ADDENDUM NUMBER FOUR - Contract #1 **April 10, 2013**

PROJECT: WEST VALLEY HIGH SCHOOL MODERNIZATION
Anderson Union High School District
NMR Project No. 12-2596.00
D.S.A. #45-H1/02-109217

GENERAL: This **Addendum Number Four** shall be inserted into your set of Drawings and Specifications for this project and shall take precedence over the original Drawings and Specifications.

I - CHANGES TO PRIOR ADDENDA (ITEMS NOTED WITH AN "A" PREFIX:
None

II - CHANGES TO BIDDING REQUIREMENTS (ITEMS NOTED WITH A "B" PREFIX):
None

III – CHANGES TO AGREEMENT & OTHER CONTRACT FORMS (ITEMS NOTED WITH AN "F" PREFIX):
None

IV – CHANGES TO CONDITIONS OF THE CONTRACT (ITEMS NOTED WITH A "C" PREFIX:
None

V – CHANGES TO SPECIFICATIONS (ITEMS NOTED WITH AN "S" PREFIX):
None

VI - CHANGES TO DRAWINGS (ITEMS NOTED WITH A "D" PREFIX):

D4.01 Refer to Drawings. Replace the following sheets:

DELETED SHEET	BLDG	NEW SHEET
M2.2	1000	M2.2R
E0.3	-	E0.3R
E0.5	-	E0.5R
E0.6	-	E0.6R
E0.8	-	E0.8R
E2.1	400	E2.1R
E2.1	500	E2.1R
E2.1	600	E2.1R
E2.1	700	E2.1R
E2.1	1000	E2.1R
FA0.1	-	FA0.1R

VI – CHANGES – GENERAL (ITEMS NOTED WITH A "G" PREFIX):

G4.01 Refer to submitted Fire Alarm Cut Sheets. Project was originally approved in 2009. **Replacement Cut Sheets with current listings are attached.**

Respectfully,

Dan S. Rossetto
Nichols, Melburg, and Rossetto

Attachments: Replacement Fire Alarm Cut Sheets,
Drawings: M2.2R, E0.3R, E0.5R, E0.6R, E0.8R, E2.1R Bldg 400, E2.1R Bldg 500, E2.1R Bldg 600, E2.1R Bldg 700, E2.1R Bldg 1000, FA0.1R

APPROVED
DIV. OF THE STATE ARCHITECT
SACRAMENTO REGIONAL OFFICE
AC — F/LS E.V. SS JDS
APP. # 02-109217 DATE 5-8-2013

NFS2-640

Intelligent Addressable Fire Alarm System

NOTIFIER® by Honeywell

Intelligent Fire Alarm Control Panels

General

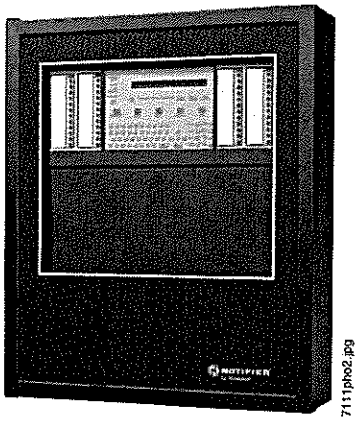
The NFS2-640 intelligent Fire Alarm Control Panel is part of the ONYX® Series of Fire Alarm Controls from NOTIFIER.

In stand-alone or network configurations, ONYX Series products meets 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; firefighters telephone; LED, LCD, or PC-based graphic annunciators; fire or integration networking; advanced detection products for challenging environments, 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.*



NFS2-640

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.
- Up to 159 detectors (any mix of ion, photo, thermal, or multi-sensor) and 159 modules (Addressable pull stations, normally open contact devices, two-wire smoke, notification, or relay) per SLC. 318 devices per loop/636 per FACP or network node.
- Standard 80-character display, 640-character large display (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, 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, ONYXWorks, NCS, NFS-3030, NFS-640, NCA, AFP-200, AFP-300/400, AFP-1010, and AM2020). Up to 54 nodes when DVC 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 tally.
- 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.
- 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

- Poll up to 318 devices in less than two seconds.
- Activate up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.

- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — nine levels.
- Pre-alarm ONYX intelligent sensing — nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
  - **Ion** – 0.5 to 2.5%/foot obscuration.
  - **Photo** – 0.5 to 2.35%/foot obscuration.
  - **Laser (VIEW®)** – 0.02 to 2.0%/foot obscuration.
  - **Acclimate Plus™** – 0.5 to 4.0%/foot obscuration.
  - **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

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

FAPT-851 ACCLIMATE PLUS LOW-PROFILE INTELLIGENT MULTI-SENSOR

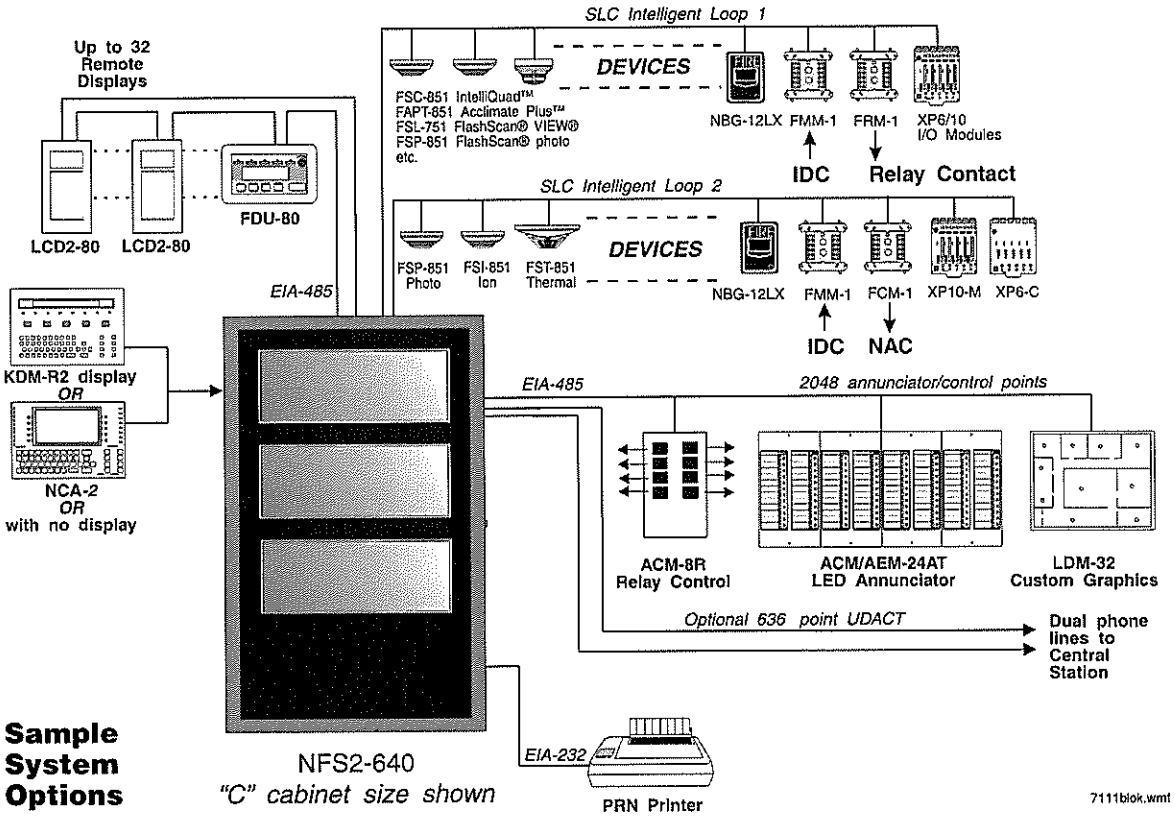
- Detector automatically adjusts sensitivity levels without operator intervention or programming. Sensitivity increases with heat.
- Microprocessor-based technology; combination photo and thermal technology.
- FlashScan or CLIP ("classic") mode compatible.
- Low-temperature warning signal at 40°F ± 5°F (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.
- Six sensitivity levels.

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.
- Six sensitivity levels.



Sample System Options

RELEASING FEATURES

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

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.

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

ONYX Intelligent Sensing

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

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

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

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

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

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

Field Programming Options

Autoprogram. This timesaving feature is a special software routine. 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 CPU. 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 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 CPU'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 Control Module or High-Speed Network Control Module. (HS-NCM can support two nodes; see "Networking Options" on page 4). These modules can be installed in any option board position (see manual), and additional option boards can be mounted in front of the network control 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 4
- "Auxiliary Power Supplies and Batteries" on page 4
- "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 6
- "Other Options" on page 7

CONFIGURATION GUIDELINES

Stand-alone and network systems require a main display. On single-CPU systems (one CPU2-640/-640E), display options are the KDM-R2 or the NCA-2. On network systems (two or more 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.*

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 Control Module or High-Speed Network Control 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. *See DN-7047.*

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

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

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

AUXILIARY POWER SUPPLIES AND BATTERIES

ACPS-610: 6.0 A or 10 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 6 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 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: 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, 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.*

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

AA-30: Audio Amplifier, 30 watts. Switch-mode power. 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 systems running SR4.0. For specific information on DAA-50 series amplifiers, refer to DN-7046. For information on DAA-7525 Series, refer to DN-60257.

COMPATIBLE DEVICES, EIA-232 PORTS

PRN-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 FACPs and/or peripherals. *See DN-6870.*

COMPATIBLE DEVICES, EIA-485 PORTS

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

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

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

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

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

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

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 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. *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: Universal Digital Alarm Communicator Transmitter, 636 channel. *See DN-4867.*

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

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

COMPATIBLE INTELLIGENT DEVICES

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

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

BEAMLRK: Long-range accessory kit, FSB-200(S) below. *See DN-6985.*

BEAMMKR: Multi-mount kit, FSB-200(S) below. *See DN-6985.*

BEAMSMK: Surface-mount kit, FSB-200(S) below. *See DN-6985.*

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 sychronization protocol. See DN-60054.

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.*

FCM-1: FlashScan NAC 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.*

ENCLOSURES, CHASSIS, AND DRESS PLATES

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

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

CAB-BM Marine System: Protects equipment in shipboard and waterfront applications. 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-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 and a DVC-KD (optional); and the right side houses a CMIC-1 microphone and its well (optional). *See DN-7045.*

CA-2: Chassis assembly, occupies two tiers of a CAB-4 Series enclosure. The left side accommodates one DVC mounted on a half-chassis and one NFS2-640 or NCA-2 mounted on a half-chassis. The right side houses a microphone/handset well. The CA-2 assembly includes CMIC-1 microphone. ADDR Series doors with two-tier visibility are available for use with the CA-2 configuration: ADDR-B4, ADDR-C4, ADDR-D4 (below).

CFFT-1: Chassis to mount firefighters telephone and one ACS annunciator in a CAB-4 row. Includes TELH-1 firefighters handset for the DVC, 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. Please see the DVC application guide for additional configuration information.

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

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

VP-2B: Dress panel, required when CA-2 chassis is installed in 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 batteries up to 26 AH.

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

SEISKIT-PS/2/4: Seismic mounting kit for the FCPS-24S6/S8 and CAB-PS1. Includes battery bracket for two 7 AH or 12 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-adaptor 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-DP: 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. Replaces IPGSM-COM. *See DH-60695.*

***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.*

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.
- 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.*

- 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.
- **FDNY:** COA#6085.
- **CSFM:** 7165-0028:0243.
- **City of Chicago.**
- **City and County of Denver.**
- **CCCF listed.**

When used with the CAB-BM Marine System, appropriate seismic bracket, and marine approved devices, these ONYX fire alarm control panels are approved by the following agencies:

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

NOTE: *For information on the CAB-BM marine system, see DN-60688.*

Standards

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

- **UL 864, 9th Edition** (Fire).
- **UL 1076** (Burglary).
- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires TM-4).
- **REMOTE STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory) (requires TM-4).
- **PROPRIETARY** (Automatic, Manual and Waterflow). *Not applicable for FM.*
- **EMERGENCY VOICE/ALARM.**
- **OT, PSDN** (Other Technologies, Packet-switched Data Network).
- **IBC 2000, IBC 2003, IBC 2006, IBC2009** (Seismic).
- **CBC 2007** (Seismic).

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NCA-2

ONYX® Series
Network Control Annunciator

NOTIFIER® by Honeywell

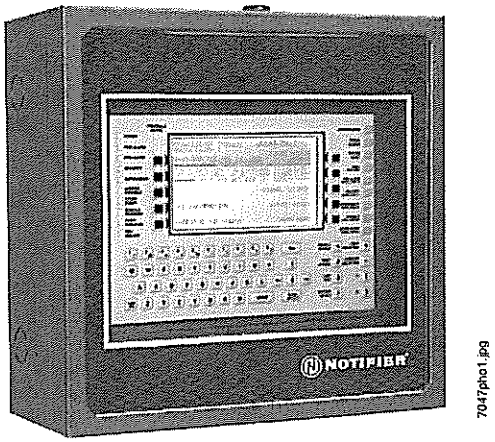
Network Systems

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.



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 seperate 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-2is 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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NCM-W, NCM-F

ONYX® Series
Network Communications Modules

NOTIFIER® by Honeywell

Network Systems

General

The **Network Communications Module** (**NCM**) provides NOTIFIER Intelligent Fire Alarm Control Panels, and **NCA** and **NCA-2** Network Control Annunciators with a means to connect to **NOTI•FIRE•NET™**. Two types of NCM are available: **NCM-W** for connecting nodes with twisted-pair wire, and **NCM-F** for connecting nodes with fiber-optic cable.

NOTE: Do not mix NCM and High Speed (HS) NCM on the same system.

NCM-W Features

- Supports twisted-pair wire medium.
- NFPA Style 4 (Class B) operation or NFPA Style 7 (Class A) operation.
- Two programmable data thresholds.
- Transformer coupling provides electrical isolation between nodes.
- Pluggable terminal wiring with strain relief.
- Pluggable service connector (feeds signal directly through) in the event that power must be removed from a node.
- 312.5 Kbaud transmission rate.
- Data is regenerated at each node.
- Two network ports to allow simultaneous connection to fire alarm control panel and to programming computer.
- Enables software and database upload/download over **NOTI•FIRE•NET™**.
- Repeaters are available to increase signal.
- Repeaters may be utilized to switch media type.
- Up to 3,000 feet (914.4 m) between nodes in a point-to-point fashion (actual distance varies with wire quality).

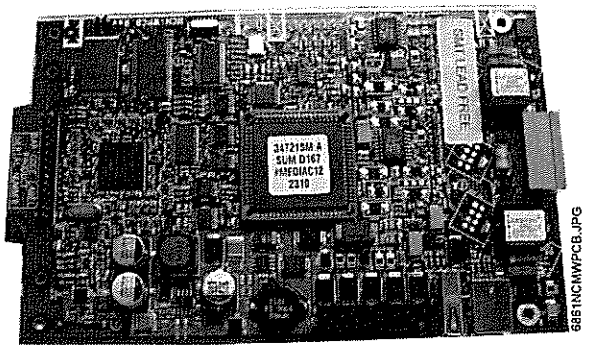
NCM-W Interconnections: When wiring consecutive NCM-W boards, wiring may enter or exit at Port A or Port B. NCM-W port-to-port wiring is not polarity sensitive; use of Port A or Port B is arbitrary. An NCM-W may be connected to any of the following devices: **MIB-W**, **MIB-WF**, **NAM-232W**, **NCM-W** (in another panel), **NCS-W** network connection, **RPT-W**, **RPT-WF**.

NCM-W Switch Functions: The NCM-W provides two sets of switches to simplify network setup. Enable ***ground fault detection*** by setting "ON" switch SW103 (Channel A); switch SW101 (Channel B). Activate ***on-board end-of-line resistors*** by setting "ON" switch SW100 (Channel A); switch 102 (Channel B). ***NOTE:*** *Correct configuration is dependent on network design; refer to the* **NOTI•FIRE•NET™** *manual.*

For further information and diagrams, refer to the *NCM Installation Document*, 51533.

NCM-F Features

- Supports fiber-optic medium.
- NFPA Style 4 (Class B) or Style 7 (Class A) operation.
- Data is immune to all environmental noise.
- Optical isolation prevents ground loops.
- **NOTI•FIRE•NET™** fiber-optic medium.
- Fiber type: 62.5/125 micrometers (multimode); or 50/125 micrometers (multimode).



NCM-W

- Maximum attenuation is 8 dB with 62.5/125 µm fiber and 4.2 dB with 50/125 µm fiber.
- Wavelength (1): 820 nanometers (use standard 850 nm fiber).
- Connectors: ST® style.
- 312.5 Kbaud transmission rate.
- Data is regenerated at each node.
- Two network ports to allow simultaneous connection to fire alarm control panel and to programming computer.
- Enables software and database upload/download over **NOTI•FIRE•NET™**.
- Repeaters are available to increase signal.
- Repeaters may be utilized to switch media type.
- Up to 3,000 feet (914.4 m) between nodes in a point-to-point fashion (actual distance varies with wire quality).

NCM-F Interconnections: When wiring consecutive nodes/repeaters, fiber cable must exit one board on Transmit (TX) and enter the next node/repeater on Receive (RX). The fiber-optic pair (RX, TX) from Port A of one node/repeater may be connected to either Port A or Port B of another node/repeater. An NCM-F may be connected to any of the following devices: **MIB-F**, **MIB-WF**, **NAM-232F**, another **NCM-F**, **NCS-F** network connection, **RPT-F**, **RPT-WF**.

Common 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).

Power supply: 24 VDC @ 110 mA.

Mixing Wire and Fiber on the Same Network

In some networks, it may be necessary to mix twisted-pair wire and fiber-optic cable. There are two solutions:

- ***In any network***, an RPT-WF may be used as an interface between wire and fiber.
- ***In a network that uses an AFP1010 or AM2020***, a MIB-WF may be used as the interface between wire and fiber.

Mounting

Both NCM-W and NCM-F can be installed in any standard chassis such as the CHS-4L, CHS-M2, CHS-M3 or CHS-4N *(see panel sheets)*. Additionally, the NCM-W can be door-mounted on the ADP-4B dress panel on a single-space blank plate (BMP-1) for mounting in an CAB-4 Series cabinet.

Agency Listings and Approvals

The following listings and approvals apply to the NCM. 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
- **CSFM:** 7165-0028:0214, 7165-0028:0224, 7165-0028:0243
- **FM approved**
- **MEA** approved
- **FDNY:** COA#6061, COA#6065

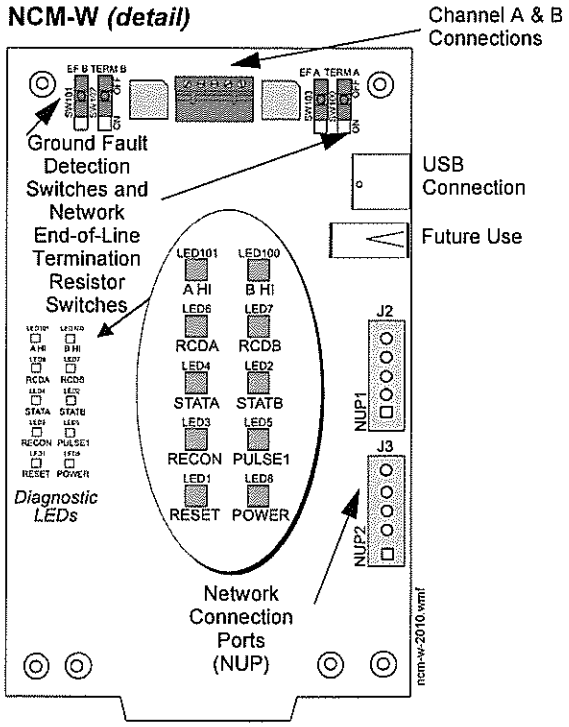
Product Line Information

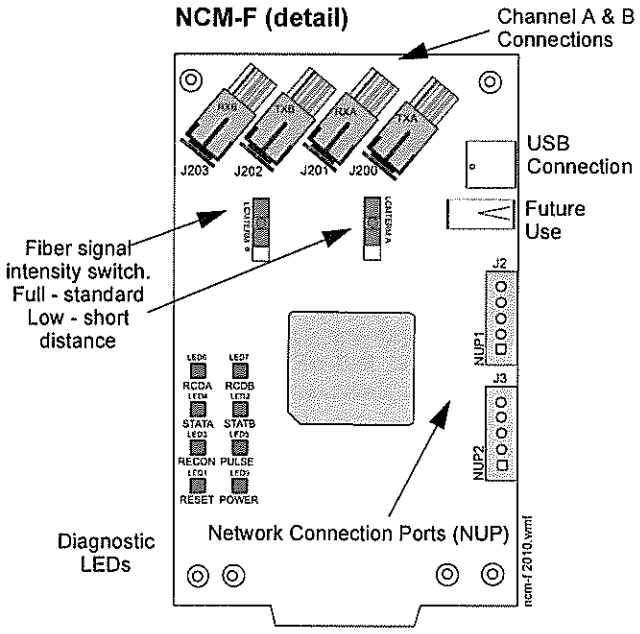
NCM-W: Network Communications Module, twisted-pair wire interface.

NCM-F: Network Communications Module, fiber-optic cable interface.

Diagnostic LED Indicators

A HI *(green)*: Illuminates to indicate the NCM-W Port A is set for high threshold *(NCM-W only)*. **B HI** *(green)*: Illuminates to indicate the NCM-W Port B is set for high threshold *(NCM-W only)*. **RCD A** *(green)*: Illuminates when the NCM is receiving data from **NOTI•FIRE•NET™** on Port A. **RCD B** *(green)*: Illuminates when the NCM is receiving data from **NOTI•FIRE•NET™** on Port B. **STATA** *(yellow)*: Illuminates when the NCM has not received valid data from **NOTI•FIRE•NET™** on Port A for at least 16 seconds. **STATB** *(yellow)*: Illuminates when the NCM has not received valid data from **NOTI•FIRE•NET™** on Port B for at least 16 seconds. **RECON** *(yellow)*: Illuminates when a reconfiguration on **NOTI•FIRE•NET™** is in progress. **PULSE** *(green)*: Illuminates when the NCM is transmitting **NOTI•FIRE•NET™** is in progress. **RESET** *(yellow)*: Illuminates when the microcontroller fails. **POWER** *(green)*: Illuminates when +5 VDC is available.





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ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

Made in the U.S. A.

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

UDACT-2

Universal Digital Alarm Communicator Transmitter

NOTIFIER® by Honeywell

Annunciator Control System

General

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

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

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

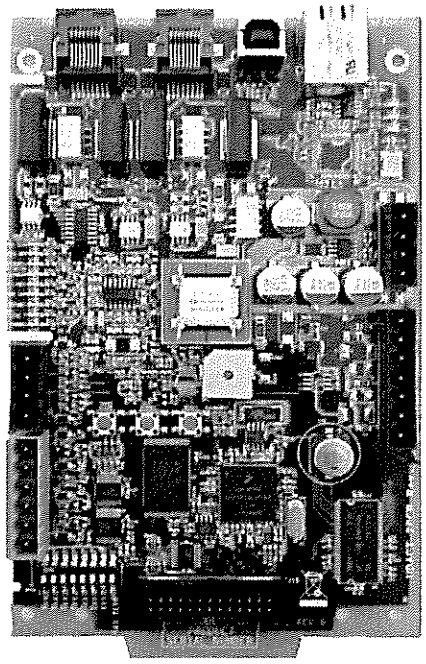
The UDACT-2 is capable of transmitting the status of software zones (Alarm and Trouble), System Trouble, Panel Off-Normal, Supervisory, Bell Trouble, Low Battery, and AC Fail. The UDACT-2 is capable of transmitting all of the zone and point status associated with each panel.

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

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

Features

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



UDACT-2

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

Programming

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

Communication Formats

- Ademco Contact ID
- 4+2 Standard
- SIA

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

Type Mode Feature

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

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

Electrical Specifications

Standby current: 40 mA.

Current while communicating: 75 mA.

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

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

Agency Listings and Approvals

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

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

Ordering Information

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

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

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

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

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

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

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

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

UL Listed Receivers

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

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

(1) With 685-8 Line Card with Rev 4.4d software
(2) With 124060V206B and 124063 Line Card Rev B
(3) With version V2.4 Receiver & 126047 Line Card Rev G
(4) With 124077V2.00 Receiver &126047 Line Card Rev M
(5) With software V3.9
(6) With V.7301 Receiver S/W
(7) With 01.01.03 Receiver S/W & Line Card 01.01.03
(8) With software V1.86
(9) With sotware V1.72
(10) With DSP4016 and V1.6 Line Card

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ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

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CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7165-0028:0243

CATEGORY: 7165 – FIRE ALARM CONTROL UNIT (COMMERCIAL)

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models NFS2-640, NFS-320/C (R), and NFS-320SYS fire alarm control units. Local, auxiliary, remote station (PPU), proprietary (PPU), central station (PPU), manual, automatic, waterfowl and sprinkler supervisory services. Also suitable for releasing service, Process Management and Emergency Voice/Alarm communication System (NFS2-640 only). Model numbers may be followed by an "R" suffix representing the enclosure color being red . Refer to listee's data sheet for additional detailed product description and operational considerations. System components:

ACM-8R, -16AT, -32A, -24AT, -48A; Annunciator Control Modules
ACPS-610, AMPS-24; Addressable power supply/charger
ADP-4B, -A4, -1, -2, DP-DISP2; Dress Panel
AEM-16AT, -32A, -24AT, -48A; Annunciator Expander Modules
AFM-16A, -16AT, -32A; Annunciator Fixed Modules
AKS-1B; Annunciator Key Switch
APS2-6R; Power supply
BB-100, -200, NFS-LBB/-LBBR; Battery Boxes
BGRA-SCS, BGRB-SCS; Smoke Control Station
BMP-1; Blank Module
BP-4, BP2-4; Battery Dress Plates
CAB-3/-4 Series; Enclosure
CAB-RP, CAB-RPR; Cabinets
CEF-SCS; Smoke Control Station
CHS-4, CHS-4N, CHS-4L; Chassis
CPU2-640, CPU-320SYS; CPU Board
CRT-2; Display Terminal
DP-1B; Blank Panel
DPA-1A4/1/2, DP-DISP2; Dress Panel
DPI-232; Panel Interface
DR-A4, DR-A4B, DR-A4BR, DR-A4R; Door Assembly
DR-AA4, DR-AA4B, DR-AA4BR, DR-AA4R; Door Assembly
DR-B3F; Door Assembly
DR-B4, DR-B4B, DR-B4BR, DR-B4R; Door Assembly
DR-C4, DR-C4B, DR-C4BR, DR-C4R; Door Assembly
DR-D4, DR-D4B, DR-D4BR, DR-D4R; Door Assembly

*Rev. 07-17-12 gt

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Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

EQ Series; Cabinets
EQBB-B4, EQBB-C4, EQBB-D4; Backbox Assembly
EQDR-B4, EQDR-C4, EQDR-D4; Door Assembly
FCM-1, FCM-1-REL; Releasing Control Module
FCPS-24S6, -24S8; Field Charger/Power Supply
FDM-1; Dual Monitor Module
FDRM-1:Multiple Module with two Relay Outputs
FDU-80/-80G; Remote Annunciator
FIRSTVISION-LCD/ENC; Interactive Firefighters' display/enclosure
FRM-1; Relay Module
FTM-1; Control Module
FZM-1, FMM-1, FMM-101; Monitor Modules
HS-NCM-W/-MF/-SF/-WMF/-WSF/-MSSF; High Speed Network Control Modules
IPDACT-2/-2UD; IP Fire Alarm Communicator
ISO-X; Isolator Module
KAPS-24, CPS-24; Power Supply
KDM-R2; Keyboard Display Module
LCD-80, -160; Annunciators
LCD-80TM; Annunciator Terminal Module LCD
LCD2-80; Remote Annunciator
LDM-32/-E32/-R32; Lamp Driver Module
LEM-320/ELEM-320; Loop Expander Module
NBG-12LRA; Agent Releasing Abort Station
NBG-12LX; Addressable Manual Pull Station
NCA, NCA-2; Network Communication Annunciator
NCM-W, -F; Network Control Module
NCS4-W-ONYX, NCS4-F-ONYX; Network Control Station
NCS5-W-ONYX, NCS5-F-ONYX; Network Control Station
NFS-LBB/NFS-LBBR; Battery Box/Red
NFS-320SYS; Chassis
NFV-25/50, NFV-25/50ZS/ZST; Voice Evacuation Control Panels
NFV-25/50DA, NFV-25/50DAZS; Distributed Audio Panels
ONYXWorks-EW/-NW-/NF/-HNW/-HNMF/-HNSF/-TS/-EW-TS/-NF-TS/-HW-TS/
-HNMFT/-HNSFT/-HNWT; PC workstation for NOTI•FIRE•NET, Wire/Fiber/
with Touch screen monitors
PRN-6; Printer
RKS-S; Remote Security Key Switch
RPT-W, -485W; Repeater Wire
RPT-F; Repeater Fiber
RPT -485FW; Repeater Fiber/Wire
RSA-SCS, RSB-SCS, RSC-SCS, RSD-SCS, RSE-SCS; Smoke Control Station
SBB-A3F; Backbox Assembly
SBB-A4, SBB-A4R, SBB-AA4, SBB-AA4R; Backbox Assembly
SBB-B4, SBB-B4R-L8, SBB-C4, SBB-C4R; Backbox Assembly
SBB-D4, SBB-D4R; Backbox Assembly

*Rev. 07-17-12 gt

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Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

SCE-8; Smoke Control Expander
SCS-8L; Smoke Control Lamp Driver Station
SCE-8L; Smoke Control Expander Lamp
SCS-8; Smoke Control Station
STS-1; Security Tamper Switch
TM-4; Transmitter Module
TR-A4/-B3N/-B4/-C4/-D3N/-D4; Trim Ring
UDACT, UDACT-2; Universal DACT
UZC-256; Universal Zone Coder
VP-2B; Dress Panel
XP5-C/-M; Transponder Modules
XP6-C; Supervised Control Modules
XP6-MA; Six Zone Interface Modules
XP6-R; Six Relay Control Modules
XP10-M(A); Ten Input Monitor Modules
XPM-8L; Transponder Monitor Modules

The following models are intended for use on NFS2-640 only:

AA-30, -100, -120; Amplifiers
ACT-1, -2, -4, -25, -70; Audio Coupling Transformer
ADDR-B4/-B4R/-C4/-C4R/-D4/-D4R; Door Assemblies
AMG-E; Audio Message Generator
AVL-1; Audio Voice Link
BDA-25V/-70V; Backup Digital Audio Amplifiers
CHS2-M2, CA-1, CA-2; Chassis
CMIC-1, *CMIC-RP; Microphone Assembly
DAA-5025/-5070; Digital Audio Amplifiers
DAA-5025F/DAA-5025SF; Digital Audio Amplifiers
DAA-5070F/DAA-5070SF; Digital Audio Amplifiers, Fiber Mode
DAA-75 Series; Digital Audio Amplifiers
DAA-7525, DAA-7525F, DAA-7525SF; Digital Audio Amplifiers
DAA2-5025/-5070/-7525; Digital Audio AmplifiersDVC; Digital Voice Command
DAX-3525/-3570/-5025/-5070; Digital Audio Amplifiers
DS-AMP/E; Digital Series Audio Amplifier
DS-BDA; Digital Series Backup Amplifier
DS-DB; Digital Series Distribution Board
DS-FM, DS-RFM, DS-SFM; Digital Series Fiber Module
DVC; Digital Voice Command
DVC-EM/-EMF/-EMSF; Digital Voice Command Extended Memory Module
*DVC-RPU; Remote Paging Unit
FFT-7, -7S; Fire Fighter's Telephone
FHS; Fireman's Handset
FPJ; Fireman's Phone Jack
RM-1, RM-1SA; Remote Microphone

*Rev. 07-17-12 gt

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Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

TELH-1; Telephone Assembly

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical ratings, and UL Label

APPROVAL: Listed as fire alarm control units suitable for use in high-rise applications when used in conjunction with separately listed compatible initiating and indicating devices.This control unit can generate the temporal code pattern fire alarm signal as required per NFPA 72. Refer to manufacturer's Installation Manual for details. This control unit meets the requirements of UL Standard 864, 9th
Edition.

NOTE: 1. For Fire Alarm Verification feature (delay of fire alarm signal), the maximum Retard/Reset/Restart period shall not exceed 30 Seconds.
2. Combined with 7170-028:244

*Rev. 07-17-12 gt

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Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

FCPS-24S6(C/E) & FCPS-24S8(C/E)

6- & 8-Amp 24-Volt Remote Power Supplies

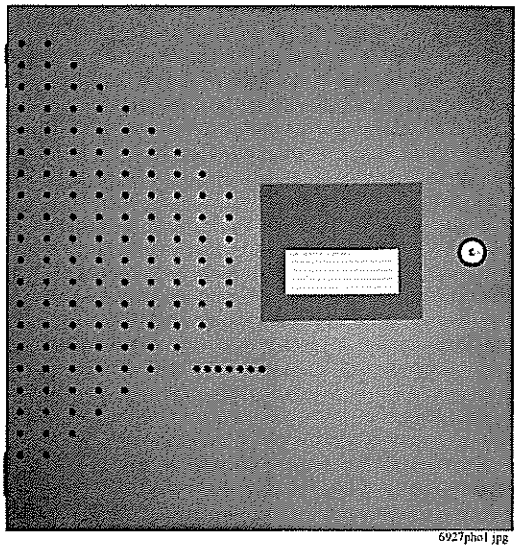
NOTIFIER® by Honeywell

Power Supplies

General

The FCPS-24S6E (6-amp) and FCPS-24S8E (8-amp) are remote power supplies with battery charger. The FCPS-24S6/-24S8 may be connected to any 12 or 24 volt fire alarm control panel (FACP) or may be used as stand-alone supplies. Primary applications include notification appliance (bell) circuit (NAC) expansion (to support ADA requirements and NAC synchronization) or auxiliary power to support 24 volt system accessories. The FCPS-24S6/-24S8 provides regulated and filtered 24 VDC power to four notification appliance circuits configured as either four Class B (Style Y) or Class A (Style Z, with ZNAC-4 option module). Alternately, the four outputs may be configured as all non-resettable, all resettable or two non-resettable and two resettable. The FCPS-24S6/-24S8 also contains a battery charger capable of charging up to 18 AH batteries. FCPS-24S6C & FCPS-24S8C are ULC-listed.

NOTE: *Unless otherwise specified, the terms FCPS-24S6 and FCPS-24S8 used in this document refers to the standard FCPS-24S6 and FCPS-24S8, FCPS-24S6C and FCPS-24S8C, the FCPS-24S6E and FCPS-24S8E*



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Features

- UL-Listed NAC synchronization using System Sensor, Wheelock, or Gentex "Commander^2" appliances.
- Operates as a "sync-follower" or as a "sync-generator" (default). *See note on page 2.*
- Contains two fully-isolated input/control circuits - triggered from FACP NAC (NAC expander mode) or jumped permanently "ON" (stand-alone mode).
- Four Class B (Style Y) or four Class A (Style Z, with ZNAC-4 module) NACs.
- 6-amp (FCPS-24S6) or 8-amp (FCPS-24S8) full load output, with 3 amps maximum/circuit, in NAC expander mode (UL 864).
- 4-amp (FCPS-24S6) or 6-amp (FCPS-24S8) continuous output in stand-alone mode (UL 1481).
- Compatible with coded inputs; signals passed through.
- Optional power-supervision relay (EOLR-1).
- In stand-alone mode, output power circuits may be configured as: resettable, (reset line from FACP required), non-resettable, or a mix of two and two.
- Fully regulated and filtered power output - optimal for powering four-wire smoke detectors, annunciators, and other system peripherals requiring regulated/filtered power.
- Power-limiting technology meets UL power-limiting requirements.
- Form-C normally-closed trouble relay.
- Fully supervised power supply, battery, and NACs.
- Selectable earth fault detection.
- AC trouble report selectable for immediate 2-hour delay.
- Works with virtually any UL 864 fire alarm control which utilizes an industry-standard reverse-polarity notification circuit (including unfiltered and unregulated bell power).
- Requires input trigger voltage of 9 - 32 VDC.
- Self-contained in compact, locking cabinet - 15 H x 14.5 W x 2.75 D (cm: 38.1H x 36.83W x 6.985D).
- Includes integral battery charger capable of charging up to 18 AH batteries. Cabinet capable of housing 7.0 AH batteries.
- Battery charger may be disabled via DIP switch for applications requiring larger batteries.
- Fixed, clamp-type terminal blocks accommodate up to 12 AWG (3.1mm^2) wire.

Specifications

Primary (AC) Power:

- FCPS-24S6C/-24S8C: 120 VAC, 60 Hz, 3.2A maximum.
- FCPS-24S6E/-24S8E: 240 VAC, 50 Hz, 1.6A maximum.
- Wire Size: minimum #14 AWG (2.0mm^2) with 600 V insulation.

Control Input Circuit:

- **Trigger Input Voltage:** 9 to 32 VDC.
- **Trigger Current:** 2.0 mA (16 - 32 V); Per Input: 1.0 mA (9 - 16 V).

Trouble Contact Rating: 5 A at 24 VDC.

Auxiliary Power Output: Specific application power 500 mA maximum.

Output Circuits:

- +24 VDC filtered, regulated.
- 3.0 A maximum for any one circuit.
- Total continuous current for all outputs (stand-alone mode):
  - FCPS-24S6: 4.0 A maximum.
  - FCPS-24S8: 6.0 A maximum.
- Total short-term current for all outputs (NAC expander mode):
  - FCPS-24S6: 6.0 A maximum.
  - FCPS-24S8: 8.0 A maximum.

Secondary Power (Battery) Charging Circuit:

- Supports lead-acid batteries only.
- Float-charge voltage: 27.6 VDC.

- Maximum current charge: 1.5 A.
- Maximum battery capacity: 18 AH.

Applications

Example 1: Expand notification appliance power an additional 6.0 A (FCPS-24S6) or 8.0 A (FCPS-24S8). Use up to four Class B (Style Y) outputs or four Class A (Style Z) outputs (using ZNAC-4). For example, the FACP notification appliance circuits will activate the FCPS when reverse-polarity activation occurs. Trouble conditions on the FCPS are sensed by the FACP through the notification appliance circuit.

Example 2: Use the FCPS to expand auxiliary regulated 24-volt system power up to 4.0 A (FCPS-24S6) or up to 6.0 A (FCPS-24S8). Both resettable and non-resettable power options are available. Resettable outputs are created by connecting the resettable output from the FACP to one or both of the FCPS inputs.

Example 3: Use addressable control modules to activate the FCPS instead of activating it through the FACP notification appliance circuits. This typically allows for mounting the FCPS at greater distances* away from the FACP while expanding system architecture in various applications.

For example, an addressable control module is used to activate the FCPS, and an addressable monitor module is used to sense FCPS trouble conditions. Local auxiliary power output from the FCPS provides power to the addressable control module.

**NOTE: Addressable FACPs are capable of locating control and monitor modules at distances of up to 12,500 feet (3,810 meters).*

Sync Follower/Generator Note

In some installations, it is necessary to synchronize the flash timing of all strobes in the system for ADA compliance. Strobes accomplish this by monitoring very short timing pulses on the NAC power which are created by the FACP. When installed at the end of a NAC wire run, the FCPS-24S6/-24S8 can track (i.e. "follow") the strobe synchronization timing pulses on the existing NAC wire run. This maintains the overall system flash timing of the additional strobes attaches to the FCPS.

When the FCPS-24S6/-24S8 is configured (via DIP switch settings) as a "sync follower," the FCPS's NAC outputs track the strobe synchronization pulses present at the FCPS's sync input terminal. The pulses originate from an upstream FACP or other power supply.

When the FCPS-24S6/-24S8 are configured (via DIP switch settings) as a "sync generator," the FCPS's sync input terminals are not used. Rather, the FCPS is the originator of the strobe synchronization pulses on the FCPS's NAC outputs. In "sync generator" mode, the sync type (System Sensor, Wheelock, or Gentex) is selectable via DIP switch settings.

Standards and Codes

The FCPS-24S6 and FCPS-24S8 comply with the following standards:

- **NFPA 72** National Fire Alarm Code.
- **UL 864** Standard for Control Units for Fire Alarm Systems (NAC expander mode).
- **UL 1481** Power Supplies for Fire Alarm Systems.

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, S674
- **ULC Listed:** S635 (FCPS-24S6C & FCPS-24S8C)
- **CSFM Approved:** 7315-0028:225
- **MEA:** 299-02-E
- **FM Approved**

Ordering Information

FCPS-24S6: 6.0 A, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15 H x 14.5 W x 2.75 D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

FCPS-24S6C: Same as above, ULC-listed.

FCPS-24S6R: Same as FCPS-24S6 with red enclosure.

FCPS-24S6E: 6.0 A, 240 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15 H x 14.5 W x 2.75 D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

FCPS-24S8: 8.0 A, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15 H x 14.5 W x 2.75 D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

FCPS-24S8C Same as above, ULC-listed.

FCPS-24S8R: Same as FCPS-24S8 with red enclosure.

FCPS-24S8E: 8.0 A, 240 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15 H x 14.5 W x 2.75 D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

ZNAC-4: Class A (Style Y) NAC option module.

EOLR-1: 12/24 VDC end-of-line relay for monitoring four-wire smoke detector power.

BAT-1270: Battery, 12-volt, 7.0 AH (two required, see BAT Series data sheet DN-6933).

PS-1270: Battery, 12-volt, 7.0 AH (two required, see PS Series data sheet DN-1109)

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ENGINEERING & MANUFACTURING QUALITY SYSTEMS

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

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CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7315-0028:0225

CATEGORY: 7315 – POWER UNITS

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models FCPS-24S6 and FCPS-24S8 are power limited power supply/battery chargers used for supervision and expanded power driving capability of up to four Notification Appliance Circuits (FACP Fire Circuits, Signaling Devices) or resettable/non resettable outputs. Model ZNAC-4 Class A converter. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: 120 VAC, 24 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating and UL label.

APPROVAL: Listed as a Power Supply/Battery Charger for use with separately listed compatible fire alarm control units.

XLF: 7315-0075:0206

1-24-03KK

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT,*** *Deputy State Fire Marshal*
Fire Engineering Division

NBG-12LX

Addressable Manual Pull Station

NOTIFIER® by Honeywell

Intelligent/Addressable Devices

General

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

Features

- Maintenance personnel can open station for inspection and address setting without causing an alarm condition.
- Built-in bicolor LED, which is visible through the handle of the station, flashes in normal operation and latches steady red when in alarm.
- Handle latches in down position and the word "ACTIVATED" appears to clearly indicate the station has been operated.
- Captive screw terminals wire-ready for easy connection to SLC loop (accepts up to 12 AWG/3.25 mm² wire).
- Can be surface mounted (with SB-10 or SB-I/O) or semi-flush mounted. Semi-flush mount to a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box.
- Smooth dual-action design.
- Meets ADAAG controls and operating mechanisms guidelines (Section 4.1.3[13]); meets ADA requirement for 5 lb. maximum activation force.
- Highly visible.
- Attractive shape and textured finish.
- Key reset.
- Includes Braille text on station handle.
- Optional trim ring (BG12TR).
- Meets UL 38, Standard for Manually Actuated Signaling Boxes.
- Up to 99 NBG-12LX stations per loop on CLIP protocol loops.
- Up to 159 NBG-12LX stations per loop on FlashScan® protocol loops.
- Dual-color LED blinks green to indicate normal on FlashScan® systems.

Construction

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

Specifications

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

The NBG-12LX
Addressable Manual Pull Station

Installation

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

Operation

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

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

Architectural/Engineering Specifications

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

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

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

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

Product Line Information

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

NBG-12LXSP: Spanish/English labelled version.

NBG-12LXP: Portuguese labelled version.

SB-10: Surface backbox; metal.

SB-I/O: Surface backbox; plastic.

BG12TR: Optional trim ring.

17021: Keys, set of two.

NY-Plate: New York City trim plate.

Agency Listings and Approvals

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

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

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

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CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7150-0028:0199

CATEGORY: 7150 -- FIRE ALARM PULL BOXES

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models NBG-12, NBG-12S, NBG-12LR, NBG-12LRA, NBG-12LAO, NBG-12LAOB, NBG-12-LO, NBG-12LOB, NBG-12W, NBG-12LW, NBG-12NC, NBG-12WP, NBG-12LWP, NBG-12L, NBG-12LX, NBG-12LA, NBG-12PS, NBG-12LSP, NBG-12LPS, NBG-12LPSP, NBG-12SP, NOT-BG12LX, NBG-12LXSP, NBG-12LXBL and NBG-12LXP fire alarm pull boxes. All units except Model NBG-12S are dual action pull stations. Models NBG-12LR and NBG-12LRA are intended for agent releasing device. Refer to listee's data sheet for detailed product description and operational considerations.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, rating, and UL label.

APPROVAL: Listed as fire alarm pull boxes for use with separately listed compatible fire alarm control units. Models NBG-12WP, NBG-12LW, NBG-12W, NBG-12LWP, NBG-12LAO, NBG-12LO, NBG-12LAOB and NBG-12LOB are intended for outdoor use when installed with Models WBB, SB-I/O, or WP-10 back box. Refer to listee's Installation Instruction Manual for details.

These manual pull boxes meet the requirements of UL Standard 38, 1999 Edition and California amendments which the controls and operating mechanisms required to be operable at no more than 5lbs. force with one hand and shall not require tight grasping, pinching, or twisting of the wrist.

*Corrected 10-08-12 bh

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **October 08, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JAMES PARSEGIAN**, Program Coordinator*
Fire Engineering Division

FSP-851(A) Series

Intelligent Plug-In Photoelectric Smoke Detectors with FlashScan®

NOTIFIER® by Honeywell

General

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

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

Features

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

Specifications

Sensitivity: 0.5% to 2.35% per foot obscuration

Size: 2.1" (5.3 cm) high; base determines diameter.

- **B210LP(A):** 6.1" (15.5 cm) diameter.
- **B501(A):** 4.1" (10.4 cm) diameter.
- **B200S(A):** 6.875" (17.46 cm) diameter.
- **B200SR(A):** 6.875" (17.46 cm) diameter.
- **B224RB(A):** 6.2" (15.748 cm) diameter.
- **B224BI(A):** 6.2" (15.748 cm) diameter.

B501-2012B

FSP-851(A) in B210LP(A) Base

Shipping Weight: 5.2oz. (147g).

Operating Temperature range: FSP-851(A), 0°C to 49°C (32°F to 120°F). FSP-851T(A), 0°C to 38°C (32°F to 100°F). Low temperature signal for FSP-851T(A) at 45°F +/- 10°F (7.22°C +/- 5.54°C). FSP-851R(A) installed in a DNR(A)/DNRW, -20°C to 70°C (-4°F to 158°F).

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

Relative Humidity: 10%-93% noncondensing.

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

DETECTOR SPACING AND APPLICATIONS

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

ELECTRICAL SPECIFICATIONS

Voltage Range: 15-32 volts DC peak.

Standby Current (max. avg.): 300µA @ 24VDC (one communication every five seconds with LED enabled).

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

Installation

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

Mount base (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see *DN-60054*.

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

sheet I56-1380 for device limitations between isolator modules and isolator bases.

Agency Listings and Approvals

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

- **UL Listed:** S1115.
- **ULC Listed:** S1115 (FSP-851A, FSP-851RA, FSP-851TA).
- **MEA Listed:** 225-02-E .
- **FM Approved.**
- **CSFM:** 7272-0028:0206 .
- **Maryland State Fire Marshal:** Permit # 2122 .
- **BSMI:** CI313066760036.
- **CCCF:** Certif. # 2004081801000017 (FSP-851T) Certif. # 2004081801000016 (FSP-851).
- **U.S. Coast Guard:** 161.002/42/1 (NFS-640); 161.002/50/0 (NFS2-640/NFS-320/NFS-320C, excluding B210LP(A)).
- **Lloyd's Register:** 11/600013 (NFS2-640/NFS-320/NFS-320C, excluding B210LP(A)).

Product Line Information

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

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

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

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

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

FSP-851R: Low-profile intelligent photoelectric sensor, remote test capable. For use with DNRA/DNRW.

FSP-851RA: Same as FSP-851R but with ULC listing. For use with DNRA.

INTELLIGENT BASES

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

***NOTE:** For details on intelligent bases, see DN-60054.*

B210LP(A): Standard U.S. flanged low-profile mounting base.

B210LPBP: Bulk pack of B210LP; package contains 10.

B501(A): Standard European flangeless mounting base.

B501BP: Bulk pack of B501; package contains 10.

B200S(A): Intelligent, programmable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone.

B200SR(A): Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Replaces B501BH series bases in retrofit applications.

B224RB(A): Plug-in System Sensor **relay** base. Screw terminals: up to 14 AWG (2.0 mm²). Relay type: Form-C. Rating: 2.0 A @ 30 VDC resistive; 0.3 A @ 110 VDC inductive; 1.0 A @ 30 VDC inductive.

B224BI(A): Plug-in System Sensor ***isolator*** detector base. Maximum 25 devices between isolator bases .

ACCESSORIES

F110: Retrofit flange to convert B210LP(A) to match the B710LP(A) profile, or to convert older high-profile bases to low-profile.

F110BP: Bulk pack of F110; package contains 15.

F210: Replacement flange for B210LP(A) base.

RA100Z(A): Remote LED annunciator. 3 – 32 VDC. Mounts to a U.S. single-gang electrical box. For use with B501(A) and B210LP(A) bases only.

SMB600: Surface mounting kit

M02-04-00: Test magnet.

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

XR2B: Detector removal tool. Allows installation and/or removal of detector heads from bases in high ceiling applications.

XP-4: Extension pole for XR2B. Comes in three 5-foot (1.524 m) sections.

T55-127-010: Detector removal tool without pole.

BCK-200B: Black detector covers for use with FSP-851(A) only; box of 10.

WCK-200B: White detector covers for use with FSP-851(A) only; box of 10.

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OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7272-0028:0206

CATEGORY: 7272 – SMOKE DETECTOR-SYSTEM TYPE-PHOTOELECTRIC

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models FSP-751, HPX-751, FSP-751T, FSH-751, FAPT-751, FAPT-851, FSP-851, FSP-851R* and FSP-851T photoelectric type smoke detectors. Models FSP-751T and FSP-851T employ a 135°F supplement integral heat sensor which only assists in a fire situation. This thermal circuitry is NOT approved for use in lieu of a required heat detector. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: 24 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, product number, electrical rating and UL label.

APPROVAL: Listed as photoelectric type smoke detector for use with listee's separately listed compatible base and fire alarm control units. Models FSP-751, FSP-751T, FAPT-751, FAPT-851, FSP-851, FSP-851R*, FSP-851T are suitable for open areas and inside duct installation with air velocities between 0-4000 fpm. Model HPX-751 is suitable for open areas with air velocities between 0-300 fpm. Model FSH-751 is suitable for open areas with air velocity between 0-4000 fpm.

NOTE: Combined with 7272-0028:208

The photoelectric type detectors are generally more effective at detecting slow, smoldering fires that smolder for hours before bursting into flame. Sources of these fires may include cigarettes burning in couches or bedding. The ionization type detectors are generally more effective at detecting fast, flaming fires that consume combustible materials rapidly and spread quickly. Sources of these fires may include paper burning in a waste container or a grease fire in the kitchen.

*Rev. 01-07-2009 fm

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

FST-851(A) Series

Intelligent Thermal (Heat) Detectors with FlashScan®

NOTIFIER® by Honeywell

Intelligent / Addressable Devices

General

Notifier FST-851(A) Series intelligent plug-in thermal detectors with integral communication has features that surpass conventional detectors. Point ID capability allows each detector's address to be set with rotary, decimal address switches, providing exact detector locations. FST-851(A) Series thermal detectors use an innovative thermistor sensing circuit to produce 135°F/57°C fixed-temperature (FST-851/A) and rate-of-rise thermal detection (FST-851R/A) in a low-profile package. FST-851H(A) provides fixed high-temperature detection at 190°F/88°C. These thermal detectors provide effective, intelligent property protection in a variety of applications. FST-851(A) Series detectors are compatible with Notifier Onyx and CLIP series Fire Alarm Control Panels (FACPs).

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

Features

- Sleek, low-profile, stylish design.
- State-of-the-art thermistor technology for fast response.
- Rate-of-rise model (FST-851R/A), 15°F (8.3°C) per minute.
- Factory preset fixed temperature at 135°F (57°C); high-temperature model fixed at 190°F (88°C).
- Addressable by device.
- Compatible with FlashScan® and CLIP protocol systems.
- Rotary, decimal addressing (1-99 on CLIP systems, 1-159 on FlashScan systems).
- Two-wire SLC connection.
- Visible LEDs "blink" every time the unit is addressed.
- 360°-field viewing angle of the visual alarm indicators (two bi-color LEDs). LEDs blink green in Normal condition and turn on steady red in Alarm.
- Integral communications and built-in device-type identification.
- Remote test feature from the panel.
- Built-in functional test switch activated by external magnet.
- Walk test with address display (an address of 121 will blink the detector LED 12-(pause)-1).
- Low standby current.
- Backward-compatible.
- Built-in tamper-resistant feature.
- Designed for direct-surface or electrical-box mounting.
- Sealed against back pressure.
- Plugs into separate base for ease of installation and maintenance. Separate base allows interchange of photoelectric, ionization and thermal sensors.
- SEMS screws for wiring of the separate base.
- Constructed of off-white fire-resistant plastic, designed to commercial standards, and offers an attractive appearance.

B210-2251.jpg

FST-851(A) in B210LP(A) Base

- 94-5V plastic flammability rating.
- Remote LED output connection to optional RA100Z(A) remote LED annunciator.
- Optional sounder, relay, and isolator bases.
- Optional flanced surface mounting kit.

Specifications

Size: 2.1" (5.3 cm) high; base determines diameter.

- **B210LP(A):** 6.1" (15.5 cm) diameter.
- **B501(A):** 4.1" (10.4 cm) diameter.
- **B200S(A):** 6.875" (17.46 cm) diameter.
- **B200SR(A):** 6.875" (17.46 cm) diameter.
- **B224RB(A):** 6.2" (15.748 cm) diameter.
- **B224BI(A):** 6.2" (15.748 cm) diameter.

Shipping weight: 4.8 oz. (137 g).

Operating temperature range: FST-851(A) Series, FST-851R(A): –20°C to 38°C (–4°F to 100°F); FST-851H(A): –20°C to 66°C (–4°F to 150°F).

Detector spacing: UL approved for 50 ft. (15.24 m) center to center. FM approved for 25 x 25 ft. (7.62 x 7.62 m) spacing.

Relative humidity: 10% – 93% noncondensing.

Thermal ratings: fixed-temperature setpoint 135°F (57°C), rate-of-rise detection 15°F (8.3°C) per minute, high temperature heat 190°F (88°C).

ELECTRICAL SPECIFICATIONS

Voltage range: 15 - 32 volts DC peak.

Standby current (max. avg.): 300 µA @ 24 VDC (one communication every 5 seconds with LED enabled).

LED current (max.): 6.5 mA @ 24 VDC ("ON").

Applications

Use thermal detectors for protection of property. For further information, go to systemsensor.com for manual I56-407-00, Applications Manual for System Smoke Detectors, which provides detailed information on detector spacing, placement, zoning, wiring, and special applications.

Installation

The FST Series plug-in intelligent thermal detectors use a separate base to simplify installation, service, and maintenance. Installation instructions are shipped with each detector. A special tool allows maintenance personnel to plug in and remove detectors without using a ladder

Mount base (all base types) on an electrical backbox which is at least 1.5" (3.81 cm) deep. For a chart of compatible junction boxes, see *DN-60054*.

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

Agency Listings and Approvals

These listings and approvals apply to the 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:** S747.
- **ULC Listed:** S6978.
- **MEA Listed:** 383-02-E.
- **FM Approved.**
- **CSFM:** 7270-0028:0196.
- **BSMI:** CI313066760025.
- **CCCF:** Certif. # 2004081801000018.
- **U.S. Coast Guard:** 161.002/42/1 (NFS-640); 161.002/50/0 (NFS2-640/NFS-320/NFS-320C, excluding B210LP(A)).
- **Lloyd's Register:** 11/600013 (NFS2-640/NFS-320/NFS-320C, excluding B210LP(A)).

Product Line Information

NOTE: "A" suffix indicates ULC Listed model.

FST-851: Intelligent thermal detector. Must be mounted to one of the bases listed below.

FST-851A: Same as FST-851 but with ULC Listing.

FST-851R: Intelligent thermal detector with rate-of-rise feature.

FST-851RA: Same as FST-851R but with ULC Listing.

FST-851H: Intelligent high-temperature thermal detector.

FST-851HA: Same as FST-851H but with ULC Listing.

INTELLIGENT BASES

NOTE: "A" suffix indicates ULC Listed model.

NOTE: For details about intelligent bases and their mounting, see DN-60054.

B210LP(A): Standard U.S. flanged low-profile mounting base.

B210LPBP: Bulk pack of B210LP; package contains 10.

B501(A): Standard European flangeless mounting base.

B501BP: Bulk pack of B501; package contains 10.

B200S(A): Addressable Intelligent, programmable sounder base capable of producing sound output in high or low volume with ANSI Temporal 3, ANSI Temporal 4, continuous tone, marching tone, and custom tone.

B200SR(A): Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone. Replaces B501BH series bases in retrofit applications.

B224RB(A): Intelligent relay base. Screw terminals: up to 14 AWG (2.0 mm²). Relay type: Form-C. Rating: 2.0 A @ 30 VDC resistive; 0.3 A @ 110 VDC inductive; 1.0 A @ 30 VDC inductive.

B224BI(A): Intelligent isolator base. Isolates SLC from loop shorts. Maximum: 25 devices between isolator bases; see Note 2 under Installation.

ACCESSORIES

F110: Retrofit flange to convert B210LP(A) to match the B710LP(A) profile, or to convert older high-profile bases to low-profile.

F110BP: Bulk pack of F110; package contains 15.

F210: Replacement flange for B210LP(A) base.

RA100Z(A): Remote LED annunciator. 3 – 32 VDC. Fits U.S. single-gang electrical box. Supported by B210LP(A) and B501(A) bases only.

SMB600: Surface mounting kit, flanged.

M02-04-00: Test magnet.

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

XR2B: Detector removal tool. Allows installation and/or removal of FlashScan® Series detector heads from base in high ceiling installations. Includes T55-127-010.

T55-127-010: Detector removal tool without pole.

XP-4: Extension pole for XR2B. Comes in three 5-foot (1.524 m) sections.

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ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

Made in the U.S. A.

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

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7270-0028:0196

CATEGORY: 7270 -- HEAT DETECTOR

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models FST-751, *-851, *-851R, *-851H (fixed temperature) and FST-751R (fixed temperature with Rate-of-Rise) electronic heat detectors. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: *Models FST-751, -751R, -851, and -851R = 135°F fixed temperature
*Model FST-851H = 190°F fixed temperature

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical ratings, and UL label.

APPROVAL: Listed as heat detectors for use with Models B501 or B710LP base (CSFM Listing No. 7300-0028:173) and separately listed compatable fire alarm control units. Refer to listee's Installation Instructions Manual for details.

*Rev. 2-04-2003KK

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

FSB-200(A) and FSB-200S(A)

Single-Ended, Reflector-Type Addressable Beam Smoke Detector

NOTIFIER® by Honeywell

GENERAL

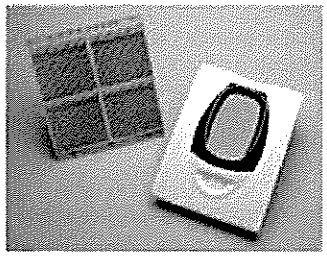
The Notifier FSB-200 and FSB-200S are intelligent, addressable reflected beam smoke detectors for protecting open areas with high and sloping ceilings, and wide-open areas, where spot-type smoke detectors are difficult to install and maintain. Ideal applications are atriums, cathedral ceilings, aircraft hangars, warehouses, sporting arenas, concert halls, and enclosed parking facilities. They are compatible with the NFS-3030, NFS2-3030, NFS-640, NFS2-640, and NFS-320 in FlashScan® or CLIP mode, as well as legacy addressable panels. Installation of the single-ended reflective design is much quicker than a dual-ended projected beam detector. Alignment is easily accomplished with an optical sight and a two-digit signal strength meter incorporated into the beam detector. Listed for operation from –22°F to 131°F, the FSB-200 and FSB-200S are usable in open area applications where temperature extremes exceed the design limits of other types of smoke detection.

The FSB-200 and FSB-200S are a transmitter/receiver unit and a reflector. When smoke enters the area between the unit and the reflector it causes a reduction in the signal strength. When the smoke level (signal strength) reaches the predetermined threshold, an alarm is activated. The detectors have four standard sensitivity selections as well as two Acclimate® settings. When either Acclimate® setting is selected, the detector's advanced software algorithms automatically adjust to the optimum sensitivity for the specific environment.

The FSB-200S has an integral sensitivity test feature of a filter attached to a servomotor inside the detector optics. Activation of the RTS151 or RTS151KEY remote test stations moves the filter into the pathway of the light beam, testing the detector's sensitivity. This sensitivity test feature allows the user to quickly and easily meet the annual maintenance and test requirements of NFPA 72, without physical access to the detector. The servomotor must be powered by +24 VDC, not SLC power.

FEATURES

- Listed to UL 268, ULC CAN/ULC S529.
- Transmitter/receiver built into same unit.
- Six user-selectable sensitivity levels.
- 16' to 328' (use BEAMLRK beyond 230') protection range.
- Removable plug-in terminal blocks.
- Digital display — no special tools required.
- Built-in automatic gain control compensates for signal deterioration from dust buildup.
- Optional remote test station.
- Optional long-range kit (BEAMLRK) for applications in excess of 230' (70 m).
- Optional multi-mount kit (BEAMMMK) providing ceiling or wall mount capability with increased angular adjustment.
- Optional heater kits (BEAMHK and BEAMHKR) for prevention of condensation (not intended to increase or reduce the specified operating temperature).
- Paintable cover.



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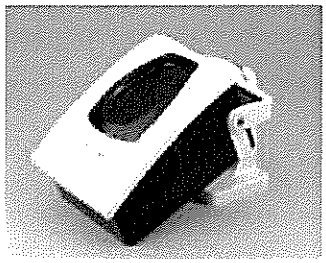
FSB-200 with Reflective Plate



6975beammk.jpg

FSB-200 with BEAMMMK

SPECIFICATIONS

OPERATIONAL SPECIFICATIONS

Protection Range: 16 to 230 feet (5 to 70 m), 230 to 328 feet (70 to 100 m) using optional BEAMLRK kit.

Adjustment Angle: ±10° horizontal and vertical. Note that the optics move independently of the unit.

Sensitivity (6 levels):

NOTE: *Sensitivity settings are a feature of specific control panels.*

- Level 1 — 25%.
- Level 2 — 30%.
- Level 3 — 40%.
- Level 4 — 50%.
- Acclimate® Level 5 — 30% to 50%.
- Acclimate® Level 6 — 40% to 50%.

Fault Condition (trouble):

- 96% or more obscuration blockage.
- In alignment mode.
- Improper initial alignment.
- Self-compensation limit reached.

Alignment Aid:

- Optical gunsight.
- Integral signal strength indication.
- Two-digit display.

Indicators:

- Alarm — local red LED and remote alarm.
- Trouble — local yellow LED and remote trouble.
- Normal — local flashing green LED.

Test/reset features:

- Integral sensitivity test filter (FSB-200S only, requires external power supply).
- Sensitivity filter (incremental scale on reflector).
- Local alarm test switch.
- Local alarm reset switch.
- Remote test and reset switch (compatible with RTS151 and RTS151KEY test stations).

Smoke Detector Spacing: On smooth ceilings, 30 – 60 feet (9.1 to 18.3 m) between projected beams and not more than one-half that spacing between a projected beam and a sidewall. Other spacing may be used depending on ceiling height, airflow characteristics, and response requirements. See NFPA 72.

ENVIRONMENTAL SPECIFICATIONS

Temperature: –22°F to 131°F (–30°C to 55°C).

Humidity: 10 – 93% RH noncondensing.

ELECTRICAL SPECIFICATIONS

- **Voltage:** 15 to 32 VDC.
- **Average Standby Current (24 VDC):** 2 mA maximum (LED flashing, SLC @ 24 V).
- **Alarm Current (LED on):** 8.5 mA maximum.
- **Trouble Current (LED on):** 4.5 mA maximum.
- **Alignment Current:** 20 mA maximum.
- **External Supply (FSB-200S only):**
  Voltage — 15 to 32 VDC
  Current — 0.5 A maximum.
- **Remote Output (Alarm):**
  Voltage - 15 to 32 VDC (Output voltage same as device input voltage)
  Current - 15 mA maximum, 6 mA minimum (Output current is limited by 2.2K ohm resistor)
- **Heater Kit BEAMHK:** *Voltage* - 15 to 32 V; *Current* - 92 mA maximum @ 32 V (heater only); *Power Consumption* - nominal 1.6 W @ 24 V, maximum 3.0 W @ 32 V.
- **Reflector Heater Kit BEAMHKR**: *Voltage* - 15 to 32 V; *Current* - 450 mA maximum @ 32 V (per reflector); *Power Consumption (per reflector)* - nominal 7.7 W @ 24 V, maximum 15.0 W @ 32 V.

MECHANICAL SPECIFICATIONS

Shipping Weight: 3.7 lbs (1.68 kg)

Detector Dimensions: 10.0" H x 7.5" W x 3.3" D (254 mm H x 191 mm W x 84 mm D).

Reflector Dimensions for 16' to 230' (5 to 70m) Applications: 7.9" x 9.1" (200 x 230 mm).

Reflector Dimensions for Applications Beyond 230'/70m: 15.7" x 18.1" (400 x 460 mm).

SENSITIVITY SELECTION

The detector has six sensitivity selections (sensitivity settings are a feature of specific control panels). Each of these selections is only acceptable over a specific distance separation between the detector and the reflector per UL 268. The chart below determines which selections are acceptable for your installed distance. The sensitivity of the detector can be set only when the housing is removed and the detector is not in the fine adjustment step of the alignment mode, indicated by the illumination of the dual digital display. To set the sensitivity, depress the sensitivity button one time. See Switch Locations diagram. Once the switch is pressed, the digital display will illuminate and read the current sensitivity setting in percent obscuration. To change the sensitivity, continue to depress the sensitivity switch until the desired setting is achieved. The digital display will turn off automatically if no further switch presses occur.

Sensitivity Setting	Percent Obscuration	Display Reading	Acceptable DISTANCE between Detector and Reflector (ft)	Acceptable DISTANCE between Detector and Reflector (m)
Level 1	25%	25	16.4 to 120	5.0 to 36.6
Level 2	30%	30	25 to 150	7.6 to 45.7
Level 3	40%	40	60 to 220	18.3 to 67
Level 4	50%	50	80 to 328	24.4 to 100
Acclimate ® Level 1	30% to 50%	A1	80 to 150	24.4 to 45.7
Acclimate ® Level 2	40% to 50%	A2	80 to 200	24.4 to 67

In addition to the four standard sensitivity selections, the detector has two Acclimate® settings. When either Acclimate® setting is chosen the detector will automatically adjust its sensitivity using advanced software algorithms to select the optimum sensitivity for the environment. The sensitivity will be continuously adjusted within the ranges specified in the chart above.

Total obscuration can be converted to percent per foot, assuming uniform smoke density for the entire length of the beam. The chart below converts total obscuration percent per foot for all acceptable sensitivity settings.

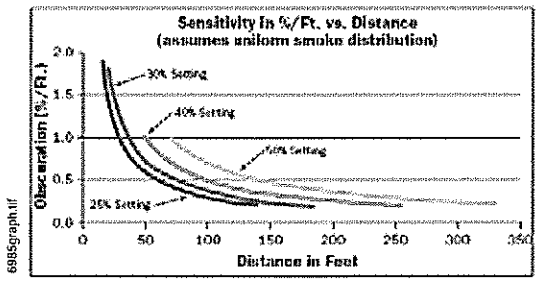
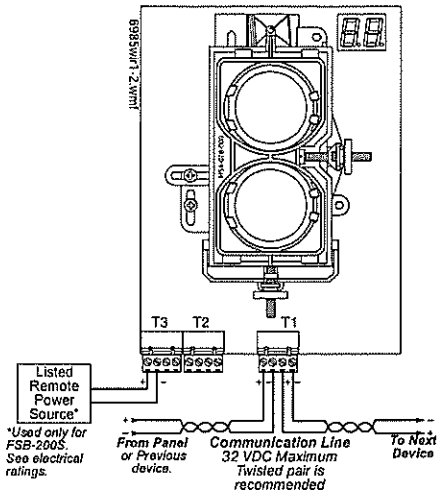
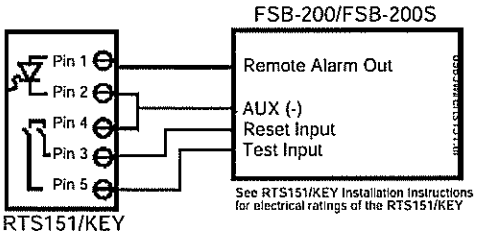


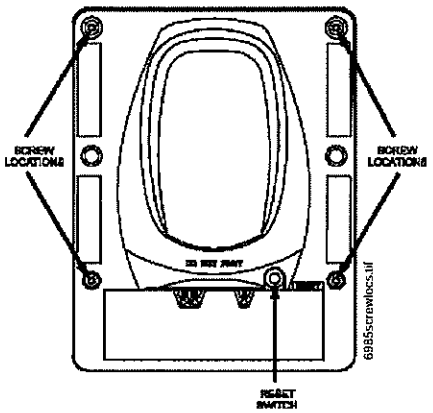
Table 1: Total Obscuration



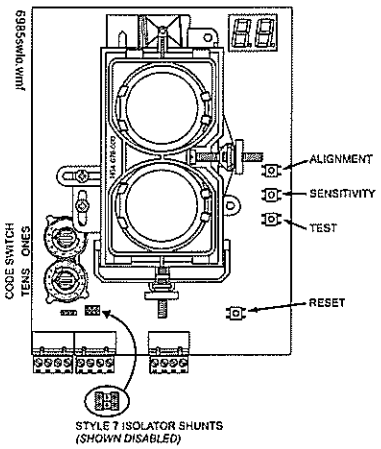
Wiring Diagram



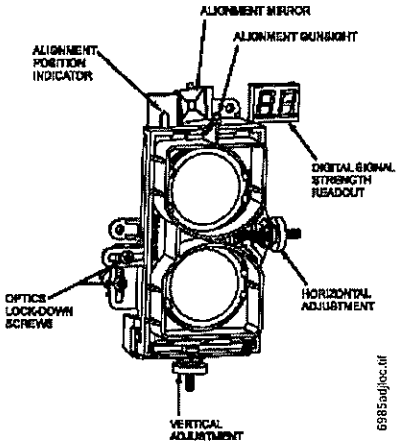
Wiring Diagram with RTS151/KEY



Housing Screw Locations



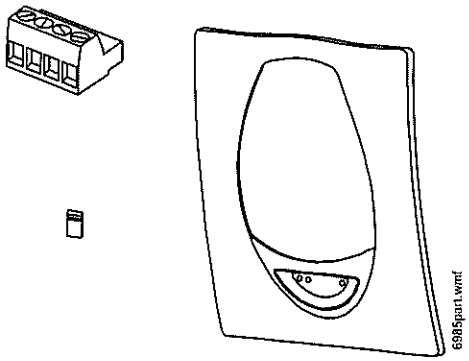
Switch Locations



Alignment and Adjustment Locations

PARTS LIST

Item	Quantity
Transmitter/Receiver Unit	1
Paintable Trim Ring	1
Reflector	1
Plug-In Terminal Blocks	3
Isolator Shunts	2
Instruction Manual	1
Orange Sticky Paper	1



AGENCY LISTINGS AND APPROVALS

These listings and approvals apply to the devices 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:** S2522 (FSB-200, FSB-200S)
- **ULC Listed:** S2522 (FSB-200A, FSB-200SA)
- **CSFM:** 7260-0028:228
- **MEA:** 95-04-E
- **Maryland State Fire Marshal:** Permit # 2167
- **FM Approved**

PRODUCT LINE INFORMATION

FSB-200: Intelligent beam smoke detector

FSB-200A: Same as FSB-200 with ULC Listing.

FSB-200S: Intelligent beam smoke detector with integral sensitivity test.

FSB-200SA: Same as FSB-200S with ULC Listing.

BEAMLRK: Long range accessory kit (required for applications in excess of 230 ft/70 m).

BEAMMMK: Multi-mount kit (provides ceiling or wall mount capability with increased angular adjustment).

BEAMSMK: Surface-mount kit.

RTS151: Remote test station.

RTS151A: Same RTS151 with ULC listing.

RTS151KEY: Remote test station with key lock.

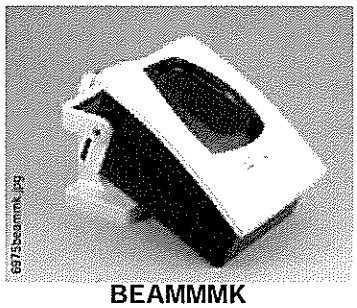
RTS151KEYA: Same as the RTS151KEY with ULC listing.

BEAMHK: Heating kit for use with the transmitter/receiver unit of FSB-200S. For prevention of condensation.

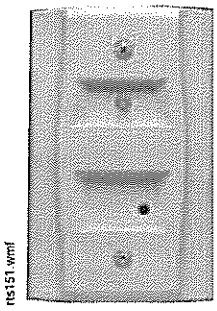
BEAMHKR: Heating kit for use with the reflector on FSB-200S. For prevention of condensation

6500-MMK: Heavy-duty multi-mount kit for installations prone to vibration or where there is difficulty mounting the set angle. When installed with the transmitter/receiver unit, the 6500-SMK must be used as well.

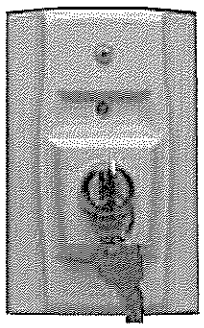
6500-SMK: Surface-mount kit (required when using 6500-MMK to mount transmitter/receiver).



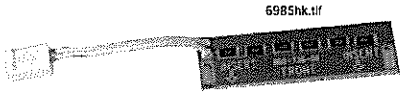
BEAMMMK
(ceiling or wall mount kit sold separately)



RTS151



RTS151KEY



BEAMHK

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ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

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

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CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7260-0028:0228

CATEGORY: 7260 -- SMOKE DETECTION SYSTEM-BEAM TYPE

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models FSB-200 and FSB-200S projected beam smoke detector. Each unit consists of resistors, capacitors, diodes, photo diodes and LED, on a printed wiring board inside an enclosure that has an opening to the outside air. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: 15 - 32 VDC

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, model number, electrical rating, and UL label.

APPROVAL: Listed as projected beam smoke detectors for use with Models BEAMMMK, BEAMSMK and BEAMLRK mounting kits (CSFM Listing No. 7300-1209:231) and separately listed compatible fire alarm control units. Refer to listee's Installation Instruction Manual for details.

NOTE:

06-16-04

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

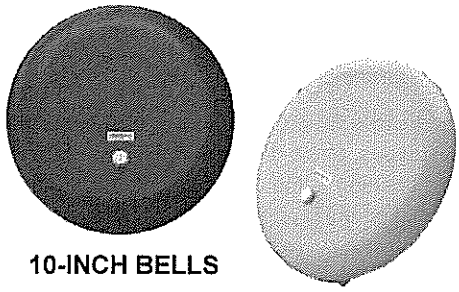
Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

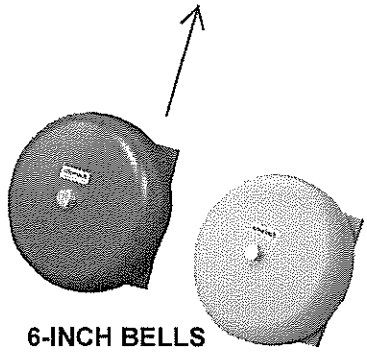
Fire Engineering Division

COOPER Notification

Series 43T AC Bells



10-INCH BELLS



6-INCH BELLS

Description

The Wheelock Series 43T bells provide the durable operation and dependable performance required for life safety alarm systems.

A complete range of vibrating models is offered in 6" and 10" sizes for 115 or 24-volt AC operation in indoor or outdoor installations. All models provide high sound output with low power consumption. All models are provided with screw terminal inputs for secure in-out field wiring.

Features

- Approvals include: UL Standard 464, Factory Mutual (FM), and California State Fire Marshal (CSFM).
- Complies with OSHA 29,Part 1910.165
- High sound output with low current draw
- 6" and 10" shell sizes in 115 or 24 AC models
- Integral RFI suppression minimizes induced noise on alarm lines
- Semi-flush mounting to standard 4" square backboxes or surface mounting to Wheelocks surface backboxes
- Polarized for supervision of alarm lines with screw terminal inputs for fast and secure in-out field wiring of #12 to #18 AWG wire
- Attractive textured finish to enhance appearance and durability
- For combined audible (bell) and visual signaling, convenient retrofit assemblies (Series RSSP) are available with Multi-Candela or single candela strobes (See Data Sheet S0410 or Wheelock Fire Products Catalog)

Specifications and Ordering Information

Model Number	Order Code	Shell Size	Input Voltage	Input Current	dBA @ 10 Ft.	Mounting Options *
43T-G6-24-R	1627	6"	24 VAC	0.410	86	D,E,J,K,N,O,P,R,S
43T-G6-24-S	1626	6"	24 VAC	0.410	86	
43T-G6-115-R	1631	6"	115 VAC	0.085	86	
43T-G6-115-S	1630	6"	115 VAC	0.085	86	
43T-G10-24-R	1647	10"	24 VAC	0.410	88	
43T-G10-24-S	3800	10"	24 VAC	0.410	88	
43T-G10-115-R	1651	10"	115 VAC	0.085	88	
43T-G10-115-S	3693	10"	115 VAC	0.085	88	

* Refer to Data Sheet #S7000 for mounting options.

1. Typical dBA at 10 feet is measured in an anechoic chamber.
2. All models are provided with in-out screw terminals.
3. Each bell mechanism is adjusted to operate only with the shell provided. Do not mix shells and mechanisms during installation.

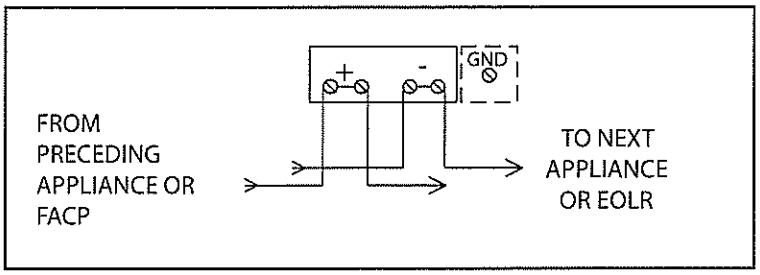
E5946 7135-0785:108 FM APPROVED

Architects and Engineers Specifications

The alarm signals shall be Wheelock Series 43T Bells or approved equal. They shall be UL Listed for Fire Protective Service with models for vibrating operation and optional steel shells from 6" to 10" diameter. Sound output at 10 feet shall range up to 88 dBA. The bells shall semi-flush mount to standard 4" square backboxes or surface mount to Wheelock indoor BB backbox or outdoor WBB backbox. All bell models shall be polarized for line supervision and shall have screw terminals for in-out field wiring. The finish on all models shall be textured enamel.

Wiring

(All Bell Models)



Wheelock products must be used within their published specifications and must be PROPERLY specified, applied, installed, operated, maintained and operationally tested in accordance with their installation instructions at the time of installation and at least twice a year or more often and in accordance with local, state and federal codes, regulations and laws. Specification, application, installation, operation, maintenance and testing must be performed by qualified personnel for proper operation in accordance with all of the latest National Fire Protection Association (NFPA), Underwriters' Laboratories (UL), National Electrical Code (NEC), Occupational Safety and Health Administration (OSHA), local, state, county, province, district, federal and other applicable building and fire standards, guidelines, regulations, laws and codes including, but not limited to, all appendices and amendments and the requirements of the local authority having jurisdiction (AHJ).

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

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

NEMA Member

WE ENCOURAGE AND SUPPORT NICET CERTIFICATION
3 YEAR WARRANTY

S0600 43T 06/11

NJ Location
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Long Branch, NJ 07740
P: 800-631-2148
F: 732-222-8707
www.coopernotification.com

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COOPER Notification

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7135-0785:0108

CATEGORY: 7135 -- AUDIBLE DEVICES

LISTEE: Cooper Wheelock Inc.7246 16th St. E., Ste. 105, Sarasota, FL 34243
Contact: Tom Conover (941) 487-2336
Email: thomas.conover@cooperindustries.com

DESIGN: Model* 43T series bells and bell/strobes. Suitable for outdoor use with Model WBB backbox. Refer to listee's data sheet for detailed product description and operational considerations.

RATING:

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, product designation, electrical rating and UL label.

APPROVAL: Listed audible devices for use with separately listed compatible fire alarm control units.

If this appliance is required to produce a distinctive three-pulse Temporal Pattern Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72, 2002 Edition, the appliance must be used with a fire alarm control unit that can generate the temporal pattern signal. Refer to manufacturer's Installation Manual for details.

NOTE:

*Rev. 07-16-2009 fm

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

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

Monitor Modules with FlashScan®

NOTIFIER® by Honeywell

General

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

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

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

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

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

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

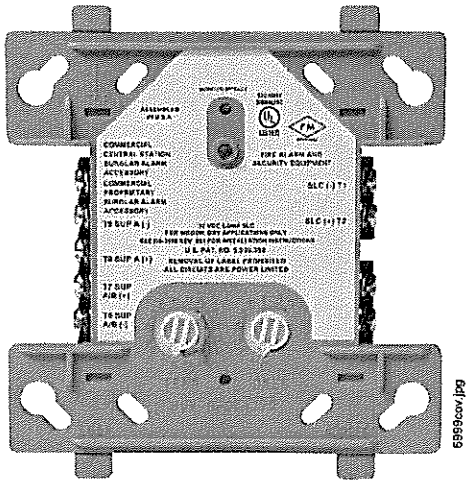
FMM-1(A) Monitor Module

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

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

FMM-1(A) APPLICATIONS

Use to monitor a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact alarm activation devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 47K ohm End-of-Line Resistor (provided) terminates the Style B circuit. No resistor is required for supervision of the Style D circuit.



FMM-1(A) (Type H)

FMM-1(A) OPERATION

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

FMM-1(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.0 mA (LED on).

Average operating current: 350 µA (LED flashing), 1 communication every 5 seconds, 47k EOL.

Maximum IDC wiring resistance: 40 ohms.

EOL resistance: 47K ohms.

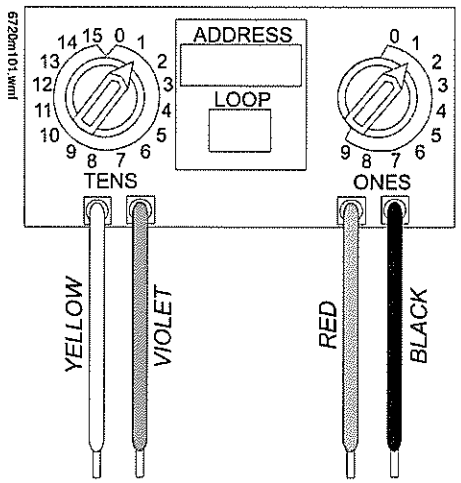
Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

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

FMM-101(A) Mini Monitor Module

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



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

FMM-101(A) APPLICATIONS

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

FMM-101(A) OPERATION

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

FMM-101(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Average operating current: 350 µA, 1 communication every 5 seconds, 47k EOL; 600 µA Max. (Communicating, IDC Shorted).

Maximum IDC wiring resistance: 40 ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 400 µA.

EOL resistance: 47K ohms.

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

Humidity range: 10% to 93% noncondensing.

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

Wire length: 6" (15.24 cm) minimum.

FZM-1(A) Interface Module

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

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

FZM-1(A) APPLICATIONS

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

FZM-1(A) OPERATION

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

FZM-1(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum IDC wiring resistance: 25 ohms.

Average operating current: 300 µA, 1 communication and 1 LED flash every 5 seconds, 3.9k eol.

EOL resistance: 3.9K ohms.

External supply voltage (between Terminals T3 and T4): DC voltage: 24 volts power limited. Ripple voltage: 0.1 Vrms maximum. Current: 90 mA per module maximum.

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

Humidity range: 10% to 93% noncondensing.

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

FDM1(A) Dual Monitor Module

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

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

FDM-1(A) SPECIFICATIONS

Normal operating voltage range: 15 to 32 VDC.

Maximum current draw: 6.4 mA (LED on).

Average operating current: 750 µA (LED flashing).

Maximum IDC wiring resistance: 1,500 ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 240 µA

EOL resistance: 47K ohms.

Maximum SLC Wiring resistance: 40 Ohms.

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

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

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 2.125" (5.398 cm) deep.

FDM-1(A) AUTOMATIC ADDRESSING

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

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

CAUTION:
Avoid duplicating addresses on the system.

Installation

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

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

Agency Listings and Approvals

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

- **UL:** S635
- **ULC:** S635
- **FM Approved**
- **CSFM:** 7300-0028:0219
- **MEA:** 457-99-E
- **U.S. Coast Guard:**
  - 161.002/23/3 *(AFP-200: FMM-1/-101, FZM-1)*
  - 161.002/42/1 *(NFS-640: FMM-1/-101)*
- **Lloyd's Register:**
  - 03/60011/E1 *(FMM-1/-101, FZM-1)*
  - 94/60004/E2 *(AFP-200: except FDM-1)*
  - 02/60007 *(NFS-640: FDM-1)*
- **FDNY:** COA #6038 (NFS2-640, NFS-320), COA# 6058 (NFS2-3030)

Product Line Information

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

FMM-1(A): Monitor module.

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

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

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

SMB500: Optional surface-mount backbox.

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

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ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS

This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

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

FCM-1(A) & FRM-1(A) Series

Control and Relay Modules

NOTIFIER® by Honeywell

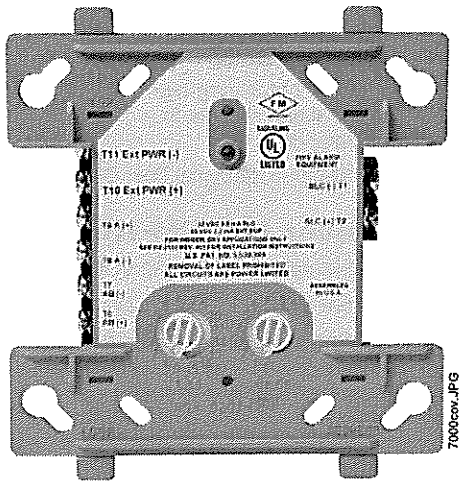
Intelligent / Addressable Devices

General

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

FRM-1(A) Relay Module: The FRM-1(A) Addressable Relay Module provides the system with a dry-contact output for activating a variety of auxiliary devices, such as fans, dampers, control equipment, etc. Addressability allows the dry contact to be activated, either manually or through panel programming, on a select basis.

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



FCM-1(A)

Features

- Built-in type identification automatically identifies these devices to the control panel.
- Internal circuitry and relay powered directly by two-wire SLC loop. The FCM-1(A) module requires power (for horns, strobes, etc.), or audio (for speakers).
- Integral LED "blinks" green each time a communication is received from the control panel and turns on in steady red when activated.
- LED blink may be deselected globally (affects all devices).
- High noise immunity (EMF/RFI).
- The FCM-1(A) may be used to switch 24-volt NAC power, audio (up to 70.7 Vrms).
- Wide viewing angle of LED.
- SEMS screws with clamping plates for wiring ease.
- Direct-dial entry of address 01 159 for FlashScan loops, 01 – 99 for CLIP mode loops.
- Speaker, and audible/visual applications may be wired for Class B or A (Style Y or Z).

Applications

The FCM-1(A) is used to switch 24 VDC audible/visual power, high-level audio (speakers). The FRM-1(A) may be programmed to operate dry contacts for applications such as door holders or Air Handling Unit shutdown, and to reset four-wire smoke detector power.

NOTE: Refer to the SLC Manual (PN 51253) for details regarding releasing applications with the FCM-1(A). Refer to the FCM-1-REL datasheet (DN-60390) for new FlashScan® releasing applications.

Construction

- The face plate is made of off-white heat-resistant plastic.
- Controls include two rotary switches for direct-dial entry of address (01-159).
- The FCM-1(A) is configured for a single Class B (Style Y) or Class A (Style Z) Notification Appliance Circuit.
- The FRM-1(A) provides two Form-C dry contacts that switch together.

Operation

Each FCM-1(A) or FRM-1(A) uses one of 159 possible module addresses on a SLC loop (99 on CLIP loops). It responds to regular polls from the control panel and reports its type and status, including the open/normal/short status of its Notification Appliance Circuit (NAC). The LED blinks with each poll received. On command, it activates its internal relay. The FCM-1(A) supervises Class B (Style Y) or Class A (Style Z) notification or control circuits.

Upon code command from the panel, the FCM-1(A) will disconnect the supervision and connect the external power supply in the proper polarity across the load device. The disconnection of the supervision provides a positive indication to the panel that the control relay actually turned ON. The external power supply is always relay isolated from the communication loop so that a trouble condition on the external power supply will never interfere with the rest of the system.

Rotary switches set a unique address for each module. The address may be set before or after mounting. The built-in TYPE CODE (not settable) will identify the module to the control panel, so as to differentiate between a module and a sensor address.

Specifications for FCM-1(A)

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

Average operating current: 350 µA direct poll, 375 µA group poll with LED flashing, 485 µA Max. (LED flashing, NAC shorted.)

Maximum NAC Line Loss: 4 VDC.

External supply voltage (between Terminals T10 and T11): Maximum (NAC): Regulated 24 VDC; Maximum (Speakers): 70.7 V RMS, 50W.

Drain on external supply: 1.7 mA maximum using 24 VDC supply; 2.2 mA Maximum using 80 VRMS supply.

Max NAC Current Ratings: For class B wiring system, the current rating is 3A; For class A wiring system, the current rating is 2A.

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

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

Dimensions: 4.5" (114.3 mm) high x 4" (101.6 mm) wide x 1.25" (31.75 mm) deep. Mounts to a 4" (101.6 mm) square x 2.125" (53.975 mm) deep box.

Accessories: SMB500 Electrical Box; CB500 Barrier

Specifications for FRM-1(A)

Normal operating voltage: 15 to 32 VDC.

Maximum current draw: 6.5 mA (LED on).

Average operating current: 230 µA direct poll; 255 µA group poll.

EOL resistance: not used.

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

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

Dimensions: 4.5" (114.3 mm) high x 4" (101.6 mm) wide x 1.25" (31.75 mm) deep. Mounts to a 4" (101.6 mm) square x 2.125" (53.975 mm) deep box.

Accessories: SMB500 Electrical Box; CB500 Barrier

Agency Listings and Approvals

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

- **UL:** S635
- **ULC:** S3705 (A version only)
- **FM Approved**
- **CSFM:** 7300-0028:0219
- **MEA:** 14-00-E
- **FDNY:** COA #6067, #6065

Contact Ratings for FRM-1(A)

Current Rating	Maximum Voltage	Load Description	Application
3 A	30 VDC	Resistive	Non-Coded
2 A	30 VDC	Resistive	Coded
.9 A	110 VDC	Resistive	Non-Coded
.9 A	125 VDC	Resistive	Non-Coded
.5 A	30 VDC	Inductive (L/R=5ms)	Coded
1 A	30 VDC	Inductive (L/R=2ms)	Coded
.3 A	125 VAC	Inductive (PF=0.35)	Non-Coded
1.5 A	25 VAC	Inductive (PF=0.35)	Non-Coded
.7 A	70.7 VAC	Inductive (PF=0.35)	Non-Coded
2 A	25 VAC	Inductive (PF=0.35)	Non-Coded

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

Product Line Information

NOTE: "A" suffix indicates ULC Listed model.

FCM-1(A): Intelligent Addressable Control Module.

FRM-1(A): Intelligent Addressable Relay Module.

A2143-20: Capacitor, required for Class A (Style Z) operation of speakers.

SMB500: Optional Surface-Mount Backbox.

CB500: Control Module Barrier — required by UL for separating power-limited and non-power limited wiring in the same junction box as FCM-1(A).

NOTE: For installation instructions, see the following documents:

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

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ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

This document is not intended to be used for installation purposes.
We try to keep our product information up-to-date and accurate.
We cannot cover all specific applications or anticipate all requirements.
All specifications are subject to change without notice.

Made in the U.S. A.

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

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7300-0028:0219

CATEGORY: 7300 – FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: NotifierOne Fire-Lite Place, Northford, CT 06472-1653
Contact: Vladimir Kireyev (203) 484-6277 Fax (203) 484-7309
Email: vladimir.kireyev@honeywell.com

DESIGN: Models XP6-R relay module, XP6-C, supervising control module, XP10-M input monitor module, XP6-MA six zone interface module, FMM-1, FMM-101, FZM-1, FSM-101, FDM-1, FTM-1 monitor modules, FCM-1, FRM-1 control modules, and *FDRM-1 with 2 input/2 output relay module. All devices are intended to be connected between the signaling line circuit of a compatible fire alarm control panel. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: 16-33 VDC Primary

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes & ordinances and in manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, product number and UL label.

APPROVAL: Listed as control unit accessories for use with listee's separately listed compatible fire alarm control units. Model FTM-1 is intended to be used with Notifier Models NFS-640, NFS2-640 (CSFM Listing No. 7165-0028:214), NFS-3030, NFS2-3030 (CSFM Listing No. 7165-0028:224) Fire Alarm Control Units.

NOTE: If an external power supply is used for Model XP6-MA, the negative of the external power supply is referenced to the negative of the auxiliary supply of the compatible control panel. This is done in order to detect ground faults on the initiating circuit.

*Rev. 10-24-11 mt

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **July 01, 2012**

Listing Expires **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

Intelligent Bases

B501(A), B200S(A), B200SR(A), B210LP(A), B2241BI(A), B224RB(A), Mounting Kits, and Accessories

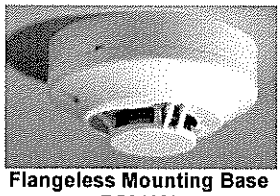
NOTIFIER® by Honeywell

Addressable Devices

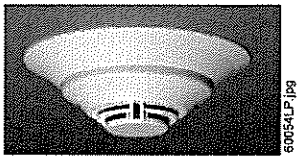
General

Intelligent FlashScan® and CLIP mounting bases and kits provide a variety of ways to install NOTIFIER detectors in any application. Intelligent detectors can be mounted in either flanged or flangeless bases depending on junction box selection *(see Junction Box Selection Guide)*. Across this product line, detectors plug in easily to the base with SEMS screws; and models employ various 12 to 24 AWG wire ranges.

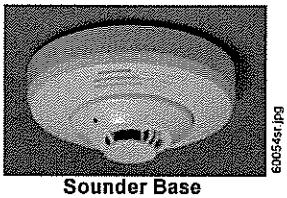
Relay, isolator, and sounder bases can be used to meet local code requirements. Relay bases provide one Form-C contact relay for control of auxiliary functions such as door closure and elevator recall. Isolator bases allow loops to continue to operate under fault conditions and automatically restore when the fault is removed. Sounder bases are available in temporal and non-temporal pattern versions depending on whether the signal is to be used for evacuation purposes.



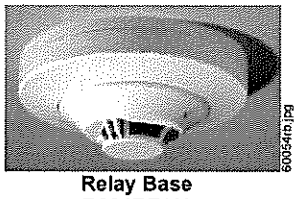
Flangeless Mounting Base B501(A)



Flanged Mounting Base B210LP(A)



Sounder Base B200S(A), B200SR(A)



Relay Base B224RB(A)

Specifications

Diameter:

- B501: 4.1" (104 mm).
- B224BI, B224RB, B210LP: 6.1" (155 mm).
- B200S/SR: 6.875" (17.46 cm).

Wire gauge:

- B224BI, B224RB: 14 to 24 AWG.
- B210LP, B501, B200S/SR: 12 to 24 AWG.

Temperature range:

- B224BI, B224RB, B200S/SR: 32°F to 120°F (0°C to 49°C).
- B210LP, B501: -4°F to 150°F (-20°C to 66°C).

Humidity range: 10% to 93% RH, non-condensing.

System temperature and humidity ranges: This system meets NFPA requirements for operation at 0°C to 49°C (32°F to 120°F); and at a relative humidity (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).

Electrical Ratings

FOR B200S/SR:

External supply voltage: 16 to 33 VDC (VFWR)

Standby current: 500 µA maximum.

Alarm current:

- B200S: 25 mA maximum at high-volume setting; 15 mA maximum at low-volume setting.
- B200SR: 35 mA maximum.

SLC operating voltage: 15 to 32 VDC.

SLC standby current: 300 µA.

Sound output: measured in a UL reverberant room at 10 feet, 24 Volts (continuous tone).

- B200S, high-volume: Greater than 85 dBA minimum.
- B200S, low-volume: Greater than 75 dBA minimum.
- B200SR: Greater than 85 dBA minimum.

FOR B224RB, B224BI:

Operating voltage: 15 to 32 VDC (powered by SLC).

Standby ratings: <500 µA maximum @ 24 VDC.

Set time (B224RB only): short delay 55 to 90 msec; long delay 6 to 9 seconds.

Reset time (B224RB only): 20 msec maximum.

Relay characteristics (B224RB only): two-coil latching relay; one Form-C contact; ratings (UL/CSA): 0.9 A @ 125 VAC, 0.9 A @ 110 VDC, and 3.0 A @ 30 VDC.

Product Line Information

INTELLIGENT BASES

B501: Flangeless mounting base.

B501A: Flangeless mounting base, ULC Listed.

B501BP: Bulk pack of B501 (10).

B210LP: Flanged mounting base.

B210LPA: Flanged mounting base, ULC listed

B210LPBP: Bulk pack of B210LP (10).

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

B200SA: Same as B200S with ULC-listing.

B200SR: Intelligent sounder base capable of producing sound output with ANSI Temporal 3 or continuous tone.

B200SRA: Same as B200SR with ULC-listing.

B224RB: Relay base.

B224RBA: Relay base, ULC Listed.

B224BI: Isolator base.

B224BIA: Isolator base, ULC Listed.

MOUNTING KITS AND ACCESSORIES

SMB600: Surface mounting kit, flanged.

F110: Retrofit flange for converting high-profile bases to low-profile.

F110BP: Bulk pack of F110 (10).

F210: Accessory flange ring for B210LP(A) base (new design). 6-inch diameter.

F210BP: Bulk pack of F210 (10).

RA100Z: Remote LED annunciator.

RA100ZA: Remote LED annunciator, ULC Listed.

M02-04-00: Detector test magnet.

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

XR2B: Detector removal tool for current heads *(T55-127-010 included).*

XR2: Detector Remove Tool for use with low profile detector heads, and FSL-751.

XP-4: Extension pole for XR2/B *(5 to 15 ft/1.524 to 4.572 m).*

T55-127-010: Detector removal head.

BCK-200B: Black detector kit, package of 10 (for use with photo and ion detectors).

WCK-200B: White detector kit, package of 10 (for use with photo and ion detectors).

Agency Listings and Approvals

The listings and approvals below apply to intelligent bases as noted. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S911
- **ULC Listed:** S911
- **FM Approved**
- **MEA:** 22-95-E, 205-94-E Vol. 2; 257-06-E
- **CSFM:** 7300-1653:0126, 7135-1653:0213, 7300-0028:0173, 7300-1653:0109

Junction Box Selection Guide

Base Models	Single Gang	3.5" Oct.	4.0" Oct.	4.0" Sq.	4.0" Sq. with 3.0" mud ring	50 mm	60 mm	70 mm	75 mm
B200S, B200SR	Yes	Yes	Yes	Yes	Yes	No	No	No	No
B501	No	Yes	No	No	Yes	Yes	Yes	Yes	No
B210LP	Yes	Yes	Yes	Yes	Yes	No	No	No	No
B224RB	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
B224BI	No	Yes	Yes	Yes	No	No	No	Yes	Yes

***NOTE:** Box depth contingent on base and wire size.*
Refer to National Electric Code or applicable local codes for appropriate recommendations.

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CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7300-1653:0109

CATEGORY: 7300 -- FIRE ALARM CONTROL UNIT ACCESSORIES/MISC. DEVICES

LISTEE: System Sensor, Unincorporated Div of Honeywell Int'l Inc.3825 Ohio Ave, St. Charles, IL 60174
Contact: Trish Linhart (630) 377-6580 Fax (630) 377-7245
Email: trish.linhart@systemsensor.com

DESIGN: Models B401, B401B, B401R, B401BR, B401BR-750, B401R-750, B402B, B404B, B404BT, B406B, B501, B501B, 14506587-002, B501BH, B501BHT, B401BH, B110LP, B110RLP, B110RLP750, B112LP, B114LP, B114LPBT, B116LP and B210LP detector bases. Refer to listee's data sheet for detailed product description and operational considerations.

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction.

MARKING: Listee's name, product designation and UL label.

APPROVAL: Listed as detector bases for use with separately listed compatible detectors.

NOTE: Formerly 7300-1209:128

06-17-05

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

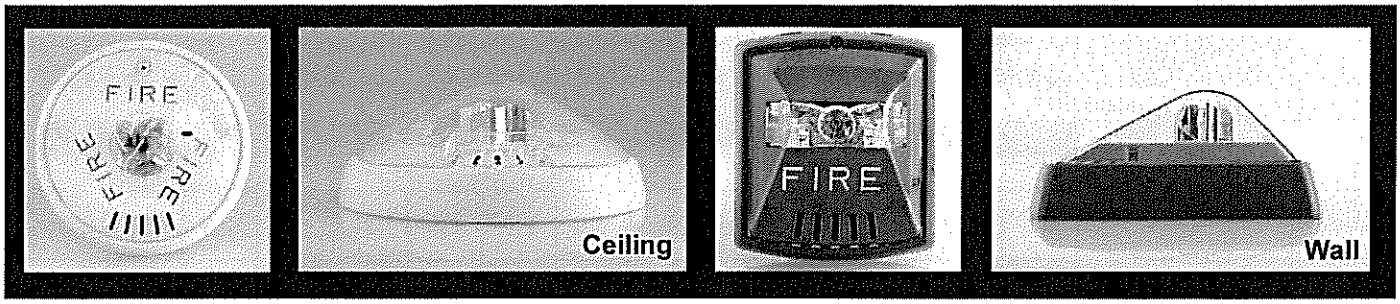
Fire Engineering Division

Wheelock® Exceder™ Series

COOPER Notification

EXCEDER™

Strobe, Horn Strobe, and Horn Notification Appliances



Description:

The Wheelock® Exceder™ Series of notification appliances feature a sleek modern design that will please building owners with reduced total cost of ownership. Installers will benefit from its comprehensive feature list, including the most candela options in one appliance, low current draw, no tools needed for setting changes, voltage test points, 12/24 VDC operation, universal mounting base and multiple mounting options for both new and retrofit construction.

The Wheelock® Exceder™ Series incorporates high reliability and high efficiency optics to minimize current draw allowing for a greater number of appliances on the notification appliance circuit. All strobe models feature an industry first of 8 candela settings on a single appliance. Models with an audible feature 3 sound settings (90, 95, 99 dB). All switches to change settings, can be set without the use of a tool and are located behind the appliance to prevent tampering. Wall models feature voltage test points to take readings with a voltage meter for troubleshooting and AHJ inspection.

The Wheelock® Exceder™ Series of wall and ceiling notification appliances feature a Universal Mounting Base (UMB) designed to simplify the installation and testing of horns, strobes, and combination horn strobes. The separate universal mounting base can be pre-wired to allow full testing of circuit wiring before the appliance is installed and the surface is finished. It comes complete with a Contact Cover for protection against dirt, dust, paint and damage to the contacts. The Contact Cover also acts as a shunting device to allow pre-wire testing for common wiring issues. The Contact Cover is polarized to prevent it from being installed incorrectly and prevents the appliance from being installed while it is on the UMB. When the Contact Cover is removed the circuit will show an open until the appliance is installed. The UMB allows for consistent installation and easy replacement of appliances if required. Wall models provide an optional locking screw for extra secure installation, while the ceiling models provide a captivated screw to prevent the screw from falling during installation.

- Save up to 48% in current draw*
- Up to 9 models now in 1 appliance
- Save up to 14% cost of installation**

- Sleek Modern Aesthetics
- Finger Slide Switches
- Voltage Test Points
- Multiple Voltages
- 3 Audible Settings
  90, 95, 99 dB
- 8 Candela Settings ***
  Wall - 15/1575/30/75/95/110/135/185
  Ceiling - 15/30/60/75/95/115/150/177
- Universal Mounting Base ***
  Ceiling and Wall
  Mounts to 5 Backbox Types
- Environmentally Friendly
  Low Current Draw

Compatibility and Requirements

- Synchronize using the Wheelock® Sync Modules or panels with built-in Wheelock® Patented Sync Protocol
- Compatible with UL "Regulated Voltage" using filtered VDC or unfiltered VRMS input voltage
- Strobes produce 1 flash per second over the "Regulated Voltage" range

* Compared to competitive models
** Compared to previous models
*** Patented

NOTE: All CAUTIONS and WARNINGS are identified by the symbol ⚠. All warnings are printed in bold capital letters.

⚠ WARNING: PLEASE READ THESE SPECIFICATIONS AND ASSOCIATED INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. VISIT WWW.COOPERNOTIFICATION.COM OR CONTACT COOPER NOTIFICATION FOR THE CURRENT INSTALLATION INSTRUCTIONS. FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS, CAUTIONS OR WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

General Notes:

General Notes:

- Strobes are designed to flash at 1 flash per second minimum over their "Regulated Voltage Range".
- All candela ratings represent minimum effective strobe intensity based on UL Standard 1971.
- Series Exceder Strobe products are Listed under UL Standards 1971 and 464 for indoor use with a temperature range of 32°F to 120°F (0°C to 49°C) and maximum humidity of 93% (± 2%) UL 464 (85% UL 1971).
- Series Exceder horns are under UL Standard 464 for audible signal appliances (Indoor use only).

Low Current Draw = Fewer Power Supplies

Strobe Ratings per UL Standard 1971

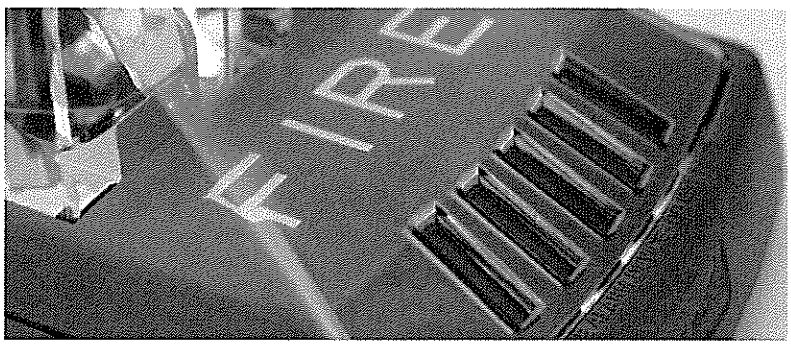
		UL Max Current*													
		24 VDC / 24 FWR												12 VDC	
Model	Regulated Voltage Range VDC	15	15/75	30	60	75	95	110	115	135	150	177	185	15	15/75
ST	8.0-33.0	0.057	0.070	0.085		0.135	0.163	0.182		0.205			0.253	0.110	0.140
STC	8.0-33.0	0.061		0.085	0.103	0.135	0.163		0.182		0.205	0.253		0.110	

Horn Strobe Ratings per UL 1971 & Anechoic at 24 VDC

		UL Max Current* at Anechoic 99 dBA													
		24 VDC												12 VDC	
Model	Regulated Voltage Range VDC	15	15/75	30	60	75	95	110	115	135	150	177	185	15	15/75
HS	8.0-33.0	0.082	0.095	0.102		0.148	0.176	0.197		0.242			0.282	0.125	0.159
HSC	8.0-33.0	0.082		0.102	0.141	0.148	0.176		0.197		0.242	0.282		0.125	
		UL Max Current* at Anechoic 95 dBA													
		24 VDC												12 VDC	
Model	Regulated Voltage Range VDC	15	15/75	30	60	75	95	110	115	135	150	177	185	15	15/75
HS	8.0-33.0	0.073	0.083	0.087		0.139	0.163	0.186		0.230			0.272	0.122	0.153
HSC	8.0-33.0	0.073		0.087	0.128	0.139	0.163		0.186		0.230	0.272		0.122	
		UL Max Current* at Anechoic 90 dBA													
		24 VDC												12 VDC	
Model	Regulated Voltage Range VDC	15	15/75	30	60	75	95	110	115	135	150	177	185	15	15/75
HS	8.0-33.0	0.065	0.075	0.084		0.136	0.157	0.184		0.226			0.267	0.120	0.148
HSC	8.0-33.0	0.065		0.084	0.120	0.136	0.157		0.184		0.226	0.267		0.120	

Horn Ratings per UL Anechoic

Model	Regulated Voltage Range VDC	99 dB	95 dB	90 dB
HN	16-33.0	0.064	0.044	0.022
HNC	16-33.0	0.084	0.044	0.022
HN	8.0-17.5	0.047	0.026	0.017
HNC	8.0-17.5	0.047	0.026	0.017



* UL max current rating is the maximum RMS current within the listed voltage range (16-33 VDC for 24 VDC units). For strobes the UL max current is usually at the minimum listed voltage (16 VDC for 24 VDC units). For audibles the max current is usually at the maximum listed voltage (33 VDC for 24 VDC units). For unfiltered ratings, see installation instructions.

Specification & Ordering Information

Easy to remember model codes

8 candelas on 1 device

1 gang, 2 gang, 4" sq, 3.5" octal & 4" octal boxes

Model	Strobe Candela	Sync w/ DSM or Wheelock Power Supplies	12/24 VDC*	Mounting Options
Horn Strobes				
HSR	15/1575/30/75/95/110/135/185	X	X	UMB**
HSW	15/1575/30/75/95/110/135/185	X	X	UMB**
HSRC	15/30/60/75/95/115/150/177	X	X	UMB**
HSWC	15/30/60/75/95/115/150/177	X	X	UMB**
Strobes				
STR	15/1575/30/75/95/110/135/185	X	X	UMB**
STW	15/1575/30/75/95/110/135/185	X	X	UMB**
STRC	15/30/60/75/95/115/150/177	X	X	UMB**
STWC	15/30/60/75/95/115/150/177	X	X	UMB**
Horn				
HNR		X	X	UMB**
HNW		X	X	UMB**
HNRC		X	X	UMB**
HNWC		X	X	UMB**

*12 VDC models feature 15 & 15/75 settings

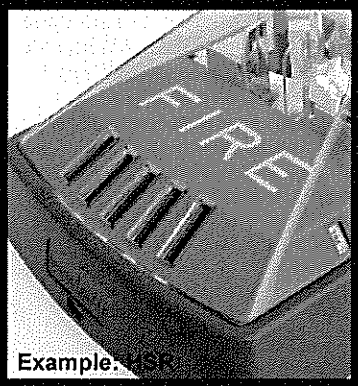
**UMB = Universal Mounting Base

Model Legend

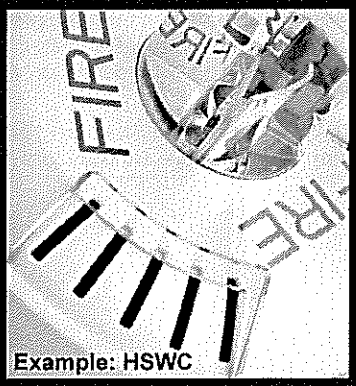
HN = Horn
ST = Strobe
HS = Horn Strobe
C = Ceiling Mount
W = White
R = Red

A = Agent Lettering (Strobes only)
AL = Alert Lettering (Strobes only)
N = No Lettering (Strobes only)

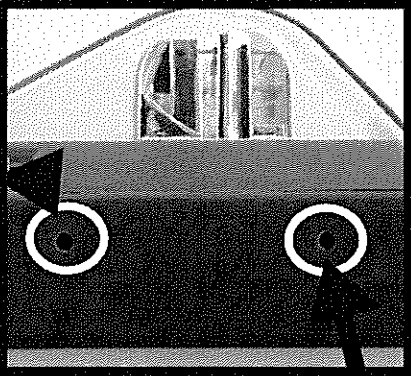
Example 1: STRC = Strobe, Red, Ceiling Mount
Example 2: HSR = Horn Strobe, Red, Wall Mount
Example 3: HSW = Horn Strobe, White, Wall Mount
Example 4: STW-AL = Strobe, White, Wall Mount, Alert Lettering



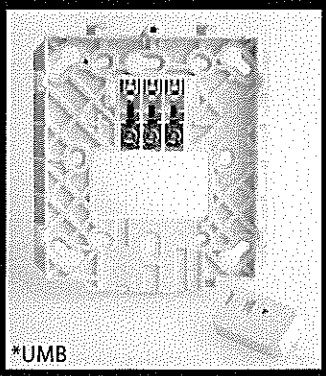
Example: HSR

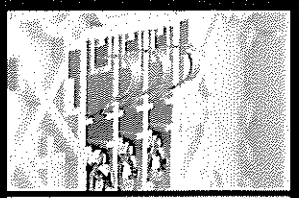


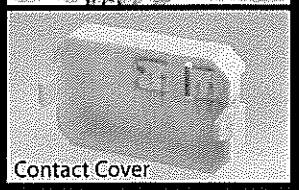
Example: HSWC


Voltage test points for quick troubleshooting and easy spot checking (wall models only)

8 candela settings


*UMB




Contact Cover

Common base for wall and ceiling with 5 mounting options

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

Architects and Engineers Specifications

The notification appliances shall be Wheelock® Exceder™ Series HS Audible Strobe appliances, Series ST Visual Strobe appliances and Series HN Audible appliances or approved equals. The Series HS and ST Strobes shall be listed for UL Standard 1971 (Emergency Devices for the Hearing-Impaired) for Indoor Fire Protection Service. The Series HS and HN Audibles shall be UL Listed under Standard 464 (Fire Protective Signaling). All Series shall meet the requirements of FCC Part 15 Class B. All inputs shall be compatible with standard reverse polarity supervision of circuit wiring by a Fire Alarm Control Panel (FACP) with the ability to operate from 8 to 33 VDC. Indoor wall models shall incorporate voltage test points for easy voltage inspection.

The Series HS Audible Strobe and ST Strobe appliances shall produce a flash rate of one (1) flash per second over the Regulated Voltage Range and shall incorporate a Xenon flashtube enclosed in a rugged Lexan® lens. The Series shall be of low current design. Where Multi-Candela appliances are specified, the strobe intensity shall have 8 field selectable settings at 15, 15/75, 30, 75, 95, 110, 135, 185 candela for wall mount and 15, 30, 60, 75, 95, 115, 150, 177 candela for ceiling mount. The selector switch for selecting the candela shall be tamper resistant. The 15/75 candela strobe shall be specified when 15 candela UL Standard 1971 Listing with 75 candela on-axis is required (e.g. ADA compliance). Appliances with candela settings shall show the candela selection in a visible location at all times when installed.

The audible shall have a minimum of three (3) field selectable settings for dBA levels and shall have a choice of continuous or temporal (Code 3) audible outputs.

The Series HS Audible Strobe, ST Strobe and Series HN Audible shall incorporate a patented Universal Mounting Base that shall allow mounting to a single-gang, double-gang, 4-inch square, 3.5-inch octal, 4-inch octal or 100mm European type back boxes. Two wire appliance wiring shall be capable of directly connecting to the mounting base. Continuity checking of the entire NAC circuit prior to attaching any notification appliances shall be allowed. Product shall come with Contact Cover to protect contact springs. Removal of an appliance shall result in a supervision fault condition by the Fire Alarm Control Panel (FACP). The mounting base shall be the same base among all horn, strobe, horn strobe, wall and ceiling models. All notification appliances shall be backwards compatible.

The Series HS and ST wall models shall have a low profile measuring 5.24" H x 4.58" W x 2.19" D. Series HN wall shall measure 5.24" H x 4.58" W x 1.6" D. The Series HSC and STC shall been round and have a low profile with a diameter of 6.68" x 2.63" D. Series HNC ceiling shall have a diameter of 6.68" x 1.50" D.

When synchronization is required, the appliance shall be compatible with Wheelock®'s DSM Sync Modules, Wheelock® Power Supplies or other manufacturer's panels with built-in Wheelock® Patented Sync Protocol. The strobes shall not drift out of synchronization at any time during operation. If the sync protocol fails to operate, the strobe shall revert to a non-synchronized flash-rate and still maintain (1) flash per second over its Regulated Voltage Range. The appliance shall also be designed so that the audible signal may be silenced while maintaining strobe activation when used with Wheelock® synchronization protocol.

Wall Appliances – UL Standard 1971, UL Standard 464, California State Fire Marshal (CSFM), ULC, FM
Ceiling Appliances – UL Standard 1971, UL Standard 464, California State Fire Marshal (CSFM), ULC, FM

NEMA Member

WE ENCOURAGE AND SUPPORT NICET CERTIFICATION
3 YEAR WARRANTY

Exceder - Spec Sheet 6/11

NJ Location
273 Branchport Ave.
Long Branch, NJ 07740
P: 800-631-2148
F: 732-222-8707
www.coopernotification.com

Cooper Notification is Wheelock® MEDC SAFEPATH WAVES Room Alert Secure

COOPER Notification

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7125-0785:0168

CATEGORY: 7125 -- FIRE ALARM DEVICES FOR THE HEARING IMPAIRED

LISTEE: Cooper Wheelock Inc.7246 16th St. E., Ste. 105, Sarasota, FL 34243
Contact: Tom Conover (941) 487-2336
Email: thomas.conover@cooperindustries.com

DESIGN: Exceder Series: Models ST strobe, HS horn strobe and HN horn. Model ST is a synchronous and non-synchronous strobe light. Model HS a visual/audible appliance and Model HN is an audible signal appliance. All units followed by R (red) or W (white). Additionally, a 'C' may be added for ceiling models and/or a '-NR' may be added for non-resettable models. For non -NR models and optional 'S' for silver fascia may be added*. Refer to listee's data sheet for additional detailed product description and operational considerations.

RATING: Electrical: 12 VDC/24VDC/FWR
Candela (wall)*: 15, 15/75, 30, 75, 95, 110, 135 & 185
Candela (ceiling)*: 15, 30, 60, 75, 95, 115, 150, & 177

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction. All models are for indoor use and for wall mount only or ceiling mount only*

MARKING: Listee's name, model number, electrical/candela rating, and UL label.

APPROVAL: Listed as horn for fire alarm signaling and strobe, horn/strobe for the hearing impaired when used with separately listed electrically compatible fire alarm control units. Refer to listee's Installation Instructions Manual for details.

*Rev. 9-24-09 fm

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

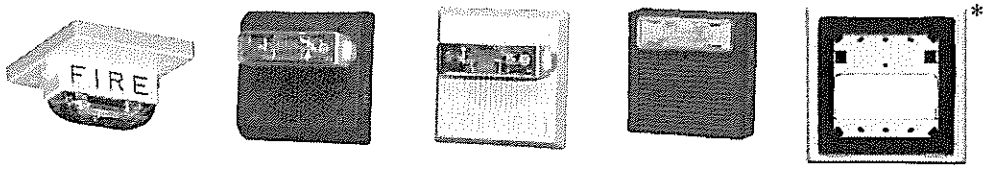
Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

COOPER Notification

Weatherproof Appliances - Series AH Audibles, AS Audible Strobes, MT Multitone Strobes, RSS Strobes and ET70 Speaker Strobes and Weatherproof Mounting Accessories



Description:

Designed for life safety, performance and reliability, Cooper Notification's Wheelock cost effective weatherpoof notification appliances include:

Weatherproof Appliances	Series
Strobes	RSSWP
Horn Strobes	ASWP
Horns	AH-24WP, AH-12WP
Multitone Horn Strobes	MTWP
Multitone Horns	MT
Speaker Strobes	ET70WP
Speakers	ET-1010

All strobe models are UL dual listed - meeting both UL1638 and UL1971 requirements. As dual listed appliances, these weatherproof strobes, horn strobes and speaker strobes are listed for outdoor applications under UL 1638 as well as under UL 1971, the Standard for Safety Signaling Devices for Hearing Impaired. With an extended temperature range of –31°F to 150°F (-35°C to 66°C), Wheelock weatherproof appliances meet or exceed UL outdoor test requirements for rain, humidity and corrosion resistance while providing multiple strobe intensity options, including the highest strobe ratings available for area coverage per NFPA 72 strobe spacing tables (up to 185 candela for wall mounting and 177 candela for ceiling mounting).

To enable weatherproof mounting, Cooper Notification provides the industry's widest choice of mounting options for surface or unique semi-flush installation. Models are available for surface mounting to Wheelock weatherproof backboxes on walls or ceilings. The optional WP-KIT allows the weatherproof backboxes (IOB, WPBB or WPSBB) to be mounted to a recessed electrical box for concealed conduit installation. For semi-flush installation, the WPA* and WFPA* kits allow a customer to mount the weatherproof appliances to a recessed electrical box without the need for an external weatherproof backbox. See the Backboxes, Plates and Gaskets Table on page three of this document for a summarization of these mounting options and the required accessories.

All models may be synchronized using the Wheelock DSM Sync Modules, Wheelock Power Supplies or other manufacturers panels incorporating the Wheelock Patented Sync Protocol. The horn output of horn strobes can be independently controlled on 2-wire circuits using the Wheelock patented sync protocol. MTWP horn strobe models are 4-wire appliances; the strobes can be synchronized while the audible can be connected to a coded fire alarm system or can be set to produce any of eight selectable tones.

Features:

- Approvals include: UL Standards 1971, 1638, 464 and 1480 California State Fire Marshal (CSFM), New York City (MEA), Factory Mutual (FM), Chicago (BFP) and ULC . See agency approvals by model number on page two of this document
- Compliance with the following requirements: NFPA, UFC, ANSI 117.1, OSHA Part 29, 1910.165, ADA
- Weatherproof with extended temperature range of –40°F to 150°F (-40°C to 66°C)*
- Dual Listed strobe models (UL 1638 and UL 1971)
- Industry's highest strobe candela options
- Synchronize using the Wheelock Sync Modules or panels with built-in Wheelock Patented Sync Protocol
- Models with field selectable tone, dBA and candela settings
- Wall or ceiling mounting options
- Surface of semi-flush mounting
- IN/OUT wiring termination accepting two #12-18 AWG wires at each terminal

The series RSSWP, ASWP, AH-24WP, MTWP-2475W, and MT-12/24 have UL / ULC approval down to -40°F. The ET-1010 and ET70WP have UL approval down to -40°F. The AH-12WP has UL approval down to -31°F.

E5946
S5391
S2652

MEA 151-92-E

7125-0785:131 (ASWP)
7125-0785:146 (ET70WP)
7125-0785:156 (MTWP)
7300-0785:154 (RSSWP)

FM APPROVED

NOTE: All CAUTIONS and WARNINGS are identified by the symbol ⚠. All warnings are printed in bold capital letters.

⚠ WARNING: PLEASE READ THESE SPECIFICATIONS AND ASSOCIATED INSTALLATION INSTRUCTIONS CAREFULLY BEFORE USING, SPECIFYING OR APPLYING THIS PRODUCT. VISIT WWW.COOPERNOTIFICATION.COM OR CONTACT COOPER WHEELOCK FOR THE CURRENT INSTALLATION INSTRUCTIONS. FAILURE TO COMPLY WITH ANY OF THESE INSTRUCTIONS, CAUTIONS OR WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE, AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

General Notes:

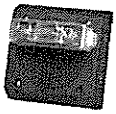
- Strobes are designed to flash at 1 flash per second minimum over their UL Listed Regulated Voltage Range.
- All candela ratings represent minimum effective Strobe intensity based on UL Standards 1971 and 1638 as indicated in candela ratings table.

Wall Mount

RSSWP

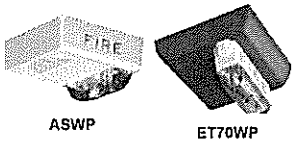
MTWP

ASWP


ET70WP

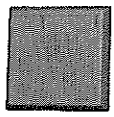
Ceiling Mount

RSSWP MTWP

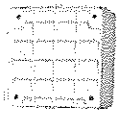


ASWP ET70WP

Wall or Ceiling Mount


MT

AH


ET-1010

Strobe		Order Code
RSSWP-2475W-FR	Red	9013
RSSWP-2475W-FW	White	3034
RSSWP-24MCWH-FR	Red	5161
RSSWP-24MCWH-FW	White	5165
Audible Strobe		
ASWP-2475W-FR	Red	9012
ASWP-24MCWH-FR	Red	5137
ASWP-24MCWH-FW	White	5140
Multi-tone Strobe		
MTWP-2475W-FR	Red	8420
MTWP-2475W-FW	White	3112
MTWP-24MCWH-FR	Red	5132
MTWP-24MCWH-FW	White	5134
Speaker Strobe		
ET70WP-2475W-FR	Red	9077
ET70WP-2475W-FW	White	3179
ET70WP-24185W-FR	Red	4885
ET70WP-24185W-FW	White	4891
ET70WP-24135W-FR	Red	4872
ET70WP-24135W-FW	White	4875

Strobe		Order Code
RSSWP-2475C-FR	Red	4338
RSSWP-2475C-FW	White	4446
RSSWP-24MCCH-FR	Red	5167
RSSWP-24MCCH-FW	White	5187
Audible Strobe		
ASWP-2475C-FR	Red	4251
ASWP-2475C-FW	White	4502
ASWP-24MCCH-FR	Red	5149
ASWP-24MCCH-FW	White	5157
Multi-tone Strobe		
MTWP-2475C-FR	Red	4457
MTWP-2475C-FW	White	4478
MTWP-24MCCH-FR	Red	5102
MTWP-24MCCH-FW	White	5122
Speaker Strobe		
ET70WP-2475C-FR	Red	4452
ET70WP-2475C-FW	White	4454
ET70WP-24177C-FR	Red	4845
ET70WP-24177C-FW	White	4859
ET70WP-24115C-FR	Red	4550
ET70WP-24115C-FW	White	4732

Audible		Order Code
AH-24WP-R	Red	7416
AH-12WP-R	Red	7415
Horn		
MT-12/24-R	Red	5023
Speaker		
ET-1010-R	Red	3135
ET-1010-W	White	3137

UL Max. Current	AH	
	24 VDC	12 VDC
High (99) dBA	0.080	0.192
Med (95) dBA	0.043	0.108
Low (90) dBA	0.021	0.058

UL Reverberant dBA @ 10 Feet							
Watts	1/8	1/4	1/2	1	2	4	8
ET-1010	77	80	83	86	87	92	94
ET70WP	78	81	84	87	90	93	95

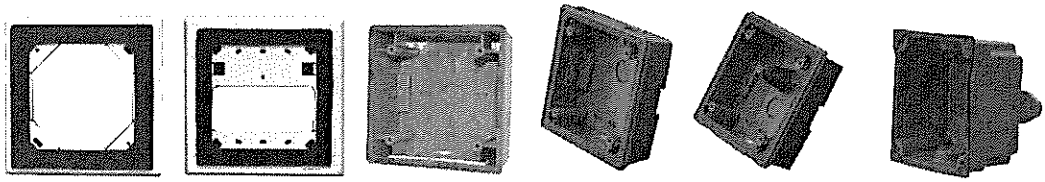
	Candela Ratings						
Series	UL 1971	UL 1638 @ 77°F	UL 1638 @ -40°F	RSS, ET70WP and MTWP UL Max Current (Strobe Only)	ASWP		
					High	Med	Low
2475	30**	180	115	0.138	0.168	0.155	0.150
MCWH	135	135	56	0.300	0.355	0.340	0.335
	185	185	77	0.420	0.480	0.465	0.460
MCCH	115	115	47	0.300	0.355	0.340	0.335
	177	177	73	0.420	0.480	0.465	0.460
24185	185	185	77	0.420			
24177	177	177	73	0.420			

**Wall mount rating only

UL Max. Current (Audible)	MTWP/MT 24 VDC		MT 12 VDC	
dBA	HI	STD	HI	STD
Horn	0.108	0.044	0.177	0.034
Bell	0.053	0.024	0.095	0.020
March Time	0.104	0.038	0.142	0.034
Code 3 Horn	0.091	0.035	0.142	0.034
Code 3 Tone	0.075	0.035	0.105	0.021
Slow Whoop	0.098	0.037	0.142	0.035
Siren	0.104	0.036	0.152	0.030
Hi/Lo	0.057	0.025	0.114	0.026

Model Number	**Agency Approvals**				
Strobe	**UL**	**MEA**	**CSFM**	**FM**	**BFP**
RSSWP-2475	X	X	X	X	-
RSSWP-24MCWH	X	-	X	-	-
RSSWP-24MCCH	X	-	X	-	-
Audible Strobe					
ASWP-2475	X	X	X	X	X
ASWP-MCWH	X	-	X	-	-
ASWP-MCCH	X	-	X	-	-
Multitone Strobe					
MTWP-2475	X	X	X	X	-
MTWP-MCWH	X	-	X	-	-
MTWP-MCCH	X	-	X	-	-
Horns/Audibles					
AH-24WP	X	X	X	X	X
AH-12WP	X	X	X	X	X
MT-12/24	X	X	X	X	X
Speaker Strobe					
ET70WP-2475	X	-	X	X	-
ET70WP-185	X	-	X	X	-
ET70WP-177	X	-	X	X	-
ET70WP-115	X	-	X	X	-
ET70WP-135	X	-	X	X	-

Mounting Accessories



WFP WFPA IOB WPSBB WPBB WBB

Gasket Kit		Order Code
WP-KIT		4486
Flush Plates		
WFPA-R	Red	4698
WFPA-W	White	4701
WFP-R	Red	4696
WFP-W	White	4697
Backboxes		
IOB-R*	Red	5046
IOB-W*	White	5047
WPSBB-R*	Red	9751
WPSBB-W*	White	3033
WPBB-R*	Red	9014
WPBB-W*	White	4692
WBB-R	Red	2959
WBB-W	White	2960

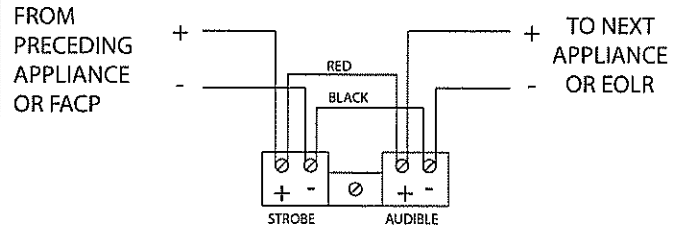
Mounting Options:

	Backboxes, Plates, Gasket Kits		
	Surface Mount		Flush Mount
	Exposed Conduit	Concealed Conduit	
RSSWP Strobes	WPSBB	WPSBB + WP-KIT	WFP
ET70WP Speaker Strobes	IOB	IOB + WP-KIT	WFP
ASWP Horn Strobes	WPBB	WPBB + WP-KIT	WFPA
AHWP Horns	WBB	-	WFP
ET-1010 Speakers	WBB	-	WFP
MTWP Multitone Horn Strobes	IOB	IOB + WP-KIT	WFP
Multitone Horn	IOB	IOB + WP-KIT	WFP

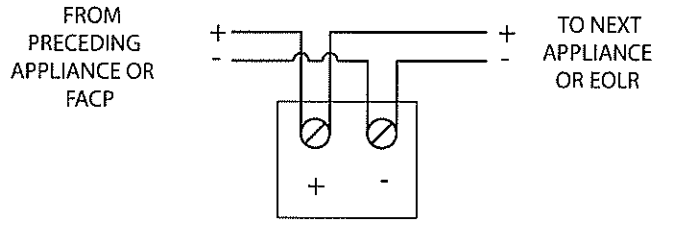
*IOB, WPSBB and WPBB models include weep holes and plug in the event that moisture may have entered the appliance

Wiring Diagrams

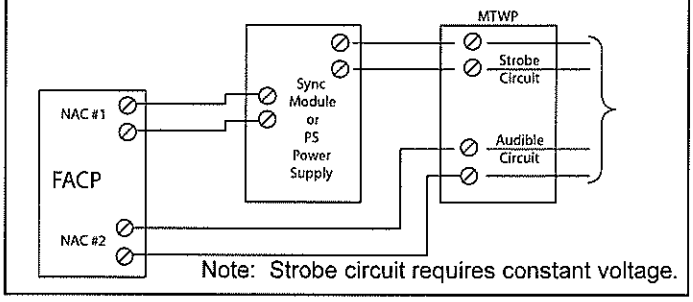
SERIES MTWP AUDIBLE APPLIANCE AND STROBE OPERATE IN UNISON. RED AND BLACK SHUNT-WIRES ARE SUPPLIED.



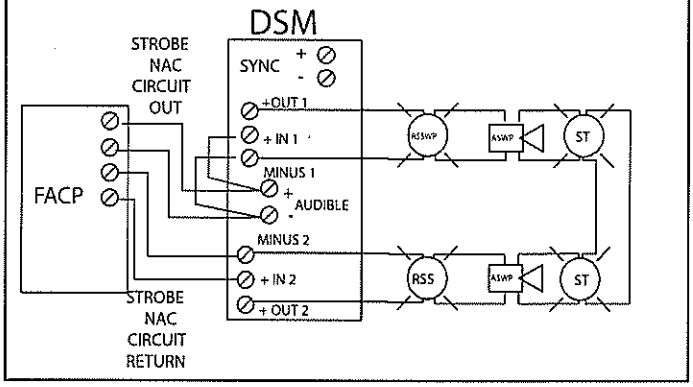
SERIES RSSWP, ASWP, AHWP, MTWP AND MT-12/24 APPLIANCES



SERIES MTWP APPLIANCES SYNCHRONIZED STROBE OPERATION WITH CODED FACP



SERIES RSSWP/ASWP APPLIANCES SYNCHRONIZED W/ DSM MODULE SINGLE CLASS "A" NAC CIRCUIT



Note: Models are available in Red or White. Contact Customer Service for Order Code and Delivery.
#Refer to Data Sheet S7000 for Mounting Options

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

ARCHITECTS AND ENGINEERS SPECIFICATIONS

General
Weatherproof notification appliances shall be UL listed for outdoor use. Weatherproof Strobe appliances shall be listed under UL Standard 1638 (Standard for Visual Signaling Appliances) for Indoor/Outdoor use and UL Standard 1971 (Standard for Safety Signaling Devices for Hearing Impaired). The appliances shall be available for optional wall mounting or ceiling mounting to weatherproof backboxes using either exposed conduit or concealed conduit, or semi-flush mounting to a recessed electrical box in walls or ceilings using Wheelock mounting accessories.

Weatherproof Strobes
Weatherproof Strobe appliances shall produce a minimum flash rate of 60 flashes per minute over the UL Regulated Voltage Range of 16 to 33 VDC and shall incorporate a Xenon flashtube. The weatherproof strobes shall be available with UL 1971 candela ratings up to 185 cd for wall mounting and 177 cd for ceiling mounting. UL 1638 candela ratings up to 180 cd at 77°F shall be available. The strobes shall operate over an extended temperature range of –40°F to 150°F (-40°C to 66°C) and be listed for maximum humidity of 95% RH. Strobe inputs shall be polarized for compatibility with standard reverse polarity supervision of circuit wiring by a Fire Alarm Control Panel (FACP).

Weatherproof Audibles and Audible/Strobe Combinations Weatherproof horns and multitone audibles shall be listed for Indoor/Outdoor use under UL Standard 464. The horns shall be able to produce a continuous output or a temporal code-3 output that can be synchronized. The horns shall have at least 3 sound level settings. Horn/Strobe combinations shall be able to be synchronized on a single NAC.

Multitone audibles shall be able to produce 8 distinct tones selectable by dip switch and shall have at least 2 sound level settings. Multitone Audible/Strobe combinations shall have independent inputs for the audible and strobe. The strobes shall be able to be synchronized. The audibles shall be able to be coded when operated on a separate NAC.

Weatherproof Speakers and Speaker/Strobes
Weatherproof speakers and speaker/strobes shall be listed for Indoor/Outdoor use under UL Standard 1480. All speakers shall provide field selectable taps for 1/8W to 8W operation for either 25 VRMS or 70 VRMS audio systems and shall incorporate a sealed back construction for extra protection and improved audibility. Speakers without strobes shall be Wheelock Series ET-1010. They shall be listed to produce up to 94 dBA and shall incorporate a vandal resistant grille design. Speaker with strobes shall be Wheelock Series ET70WP. They shall be available for surface or semi-flush mounting to walls or ceilings and shall be listed to produce up to 93 dBA.

Synchronization Modules
When synchronization of strobes or temporal code-3 audibles is required, the appliances shall be compatible with the Wheelock Series DSM Sync Modules, Wheelock Power Supplies or other manufacturers panels with built-in Wheelock Patented Sync Protocol. The strobes and audibles shall not drift out of synchronization at any time during operation.

Series ASWP audibles and strobes shall be able to be synchronized on a 2-wire circuit with the ability to silence the audible if required. The strobes on Series MT multitone audible/strobe appliances shall be able to be synchronized and shall be able to be operated on a separate circuit from the audibles while the audible circuit is connected to a coded or continuous NAC.

Weatherproof Mounting Accessories
Weatherproof mounting options shall include surface mounting or semi-flush mounting to walls or ceilings. Surface mounted appliances shall mount to Wheelock IOB, WBB, WPBB or WPSBB weatherproof backboxes using either exposed conduit or concealed conduit. For concealed conduit the weatherproof backbox shall be mounted to a recessed electrical box with Wheelock's WP-KIT to provide a weatherproof seal for the electrical box. Semi-flush mounted appliances shall mount to a recessed electrical box using Wheelock WFP or WFPA flush plates to provide a weatherproof seal between the electrical box and the appliance.

NEMA Member

WE ENCOURAGE AND SUPPORT NICET CERTIFICATION
3 YEAR WARRANTY

S9004 WP 06/11

NJ Location
273 Branchport Ave.
Long Branch, NJ 07740
P: 800-631-2148
F: 732-222-8707
www.coopernotification.com

Cooper Notification is Wheelock® MEDC SAFEPATH WAVES Room Sentry

COOPER Notification

CALIFORNIA DEPARTMENT OF FORESTRY & FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE ENGINEERING - BUILDING MATERIALS LISTING PROGRAM

LISTING SERVICE

LISTING No. 7125-0785:0131

CATEGORY: 7125 – FIRE ALARM DEVICES FOR THE HEARING IMPAIRED

LISTEE: Cooper Wheelock Inc.7246 16th St. E., Ste. 105, Sarasota, FL 34243
Contact: Tom Conover (941) 487-2336
Email: thomas.conover@cooperindustries.com

DESIGN: Models AS-1215, -2415, -1230, -2430, -121575, -241575, -2475 and -24110 audible/strobes for the hearing impaired followed by any three alpha/numeric characters indicating lens orientation, lettering and color.

Models AS-1215W, -2415W, -1230W, -2430W, -121575W, -241575W, -2475W and -24110W audible/strobes for the hearing impaired followed by any three alpha/numeric characters indicating lens orientation, lettering and color. These units with suffix -W are for wall mount only. *Models AS-121575W and AS-241575W lens color may be white, red, blue, green, or amber.

Models AS-2415C, -2430C, -2475C and -24100C audible/strobes for the hearing impaired followed by two alpha/numeric characters indicating lens lettering, orientation and color. These units are intended for ceiling mount only.

Model AH-12, -24, AH-12WP, -24WP audible appliances (no strobe), followed by an alpha or numeric character indicating product color.

Model AS-24MCW and AS-24MCC audible/strobe, followed by any two alpha or numeric character indicating lettering and product color. *Lens color may be white, red, blue, green, or amber.

Models ASWP-2475W and *ASWP-2475C audible/strobe with integral private mode fire/emergency visual signaling for non-hearing impaired applications. Lens color may be white, red, blue, green, and amber. Both models are suitable for outdoor use when mounted on the Model WPBB back box.

Models AS-24MCWH, AS-24MCCH, *ASWP-24MCWH, and *ASWP-24MCCH audible/strobes for the hearing impaired followed by two alpha/numeric characters indicating lens lettering and product color. Units with suffix CH are for ceiling mount only. Units with suffix WH are for wall mount only. *Lens color may be white, red, blue, green, or amber.

Refer to the listee's data sheet for detailed product description and operational considerations.

*Rev. 10-01-07

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

RATING: Electrical: 8-17.5/16-33 VDC/VFWR
Flash Rate: 60 flashes/minute
Candela: 15:15cd,1575:15/75cd,30:30cd,75:75cd,95:95cd,100:100cd, 110:110cd
MCW: Selectable 15cd, 30cd, 75cd, 110cd
MCC: Selectable 15cd, 30cd,75cd,95cd
MCWH: Selectable 135cd,185cd (65cd, 90cd at -40 C)
MCCH: Selectable 115cd,177cd (50cd, 75cd at -40 C)

INSTALLATION: In accordance with listee's printed installation instructions, applicable codes and ordinances and in a manner acceptable to the authority having jurisdiction. Models ASWP-2475W, ASWP-24MCWH, AS-24MCW and AS-24MCWH are for wall mount only. Models ASWP-2475C, ASWP-24MCCH, AS-24MCCH, AND AS-24MCC are for ceiling mount only. Models with suffix -W or WH are for wall mount only. Models with suffix -C or -CH are for ceiling mount only.

MARKING: Listee's name, model number, electrical/candela rating, and UL label.

APPROVAL: Listed as audible and audible/visual signaling devices suitable for the hearing impaired when used in conjunction with separately listed electrically compatible fire alarm control units. For indoor use only except Models AH-12WP, AH-24WP, *ASWP-2475W, ASWP-2475C, ASWP-24MCWH, and ASWP-24MCCH audible appliances are suitable for indoor/outdoor. For synchronization, Models AS Series must be used with Model SM-12/24, SMX-12/24, DSM-12/24 or DSMX-12/24 sync control module (CSFM Listing No. 7300-0785:132). Refer to listee's Installation Instruction Manual for details.
These appliances can generate a distinctive three-pulse Temporal Pattern Fire Alarm Evacuation Signal (for total evacuation) in accordance with NFPA 72, 2002 Edition.

NOTE: Models AH-12, AH-24, -12WP and -24WP audible devices are not suitable for the hearing impaired applications.

*Rev. 10-01-07

This listing is based upon technical data submitted by the applicant. CSFM Fire Engineering staff has reviewed the test results and/or other data but does not make an independent verification of any claims. This listing is not an endorsement or recommendation of the item listed. This listing should not be used to verify correct operational requirements or installation criteria. Refer to listee's data sheet, installation instructions and/or other

Date Issued: **July 01, 2012** *Listing Expires* **June 30, 2013**

Authorized By: ***JASON DEWITT**, Deputy State Fire Marshal*

Fire Engineering Division

GENERAL NOTES

1. EXISTING EQUIPMENT, INDICATED AS SHADED, IS SHOWN FOR INFORMATIONAL PURPOSE ONLY. ASSUME EXISITING EQUIPMENT IS NOT BEING MODIFIED UNLESS SPECIFICALLY INDICATED ON THE PLANS.
2. UNLESS OTHERWISE INDICATED, RECEPTACLES AND JUNCTION BOXES SHALL BE CONNECTED TO THE CIRCUIT INDICATED USING 1/2" C-2#12,1#12G.
3. MAINTAIN A MINIMUM 30"W x 36"D CLEAR SPACE IN FRONT OF ALL ELECTRICAL DISCONNECTS AND PANELS PER THE CEC.
4. MAINTAIN WORKING SPACE AND 6'-6" HEAD ROOM IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH CEC.

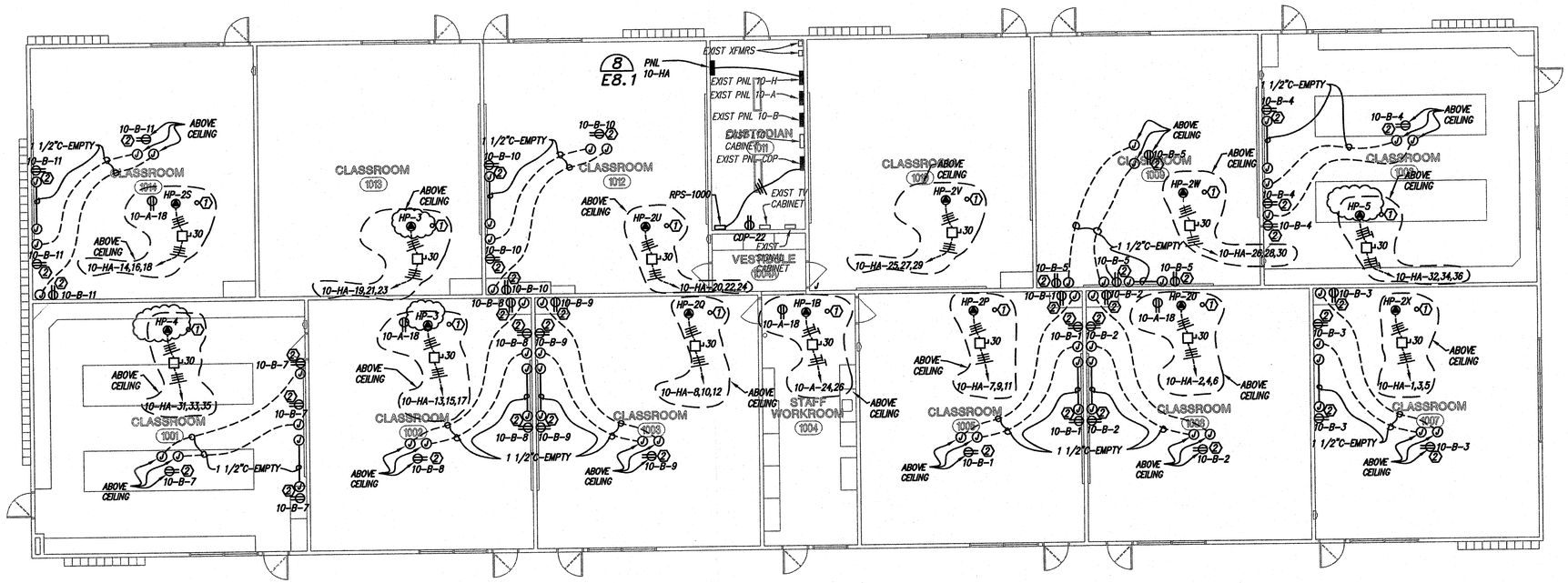
KEYNOTES

(1) PROVIDE AND INSTALL INCANDESCENT LIGHT FIXTURE WITH PULL CHAIN ADJACENT TO HVAC UNIT. CONNECT LIGHT FIXTURE TO THE SAME CIRCUIT AS THE NEAREST RECEPTACLE USING 1/2"C-2#12,1#12G.

(2) COORDINATE FINAL LOCATION OF RECEPTACLE WITH ACTIVCLASSROOM EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.

ADD #4

APPROVED
DIV. OF THE STATE ARCHITECT
SACRAMENTO REGIONAL OFFICE
AC ___ F/LS E.V. SS 100
APP. # 02-109217 DATE 5-8-2013



POWER PLAN - BUILDING 1000

1/8"=1'-0"

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REDDING, CALIFORNIA

LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER ROBERT A. ROSSETTO No. E 017988 ELECTRICAL STATE OF CALIFORNIA
4/9/13

PROJECT NAME
A MODERNIZATION FOR
WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE
POWER PLAN 1000

DRAWING STATUS
CONSTRUCTION SET

REVISIONS

Sym.	Description	By	Date

Drawn By	GG
Checked By	TB
Date Drawn	4/9/13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.

E2.1R-1000

Login Name: ggonzales
Plot Date: April 09, 2013 - 9:57 pm
File Name: M:\Jobs\12-2596.00 West Valley Modernization\Revised Sheets\1000 E2.1dwg
XREFs: A-ADD1-TITLE | A-ADD1-1000-Floor-N1 | A-ADD1-X-1000floor 1 x_Title - D

GENERAL NOTES

1. EXISTING EQUIPMENT, INDICATED AS SHADED, IS SHOWN FOR INFORMATIONAL PURPOSE ONLY. ASSUME EXISITING EQUIPMENT IS NOT BEING MODIFIED UNLESS SPECIFICALLY INDICATED ON THE PLANS.
2. UNLESS OTHERWISE INDICATED, RECEPTACLES AND JUNCTION BOXES SHALL BE CONNECTED TO THE CIRCUIT INDICATED USING 1/2" C-2#12,1#12G.
3. MAINTAIN A MINIMUM 30"W x 36"D CLEAR SPACE IN FRONT OF ALL ELECTRICAL DISCONNECTS AND PANELS PER THE CEC.
4. MAINTAIN WORKING SPACE AND 6'-6" HEAD ROOM IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH CEC.

KEYNOTES

(1) PROVIDE AND INSTALL INCANDESCENT LIGHT FIXTURE WITH PULL CHAIN ADJACENT TO HVAC UNIT. CONNECT LIGHT FIXTURE TO THE SAME CIRCUIT AS THE NEAREST RECEPTACLE USING 1/2"C-2#12,1#12G.

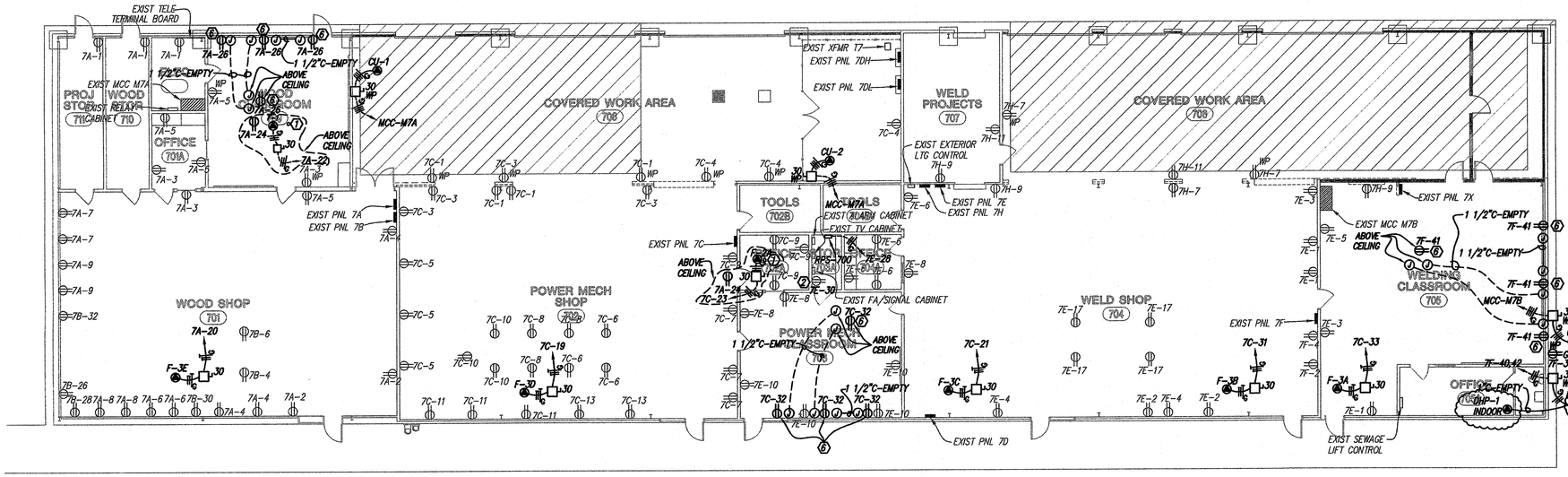
(2) DISCONNECT AND REMOVE EXIST CONDUCTORS CONNECTED TO RECEPTACLE. PROVIDE AND INSTALL NEW CONDUCTORS IN EXIST CONDUIT FROM RECEPTACLE TO THE CIRCUIT INDICATED.

(3) AFTER REMOVAL OF EXISTING HVAC UNIT, DISCONNECT AND REMOVE EXIST CONDUCTORS CONNECTED TO CIRCUIT BREAKER. LABEL CIRCUIT BREAKER AS "SPARE".

(4) DISCONNECT AND REMOVE EXISTING BREAKER AND CONDUCTORS CONNECTED TO THE UNIT VENTILATOR. DISCONNECT AND REMOVE EXISTING SELECTOR SWITCHES AND INDICATING LIGHTS ON THE FRONT OF THE PANEL. PROVIDE AND INSTALL NEW CIRCUIT BREAKER AS SHOWN, MAKING THE NECESSARY MODIFICATIONS TO FACILITATE INSTALLATION.

(5) PROVIDE AND INSTALL FULLY RATED CIRCUIT BREAKER AS FOLLOWS: 480V, 15A, 3-POLE, 22,000 AIC.

(6) COORDINATE FINAL LOCATION OF RECEPTACLE WITH ACTIVCLASSROOM EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.



POWER PLAN - BUILDING 700

3/32"=1'-0"

EC-1	SPACE
EC-2	AIR COMPRESSOR
CU-1 (4)(5)	EF-1
CU-2 (4)(5)	SC-1
FC-1 (3)	EC-4
SPACE	EC-3

EXIST MCC-M7A ELEVATION
NTS

SPACE	EC-7
SPACE	EC-6
EF-4	EC-5
EF-3	UV-4 (3)
EF-2	CU-3A (4)(5)
SC-2	SPACE

EXIST MCC-M7B ELEVATION
NTS

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SACRAMENTO REGIONAL OFFICE
AC ___ F/LS EV. SS 10D
APP. # 02-109217 DATE 5-8-2013

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LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER No. E 017988 ELECTRICAL STATE OF CALIFORNIA 4/9/13

PROJECT NAME
A MODERNIZATION FOR
WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE
POWER PLAN 700

DRAWING STATUS
CONSTRUCTION SET

REVISIONS

Sym.	Description	By	Date

Drawn By	GG
Checked By	TB
Date Drawn	4/9/13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.
E2.1R-700

Login Name: jgonsalves
Plot Date: April 09, 2013 - 1:40 pm
File Name: M:\Land Projects\0404.60 West Valley Modernization\Revised Sheets\700 E2.1.dwg
XREFS: AN201-X-TITLE | AN201-X-700floor 1 x_Title - D

GENERAL NOTES

1. EXISTING EQUIPMENT, INDICATED AS SHADED, IS SHOWN FOR INFORMATIONAL PURPOSE ONLY. ASSUME EXISITING EQUIPMENT IS NOT BEING MODIFIED UNLESS SPECIFICALLY INDICATED ON THE PLANS.
2. UNLESS OTHERWISE INDICATED, RECEPTACLES AND JUNCTION BOXES SHALL BE CONNECTED TO THE CIRCUIT INDICATED USING 1/2" C-2#12,1#12G.
3. MAINTAIN A MINIMUM 30"W x 36"D CLEAR SPACE IN FRONT OF ALL ELECTRICAL DISCONNECTS AND PANELS PER THE CEC.
4. MAINTAIN WORKING SPACE AND 6'-6" HEAD ROOM IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH CEC.

KEYNOTES

1. PROVIDE AND INSTALL INCANDESCENT LIGHT FIXTURE WITH PULL CHAIN ADJACENT TO HVAC UNIT. CONNECT LIGHT FIXTURE TO THE SAME CIRCUIT AS THE NEAREST RECEPTACLE USING 1/2"C-2#12,1#12G.
2. NOT USED.
3. PROVIDE AND INSTALL DUAL CHANNEL SURFACE RACEWAY AT 15" AFF. LOCATE POWER AND DATA RECEPTACLES IN THE LOCATIONS INDICATED. COORDINATE DATA CONNECTIONS WITH SHEET T2.1-600.
4. PROVIDE AND INSTALL SEPARATE JUNCTION BOXES FOR SURFACE RACEWAY POWER AND DATA. SIZE JUNCTION BOX AS NECESSARY, MINIMUM OF 4"x4"x2". CONNECT J-BOX TO SURFACE RACEWAY AS REQUIRED. COORDINATE DATA CONNECTIONS WITH SHEET T2.1-600.
5. CONNECT RECEPTACLE TO THE CIRCUITS INDICATED USING 3/4"C-2#10,1#10G.
6. RECEPTACLE CONFIGURATION SHALL BE NEMA L6-30P.
7. DISCONNECT AND REMOVE EXIST BREAKER AND CONDUCTORS CONNECTED TO THE FAN COILS. DISCONNECT AND REMOVE EXISTING SELECTOR SWITCHES AND INDICATING LIGHTS ON THE FRONT OF THE PANEL. PROVIDE AND INSTALL NEW CIRCUIT BREAKER AS SHOWN, MAKING THE NECESSARY MODIFICATIONS TO MCC TO FACILITATE INSTALLATION.
8. PROVIDE AND INSTALL NEW CIRCUIT BREAKER IN EXIST SPACE. MAKE MODIFICATIONS TO MCC AS NECESSARY TO FACILITATE INSTALLATION.
9. PROVIDE AND INSTALL FULLY RATED CIRCUIT BREAKER AS FOLLOWS: 480V, 15A, 3-POLE, 22,000 AIC.
10. PROVIDE AND INSTALL FULLY RATED CIRCUIT BREAKER AS FOLLOWS: 480V, 20A, 3-POLE, 22,000 AIC.
11. NOT USED.
12. DISCONNECT AND REMOVE EXIST CONDUCTORS FROM PANEL 6H TO MCC-M6 AND ABANDON CONDUIT. PROVIDE AND INSTALL NEW CONDUIT/CONDUCTORS AS SHOWN.
13. COORDINATE FINAL LOCATION OF RECEPTACLE WITH ACTIVCLASSROOM EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.

ADD #9

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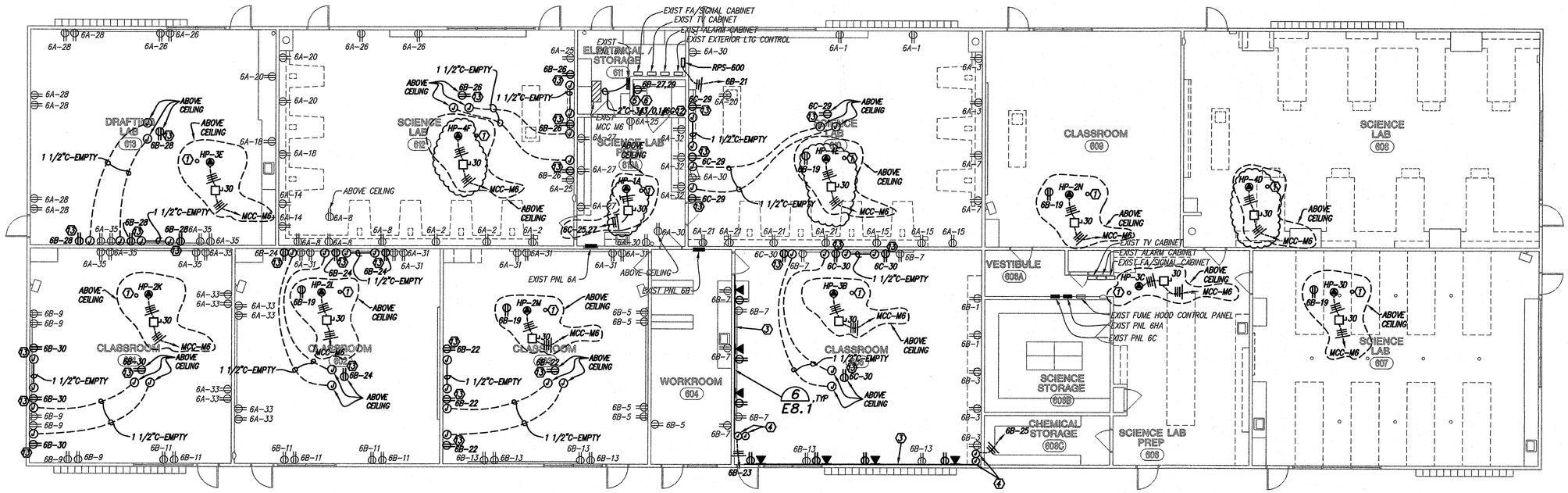
SACRAMENTO REGIONAL OFFICE
AC — F/LS EV. GS KDS
APP. #02-109217 DATE 5-8-2013



POWER PLAN - BUILDING 600

1/8"=1'-0"

SPACE	HP-3C
	7 10
HP-2K	HP-3D
7 9	7 10
HP-2L	HP-3E
7 9	8 10
HP-2M	HP-4D
7 9	8 10
HP-2N	HP-4E
7 9	8 10
HP-3B	HP-4F
7 10	8 10

EXIST MCC-M6 ELEVATION
NTS

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No. E 017988
ELECTRICAL
STATE OF CALIFORNIA
4/9/13

PROJECT NAME

A MODERNIZATION FOR

WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE
POWER PLAN 600

DRAWING STATUS
CONSTRUCTION SET

REVISIONS

Sym.	Description	By	Date

Drawn By	GG
Checked By	TB
Date Drawn	4/9/13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.

E2.1R-600

Login Name: cpcraise
Plot Date: April 09, 2013 - 1:46 pm
File Name: M:\Projects\12.2596.00 West Valley Modernization\Revised Sheets\600 E2.1dwg
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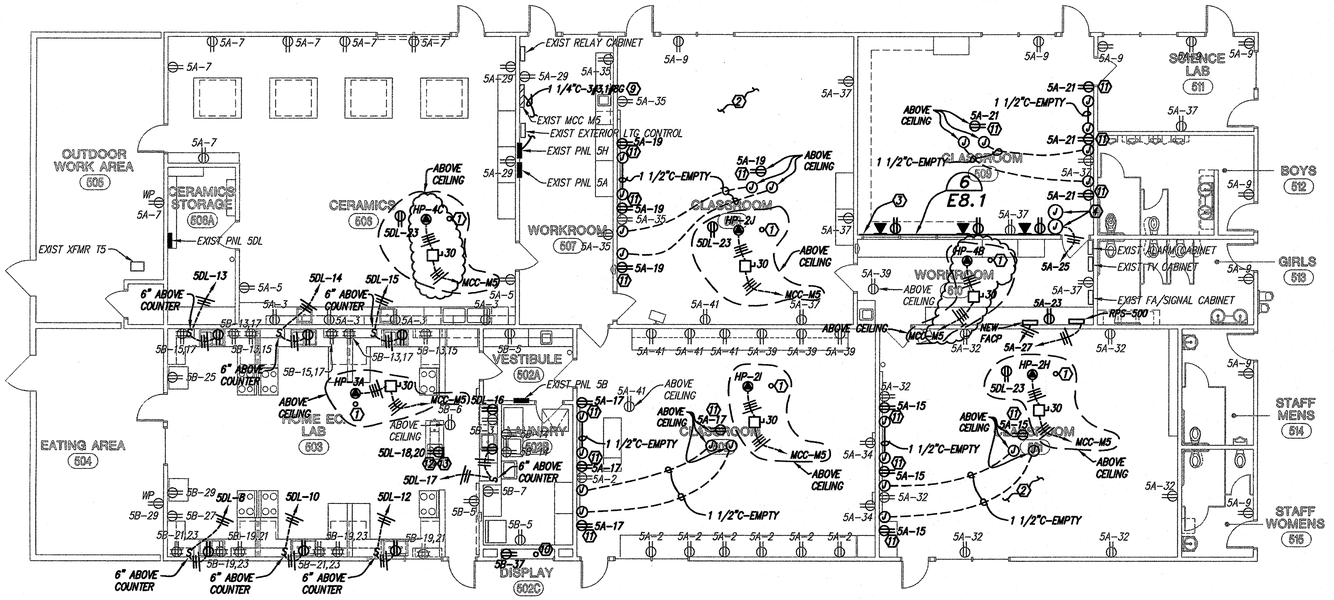


POWER PLAN - BUILDING 500

1/8"=1'-0"

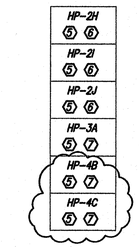
GENERAL NOTES

1. EXISTING EQUIPMENT, INDICATED AS SHADED, IS SHOWN FOR INFORMATIONAL PURPOSE ONLY. ASSUME EXISITING EQUIPMENT IS NOT BEING MODIFIED UNLESS SPECIFICALLY INDICATED ON THE PLANS.
2. UNLESS OTHERWISE INDICATED, RECEPTACLES AND JUNCTION BOXES SHALL BE CONNECTED TO THE CIRCUIT INDICATED USING 1/2" C-2#12,1#12G.
3. MAINTAIN A MINIMUM 30"W x 36"D CLEAR SPACE IN FRONT OF ALL ELECTRICAL DISCONNECTS AND PANELS PER THE CEC.
4. MAINTAIN WORKING SPACE AND 6'-6" HEAD ROOM IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH CEC.

KEYNOTES

1. PROVIDE AND INSTALL INCANDESCENT LIGHT FIXTURE WITH PULL CHAIN ADJACENT TO HVAC UNIT. CONNECT LIGHT FIXTURE TO THE SAME CIRCUIT AS THE NEAREST RECEPTACLE USING 1/2"C-2#12,1#12G.
2. PROVIDE AND INSTALL NEW COVER PLATES ON EXIST FLOOR RECEPTACLES WITHIN THE CLASSROOM. SEE ARCHITECTURAL SHEET FOR RECEPTACLE LOCATIONS AND QUANTITIES.
3. PROVIDE AND INSTALL DUAL CHANNEL SURFACE RACEWAY AT 15" AFF. LOCATE POWER AND DATA RECEPTACLES IN THE LOCATIONS INDICATED. COORDINATE DATA CONNECTIONS WITH SHEET T2.1–500.
4. PROVIDE AND INSTALL SEPARATE JUNCTION BOXES FOR SURFACE RACEWAY POWER AND DATA. SIZE JUNCTION BOXES AS NECESSARY, MINIMUM OF 4"x4"x2". CONNECT J-BOX TO SURFACE RACEWAY AS REQUIRED. COORDINATE DATA CONNECTIONS WITH SHEET T2.1–500.
5. DISCONNECT AND REMOVE EXIST CIRCUIT BREAKER AND CONDUCTORS FEEDING THE FAN COILS. DISCONNECT AND REMOVE EXISTING SELECTOR SWITCHES ON THE FRONT OF THE PANEL. PROVIDE AND INSTALL NEW CIRCUIT BREAKER AS SHOWN, MAKING THE NECESSARY MODIFICATIONS TO MCC TO FACILITATE INSTALLATION.
6. PROVIDE AND INSTALL FULLY RATED CIRCUIT BREAKER AS FOLLOWS: 480V, 15A, 3–POLE, 22,000 AIC.
7. PROVIDE AND INSTALL FULLY RATED CIRCUIT BREAKER AS FOLLOWS: 480V, 20A, 3–POLE, 22,000 AIC.
8. NOT USED.
9. DISCONNECT AND REMOVE EXIST CONDUCTORS FROM PNL 5H TO MCC–M5 AND ABANDON CONDUIT. PROVIDE AND INSTALL NEW CONDUIT/CONDUCTORS AS SHOWN.
10. VERIFY EXISTING DISPLAY LIGHT FIXTURE TYPE AND REPLACE IT WITH NEW. USE EXISTING CONDUIT/CONDUCTORS TO CONNECT TO EXISTING CIRCUIT.
11. COORDINATE FINAL LOCATION OF RECEPTACLE WITH ACTIVCLASSROOM EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.
12. COORDINATE RECEPTACLE CONFIGURATION WITH EQUIPMENT CORD PRIOR TO INSTALLATION.
13. AFTER THE REMOVAL OF THE EXISTING COOKTOP, DISCONNECT AND REMOVE RECEPTACLE AND CONDUCTORS. PROVIDE AND INSTALL NEW RECEPTACLE AND CONNECT TO THE CIRCUIT INDICATED USING 2#10,1#10G. UTILIZE EXISTING CONDUIT TO THE CEILING SPACE AND REDIRECT TO PANEL 5DL.

ADD #1



EXIST MCC–M5 ELEVATION
NTS

APPROVED
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SACRAMENTO REGIONAL OFFICE
AC ✓ F/LS EV. SS 10/3
APP. # 02-109217 DATE 5-8-2013

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REGISTERED PROFESSIONAL ENGINEER
ANTHONY A. BARBER
No. E 017988
ELECTRICAL
STATE OF CALIFORNIA
4/9/13

PROJECT NAME

A MODERNIZATION FOR

WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE
POWER PLAN 500

DRAWING STATUS
CONSTRUCTION SET

REVISIONS

Sym.	Description	By	Date

Drawn By	GG
Checked By	TB
Date Drawn	4/9/13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.

E2.1R-500

Login Name: ggonzalez
Plot Date/Time: 4/8/2013 - 1:49 pm
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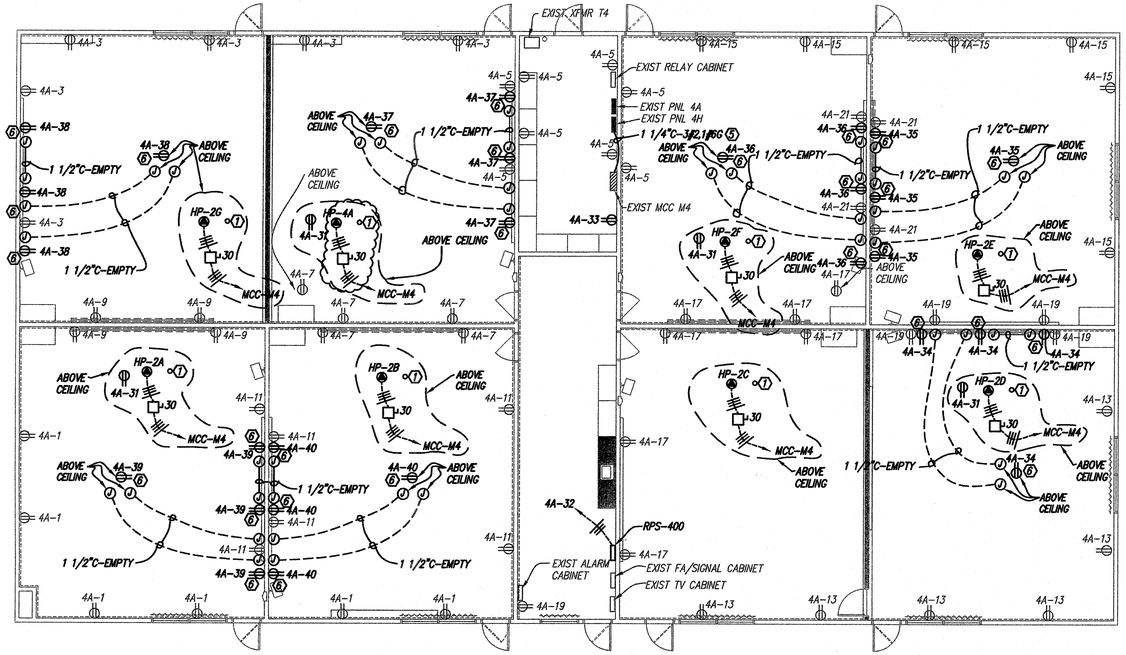

POWER PLAN - BUILDING 400

1/8"=1'-0"

GENERAL NOTES

1. EXISTING EQUIPMENT, INDICATED AS SHADED, IS SHOWN FOR INFORMATIONAL PURPOSE ONLY. ASSUME EXISTING EQUIPMENT IS NOT BEING MODIFIED UNLESS SPECIFICALLY INDICATED ON THE PLANS.
2. UNLESS OTHERWISE INDICATED, RECEPTACLES AND JUNCTION BOXES SHALL BE CONNECTED TO THE CIRCUIT INDICATED USING 1/2" C-2#12,1#12G.
3. MAINTAIN A MINIMUM 30"W x 36"D CLEAR SPACE IN FRONT OF ALL ELECTRICAL DISCONNECTS AND PANELS PER THE CEC.
4. MAINTAIN WORKING SPACE AND 6'-6" HEAD ROOM IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE WITH CEC.

KEYNOTES

1. PROVIDE AND INSTALL INCANDESCENT LIGHT FIXTURE WITH PULL CHAIN ADJACENT TO HVAC UNIT. CONNECT LIGHT FIXTURE TO THE SAME CIRCUIT AS THE NEAREST RECEPTACLE USING 1/2"C-2#12,1#12G.
2. DISCONNECT AND REMOVE EXIST CIRCUIT BREAKER AND CONDUCTORS FEEDING THE FAN COILS. DISCONNECT AND REMOVE EXISTING SELECTOR SWITCHES AND LIGHTS ON THE FRONT AT THE PANEL. PROVIDE AND INSTALL NEW CIRCUIT BREAKER AS SHOWN, MAKING THE NECESSARY MODIFICATIONS TO MCC TO FACILITATE INSTALLATION.
3. PROVIDE AND INSTALL FULLY RATED CIRCUIT BREAKER AS FOLLOWS: 480V, 15A, 3-POLE, 22,000 AIC.
4. PROVIDE AND INSTALL FULLY RATED CIRCUIT BREAKER AS FOLLOWS: 480V, 20A, 3-POLE, 22,000 AIC.
5. DISCONNECT AND REMOVE EXIST CONDUCTORS FROM PNL 4H TO MCC-M4 AND ABANDON CONDUIT. PROVIDE AND INSTALL NEW CONDUIT/CONDUCTORS AS SHOWN.
6. COORDINATE FINAL LOCATION OF RECEPTACLE WITH ACTIVCLASSROOM EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.

ADD #4

APPROVED
DIV. OF THE STATE ARCHITECT
SACRAMENTO REGIONAL OFFICE
AC ✓ F/LS E.V. SS JOD
APP. #02-109217 DATE 5-18-2013

SPACE	HP-2F ②③
HP-2A ②③	HP-2G ②③
HP-2B ②③	HP-4A ②④
HP-2C ②③	SPACE
HP-2D ②③	SPACE
HP-2E ②③	SPACE

EXIST MCC-M4 ELEVATION
NTS

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PACE ENGINEERING
REDDING, CALIFORNIA

LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER ROBERT A. PACE No. E 017988 ELECTRICAL STATE OF CALIFORNIA
4/9/13

PROJECT NAME

A MODERNIZATION FOR WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE
POWER PLAN 400

DRAWING STATUS
CONSTRUCTION SET

REVISIONS

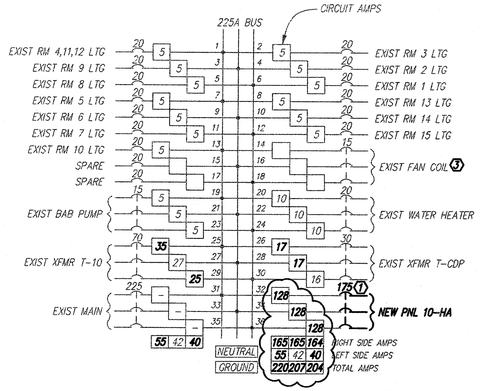
Sym.	Description	By	Date

Drawn By	GG
Checked By	TB
Date Drawn	4/9/13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.

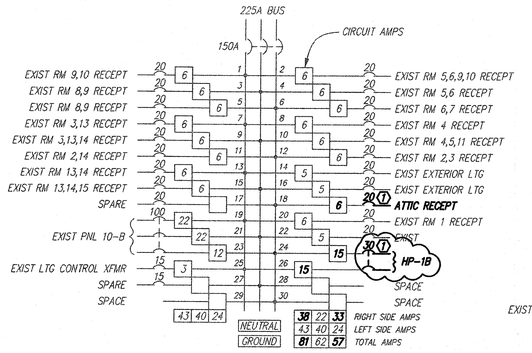
E2.1R-400

Login Name: ggonzales
Plot Date: April 09, 2013 - 1:44 pm
File Name: M:\Projects\2012\12.2596.00 West Valley Modernization\Revised Sheets\400 E2.1dwg
XREFS: AN001-XTITLE / AN001-400-Floor 1-_Title - D



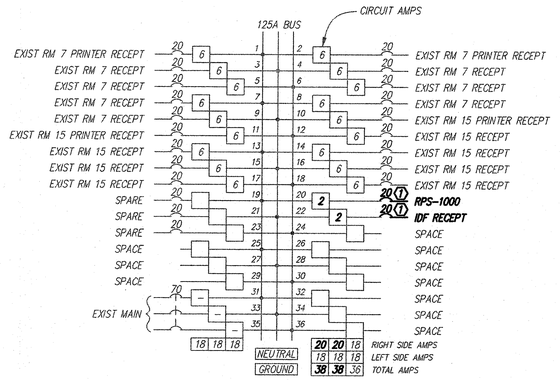
EXIST PANEL 10-H

VOLTAGE: 277/480V
LOCATION: CUSTODIAN - BLDG 1000
MOUNTING: SURFACE
AMPS IC: 22,000



EXIST PANEL 10-A

VOLTAGE: 120/208V
LOCATION: CUSTODIAN - BLDG 1000
MOUNTING: SURFACE
AMPS IC: 22,000



EXIST PANEL CDP

VOLTAGE: 120/208V
LOCATION: CUSTODIAN - BLDG 1000
MOUNTING: SURFACE
AMPS IC: 22,000

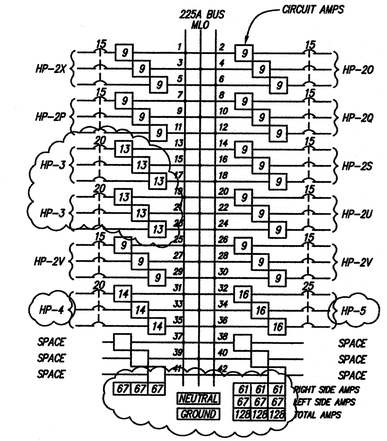
GENERAL NOTES

1. EXISTING EQUIPMENT, INDICATED AS SHADED, IS SHOWN FOR INFORMATIONAL PURPOSE ONLY. ASSUME EXISTING EQUIPMENT IS NOT BEING MODIFIED UNLESS SPECIFICALLY INDICATED ON THE PLANS.

KEYNOTES

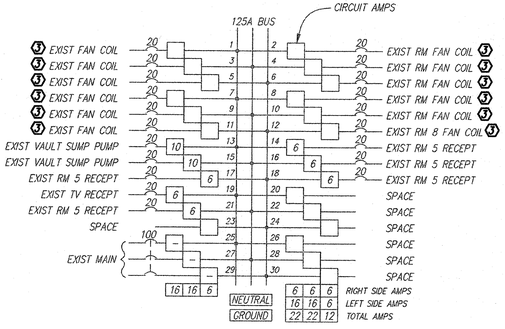
1. MAKE MODIFICATIONS TO EXISTING PANEL AS NECESSARY TO INSTALL NEW CIRCUIT BREAKER IN EXISTING SPACE. CONNECT TO NEW LOAD AS INDICATED.
2. MAKE MODIFICATIONS TO PANEL AS NECESSARY TO CONNECT NEW CONDUCTORS TO EXISTING SPARE CIRCUIT BREAKER.
3. AFTER REMOVAL OF EXISTING FAN COIL, DISCONNECT AND REMOVE EXIST CONDUCTORS CONNECTED TO CIRCUIT BREAKER AND LABEL "SPARE".

ADD #4
APPROVED
DIV. OF THE STATE ARCHITECT
SACRAMENTO REGIONAL OFFICE
AC ___ F/LS E.V. SS 10/1
APP. # 02-109217 DATE 5-8-2013



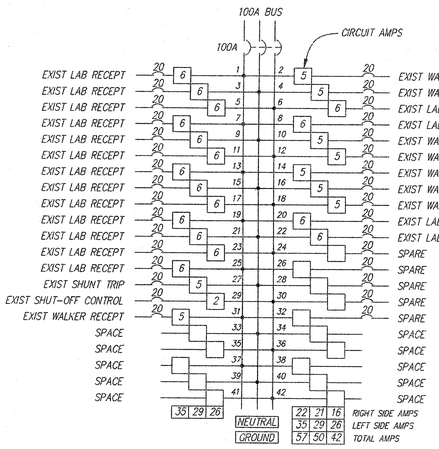
PANEL 10-HA

VOLTAGE: 480V
LOCATION: CUSTODIAN - BLDG 1000
MOUNTING: SURFACE
AMPS IC: 22,000



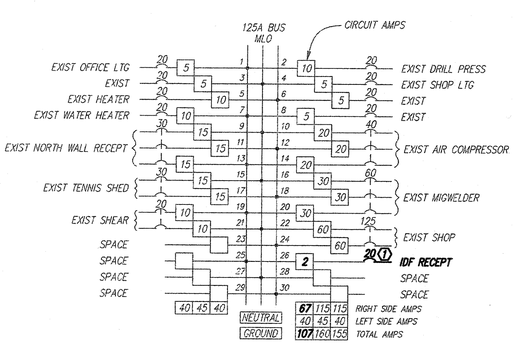
EXIST PANEL 10-B

VOLTAGE: 120/208V
LOCATION: CUSTODIAN - BLDG 1000
MOUNTING: SURFACE
AMPS IC: 22,000



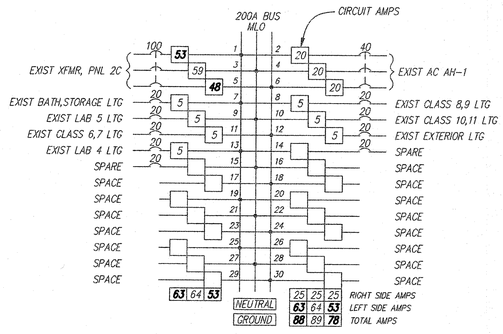
EXIST PANEL 2c1

VOLTAGE: 120/208V
LOCATION: RM 1201 - BLDG 1200
MOUNTING: RECESS
AMPS IC: 10,000



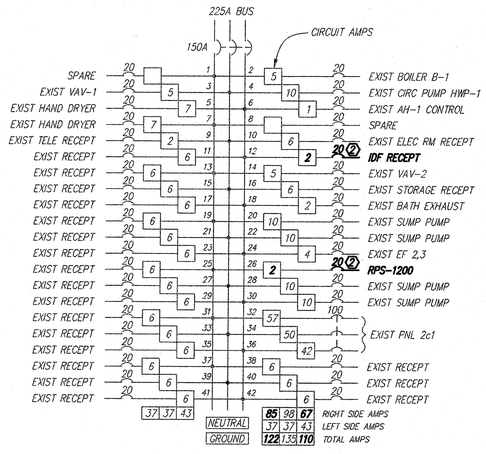
EXIST PANEL 1100

VOLTAGE: 120/208V
LOCATION: SHOP - BLDG 1100
MOUNTING: RECESS
AMPS IC: 10,000



EXIST PANEL 4C

VOLTAGE: 277/480V
LOCATION: ELEC RM - BLDG 1200
MOUNTING: SURFACE
AMPS IC: 18,000



EXIST PANEL 2C

VOLTAGE: 120/208V
LOCATION: ELEC RM - BLDG 1200
MOUNTING: SURFACE
AMPS IC: 10,000

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REDDING, CALIFORNIA

LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER
TIMOTHY A. BOWER
No. E 017988
ELECTRICAL
STATE OF CALIFORNIA
4/9/13

PROJECT NAME

A MODERNIZATION FOR

WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE
PANEL SCHEDULES
BLDGS 1000, 1100, 1200

DRAWING STATUS
CONSTRUCTION SET

REVISIONS

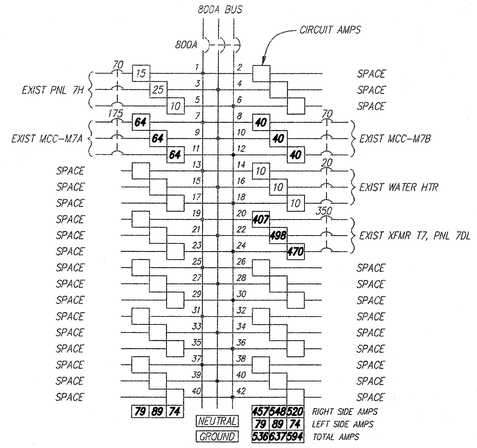
Sym.	Description	By	Date

Drawn By	GG
Checked By	TB
Date Drawn	4/9/13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.

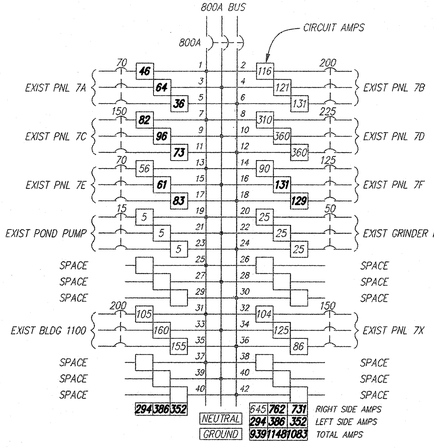
E0.8R

Login Name: ggonzales
Plot Date: April 09, 2013 - 11:27 am
File Name: M:\Land Projects\0404180 West Valley Modernization\Revised Sheets\E0.8.dwg
XREFS: A-ATCH-X-TITLE1 X_Title - D



EXIST PANEL 7DH

VOLTAGE: 277/480V
LOCATION: EXTERIOR - BLDG 700
MOUNTING: SURFACE
AMPS IC: 22,000



EXIST PANEL 7DL

VOLTAGE: 120/208V
LOCATION: EXTERIOR - BLDG 700
MOUNTING: SURFACE
AMPS IC: 18,000

GENERAL NOTES

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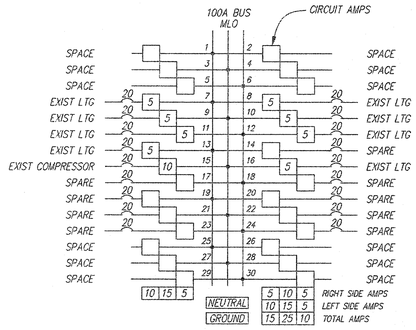
KEYNOTES

(1) MAKE MODIFICATIONS TO EXISTING PANEL AS NECESSARY TO INSTALL NEW CIRCUIT BREAKER IN EXISTING SPACE. CONNECT TO NEW LOAD AS INDICATED.

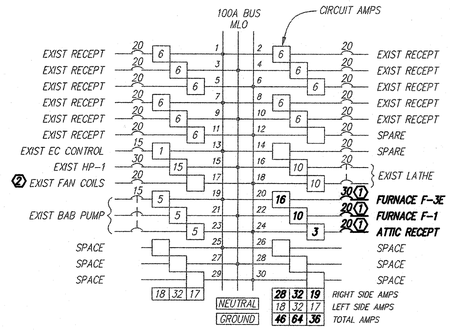
(2) AFTER REMOVAL OF EXISTING FAN COIL, DISCONNECT AND REMOVE EXISTING CONDUCTORS CONNECTED TO CIRCUIT BREAKER AND LABEL "SPARE."

ADD #4
APPROVED
DIV. OF THE STATE ARCHITECT
SACRAMENTO REGIONAL OFFICE
AC ___ F/LS ___ SS ___
APP. # 02-109217 DATE 5-8-2013



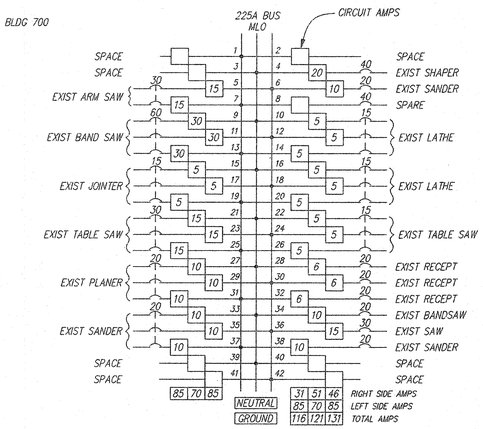
EXIST PANEL 7H

VOLTAGE: 277/480V
LOCATION: WELD SHOP - BLDG 700
MOUNTING: SURFACE
AMPS IC: 14,000



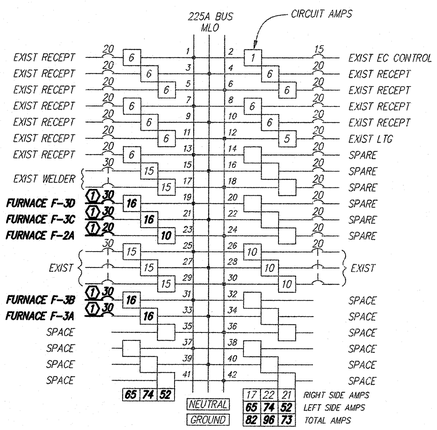
EXIST PANEL 7A

VOLTAGE: 120/208V
LOCATION: WOOD SHOP - BLDG 700
MOUNTING: SURFACE
AMPS IC: 10,000



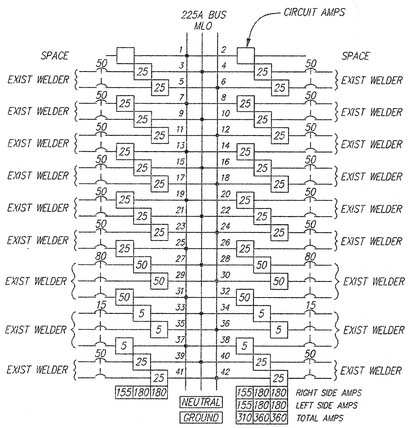
EXIST PANEL 7B

VOLTAGE: 120/208V
LOCATION: WOOD SHOP - BLDG 700
MOUNTING: SURFACE
AMPS IC: 10,000



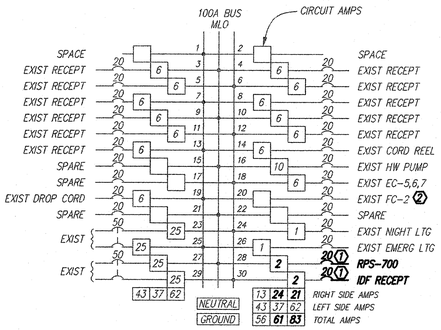
EXIST PANEL 7C

VOLTAGE: 120/208V
LOCATION: AUTO SHOP - BLDG 700
MOUNTING: SURFACE
AMPS IC: 10,000



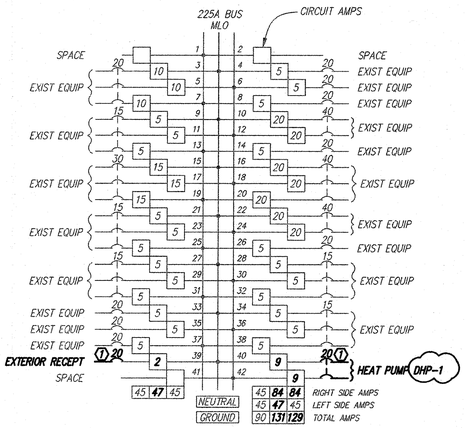
EXIST PANEL 7D

VOLTAGE: 208V
LOCATION: WELD SHOP - BLDG 700
MOUNTING: SURFACE
AMPS IC: 10,000



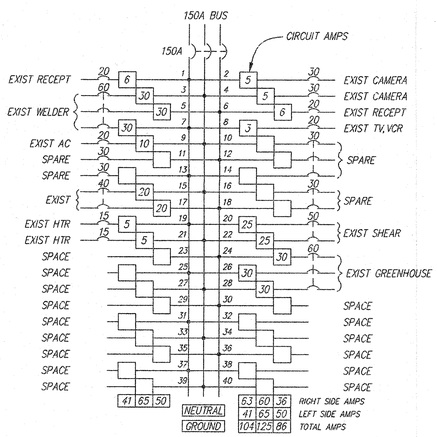
EXIST PANEL 7E

VOLTAGE: 120/208V
LOCATION: WELD SHOP - BLDG 700
MOUNTING: SURFACE
AMPS IC: 10,000



EXIST PANEL 7F

VOLTAGE: 120/208V
LOCATION: WELD SHOP - BLDG 700
MOUNTING: SURFACE
AMPS IC: 10,000



EXIST PANEL 7X

VOLTAGE: 120/208V
LOCATION: CLASSROOM - BLDG 700
MOUNTING: SURFACE
AMPS IC: 10,000

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PACE ENGINEERING
REDDING, CALIFORNIA

LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER ANTHONY L. PACE No. E 017988 ELECTRICAL STATE OF CALIFORNIA 4/9/13

PROJECT NAME

A MODERNIZATION FOR

WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE
PANEL SCHEDULES
BLDG 700

DRAWING STATUS
CONSTRUCTION SET

REVISIONS

Sym.	Description	By	Date

Drawn By	GG
Checked By	TB
Date Drawn	4/9/13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.

E0.6R

Login Name: cgonzales
Plot Date: April 08, 2013 - 10:52 am
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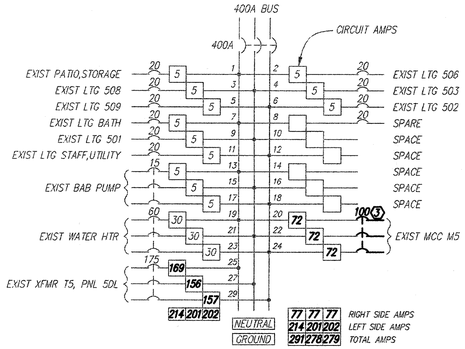
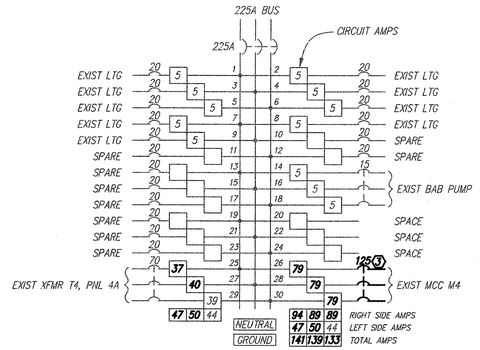


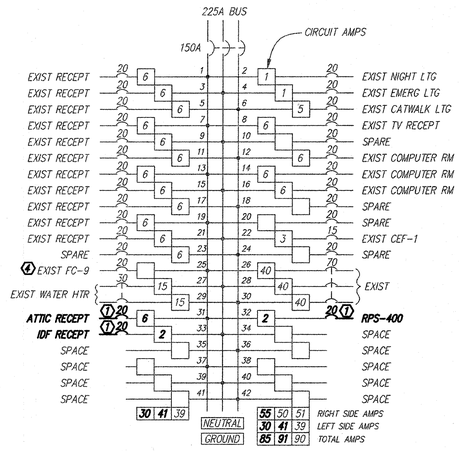
EXIST PANEL 5H

VOLTAGE: 277/480V
LOCATION: WORKROOM – BLDG 500
MOUNTING: RECESS
AMPS IC: 14,000



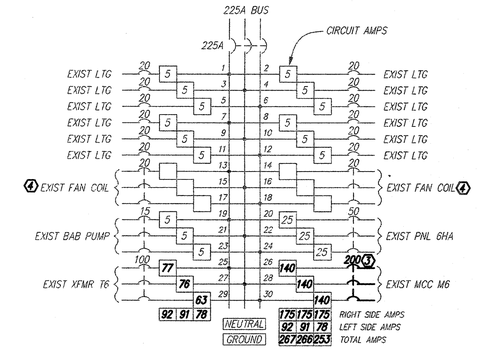
EXIST PANEL 4H

VOLTAGE: 277/480V
LOCATION: JANITOR – BLDG 400
MOUNTING: SURFACE
AMPS IC: 14,000



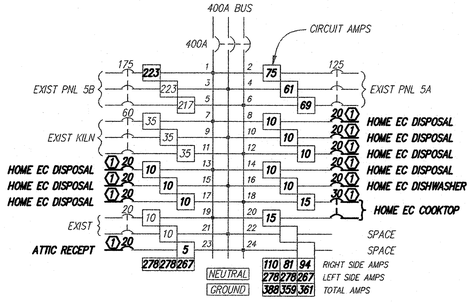
EXIST PANEL 4A

VOLTAGE: 120/208V
LOCATION: JANITOR – BLDG 400
MOUNTING: SURFACE
AMPS IC: 10,000



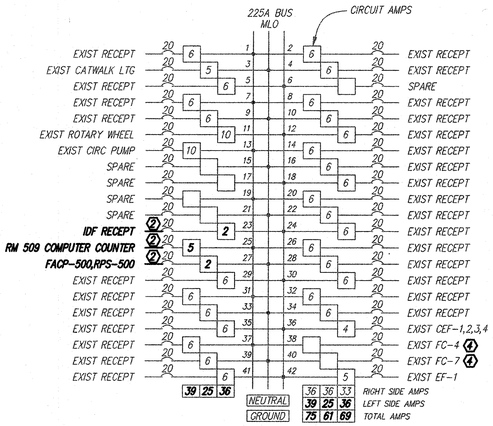
EXIST PANEL 6H

VOLTAGE: 277/480V
LOCATION: ELEC RM – BLDG 600
MOUNTING: SURFACE
AMPS IC: 14,000



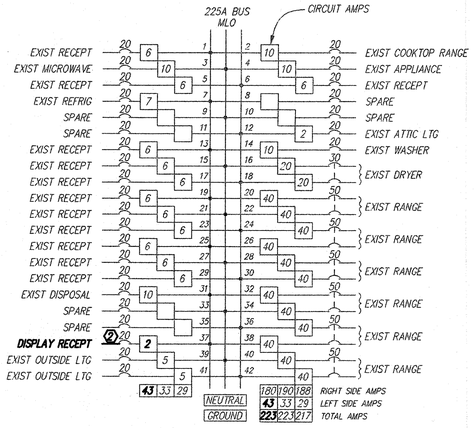
EXIST PANEL 5DL

VOLTAGE: 120/208V
LOCATION: CERAMICS – BLDG 500
MOUNTING: SURFACE
AMPS IC: 14,000



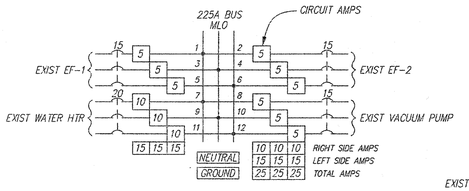
EXIST PANEL 5A

VOLTAGE: 120/208V
LOCATION: WORKROOM – BLDG 500
MOUNTING: RECESS
AMPS IC: 10,000



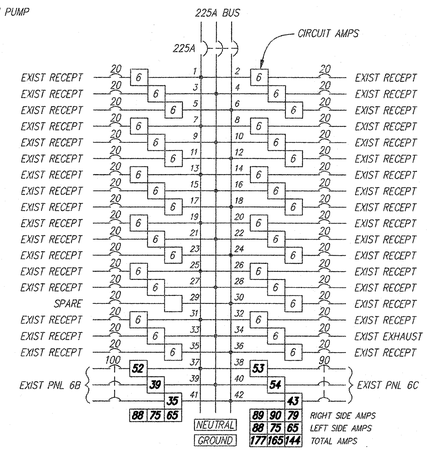
EXIST PANEL 5B

VOLTAGE: 120/208V
LOCATION: VESTIBULE – BLDG 500
MOUNTING: RECESS
AMPS IC: 10,000



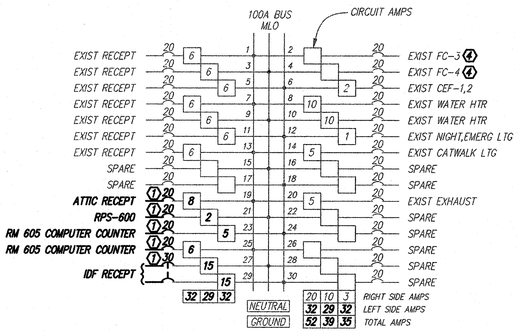
EXIST PANEL 6HA

VOLTAGE: 277/480V
LOCATION: VESTIBULE – BLDG 600
MOUNTING: RECESS
AMPS IC: 22,000



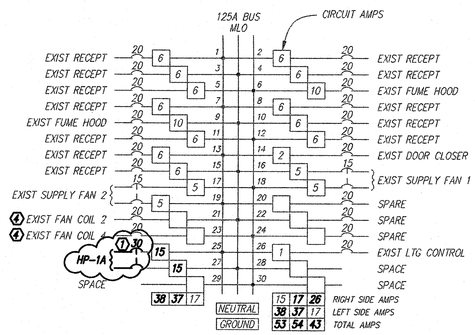
EXIST PANEL 6A

VOLTAGE: 120/208V
LOCATION: SOIENCE LAB – BLDG 600
MOUNTING: RECESS
AMPS IC: 10,000



EXIST PANEL 6B

VOLTAGE: 120/208V
LOCATION: WORKROOM – BLDG 600
MOUNTING: RECESS
AMPS IC: 10,000



EXIST PANEL 6C

VOLTAGE: 120/208V
LOCATION: VESTIBULE – BLDG 600
MOUNTING: RECESS
AMPS IC: 10,000

GENERAL NOTES

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KEYNOTES

1. MAKE MODIFICATIONS TO EXISTING PANEL AS NECESSARY TO INSTALL NEW CIRCUIT BREAKER IN EXISTING SPACE. CONNECT TO NEW LOAD AS INDICATED.
2. MAKE MODIFICATIONS AS NECESSARY TO CONNECT NEW CONDUCTORS TO EXISTING SPARE CIRCUIT BREAKER.
3. DISCONNECT AND REMOVE EXIST. 3-POLE CIRCUIT BREAKER AND ASSOCIATED CONDUCTORS. PROVIDE AND INSTALL NEW CIRCUIT BREAKER AS SHOWN. MAKE MODIFICATIONS TO EXISTING PANEL AS NECESSARY TO FACILITATE INSTALLATION. SEE SHEET E2.1 FOR CONNECTION DETAILS.
4. AFTER REMOVAL OF EXISTING FAN COIL, DISCONNECT AND REMOVE EXISTING CONDUCTORS CONNECTED TO CIRCUIT BREAKER AND LABEL "SPARE."

ADD #4
APPROVED
DIV. OF THE STATE ARCHITECT
SACRAMENTO REGIONAL OFFICE
AC ____ F/LS EV. SS 10?
APP.# 02-109217 DATE 5-8-2013

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LICENSE STAMPS

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TIMOTHY T. PACE
No. E 017988
ELECTRICAL
STATE OF CALIFORNIA
4/9/13

PROJECT NAME

A MODERNIZATION FOR

WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE

PANEL SCHEDULES BLDGS 400, 500, 600

DRAWING STATUS

CONSTRUCTION SET

REVISIONS

Sym.	Description	By	Date

Drawn By	GG
Checked By	TB
Date Drawn	4/9/13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.

E0.5R

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Plot Date: April 09, 2013 - 10:27 am
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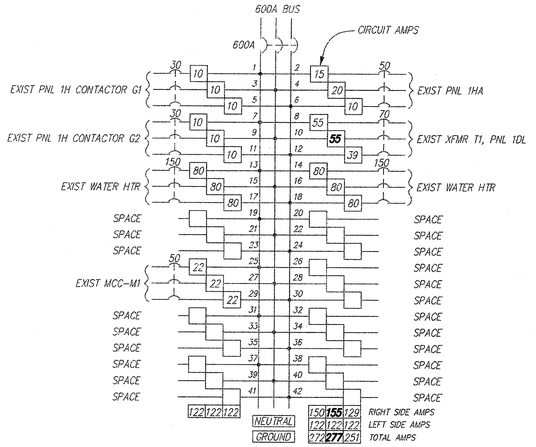

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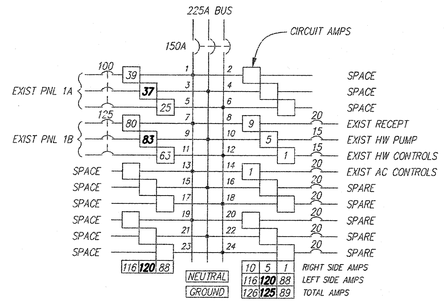
AMPS IC: 14,000



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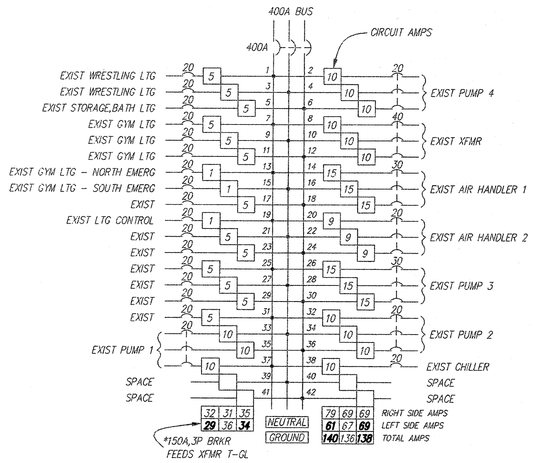

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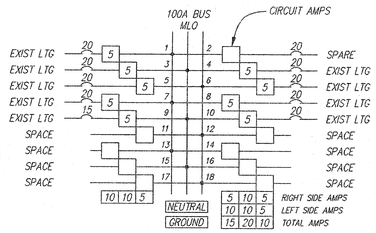

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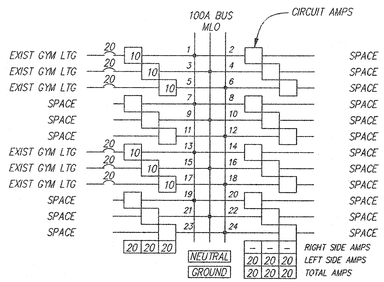

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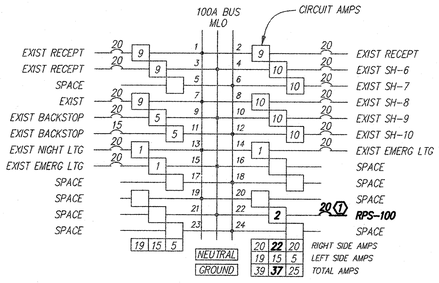

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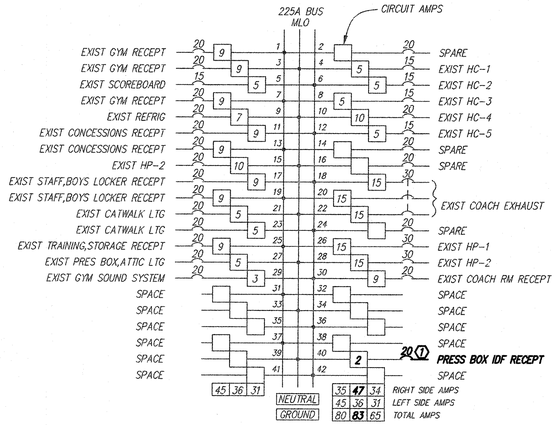

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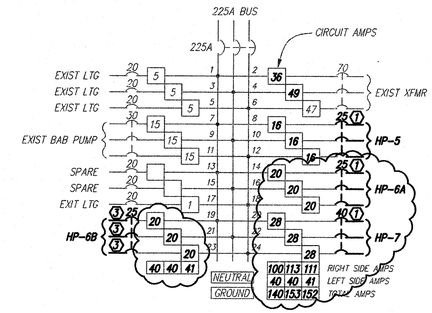
VOLTAGE: 120/208V
LOCATION: BOYS EQUIP RM – BLDG 100
MOUNTING: RECESS
AMPS IC: 10,000



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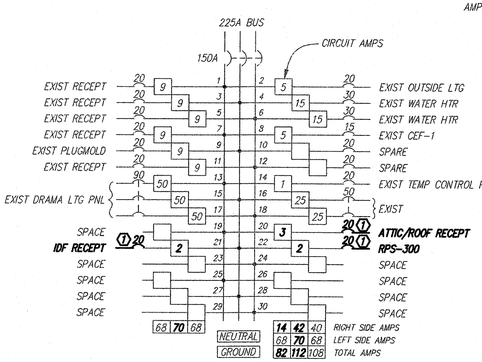
MOUNTING: RECESS
AMPS IC: 14,000



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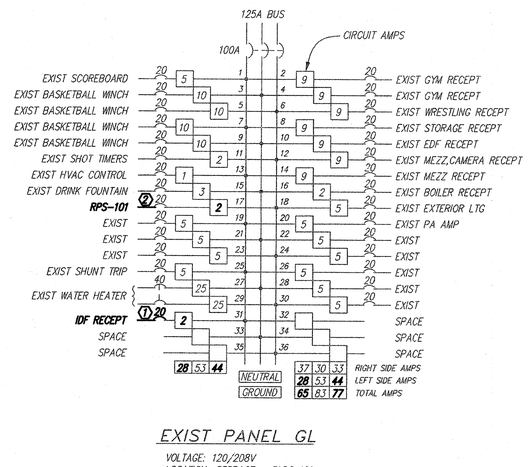

EXIST PANEL GL

VOLTAGE: 120/208V
LOCATION: STORAGE – BLDG 101
MOUNTING: SURFACE
AMPS IC: 10,000

GENERAL NOTES

1. EXISTING EQUIPMENT, INDICATED AS SHADED, IS SHOWN FOR INFORMATIONAL PURPOSE ONLY. ASSUME EXISTING EQUIPMENT IS NOT BEING MODIFIED UNLESS SPECIFICALLY INDICATED ON THE PLANS.

KEYNOTES

(1) MAKE MODIFICATIONS TO EXISTING PANEL AS NECESSARY TO INSTALL NEW CIRCUIT BREAKER IN EXISTING SPACE. CONNECT TO NEW LOAD AS INDICATED.

(2) DISCONNECT AND REMOVE CONDUCTORS CONNECTED TO EXIST CIRCUIT BREAKER. MAKE MODIFICATIONS AS NECESSARY TO CONNECT NEW CONDUCTORS TO EXIST BREAKER AS SHOWN.

(3) REMOVE EXIST SPARE CIRCUIT BREAKER FROM PANEL AND RETURN TO THE OWNER. PROVIDE AND INSTALL NEW CIRCUIT BREAKER IN THE LOCATION SHOWN AND CONNECT TO NEW LOAD AS INDICATED.

ADD #4

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DIV. OF THE STATE ARCHITECT
SACRAMENTO REGIONAL OFFICE
AC ___ F/LS E.V. SS 100
APP. # 02-109217 DATE 5-8-2013

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LICENSE STAMPS

REGISTERED PROFESSIONAL ENGINEER
TIMOTHY D. BOWER
No. E 017988
ELECTRICAL
STATE OF CALIFORNIA
4/9/13

PROJECT NAME

A MODERNIZATION FOR

WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE

PANEL SCHEDULES BLDGS 100, 101, 300

DRAWING STATUS

CONSTRUCTION SET

REVISIONS

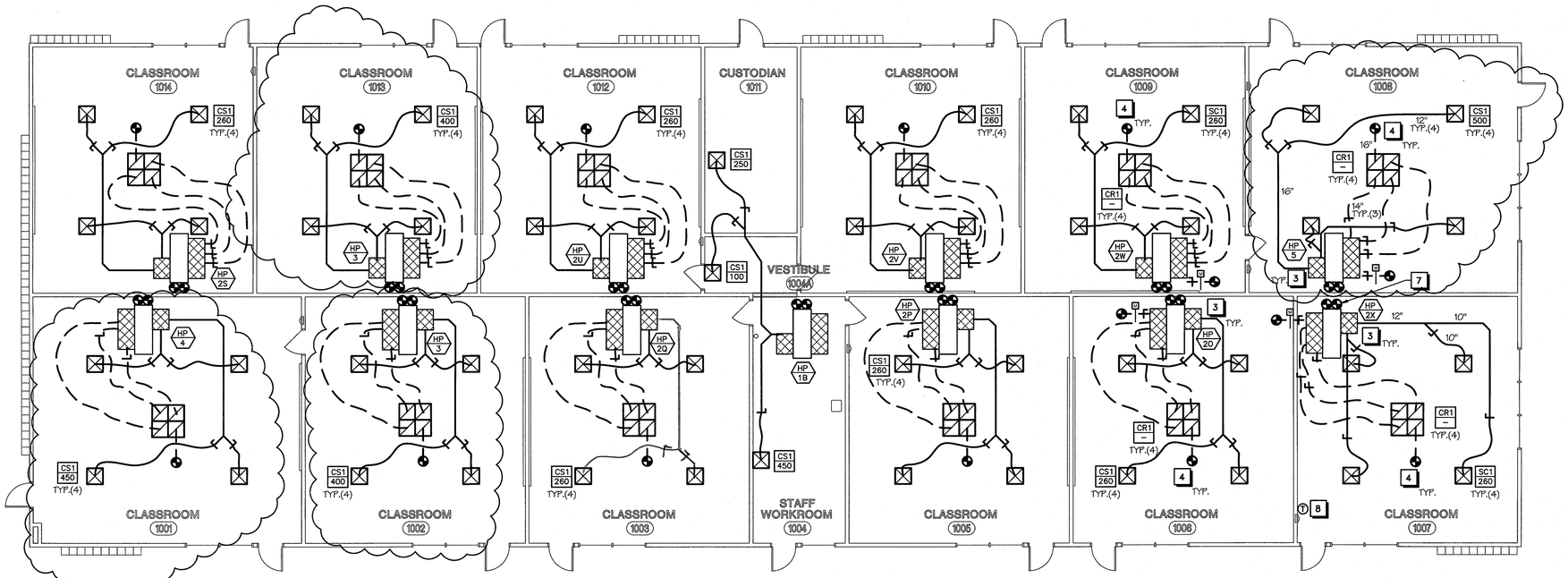
Sym.	Description	By	Date

Drawn By	GG
Checked By	TB
Date Drawn	4/9/13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.

E0.3R

Login Name: ggonzales
Plot Date: April 09, 2013 - 11:23 am
File Name: M:\Land Projects\0400-499 West Valley Modernization\Revised Sheets\E03dwg
XREFS: AN001-X-TITLE 1_x_Title - D



NOTE: KEYNOTES AND OTHER NOTATIONS ARE SIMILAR FOR ALL CLASSROOMS.

HVAC NEW WORK FLOOR PLAN

1/8" = 1'-0"

KEYNOTES:

1. ADAPT (E) OA DUCT TO (N) MIXING BOX.
2. NOT USED
3. INSTALL (N) HP ABOVE CEILING. HANG FROM (E) SUPPORT FRAME, CONNECT TO (E) CHS/CHR AND CD. SEE 10/M4.0
4. CONNECT (N) RELIEF DUCT TO (E) PLENUM.
5. REBALANCE (E) DIFFUSERS TO MATCH (E) CFM SHOWN ON DEMO PLAN.
6. CONNECT (N) SA AND RA DUCTS TO (E) SA AND RA DUCTS.
7. CONNECT (N) CHS/CHR TO (E). MATCH (E) PIPE SIZE.
8. RECONNECT (E) TEMP. SENSOR TO RELOCATED (E) DDC CONTROLLER.

ADD #4

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APP. #02-109217 DATE 5-8-2013

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REGISTERED PROFESSIONAL ENGINEER KEITH PERRIN RITTER No. M19463 EXPIRES 9-30-13 MECHANICAL STATE OF CALIFORNIA

PROJECT NAME

A MODERNIZATION FOR

WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE
1000 BUILDING NEW HVAC PLAN

DRAWING STATUS

CONSTRUCTION SET
FOR CONSTRUCTION

REVISIONS

Sym.	Description	By	Date

Drawn By	KPR
Checked By	KPR
Date Drawn	1.7.13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.

M2.2R-1000

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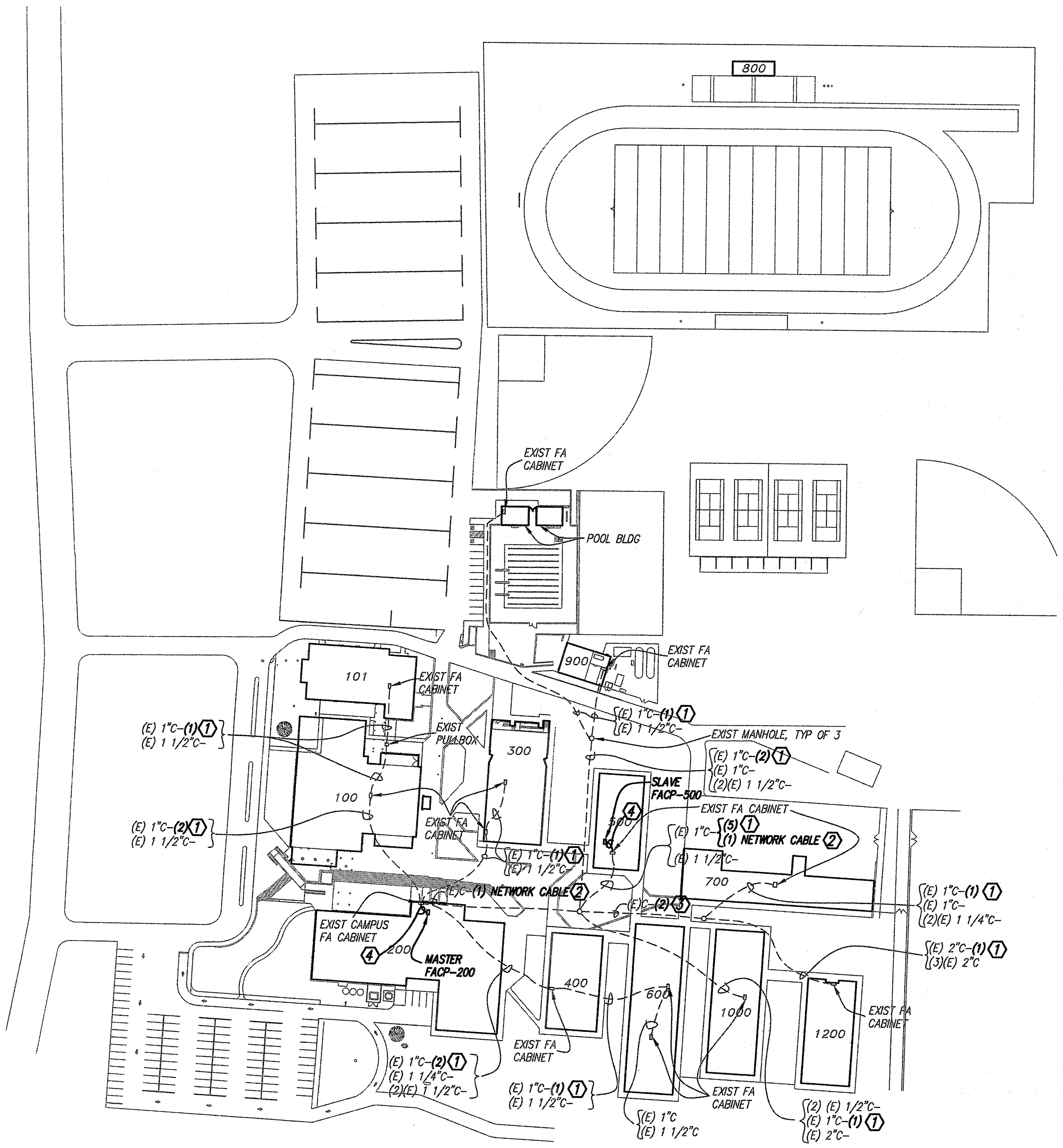
FIRE ALARM SYSTEM OPERATIONAL MATRIX

	HEAT/ SMOKE DETECTOR	MANUAL PULL STATION	WATER FLOW	SPRINKLER TAMPER VALVE	POST INDICATOR VALVE	DUCT SMOKE DETECTOR @ HVAC FAN	SMOKE DETECTOR @ PRIMARY FLR ELEV. LOBBY	SMOKE DETECTOR @ ANY OTHER ELEV. LOBBY	HEAT DETECTOR @ ELEV. MACH. RM./HOISTWAY	ANSUL SYSTEM	POWER SUPPLY TROUBLE	COMMON SYSTEM TROUBLE
INDICATE ALARM @ FACP	X	X	X			X				X		
INDICATE TROUBLE @ FACP				X		X					X	X
INDICATE SUPERVISORY @ FACP												
ACTIVATE NOTIFICATION	X	X	X			X				X		
RELEASE FIRE DOOR(S)												
ELEVATOR RECALL PRIMARY FLR.												
ELEVATOR RECALL ALTERNATE FLR.												
ELEVATOR POWER SHUNT												
FLASH ELEV. WARNING LAMP												
SHUT DOWN ASSOCIATED FAN						X						
TRANSMIT OFF-SITE ALARM	X	X	X			X				X		
TRANSMIT OFF-SITE TROUBLE				X							X	X
TRANSMIT OFF-SITE SUPERVISORY												



FIRE ALARM SITE PLAN

1"=100'-0"

Login Name: ggonzales
Plot Date: April 09, 2013 - 11:24 am
File Name: M:\Land Projects\0404.180 West Valley Modernization\Revised Sheets\FA0.1dwg
XREFS: AN201-X-TITLE ; AN201-X-site ; x_Title - D

KEYNOTES

1. DISCONNECT AND REMOVE EXIST FA CONDUCTORS ROUTED TO EACH BUILDING. UTILIZE EXIST FA CONDUIT TO ROUTE NEW FA CONDUCTORS TO EXISTING FA CABINETS. CONDUCTORS ROUTED UNDERGROUND BETWEEN BUILDINGS SHALL BE #16 TWISTED, SHIELDED PAIR. THE NUMBER SHOWN IN PARENTHESIS INDICATES THE QUANTITY OF NEW TWISTED, SHIELDED PAIRS WITHIN THE EXIST CONDUIT.
2. DISCONNECT AND REMOVE EXIST FA CONDUCTORS. UTILIZE EMPTY CONDUIT TO ROUTE NEW TWISTED PAIR NETWORK CABLE BETWEEN THE MASTER FACP-200 AND SLAVE FACP-500. CABLE SHALL BE AS SPECIFIED BY THE FACP MANUFACTURER.
3. DISCONNECT AND REMOVE EXIST FA CONDUCTORS. UTILIZE EMPTY CONDUIT TO ROUTE NEW FA CONDUCTORS AS INDICATED. FA CONDUCTORS SHALL BE #16 TWISTED, SHIELDED PAIR. THE NUMBER IN PARENTHESIS REPRESENTS THE QUANTITY OF NEW TWISTED, SHIELDED PAIRS WITHIN THE CONDUIT.
4. PROVIDE AND INSTALL 2"C- {(6) #16 TWISTED PAIR / (1) NETWORK CABLE}

FIRE ALARM LEGEND

FACP	FIRE ALARM CONTROL PANEL
RPS	FIRE ALARM REMOTE POWER SUPPLY
EOL	END OF LINE DEVICE
UDACT	DIGITAL DIALER
ANUN	NETWORK ANUNCIATOR
NET	NETWORK MODULE
FS	WATER FLOW SWITCH
TS	TAMPER SWITCH
(S)	SMOKE DETECTOR
(H)	HEAT DETECTOR
(P)	MANUAL PULL STATION
(R)	RELAY MODULE
(M)	MONITOR MODULE
(C)	CONTROL MODULE
(SB)	BEAM DETECTOR
(B)	AUDIBLE VIBRATING BELL
	AUDIBLE HORN (CEILING MOUNT)
XXCD	HORN/STROBE WITH CANDELA RATING (CEILING MOUNT)
WP	AUDIBLE HORN, WEATHERPROOF
XXCD	STROBE WITH CANDELA RATING (CEILING MOUNT)
/	SLC LOOP CONDUCTOR, 1/2"C-#16 TWISTED PAIR
//	NAC CONDUCTOR, 1/2"C-#14 CONDUCTOR, QUANTITY INDICATED BY NUMBER OF SLASHES

FIRE ALARM MONITORING NOTE

AUTOMATIC FIRE ALARM SYSTEMS SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AS AMENDED BY ARTICLE 91. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UUFX OR UUJS BY UNDERWRITERS LABORATORY OR SHALL MEET THE REQUIREMENTS OF FACTORY MUTUAL RESEARCH APPROVAL STANDARD 3011. SUPERVISION OF SYSTEM AND LEASED TELEPHONE LINES SHALL BE ARRANGED BY THE OWNER.

FIRE ALARM SYSTEM NOTES

1. THIS SYSTEM SHALL BE INSTALLED AS PER THE REQUIREMENTS OF NFPA 72.
2. UPON ACTIVATION OF AN INITIATING DEVICE, THE RESPECTIVE DEVICE SHALL CAUSE AN INDICATION OF ALARM, SUPERVISION, OR TROUBLE TO BE RECEIVED BY THE FIRE ALARM CONTROL.
3. THE FACP SHALL CAUSE ALL NOTIFICATION APPLIANCES TO OPERATE. THE RESPECTIVE ZONE/POINT ADDRESS SHALL BE INDICATED AT THE FACP. AN APPROPRIATE SIGNAL SHALL BE TRANSMITTED TO THE RECEIVING STATION FOR DISPOSITION IN ACCORDANCE WITH NFPA 72.
4. MANUAL STATIONS SHALL BE MOUNTED AT 48 INCHES TO CENTERLINE OF DEVICE, ABOVE FINISHED FLOOR. THE MANUAL FIRE ALARM BOX SHALL BE UNOBSTRUCTED AND READILY VISIBLE WHEN THE DOOR IS IN EITHER THE FULLY OPEN OR CLOSED POSITION. MANUAL PULL STATION SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE CONTROLS SHALL BE NO GREATER THAN 5 POUNDS OF FORCE.
5. UPON ACTIVATION OF A MANUAL FIRE ALARM BOX, THE RESPECTIVE DEVICE SHALL CAUSE AN INDICATION OF ALARM TO BE RECEIVED BY THE FIRE ALARM CONTROL PANEL. THE PANEL SHALL CAUSE ALL NOTIFICATION APPLIANCES TO ACTIVATE. THE RESPECTIVE ZONE SHALL BE IDENTIFIED AT THE ANNUNCIATOR AND/OR FACP.
6. THE SYSTEM SHALL BE EQUIPPED WITH A VISUAL DISPLAY AT THE ANNUNCIATOR FOR THE PURPOSE OF LOCAL ANNUNCIATION.
7. THE NOTIFICATION APPLIANCES FOR INDOOR USE SHALL BE INSTALLED FLUSH ON WALLS WHERE PRACTICAL, BACK-BOXES SHALL BE USED. WALL MOUNTED AUDIBLE APPLIANCES SHALL HAVE THEIR TOPS AT HEIGHTS ABOVE THE FINISHED FLOORS OF NOT LESS THAN 96". AUDIBLE APPLIANCES SHALL BE SET TO 'MEDIUM'.
8. WALL MOUNTED VISUAL APPLIANCES SHALL HAVE THEIR ENTIRE LENS AT HEIGHTS ABOVE THE FINISHED FLOOR OF NOT LESS THAN 80" AND NO GREATER THAN 96".
9. ALL EXPOSED WIRING SHALL BE PROTECTED FROM PHYSICAL DAMAGE AND SHALL BE INSTALLED WITHIN APPROPRIATE RACEWAY OR CONDUIT WHEN WITHIN 7 FEET OF THE FLOOR.
10. PRIMARY POWER SHALL BE PROVIDED BY A DEDICATED BRANCH CIRCUIT RATED AT NO LESS THAN 15 AMPS AND PROVIDING 120 VAC NOMINAL TO FIRE ALARM CONTROL PANEL. SECONDARY POWER SUPPLY TO BE PROVIDED BY INTEGRAL BATTERIES SIZED AS INDICATED. THE DEDICATED BRANCH CIRCUIT SHALL BE PERMANENTLY LABELED AT THE FIRE ALARM CONTROL PANEL.
11. THE FIRE ALARM CONTROL PANEL CIRCUIT BREAKER DISCONNECT SHALL BE CLEARLY LABELED "FIRE ALARM CIRCUIT". THE CIRCUIT BREAKER SHALL HAVE A RED MARKING AND BE EQUIPPED WITH A MECHANICAL CIRCUIT BREAKER LOCK THAT ALLOWS THE BREAKER TO TRIP, BUT DOES NOT ALLOW TAMPERING. THE CIRCUIT BREAKER SHALL BE LOCATED INSIDE OF A PANELBOARD EQUIPPED WITH A LOCKABLE DOOR, ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL. THE CIRCUIT BREAKER SHALL COMPLY WITH NFPA 72, SECTION 4.4.1.4.
12. THE OWNER OF THE FACILITY SHALL BE RESPONSIBLE FOR MAINTAINING REQUIRED UTILITIES SO AS TO PROVIDE FOR THE CONTINUOUS OPERATION OF THE PROTECTION SYSTEM. THIS SHALL INCLUDE DEDICATED PRIMARY POWER SUPPLY BY MEANS OF A DEDICATED BRANCH CIRCUIT, WITH SUITABLE LOCKOUT, AND REQUIRED TELEPHONE LINES.
13. ALL FIRE ALARM SYSTEM CONDUCTORS SHALL BE CONTINUOUS (NO SPLICES) AND SHALL BE BROKEN ONLY WHEN TERMINATED AT A SPECIFIC DEVICE, SYSTEM PANEL, OR TERMINAL CABINET. INSTALLATION OF CONDUCTORS SHALL COMPLY WITH THE 2004 CALIFORNIA ELECTRICAL CODE AND BE LISTED FOR THE USE BEING INSTALLED.
14. FIRE ALARM SIGNAL LINE CIRCUITS SHALL BE TWISTED PAIR 14 GAGE SOLID COPPER WITH PVC INSULATION. CABLE SHALL BE LISTED BY THE CALIFORNIA STATE FIRE MARSHALL AND PROVIDED WITH A RED PVC JACKET.
15. AUDIBLE DEVICES SHALL BE AT LEAST 15dBA ABOVE AVERAGE AMBIENT SOUND LEVEL BUT NOT LESS THAN 75dBA AT 10 FEET, OR MORE THAN 110 dBA IN TOTAL THROUGHOUT.
16. AUDIBLE DEVICES SHALL SOUND THE CALIFORNIA UNIFORM FIRE ALARM SIGNAL IN TEMPORAL MODE.
17. VISUAL DEVICES SHALL NOT EXCEED TWO FLASHES PER SECOND AND SHALL NOT BE SLOWER THAN ONE FLASH EVERY SECOND.
18. INFORMATION RELATING TO THE EXISTING FIRE ALARM SYSTEM HAS BEEN OBTAINED FROM ORIGINAL AND "AS BUILT" DRAWINGS AND FROM FIELD OBSERVATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL EXISTING WIRING AND RELATED CONDITIONS BEFORE PROCEEDING WITH THE WORK. MODIFICATIONS TO THE EXISTING WIRING SYSTEMS SHALL INSURE CIRCUIT CONTINUITY TO ALL REMAINING EXISTING DEVICES OR EQUIPMENT ASSOCIATED WITH EXISTING REMAINING WIRING SYSTEMS.
19. UPON COMPLETION OF FIRE ALARM INSTALLATION, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE LOCAL FIRE AUTHORITY AND PROJECTS INSPECTOR OF RECORD. PROVIDE RECORD OF COMPLIANCE PER NFPA 72.
20. FIRE ALARM CONDUCTORS SHALL BE UL APPROVED.
21. UNDERGROUND AND EXTERIOR CONDUITS SHALL HAVE WATERTIGHT FITTINGS, CEC 110-11 AND 300-6.

FIRE ALARM SYSTEM EQUIPMENT LIST

SYMBOL	DESCRIPTION	MODEL	CSFM LISTING #
FACP	NOTIFIER FIRE ALARM CONTROL PANEL	NFS-640	#7165-0028:214
ANUN	NOTIFIER NETWORK ANUNCIATOR	NCA	#7165-0028:214
NET	NOTIFIER NETWORK MODULE	NCM-W	#7165-0028:214
UDACT	NOTIFIER DIGITAL DIALER	UDACT	#7300-0028:174
RPS	NOTIFIER FIRE ALARM REMOTE POWER SUPPLY	FCPS-24	#7315-0028:225
(P)	NOTIFIER MANUAL PULL STATION	NBG-12LX	#7150-0028:199
(S)	NOTIFIER SMOKE DETECTOR	FSP-851	#7272-0028:206
(H)	NOTIFIER HEAT DETECTOR	FST-851	#7270-0028:196
(SB)	NOTIFIER BEAM DETECTOR	FSB-200	#7260-0028:228
(B)	WHEELOCK VIBRATING BELL-WEATHERPROOF	43T-G10-115-R	#7135-0785:108
(R)	NOTIFIER RELAY MODULE	FRM-1	#7300-0028:202
(C)	NOTIFIER CONTROL MODULE	FCM-1	#7300-0028:202
(M)	NOTIFIER MONITOR MODULE	FMM-1	#7300-0028:202
—	NOTIFIER DETECTOR BASE	B710LP	#7300-0028:173
	WHEELOCK HORN	HNRC	#7125-0785:168
XXCD	WHEELOCK HORN/STROBE W/CANDELA RATING	HSRC	#7125-0785:168
WP	WHEELOCK HORN-WEATHERPROOF	AH-24WP	#7125-0785:131
XXCD	WHEELOCK STROBE W/CANDELA RATING	STRC	#7125-0785:168

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APP. # 02-109217 DATE 5-8-2013

REGISTERED PROFESSIONAL ENGINEER
ANTHONY A. BONSER
No. E 017988
ELECTRICAL
STATE OF CALIFORNIA
4/9/13

PROJECT NAME

A MODERNIZATION FOR

WEST VALLEY HIGH SCHOOL

3805 HAPPY VALLEY RD
COTTONWOOD, CA 96022

SHEET TITLE

FIRE ALARM SITE PLAN

DRAWING STATUS

CONSTRUCTION SET

REVISIONS

Sym.	Description	By	Date

Drawn By	GG
Checked By	TB
Date Drawn	4/9/13
Scale	AS NOTED
Job No.	12.2596.00

SHEET No.

FA0.1R