



October 11, 2005

DN-6880 • A-20

ONYX[®] Series NFS-3030 Intelligent Addressable Fire Alarm System

Section: Intelligent Fire Alarm Control Panels

General

The **NFS-3030** is an intelligent Fire Alarm Control Panel designed for medium- to large-scale facilities. Fire emergency detection and evacuation are extremely critical to life safety, and the NFS-3030 is ideally suited for these applications. The NFS-3030 is part of the ONYX[®] Series of products from NOTIFIER.

The NFS-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 NFS-3030 supports up to 3,180 intelligent addressable devices.

Information is critical to fire evacuation personnel, and the NFS-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 multichannel voice; firefighters telephone; LED, LCD, or PC-based graphic annunciators; fire or integration networking; advanced detection products for challenging environments, and many additional options.

Features

- One to ten isolated intelligent Signaling Line Circuits (SLC) Style 4, 6 or 7.
- Up to 159 detectors (any mix of ion, photo, laser photo, thermal, or multi-sensor) and 159 modules (N.O. manual stations, two-wire smoke, notification, or relay) per SLC. 318 devices per loop/3180 per FACP or network node.
- Large 640-character LCD backlit display (16 lines x 40 characters) or display-less (a node on a network).
- Network option – supports NFS-640, NFS-3030, NCA Network Annunciator, or NCS Network Control Station.
- UniNet[®] compatible.
- Built-in Alarm, Trouble, Security, and Supervisory relays.
- **VeriFire[®] Tools** online/offline program option.
- Application code is saved in Flash memory, eliminating the need to change EPROMs.
- Built-in Degraded Mode option. In the event of a CPU failure, the system is capable of general alarm if a fire condition is present.
- Weekly Occupancy Schedules allow changing sensitivity by time of day and day of week.
- Optional universal 2040-point DACT.
- EIA-485 annunciators, including custom graphics.
- Printer interface (80-column and 40-column printers).
- 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 tally.
- Autoprogramming and Walk Test reports.
- Positive Alarm Sequence (PAS) Presignal.
- Silence inhibit and Auto Silence timer options.

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CS118 Vol. 25/
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DENVER**

**NFS-3030 shown in CAB-C4 backbox
with 640-character display**

- March time and temporal signals supported on panel circuits.
- 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.
- Powerful Boolean logic equations — 1000!
- Supports SCS Series smoke control system in both HVAC or FSCS modes.
- EIA-232 printer port.
- EIA-485 annunciator port.

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This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information, contact **NOTIFIER**. Phone: (203) 484-7161 FAX: (203) 484-7118



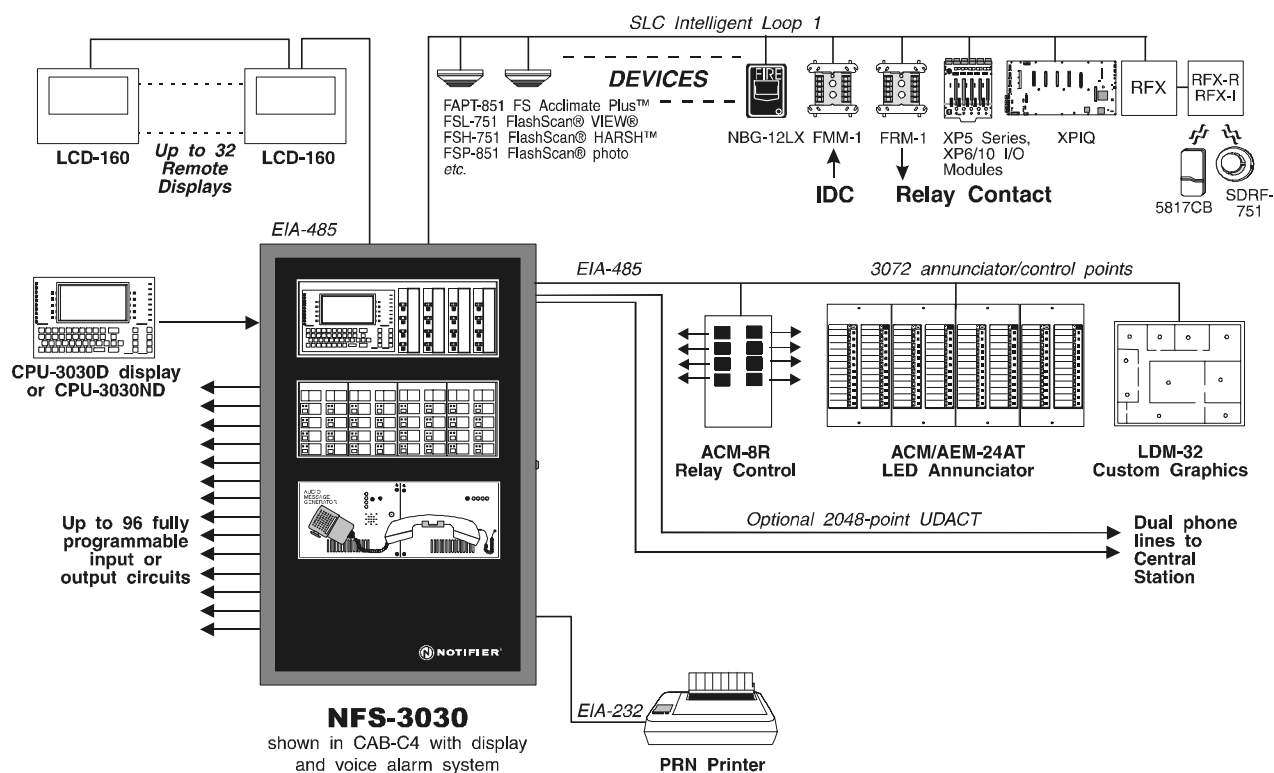
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- **640-character display features:**
 - ✓ Backlit, 640-character display.
 - ✓ Program keypad: full QWERTY keypad.
 - ✓ Up to nine users, each with a password and selectable access levels.
 - ✓ **10 LED indicators:** Power; Fire Alarm; Pre-Alarm; Security; Supervisory; System Trouble; Other Event; Signals Silenced; Point Disabled; CPU Failure.
 - ✓ **Membrane Switch Controls:** Acknowledge; Signal Silence; Drill; System Reset; Lamp Test.
 - ✓ **LCD Display:** 640 characters (16 x 40) with long-life LED backlight.
- **FlashScan® intelligent features:**
 - ✓ Poll 318 devices on each loop 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 intelligent sensing — nine levels.
 - ✓ 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).
 - ✓ 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.
 - ✓ Programmable activation of sounder/relay bases during alarm or pre-alarm.
 - ✓ Read Status displays the level of detector cleanliness.
- **VIEW® Very Intelligent Early Warning smoke detection technology:**
 - ✓ Revolutionary spot laser design.
 - ✓ Advanced 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.
 - ✓ Low-temperature signal at 40°F ± 5°F (4.44°C ± 2.77°C).
- **RFX Wireless Interface System:**
 - ✓ Allows protection in areas where the use of wire is uneconomical or impractical.
 - ✓ Allows communication with wireless smoke detectors and wireless monitor modules; each RFX unit and detector is assigned an address.
 - ✓ Requires 24 VDC from SLC or system auxiliary power.
- **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.

Sample System Options



- **Releasing features:**
 - ✓ Ten independent hazards.
 - ✓ Sophisticated cross-zone (three options).
 - ✓ Delay timer and Discharge timers (adjustable).
 - ✓ Abort (four options).
- **Voice and telephone features:**
 - ✓ Solid state message generation.
 - ✓ Hard-wired voice control module options.
 - ✓ Firefighter telephone option.
 - ✓ 30- to 120-watt high-efficiency amplifiers (AA Series).
 - ✓ Backup tone generator and amplifier option.
 - ✓ Multichannel voice transponder (XPIQ).

FlashScan® Exclusive New World-Leading Detector Protocol

At the heart of the NFS-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 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-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.

Intelligent Sensing

Intelligent sensing is a set of software algorithms that provide the NFS-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 NFS-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 Code 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, 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 this 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-3030. It is a special software routine that allows the NFS-3030 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.

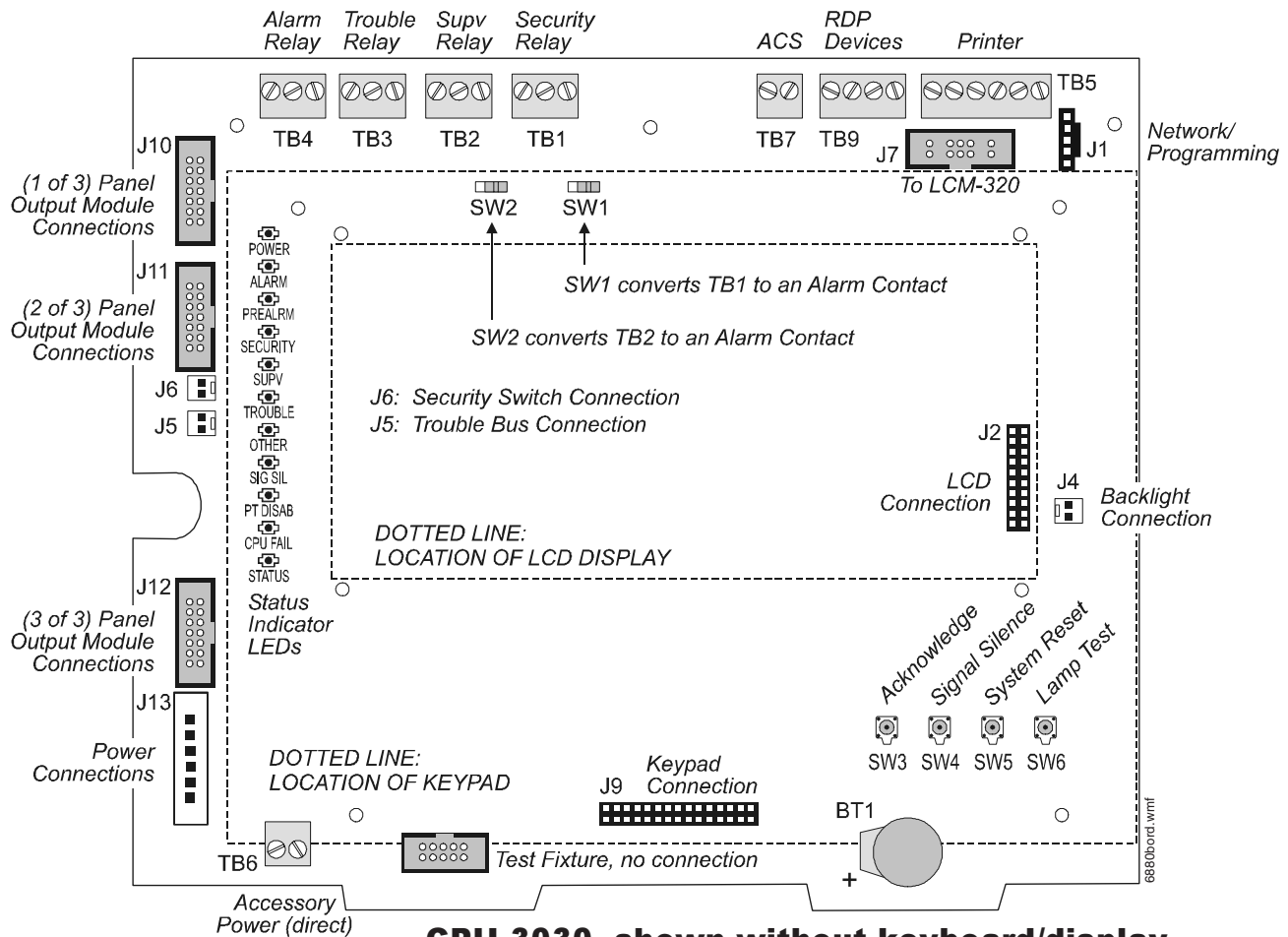
Keypad Program Edit. The NFS-3030, like all NOTIFIER intelligent panels, has the exclusive feature of program creation and editing capability from the front panel keypad, **while continuing to provide fire protection.** The architecture of the NFS-3030 software is such that each point entry carries its own program, including control-by-event links to other points. This allows the program to be entered with independent per-point segments, while the NFS-3030 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-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.

AUTOPROGRAM CONFIRMATION		
LOOP	DETECTORS	MODULES
1	011	087
2	030	129
3	NOT INSTALLED	
4	NOT INSTALLED	
5	NOT INSTALLED	
6	NOT INSTALLED	
7	NOT INSTALLED	
8	NOT INSTALLED	
9	NOT INSTALLED	
10	NOT INSTALLED	
		ACCEPT
		ALL
REVIEW		BACK

6880prog.wmf

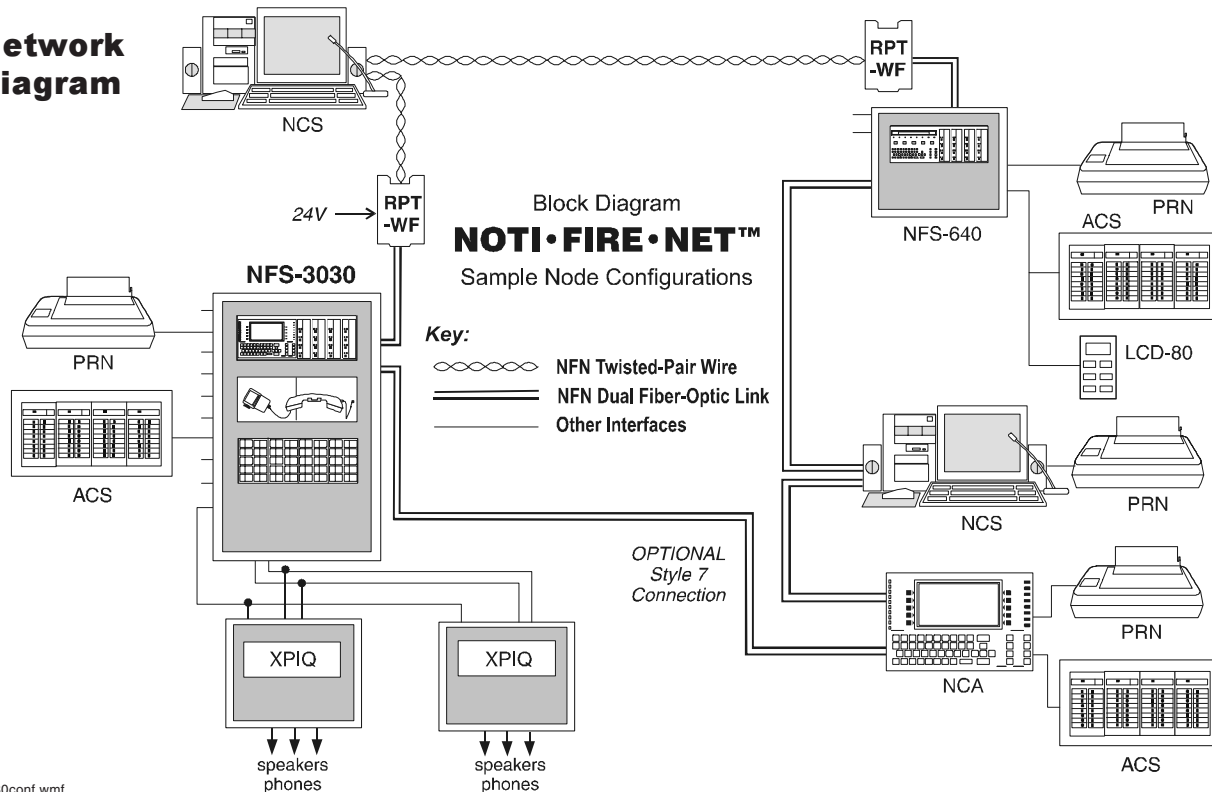
Autoprogram Confirmation screen (SLCs)



CPU-3030, shown without keypad/display

The control panel electronics are contained on one printed circuit board (PCB) that holds the central processing unit (CPU-3030). The CPU-3030 can be purchased with or without keypad and display; connections are identical on both versions. Diagram shows location of connections, switches, jumpers, and LEDs on the circuit board.

Network Diagram



The ONYX® Series provides integrated solutions for any fire safety application.



Placement of Equipment in Chassis and Cabinet

The following guidelines outline the NFS-3030's flexible system design.

Rows: The first row of equipment in the cabinet mounts in chassis **CHS-M3**. Mount the second, third, or fourth rows of equipment in chassis **CHS-4MB** (see *NFS-3030 Installation Manual* regarding panel output modules) or **CHS-4L** (for voice components, see *Voice Alarm System Manual*).

Wiring: When designing the cabinet layout, consider separation of power-limited and non-power-limited wiring as discussed in the *NFS-3030 Installation Manual*.

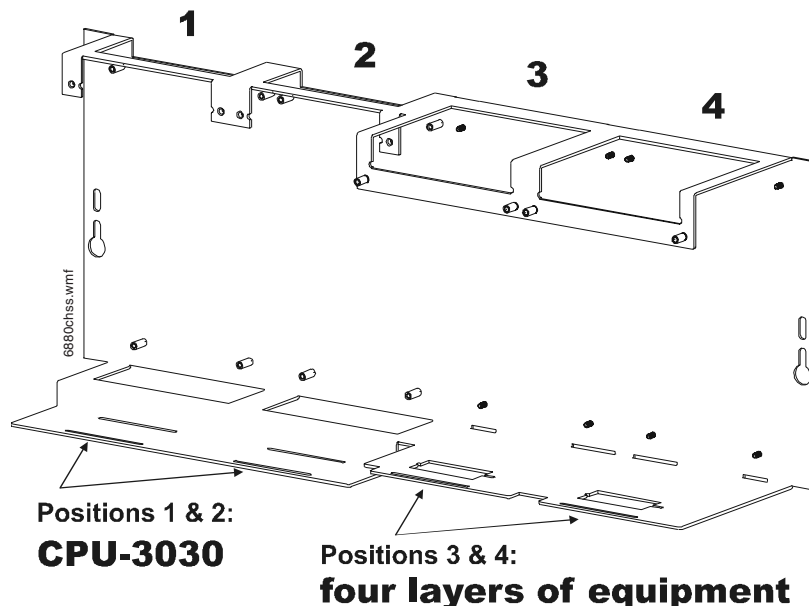
Positions: A chassis offers four basic side-by-side positions for components; the number of modules that can be mounted in each position depends on the chassis model and the size of the individual module. There are a variety of stand-offs and hardware items available for different combinations and configurations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

⚠ CAUTION! ⚠

It is critical that all mounting holes of the NFS-3030 are secured with a screw or standoff to ensure continuity of Earth Ground.

Layers: The CPU-3030 mounts in chassis **CHS-M3** in the top row of the cabinet. The CPU-3030 and its optional display occupy the left half of the chassis (positions 1 and 2). If NCA is used, it may be door-mounted in front of a displayless CPU-3030ND. The right half (positions 3 and 4) of **CHS-M3** can hold up to four layers of equipment including annunciators, panel output modules, and option boards. The **BMP-1** Blank Module Plate covers unused positions and also provides a location to door-mount some option boards. Second, third, and fourth tiers of equipment use any chassis compatible with **CAB-4** Series backboxes, such as the **CHS-4MB**. Some equipment, such as the **NCA** and annunciators, can be door-mounted; refer to equipment documentation for details.

Expansion: Loop Control Module **LCM-320** adds SLC loops to the NFS-3030; the Loop Expander Module **LEM-320** expands an **LCM-320**; adding another loop. The NFS-3030 supports up to five LCMs and up to five LEMs. Other option boards include the **NCM-W**, **NCM-F**, and the **TM-4**. Panel modules include **CRM-4RK**, **DCM-4RK**, **ICM-4RK**, **IZE-A**, **IZM-8RK**, **VCM-4RK**, and their respective expanders.



Agency Listings and Approvals

See the first page of this data sheet for listing agencies and file numbers. These listings and approvals apply to the basic NFS-3030 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.

The NFS-3030 complies with UL Standards 864 (Fire) and 1076 (Burglary). It is designed to meet NFPA 72 Local, Auxiliary, Remote Station, Proprietary, and Emergency Voice/Alarm Fire System Requirements.

Specifications

- Primary input power, **AMPS-24**: 120 VAC, 50/60 Hz, 3.0 amps. **AMPS-24E**: 220/240 VAC, 50/60 Hz, 1.5 Amps.
- **Total** output 24 V power: 4.5 A in alarm.*
- General purpose power: 1.0 A.
- Battery charger range: 25 AH – 200 AH. Use separate cabinet for batteries over 25 AH.
- Float Rate: 27.6 V.
- Temperature and humidity ranges: This system meets NFPA requirements for operation at 0°C to 49°C (32°F to 120°F); and at a relative humidity (noncondensing) of 85% at 30°C (86°F) per NFPA, and 93% ± 2% at 32°C ± 2°C (89.6°F ± 1.1°F) per UL. However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and all peripherals be installed in an environment with a nominal room temperature of 15°C to 27°C (60°F to 80°F).

***Note:** The power supply has a total of 4.5 Amps of available power.

System Capacity

- Intelligent Signaling Line Circuits 1 expandable to 10
- Intelligent detectors 159 per loop
- Addressable monitor/control modules 159 per loop
- Programmable input and output panel circuits 96
- Programmable software zones over 2000
- ACS annunciators per CPU-3030 32 address x 64 or 96* points

***Note:** The CPU-3030 can support up to 96 annunciator address points per ACM-24/-48.

PRODUCT LINE INFORMATION

- Configuration Guidelines
- Network Options
- Power Supplies
- System Modules
- Audio Options
- Compatible Devices, EIA-232 Ports
- Compatible Devices, EIA-485 Ports
- Compatible Intelligent Devices
- Other Options

Configuration Guidelines

Stand-alone and network systems require a main display. On single-CPU systems (one NFS-3030), the display option is the CPU-3030D. On network systems (two or more NFS-3030s and/or NFS-640s), at least one NCA or NCS annunciation device is required. Options listed as follows:

CPU-3030D: NFS-3030 Primary Display. CPU-3030D ships with keypad/display installed; includes 640-character backlit LCD display, QWERTY programming and control keypad. **CPU-3030** is a central processing unit and requires an **AMPS-24(E)** power supply.

CPU-3030ND: CPU-3030 without display.

VeriFire-TCD: **VeriFire® Tools** CD-ROM. Contains pro-

gramming software for the NFS-3030, NFS-640, NCA, and XPIQ. Includes local panel connection cable. *Programming PC requires a serial port connection.* **See DN-6871.**

LCM-320: Loop Control Module. Adds SLCs to 3030; 3030 supports up to 5 LCM-320s and 5 LEM-320s. **See DN-6881.**

LEM-320: Loop Expander Module. Expands each LCM used on the 3030. **See DN-6881.**

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

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

BMP-1: Blank module for unused module positions.

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

Network Options

NCA: Network Control Annunciator, 640 characters. An alternate primary display for CPU-3030 can be provided by the NCA or the NCS. Using NCA as primary display enables non-English languages. When used on single CPU-3030 systems, the NCA is the Primary Display for the panel and connects directly to the CPU-3030. On network systems (two or more CPU-3030s), one network display (either NCA or NCS) is required for every system. On network systems, the NCA connects (and requires) an NCM network communications 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. **See DN-6858.**

NCM-W: Network Communications Module, Wire. Order one NCM per network node (CPU-3030 or NCA). **See DN-6861.**

NCM-F: Network Communications Module, Fiber. Order one NCM per network node (CPU-3030 or NCA). **See DN-6861.**

RPT-W: repeater board; wire connection. **See DN-4644.**

RPT-F: repeater board; fiber connection. **See DN-4644.**

RPT-WF: repeater board; allows a change in media type between wire and fiber. **See DN-4644.**

NCS-W-ONLYX: 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 (previous NCS-W), DN-6869 (NCS-W-ONLYX).**

NCS-F-ONLYX: 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 DN-6868 (previous NCS-F), DN-6869 (NCS-F-ONLYX).**

Power Supplies

AMPS-24(E): One required for each NFS-3030. Addressable power supply and battery charger with two 24 VDC outputs. Addressable by any FlashScan® or CLIP mode FACP. Charges 25 to 200 AH batteries. Occupies up to four addresses on an SLC, depending on configuration. Primary input power for panel; **AMPS-24**: 120 VAC, 50/60 Hz, 3.0 amps. **AMPS-24E**: 220/240 VAC, 50/60 Hz, 1.5 Amps. **See DN-6883.**

BB-100: Battery and power supply backbox. The BB-100 is used to mount the AMPS-24(E) power supply (the main power supply does not mount in the main cabinet). It also mounts up to two PS-121000 100-AH batteries. 30" (76.20 cm) wide x 25" (63.50 cm) high x 7.5" (19.05 cm) deep; depth includes door.

BB-200: Battery and power supply backbox. The BB-200 is used to mount the AMPS-24(E) power supply (the main power supply does not mount in the main cabinet). It also mounts up to four PS-121000 100-AH batteries. 30" (76.20 cm) wide x 36" (91.44 cm) high x 7.5" (19.05 cm) deep; depth includes door.

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

APS-6R: Auxiliary Power Supply (expander). Provides up to 6.0 amperes of regulated power for compatible Notification Appliance Circuits. Includes battery input and transfer relay, and overcurrent protection. Mounts on one of four positions on a CHS-4L or CHS-4 chassis. *See DN-5952.*

ACPS-2406: 6.0 amp addressable charger power supply. *See DN-6834.*

FCPS-24: The FCPS-24 is a remote six-amp (four-amp continuous) repeater/power supply. *See DN-5132.*

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

BAT Series: NFS-3030 utilizes two 12 volt, 12 to 55 AH batteries. *See DN-6933.*

PS Series: NFS-3030 utilizes two 12 volt, 25 to 200 AH batteries. *See DN-1109.*

System Modules

*The NFS-3030 includes the ability to communicate with up to twelve conventional modules each with up to eight circuits. Any mix of initiating, notification, relay, speaker, or telephone may be used. Choose any combination of up to eight input (IZM/IZE) or output modules: ICM/ICE, CRM/CRE, DCM or VCM/VCE. Panel modules mount on either: the two far-right positions of the **CHS-M3** (next to the primary display); or on any of the four positions on the **CHS-4N** chassis (**CHS-4MN** kit required). **NOTES:** 1) *These modules/expanders are NOT to be used for releasing applications.* 2) *For additional information on these panel circuit modules and expanders, see data sheet DN-6859.**

CHS-4MB: Expansion Chassis. Mounts up to four modules. Includes **CHS-4N**, **MP-1B** (Module Dress Panel), and **Expander Ribbon Cable**.

IZM-8RK and IZE-A: The IZM-8RK includes eight Class B (Style B) Initiating Zones (Initiating Device Circuits) that can be selected for Class A/B with the addition of an IZE-A expander module. Each IZM/IZE zone can be programmed for a variety of initiating devices functions including: dry contact input, two-wire smoke detection, flow, tamper, non-fire, and many others. The IZM-8RK (with optional IZE-A) mounts in one of four possible positions on the CHS-4N mounting chassis. IZE-A Initiating Zone Expander; when used with IZM-8RK, provides eight Style D (Class A) alarm initiating circuits.

ICM-4RK: Notification Appliance Circuit Module, provides four Style Y (Class B) or Style Z (Class A) alarm Notification Appliance Circuits. Maximum signaling current is 3.0 amps per circuit or 6.0 amps per module, subject to power supply limitations (includes auxiliary power harness, ELRs and slide-in labels). Includes ON/OFF controls and ON/OFF LEDs.

ICE-4: Notification Appliance Circuit Expander, expands ICM-4 to provide a total of eight Style Y or Style Z alarm Notification Appliance Circuits. Circuit ratings are same as ICM-4. **Note:** *maximum of one per ICM-4RK.* May also be used to add four Notification Appliance Circuits to VCM-4.

CRM-4RK: Control Relay Module, four Form-C relay contacts, rated at 5.0 A, 120 VAC or 28 VDC (resistive) per circuit. Includes manual ON/OFF controls and LEDs.

CRE-4: Control Relay Expander, expands CRM-4 to provide a total of eight Form-C relay contacts. **Note:** *maximum of one per CRM-4RK.* May also be connected to add four relays to ICM-4 or VCM-4.

VCM-4RK: Voice Control Module provides four Style Y (25 and 70 VRMS) and Style Z (25 VRMS only) speaker circuits, eight manual select switches and indicators, slide-in labels, and plug-in terminal blocks. Move jumper to convert to telephone circuits with remote ring signal and local call-in flash. May be expanded to eight circuits with VCE-4, ICE-4, or CRE-4.

VCE-4: Voice Control Expander adds four circuits to VCM-4. **Note:** *VCM-4/ VCE-4 combination must be eight speaker or eight phone circuits.*

DCM-4RK: Dual Channel Module provides four Class B (Style Y, 25 and 70 VRMS) or Class A (Style Z, 25 VRMS only) speaker circuits plus four channel A/B select relays. Not expandable.

ARM-4: Auxiliary Relay Module, four Form-C relays controlled by a relay module (CRM-4 or CRE-4). N.O. contacts rated 20 amps; N.C. contacts rated 10 amps at 125 VAC and 30 VDC. **Note:** *maximum of one for each CRM-4 or CRE-4.*

Audio Options

VCC-1B: Voice Control Center. Provides a variety of user-selectable tones on a single channel. Up to two different tones or messages may be selected on a single channel. Also provides optional digital voice message capability and **on-site** programmable voice messages. Includes Audio Message Generator (**AMG-1**) microphone, cables, dress panels, and instructions.

VTCC-1B: Voice/Telephone Control Center. Provides all that the VCC-1 provides plus two-way Fire Fighters Telephone (**FFT-7**) capability.

TCC-1B: Telephone Control Center. Provides a stand-alone two-way Fire Fighters telephone (**FFT-7S**). Includes cables, dress panel and instructions.

AMG-E: Audio Message Generator (without microphone). Order in addition to VCC-1 or VTCC-1 if two-channel system is required.

FFT-7/FFT-7S: Fire Fighters Telephone control with master handset.

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

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. Switch-mode power. Includes amplifier and audio input supervision, backup input, and automatic switchover, power supply, cables. *See DN-3224.*

AA-120/AA-100: Audio Amplifier provides up to 120 watts of 25 VRMS audio power. 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.*

VROM-(n): Factory-programmed message for installation in AMG-1. Provides up to 24 seconds of evacuation message on nonvolatile memory chip. Choose one of many standard messages available. Up to two of these messages may be installed in one AMG. Includes VROM, instructions for installation and operation, and written text of message. *See DN-3576.*

VRAM-1: Field-programmed memory to be installed in AMG-1. Provides up to 24 seconds of field-programmable evacuation message on nonvolatile memory chip. Message is programmed from microphone or cassette tape. Up to two of these nonvolatile memory chips may be installed in one AMG. Includes VRAM and instructions for installation and operation

XP Series: The XP Series Transponder provides conventional monitor and control points (CLIP mode only). *See DN-0759.*

XPIQ: The XPIQ quad intelligent voice transponder for distributed multichannel voice evacuation systems, an integrated audio amplification and distribution subsystem controlled by FACP. Capable of playing up to four simultaneous messages. Accepts up to four 25-watt amplifiers. *See DN-6823.*

Compatible Devices, EIA-232 Ports

PRN-5: 80-column printer. *See DN-6769.*

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

VS4095/S2: Printer, 40-column, 24 V. *See DN-3260; order from Keltron, Inc.*

Compatible Devices, EIA-485 Ports

ACS Series: Annunciator Control Modules **ACM-16AT**, **AEM-16AT**, **ACM-32A**, and **AEM-32A**. *See DN-0524.*

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

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

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

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

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

LCD-80: Liquid Crystal Display annunciator, 80-characters backlit. Use in ACS mode only. *See DN-3198.*

LCD-160: Liquid Crystal Display annunciator, 160-character backlit. Can store character sets for multiple languages. Supports Canadian requirements. *See DN-6940.*

LDM Series: Lamp Driver Modules **LDM-32**, **LDM-E32**, and **LDM-R32**. *See DN-0551.*

RFX: Wireless interface system. *See DN-6739.*

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

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: 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 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.*

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

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

FAPT-851: FlashScan® Acclimate Plus™ low-profile multisensor detector, will replace FAPT-751. *See DN-6937.*

FAPT-751: Acclimate Plus™ low-profile multisensor detector. *See DN-6883.*

B224RB: Low-profile relay base. *See DN-2243.*

B224BI: Isolator base for low-profile detectors. *See DN-2243.*

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® 2-wire det. 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.*

FSM-101: FlashScan® pull station monitor module.

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

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

XP Series: Transponders, provide conventional monitor and control points (CLIP mode only). *See DN-0759.*

XP5-M: FlashScan® transponder, 5 monitor points. *See DN-6625.*

XP5-C: FlashScan® transponder, five control points or Form-C relays. *See DN-6625.*

XP6-C: Six-supervised control module; monitors wiring to devices that require external power supply to operate. *See DN-6924.*

XP6-MA: Six-zone module for interface between intelligent alarm system and a two-wire conventional detection zone. *See DN-6925.*

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

XP10-M: Ten-input monitor module; interface between a control panel and normally-open contact devices. *See DN-6927.*

XPIQ: Intelligent quad transponder. *See DN-6823.*

Other Options

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

CHS-4N: 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 or to cover AA-30, AA-120, or AMG-E.

CAB-4 Series: The CAB-4 Series cabinets are fabricated from 16-gauge steel with unique full-front LEXAN®, reverse-silk-screened for durability. The cabinet assembly consists of two basic parts: a Backbox (SBB-_4), and a Locking Door (DR-_4) that may hinge right or left. Cabinets are available in four sizes, "A" through "D", with one to four tiers. A trim ring option is available for semi-flush mounting. *See DN-6857.*