supports two Class A high-level audio outputs; or four Class B outputs.
- Optional BDA amplifiers support alternative configurations.
 - Backup amplifier - supports one-to-one backup (all DAA2 models).
 - Primary amplifier - supports two-channel operation (all DAA2 models).
 - Primary amplifier - increase power up to 100W, one- or two-channel operation. (DAA2-50 series only, configuration rules apply.)
- Supports one-to-many amplifier backup applications using the same model DAA2.
- Firefighter telephone riser supports 7 active firefighter telephones. System Release 3.0 and higher supports optional configurations: direct connection for up to 7 firefighter telephones, or connection to multiple FTM-1 modules.
- Remote microphone paging option with RM-1.
- Audio output activation via network control-by-event equations resident within the DVC.
- Two wire digital audio ports that can be converted to fiber using fiber option modules. Support Style 4 or 7 configurations.
- Auxiliary input for 1 V_{RMS}, to be used for background music input, an interface with a telephone paging source, or other compatible audio sources. Audio levels can be adjusted by end user. Optional supervision through programming.
- Isolated alarm bus input, to be used for backup activation of alarm messages when normal digital communication is lost.



- Programmable through **VeriFire® Tools**.
- Up to 106 seconds of backup digital message storage for use in the event of communication loss (from the **VeriFire® Tools** message library, or created by the installer).
- Battery charger disable provides battery sharing option for up to four DAA2s.
- Disconnect of deeply-discharged battery (low battery disconnect).

Installation

The DAA2 arrives from the factory already installed on its chassis. The DAA2 mounts in one row of any EQ or CAB-4 Series cabinet: The CAB-4 row can be covered using a DP-1B dress panel, ordered separately.

One or two fiber option modules will plug directly onto a DAA2 for simple installation. A BDA backup amplifier mounts directly onto a DAA2.

Batteries for the DAA2 may be installed in any of the following configurations:

- In a CHS-BH1 optional battery chassis. The CHS-BH1 battery chassis will hold two 12.0 AH batteries, and mounts on the left side of the DAA2 chassis, so that the DAA2 and batteries are contained in a single cabinet tier.
- In the battery row (bottom) of the CAB-4 Series cabinet, or in the bottom row of an EQ Series cabinet.
- In a cabinet adjacent to the cabinet that holds the DAA2, with connections in conduit. External battery charging is supported.

Specifications

CPS-24 POWER SUPPLY BOARD

- AC power (TB1):** 120 VAC, 60 Hz input;
- DAA2-5025 - 4.68A max.

- DAA2-5070 - 4.69A max.
- DAA2-7525 - 4.68A max.
- “E” versions, 220-240 VAC, 50/60 Hz input:
- DAA2-5025E - 2.68A max.
- DAA2-5070E - 2.68A max.
- DAA2-7525E - 2.68A max.

Recommended wiring: 12 to 14 AWG (1.6 mm O.D.) with 600 VAC insulation.

Secondary Power 5V and 24V AUX Outputs (TB2):

24 V AUX: Power-limited, 24V @ 0.5A, utilizes wire sizes 12-18 AWG (3.31 mm² - 2.08 mm²).

5 V: Future Use.

Battery Connections: Supplied cable connections to batteries.

Battery Charger: Current-limited sealed lead acid battery charger which charges two 12 volt batteries in series, up to 200 AH.

	Charge 7AH to 26AH Batteries	Charge 26 AH to < 50 AH Batteries	Charge 50 AH to 200 AH Batteries
DAA2-5025 DAA2-5070	Yes	Yes	Yes
DAA2-7525	Yes	Yes	No
DAA2-5025 or DAA-5070 w/BDA in Group 2 of VeriFire® Tools.	No	No	No

Battery Charging Capabilities

DAA2 BOARDS

Digital Audio Ports, wire media, A and B (TB2, TB3): Maximum distance per segment is 1900 feet (579.12 m) on Belden 5320UJ (18AWG, TP) FPL cable: 18 AWG (0.821 mm²) twisted-pair, unshielded, power-limited. For approved cable types, see wiring documentation, P/N 52916ADD: C *Approved Wire Cables for Digital Audio Loops.*

Digital Audio Ports, fiber media, fiber option modules:

Digital audio loop connectors support single- and multi-mode fiber with the use of fiber option modules. Refer to the Fiber Option Module datasheet for fiber specifications.

Alarm Bus: Power-limited, supervised by source. Recommended wiring: 14-18 AWG twisted-pair. Requires 16VDC minimum @ 20mA across the terminals to activate. Nominal 24VDC.

Remote Microphone Interface: RMI power: +24VDC, power-limited @ 100mA. Supervised. Recommended wiring: 14-18 AWG twisted-pair, Max. 14 AWG. Nominal AC signal strength 2.5V_{RMS}, 3V_{RMS} Max. Maximum distance between remote microphone and DAA2: 100 ft (304.8 m).

FFT Riser: Power-limited output, supervised. Class A or Class B operation. Class B 2-wire connections require a 3.9k ohm 1/2 watt resistor (P/N R-3.9K). Max. wiring resistance (including individual telephone zone to last handset) permitted is 50 ohms, 10,000 ft (3048 m) max. wiring distance at 14 AWG to last handset.

Auxiliary Input: Signal strength from low-level analog audio input (such as background music or telephone paging): 1V_{p-p} max. Optional supervision through programming. Recommended wiring: 14-18 AWG, twisted-pair. Auxiliary input source must be within 25 ft. (7.6 m) of the DAA2, and within the same room.

Speaker circuits: Power-limited outputs (exception: a DAA2-5070 speaker circuit used with any Canadian Room Isolator module is non-power limited. Speaker circuit 1 (TB10) can not be used.). Supervision determined by programming. DAA2-5025/70, Each circuit rated up to 50 watts*. DAA2-7525, each circuit rated up to 75 watts*. Recommended wiring: 12-18 AWG twisted-pair (shielded recommended). Class B or Class A: Class B requires 20k end-of-line resistors (included, P/N ELR-20K). Class A requires 10k end-of-line resistors

(included, P/N R-10K) on the return.

*total wattage may vary per configuration.

Backup: High-level audio input: 25V_{RMS} (DAA2-5025 and DAA2-7525). 70 V_{RMS} (DAA2-5070). Recommended wiring: 14-18 AWG. Not supervised when inactive. Supervised by backup source when active. Must be in same room or enclosure.

Standards and Codes

The DAA2 Series Digital Audio Amplifiers comply with the following standards:

- NFPA 72 2007 National Fire Alarm Code
- Underwriter Laboratories Standard UL 864
- Underwriter Laboratories of Canada (ULC) ULC-S527-99 Standard of Control Units for Fire Alarm Systems.
- Part 15 Class A conducted and radiated emissions as required by the FCC.

Listings and Approvals

These listings and approvals apply to the basic DAA2 Series Digital Audio Amplifiers. In some cases, certain modules may not be listed by certain agencies, or listing may be in process. Consult factory for latest listing status.

- UL Listed S635
- ULC Listed: S635
- CSFM: 7165-0028:0234 (NFS2-640/NFS-320), 7165-0028:0224 (NFS2-3030)
- FDNY: #6067 (NFS2-640/NFS-320), #6065 (NFS2-3030)

Product Line Information

50 WATT DAA2 AMPLIFIERS

Shipped mounted to the chassis.

DAA2-5025: 120 VAC Digital Audio Amplifier (50 W, 25 V_{RMS}).

DAA2-5070: 120 VAC Digital Audio Amplifier (50 W, 70 V_{RMS}).

DAA2-5025E: 220-240 VAC Digital Audio Amplifier (50 W, 25 V_{RMS}).

DAA2-5070E: 220-240 VAC Digital Audio Amplifier (50 W, 70 V_{RMS}).

75 WATT DAA2 AMPLIFIERS

Shipped mounted to the chassis.

DAA2-7525: 120 VAC Digital Audio Amplifier (75 W, 25 V_{RMS}).

DAA2-7525E: 220-240 VAC Digital Audio Amplifier (75 W, 25 V_{RMS}).

BDA BACKUP DIGITAL AMPLIFIERS

BDA-25V: Backup Digital Amplifier (25 V_{RMS}), switch settings for 75, 50, and 35 W operation. Provides a second audio channel when programmed as a primary amplifier.

BDA-70V: Backup Digital Amplifier (70 V_{RMS}), switch settings for 50 and 35 W operation. Provides a second audio channel when programmed as a primary amplifier.

FIBER OPTION MODULES

DS-FM: Fiber option module for multi-mode fiber. Converts a wire DAP (digital audio port) to a multi-mode fiber port.

DS-SFM: Fiber option module for single-mode fiber. Converts a wire DAP (digital audio port) to a single-mode fiber port.

DS-RFM: Fiber option module for multi-mode fiber. Used exclusively for compatibility with multi-mode fiber DVC or DAA.

ACCESSORIES

CHS-BH1: Battery chassis: holds two 12.0 AH batteries. Mounts on the left side of the DAA2 chassis.

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

ACT-25, ACT-70: Audio-coupling transformers. Used with AA-30 or DAA2-series amplifiers to drive thousands of amplifiers in large system applications.

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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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www.notifier.com

DAA2-7525 Digital Audio Amplifier

Protected Premises: <u>Hall Elem School</u>		Date: <u>7/21/2017</u>
Address: _____		
City: <u>Portland</u>	State: <u>ME</u>	Zip: _____
Prepared By: <u>BK Systems, Inc</u>		Phone: <u>603-647-8775</u>
Address: <u>27 Sheep Davis Road</u>		Email: _____
City: <u>Pembroke</u>	State: <u>NH</u>	Zip: _____

AC Branch Current Requirements **0.00** AMPS @ 120 VAC

Current required by source to power the fire alarm system.

Secondary Load Requirements **13.08** Amp Hours

Total Secondary Load from the calculation table below.

Current Draw		Time (hours)	Total (AH)
Secondary Standby Load 0.415 A	x	Required Standby Time 24 hours	9.96
Secondary Alarm Load 3.775 A	x	Required Alarm Time (hours) 0.250 hours	0.94
Total Secondary Load			10.90
Derating factor			x 1.2
Secondary Load Requirements			13.08 AH

Battery Selection **18** Amp Hours

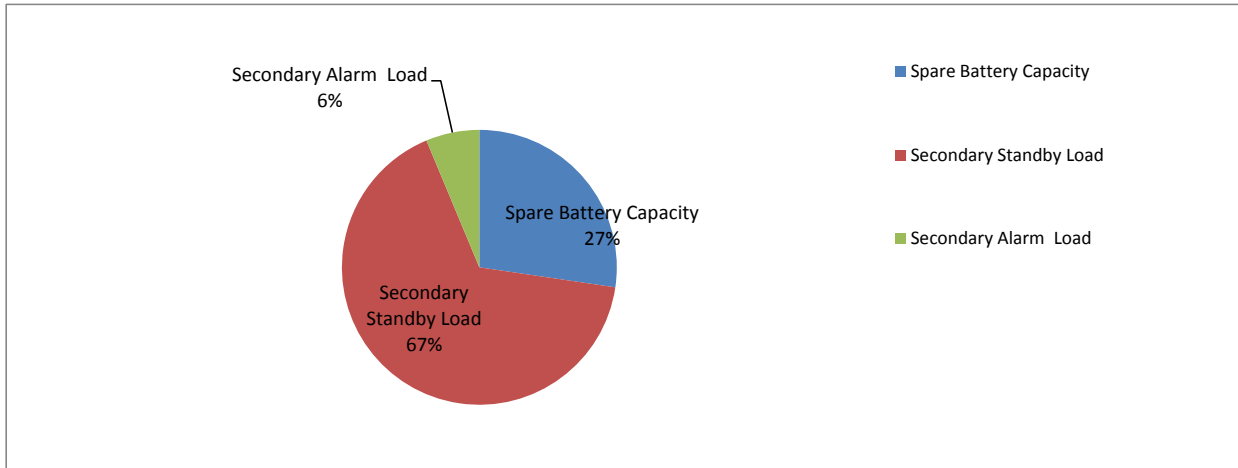
Select batteries from the list below.

18 AH BAT-12180 Battery (12 volt)

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

Battery Distribution Chart

Shows amp-hour distribution of your selections.



Comments

1. Battery size exceeds FACP capacity. BB-26 or other external battery box
2. Selected battery size meets secondary load requirements.
3. The selected batteries (18AH) are within the charger range of this power supply (12-55AH).

Spare Battery Capacity	4.92	Battery Selection (AH) - Secondary Load Requirements (AH)
Secondary Standby Load	11.95	Secondary Standby Load (AH) * Derating Factor
Secondary Alarm Load	1.13	Secondary Alarm Load (AH) * Derating Factor

UDACT-2

Universal Digital Alarm Communicator Transmitter



Annunciator Control System

General

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

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

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

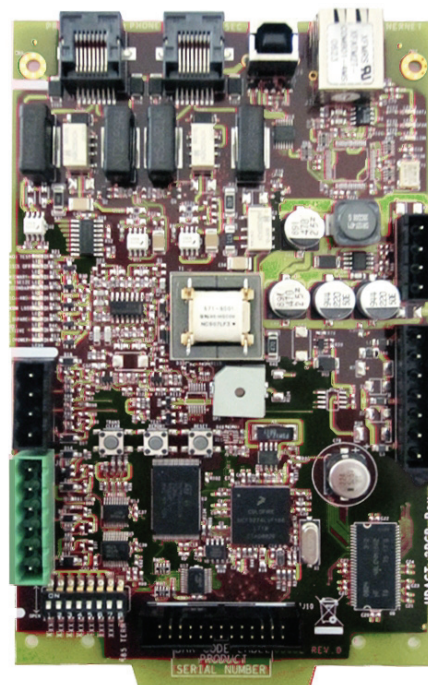
The UDACT-2 is capable of transmitting the status of software zones (Alarm and Trouble), System Trouble, Panel Off-Normal, Supervisory, Bell Trouble, Low Battery, and AC Fail. The UDACT-2 is capable of transmitting all of the zone and point status associated with each panel.

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

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

Features

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



UDACT-2

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

Programming

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

Communication Formats

- Ademco Contact ID
- 4+2 Standard
- SIA

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

Type Mode Feature

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

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

Electrical Specifications

Standby current: 40 mA.

Current while communicating: 75 mA.

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

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

Agency Listings and Approvals

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

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

Ordering Information

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

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

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

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

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

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

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

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

UL Listed Receivers

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

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

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

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

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

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

(5) With software V3.9

(6) With V.7301 Receiver S/W

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

(8) With software V1.86

(9) With software V1.72

(10) With DSP4016 and V1.6 Line Card

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XP6-R**Six Relay Control Module****Intelligent Fire Alarm Control Panels****General**

NOTIFIER's XP6-R six-relay control module provides an intelligent fire alarm system with six Form-C relays.

The first module is addressed from 01 to 154 while the remaining modules are automatically assigned to the next five higher addresses. Provisions are included for disabling a maximum of three unused modules. A single isolated set of dry relay contacts is provided for each module address, which is capable of being wired for either a normally-open or normally-closed operation. The module allows the control panel to switch these contacts on command. No supervision is provided for the controlled circuit.

Each XP6-R module has panel-controlled green LED indicators. The panel can cause the LEDs to blink, latch on, or latch off.

Features

- Six addressable Form-C relay contacts.
- Removable 12 AWG (3.25 mm²) to 18 AWG (0.9 mm²) plug-in terminal blocks.
- Status indicators for each point.
- Unused addresses may be disabled.
- Rotary address switches.
- FlashScan® or CLIP operation.
- 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 Series, CAB-4 Series, EQ Series, or BB-25 cabinet (optional).
- Mounting hardware included.

Specifications

Standby current: 1.45 mA (SLC current draw with all addresses used; if some addresses are disabled, the standby current decreases).

Alarm current: 32 mA (assumes all six relays have been switched once and all six LEDs solid ON).

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

Humidity: 10% to 93% noncondensing.

Dimensions: 6.8" (172.72 mm) high x 5.8" (147.32 mm) wide x 1.0" (25.40 mm) deep.

Shipping weight: 1.1 lb. (0.499 kg) including packaging.

Mounting options: CHS-6 chassis, BB-25 cabinet, BB-XP cabinet, CAB-3 Series (see DN-3549) cabinet, CAB-4 Series (see DN-6857) cabinet, or EQ Series cabinet.

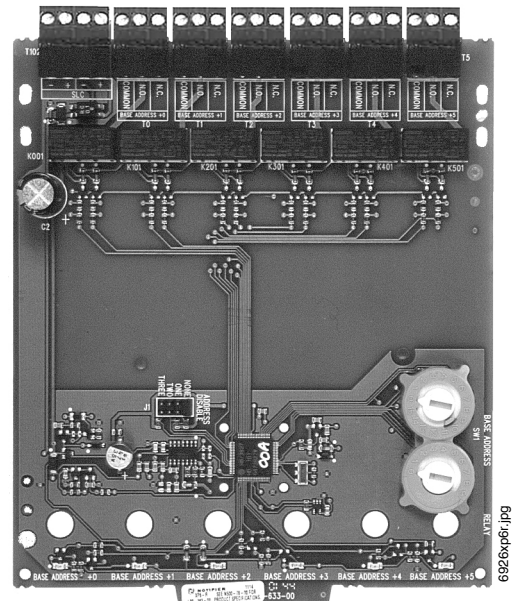
Wire gauge: 12 AWG (3.25 mm²) to 18 AWG (0.9 mm²).

Maximum SLC wiring resistance: 40 or 50 ohms, panel dependent.

Relay current: 30 mA/relay pulse (15.6 ms pulse duration), pulse under panel control.

Relay contact ratings: 30 VDC; 70.7 VAC.

Current ratings:



- 3.0 A @ 30 VDC maximum, resistive, non-coded.
- 2.0 A @ 30 VDC maximum, resistive, coded.
- 1.0 A @ 30 VDC maximum, inductive (L/R = 2 ms), coded.
- 0.5 A @ 30 VDC maximum, inductive (L/R = 5 ms), coded.
- 0.9 A @ 110 VDC maximum, resistive, non-coded.
- 0.9 A @ 125 VAC maximum, resistive, non-coded.
- 0.7 A @ 70.7 VAC maximum, inductive (PF = 0.35), non-coded.
- 0.3 A @ 125 VAC maximum, inductive (PF = 0.35), non-coded.
- 1.5 A @ 25 VAC maximum, inductive (PF = 0.35), non-coded.
- 2.0 A @ 25 VAC maximum, inductive (PF = 0.35), non-coded.

Agency Listings and Approvals

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

- **UL Listed:** S635
- **ULC Listed:** S635 (XP6-RA)
- **MEA Listed:** 368-01-E
- **CSFM:** 7300-0028:219
- **Maryland State Fire Marshall:** Permit # 2099
- **FM Approved** (Light Protective Signaling Only)

Product Line Information

XP6-R: Six-relay control module.

XP6-RA: Same as above with ULC Listing.

BB-XP: Optional cabinet for one or two modules. Dimensions, DOOR: 9.234" (23.454 cm) wide (9.484" [24.089 cm] including hinges), x 12.218" (31.0337 cm) high, x 0.672" (1.7068 cm) deep; BACKBOX: 9.0" (22.860 cm) wide (9.25" [23.495 cm] including hinges), x 12.0" (30.480 cm) high x 2.75" (6.985 cm); CHASSIS (installed): 7.150" (18.161 cm) wide overall x 7.312"

(18.5725 cm) high interior overall x 2.156" (5.4762 cm) deep overall.

BB-25: Optional cabinet for up to six modules mounted on CHS-6 chassis (below). Dimensions, DOOR: 24.0" (60.96 cm) wide x 12.632" (32.0852 cm) high, x 1.25" (3.175 cm) deep, hinged at bottom; BACKBOX: 24.0" (60.96 cm) wide x 12.550" (31.877 cm) high x 5.218" (13.2537 cm) deep.

CHS-6: Chassis, mounts up to six modules in a CAB-3 Series (see DN-3549), CAB-4 Series (see DN-6857), or EQ Series (see DN-60229) cabinet.

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LCD2-80

Liquid Crystal Display Terminal Mode Annunciator



Annunciators

General

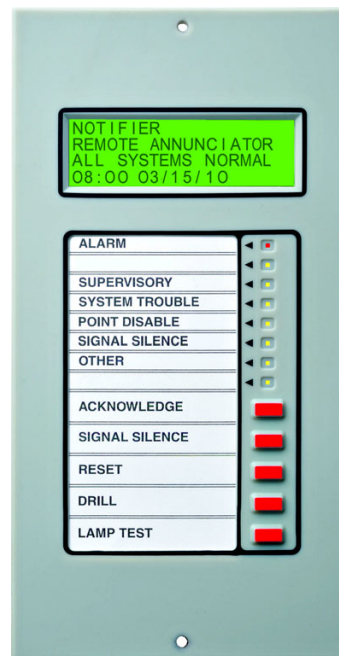
The LCD2-80 is a backlit LCD annunciator for the NOTIFIER fire alarm control panels, or network control annunciators that support the 80-character display format. LCD2-80s may be connected onto the four-wire EIA-485 terminal port.

The LCD2-80 mimics the display of NFS2-640, NFS2-3030, NFS-320, NCA-2 and legacy panels that supported the LCD-80/LCD-80TM. The NFS2-3030 and the NCA-2 also support LCD2-80s when set for LCD-80 supervision. Up to 32 LCD2-80s can annunciate and provide remote reset, acknowledge, drill and silence of the control panel from remote locations.

NOTE: The LCD2-80 can be used with legacy panels that supported the LCD-80 terminal mode operation. Please refer to the LCD2-80 manual for more information.

Features

- 80-character backlit Liquid Crystal Display (20 characters x 4 lines).
- Display mimics panel or NCA
 - Event message.
 - 20 characters for point label.
 - 12 characters for extended label.
 - Time, date and point address.
- Control switches for System Acknowledge, Signal Silence Drill and System Reset.
- Up to 6000 foot segments between units.
- Local piezo sounder with alarm/trouble resound.
- Displays all analog, addressable points.
- Displays device type identifiers.
- Displays device and zone custom alpha labels.
- LCD2-80 mounts with any CHS-4 chassis slot.
- Slide-in label can be customized.
- LEDs for general off-normal events with UL 864 9th Edition Panels.

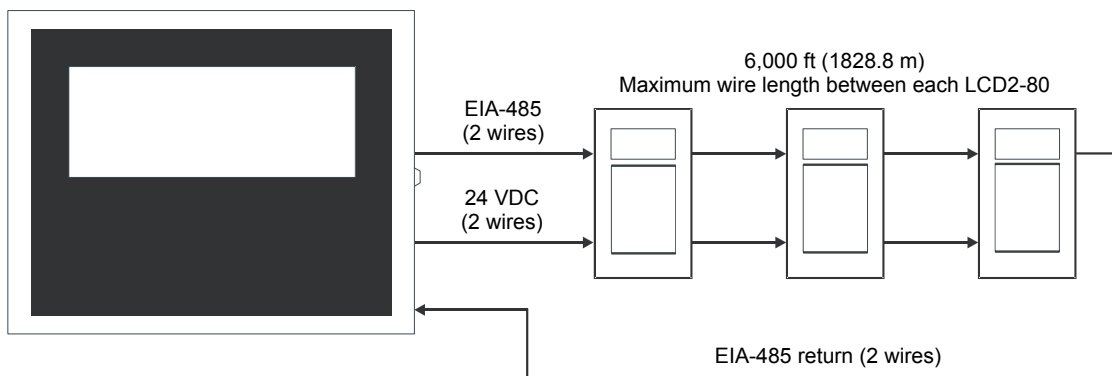


JCLCD2-80.jpg

NOTE: The LEDs are only applicable when used with UL 864 Ninth Edition listed panels: NFS-320, NFS2-640, NFS2-3030 and NCA-2.

- Flush/surface/panel mount option.
- No programming necessary. LCD2-80 displays time, date, and custom messages received from the compatible panel or network annunciator.
- LCD2-80 is 8.25" (20.96 cm) high, 4.375" (11.11 cm) wide, and 1.75" (4.45 cm) deep.
- Up to 32 LCD2-80s may be used on one EIA-485 circuit.

NOTE: Must have sufficient regulated 24 volt power.



NFS-320, NFS2-640, NFS2-3030, or NCA-2 connecting to LCD2-80

The ABF-1DB Backbox

The **ABF-1DB** is a semi-flush-mount backbox for the NOTIFIER LCD2-80 Series Annunciator. The ABF-1DB mounts one LCD2-80. It includes an attractive smoked-glass door with NOTIFIER keylock.

Dimensions, BOX only:

9.938" (25.24 cm) high, 4.625" (11.75 cm) wide, 2.5" (6.35 cm) deep.

Dimensions, DOOR only:

10.713" (27.21 cm) high, 6.0" (15.24 cm) wide, 0.75" (1.9 cm) deep.

Related Options

ABF-1DB: Semi-flush box with alternative smoked-glass door, any keylock.

ADP-4B: Annunciator dress plate, black. Allows panel mounting of up to four LCD2-80 modules in a CAB-4 Series cabinet.

ABF-1B: Annunciator flush box, 9.938" (25.24 cm) high, 4.625" (11.75 cm) wide, and 2.5" (6.35 cm) deep. Order AKS-1B key switch and APJ-1B phone jack if desired. Can also be mounted in ABF-2B or ABF-4B annunciator backboxes.

ABS-1TB: Deep surface backbox (mounts one LCD2-80).

ABS-2B: Annunciator surface box, 8.5" (21.59 cm) high x 8.92" (22.66 cm) x 2" (5.08 cm) deep. Knockouts are provided for use with 1/2" (1.27 cm) conduit. The annunciators mount directly to the ABS-2B without a dress plate.

ABS-2D: Annunciator backbox, surface, black.

ABF-2B: Annunciator flush box, 9.938" (25.24 cm) high x 9.188" (23.34 cm) wide x 3.75" (9.525 cm) deep. Includes a painted metal trim plate [11" (27.94 cm) high x 10.625" (26.99 cm) wide] and adhesive-backed annunciator label.

ABF-2DB: Annunciator semi-flush mount backbox. Black with a smoked glass door with a keylock.

AKS-1B: Key Switch (black) to enable/disable controls when mounted in ABF-1B or ABS-1TB.

Agency Listings and Approvals

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

- UL Listed: S635
- ULC Listed: S635
- FDNY: COA# 6067, 6065
- CSFM: 7165-0028:0243, 7165-0028-0224
- FM Approved

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RM-1 Series

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



Emergency Voice Evacuation

GENERAL

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

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

FEATURES

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

CAB-3/CAB-4 SERIES INSTALLATION

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

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

See page 2 for illustrations of mounted units.

SPECIFICATIONS

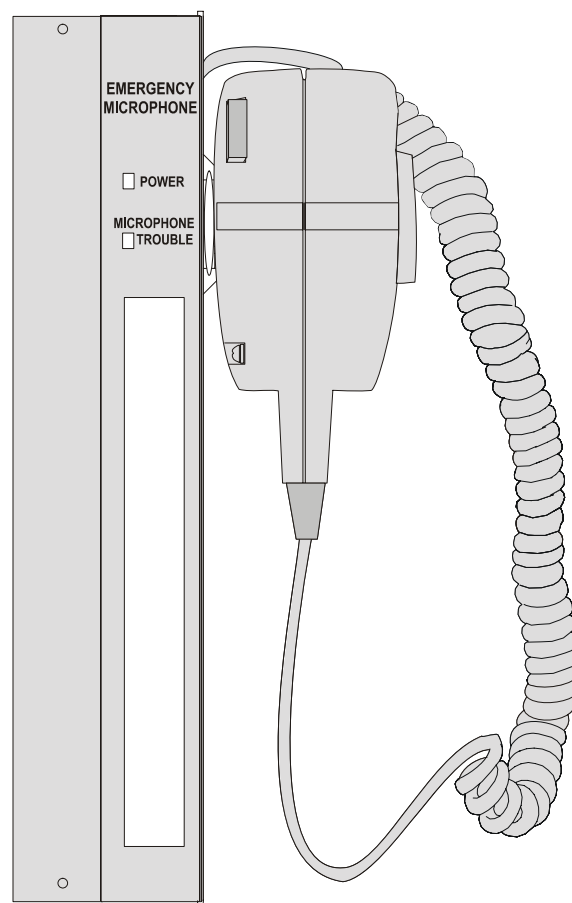
Power requirements: 20 mA primary, non-fire alarm current; 66 mA when microphone is activated; 20 mA secondary, non-fire alarm current.

Operating voltage: 17 to 26.4 volts.

PRODUCT LINE INFORMATION

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

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



6728mrsa.cdr

CAB-RM: Stand-alone cabinet, gray.

CAB-RMR: Stand-alone cabinet, red.

AGENCY LISTINGS AND APPROVALS

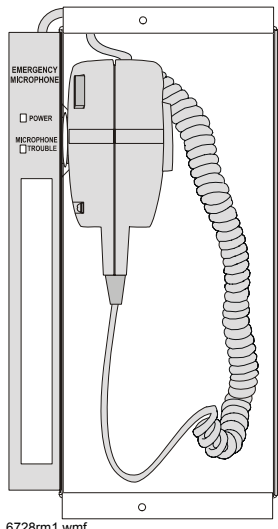
These listings and approvals apply to the RM-1 Series Remote Microphone. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

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

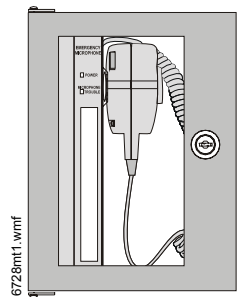
RM-1 MOUNTING & CABINET DIMENSIONS

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

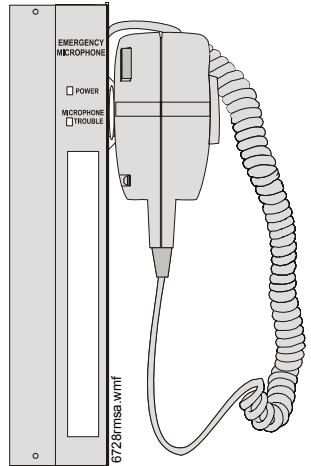
BELOW: RM-1 (left) and on ADP-4 dress panel.



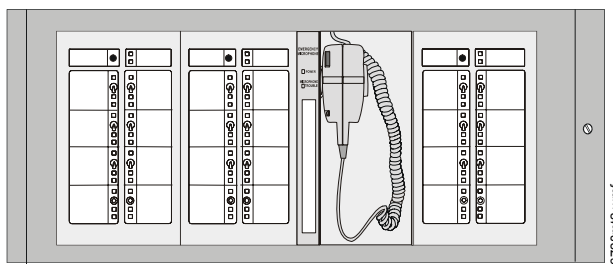
6728rm1.wmf



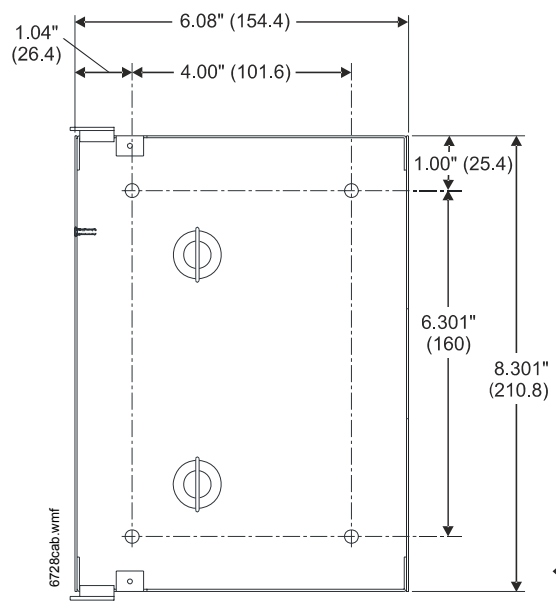
6728mt1.wmf



6728rmtsa.wmf

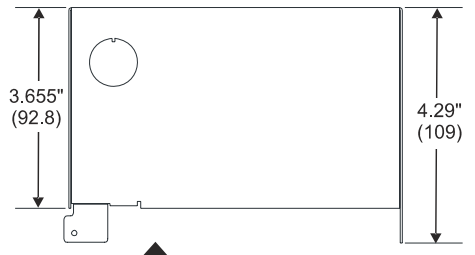


6728mt2.wmf



6728cab.wmf

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



DEPTH WITHOUT DOOR

HEIGHT/WIDTH WITHOUT DOOR

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

HPFF12, HPFF12CM, HPFF12E, HPFF12CME

NAC Expander/Power Supply

Description

The Honeywell HPFF12(E) and HPFF12CM(E) are Notification Appliance Circuit (NAC) Expander Power Supplies designed to extend the power capabilities of existing NACs and provide power for auxiliary devices. The HPFF12 and HPFF12CM connects to any 12 or 24V Fire Alarm Control Panel (FACP) or operates stand-alone.

They provide regulated and filtered 24VDC power to four NAC's and an auxiliary output. The NAC outputs are rated at 3.0 amps each and the auxiliary output is rated at 2.0 amps (this output is continuously supplied, even in alarm, and therefore must be taken into account for power supply loading and battery size calculations). The combined output cannot exceed 12.0 amps.

The HPFF12 and HPFF12CM provide independent output circuit supervision so in the event of a NAC fault they can notify the attached FACP. In addition they have a trouble memory feature that displays past troubles (by NAC) for rapid diagnostics. Synchronization is built in for five appliance brands.

The HPFF12 and HPFF12CM have two fully independent supervised initiating circuits that can be used for synchronized strobes and coded horns. Their NAC outputs may be configured as any of the following:

- four Class B (Style Y)
- two Class A (Style Z)
- two Class B and one Class A
- four Class A with the optional HPP31076 Class A adapter

These power supplies contain an internal Battery charger capable of charging up to 26.0 amp-hour (AH) batteries.

The HPFF12 is mounted in a lockable wall cabinet that can accommodate up to two 18AH batteries. The HPFF12CM is designed to mount in Honeywell's large equipment enclosure (EQBB-D4; order separately). Up to three HPFF12CM supplies can be mounted in a D-sized EQ cabinet in positions 2, 3, and 4. Each HPFF12CM can accommodate two 12AH batteries.

One of the most challenging aspects of a retrofit application is locating the existing End-of-Line (EOL) resistor. In these applications that have EOL values other than the 3.9k normally used with the HPFF12, a single resistor matching the existing EOL can be used as a reference for all the outputs. This feature speeds installation and system checkout because the actual EOL does not need to be located and changed in the circuit. The reference resistor must be within the range of 1.9k to 25k.

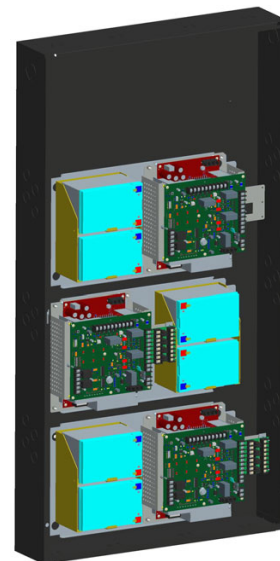
NOTE: 4 separate programming resistors for the HPFF12 are provided in the hardware kit shipped with each HPFF12(E) and HPFF12CM(E). They are 3.9K (5 of these are provided, need only 1 for programming), 2.2K (1 each), 4.7K (1 each) and 10K (1 each)

Features

- Listed to UL Standard 864, 9th edition.
- Four (4) power limited supervised notification application circuits (NAC's) capable of supplying +24VDC at 3.0 amp maximum each.
- NAC output circuits may be configured as any of the following:
 - Four Class B (Style Y).



60547 cov.jpg



**HPFF12CM:
Three modules in EQBB-D4**

- Two Class B & one Class A.
- Two Class A (Style Z).
- Four Class A (requires the HPP31076 Class A adapter).
- Four field-programmable operational modes:
 - Pass-through.
 - Temporal generator.
 - Sync generator.
 - Pass-through Filtered.
- Temporal coding and sync protocols compatible with the following notification appliance brands:
 - System Sensor.
 - Faraday.
 - Amseco.
 - Cooper-Wheelock.
 - Gentex.
- Protocol pass-through for synchronizing large systems.
- Two fully independent supervised input/output control circuits.
- Redundant activation operation for survivability.
- Supports FACP's Selectable Silence ability.
- 2.0 amp auxiliary continuously supplied output.
- Eight status LEDs.

- Supervised AC input, battery voltage, auxiliary output, charger, and earth ground faults.
- Trouble indication for supervision of the following:
 - NAC circuits.
 - Auxiliary output.
 - AC input.
 - Battery charger voltage.
 - Earth ground faults.
- Optional two-hour delay for AC loss.
- Separate Trouble and AC Fail Form-C relay contacts.
- The Trouble Form-C relay contacts selectable for immediate or a 2 hour delay with AC failure.
- 26 AH battery charger capability:
 - HPFF12(E) supports two 12V 18AH batteries
 - HPFF12CM(E) supports two 12V 12AH batteries per unit.
- NAC Overload protection and indication.
- Provision for mounting single or 6 circuit addressable control or relay modules inside the enclosure. (Use mounting kit PN 90475.)

Specifications

Primary Input Power: 120VAC, 60Hz, 5.4A standard; 240VAC, 50Hz, 3.2A on units with E suffix.

Secondary Power: 24 volt operation: two 7-26 AH batteries.

Battery Charging Capacity: Up to 26 AH batteries.

HPFF12 Cabinet: Holds up to two 18AH batteries.

HPFF12CM: Holds up to two 12AH batteries.

Total Output Current: 12.0A max.

Standby Current: 0.075 A.

Auxiliary Power Output: 2.0A under all conditions.

NAC Output Ratings: 24VDC fully regulated, 3.0A max per circuit (12.0A total).

End-of-Line Resistor Range: 1.9K to 25k ohm, ½ watt. Product ships with 4 separate programming resistors. They are 3.9K (5 each - only need one for programming), 2.2K (1 each), 4.7K (1 each) and 10K (1 each)

Common Trouble: 2.0A at 30VDC.

Relay Fail Relay: 2.0A at 30VDC.

Input Control Circuits: compatible with 12 and 24 VDC control panel NACs.

Input Control Current (alarm): 5.68 mA @ 12 VDC, 12.28 mA @ 24 VDC.

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

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

Cabinet Dimensions:

- **HPFF12 Cabinet:** 16.65" W x 19.0" H x 5.2" D (42.29 W x 48.26 H 13.23 D cm)
- **Large equipment enclosure (EQBB-D4):** 24" W x 45.9" H x 5.15" D (60.96 W x 116.52 H x 13.1D cm)

Product Line Information

HPFF12: 12.0A fire rated power supply. Unit includes red enclosure, battery cable and installation instructions. 120VAC/60Hz.

HPFF12E: 240VAC/50Hz version of HPFF12.

HPFF12CM: 12.0A fire rated power supply (chassis mounted). Unit includes mounting hardware, battery cable and instructions for installation in large equipment enclosure. 120VAC/60Hz.

HPFF12CME: 240VAC/50Hz version of HPFF12CM.

HPP31076: Class A (Style Z) NAC Adaptor. Increase Class A circuits from 2 to 4.

Large Equipment Enclosure: EQ series cabinet for mounting HPFF12CM power supplies consists of a backbox (EQBB-D4) and a locking door (EQDR-D4 or FCI-VDR-D4B). Order separately.

CMF-300-6: Six-circuit supervised addressable control module activated through FACP programming on a select basis to control power supply activation or output.

CMF-300: Supervised addressable control module activated through FACP programming to activate power supply.

BAT-12120: Battery, 12 volt, 12.0 AH (two required).

BAT-1270: Battery, 12 volt, 7.0 AH (two required).

90474: Mounting kit; required to attach an addressable module onto the control circuit board (included with supply).

Listings and Approvals

Listings and approvals below apply to all. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Listed under UL 864 9th Edition.

- **UL Listed:** S24562
- **FM Approved**

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Automation and Control Solutions

Honeywell

12 Clintonville Road
Northford, CT 06472-1610
www.honeywellpower.com

1(877) HPP-POWER
hpp_techserv@honeywell.com

DH-60547:C1
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Page 2 of 2



Honeywell



Secondary Power Requirements

HPFF12 Power Supply

Protected Premises: <u>Hall Elementary School</u>	Date: <u>7/21/2017</u>
Address: _____	
City: <u>Portland</u>	State: <u>ME</u> Zip: _____
Prepared By: <u>BK Systems, Inc</u> Phone: <u>603-647-8775</u>	
Address: <u>27 Sheep Davis Road</u> Email: _____	
City: <u>Pembroke</u>	State: <u>NH</u> Zip: _____

Secondary Load Requirements

4.98

Amp Hours

Total Secondary Load from the calculation table below.

Current Draw		Time (hours)	Total (AH)
Secondary Standby Load 0.075 A	x	Required Standby Time	
		24 hours	1.80
Secondary Alarm Load 9.406 A	x	Required Alarm Time (hours)	
		0.250 hours	2.35
Total Secondary Load			4.15
Derating factor			x 1.2
Secondary Load Requirements			4.98

AH

Battery Selection

7

Amp Hours

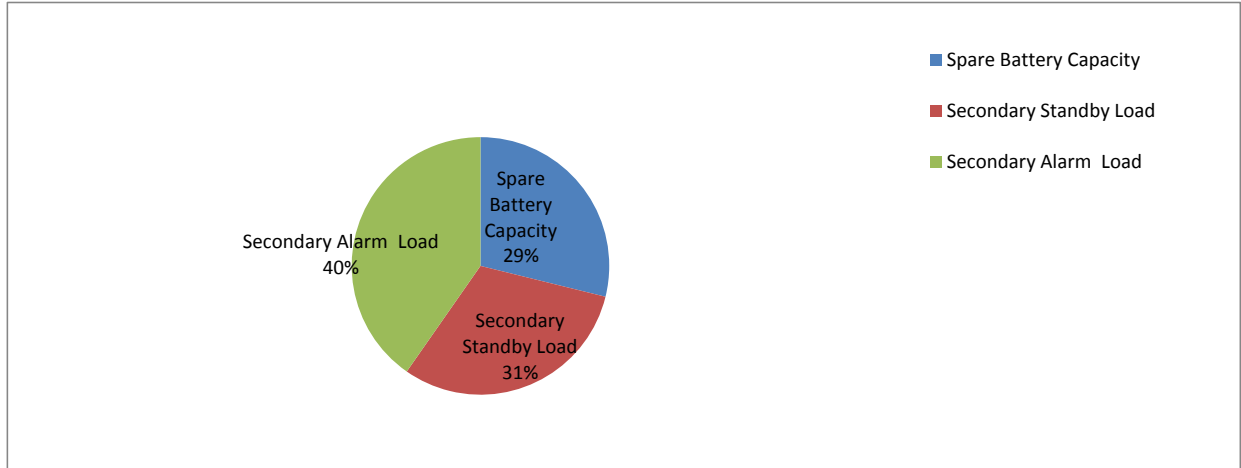
Select batteries from the list below.

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 (7-26AH).

Spare Battery Capacity	2.02	Battery Selection (AH) - Secondary Load Requirements (AH)
Secondary Standby Load	2.16	Secondary Standby Load (AH) * Derating Factor
Secondary Alarm Load	2.82	Secondary Alarm Load (AH) * Derating Factor

PROJECT DETAILS

Project Name : Hall Elem. School

Project Code : 17-071

Project Location :
Portland, Maine

PREPARED BY

Derek Small

Voltage Drop Calculations

POWER SOURCE : FCPS1 MODEL NUMBER : HPPF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER

CIRCUIT: NAC Circuit 1 3 Amps 14 AWG 12 DEVICES 34 % (1.020) AMPS USED 7.64 % (1.558) VOLTAGE DROP

#	MODEL	CANDELA	PATTERN	VOLUME	TONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
1	SPSRL	15				0.043	29	20.281	20.211	20.099	19.922
2	SPSRL	15				0.043	29	20.167	20.030	19.811	19.464
3	SPSRL	15				0.043	29	20.058	19.857	19.536	19.026
4	SPSRL	15				0.043	29	19.954	19.692	19.273	18.608
5	SPSRL	15				0.043	29	19.855	19.535	19.023	18.211
6	SPSRL	15				0.043	29	19.761	19.386	18.786	17.834
7	SPSRL	30				0.063	29	19.672	19.245	18.561	17.477
8	SPSRL	75				0.107	29	19.591	19.116	18.355	17.149
9	SPSRL	110				0.148	29	19.522	19.006	18.181	16.872
10	SPSRL	110				0.148	29	19.470	18.924	18.050	16.664
11	SPSRL	110				0.148	29	19.435	18.869	17.963	16.525
12	SPSRL	110				0.148	29	19.418	18.842	17.919	16.456
Voltage Drop								0.982	1.558	2.481	3.944

POWER SOURCE : FCPS1 MODEL NUMBER : HPPF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER

CIRCUIT: NAC Circuit 2 3 Amps 14 AWG 11 DEVICES 32.53 % (0.976) AMPS USED 6.34 % (1.294) VOLTAGE DROP

#	MODEL	CANDELA	PATTERN	VOLUME	TONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
1	SPSRL	15				0.043	28	20.290	20.226	20.122	19.958
2	SPSRL	15				0.043	28	20.185	20.059	19.857	19.536
3	SPSRL	15				0.043	28	20.085	19.900	19.604	19.133
4	SPSRL	30				0.063	28	19.990	19.749	19.363	18.750
5	SPSRL	30				0.063	28	19.902	19.609	19.140	18.395
6	SPSRL	30				0.063	28	19.821	19.480	18.935	18.069
7	SPSRL	75				0.107	28	19.747	19.362	18.748	17.771

#	MODEL	CANDELA	PATTERN	VOLUME	ZONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
8	SPSRL	75				0.107	28	19.685	19.264	18.591	17.522
9	SPSRL	110				0.148	28	19.635	19.185	18.465	17.321
10	SPSRL	110				0.148	28	19.602	19.132	18.381	17.187
11	SPSRL	110				0.148	28	19.585	19.106	18.339	17.120
Voltage Drop								0.815	1.294	2.061	3.280

POWER SOURCE : FCPS1 MODEL NUMBER : HPFF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER

CIRCUIT: NAC Circuit 3 3 Amps 14 AWG 20 DEVICES 41.93 % (1.258) AMPS USED 11.19 % (2.282) VOLTAGE DROP

#	MODEL	CANDELA	PATTERN	VOLUME	ZONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
1	SPSRL	15				0.043	22	20.289	20.223	20.119	19.953
2	SPSRL	15				0.043	22	20.182	20.052	19.847	19.521
3	SPSRL	15				0.043	22	20.078	19.887	19.585	19.104
4	SPSRL	15				0.043	22	19.978	19.729	19.333	18.703
5	SPSRL	15				0.043	22	19.882	19.577	19.090	18.317
6	SPSRL	15				0.043	22	19.790	19.431	18.857	17.946
7	SPSRL	15				0.043	22	19.702	19.291	18.633	17.590
8	SPSRL	15				0.043	22	19.617	19.157	18.419	17.250
9	SPSRL	15				0.043	22	19.536	19.029	18.215	16.925
10	SPSRL	15				0.043	22	19.459	18.907	18.020	16.615
11	SPSRL	15				0.043	22	19.386	18.791	17.835	16.321
12	SPSRL	15				0.043	22	19.317	18.681	17.660	16.042
13	SPSRL	15				0.043	22	19.251	18.577	17.494	15.778
14	SPSRL	30				0.063	22	19.189	18.479	17.338	15.529
15	SPSRL	30				0.063	22	19.133	18.390	17.196	15.303
16	SPSRL	30				0.063	22	19.082	18.310	17.068	15.099
17	SPSRL	75				0.107	22	19.037	18.238	16.954	14.918
18	SPSRL	75				0.107	22	19.001	18.181	16.864	14.775
19	SPSRL	110				0.148	22	18.975	18.139	16.798	14.670
20	SPSRL	110				0.148	22	18.962	18.118	16.765	14.617
Voltage Drop								1.438	2.282	3.635	5.783

POWER SOURCE : FCPS1 MODEL NUMBER : HPFF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER

CIRCUIT: NAC Circuit 4 3 Amps 14 AWG 14 DEVICES 29.17 % (0.875) AMPS USED 5.75 % (1.174) VOLTAGE DROP

#	MODEL	CANDELA	PATTERN	VOLUME	TONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
1	SPSRL	15				0.043	23	20.319	20.272	20.196	20.075
2	SPSRL	15				0.043	23	20.242	20.150	20.002	19.766
3	SPSRL	15				0.043	23	20.169	20.034	19.818	19.473
4	SPSRL	15				0.043	23	20.100	19.925	19.644	19.196
5	SPSRL	15				0.043	23	20.035	19.822	19.480	18.935
6	SPSRL	15				0.043	23	19.974	19.725	19.326	18.690
7	SPSRL	15				0.043	23	19.917	19.634	19.182	18.461
8	SPSRL	15				0.043	23	19.864	19.550	19.048	18.248
9	SPSRL	15				0.043	23	19.815	19.472	18.924	18.051
10	SPSRL	30				0.063	23	19.770	19.400	18.810	17.870
11	SPSRL	30				0.063	23	19.731	19.338	18.711	17.712
12	SPSRL	75				0.107	23	19.698	19.285	18.626	17.577
13	SPSRL	75				0.107	23	19.674	19.248	18.566	17.482
14	SPSRL	110				0.148	23	19.660	19.226	18.531	17.427
Voltage Drop								0.740	1.174	1.869	2.973

Battery Backup Calculations Beta – Do not use for submittals

POWER SOURCE: FCPS1 MODEL NUMBER: HPFF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER MIN BATTERY SIZE: 7 MAX BATTERY SIZE: 26 **TOTAL AMP-HOURS REQUIRED: 3.461**

TYPE	LABEL	STANDBY CURRENT TOTAL DRAW(AMPS)	ALARM CURRENT TOTAL DRAW(AMPS)
HPFF12		0.075	0.206
NAC Circuit 1		0.000	1.020
NAC Circuit 2		0.000	0.976
NAC Circuit 3		0.000	1.258
NAC Circuit 4		0.000	0.875
AUX	TBI	0.000	0.000
TOTAL		0.075	4.335

ADDITIONAL ADJUSTMENTS

SUMMARY	PROJECT SETTINGS	CURRENT DRAW(AMPS)	AMP HOURS
Alarm-Time(Minutes)	15.000	4.335	1.084
Standby-Time(Hours)	24.000	0.075	1.800
Sum of Alarm and Standby(Amp-Hours)			2.884
Derating Factor	1.200		
Battery Size (Total Amp-Hours Required)			3.461
Spare Capacity Required(%)	0.000		
TOTAL (AMP-HOURS)			3.461

Devices in Circuit "TBI"

MODEL ID	DESCRIPTION	QUANTITY	STANDBY CURRENT DRAW(AMPS)	STANDBY CURRENT TOTAL DRAW(AMPS)	ALARM CURRENT DRAW(AMPS)	ALARM CURRENT TOTAL DRAW(AMPS)
No Devices Found						

Voltage Drop Calculations

POWER SOURCE : FCPS2 MODEL NUMBER : HPPF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER

CIRCUIT: NAC Circuit 5 3 Amps 14 AWG 20 DEVICES 47.07 % (1.412) AMPS USED 15.14 % (3.089) VOLTAGE DROP

#	MODEL	CANDELA	PATTERN	VOLUME	TONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
1	SPSRL	15				0.043	27	20.247	20.157	20.013	19.784
2	SPSRL	15				0.043	27	20.098	19.921	19.637	19.187
3	SPSRL	15				0.043	27	19.954	19.693	19.273	18.608
4	SPSRL	15				0.043	27	19.815	19.472	18.921	18.048
5	SPSRL	15				0.043	27	19.680	19.258	18.581	17.507
6	SPSRL	15				0.043	27	19.550	19.052	18.253	16.985
7	SPSRL	15				0.043	27	19.425	18.853	17.936	16.481
8	SPSRL	15				0.043	27	19.304	18.662	17.631	15.996
9	SPSRL	15				0.043	27	19.188	18.478	17.338	15.530
10	SPSRL	15				0.043	27	19.077	18.301	17.057	15.083
11	SPSRL	30				0.063	27	18.970	18.132	16.788	14.655
12	SPSRL	30				0.063	27	18.870	17.974	16.536	14.254
13	SPSRL	75				0.107	27	18.777	17.827	16.301	13.881
14	SPSRL	75				0.107	27	18.696	17.698	16.096	13.554
15	SPSRL	75				0.107	27	18.626	17.587	15.920	13.274
16	SPSRL	75				0.107	27	18.568	17.495	15.773	13.041
17	SPSRL	75				0.107	27	18.522	17.421	15.656	12.854
18	SPSRL	75				0.107	27	18.487	17.366	15.568	12.714
19	SPSRL	75				0.107	27	18.464	17.329	15.509	12.621
20	SRL	75				0.107	27	18.452	17.311	15.480	12.574
Voltage Drop								1.948	3.089	4.920	7.826

POWER SOURCE : FCPS2 MODEL NUMBER : HPPF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER

CIRCUIT: NAC Circuit 6 3 Amps 14 AWG 17 DEVICES 42.03 % (1.261) AMPS USED 11.55 % (2.357) VOLTAGE DROP

#	MODEL	CANDELA	PATTERN	VOLUME	TONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
1	SPSRL	15				0.043	26	20.268	20.191	20.067	19.870

#	MODEL	CANDELA	PATTERN	VOLUME	ZONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
2	SPSRL	15				0.043	26	20.141	19.989	19.745	19.358
3	SPSRL	15				0.043	26	20.018	19.794	19.435	18.864
4	SPSRL	15				0.043	26	19.900	19.606	19.136	18.388
5	SPSRL	15				0.043	26	19.786	19.425	18.848	17.930
6	SPSRL	15				0.043	26	19.677	19.251	18.572	17.491
7	SPSRL	15				0.043	26	19.572	19.085	18.307	17.070
8	SPSRL	15				0.043	26	19.472	18.926	18.053	16.667
9	SPSRL	15				0.043	26	19.376	18.774	17.811	16.282
10	SPSRL	15				0.043	26	19.285	18.629	17.580	15.915
11	SPSRL	75				0.107	26	19.198	18.491	17.360	15.566
12	SPSRL	75				0.107	26	19.122	18.371	17.169	15.262
13	SPSRL	75				0.107	26	19.058	18.269	17.006	15.003
14	SPSRL	75				0.107	26	19.005	18.184	16.871	14.789
15	SPSRL	75				0.107	26	18.963	18.117	16.765	14.620
16	SPSRL	110				0.148	26	18.932	18.068	16.687	14.496
17	SPSRL	110				0.148	26	18.917	18.043	16.648	14.434
Voltage Drop								1.483	2.357	3.752	5.966

POWER SOURCE : FCPS2 MODEL NUMBER : HPPF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER

CIRCUIT: NAC Circuit 7 3 Amps 14 AWG 17 DEVICES 35.57 % (1.067) AMPS USED 8.25 % (1.683) VOLTAGE DROP

#	MODEL	CANDELA	PATTERN	VOLUME	ZONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
1	SPSRL	15				0.043	23	20.301	20.243	20.151	20.003
2	SPSRL	15				0.043	23	20.206	20.093	19.912	19.622
3	SPSRL	15				0.043	23	20.115	19.949	19.683	19.257
4	SPSRL	15				0.043	23	20.028	19.811	19.464	18.908
5	SPSRL	15				0.043	23	19.945	19.680	19.255	18.575
6	SPSRL	15				0.043	23	19.866	19.555	19.056	18.258
7	SPSRL	15				0.043	23	19.791	19.436	18.867	17.957
8	SPSRL	15				0.043	23	19.720	19.324	18.688	17.672
9	SPSRL	15				0.043	23	19.653	19.218	18.519	17.403
10	SPSRL	30				0.063	23	19.590	19.118	18.360	17.150
11	SPSRL	30				0.063	23	19.533	19.027	18.216	16.921
12	SPSRL	30				0.063	23	19.482	18.946	18.087	16.715
13	SPSRL	30				0.063	23	19.437	18.874	17.972	16.533
14	SPSRL	75				0.107	23	19.397	18.811	17.872	16.374
15	SPSRL	75				0.107	23	19.367	18.764	17.797	16.255
16	SPSRL	75				0.107	23	19.347	18.733	17.747	16.175
17	SPSRL	75				0.107	23	19.337	18.717	17.722	16.135

#	MODEL	CANDELA	PATTERN	VOLUME	ZONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
Voltage Drop								1.063	1.683	2.678	4.265

POWER SOURCE : FCPS2 MODEL NUMBER : HPFF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER

CIRCUIT: NAC Circuit 8 3 Amps 14 AWG 20 DEVICES 48.37 % (1.451) AMPS USED 11.44 % (2.334) VOLTAGE DROP

#	MODEL	CANDELA	PATTERN	VOLUME	ZONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
1	SPSRL	15				0.043	19	20.289	20.224	20.120	19.954
2	SPSRL	15				0.043	19	20.181	20.053	19.848	19.522
3	SPSRL	15				0.043	19	20.077	19.888	19.585	19.103
4	SPSRL	15				0.043	19	19.976	19.728	19.330	18.697
5	SPSRL	15				0.043	19	19.878	19.573	19.083	18.304
6	SPSRL	15				0.043	19	19.784	19.423	18.844	17.924
7	SPSRL	15				0.043	19	19.693	19.278	18.614	17.558
8	SPSRL	15				0.043	19	19.605	19.139	18.392	17.205
9	SPSRL	15				0.043	19	19.520	19.005	18.178	16.865
10	SPSRL	15				0.043	19	19.439	18.876	17.973	16.538
11	SPSRL	15				0.043	19	19.361	18.752	17.776	16.225
12	SPSRL	15				0.043	19	19.286	18.633	17.587	15.925
13	SPSRL	30				0.063	19	19.215	18.520	17.407	15.638
14	SPSRL	75				0.107	19	19.148	18.414	17.239	15.370
15	SPSRL	75				0.107	19	19.090	18.321	17.091	15.135
16	SPSRL	75				0.107	19	19.040	18.241	16.964	14.933
17	SPSRL	75				0.107	19	18.998	18.174	16.858	14.764
18	SPSRL	110				0.148	19	18.964	18.120	16.772	14.628
19	SPSRL	110				0.148	19	18.941	18.084	16.715	14.537
20	SPSRL	110				0.148	19	18.930	18.066	16.686	14.492
Voltage Drop								1.470	2.334	3.714	5.908

Battery Backup Calculations Beta – Do not use for submittals

POWER SOURCE: FCPS2 MODEL NUMBER: HPFF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER MIN BATTERY SIZE: 7 MAX BATTERY SIZE: 26 **TOTAL AMP-HOURS REQUIRED: 3.779**

TYPE	LABEL	STANDBY CURRENT TOTAL DRAW(AMPS)	ALARM CURRENT TOTAL DRAW(AMPS)
HPFF12		0.075	0.206
NAC Circuit 5		0.000	1.412
NAC Circuit 6		0.000	1.261
NAC Circuit 7		0.000	1.067

TYPE	LABEL	STANDBY CURRENT TOTAL DRAW(AMPS)	ALARM CURRENT TOTAL DRAW(AMPS)
NAC Circuit 8		0.000	1.451
AUX	TBI	0.000	0.000
TOTAL		0.075	5.397

ADDITIONAL ADJUSTMENTS

SUMMARY	PROJECT SETTINGS	CURRENT DRAW(AMPS)	AMP HOURS
Alarm-Time(Minutes)	15.000	5.397	1.349
Standby-Time(Hours)	24.000	0.075	1.800
Sum of Alarm and Standby(Amp-Hours)			3.149
Derating Factor	1.200		
Battery Size (Total Amp-Hours Required)			3.779
Spare Capacity Required(%)	0.000		
TOTAL (AMP-HOURS)			3.779

Devices in Circuit "TBI"

MODEL ID	DESCRIPTION	QUANTITY	STANDBY CURRENT DRAW(AMPS)	STANDBY CURRENT TOTAL DRAW(AMPS)	ALARM CURRENT DRAW(AMPS)	ALARM CURRENT TOTAL DRAW(AMPS)
No Devices Found						

Voltage Drop Calculations

POWER SOURCE : FCPS3 MODEL NUMBER : HPFF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER

CIRCUIT: NAC Circuit 9 3 Amps 14 AWG 22 DEVICES 49.93 % (1.498) AMPS USED 14.37 % (2.931) VOLTAGE DROP

#	MODEL	CANDELA	PATTERN	VOLUME	TONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
1	SPSRL	15				0.043	22	20.268	20.190	20.065	19.867
2	SPSRL	15				0.043	22	20.139	19.986	19.740	19.350
3	SPSRL	15				0.043	22	20.014	19.788	19.424	18.848
4	SPSRL	15				0.043	22	19.893	19.596	19.118	18.361
5	SPSRL	15				0.043	22	19.776	19.410	18.822	17.890
6	SPSRL	15				0.043	22	19.663	19.230	18.535	17.434
7	SPSRL	15				0.043	22	19.553	19.056	18.258	16.993
8	SPSRL	15				0.043	22	19.447	18.888	17.990	16.567
9	SPSRL	15				0.043	22	19.345	18.726	17.732	16.157
10	SPSRL	15				0.043	22	19.247	18.570	17.484	15.762
11	SPSRL	15				0.043	22	19.153	18.420	17.245	15.382
12	SPSRL	15				0.043	22	19.062	18.276	17.016	15.018
13	SPSRL	30				0.063	22	18.975	18.138	16.797	14.669
14	SPSRL	30				0.063	22	18.894	18.009	16.592	14.342
15	SPSRL	75				0.107	22	18.818	17.889	16.401	14.038
16	SPSRL	75				0.107	22	18.752	17.784	16.234	13.772

#	MODEL	CANDELA	PATTERN	VOLUME	TONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
17	SPSRL	75				0.107	22	18.695	17.694	16.091	13.544
18	SPSRL	75				0.107	22	18.648	17.619	15.971	13.354
19	SPSRL	75				0.107	22	18.610	17.559	15.875	13.202
20	SPSRL	75				0.107	22	18.582	17.514	15.803	13.088
21	SPSRL	75				0.107	22	18.563	17.484	15.755	13.012
22	SPSRL	75				0.107	22	18.554	17.469	15.731	12.974
Voltage Drop								1.846	2.931	4.669	7.426

POWER SOURCE : FCPS3 MODEL NUMBER : HPPF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER

CIRCUIT: NAC Circuit 10 3 Amps 14 AWG 21 DEVICES 43.9 % (1.317) AMPS USED 12.62 % (2.575) VOLTAGE DROP

#	MODEL	CANDELA	PATTERN	VOLUME	TONE	CURRENT (amps)	DISTANCE FROM PREVIOUS DEVICE (Ft)	12 AWG	14 AWG	16 AWG	18 AWG
1	SPSRL	15				0.043	23	20.278	20.207	20.092	19.910
2	SPSRL	15				0.043	23	20.160	20.020	19.794	19.436
3	SPSRL	15				0.043	23	20.046	19.839	19.506	18.978
4	SPSRL	15				0.043	23	19.936	19.665	19.228	18.536
5	SPSRL	15				0.043	23	19.830	19.497	18.960	18.110
6	SPSRL	15				0.043	23	19.728	19.335	18.702	17.700
7	SPSRL	15				0.043	23	19.630	19.180	18.455	17.306
8	SPSRL	15				0.043	23	19.536	19.031	18.218	16.928
9	SPSRL	15				0.043	23	19.446	18.888	17.991	16.566
10	SPSRL	15				0.043	23	19.360	18.752	17.774	16.220
11	SPSRL	15				0.043	23	19.278	18.622	17.567	15.890
12	SPSRL	30				0.063	23	19.200	18.498	17.370	15.576
13	SPSRL	30				0.063	23	19.128	18.383	17.187	15.286
14	SPSRL	30				0.063	23	19.062	18.278	17.019	15.019
15	SPSRL	30				0.063	23	19.001	18.182	16.866	14.776
16	SPSRL	30				0.063	23	18.946	18.095	16.728	14.556
17	SPSRL	30				0.063	23	18.897	18.017	16.604	14.359
18	SPSRL	30				0.063	23	18.854	17.949	16.495	14.186
19	SPSRL	75				0.107	23	18.817	17.890	16.401	14.036
20	SPSRL	110				0.148	23	18.790	17.847	16.332	13.926
21	SPSRL	110				0.148	23	18.776	17.825	16.297	13.871
Voltage Drop								1.624	2.575	4.103	6.529

Battery Backup Calculations Beta – Do not use for submittals

POWER SOURCE: FCPS3 MODEL NUMBER: HPPF12 BRAND : HPP CLASS B 20.4 VOLTS DC POWER MIN BATTERY SIZE: 7 MAX BATTERY SIZE: 26 **TOTAL AMP-HOURS REQUIRED: 3.066**

TYPE	LABEL	STANDBY CURRENT TOTAL DRAW(AMPS)	ALARM CURRENT TOTAL DRAW(AMPS)
HPFF12		0.075	0.206
NAC Circuit 9		0.000	1.498
NAC Circuit 10		0.000	1.317
AUX	TB1	0.000	0.000
TOTAL		0.075	3.021

ADDITIONAL ADJUSTMENTS

SUMMARY	PROJECT SETTINGS	CURRENT DRAW(AMPS)	AMP HOURS
Alarm-Time(Minutes)	15.000	3.021	0.755
Standby-Time(Hours)	24.000	0.075	1.800
Sum of Alarm and Standby(Amp-Hours)			2.555
Derating Factor	1.200		
Battery Size (Total Amp-Hours Required)			3.066
Spare Capacity Required(%)	0.000		
TOTAL (AMP-HOURS)			3.066

Devices in Circuit "TB1"

MODEL ID	DESCRIPTION	QUANTITY	STANDBY CURRENT DRAW(AMPS)	STANDBY CURRENT TOTAL DRAW(AMPS)	ALARM CURRENT DRAW(AMPS)	ALARM CURRENT TOTAL DRAW(AMPS)
No Devices Found						



CO1224 Carbon Monoxide Detector

System Sensor's CO1224 provides early warning when its electrochemical sensing technology accurately measures carbon monoxide levels in the air.



Carbon monoxide is an odorless, colorless, tasteless and highly toxic gas that is produced when fuels, such as wood, gasoline, charcoal and oil, are burned with insufficient air. The majority of residential and commercial fatalities caused from these fuels come from heating systems, power tools and charcoal grills.

If carbon monoxide is detected, the CO1224 will alert residents by sounding and flashing a temp-4 signal alarm. Protection is guaranteed 24/7 by a central station, regardless of whether residents are away from home, sleeping or already suffering from the effects of CO.

The CO1224 is specifically designed for system operation. This means the detector is fully listed to UL 2075, offering a code required trouble relay, which sends a sensor failure or end-of-life signal to the control panel and the central station, as well as SEMS-type terminal Philips-head screws, which provide a quicker and more positive wiring connection and code required wiring supervision. Also, the CO1224 offers a low current draw, allowing more detectors to be connected to the panel without having to purchase a more expensive panel or an extra power supply.

Because the CO1224 is a 12/24 VDC detector, it will operate on most industry security or fire alarm control panels.

Features

- Full compliance with UL 2075
- A code required trouble relay
- Wiring supervision with SEMS terminals
- A six-year end-of-life timer
- 12/24 VDC
- A current draw of 20mA in standby and 40mA in alarm
- Versatile mounting for wall and ceiling
- Electrochemical sensing technology

Agency Listings



Specifications

Architectural/Engineering Specifications

Carbon monoxide detector shall be a System Sensor model number CO1224, listed to Underwriters Laboratories UL 2075 for Gas and Vapor Detectors and Sensors. The detector shall be equipped with a sounder and a trouble relay. The detector's base shall be able to mount to a single-gang electrical box or direct (surface) mount to the wall or ceiling. Wiring connections shall be made by means of SEMS screws. The detector shall provide dual color LED indication, which blinks to indicate normal standby, alarm, or end-of-life. When the sensor supervision is in a trouble condition, the detector shall send a trouble signal to the panel. When the detector gives a trouble or end-of-life signal, the detector shall be replaced.

Electrical Specifications

Operating Voltage	12/24 VDC
Audible Signal	85 dB in alarm
Standby Current	20 mA
Alarm Current	40 mA (75 mA test)
Alarm Contact Ratings	0.5 A @ 30 VDC
Trouble Contact Ratings	0.5 A @ 30 VDC

Physical Specifications

Size	Length: 5.1", Width: 3.3", Height: 1.3"
Approximate Weight	7 oz
Operating Temperature Range	0° – 40° C (32° – 104° F)
Operating Humidity Range	22 – 90% RH
Input Terminals	14 – 22 AWG
Mounting	Single-gang back box; surface mount to wall or ceiling

Operation Modes

Operation Mode	Green LED	Red LED	Sounder
Normal (standby)	Blink 1 per minute	—	—
Alarm	—	Blink in temp 4 pattern	Sound in temp 4 pattern

- Hush Feature: Pushing the Test/Hush button will silence the sounder for 5 minutes.
- Trouble Feature: When the detector is in a trouble condition, it will send a trouble signal to the panel.
- End-of-life Timer: After the sensor inside the detector has reached the end of its useful life, a trouble signal will be sent to the panel. This will indicate that it is time to replace the detector. An electrochemical carbon monoxide detector lifespan is approximately six years, and the detector must be replaced by the date marked on the inside of the product.

Ordering Information

Part No.	Description
CO1224	12/24 volt, 4-wire system-monitored carbon monoxide detector



3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495

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