

OFFICE: 45 Bradley Drive
Westbrook, ME 04092

Phone: 207.464.3706
Fax: 207.464.1833

SUBMITTAL COVER SHEET

Date: 11/20/17

ESB Submittal No.: 284621.11

Project Name: Hall Elementary School

Project No.: 571173

Contract No.: TBD

Manufacturer: _____

Spec. Section No.: 284621.11

Description: ADDRESSABLE FIRE-ALARM SYSTEMS

Remarks: _____

ACTION TAKEN

**Hall Elementary School
Fire Alarm System
Portland, ME**

Prepared For:

**E.S. Boulos Company
45 Bradley Drive
Westbrook, ME 04092**

Presented By:



**BK Systems, Inc.
27 Sheep Davis Road
Pembroke, NH 03275
Telephone: (603) 647-8775
Fax: (603) 647-4806
Nik Webster**

FIRE ALARM SYSTEM BILL OF MATERIALS

QTY.	MODEL #	DESCRIPTION	MOUNTING
1	NFS2-640	Intelligent Addressable Fire Alarm Control Panel To Include: 1.) CPU2-640 w/One (1) SLC Loop 2.) Keyboard and Display 3.) Digital Voice Command Center 4.) Digital Voice Keypad 5.) Digital Audio Amplifier 6.) Microphone 7.) DVC Dress Plate 8.) DVC Chassis 9.) CPU2-640 Display Plate 10.) Blank Filler Plate 11.) Battery Dress Panel 12.) Blank Dress Panel 13.) Cabinet Doors 14.) Battery Cabinet NFS-LBBR 15.) Batteries 16.) Digital Alarm Communicator/Transmitter 17.) XP6-R Chasis	Mount in SBB-D4R Cabinet by BK Systems, Inc.
1	RFCC	Remote Fire Command Center To Include: 1.) Remote LCD2-80 Annunciator 2.) Remote Microphone 3.) Programmable Buttons 4.) Annunciator Dress Plate 5.) Blank Filler Plate 6.) 2" Filler Dress Plate 7.) Cabinet Door 8.) Cabinet	Semi-Flush on SBB-AA4R Box by Electrical Contractor
3	HPFF12	Twelve (12) Amp Booster Panel	Surface Mount by Electrical Contractor
1	7788F	Radio Transmitter Box	Surface Mount Box by Electrical Contractor
19	NBG-12LX	Addressable Dual Action Manual Pull Station	Semi-Flush on Single Gang Box by Electrical Contractor
26	FSP-851	Addressable Smoke Detector w/B210LP Base	Semi-Flush in 4" Octagonal Box by Electrical Contractor
17	DNR	Addressable Duct Smoke Detector w/ FSP-851R with DST-3 Sampling Tube and RTS-151	Surface on Duct by Mechanical Contractor
5	FST-851	Addressable Heat Detector w/B210LP Base	Semi-Flush in 4" Octagonal Box by Electrical Contractor
4	CO1224	Carbon Monoxide Detector	Semi-Flush on Single Gang Box by Electrical Contractor
16	FMM-1	Addressable Monitor Module	Semi-Flush on 4" Box by Electrical Contractor
7	FMM-101	Addressable Mini Monitor Module	Semi-Flush on 4" Box by Electrical Contractor
20	FRM-1	Addressable Relay Module	Semi-Flush on 4" Box by Electrical Contractor
12	FM-998	Flush Mount Door Holders	Flush Mount Box by Electrical Contractor
172	SPSRL	Synchronized Multi-Candela Speaker/Strobe	Semi-Flush on 4"x4"x2 1/8" Box by Electrical Contractor
37	SPSCRL	Synchronized Multi-Candela Ceiling Mount Speaker/Strobe	Semi-Flush on 4"x4"x2 1/8" Box by Electrical Contractor
1	SPSRK	Weatherproof Synchronized Multi-Candela Speaker/Strobe	Semi-Flush on Weatherproof Box by Electrical Contractor

1	SRL	Synchronized Multi-Candela Strobe	Semi-Flush on Single Gang Box by Electrical Contractor
2	SPCRL	Synchronized Ceiling Mount Speaker	Semi-Flush on 4"x4"x2 1/8" Box by Electrical Contractor
1	STH-3R	Synchronized Ceiling Mount Cluster Speaker	Surface Mount by Electrical Contractor
2	3200	Surface Mount Knox Box	Surface Mount Box by Electrical Contractor
1	490-S	24VDC Red Exterior Beacon	Surface Mount on 1/2" Female Pipe by Electrical Contractor
1	SSM24-6	24VDC 6" Sprinkler Bell	Semi-Flush on WBB Box by Electrical Contractor
4	STI-9708R	Speaker Strobe Wire Guard	Surface Mount by Electrical Contractor
1	STI-1230	Pull Station Stopper Cover	Surface Mount by Electrical Contractor

NFS2-640(E)

Intelligent Addressable Fire Alarm System



Intelligent Fire Alarm Control Panels

General

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

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

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

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

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

Features

- Certified for seismic applications when used with the appropriate seismic mounting kit.
- Approved for Marine applications when used with listed compatible equipment. See DN-60688.
- One, expandable to two, isolated intelligent Signaling Line Circuit (SLC) Style 4, 6 or 7.
- Wireless fire protection using SWIFT Smart Wireless Integrated Fire Technology. See DN-60820.
- Up to 159 detectors and 159 modules per SLC; 318 devices per loop/636 per FACP or network node.
 - Detectors can be any mix of ion, photo, thermal, or multi-sensor; wireless detectors are available for use with the FWSG.
 - Modules include addressable pull stations, normally open contact devices, two-wire smoke detectors, notification, or relay; wireless modules are available for use with the FWSG.
- Standard 80-character display, 640-character large display (NCA-2), or display-less (a node on a network).
- Network options:
 - High-speed network for up to 200 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCA-2, DVC-EM, ONYXWorks, NFS-3030, NFS-640, and NCA).
 - Standard network for up to 103 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCA-2, DVC-EM, ONYXWorks, NCS, NFS-3030, NFS-640, NCA, AFP-200, AFP-300/400, AFP-1010, and AM2020). Up to 54 nodes when DVC-EM is used in network paging.
- 6.0 A switch mode power supply with four Class A/B built-in Notification Appliance Circuits (NAC). Selectable System Sensor, Wheelock, or Gentex strobe synchronization.
- Built-in Alarm, Trouble, Security, and Supervisory relays.
- VeriFire® Tools online or offline programming utility. Upload/Download, save, store, check, compare, and simulate panel databases. Upgrade panel firmware.
- Autoprogramming and Walk Test reports.
- Multiple central station communication options:
 - Standard UDACT
 - Internet
 - Internet/GSM
- 80-character remote annunciators (up to 32).
- EIA-485 annunciators, including custom graphics.
- Printer interface (80-column and 40-column printers).
- History file with 800-event capacity in nonvolatile memory, plus separate 200-event alarm-only file.
- Alarm Verification selection per point, with automatic counter.
- Presignal/Positive Alarm Sequence (PAS).
- Silence inhibit and Auto Silence timer options.
- March time/temporal/California two-stage coding/strobe synchronization.
- Field-programmable on panel or on PC, with VeriFire Tools program check, compare, simulate.
- Full QWERTY keypad.
- Battery charger supports 18 – 200 AH batteries.
- Non-alarm points for lower priority functions.
- Remote ACK/Signal Silence/System Reset/Drill via monitor modules.
- Automatic time control functions, with holiday exceptions.
- Surface Mount Technology (SMT) electronics.
- Extensive, built-in transient protection.
- Powerful Boolean logic equations.



NFS2-640-DVC_right.jpg

NFS2-640

- Support for SCS Series smoke control system in HVAC mode.

NCA-2 AS PRIMARY DISPLAY

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

FLASHSCAN® INTELLIGENT FEATURES

- Polls up to 318 devices in less than two seconds.
- Activates up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.
- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — up to nine levels.
- Pre-alarm ONYX intelligent sensing — up to nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
 - Ion — 0.5 to 2.5%/foot obscuration.
 - Photo — 0.5 to 2.35%/foot obscuration.
 - Laser (VIEW®) — 0.02 to 2.0%/foot obscuration.
 - Acclimate Plus™ — 0.5 to 4.0%/foot obscuration.
 - IntelliQuad™ — 1.0 to 4.0%/foot obscuration.
 - IntelliQuad™ PLUS — 1.0 to 4.0%/foot obscuration
- Drift compensation (U.S. Patent 5,764,142).

- Degraded mode — in the unlikely event that the CPU2-640 microprocessor fails, FlashScan detectors revert to degraded operation and can activate the CPU2-640 NAC circuits and alarm relay. Each of the four built-in panel circuits includes a Disable/Enable switch for this feature.
- Multi-detector algorithm involves nearby detectors in alarm decision (U.S. Patent 5,627,515).
- Automatic detector sensitivity testing (NFPA-72 compliant).
- Maintenance alert (two levels).
- Self-optimizing pre-alarm.

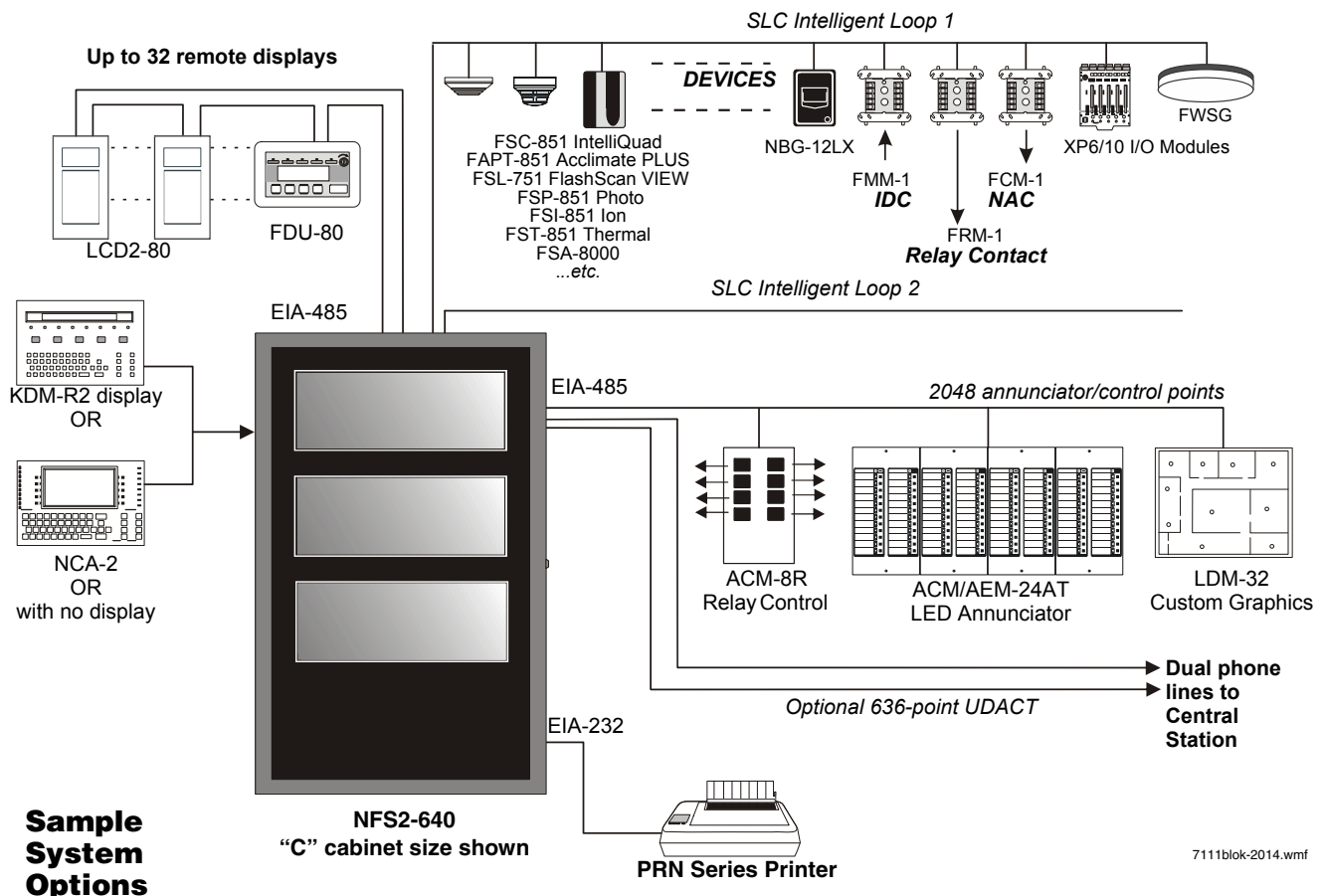
FSL-751 (VERY INTELLIGENT EARLY WARNING) SMOKE DETECTION TECHNOLOGY

- Advanced ONYX intelligent sensing algorithms differentiate between smoke and non-smoke signals (U.S. Patent 5,831,524).
- Addressable operation pinpoints the fire location.
- Early warning performance comparable to the best aspiration systems at a fraction of the lifetime cost.

FAPT-851 ACCLIMATE PLUS

LOW-PROFILE INTELLIGENT MULTI-SENSOR

- Detector automatically adjusts sensitivity levels without operator intervention or programming. Sensitivity increases with heat.
- Microprocessor-based technology; combination photo and thermal technology.
- Low-temperature warning signal at 40°F ± 5°F (4.44°C ± 2.77°C).



FSC-851 INTELLIQUAD

ADVANCED MULTI-CRITERIA DETECTOR

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

FSA-8000 INTELLIGENT FAAST DETECTOR

- Connects directly to the SLC loop of compatible ONYX series panels
- Provides five event thresholds that can be individually programmed with descriptive labels for control-by-event programming; uses five detector addresses.
- Uses patented particle separator and field-replaceable filter to remove contaminants.
- Advanced algorithms reject common nuisance conditions

FCO-851 INTELLIQUAD™ PLUS

ADVANCED MULTI-CRITERIA FIRE/CO DETECTOR

- Detects all four major elements of a fire.
- Separate signal for life-safety CO detection.
- Optional addressable sounder base for Temp-3 (fire) or Temp-4 (CO) tone.
- Automatic drift compensation of smoke sensor and CO cell.
- High nuisance-alarm immunity.

SWIFT WIRELESS

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

RELEASING FEATURES

- Ten independent hazards.
- Sophisticated cross-zone (three options).
- Delay timer and Discharge timers (adjustable).
- Abort (four options).
- Low-pressure CO₂ listed.

DIGITAL VOICE AND TELEPHONE FEATURES

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

HIGH-EFFICIENCY OFFLINE SWITCHING

3.0 A POWER SUPPLY (6.0 A IN ALARM)

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

FlashScan, Exclusive World-Leading Detector Protocol

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

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

ONYX Intelligent Sensing

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

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

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

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

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

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

Field Programming Options

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

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

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

Placement of Equipment in Chassis and Cabinet

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

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

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

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

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

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

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

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

KDM-R2 Controls and Indicators

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

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

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

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

Product Line Information

- "Configuration Guidelines" on page 4
- "Networking Options" on page 5
- "Auxiliary Power Supplies and Batteries" on page 5
- "Audio Options" on page 5
- "Compatible Devices, EIA-232 Ports" on page 5
- "Compatible Devices, EIA-485 Ports" on page 5
- "Compatible Intelligent Devices" on page 6
- "Enclosures, Chassis, and Dress Plates" on page 7
- "Other Options" on page 7

CONFIGURATION GUIDELINES

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

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

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

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

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

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

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

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

BMP-1: Blank module for unused module positions.

BP2-4: Battery plate, required.

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

NETWORKING OPTIONS

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

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

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

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

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

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

CAP-GW: Common Alerting Protocol Gateway. *See DN-60576.*

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

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

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

AUXILIARY POWER SUPPLIES AND BATTERIES

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

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

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

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

AUDIO OPTIONS

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

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

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

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

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

DS-AMP/E: 125W, 25 VRMS, or 100W, 70VRMS. 70VRMS requires DS-XF70V step-up transformer. Digital Series Amplifier, part of the DS-DB system. *See DN-60663.*

DS-RFM, DS-FM, DS-SFM: Fiber conversion modules for DVC-EM, DS-DB distribution board, and DAX and DAA2 Series amplifiers. *See DN-60633.*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

COMPATIBLE DEVICES, EIA-232 PORTS

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

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

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

COMPATIBLE DEVICES, EIA-485 PORTS

ACM-24AT: ONYX Series ACS annunciator – up to 96 points of annunciation with Alarm or Active LED, Trouble LED, and switch per circuit. Active/Alarm LEDs can be programmed (by

powered-up switch selection) by point to be red, green, or yellow; the Trouble LED is always yellow. *See DN-6862.*

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

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

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

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

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

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

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

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

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

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

UZZ-256: Programmable Universal Zone Coder provides positive non-interfering successive zone coding. Microprocessor-controlled, field-programmable from IBM®-compatible PCs (requires optional programming kit). Up to 256 programmable codes. Mounts in **BB-UZZ** or other compatible chassis (purchased separately). *See DN-3404.*

COMPATIBLE INTELLIGENT DEVICES

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

FSA-8000: Intelligent FFAST Fire Alarm Aspiration Sensing Technology®. Intelligent aspirating smoke detector. For Canadian applications, order FSA-8000A. *See DN-60792.*

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

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

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

FCO-851: FlashScan IntelliQuad PLUS Advanced Multi-Criteria Fire/CO Detector. *See DN-60689.*

FSI-851: Low-profile FlashScan ionization detector. *See DN-6934.*

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

FSP-851T: FSP-851 plus dual electronic thermistors that add 135°F (57°C) fixed-temperature thermal sensing. *See DN-6935.*

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

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

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

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

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

FSL-751: FlashScan VIEW laser photo detector. *See DN-6886.*

DNR: InnovairFlex low-flow non-relay duct-detector housing (order FSP-851R separately). Replaces FSD-751PL/FSD-751RPL. *See DN-60429.*

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

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

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

B210LP: Low-profile base. Standard U.S. style. Replaces B710LP. *See DN-60054.*

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

B200S: Intelligent programmable sounder base, capable of producing a variety of tone patterns including ANSI Temporal 3. Compatible with synchronization protocol. *See DN-60054.*

B200SCOA: Based on B200SA, with added CO detector markings in English/French. For Canadian applications only.

B200SR: Sounder base, Temporal 3 or Continuous tone. *See DN-60054.*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SLC-IM: SLC integration module, for VESDA_{net} detectors. *See DN-60755.*

ENCLOSURES, CHASSIS, AND DRESS PLATES

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

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

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

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

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

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

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

NFS-LBBR: Same as above but red.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

OTHER OPTIONS

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

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

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

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

IPSPLT: Y-adapter option allow connection of both panel dialer outputs to one IPDACT-2/2UD cable input.

IPENC: External enclosure for IPDACT, includes IPBRKT mounting bracket; Red. For Black order IPENC-B.

IPGSM-4G: Internet and Digital Cellular Fire Alarm Communicator. Provides selectable configurable paths: cellular only, IP only, or IP primary with cellular backup. Connects to the primary and secondary ports of a DACT. For Canadian applications order IPGSM-4GC. See *DH-60769*.

NOTE: For other options including compatibility with retrofit equipment, refer to the panel's installation manual, the SLC manual, and the Device Compatibility Document.

System Specifications

SYSTEM CAPACITY

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

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

ELECTRICAL SPECIFICATIONS

- Primary input power:
 - CPU2-640 board: 120 VAC, 50/60 Hz, 5.0 A.
 - CPU2-640E board: 220/240 VAC, 50/60 Hz, 2.5 A.

- Current draw (standby/alarm):
 - CPU2-640(E) board: 0.250 A. Add 0.035 A for each NAC in use.
 - KDM-R2: 0.100 A.
 - LEM-320: 0.100 A.
- Total output 24 V power: 6.0 A in alarm.

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

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

CABINET SPECIFICATIONS

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

SHIPPING WEIGHT

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

TEMPERATURE AND HUMIDITY RANGES

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

AGENCY LISTINGS AND APPROVALS

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

- **UL Listed:** S635.
- **ULC Listed:** S635.
- **FM Approved.**
- **MEA:** 128-07-E.
- **Fire Dept. of New York:** #6121.
- **CSFM:** 7165-0028:0243.
- **City of Chicago.**
- **City and County of Denver.**
- **CCCF listed.**

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

requirements are followed, systems are approved by the following agencies:

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

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

STANDARDS

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

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

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



System Power Requirements

Notifier NFS2-640 Fire Alarm Control Panel

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: _____

AC Branch Current Requirements

5.00 AMPS @ 120 VAC

Current required by source to power the fire alarm system.

Primary Standby Load

1.28 Amps

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

Primary Alarm Load

1.82 Amps

Current load on the primary power supply during **alarm** conditions.

Secondary Load Requirements

36.79 Amp Hours

Total Secondary Load from the calculation table below.

Current Draw		Time (hours)	Total (AH)
Secondary Standby Load 1.258 A	x	Required Standby Time	
		24 hours	30.20
Secondary Alarm Load 1.860 A	x	Required Alarm Time	
		0.250 hours	0.47
Total Secondary Load			30.66
Derating factor			x 1.2
Secondary Load Requirements (Amp Hours)			36.79 AH

Battery Selection

55 Amp Hours

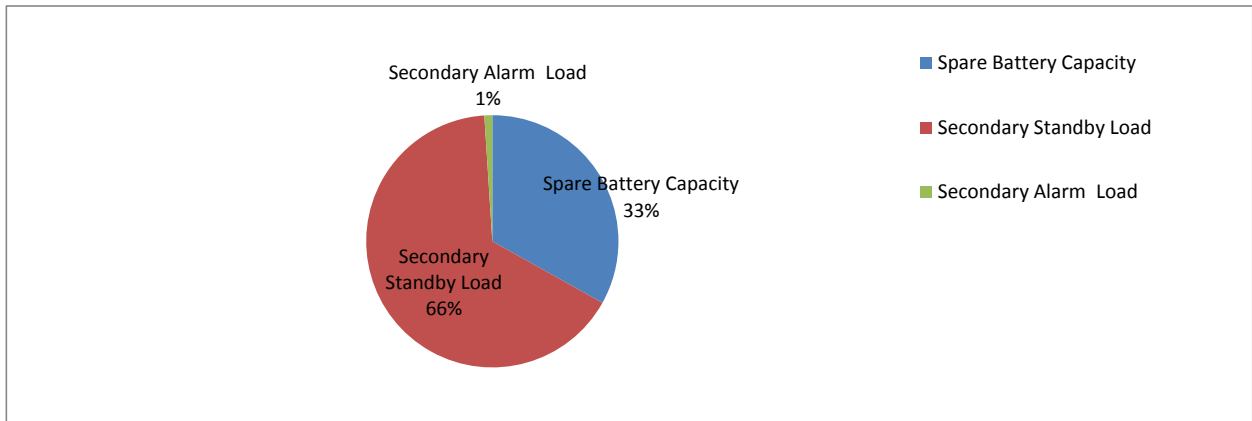
Select batteries from the list below.

55 AH BAT-12550 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-55 or other external battery box
2. Selected battery size meets secondary load requirements.
3. The selected batteries (55AH) are within the charger range of this power supply (18-200AH).

Spare Battery Capacity	18.21	Battery Selection (AH) - Secondary Load Requirements (AH)
Secondary Standby Load	36.23	Secondary Standby Load (AH) * Derating Factor
Secondary Alarm Load	0.56	Secondary Alarm Load (AH) * Derating Factor



Device Current Draw

NFS2-640 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
CPU2-640	1	x [0.25000] = 0.25000	x [0.25000] = 0.25000	x [0.25000] = 0.25000
CPS-24	1	x [0.00000] = 0.00000	x [0.00000] = 0.00000	x [0.04000] = 0.04000
NCA2 - Backlight On	1	x [0.40000] = 0.40000	x [0.40000] = 0.40000	x [0.40000] = 0.40000
HPFF12 Power Supplies	3	x [0.00000] = 0.00000	x [0.00000] = 0.00000	x [0.00000] = 0.00000
DAX Series	3	x [0.00000] = 0.00000	x [0.00000] = 0.00000	x [0.00000] =
DVC-EM	1	x [0.30000] = 0.30000	x [0.30000] = 0.30000	x [0.30000] = 0.30000
DVC-KD	1	x [0.06000] = 0.06000	x [0.06000] = 0.06000	x [0.06000] = 0.06000
RM-1 (with DVC-EM)	1	x [0.07500] = 0.07500	x [0.07500] = 0.07500	x [0.07500] = 0.07500
LCD2-80	1	x [0.10500] = 0.10500	x [0.09800] = 0.09800	x [0.04500] = 0.04500
UDACT-2 Communicator	1	x [0.05200] = 0.05200	x [0.08700] = 0.08700	x [0.05200] = 0.05200
XP6-R	1	x [0.00145] = 0.00145	x [0.00000] = 0.00000	x [0.00145] = 0.00145
NBG-12LX	19	x [0.00038] = 0.00713	x [0.00000] = 0.00000	x [0.00038] = 0.00713
FSP-851	26	x [0.00030] = 0.00780	x [0.00000] = 0.00000	x [0.00030] = 0.00780
FSP-851R	17	x [0.00030] = 0.00510	x [0.00000] = 0.00000	x [0.00030] = 0.00510
FST-851	5	x [0.00030] = 0.00150	x [0.00000] = 0.00000	x [0.00030] = 0.00150
FMM-1	16	x [0.00035] = 0.00560	x [0.00000] = 0.00000	x [0.00035] = 0.00560
FMM-101	7	x [0.00035] = 0.00245	x [0.00000] = 0.00000	x [0.00035] = 0.00245
FRM-1	20	x [0.00026] = 0.00510	x [0.00000] = 0.00000	x [0.00026] = 0.00510
SLC Loop Device Activation Current	1	x [0.00000] = 0.00000	x [0.20000] = 0.20000	x [0.00000] = 0.00000
Total (Amperes):		1.2781 A	1.8200 A	1.2581 A

Part Number	Qty	Secondary Alarm
Total Primary Alarm Load - C2	1	x [1.82000] = 1.82000
CPS-24	1	x [0.04000] = 0.04000
Total (Amperes):		1.8600 A

BAT Series Batteries

Sealed Lead-Acid or Gell Cell



Power Supplies

General

BAT Series Batteries feature a new part-numbering/listing system — providing an improved method of delivery for NOTIFIER-approved sealed lead-acid batteries for all your fire alarm system needs. Multiple brands of batteries are now offered under generic part numbers, reducing backorder situations and permitting us to deliver these products in a more timely fashion. NOTIFIER has approved the multiple brands listed below as possible product shipped for a given part number. Please note that any incoming orders for “PS Series” batteries will be converted to the equivalent BAT Series part numbers.



6933cov.jpg

Features

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

Agency Listings and Approvals

The listings and approvals below apply to BAT Series Batteries. 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 Recognized Components:** files MH19884 (*B & B Battery*), MH20727 (*UPG, previously Jolt*), MH20845 (*Power-Sonic*).

Part Number Reference

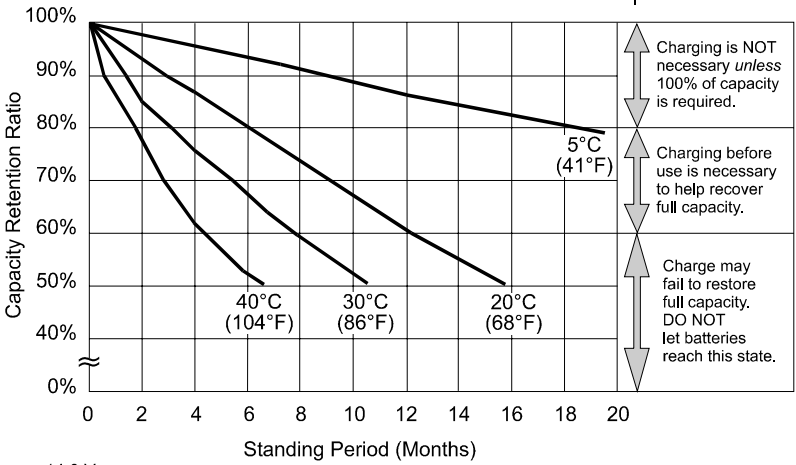
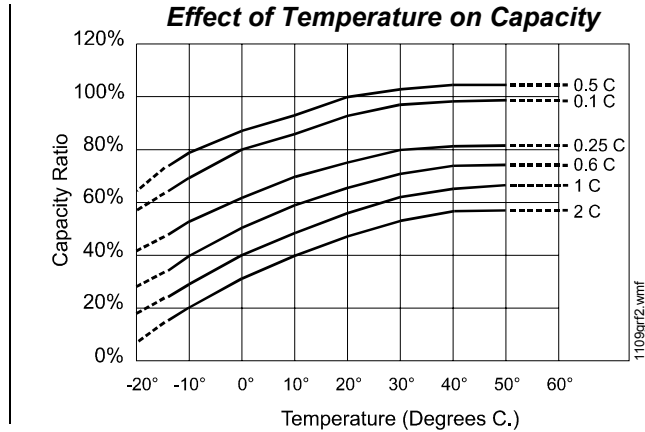
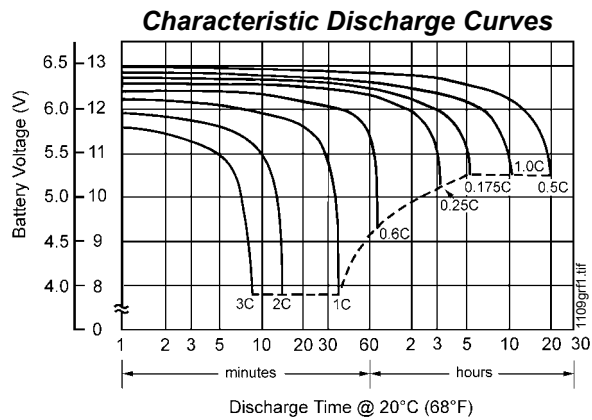
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PREVIOUS Part Number	CURRENT Part Number	BATTERY DESCRIPTION	ALTERNATES APPROVED: manufacturers and P/Ns shipped under BAT P/Ns
PS-612	<i>Discontinued</i>	N/A	N/A
PS-695	<i>Discontinued</i>	N/A.	N/A
PS-1242	BAT-1250	12 V, 5 AH, sealed.	BP5-12 (B&B Battery); PS-1250 (Power-Sonic); SA1250 (Jolt) to be replaced with UB1250 (UPG).
PS-1250	BAT-1250	12 V, 5 AH, sealed.	BP5-12 (B&B Battery); PS-1250 (Power-Sonic); SA1250 (Jolt) to be replaced with UB1250 (UPG).
PS-1270	BAT-1270	12 V, 7 AH, sealed.	BP7-12 (B&B Battery); PS-1270 (Power-Sonic); SA1272 (Jolt) to be replaced with UB1270 (UPG).
PS-12120	BAT-12120	12 V, 12 AH, sealed.	BP12-12 (B&B Battery); PS-12120 (Power-Sonic); SA12120 (Jolt) to be replaced with UB12120 (UPG).
PS-12170	BAT-12180	12 V, 18 AH, sealed.	PS-12180 (Power-Sonic); SA12180 (Jolt) to be replaced with UB12180 (UPG).
PS-12180	BAT-12180	12 V, 18 AH, sealed.	PS-12180 (Power-Sonic); SA12180 (Jolt) to be replaced with UB12180 (UPG).
PS-12250	BAT-12260	12 V, 26 AH, sealed.	BP26-12 (B&B Battery); PS-12260 (Power-Sonic); SA12260 (Jolt) to be replaced with UB12260 (UPG).
PS-12550	BAT-12550	12 V, 55 AH, sealed.	PS-12550 (Power-Sonic); XSA12550 (Jolt) to be replaced with UB12550 (UPG).
PS-12600	BAT-12550	12 V, 55 AH, sealed.	PS-12550 (Power-Sonic); XSA12550 (Jolt) to be replaced with UB12550 (UPG).
PS-12750	<i>Discontinued</i>	N/A	N/A
PS-121000	BAT-121000	12 V, 100 AH, gell cell.	PS-121000 (Power-Sonic); XSA121000A (Jolt) to be replaced with UB121000 (UPG).

POWER-SONIC

1109r1.tbl

MODEL	Nominal Voltage V	Nominal Capacity @ 20 hr. rate A.H.	Discharge Current @ 20 hr. rate mA	DIMENSIONS									
				Width		Depth		Height		Height over terminal		Weight	
				in.	mm.	in.	mm.	in.	mm.	in.	mm.	lbs.	kg.
PS-1250	12	5.0	250	3.54	90	2.76	70	4.02	102	4.21	107	4.1	1.9
PS-1270	12	7.0	325	5.94	151	2.56	65	3.70	94	3.86	98	5.7	2.6
PS-12120	12	12	600	5.94	151	3.86	98	3.70	94	3.86	98	8.8	4.0
PS-12180	12	18	875	7.13	181	2.99	76	6.57	167	6.57	167	12.8	5.8
PS-12250	12	25	1300	6.89	175	6.54	166	4.92	125	4.92	125	18.7	8.5
PS-12550	12	55	3000	10.25	260	6.60	168	8.20	208	9.45	240	39.7	18.0
PS-121000	12	100	5000	12.00	305	6.60	168	8.20	208	9.45	240	65.7	29.8

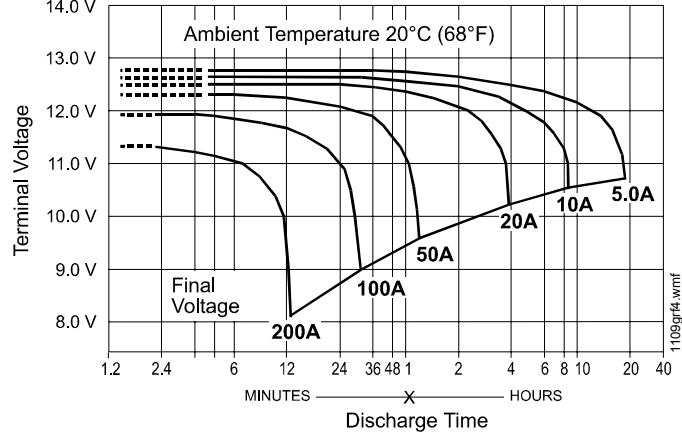


Charging is NOT necessary unless 100% of capacity is required.

Charging before use is necessary to help recover full capacity.

Charge may fail to restore full capacity. DO NOT let batteries reach this state.

at left:
PS-121000
Shelf-Life
and Storage



at left:
PS-1210000
Discharge
Characteristics

B & B BATTERY

Model	V	Nominal Capacity (AH)				Weight		Terminal				Dimensions							
								Standard		Optional		L		W		H		TH	
		20 hr	10 hr	5 hr	1 hr	kg	lbs	Type	Pos.	Type	Pos.	mm	in	mm	in	mm	in	mm	in
BP5-12	12	5.00	4.75	4.25	3.00	1.86	4.10	T1	3	T2		90	3.54	70	2.76	102	4.02	106	4.17
BP7-12	12	7.00	6.65	5.95	4.20	2.60	5.73	T2	5	T1		151	5.94	65	2.56	93	3.66	98	3.86
BP12-12	12	12.00	11.40	10.20	7.20	4.03	8.89	B1	5	T1		151	5.94	98	3.86	94	3.70	98	3.86
BP26-12	12	26.00	24.70	22.10	15.60	9.40	20.73	B1	7	T2.11	9	175	6.89	166	6.54	125	4.92	125	4.92

Charging Procedure

6933bbch.tbl

Application	Charging method	Charging voltage at 20°C (V/cell)	Temperature compensation coefficient of charging voltage (mV/°C/cell)	Maximum charging current (CA)	Charging time 0.1 CA, 20°C (h)		Temp (°C)
					100% discharge	50% discharge	
For standby power source	Constant voltage and constant current charging (with current restriction)	2.25 ~ 2.30	-3	0.3	24	20	0 ~ 40°C (32 ~ 104°F)
For cycle service		2.40 ~ 2.50	-4	0.3	16	10	

Temperature compensation of charging voltage is not needed when using the batteries within 5°C to 35°C range.

Final Voltage	Discharge Time: for Model BP5-12								
	5 min	10 min	15 min	30 min	1 hr	3 hr	5 hr	10 hr	20 hr
	Battery Output Power (W): for Model BP5-12								
10.80 V	180.8	133.1	106.6	63.5	36.39	14.57	10.05	5.62	2.94
10.50 V	209.2	144.2	111.5	65.9	37.48	14.87	10.20	5.70	3.00
10.20 V	222.3	149.4	115.0	67.4	38.16	15.00	10.26	5.73	3.01
9.90 V	232.3	152.9	117.6	68.3	38.61	15.10	10.29	5.75	3.02
9.60 V	240.0	156.0	120.0	69.0	39.00	15.20	10.32	5.75	3.02

Constant Power Discharge Characteristics at 25°C/77°F for BP5-12

Final Voltage	Discharge Time: for Model BP7-12								
	5 min	10 min	15 min	30 min	1 hr	3 hr	5 hr	10 hr	20 hr
	Battery Output Power (W): for Model BP7-12								
10.80 V	253.1	186.3	149.3	88.8	50.95	20.40	14.07	7.86	4.11
10.50 V	292.9	201.8	156.2	92.2	52.47	20.81	14.28	7.98	4.20
10.20 V	311.2	209.1	161.0	94.3	53.42	21.00	14.36	8.02	4.22
9.90 V	325.2	214.1	164.7	95.6	54.06	21.15	14.41	8.04	4.23
9.60 V	336.0	218.4	168.0	96.6	54.60	21.27	14.45	8.04	4.23

Constant Power Discharge Characteristics at 25°C/77°F for BP7-12

Final Voltage	Discharge Time: for Model BP12-12								
	5 min	10 min	15 min	30 min	1 hr	3 hr	5 hr	10 hr	20 hr
	Battery Output Power (W): for Model BP12-12								
10.80 V	433.9	319.4	256.0	152.3	87.34	34.98	24.12	13.48	7.05
10.50 V	502.2	346.0	267.7	158.1	89.96	35.68	24.48	13.68	7.20
10.20 V	533.6	358.5	276.0	161.7	91.57	36.00	24.61	13.75	7.23
9.90 V	557.5	367.1	282.4	164.0	92.67	36.25	24.70	13.79	7.25
9.60 V	576.0	374.4	288.0	165.6	93.60	36.47	24.77	13.79	7.25

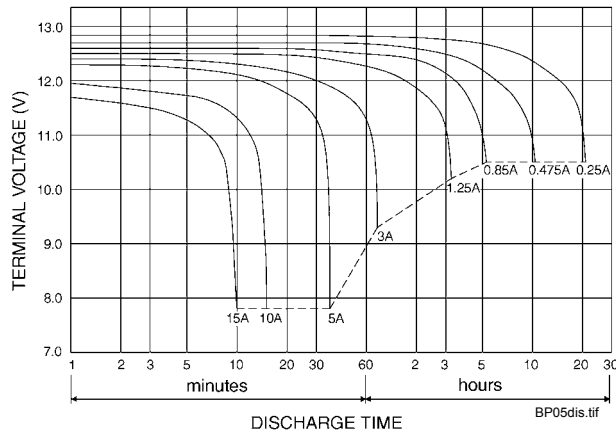
Constant Power Discharge Characteristics at 25°C/77°F for BP12-12

Final Voltage	Discharge Time: for Model BP26-12								
	5 min	10 min	15 min	30 min	1 hr	3 hr	5 hr	10 hr	20 hr
	Battery Output Power (W): for Model BP26-12								
10.80 V	940.0	692.0	554.6	330.0	189.23	75.79	52.25	29.20	15.26
10.50 V	1088.0	749.7	580.0	342.5	194.91	77.30	53.04	29.64	15.60
10.20 V	1156.0	776.7	598.0	350.3	198.41	78.00	53.33	29.79	15.67
9.90 V	1208.0	795.3	611.8	355.2	200.79	78.54	53.52	29.88	15.71
9.60 V	1248.0	811.2	624.0	358.8	202.80	79.01	53.68	29.88	15.71

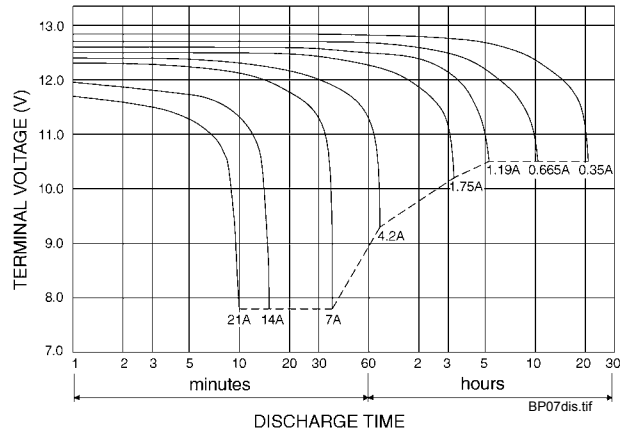
Constant Power Discharge Characteristics at 25°C/77°F for BP26-12

B & B BATTERY

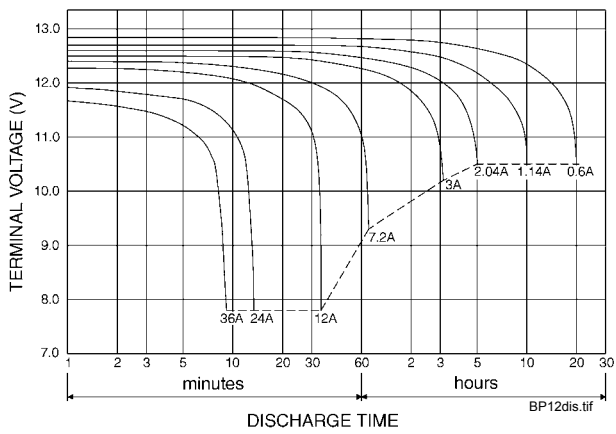
BP5-12 Battery Discharge Characteristics (25°C/77°F)



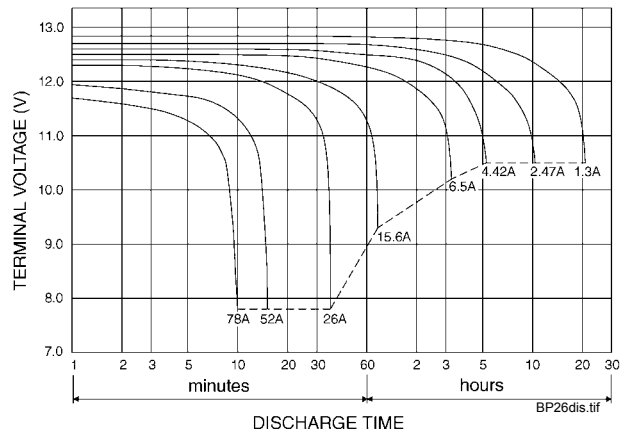
BP7-12 Battery Discharge Characteristics (25°C/77°F)



BP12-12 Battery Discharge Characteristics (25°C/77°F)



BP26-12 Battery Discharge Characteristics (25°C/77°F)



BP05-12



BP12-12



BP26-12

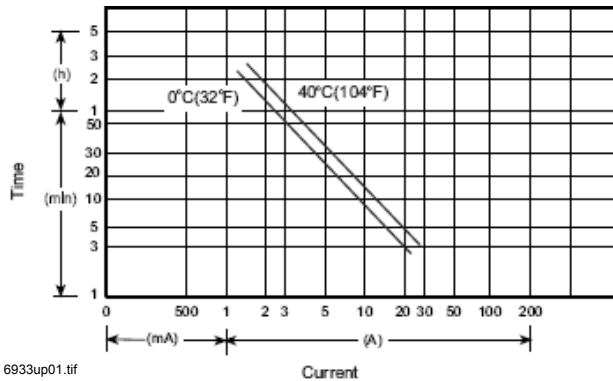


UPG BATTERY

UB1250 has the same specifications as previous Jolt SA1250; SA1272 to be replaced with UB1270 (specs/diagrams pending).

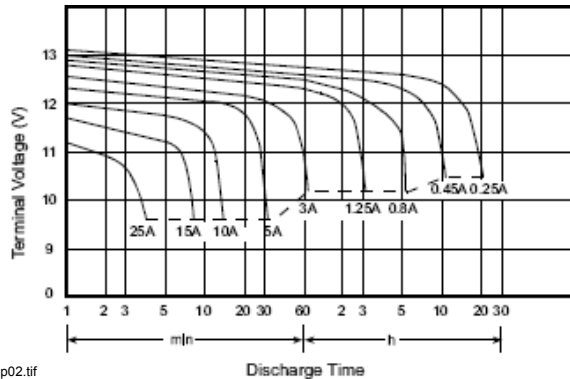
UB1250 (previously SA1250) Diagrams

UB1250/SA1250 discharge current vs. time



6933up01.tif

UB1250/SA1250 discharge characteristics (25°C/77°F)



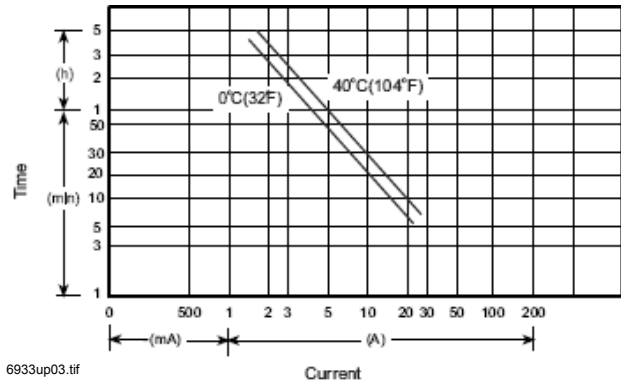
6933up02.tif

UB1250, SA1250 Specifications

- Nominal voltage: 12 V.
- Nominal capacity (20 hr): 5.0 AH.
- Dimensions: total height 107 mm (4.21"); container height 101 mm (3.98"); length 90 mm (3.54"); width 70 mm (2.76").
- Weight: approximately 1.83 kg (4.03 lbs).
- Container material: UL94HB ABS, UL94V-0 ABS.
- Internal resistance (25°C, 77°F): ~ 32 m.
- Discharge capacity under different temperatures:
 - 40°C: ~ 102%
 - 25°C: ~ 100%
 - 0°C: ~ 85%
- Capacity 25°C/77°F:
 - 20 hr @ 0.25 A: 5.0 AH.
 - 5 hr @ 0.8 A: 4.0 AH.
 - 1 hr @ 3.0 A: 3.0 AH.
 - 1 C @ 5.0 A: 2.5 AH.
- Charging voltage (25°C, 77°F):
 - Standby use: 13.65 V ± 0.15 V.
 - Cycle use: 14.7 V ± 0.3 V.
- Maximum discharge current: 60 A (5 sec).
- Maximum charging current: 1.5 A.
- Self-discharge residual capacity (25°C, 77°F):
 - After 3 months: ~ 90%.
 - After 6 months: ~ 82%.
 - After 12 months: ~ 70%.

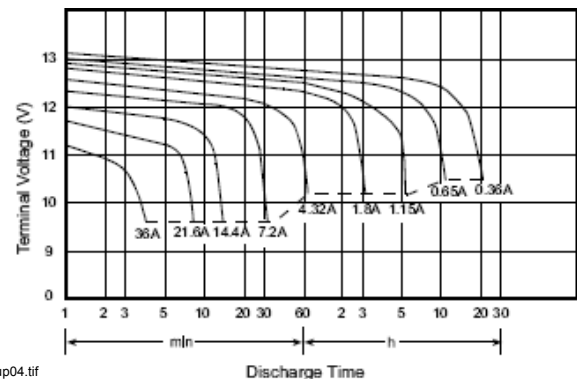
SA1272 Diagrams

SA1272 discharge current vs. time



6933up03.tif

SA1272 discharge characteristics (25°C/77°F)



6933up04.tif

SA1272 Specifications

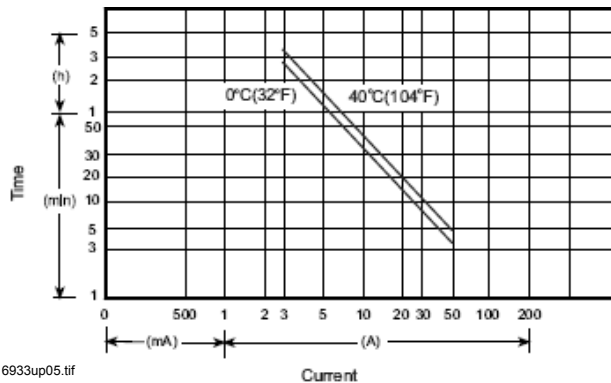
- Nominal voltage: 12 V.
- Nominal capacity (20 hr): 7.2 AH.
- Dimensions: total height 100 mm (3.94"); container height 94 mm (3.70"); length 151 mm (5.95"); width 65 mm (2.56").
- Weight: approximately 2.66 kg (5.85 lbs).
- Container material: UL94HB ABS, UL94V-0 ABS.
- Internal resistance (25°C, 77°F): ~ 22 m.
- Discharge capacity under different temperatures:
 - 40°C: ~ 102%
 - 25°C: ~ 100%
 - 0°C: ~ 85%
- Capacity 25°C/77°F:
 - 20 hr @ 0.36 A: 7.2 AH.
 - 5 hr @ 1.15 A: 5.76 AH.
 - 1 hr @ 4.32 A: 4.32 AH.
 - 1 C @ 7.2 A: 3.6 AH.
- Charging voltage (25°C, 77°F):
 - Standby use: 13.65 V ± 0.15 V.
 - Cycle use: 14.7 V ± 0.3 V.
- Maximum discharge current: 90 A (5 sec).
- Maximum charging current: 2.16 A.
- Self-discharge residual capacity (25°C, 77°F):
 - After 3 months: ~ 90%.
 - After 6 months: ~ 82%.
 - After 12 months: ~ 70%.

UPG BATTERY

Same specifications as previous Jolt models;
packaging and part numbers are the only changes.

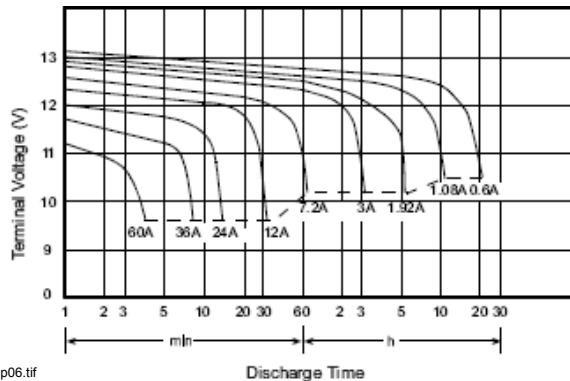
UB12120 (was SA12120) Diagrams

UB12120/SA12120 discharge current vs. time



6933up05.tif

UB12120/SA12120 discharge characteristics (25°C/77°F)



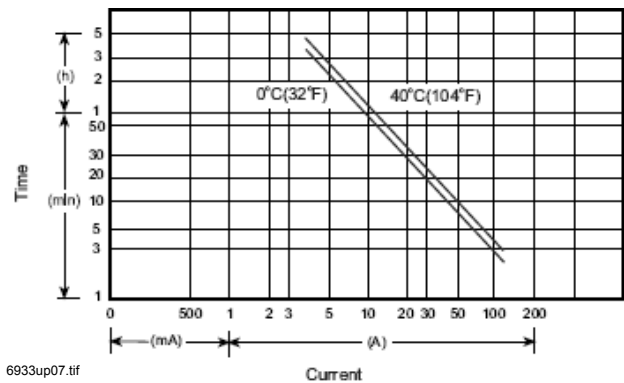
6933up06.tif

UB12120, SA12120 Specifications

- Nominal voltage: 12 V.
 - Nominal capacity (20 hr): 12.0 AH.
 - Dimensions: total height 100 mm (3.94"); container height 94 mm (3.70"); length 151 mm (5.95"); width 98 mm (3.86").
 - Weight: approximately 4.10 kg (9.04 lbs).
 - Container material: UL94HB ABS, UL94V-0 ABS.
 - Internal resistance (25°C, 77°F): ~ 14 m.
 - Discharge capacity under different temperatures:
 - 40°C: ~ 102%
 - 25°C: ~ 100%
 - 0°C: ~ 85%
 - Capacity 25°C/77°F:
 - 20 hr @ 0.6 A: 12.0 AH.
 - 5 hr @ 1.92 A: 9.6 AH.
 - 1 hr @ 7.2 A: 7.2 AH.
 - 1 C @ 12.0 A: 6.0 AH.
 - Charging voltage (25°C, 77°F):
 - Standby use: 13.65 V ± 0.15 V.
 - Cycle use: 14.7 V ± 0.3 V.
- Maximum discharge current: 120 A (5 sec).
Maximum charging current: 3.6 A.
Self-discharge residual capacity (25°C, 77°F):
- After 3 months: ~ 90%.
 - After 6 months: ~ 82%.
 - After 12 months: ~ 70%.

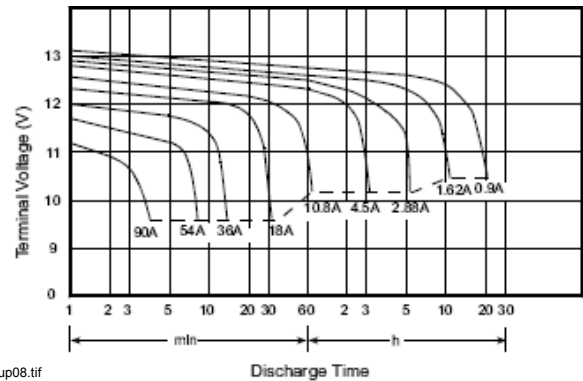
UB12180 (was SA12180) Diagrams

UB12180/SA12180 discharge current vs. time



6933up07.tif

UB12180/SA12180 discharge characteristics (25°C/77°F)



6933up08.tif

UB12180, SA12180 Specifications

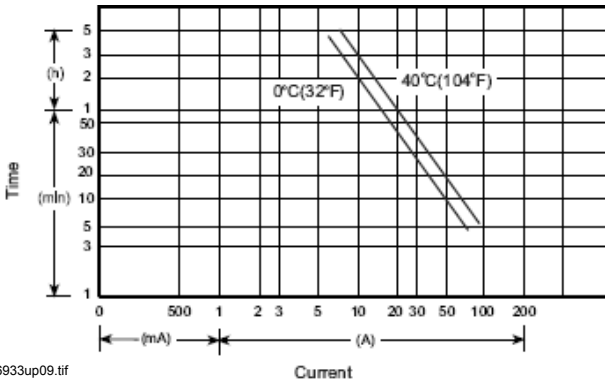
- Nominal voltage: 12 V.
 - Nominal capacity (20 hr): 18.0 AH.
 - Dimensions: total height 167 mm (6.58"); container height 167 mm (6.58"); length 181 mm (7.13"); width 76 mm (2.99").
 - Weight: approximately 6.06 kg (13.36 lbs).
 - Container material: UL94HB ABS, UL94V-0 ABS.
 - Internal resistance (25°C, 77°F): ~ 13 m.
 - Discharge capacity under different temperatures:
 - 40°C: ~ 102%
 - 25°C: ~ 100%
 - 0°C: ~ 85%
 - Capacity 25°C/77°F:
 - 20 hr @ 0.9 A: 18.0 AH.
 - 5 hr @ 2.88 A: 14.4 AH.
 - 1 hr @ 10.8 A: 10.8 AH.
 - 1 C @ 18.0 A: 9.0 AH.
 - Charging voltage (25°C, 77°F):
 - Standby use: 13.65 V ± 0.15 V.
 - Cycle use: 14.7 V ± 0.3 V.
- Maximum discharge current: 300 A (5 sec).
Maximum charging current: 5.4 A.
Self-discharge residual capacity (25°C, 77°F):
- After 3 months: ~ 90%.
 - After 6 months: ~ 82%.
 - After 12 months: ~ 70%.

UPG BATTERY

Same specifications as previous Jolt models; packaging and part numbers are the only changes.

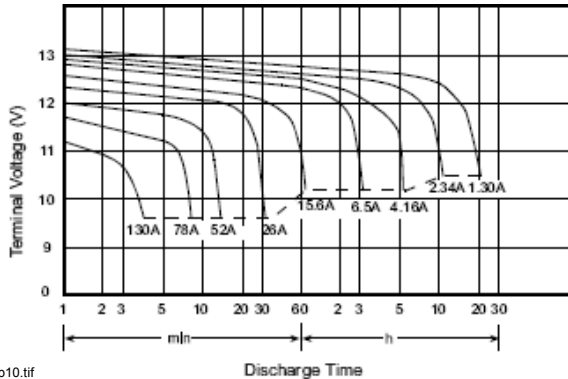
UB12260 (was SA12260) Diagrams

UB12260/SA12260 discharge current vs. time



6933up09.tif

UB12260/SA12260 discharge characteristics (25°C/77°F)



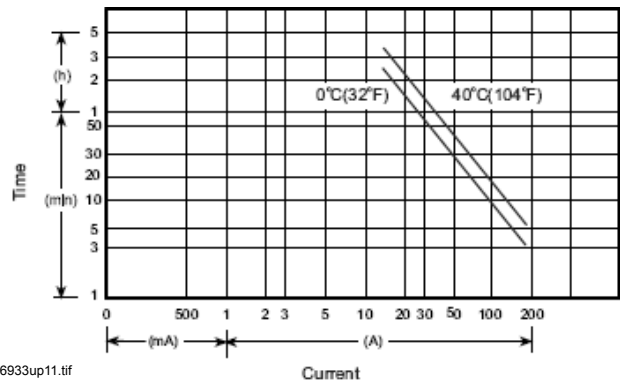
6933up10.tif

UB12260, SA12260 Specifications

- Nominal voltage: 12 V.
- Nominal capacity (20 hr): 26.0 AH.
- Dimensions: total height 125 mm (4.92"); container height 125 mm (4.92"); length 166 mm (6.54"); width 175 mm (6.89").
- Weight: approximately 8.80 kg (19.40 lbs).
- Container material: UL94HB ABS, UL94V-0 ABS.
- Internal resistance (25°C, 77°F): ~ 10 m.
- Discharge capacity under different temperatures:
 - 40°C: ~ 102%
 - 25°C: ~ 100%
 - 0°C: ~ 85%
- Capacity 25°C/77°F:
 - 20 hr @ 1.3 A: 26.0 AH.
 - 5 hr @ 4.16 A: 20.8 AH.
 - 1 hr @ 15.6 A: 15.6 AH.
 - 1 C @ 26.0 A: 13.0 AH.
- Charging voltage (25°C, 77°F):
 - Standby use: 13.65 V ± 0.15 V.
 - Cycle use: 14.7 V ± 0.3 V.
- Maximum discharge current: 300 A (5 sec).
- Maximum charging current: 7.8 A.
- Self-discharge residual capacity (25°C, 77°F):
 - After 3 months: ~ 90%.
 - After 6 months: ~ 82%.
 - After 12 months: ~ 70%.

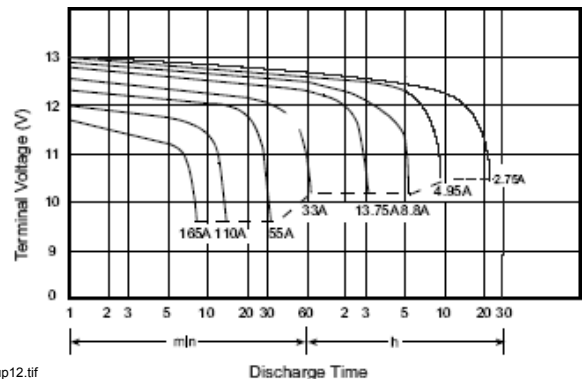
UB12550 (was SA12550) Diagrams

UB12550/SA12550 discharge current vs. time



6933up11.tif

UB12550/SA12550 discharge characteristics (25°C/77°F)



6933up12.tif

UB12550, SA12550 Specifications

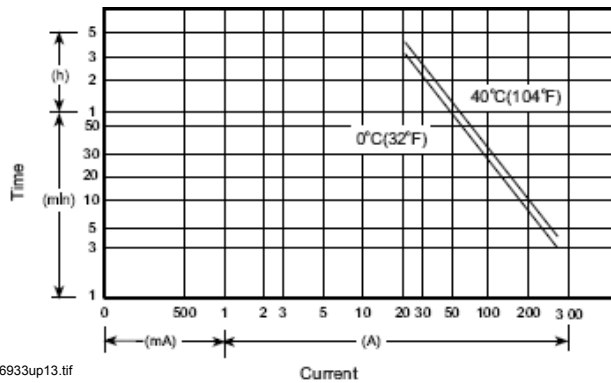
- Nominal voltage: 12 V.
- Nominal capacity (20 hr): 55.0 AH.
- Dimensions: total height 234.5 mm (9.23"); container height 216.5 mm (8.52"); length 229 mm (9.02"); width 138 mm (5.43").
- Weight: approximately 19.0 kg (41.8 lbs).
- Container material: UL94HB ABS, UL94V-0 ABS.
- Internal resistance (25°C, 77°F): ~ 8 m.
- Discharge capacity under different temperatures:
 - 40°C: ~ 102%
 - 25°C: ~ 100%
 - 0°C: ~ 85%
- Capacity 25°C/77°F:
 - 20 hr @ 2.75 A: 55.0 AH.
 - 5 hr @ 8.8 A: 44.0 AH.
 - 1 hr @ 33.0 A: 33.0 AH.
 - 1 C @ 55.0 A: 27.5 AH.
- Charging voltage (25°C, 77°F):
 - Standby use: 13.65 V ± 0.15 V.
 - Cycle use: 14.7 V ± 0.3 V.
- Maximum discharge current: 600 A (5 sec).
- Maximum charging current: 16.5 A.
- Self-discharge residual capacity (25°C, 77°F):
 - After 3 months: ~ 90%.
 - After 6 months: ~ 82%.
 - After 12 months: ~ 70%.

UPG BATTERY

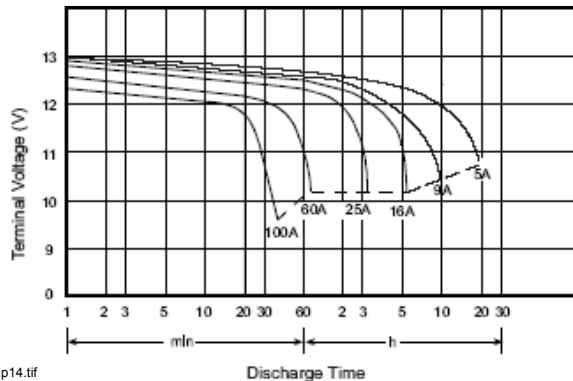
Same specifications as previous Jolt models; packaging and part numbers are the only changes.

UB121000 (XSA121000A) Diagrams

UB121000/XSA121000A discharge current vs. time



UB121000/XSA121000A discharge characteristics (25°C/77°F)

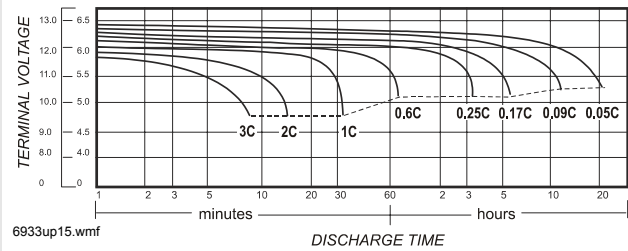


UB121000 (XSA121000A) Diagrams

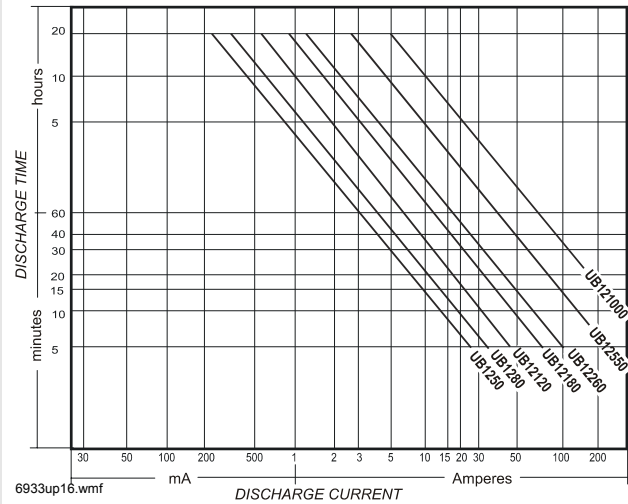
- Nominal voltage: 12 V.
- Nominal capacity (20 hr): 100.0 AH.
- Dimensions: total height 221 mm (8.70"); container height 214 mm (8.43"); length 329 mm (12.95"); width 172 mm (6.77").
- Weight: approximately 34.00 kg (74.8 lbs).
- Container material: UL94HB ABS, UL94V-0 ABS.
- Internal resistance (25°C, 77°F): ~ 6.5 m.
- Discharge capacity under different temperatures:
 - 40°C: ~ 102%
 - 25°C: ~ 100%
 - 0°C: ~ 85%
- Capacity 25°C/77°F:
 - 20 hr @ 5.0 A: 100.0 AH.
 - 5 hr @ 16.0 A: 80.0 AH.
 - 1 hr @ 60.0 A: 60.0 AH.
 - 1 C @ 100.0 A: 50.0 AH.
- Charging voltage (25°C, 77°F):
 - Standby use: 13.65 V ± 0.15 V.
 - Cycle use: 14.7 V ± 0.3 V.
- Maximum discharge current: 600 A (5 sec).
- Maximum charging current: 30 A.
- Self-discharge residual capacity (25°C, 77°F):
 - After 3 months: ~ 90%.
 - After 6 months: ~ 82%.
 - After 12 months: ~ 70%.

UPG Summary Diagrams

Summary discharge characteristics



Summary discharge current vs. time curve (25°C/77°F)



UPG BATTERY

Same specifications as previous Jolt models;
packaging and part numbers are the only changes.

Charging Procedure: UPG Battery

6933ubch.tbi

Application	Charging method	Charging voltage at 25°C (V/cell)	Temperature compensation coefficient of charging voltage (mV/°C/cell)	Maximum charging current (CA)	Charging time 0.1 CA, 25°C (h)		Temp (°C)
					100% discharge	50% discharge	
For standby power source	Constant voltage and constant current charging (with current restriction)	2.25 – 2.30	- 3.3 (-1.8 mV/°F/cell)	0.3	T ≥ 24	T ≥ 20	0 – 40°C (32 – 104°F)
For cycle service		2.40 – 2.50	- 5 (-2.8 mV/°F/cell)	0.3	16 < T < 24	10 < T < 24	

Temperature compensation of charging voltage is not needed when using the batteries within 5°C to 35°C range.

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

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

CHG-120

Battery Charger



Power Supplies

General

The CHG-120 is a state-of-the-art battery charging system designed for use with NOTIFIER Fire Alarm Control Panels (FACPs). It is designed to charge lead-acid batteries between 25 and 120 ampere-hours (AH).

Features

- Charges sealed lead-acid batteries.
- Automatic float-type battery charger.
- Rated for batteries of 25 to 120 ampere-hours.
- Obtains full float voltage within 48 hours.
- For use on any 24-volt FACP which can handle the specified batteries and can disable the local charger.
- AC Fail delay (central station applications) per latest NFPA requirements.
- Form-C Trouble contact.
- Dual outputs, for easy load distribution.
- **Diagnostic LEDs:**
 - Primary AC On
 - Charger Trouble.
 - Ground Fault.
 - Hi Charge.
 - Lo Charge.
 - Battery Voltage Level (3 LEDs).
 - Low Battery.
- Black or red NFS-LBB(R) battery cabinet (optional).
- Field-selectable input voltage, 120 VAC or 230 VAC.
- **Charges:**
 - 26 AH batteries within 9 hours.
 - 55/60 AH batteries within 20 hours.
 - 120 AH batteries within 38 hours.

NOTE: Values per NOTIFIER testing.

Construction and Operation

The CHG-120 consists of a PC board and mounting chassis. Charging current is provided automatically when the battery voltage falls below the charger's output voltage.

Applications

Use the CHG-120 when batteries required for standby are rated between 25 to 120 AH.

CHG-120 Specifications

Primary AC (TB1):

- 115 VAC, 60 Hz, 2 A.
- 230 VAC, 50 Hz, 1 A.

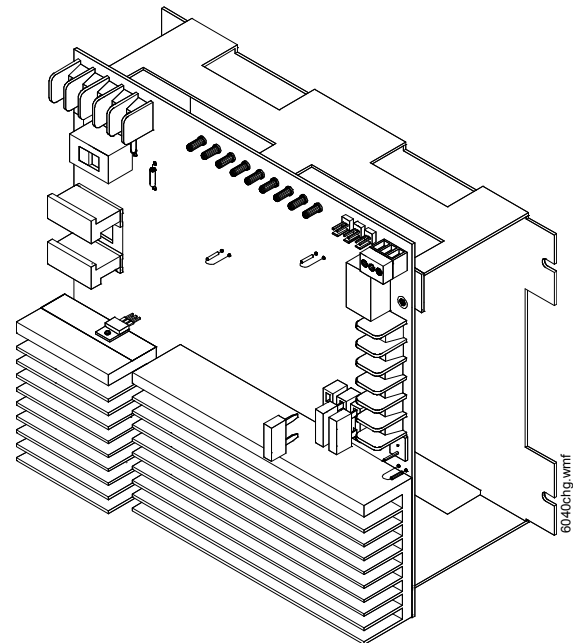
Form-C relay (TB3): 5 A at 30 VDC.

Float charge voltage: 27.6 VDC.

Maximum charging current: 4.5 A.

Fuses F1-F3: 15 A.

Battery sizes: 26 AH to 120 AH.



Charging time (to charge two fully discharged batteries):

- 25 AH = 9 hours.
- 55 AH/60 AH = 20 hours.
- 120 AH = 38 hours.

Installation

The CHG-120 has a variety of mounting options. It can be mounted in either a CAB-4 Series backbox or remotely in the NFS-LBB Battery Backbox. Install the CHG-120 within 20 feet (6.096 m) of the main FACP.

When mounting in a CAB-4 Series backbox:

- The CHG-120 can be mounted in the main power supply position, on the lower left of the CAB-4 Series backbox.
- Using self-tapping screws, the CHG-120 can be mounted in the lower right position (normally, where the batteries are mounted) of the CAB-4 Series backbox.

When mounting remotely in the NFS-LBB:

- The CHG-120 mounts in the left position of the backbox.

NOTE: Only one 55 AH battery or two 26 AH batteries will mount with the charger board in the NFS-LBB.

NFS-LBB Battery Box Battery Configurations: The battery backbox can mount configurations of batteries as follows:

- Without CHG-120 mounted internally:
 - Up to two 26 AH batteries.
 - Up to two 55/60 AH batteries.
 - One 100 AH battery.
- With CHG-120 mounted internally:
 - Up to two 26 AH batteries.
 - One 55/60 AH battery.
 - One 100 AH battery.

NOTE: When 100 AH batteries are required, a NFS-LBB is required to mount each 100 AH battery. The CHG-120 can mount in either the CAB-4 Series backbox or in a third NFS-LBB in this configuration.

Product Line Information

CHG-120: Battery charger circuit board and mounting chassis. Includes mounting hardware and installation instructions.

BAT-12260: 26 AH, 12-volt, sealed lead-acid battery. Order as bulk pack BAT-12260-BP, contains two. See data sheet DN-6933.

BAT-12550: 55 AH, 12-volt, sealed lead-acid battery. See data sheet DN-6933.

BAT-121000: 100 AH, 12-volt, sealed lead-acid battery. See data sheet DN-6933.

NFS-LBB: Battery Backbox — holds up to two BAT-12550 55 AH batteries or one BAT-121000 100 AH battery. Dimensions: Box: 24.0" (61.0 cm) wide x 14.0" (35.6 cm) high x 7.75" (19.7 cm) deep. Door: 24.125" (61.3 cm) wide x 14.25" (36.2 cm) high x (door adds 0.063" [approx. 0.16 cm] to depth), black.

NFS-LBBR: Same as NFS-LBB above but painted red.

Compliance with Codes and Standards

The CHG-120 complies with the following standards:

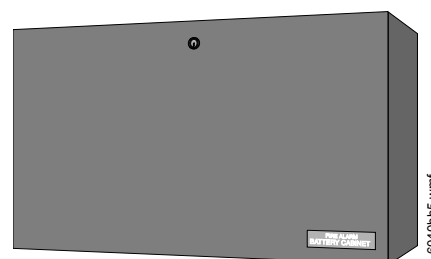
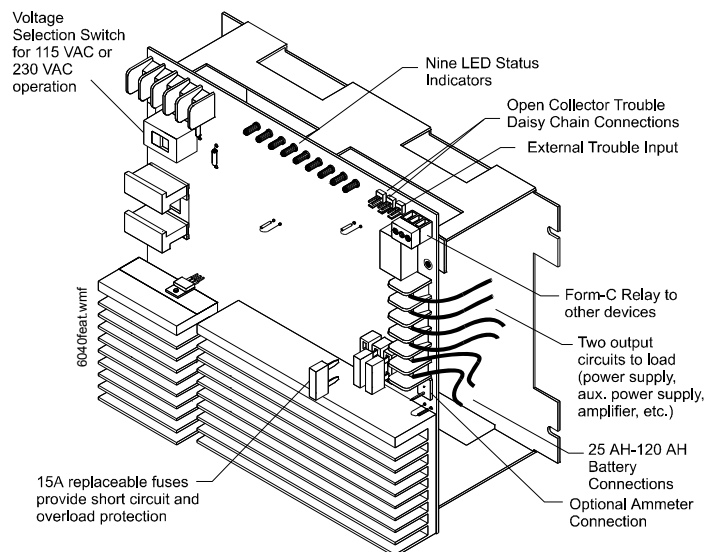
- NFPA 72 National Fire Alarm Code.
- UL 864 Standard for Control Units for Fire Alarm Systems.
- UL 1481 Power Supplies for Fire Alarm Systems.
- CAN/ULC-S527-M87.

Agency Listings and Approvals

The listings and approvals below apply to the basic CHG-120. 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:** S674.
- **ULC:** S635.
- **FM:** Approved.
- **CSFM:** 7315-0028:0189.
- **MEA:** 195-97-E, 345-02-E.
- **FDNY:** #6114.

CHG-120 Features



NFS-LBB Battery Backbox

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