

# AFP-3030NZ

## Intelligent Fire Alarm Control Panel



Intelligent Fire Systems

### GENERAL

The AFP-3030NZ is an intelligent Fire Alarm Control Panel (FACP) with a flexible and scalable architecture which makes it suitable for virtually any application including large scale networked facilities. Fire emergency detection and evacuation are extremely critical to life safety, and the AFP-3030NZ is ideally suited for these applications.

The AFP-3030NZ is part of the ONYX® Series of products from NOTIFIER. With one to ten Signaling Line Circuits (SLCs), the AFP-3030NZ supports up to 3,180 intelligent addressable devices per panel and is networkable up to 200 nodes.

A host of other options are available, including single- or multichannel voice; LED, LCD, or PC-based graphic annunciators; networking; advanced detection products for challenging environments, and many additional options.

Connectivity with a range of NOTI•FIRE•NET™ integration options such as Bacnet, Modbus, OnyxWorks and Notifier WebServer (NWS-3) permit the AFP-3030NZ and NOTI•FIRE•NET™ to integrate into critical component building management systems.

### FEATURES

- One to ten isolated intelligent Signaling Line Circuits
- 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 ionization, photo, laser photo, thermal, or multi-criteria detectors; modules can be addressable manual call points, normally open contact devices, two-wire smoke detectors, notification, relay or 4-20 mA modules
- Large 640-character LCD backlit display or display-less (a node on a network)
- Network up to 200 nodes with high-speed Noti-Fire-Net
- VeriFire Tools non-proprietary online/offline program, test and reporting PC software.
- Weekly Occupancy Schedules allow changing sensitivity by time of day and day of week
- With built-in SLC Local mode operation; the system is capable of activating sounders and relays if a fire alarm condition is present even if the central processing unit (CPU) fails
- Range of annunciators for ancillary display & control
- History file with 4000-event capacity plus separate 1000-event alarm-only file
- Advanced history filters allow sorting by event, time, date, or address
- Alarm Verification Facility (AVF) selection per point, with automatic counter
- Auto-programming and Walk Test reports
- Alarm delay operation
- Field-programmable on panel with QWERTY keypad
- Non-alarm points for lower priority functions
- Remote Silence, System Reset, Evacuate via monitor modules
- Support for AS1668.1 compliant smoke control with SCS Series smoke control system



AFP-3030NZ in CAB-900 and CAB650

## Display Features

- Large LCD Display: 640 characters (16 lines x 40 characters) with long-life LED backlight
- Program keypad: full QWERTY keypad for field programmability
- User Control: Up to nine users, each with a password and selectable access levels
- LED indicators: Fire; Pre-Alarm; Fault; Disable; Supervisory; Other Event; System Fault; Alarm Routing Equipment Status; Alarm Devices Status; Smoke Control Status; Controls Active
- Membrane Switch Controls: Silence Buzzer; Silence/Re-sound Alarm; Scroll Alarms; Reset; Disable

## 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
- Manual sensitivity adjustment - up to nine levels
- Pre-alarm ONYX intelligent sensing - up to nine levels
- Sensitivity levels:
  - Ionization – 0.3 to 0.6 MIC X
  - Photo electric – 2.0 to 8.0%/metre obscuration
  - Laser (VIEW®) – 0.07 to 6.4%/metre obscuration
  - Acclimate Plus™ – 2.0 to 10.0%/metre obscuration
  - IntelliQuad™ – 1.6 to 12.5%/metre obscuration
- Drift compensation
- Multi-detector algorithm involves nearby detectors in alarm decision
- 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

## FSP-851AUS

### Photoelectric Smoke Sensor

- Advanced ONYX intelligent sensing including automatic drift compensation to reduce unwanted alarms and provide warning of contamination build-up
- Addressable operation pinpoints the fire location
- Protection against the entry of insects and other contaminants

## FAPT-851AUS Acclimate Plus™ Intelligent Multi-Criteria Detector

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

## FSC-851AUS 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

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

- Advanced ONYX intelligent sensing algorithms differentiate between smoke and non-smoke signals
- Addressable operation pinpoints the fire location
- Early warning performance comparable to the best aspiration systems at a fraction of the lifetime cost

## FST-851(R)-WP

### Sealed Thermal Sensor

- Suitable for harsh environments with wide operating temperature and sealed to IP67
- Addressable operation pinpoints the fire location and annunciates alarm with dual LEDs

## FMM-4-20 Interface Module

- Interface to industry standard linear scale 4-20mA sensors
- Five programmable thresholds

## Voice Evacuation Features

- 30/60/120 watt digital amplifiers (DA Series)
- Solid state message generation
- Hard-wired voice control module options
- Backup tone generator and amplifier option

## **FLASHSCAN® WORLD LEADING DETECTOR PROTOCOL**

At the heart of the AFP-3030NZ is a set of detection devices and device protocol — FlashScan. 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 of communication also allows the AFP-3030NZ 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 FlashScan® detectors have bicolor LEDs that can be coded to provide diagnostic information, such as device address during Walk Test.

## **ONYX INTELLIGENT SENSING REDUCING UNWANTED ALARMS**

ONYX Intelligent Sensing is a set of software algorithms that provide the AFP-3030NZ 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 AFP-3030NZ.

**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 AS1851. 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.

**Co-operative 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.

**Alarm Verification Facility (AVF).** All devices are capable of performing an alarm verification facility, whereby communication between the panel and the device performs an additional confirmation of an alarm event in order to reduce unwanted spurious alarms.

## **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 AFP-3030NZ 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 AFP-3030NZ 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 AFP-3030NZ simultaneously monitors other (already installed) points for alarm conditions.

**VeriFire Tools.** VeriFire Tools is a non-proprietary offline programming, test and reporting 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 program for the AFP-3030NZ and the entire network 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. VeriFire Tools can use Noti-Fire-Net to configure, diagnose or report on any node(s) from any location around the network.

## **ONYX INTELLIGENT TESTING**

**Intelligent Walk Test.** One man walk test allows the testing engineer to activate devices on the system to ensure correct operation and connection. During a walk test ONYX AFP-3030NZ will deactivate intelligent algorithms in the devices resulting in a further 60% reduction in test time.

**Alarm Test.** When Alarm Test is activated on a specific device or devices on the system, the test engineer is capable of verifying the cause and effect of the device in the same manner as an alarm event removing the need to actually activate a device which may be difficult to access for this task.

**Automatic Device Test.** Each Notifier FlashScan detector is capable of performing an automatic device test each 24 hours to ensure correct communication and operation between FACP and device.

## PRODUCT LINE INFORMATION

### Main System Components

CPU2-3030NZ: AFP-3030NZ central processing unit including field interfaces.

DISP-3030NZ: Keypad and display; includes 640-character backlit LCD display, QWERTY programming and control keypad.

NPS-5CHS/NPS-11CHS: 24VDC power supply unit for AFP-3030NZ

ELCM-320: Loop Control Module. Provides one SLC. AFP-3030NZ supports up to five LCM-320s and five LEM-320 expanders for a total of ten SLCs.

LEM-320: Loop Expander Module. Expands an ELCM-320.

### Networking Options

NCA-2: Network Control Annunciator, 640 characters. An alternate primary display for CPU2-3030NZ can be provided by the NCA-2, or ONYXWorks. On network systems, the NCA-2 connects to a standard NCM or HS-NCM. See DOC-02-166.

AFP-2800: Addressable fire alarm control panel. DOC-02-023

NCM-W, NCM-F: Standard Network Communications Modules. Wire and multi-mode fiber versions available. See DOC-02-109.

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 DOC-02-072.

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 DOC-02-165.

ONYXWorks: Graphics PC workstation, ONYXWorks GUI software, and computer hardware. See DOC-02-080.

NFN-GW-EM-3: NFN Gateway, embedded. See DOC-02-091.

NWS-3: NOTI•FIRE•NET™ Web Server. See DOC-02-079.

VESDA-HLI-GW: VESDAnet high-level interface gateway. See DOC-02-142.

BACNET-GW-3: Bacnet Gateway, embedded. See DOC-02-082.

MODBUS-GW-3: Modbus Gateway, embedded. See DOC-02-097.

### Auxiliary Power Supplies and Batteries

NPS-5S: One optional for each AFP-3030NZ. Power supply and battery charger with two 24 VDC outputs up to 5A output total. Charges 7 to 200 AH batteries. Auxiliary power for panel or panel equipment.

NPS-11S: One optional for each AFP-3030NZ. Power supply and battery charger with two 24 VDC outputs up to 11A output total. Charges 7 to 200 AH batteries. Auxiliary power for panel or panel equipment.

BATT Series: Batteries. PS5/PS11 and NPS-5S/NPS-11S use two 12 volt, 7 to 200 AH batteries. See DOC-02-171.

### Audio Options

DA-30/DA-60/DA-120: Digital Amplifier. DA-30 is 30 watts, DA-60 is 60 watts, DA-120 is 120 watts, 100 Vrms. Includes audio input and amplified output supervision. See DOC-02-066

DA-DISP/A, DA-DISP/B, DA-DISP/C, DA-DISP/D, DA-DISP/E: Display control and paging microphone modules for DA series amplifiers. See DOC-02-066.

SDM-4: 4 way Speaker distribution module for use with DA series amplifiers. See DOC-02-085

### 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 DOC-02-167.

AEM-24AT: Same LED and switch capabilities as ACM-24AT; expands the ACM-24AT to 48, 72, or 96 points. See DOC-02-167.

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 DOC-02-167.

AEM-48A: Same LED capabilities as ACM-48A; expands the ACM-48A to 96 points. See DOC-02-167.

ACM-8RA: Relay Module with eight Form-C contacts. See DOC-02-168.

LCD2-80: Terminal and ACS mode. 80-character, backlit LCD display. Mounts up to 1800m from panel. Up to 32 per FACP. See DOC-02-169.

SCS Series (SCS-8A, SCE-8A, SCS-8L): Smoke control station; eight (expandable to 16) circuits. See DOC-02-035.

LDM-32: Lamp Driver Module - up to 32 points that provide low-current outputs to LEDs, typically used for graphical mimics. See DOC-02-035.

LDM-E32: Same LED output capabilities as LDM-32; expands outputs up to 64 points. See DOC-02-035.

LDM-R32: Relay module for LDM-32, LDM-E32 - up to 32 points that provide 1A relay outputs. See DOC-02-035.

MIM900/8I: Zone Index Mimic - 8 zones fitted.

MIM425/8I: Zone Index Mimic - 8 zones fitted.

### Compatible Intelligent Devices

FSB-200: Intelligent beam smoke detector. See DOC-02-051.

FSB-200S: Intelligent beam smoke detector with integral sensitivity test. DOC-02-051.

FSC-851: FlashScan IntelliQuad Advanced Multi-Criteria Detector. See DOC-02-048.

FSI-851AUS: Low-profile FlashScan ionization detector. See DOC-02-025.

FSP-851AUS: Low-profile FlashScan photoelectric detector. See DOC-02-026.

FST-851AUS: FlashScan thermal detector 57°C. See DOC-02-027.

FST-851RAUS: FlashScan thermal detector 57°C with rate-of-rise. See DOC-02-027.

FST-851-WP: FlashScan sealed thermal detector 57°C. See DOC-02-135.

FST-851R-WP: FlashScan sealed thermal detector 57°C with rate-of-rise. See DOC-02-135.

FST-851HAUS: FlashScan 88°C high-temperature thermal detector. See DOC-02-027.

FAPT-851AUS: FlashScan Acclimate Plus™ low-profile multi-sensor detector. See DOC-02-029.

FSL-751: FlashScan VIEW® laser photo detector. See DOC-02-049.

SDX-851AUS: Low-profile CLIP photoelectric detector. See DOC-02-128.

FDX-851AUS: FlashScan thermal detector 57°C. See DOC-02-133.

FDX-851RAUS: FlashScan thermal detector 57°C with rate-of-rise. See DOC-02-0133.

IDX-751AE: Intrinsically-safe CLIP photoelectric detector. See DOC-02-129

DNR: InnovairFlex low-flow non-relay duct-detector housing (order FSP-851 separately). See DOC-02-098.

DNRW: Same as above with NEMA-4 rating, watertight. See DOC-02-098.

B501AUS: 4" (10.16 cm) universal detector base. See DOC-02-030.

B521IEFT-IV: 4" (10.16 cm) universal detector base with in-built short-circuit isolator. See DOC-02-030.

AAM: Alarm acknowledgement module. Models available in vertical and horizontal orientation and with (or without) remote indicator; AAM-VL, AAM-V, AAM-HL. Alarm Acknowledgement Modules. See DOC-02-086.

NFX-BS: CLIP Sounder base, Temporal 3 or Continuous tone. See DOC-02-144.

NFX-BF: CLIP Beacon base. See DOC-02-144.

NFX-BSF: CLIP Sounder beacon base, Temporal 3 or Continuous tone. See DOC-02-144.

NFX-WS: CLIP Wall Sounder Temporal 3 or Continuous tone. See DOC-02-145.

NFX-WF: CLIP Wall Beacon. See DOC-02-145.

NFX-WSF: CLIP Wall Sounder beacon, Temporal 3 or Continuous tone. See DOC-02-145.

NOTE: NFX addressable AV devices are available in a range of colours. Colour variants are included as part of the models listed above. For example red wall sounder is NFX-WS-R. Versions of NFX series addressable AV are available with in-built short circuit isolator. These are designated in the model NFXI. for example red wall sounder with isolator is NFXI-WS-R.

FMM-1: FlashScan monitor module. See DOC-02-040.

FDM-1: FlashScan dual monitor module. See DOC-02-040.

FZM-1: FlashScan conventional zone module. See DOC-02-040.

FMM-101: FlashScan miniature monitor module. See DOC-02-040.

FMM-4-20: FlashScan 4-20 mA protocol monitor module. See DOC-02-170.

FCM-1: FlashScan control module. See DOC-02-038.

FRM-1: FlashScan relay module. See DOC-02-038.

FDMR-1: FlashScan dual monitor/dual relay module. See DOC-02-033.

NFX-MCP-GLASS: FlashScan manual call point, addressable. See DOC-02-088.

ISO-X: Isolator module. See DOC-02-042.

WCP-5A: CLIP outdoor manual call point. See DOC-02-088.

XP6-C: FlashScan six-way monitored control module. See DOC-02-044.

XP6-MA: FlashScan six-zone interface module; connects intelligent alarm system to two-wire conventional detection zone. See DOC-02-043.

XP6-R: FlashScan six-relay (Form-C) control module. See DOC-02-045.

XP10-M: FlashScan ten-input monitor module. See DOC-02-046.

IMX-IE: Translator module for use with intrinsically safe devices. See DOC-02-129

Y-2221: Single channel galvanic isolator for use with IMX-IE. See DOC-02-129.

SLC-IM: SLC integration module, for VESDAnet detectors or modbus devices. See DOC-02-174

## Enclosures, Chassis and Dress Plates

**CAB Series Enclosures:** AFP-3030NZ mounts in a standard CAB Series enclosure (available in two sizes, CAB650 and CAB900). The CAB series enclosures are available with a solid and window outer door. A trim ring option is available for semi-flush mounting.

**U Series Enclosures:** AFP-3030NZ mounts in a "U" Series enclosure (available in three sizes, 18U, 28U and 40U). The "U" Series cabinets are available with a solid and window outer door. Custom trim ring options are available for semi-flush mounting.

**BMP-1:** Blank module for unused module positions.

**CHS-3L:** Low-profile Chassis. Mounts up to three modules in any CAB series row.

**CHS-4L:** Low-profile Chassis. Mounts up to four modules in any U series row.

**CHS-4:** Chassis used with the XP6 and XP10 Multi-Modules.

Mounts up to four modules in any CAB series row.

**CHS-6:** Chassis used with the XP6 and XP10 Multi-Modules.

Mounts up to six modules in any U series row.

**CAB650/BB:** Enclosure for batteries. The CAB650/BB is used to mount up to two 40 AH batteries if needed. 250mm high x 450mm wide x 190mm deep. Depth includes door.

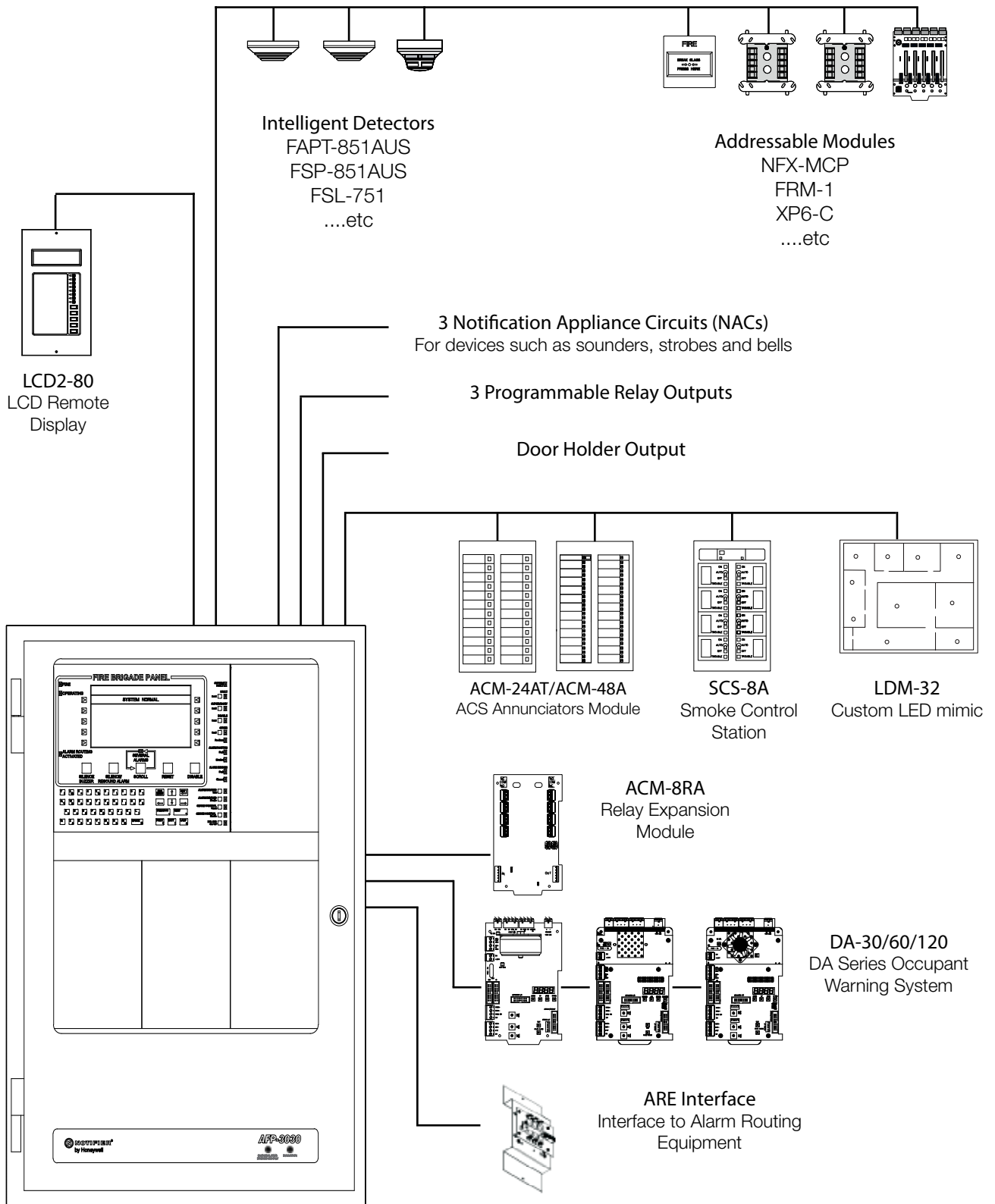
**18U/BB:** Enclosure for batteries and additional equipment. The 18U/BB is used to mount up to six 40AH batteries (three sets) if needed. 300mm high x 450mm wide x 190mm deep. Depth includes door.

## Other Options

**IFS-2008:** Agent releasing module for extinguishing agent releasing CIE in accordance with AS4214.1:2002, AS & ISO14520.1:2009. See DOC-02-020.

**IFS-993:** Strobe/sounder interface. See DOC-02-173.

NOTE: For other options including compatibility with retrofit equipment, refer to the SLC manual, and the AFP-3030NZ manual.



**AFP-3030NZ Connection Overview**

## SPECIFICATIONS

### System Capacity

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

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

### Electrical Specifications

Primary Input Power: NPS-5CHS Fitted: 240vac, 0.8A, 50Hz. NPS-11CHS Fitted: 240vac, 1.5A, 50Hz. Input Fuse: 2=M205 8.0A, 250vac

Battery: Two 12V Sealed Lead-Acid batteries. Battery charger capacity: 7AH-85AH (CAB650/CAB900 enclosures hold a maximum of two 33AH batteries)

### Current draw (Standby/Alarm):

- AFP-3030NZ (with display): 0.205 A / 0.225 A.
- AFP-3030NZ (without display): 0.140 A / 0.150 A.
- LCM-320: 0.130 A.
- LEM-320: 0.100 A.

NOTE: See AFP-3030NZ Manual # DOC-01-037 for a complete current draw calculation sheet and details of input and output values.

### Enclosure Specifications

CAB650: 650mm(h) x 450mm(w) x 190mm(d)

CAB900: 900mm(h) x 450mm(w) x 190mm(d)

CAB650/BB: 250mm(h) x 450mm(w) x 190mm(d)

18U: 887mm(h) x 610mm(w) x 285mm(d)

28U: 1330mm(h) x 610mm(w) x 375mm(d)

40U: 1865mm(h) x 610mm(w) x 375mm(d)

18U/BB: 443mm(h) x 610mm(w) x 285mm(d)

All cabinets are powder-coated black fine sand. RAL 9005

### Temperature and Humidity

This system meets AS requirements for operation at 0 – 49°C and at a relative humidity 93% ± 2%.

## 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 system consultant for latest listing status.

- NZS 4512:2010
- AS7240.2:2004 & AS7240.4:2004.
- AS4428.3:2010
- Activfire certificate # afp-2973

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QUALITY SYSTEMS

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