ATTACHMENT A
SOLE SOURCE FACILITY JUSTIFICATION TRANSMITTAL

Public Contract Code section 3400 provides, in pertinent part, that:

"(a) The Legislature finds and declares that it is the intent of this section to encourage contractors and manufacturers to develop and implement new and ingenious materials, products, and services that function as well, in all essential respects, as materials, products, and services that are required by a contract, but at a lower cost to taxpayers.

(b) No agency of the state, nor any political subdivision, municipal corporation, or district, nor any public officer or person charged with the letting of contracts for the construction, alteration, or repair of public works, shall draft or cause to be drafted specifications for bids, in connection with the construction, alteration, or repair of public works, (1) in a manner that limits the bidding, directly or indirectly, to any one specific concern, or (2) calling for a designated material, product, thing, or service by specific brand or trade name unless the specification is followed by the words "or equal" so that bidders may furnish any equal material, product, thing, or service. In applying this section, the specifying agency shall, if aware of an equal product manufactured in this state, name that product in the specification. Specifications shall provide a period of time prior to or after, or prior to and after, the award of the contract for submission of data substantiating a request for a substitution of "an equal" item. If no time period is specified, data may be submitted any time within 35 days after the award of the contract.

(c) Subdivision (b) is not applicable if the awarding authority, or its designee, makes a finding that is described in the invitation for bids or request for proposals that a particular material, product, thing, or service is designated by specific brand or trade name for any of the following purposes:

(2) In order to match other products in use on a particular public improvement either completed or in the course of completion."

Notifier Fire Alarm Panel

This is a sole source procurement because:

- ☑ This is a sole provider of a licensed, copyrighted or patented good or service.
- ☑ This is a sole provider of items compatible with existing equipment or systems.
- ☐ This is a sole provider of factory-authorized warranty service.
- ☐ This is a sole provider of goods or services that perform a unique function in order to meet the specialized needs of the District. Please provide specific detail below.

By utilizing Notifier fire alarm panels, the District gains much greater value in the form of:

- Overall superior security and protection of life and property.
- Enhanced operating efficiency by integration of intrusion/fire monitoring services.
- Reduced administrative, maintenance and operating costs.
- Greater staff efficiency in learning and utilizing these systems.
- Long term stability and reliability of established equipment and infrastructure.

This means that the District must rely on a consistent standard of proprietary equipment and related services in order to maintain system reliability and continuity.

There are overriding circumstances upon with the Board can find that the exception found in Public Contract Code section 3400 (c) (2) applies to the identified product(s). Please provide specific detail below as to what those circumstances are, and why this sole source procurement would be in the best interest of the District.

There are currently over 70 systems that have been installed districtwide over a 17-year period. This has resulted in a complex and highly evolved integrated security network. The risk factors and challenges stated below present overriding circumstances which would negate the benefit that any competitive bid could offer.

- Risk to life and property.
- High potential for disruption of classes and educational activities.
- Physical disruption to classrooms, labs and offices during the conversion periods.
- Lack of alarm service and monitoring during the conversion.
- Cost of removal, disassembly and replacement of new infrastructure, hardware and software.

Stanley Security is the sole manufacturer of the District's current equipment infrastructure, and its affiliated franchises are the exclusive providers of the service, maintenance and monitoring required to support the system. Due to the proprietary nature of the District's security infrastructure, it has been determined that Stanley Security is the only vendor who can service, maintain and monitor the existing security system.

What steps were taken to verify that these goods or services are not available elsewhere?

See Supplier and Contractor Information Page Below For Contact Details.
Each vendor was asked whether or not their firm could provide service, maintenance and monitoring to the Notifier fire alarm panel equipment without removing, replacing or otherwise modifying the current equipment?

This is a restricted brand or trade name, and no substitutions are allowed because:

☑ The requested product is an integral repair part or accessory compatible with existing equipment or systems.

Existing Equipment/System: Notifier fire alarm panel equipment provided by Stanley Security
Manufacturer/Model Number: (320)(640)(3030)

☑ The District has standardized on the requested product, and use of another brand/model would require considerable time and funding to evaluate or implement. Please provide additional detail below.

Over the last 17 year, the District has invested in a proprietary integrated fire alarm monitoring system at all three campuses. Any change in the current system would incur considerable time and funding for evaluation and implementation. Such a change would involve the hiring of architects, engineers and security consultants to redesign and segregate the fire alarm panel monitoring. These planning costs would be in addition to the monthly monitoring, servicing and maintenance costs impacted if the fire alarm panel monitoring is changed due to not sole sourcing the fire alarm panels.

Supplier or Contractor Information:

Notifier by Honeywell
12 Clintonville Road
Northford, CT 06472
(203) 484 7161

RECOMMENDATION

Sufficient evidence has been provided upon which the Board can find that the exception found in Public Contract Code section 3400 (c) (2) applies to the identified product(s). Approve a finding to authorize use of the above stated exception for Notifier Fire Alarm Panels in the MiraCosta Design Standards Manual for all the projects in the MM program. Require that said finding be included in all pertinent bid/proposal documents for those projects where such product(s) will be used.

SIGNATURE:

Tom Macias, Facilities Director — **Date** 9/14/18

Geoff Bachanas, PMO Director — **Date** 9/13/18

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ATTACHMENT B
SOLE SOURCE ARCHITECT/ENGINEERING JUSTIFICATION SUMMARY REPORT TRANSMITTAL

September 1, 2018

Re: Notifier Fire Alarm Panel

Within the Design & Construction Standards MiraCosta CCD has identified or designed various proprietary systems or products that meet specific District performance requirements, allow for seamless integration into existing systems, provide ease of maintenance, and afford a lower total cost of ownership. In these instances, the District is requesting that these systems and products shall be provided without substitution. The following Specification Section 28 31 11 is one that meets these special requirements.

Our experience working with other Colleges and Universities shows that single sources for some materials, products, equipment, and systems is a common approach to achieving best value.

We have reviewed the facility justification transmittal for the above-referenced item and believe that the District's sole-sourcing of this specification section meets the requirements for District's benefit as described above.

Sincerely,

Joe Sion
Associate Principal/Senior Manager

523 W 6th Street #245
Los Angeles CA 90014

MiraCosta College Design And Construction Standards

Item #5a: Notifier Fire Alarm Panel NFS-320

NFS-320

Intelligent Addressable Fire Alarm System

NOTIFIER® by Honeywell

Intelligent Fire Alarm Control Panels

General

The NFS-320 intelligent Fire Alarm Control Panel is part of the ONYX® Series of Fire Alarm Controls from NOTIFIER.

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

Designed with modularity and for ease of system planning, the NFS-320 can be configured with just a few devices for small building applications, or for a large campus or high-rise application. Simply add additional peripheral equipment to suit the application.

NOTE: *Unless called out with a version-specific "C" or "E" at the end of the part number, "NFS-320" refers to models NFS-320, NFS-320C, and NFS-320E; similarly, "CPU-320" refers to models CPU-320, CPU-320C, and CPU-320E.*

NFS-320

Features

- One 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 (N.O. manual stations, two-wire smoke, notification, or relay). 318 devices maximum.
- Standard 80-character display.
- Network option — 103 nodes supported (AFP-200, AFP-300/400, NFS-320, NFS-640, NFS2-640, AFP1010, AM2020, NFS-3030, NFS2-3030, NCA/NCA-2 Network Annunciator, NCS Network Control Station, or ONYX-Works™ Network Control Station) using wire or fiber-optic connections.
- 6.0 amp 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, and Supervisory relays.
- VeriFire® Tools offline program option. Sort Maintenance Reports by compensation value (dirty detector), peak alarm value, or address.
- Autoprogramming and Walk Test reports.
- Optional universal 318-point DACT.
- 80-character remote annunciators (up to 32).
- EIA-485 annunciators, including custom graphics.
- Printer interface (80-column and 40-column printers).
- History file with 800-event capacity in nonvolatile memory, plus separate 200-event alarm-only file.
- Alarm Verification selection per point, with tally.
- Autoprogramming and Walk Test reports.
- Positive Alarm Sequence (PAS) Presignal.
- 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.
- Charger for up to 90 hours of standby power.
- 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.

FLASHSCAN® INTELLIGENT FEATURES:

- Poll 318 devices in less than two seconds.
- Activate up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.
- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — nine levels.
- Pre-alarm ONYX intelligent sensing — nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
  - **Ion** – 0.5 to 2.5%/foot obscuration.
  - **Photo** – 0.5 to 2.35%/foot obscuration.
  - **Laser (VIEW®)** – 0.02 to 2.0%/foot obscuration.
  - **Acclimate Plus™** – 0.5 to 4.0%/foot obscuration.
  - **HARSH™** – 0.5 to 2.35%/foot obscuration.
- Drift compensation (U.S. Patent 5,764,142).
- Degraded mode — in the unlikely event that the CPU-320 microprocessor fails, FlashScan detectors revert to degraded operation and can activate the CPU-320 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.
- Maintenance alert (two levels).
- Self-optimizing pre-alarm.

Sole Source Item #7 Notifier Fire Alarm

VIEW (VERY INTELLIGENT EARLY WARNING) SMOKE DETECTION TECHNOLOGY:

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

ACCLIMATE PLUS LOW-PROFILE INTELLIGENT MULTI-SENSOR:

- Detector automatically adjusts sensitivity levels without operator intervention or programming. Sensitivity increases with heat.
- Microprocessor-based technology; combination photo and thermal technology.
- FlashScan or classic mode compatible with NFS2-640, NFS-320.
- Low-temperature warning signal at 40°F ± 5°F (4.44°C ± 2.77°C).

HARSH HOSTILE-AREA SMOKE HEAD:

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

RELEASING FEATURES:

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

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

- 120 or 220/240 VAC.
- Displays battery current/voltage on panel (with display).

VOICE FEATURES:

- Integrates with FireVoice-25/50 Series.

Sample System Options

Sole Source Item #7 Notifier Fire Alarm

FlashScan, Exclusive New World-Leading Detector Protocol

At the heart of the NFS-320 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 NFS-320 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 NFS-320 with industry-leading smoke detection capability. These complex algorithms require many calculations on each reading of each detector, and are made possible by the very-high-speed microcomputer used by the NFS-320.

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, usually indicative of a hardware problem in the detector; (2) Maintenance Alert, indicative of dust accumulation that is near but below the allowed limit; (3) Maintenance Urgent, indicative of dust accumulation above the allowed limit.

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

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

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

Field Programming Options

Autoprogram is a timesaving feature of the NFS-320. It is a special software routine that allows the NFS-320 to "learn" what devices are physically connected and automatically load them in the program with default values for all parameters. Requiring less than one minute to run, this routine allows the user to have almost immediate fire protection in a new installation, even if only a portion of the detectors are installed.

Keypad Program Edit (with KDM-R2) The NFS-320, 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 NFS-320 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 NFS-320 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 NFS-320 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.

Below: Autoprogram function.

AUTOPROGRAM PLEASE WAIT

L1:80 DETS, 15 MODS
BELLS: 04

6856tool.tif

VeriFire Tools System Programming screen

CPU-320 Board Diagram

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

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

All NAC circuits are power-limited, supervised.

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

7112bord.wmf

SW1, SW2, SW3, SW4: Disable-Enable switches for Backup Alarm, NACs 1 – 4 respectively.

System switches, "No Keyboard Operation":
SW5 Acknowledge
SW6 Silence
SW7 Reset

J7: KDM-R2 Connection

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

Network Diagram

Placement of Equipment in Chassis and Cabinet

The following guidelines outline the NFS-320's flexible system design.

Wiring: When designing the cabinet layout, consider separation of power-limited and non-power-limited wiring as discussed in the NFS-320 Installation Manual.

It is critical that all mounting holes of the NFS-320 are secured with a screw or standoff to ensure continuity of Earth Ground.

Networking: If networking two or more control panels, each unit requires a **NCM-W** (wire) or **NCM-F** (fiber) Network Control Module. The NCM-W/-F can be installed in any option board position (see manual). **Option boards** can be mounted in front of the NCM modules.

KDM-R2 Controls and Indicators

Program Keypad: QWERTY type (keyboard layout).

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

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

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

Configuration Guidelines

The NFS-320 *system ships assembled; description and some options follow.*

NFS-320: The standard, factory-assembled NFS-320 system includes the following components: one CPU-320 control panel mounted on chassis (120 V operation — ships with grounding cable, battery interconnect cables, and document kit); one KAPS-24 integral power supply mounted to the CPU-320; one primary display KDM-R2 keypad/display; and one cabinet for surface or semi-flush mounting. *Purchase batteries separately. One or two option boards may be mounted inside the NFS-320 cabinet; additional option boards can be utilized in remote cabinets.*

NFS-320R: Same as NFS-320 above, but in red enclosure.

NFS-320C: Same as NFS-320 above, but with ULC listing. *See Canadian applications manual addendum 52747.*

NFS-320E: Same as NFS-320 above, but with 240 V operation.

BMP-1: Blank module for unused module positions.

TR-320: Trim ring for the NFS-320 cabinet.

Equipment Placement in NFS-320 Chassis

Option Modules

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

COMPATIBLE DEVICES, EIA-232 PORTS

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

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

CRT-2: Video display terminal. *See DN-3756.*

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.*

TM-4: Transmitter Module. Includes three reverse-polarity circuits and one municipal box circuit; mount on NFS-320 chassis or remotely. *See DN-6860.*

FDU-80: Remote LCD display, 80 characters, with LEDs. *See DN-6820.*

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

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

RPT-485 Series: Repeater, isolator and/or fiber-optic modem; repeats EIA-485 over twisted pair or converts to fiber-optic medium. *See RPT data sheet, DN-4737.*

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

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

UZC-256: Programmable Universal Zone Coder provides positive non-interfering successive zone coding. Microprocessor-controlled, field-programmable from IBM®-compatible PCs (requires optional programming kit). *See UZC-256 data sheet, DN-3404.*

COMPATIBLE INTELLIGENT DEVICES

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

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

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

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

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

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

FSB-200S: Intelligent beam smoke detector with integral sensitivity test. *See DN-6895.*

FSI-851: Low-profile FlashScan ionization detector, will replace FSI-751. *See DN-6934.*

FSI-751: Low-profile FlashScan ionization detector. *See DN-6714.*

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

FSP-751: Low-profile FlashScan photoelectric detector. *See DN-6714.*

FSP-851T: Low-profile FlashScan photoelectric detector with 135°F (57°C) thermal, will replace FSP-751T. *See DN-6935.*

FSP-751T: Low-profile FlashScan photoelectric detector with 135°F (57°C) thermal. *See DN-6714.*

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

FST-751: FlashScan thermal detector 135°F (57°C). *See DN-6716.*

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

FST-751R: FlashScan thermal detector 135°F (57°C) with rate-of-rise. *See DN-6716.*

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

FSD-751P: FlashScan photo duct detector with housing. *See DN-6821.*

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

FSD-751RP: FlashScan photo duct detector with relay and housing. *See DN-6821.*

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

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

FAPT-751: Acclimate Plus low-profile multisensor detector. *See DN-6833.*

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

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

LPX-751: Low-profile VIEW laser photo detector. *See DN-5306.*

B224RB: Low-profile relay base.

B224BI: Isolator base for low-profile detectors.

B710LP: Low-profile base. Standard U.S. style.

B501: European-style, 4" (10.16 cm) base.

B501BH: Sounder base, includes B501 base above.

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-6724.*

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

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

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

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

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

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

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

OTHER OPTIONS

DPI-232: Direct Panel Interface, specialized modem for extending serial data links to remotely located FACPs and/or peripherals; mount on NFS-320 chassis. *See DN-6870.*

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

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

NCS5-W-ONYX: Network Control Station, Wire. UL-Listed graphics PC with mouse, 17" color flat-screen LCD monitor. Order as necessary for network systems. Each NCS consumes one of 103 network addresses. *See DN-6868, ONYX DN-6869.*

NCS5-F-ONYX: Network Control Station, Fiber. UL-Listed graphics PC with mouse, 17" color flat-screen LCD monitor. Order as necessary for network systems. Each NCS consumes one of 103 network addresses. *See ONYX DN-6869.*

ONYXWORKS-NW: Workstation with NFN **wire** PC card. ONYXWorks workstation GUI software and hardware package for NOTI•FIRE•NET. Includes NFN Gateway (NFNGW-PC-W) wire version.

ONYXWORKS-NF: Workstation with NFN **fiber** PC card-ONYXWorks workstation GUI software and hardware package for NOTI•FIRE•NET. Includes NFN Gateway (NFNGW-PC-F) fiber version.

ONYXWORKS-EW: Workstation with Echelon **wire** PC card ONYXWorks workstation GUI software and hardware package for Building Systems Integration, WSSUP Workstation Supervisor. Includes Echelon® Gateway (ECH-GW-PC-W) wire version.

NFN-GW-EM: NFN Gateway, embedded.

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

BAT Series: Batteries. NFS-320 utilizes two 12 volt, 18 to 200 AH batteries. This series of products replaces the previous PS Series. *See DN-6933.*

NFS-LBB: Battery Box (required for batteries over 25 AH).

NFS-LBBR: Same as above, but red.

SYSTEM SPECIFICATIONS

System Capacity

- Intelligent Signaling Line Circuits 1
- Intelligent detectors 159
- Addressable monitor/control modules 159
- Programmable internal hardware and output circuits 4
- Programmable software zones 99
- Special programming zones 14
- LCD annunciators per CPU-320/-320E 32
- ACS annunciators per CPU-320/-320E ..... 32 addresses x 64 points

Specifications

- Primary input power, **CPU-320 board:** 120 VAC, 50/60 Hz, 3.0 A. **CPU-320E board:** 220/240 VAC, 50/60 Hz, 1.5 A.
- Total output 24 V power: 6.0 A in alarm.

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

- Standard notification circuits (4): 1.5 A each.
- Four-wire detector power: 1.25 A.
- Non-resettable regulated power outputs: 1.25 A each.
- Battery charger range: 18 AH – 200 AH. Use separate cabinet for batteries over 25 AH.
- Optional high-capacity (25 – 120 AH) battery charger: CHG-120 *(see CHG-120 data sheet, DN-6040).*
- Float rate: 27.6 V.

Cabinet Specifications

NFS-320 cabinet dimensions: *BACKBOX, OUTSIDE:* 18.240" (46.33 cm) height, 5.77" (14.656 cm) deep. *WITH DOOR:* 18.870" (47.93 cm) wide x 18.469" (46.911 cm) high x 5.817" (14.775 cm) deep. *BACKBOX, INSIDE:* 18.120" (46.025 cm) inner width, 5.175" (13.145 cm) inner depth.

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 NFS-320 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: file S635.
- **ULC** Listed: file S635.

Standards

The NFS-320 complies with the following UL Standards and NFPA 72 Fire Alarm Systems requirements:

- **UL 864** (Fire).
- **UL 1076** (Burglary).
- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires 4XTMF).
- **REMOTE STATION** (Automatic, Manual and Waterflow) (requires 4XTMF).
- **PROPRIETARY** (Automatic, Manual and Waterflow). *Not applicable for FM.*
- **EMERGENCY VOICE/ALARM**.

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ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

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Sole Source Item #7 Notifier Fire Alarm

MiraCosta College Design And Construction Standards

Item #5b: Notifier Fire Alarm Panel NFS2-640

NFS2-640(E)

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 meet virtually every application requirement.

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

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

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

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

Sole Source Item #7 Notifier Fire Alarm

FlashScan® Intelligent Features

- Polls up to 318 devices in less than two seconds.
- Activates up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.
- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — up to nine levels.
- Pre-alarm ONYX intelligent sensing — up to nine levels.
- Day/Night automatic sensitivity adjustment.
- Sensitivity windows:
  - **Ion** – 0.5 to 2.5%/foot obscuration.
  - **Photo** – 0.5 to 2.35%/foot obscuration.
  - **Laser (VIEW®)** – 0.02 to 2.0%/foot obscuration.
  - **Acclimate Plus™** – 0.5 to 4.0%/foot obscuration.
  - **IntelliQuad™** – 1.0 to 4.0%/foot obscuration.
  - **IntelliQuad™ PLUS** – 1.0 to 4.0%/foot obscuration
- Drift compensation (U.S. Patent 5,764,142).
- Degraded mode — in the unlikely event that the CPU2-640 microprocessor fails, FlashScan detectors revert to degraded operation and can activate the CPU2-640 NAC circuits and alarm relay. Each of the four built-in panel circuits includes a Disable/Enable switch for this feature.
- Multi-detector algorithm involves nearby detectors in alarm decision (U.S. Patent 5,627,515).
- Automatic detector sensitivity testing (NFPA-72 compliant).
- Maintenance alert (two levels)..
- Self-optimizing pre-alarm.

FSL-751 (Very Intelligent Early Warning) Smoke Detection Technology

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

FAPT-851 Acclimate Plus Low-Profile Intelligent Multi-Sensor

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

FSC-851 IntelliQuad Advanced Multi-Criteria Detector

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

Intelligent FAAST® Detectors FSA-5000, FSA-8000, FSA-20000 and FSA-20000P

- Connects directly to the SLC loop of compatible ONYX series panels.
- Provides five event thresholds that can be individually programmed with descriptive labels for control-by-event programming; uses five detector addresses.
- Uses patented particle separator and field-replaceable filter to remove contaminants.
- Advanced algorithms reject common nuisance conditions
- FSA-5000 covers 5,000 square feet through one pipe.
- FSA-8000 covers 8,000 square feet through one pipe.
- FSA-20000 covers 28,800 square feet through one to four pipes.

Sole Source Item #7 Notifier Fire Alarm

- FSA-20000P covers 28,800 square feet through one to four pipes. Supports addressable pipes to pinpoint location of alarm events

FCO-851 IntelliQuad™ PLUS
Advanced Multi-Criteria Fire/CO Detector

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

SWIFT Wireless

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

Releasing Features

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

Digital Voice and Telephone Features

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

High-Efficiency Offline Switching
3.0 A Power Supply (6.0 A in Alarm)

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

FlashScan, Exclusive World-Leading Detector Protocol

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

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

ONYX Intelligent Sensing

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

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

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

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

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

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

Field Programming Options

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

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

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

Placement of Equipment in Chassis and Cabinet

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

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

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

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

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

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

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

Networking: If networking two or more control panels, each unit requires a Network Communication Module or High-Speed Network Communication Module. (HS-NCM can support two nodes; see "Networking Options" on page 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 communication modules.

KDM-R2 Controls and Indicators

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

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

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

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

Product Line Information

- "Configuration Guidelines" on page 4
- "Networking Options" on page 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 5
- "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 systems with one FACP (one CPU2-640/-640E), display options are the KDM-R2 or the NCA-2. On network systems (two or more networked fire panel nodes), at least one NCA-2, NCS, or ONYXWorks annunciation device is required. Other options listed as follows;

KDM-R2: 80-character backlit LCD display with QWERTY programming and control keypad. Order two BMP-1 blank modules and DP-DISP2 mounting plate separately. *Requires top row of a cabinet. Required for each stand-alone 80-character display system. The KDM-R2 may mount in network nodes to display "local" node information as long as at least one NCA-2 or NCS/ONYXWorks network display is on the system to display network information. (Non-English versions also available: KDM-R2C for ULC application, KDM-R2-FR, KDM-R2-PO, KDM-R2-SP.)*

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

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

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

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

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

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

BMP-1: Blank module for unused module positions.

BP2-4: Battery plate, required.

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

Networking Options

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

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

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

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

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

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

CAP-GW: Common Alerting Protocol Gateway. *See DN-60756.*

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

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

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

Auxiliary Power Supplies and Batteries

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

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

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

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

Audio Options

***NOTE:** For mounting hardware, see "Enclosures, Chassis, and Dress Plates" on page 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-EM while retaining digital audio distribuition capabilities. Can be configured with up to four DS-AMPs, supplying high-level risers spread throughout an installation. *See DN-60565.*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Compatible Devices, EIA-232 Ports

PRN-7: 80-column printer. *See DN-60897.*

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.*

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

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

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

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

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

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

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

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

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

FSA-5000: Intelligent FAAST® XS Fire Alarm Aspiration Sensing Technology. Intelligent aspirating smoke detector for applications up to 5,000 sq.ft. For Canadian applications, order FSA-5000A.

FSA-8000: Intelligent FAAST® XM Fire Alarm Aspiration Sensing Technology. Intelligent aspirating smoke detector for applications up to 8,000 sq.ft. For Canadian applications, order FSA-8000A. *See DN-60792.*

FSA-20000: Intelligent FAAST® XT Fire Alarm Aspiration Sensing Technology. Intelligent aspirating smoke detector for applications up to 28,800 sq.ft. For Canadian applications, order FSA-20000A. *See DN-60849.*

FSA-20000P FAAST® XT PRO Intelligent Aspiration Detector For applications up to 28,800 sq. ft. (2601 sq. m.) through one to four addressable pipes. *See DN-60792*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

DNRW(A): 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(A): 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.

B200S-LF: Low-frequency version of B200S. See DN-60054.

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

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

B200SR-LF: Low-frequency version of B200SR. *See DN-60054.*

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

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

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

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

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

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

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

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

FDRM-1(A): 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.*

ISO-6: Six Fault isolator module. For Canadian applications order ISO-6A. *See DN-60844.*

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

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

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

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

SLC-IM: SLC integration module, for VESDAnet detectors. *See DN-60755.*

Enclosures, Chassis, and Dress Plates

CAB-4 Series Enclosure: NFS2-640 mounts in a standard CAB-4 Series enclosure (available in four sizes, "A" through "D"). Backbox and door ordered 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. Also order **BB-MB** for systems using 100 AH batteries. For a full list of required and optional equipment, see *DN-60688.*

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

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

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

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

NFS-LBBR: Same as above but red.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Backboxes

NOTE: "C" suffix indicates ULC-Listed model.

ABF-1B(C) Annunciator Flush Box.

ABF-1DB(C) Annunciator Flush Box with Door.

ABF-2B Annunciator Flush Box

ABF-2DB/C Annunciator Flush Box with Door

ABF-4B Annunciator Flush Box

ABS-1TB(C) Annunciator Surface Box

ABS-1B(C) Annunciator Surface Box

ABS-2B Annunciator Surface Box

ABS-2D(C) Annunciator Surface Box

ABS-4D(C) Annunciator Surface Box

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.

Other Options

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

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

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

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

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

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

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

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

System Specifications

System Capacity

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

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

Electrical Specifications

- Primary input power:
  - CPU2-640 board: 120 VAC, 50/60 Hz, 5.0 A.
  - CPU2-640E board: 220/240 VAC, 50/60 Hz, 2.5 A.
- Current draw (standby/alarm):
  - CPU2-640(E) board: 0.250 A. Add 0.035 A for each NAC in use.
  - KDM-R2: 0.100 A.
  - LEM-320: 0.100 A.
- Total output 24 V power: 6.0 A in alarm.

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

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

Cabinet Specifications

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

Shipping Weight

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

Temperature and Humidity Ranges

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

Agency Listings and Approvals

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

- **UL/ULC Listed:** S635.
- **ULC Listed:** S527-11
- **FM Approved.**
- **MEA:** 128-07-E.
- **Fire Dept. of New York:** #6212.
- **CSFM:** 7165-0028:0243.
- **City of Chicago.**
- **City and County of Denver.**
- **CCCF listed.**

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

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

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

Standards

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

- **UL 864, 9th Edition** (Fire).
- **UL 1076** (Burglary).
- **UL 2572** (Mass Notification Systems). (NFS2-640 version 20 or higher.)
- **ULC-S527-11** Standard for the Installation of Fire Alarm Systems.
- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires TM-4).
- **REMOTE STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory) (requires TM-4).
- **PROPRIETARY** (Automatic, Manual and Waterflow). *Not applicable for FM.*
- **EMERGENCY VOICE/ALARM.**
- **OT, PSDN** (Other Technologies, Packet-switched Data Network).
- **IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000** (Seismic).
- **CBC 2007** (Seismic).

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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.

Country of Origin: USA

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

Sole Source Item #7 Notifier Fire Alarm

MiraCosta College Design And Construction Standards

Item #5c: Notifier Fire Alarm Panel NFS2-3030

NFS2-3030

Intelligent Addressable Fire Alarm System

NOTIFIER® by Honeywell

Intelligent Fire Alarm Control Panels

General

The NFS2-3030 is an intelligent Fire Alarm Control Panel (FACP) designed for medium- to large-scale facilities. Fire emergency detection and evacuation are extremely critical to life safety, and the NFS2-3030 is ideally suited for these applications. The NFS2-3030 is part of the ONYX® Series of products from NOTIFIER. The NFS2-3030 is ideal for virtually any application because it features a modular design that is configured per project requirements. With one to ten Signaling Line Circuits (SLCs), the NFS2-3030 supports up to 3,180 intelligent addressable devices.

Information is critical to fire evacuation personnel, and the NFS2-3030's large 640-character Liquid Crystal Display (LCD) presents vital information to operators concerning a fire situation, fire progression, and evacuation details.

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

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NFS2-3030 (left) and NFS2-3030 with DVC audio option (right)

Features

- Certified for seismic applications when used with the appropriate seismic mounting kit.
- Approved for Marine applications when a marine-listed version is used with marine-listed compatible equipment. *See DN-60688.*
- Complies with UL 2572 Mass Notification Systems (NFS2-3030 version 20 or higher).
- One to ten isolated intelligent Signaling Line Circuits (SLC) Style 4, 6 or 7.
- Wireless fire protection using SWIFT Smart Wireless Integrated Fire Technology. See DN-60820.
- Up to 159 detectors and 159 modules per SLC; 318 devices per loop/3,180 per FACP or network node.
  - Detectors can be any mix of ion, photo, thermal, or multi-sensor; wireless detectors are available for use with the FWSG.
  - Modules include addressable pull stations, normally open contact devices, two-wire smoke detectors, notification, or relay; wireless modules are available for use with the FWSG.
- Large 16 line, 640 character LCD backlit display or use display-less as a network node.
- Network options:
  - High-speed network for up to 200 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCA-2, DVC-EM, ONYXWorks, NFS-3030, NFS-640, and NCA).
  - Standard network for up to 103 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCA-2, DVC-EM, ONYXWorks, NCS, NFS-3030, NFS-640, NCA, AFP-200, AFP-300/400, AFP-1010, and AM2020). Up to 54 nodes when DVC-EM is used in network paging.
- Built-in Alarm, Trouble, Security, and Supervisory relays.
- VeriFire® Tools online/offline program option.
- With built-in Degraded Mode operation, the system is capable of general alarm if a fire alarm condition is present even if the central processing unit (CPU) fails.
- Weekly Occupancy Schedules allow changing sensitivity by time of day and day of week.
- EIA-485 annunciators, including custom graphics.
- History file with 4000-event capacity in nonvolatile memory, plus separate 1000-event alarm-only file.
- Advanced history filters allow sorting by event, time, date, or address.
- Alarm Verification selection per point, with automatic counter.
- Autoprogramming and Walk Test reports.
- Multiple central station communication options:
  - Standard UDACT
  - Internet
  - Internet/GSM
- Positive Alarm Sequence (PAS) Presignal.
- Silence Inhibit and Auto Silence timer options.
- Field-programmable on panel or on PC, with VeriFire Tools program, also check, compare.
- Non-alarm points for lower priority functions.
- Remote ACK/Signal Silence/System Reset/Drill via monitor modules.
- Up to 1000 powerful Boolean logic equations.
- Supports SCS Series smoke control system in both HVAC and FSCS modes.
- FM6320 approved Gas Detection System with FMM-4-20 module and any FM listed gas detector.
- EIA-232 printer port.
- EIA-485 annunciator port.

Sole Source Item #7 Notifier Fire Alarm

640-Character Display Features

- Backlit, 640-character display.
- Program keypad: full QWERTY keypad.
- Up to nine users, each with a password and selectable access levels.
- **11 LED indicators:** Power; Fire Alarm; Pre-Alarm; Security; Supervisory; System Trouble; Other Event; Signals Silenced; Point Disabled; CPU Failure; Controls Active.
- **Membrane Switch Controls:** Acknowledge; Signal Silence; Drill; System Reset; Lamp Test.
- **LCD Display:** 640 characters (16 lines x 40 characters) with long-life LED backlight.

FlashScan® Intelligent Features

- Polls up to 318 devices on each loop in less than two seconds.
- Activates up to 159 outputs in less than five seconds.
- Multicolor LEDs blink device address during Walk Test.
- Fully digital, high-precision protocol (U.S. Patent 5,539,389).
- Manual sensitivity adjustment — up to nine levels.
- Pre-alarm ONYX intelligent sensing — up to nine levels.
- Sensitivity levels:
  - **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).
- 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.
- Programmable activation of sounder/relay bases during alarm or pre-alarm.
- Read Status displays the level of detector cleanliness.

FSL-751 View® (Very Intelligent Early Warning) Smoke Detection Technology

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

Sample System Options

NOTE: *CPU2-3030 firmware version 14.0 (and higher) can support LCD-160 on the RDP port, or LCD2-80 in terminal mode, but not both at the same time.*

FAPT-851 Acclimate Plus™ Low-Profile Intelligent Multi-Sensor

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

Intelligent FAAST® Detectors FSA-5000, FSA-8000, FSA-20000 and FSA-20000P

- Connects directly to the SLC loop of compatible ONYX series panels.
- Provides five event thresholds that can be individually programmed with descriptive labels for control-by-event programming; uses five detector addresses.
- Uses patented particle separator and field-replaceable filter to remove contaminants.
- Advanced algorithms reject common nuisance conditions
- FSA-5000 covers 5,000 square feet through one pipe.
- FSA-8000 covers 8,000 square feet through one pipe.
- FSA-20000 covers 28,800 square feet through one to four pipes.
- FSA-20000P covers 28,800 square feet through one to four addressable pipes. Supports addressable pipes to pinpoint location of alarm events.

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.

FMM-4-20 Gas Detection Module

- Interface to industry-standard linear scale 4-20 mA sensors.
- Five programmable thresholds.
- FM Approved, Class 6320 (Stationary Gas Sensors/ Detectors).

SWIFT Wireless

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

Releasing Features

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

Voice and Telephone Features

- Up to eight channels of digital audio.
- 35 watt, 50 watt, 75 watt, and 100/125 watt digital amplifiers (DAA2/DAX series and DS series).
- Solid state message generation.
- Hard-wired voice control module options.
- Firefighter telephone option.
- 30- to 120-watt analog amplifiers (AA Series).
- Backup tone generator and amplifier option.

FlashScan® Exclusive World-Leading Detector Protocol

At the heart of the NFS2-3030 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.

As well as giving quick identification of an active input device, this protocol can also activate many output devices in a fraction of the time required by competitive protocols. This high speed also allows the NFS2-3030 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

ONYX Intelligent Sensing is a set of software algorithms that provide the NFS2-3030 with industry-leading smoke detection capability. These complex algorithms require many calculations on each reading of each detector, and are made possible by the very high-speed microcomputer used by the NFS2-3030.

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, usually caused by electrical interference.

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

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

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

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

Field Programming Options

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

Keypad Program Edit. The NFS2-3030, 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 NFS2-3030 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 NFS2-3030 simultaneously monitors other (already installed) points for alarm conditions.

VeriFire® Tools

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 NFS2-3030 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.

Product Line Information

- "Configuration Guidelines" on page 4
- "Main System Components" 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 5
- "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-FACP systems (one NFS2-3030D), the display option is the CPU2-3030D. On network systems (two or more networked fire panel nodes), at least one NCA-2, NCS, or ONYXWorks annunciation device is required. Options listed as follows.

Main System Components

CPU2-3030D: NFS2-3030 Primary Display. CPU2-3030D ships with keypad/display installed; includes 640-character backlit LCD display, QWERTY programming and control keypad. CPU2-3030 is a central processing unit and requires an AMPS-24(E) power supply. For English ULC applications, use CPU2-3030DC. Non-English versions are available: CPU2-3030D-FR, CPU2-3030D-HE, CPU2-3030D-KO, CPU2-3030D-PO, CPU2-3030D-SC, CPU2-3030D-SP, CPU2-3030D-TC, and CPU2-3030D-TH. For English Marine applications order CPU2-3030D-M; for non-English Marine applications order CPU2-3030D-M and the appropriate KP-KIT-XX. (See DN-60688.)

CPU2-3030ND: CPU2-3030 without display. Non-English versions are available: CPU2-3030ND-FR, CPU2-3030ND-HE, CPU2-3030ND-KO, CPU2-3030ND-PO, CPU2-3030ND-SC, CPU2-3030ND-SP, CPU2-3030ND-TC.

LCM-320: Loop Control Module. Provides one SLC. NFS2-3030 supports up to five LCM-320s and five LEM-320 expanders for a total of ten SLCs. *See DN-6881.*

LEM-320: Loop Expander Module. Expands an LCM-320. *See DN-6881.*

SAMPLE SYSTEM: *Four-loop* NFS2-3030 *with display:* CPU2-3030*D, DP-DISP, two BMP-1s, CHS-M3, two LCM-320s, two LEM-320s, AMPS-24, SBB-A4,* DR-A4, *BP2-4, BB-100, batteries.*

Networking Options

NCA-2: Network Control Annunciator, 640 characters. An alternate primary display for CPU2-3030 can be provided by the NCA-2, NCS, or ONYXWorks. Using NCA-2 as primary display enables non-English languages. On network systems (two or more networked fire panel nodes), one network display (either NCA-2, NCS, or ONYXWorks) is required for every system. On network systems, the NCA-2 connects (and requires) a standard Network Communication Module or High-Speed Network Communication Module. Mounts in a row of FACP node or in two annunciator positions. Mounting options include the DP-DISP, ADP-4B, or in an annunciator box, such as the ABS-2D. In CAB-4 top-row applications, a DP-DISP and two BMP-1 blank modules are required for mounting. Non-English versions are available: NCA-2-FR, NCA-2-HE, NCA-2-KO, NCA-2-PO, NCA-2-SC, NCA-2-SP, NCA-2-TC, NCA-2-TH. For English ULC applications, order NCA-2C; for marine applications, order NCA-2-M; for non-English marine applications order NCA-2-M and appropriate KP-KIT-XX. *See DN-7047.*

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

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

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

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

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

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

CAP-GW: Common Alerting Protocol Gateway. *See DN-60756.*

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

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

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

Auxiliary Power Supplies and Batteries

AMPS-24(E): One required for each NFS2-3030. Addressable power supply and battery charger with two 24 VDC outputs. Addressable by any FlashScan® or CLIP mode FACP. Charges 7 to 200 AH batteries. Occupies up to five addresses on an SLC, depending on configuration. Primary input power for panel. *See DN-6883.*

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.*

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

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

BAT Series: Batteries. AMPS-24 uses two 12 volt, 7 to 200 AH batteries. *See DN-6933.*

Audio Options

***NOTE:** See "Enclosures, Chassis, and Dress Plates" on page 6 for mounting hardware.*

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. *See DN-7045.*

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

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

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

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

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

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: Microphone used with DVC/DVC-EM. Included with CA-2 chassis assembly. *See DN-7045.*

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

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

AA-120/AA-100: Audio Amplifier. AA-120 is 120 watts, 25 Vrms. AA-100 is 100 watts, 70.7 Vrms. The amplifier contains an integral chassis for mounting to a CAB-B4, -C4, or -D4 backbox (consumes one row). Includes audio input and amplified output supervision, backup input, and automatic switchover to backup tone. *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-7: 80-column printer. *See DN-60897*

VS4095/5: Printer, 40-column, 24 V. Order from Keltron, Inc. *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-160: Liquid Crystal Display annunciator, 160-character backlit. Can store character sets for multiple languages. LCD-160C is used for ULC applications. *See DN-6940.*

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

SCS Series: Smoke control station; 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 (as in single-address mode applications) or in CHS-M3 position. *See DN-6860.*

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)*. Mounts on a CHS-4 series chassis within NFS2-3030.

Compatible Intelligent Devices

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

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

FSA-5000: Intelligent FAAST® XS Fire Alarm Aspiration Sensing Technology. Intelligent aspirating smoke detector for applications up to 5,000 sq.ft. For Canadian applications, order FSA-5000A.

FSA-8000: Intelligent FAAST® XM Fire Alarm Aspiration Sensing Technology. Intelligent aspirating smoke detector for applications up to 8,000 sq.ft. For Canadian applications, order FSA-8000A. *See DN-60792.*

FSA-20000: Intelligent FAAST® XT Fire Alarm Aspiration Sensing Technology. Intelligent aspirating smoke detector for applications up to 28,800 sq.ft. For Canadian applications, order FSA-20000A. *See DN-60849.*

FSA-20000P FAAST® XT PRO Intelligent Aspiration Detector For applications up to 28,800 sq. ft. (2601 sq. m.) through one to four addressable pipes. *See DN-60792*

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

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

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

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

FSI-851(A): Low-profile FlashScan ionization detector. *See DN-6985.*

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

FSP-851R(A): Low-profile intelligent photoelectric sensor, remote test capable. For use with DNR(W). *See DN-6935.*

FSP-851T(A): Low-profile FlashScan photoelectric detector with 135°F (57°C) thermal. *See DN-6935.*

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

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

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

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

FSL-751(A): FlashScan VIEW® laser photo detector. *See DN-6886.*

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

DNRW(A): 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(A): 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.*

B200S-LF: Low-frequency version of B200S. See DN-60054.

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

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

B200SR-LF: Low-frequency version of B200SR. *See DN-60054.*

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

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

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

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

FMM-4-20: FlashScan 4-20 mA protocol monitor module. *See DN-60411.*

FCM-1(A): FlashScan control module. *See DN-6724.*

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

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

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

FDRM-1(A): 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.*

ISO-6: Six Fault isolator module. For Canadian applications order ISO-6A. *See DN-60844.*

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

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

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

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

SLC-IM: SLC integration module, for VESDAnet detectors. *See DN-60755.*

Enclosures, Chassis, and Dress Plates

CAB-4 Series Enclosure: NFS2-3030 mounts in a standard CAB-4 Series enclosure (available in four sizes, "A" through "D"). Backbox and door ordered separately; requires BP2-4 battery plate. A trim ring option is available for semi-flush mounting. *See DN-6857.*

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

CAB-BM Marine System: Protects equipment in shipboard and waterfront applications. Order CPU2-3030D-M; for non-English marine applications order CPU2-3030D and appropriate KP-KIT-XX. Also order **BB-MB** for systems using 100 AH batteries. For a full list of required and optional equipment, see *DN-60688.*

CHS-M3: Mounting chassis for CPU2-3030. One required for each CPU2-3030D/3030ND.

CA-2: Chassis for FACP control panel when DVC-EM is used with firefighter's telephone. Mounts in the top two rows of a CAB-4 series enclosure.

DP-DISP: Dress panel for top row in cabinet with CPU2-3030D installed.

DP-1B: Blank dress panel. Provides dead-front panel for unused tiers; covers DAA2/DAX series or AA-series amplifier. *See DN-7046.*

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

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

CA-2: Chassis assembly, occupies two tiers of a CAB-4 Series enclosure. The left side accommodates one DVC-EM mounted

on a half-chassis and one NFS2-3030 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).

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.*

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

DPA-2: Dress Panel used with the CA-2 chassis assembly.

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.*

ADP-4B: Annunciator dress plate. Mounts in rows 2, 3 or 4 of a CAB-4 series enclosure. Used with ACS series annunciators.

BMP-1: Blank module for unused module positions.

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

BP2-4: Battery plate, required.

CHS-4L: Low-profile four-position Chassis. Mounts two AA-30 amplifiers.

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

CHS-6: Chassis used with the XP6 and XP10 Multi-Modules. Mounts up to six modules in any CAB-4 series row.

NFS-LBB: Battery Box. The NFS-LBB is used to mount up to two 55 AH batteries. Dimensions: Box: 24" (610 mm) wide x 14" (356 mm) high x 7.75" (197 mm) deep. Door: 24.125" (613 mm) wide x 14.25" (362 mm) high; door adds 0.0625" (approx. 1.6 mm) to depth.

Backboxes

NOTE: "C" suffix indicates ULC-Listed model.

BB-100: Backbox for batteries and power supplies. The BB-100 is used to mount up to two 100 AH batteries and power supply, if needed. 30" (76.20 cm) wide x 25" (63.50 cm) high x 7.5" (19.05 cm) deep; depth includes door.

BB-200: Backbox for batteries and power supplies. Holds up to four 100 AH batteries (200 AH capacity) and power supply. 30" (76.20 cm) wide x 36" (91.44 cm) high x 7.5" (19.05 cm) deep; depth includes door.

BB-UZC: Backbox for housing the UZC-256 for applications where the UZC will not fit in panel enclosure. Black; for red, order BB-UZC-R. *See DN-3404.*

ABF-1B(C) Annunciator Flush Box

ABF-1DB(C) Annunciator Flush Box with Door. UL/ULC Listed.

ABF-2B Annunciator Flush Box

ABF-2DB(C) Annunciator Flush Box with Door

ABF-4B Annunciator Flush Box

ABS-1TB(C) Annunciator Surface Box

ABS-1B(C) Annunciator Surface Box

ABS-2B Annunciator Surface Box

ABS-2D(C) Annunciator Surface Box

ABS-4D(C) Annunciator Surface Box

SEISKIT-CAB: Seismic mounting kit. Required for seismic-certified applications with NFS2-3030 and other equipment mounted in CAB-4 Series Enclosures. Includes battery bracket for two 26 AH batteries.

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

Other Options

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

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

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

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

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

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

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

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

System Specifications

System Capacity

- Intelligent Signaling Line Circuits .....1 expandable to 10
- Intelligent detectors ..... 159 per loop
- Addressable monitor/control modules ..... 159 per loop
- Programmable software zones..... over 2000
- ACS annunciators
  per CPU2-3030 .....32 address x 64 or 96 points

  ***NOTE:** The CPU2-3030 can support up to 96 annunciator address points per ACM-24AT/-48A.*

Specifications

Primary Input Power:

– AMPS-24: 110-120 VAC, 50/60 Hz, 4.5 A maximum.

– AMPS-24E: 240 VAC, 50/60 Hz, 2.25 A maximum.

DC Output:

– Main 24 VDC: Up to 5.0 A

– Aux 24 VDC: Up to 5.0 A

– 5 VDC: Up to 0.15 A.

Current draw (Standby/Alarm):

– CPU2-3030D board: 0.340 A.

– CPU2-3030ND board: 0.120 A.

– LCM-320: 0.130 A.

– LEM-320: 0.100 A.

– AMPS-24(E)*: 0.13 A.
(Draws power from secondary power source only.)

NOTE: *See AMPS-24(E) Manual 51907 for a complete current draw calculation sheet and details of input and output values.*

Battery charger range: 7 AH – 200 AH. Use separate cabinet for batteries over 26 AH.

Float Rate: 27.6 V.

Shipping Weight

- CPU2-3030D: 5.95 lb (2.70 kg).
- CPU2-3030ND: 2.90 lb (1.32 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

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

- **UL Listed:** S635.
- **ULC Listed:** S527-11.
- **MEA:** 232-06-E.
- **Fire Dept. of New York:** COA#6211.
- **CSFM:** 7165-0028:0224 (Commercial).
- **FM Approved.**
- **FM6320 Approved.** Class 6320 for Gas Detection.
- **City of Chicago.**
- **City of Denver.**
- **Singapore Productivity and Standards Board (PSB).**
- **CCCF listed.**
- **Fire Services Department (Hong Kong).**

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

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

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

Standards

The NFS2-3030 complies with the following UL Standards and NFPA 72, International Building Code (IBC), and California Building Code (CBC) Fire Alarm Systems requirements:

- **UL 864** (Fire).
- **UL 1076** (Burglary).
- **UL 2572** (Mass Notification Systems). (NFS2-3030 version 20 or higher)
- **ULC-S527-11** Standard for the Installation of Fire Alarm Systems.
- **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, Waterflow and Sprinkler Supervisory). *Not applicable for FM.*
- **EMERGENCY VOICE/ALARM.**
- **OT, PSDN** (Other Technologies, Packet-switched Data Network).
- **IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000** (Seismic).
- **CBC 2007** (Seismic).

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ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

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Country of Origin: USA

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

Sole Source Item #7 Notifier Fire Alarm