NOTIFIER®
by Honeywell

Network Control Annunciator
NCA-2
Instruction Manual

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P/N 52482:M1 ECN 13-0837

Fire Alarm & Emergency Communication System Limitations

While a life safety system may lower insurance rates, it is not a substitute for life and property insurance!

An automatic fire alarm system—typically made up of smoke detectors, heat detectors, manual pull stations, audible warning devices, and a fire alarm control panel (FACP) with remote notification capability—can provide early warning of a developing fire. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire.

An emergency communication system—typically made up of an automatic fire alarm system (as described above) and a life safety communication system that may include an autonomous control unit (ACU), local operating console (LOC), voice communication, and other various interoperable communication methods—can broadcast a mass notification message. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire or life safety event.

The Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premises following the recommendations of the current edition of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer's recommendations, State and local codes, and the recommendations contained in the Guide for Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. This document can be found at http://www.systemsensor.com/appguides/. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off in as many as 35% of all fires. While fire alarm systems are designed to provide early warning against fire, they do not guarantee warning or protection against fire. A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons:

Smoke detectors may not sense fire where smoke cannot reach the detectors such as in chimneys, in or behind walls, on roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level or floor of a building. A second-floor detector, for example, may not sense a first-floor or basement fire.

Particles of combustion or "smoke" from a developing fire may not reach the sensing chambers of smoke detectors because:

- Barriers such as closed or partially closed doors, walls, chimneys, even wet or humid areas may inhibit particle or smoke flow.
- Smoke particles may become "cold," stratify, and not reach the ceiling or upper walls where detectors are located.
- Smoke particles may be blown away from detectors by air outlets, such as air conditioning vents.
- Smoke particles may be drawn into air returns before reaching the detector.

The amount of "smoke" present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm at various levels of smoke density. If such density levels are not created by a developing fire at the location of detectors, the detectors will not go into alarm.

Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast-flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.

Smoke detectors cannot be expected to provide adequate warning of fires caused by arson, children playing with matches (especially in bedrooms), smoking in bed, and violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).

Heat detectors do not sense particles of combustion and alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Rate-of-rise heat detectors may be subject to reduced sensitivity over time. For this reason, the rate-of-rise feature of each detector should be tested at least once per year by a qualified fire protection specialist. Heat detectors are designed to protect property, not life.

IMPORTANT! Smoke detectors must be installed in the same room as the control panel and in rooms used by the system for the connection of alarm transmission wiring, communications, signaling, and/or power. If detectors are not so located, a developing fire may damage the alarm system, compromising its ability to report a fire.

Audible warning devices such as bells, horns, strobes, speakers and displays may not alert people if these devices are located on the other side of closed or partly open doors or are located on another floor of a building. Any warning device may fail to alert people with a disability or those who have recently consumed drugs, alcohol, or medication. Please note that:

- An emergency communication system may take priority over a fire alarm system in the event of a life safety emergency.
- Voice messaging systems must be designed to meet intelligibility requirements as defined by NFPA, local codes, and Authorities Having Jurisdiction (AHJ).
- Language and instructional requirements must be clearly disseminated on any local displays.
- Strobes can, under certain circumstances, cause seizures in people with conditions such as epilepsy.
- Studies have shown that certain people, even when they hear a fire alarm signal, do not respond to or comprehend the meaning of the signal. Audible devices, such as horns and bells, can have different tonal patterns and frequencies. It is the property owner's responsibility to conduct fire drills and other training exercises to make people aware of fire alarm signals and instruct them on the proper reaction to alarm signals.
- In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.

A life safety system will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time and only if the batteries have been properly maintained and replaced regularly.

Equipment used in the system may not be technically compatible with the control panel. It is essential to use only equipment listed for service with your control panel.

Telephone lines needed to transmit alarm signals from a premises to a central monitoring station may be out of service or temporarily disabled. For added protection against telephone line failure, backup radio transmission systems are recommended.

The most common cause of life safety system malfunction is inadequate maintenance. To keep the entire life safety system in excellent working order, ongoing maintenance is required per the manufacturer's recommendations, and UL and NFPA standards. At a minimum, the requirements of NFPA 72 shall be followed. Environments with large amounts of dust, dirt, or high air velocity require more frequent maintenance. A maintenance agreement should be arranged through the local manufacturer's representative. Maintenance should be scheduled monthly or as required by National and/or local fire codes and should be performed by authorized professional life saftety system installers only. Adequate written records of all inspections should be kept.

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Installation Precautions

Adherence to the following will aid in problem-free installation with long-term reliability:

WARNING - Several different sources of power can be connected to the fire alarm control panel. Disconnect all sources of power before servicing. Control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or interconnecting cables while the unit is energized. Do not attempt to install, service, or operate this unit until manuals are read and understood.

CAUTION - System Re-acceptance Test after Software Changes: To ensure proper system operation, this product must be tested in accordance with NFPA 72 after any programming operation or change in site-specific software. Re-acceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring. All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

This system meets NFPA requirements for operation at 0-49º C/32-120º F and at a relative humidity 93% ± 2% RH (non-condensing) 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 15-27º C/60-80º F.

Verify that wire sizes are adequate for all initiating and indicating device loops. Most devices cannot tolerate more than a 10% I.R. drop from the specified device voltage.

Like all solid state electronic devices, this system may operate erratically or can be damaged when subjected to lightning induced transients. Although no system is completely immune from lightning transients and interference, proper grounding will reduce susceptibility. Overhead or outside aerial wiring is not recommended, due to an increased susceptibility to nearby lightning strikes. Consult with the Technical Services Department if any problems are anticipated or encountered.

Disconnect AC power and batteries prior to removing or inserting circuit boards. Failure to do so can damage circuits.

Remove all electronic assemblies prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, or printed circuit board location.

Do not tighten screw terminals more than 9 in-lbs. Overtightening may damage threads, resulting in reduced terminal contact pressure and difficulty with screw terminal removal.

This system contains static-sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use static suppressive packaging to protect electronic assemblies removed from the unit.

Follow the instructions in the installation, operating, and programming manuals. These instructions must be followed to avoid damage to the control panel and associated equipment. FACP operation and reliability depend upon proper installation.

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FCC Warning

WARNING: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause interference to radio communications. It has been tested and found to comply with the limits for class A computing devices pursuant to Subpart B of Part 15 of FCC Rules, which is designed to provide reasonable protection against such interference when devices are operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his or her own expense.

Canadian Requirements

This digital apparatus does not exceed the Class A limits for radiation noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la classe A prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

Software Downloads

In order to supply the latest features and functionality in fire alarm and life safety technology to our customers, we make frequent upgrades to the embedded software in our products. To ensure that you are installing and programming the latest features, we strongly recommend that you download the most current version of software for each product prior to commissioning any system. Contact Technical Support with any questions about software and the appropriate version for a specific application.

Documentation Feedback

Your feedback helps us keep our documentation up-to-date and accurate. If you have any comments or suggestions about our online Help or printed manuals, you can email us.

Please include the following information:

- Product name and version number (if applicable)
- Printed manual or online Help
- Topic Title (for online Help)
- Page number (for printed manual)
- Brief description of content you think should be improved or corrected
- Your suggestion for how to correct/improve documentation

Send email messages to:

FireSystems.TechPubs@honeywell.com

Please note this email address is for documentation feedback only. If you have any technical issues, please contact Technical Services.

Table of Contents

Section 1: About this Manual

1.1 Standards and Specifications

The NCA-2 has been designed to comply with standards set forth by the following regulatory agencies:

- Underwriters Laboratories Standard UL 864
- Underwriters Laboratories Standard UL 2017 for General-Purpose Signaling Devices and Systems
- Underwriters Laboratories Standard UL 2572 for Mass Notification Systems
- NFPA 72 National Fire Alarm Code
- CAN/ULC - S527-99 Standard for Control Units for Fire Alarm Systems
- ULC S524 Standard for the Installation of Fire Alarm Systems

The contents of this manual are important and must be kept in close proximity of the hardware. If building ownership is changed, this manual and all other testing and maintenance information must also be passed to the current owner of the facility. A copy of this manual was shipped with the equipment and is also available from the manufacturer.

WARNING:
Improper installation, maintenance, or lack of routine testing could result in system malfunction.

CAUTION:
Read all bundled documentation for detailed instructions on upgrade/downgrade installation information.

1.2 UL 864 Ninth Edition Compliance

This product has been certified to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864 9th Edition.

The following products have not received UL 864 9th Edition certification and may only be used in retrofit applications. Operation of the NCA-2 with products not tested for UL 864 9th Edition has not been evaluated and may not comply with NFPA 72 and/or the latest edition of UL 864. These applications will require the approval of the local Authority Having Jurisdiction (AHJ).

- NCA Network Control Annunciator
- NFS-640/E Fire Alarm Panel
- NFS-3030 Fire Alarm Panel
- AM2020/AFP1010 Fire Alarm Panel
- AFP-300/400 Fire Alarm Panels
- AFP-200 Fire Alarm Panel
- PRN-4 and PRN-5 Printers
- Keltron Printer

1.3 Programming Features Subject to AHJ Approval

This product incorporates field-programmable software. The features and/or options listed below must be approved by the local AHJ.

This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.			
Program Feature or Option	**Permitted in UL 864? (Y/N)**	**Possible Settings**	**Settings Permitted in UL 864**
IP downloads over a local area network (LAN) or the internet (Wide Area Network - WAN)	No	Yes No Timed	No
AC Fail Delay Timer	Yes	0, or 1-12 hours	0, or 1-3 hours
Regional Settings	Yes	Singapore Chicago Australia China	Chicago

1.4 Related Documentation

The table below provides a list of documents referenced in this manual, as well as documents for selected other compatible devices.

Compatible Conventional Devices (Non-addressable)	**Document Number**
Device Compatibility Document	15378
Off-line Programming Utility	**Document Number**
VeriFire™ Tools CD help file	VERIFIRE-TCD
Cabinets & Chassis	**Document Number**
CAB-3/CAB-4 Series Cabinet Installation Document	15330
Battery/Peripherals Enclosure Installation Document	50295
BMP-1 Blank Module Plate Installation Document	51008
NCA/640-2-KIT	52893
NCA-2 RETRO Kit	52152
ABS-2D PID	52032
ABS-4D PID	15073
Heat Dissipation for Cabinets with Digital Audio Products	53645
CHS-RL-MP Product Installation Document	53215
Control Panels and Power Supplies	**Document Number**
NFS2-3030 Installation, Programming and Operations Manuals	52544, 52545, 52546
NFS2-640/E Installation, Programming and Operations Manuals	52741, 52742, 52743
NFS-320 Installation, Programming and Operations Manual	52745, 52747, 52746
NFS-3030 Installation, Programming and Operations Manuals	51330, 51345, 51344
NFS-640 Installation, Programming and Operations Manuals	51332, 51333, 51334
AMPS-24/E Power Supply Manual	51907
ACPS-610 Addressable Power Supply Manual	53018
Networking	**Document Number**
Noti•Fire•Net Manual, Network Version 5.0 & Higher	51584
High Speed Noti•Fire•Net Manual	54013

Table 1 Related Documentation

NCM-W/F Installation Document	51533
HS-NCM High Speed Network Communications Module Installation Document	54014
ONYXWorks Manual	52342
NCS Network Control Station Manual, Network Version 5.0 & Higher	51658
NCA Network Control Annunciator	51482
System Components	**Document Number**
DVC Digital Voice Command Manual	52411
DAL Devices Reference Sheet	52410
DS-DB Digital Series Distribution Board and Amplifier Manual	53622
DVC-RPU UL Listing Document	50107424-001
AA Series Audio Amplifier Manual	52526
DAA2 and DAX Amplifiers Manual	53265
Mass Notification Systems Configuration, Programming and Operations Manual	LS10063-000NF-E
Annunciator Control System Manual	15842
LCD-160 Liquid Crystal Display Manual	51850
LCD-80 Liquid Crystal Display Manual	15037
LCD2-80 Liquid Crystal Display Manual	53242
ACM-8R Annunciator Control Module Manual	15342
LDM Series Lamp Driver Annunciator Manual	15885
SCS Smoke Control (Smoke and HVAC Control Station) Manual	15712
TM-4 Installation Document (Reverse Polarity Transmitter)	51490
UDACT Manual (Universal Digital Alarm Communicator/Transmitter)	50050
UDACT-2 (Universal Digital Alarm Communicator/Transmitter) Listing Document	54089LD
UZC-256 Universal Zone Coder Manual	15216
UZC-256 Programming Manual	15976

Table 1 Related Documentation

1.5 Notes, Cautions, and Warnings

This manual contains notes, cautions, and warnings to alert the reader as follows:

NOTE: Supplemental information for a topic, such as tips and references.

CAUTION:
Information about procedures that could cause programming errors, runtime errors, or equipment damage.

WARNING:
Indicates information about procedures that could cause irreversible equipment damage, irreversible loss of programming data or personal injury.

1.6 Conventions

This manual uses the following conventions as listed below:

When you see	Specifies	Example
text in small caps	the text as it appears in the LCD display or on the control panel	MARCH TIME is a selection that appears in the LCD display; or Press the ENTER key
text in quotes	a reference to a section or a LCD menu screen	"Status Change" specifies the Status Change section or menu screen
bold text	In body text, a number or character that you enter	Press **1**; means to press the number "1" on the keypad
italic text	a specific document	*NCA-2 Installation Manual*
a graphic of the key	In a graphic, a key as it appears on the control panel	Press Esc means to press the Escape key

NOTE: Where used in this manual, refers to both the and the unless otherwise noted.
The term NFS2-3030 refers to both the and the NFS2-3030 unless otherwise noted.
The term refers to the , , and unless otherwise noted.

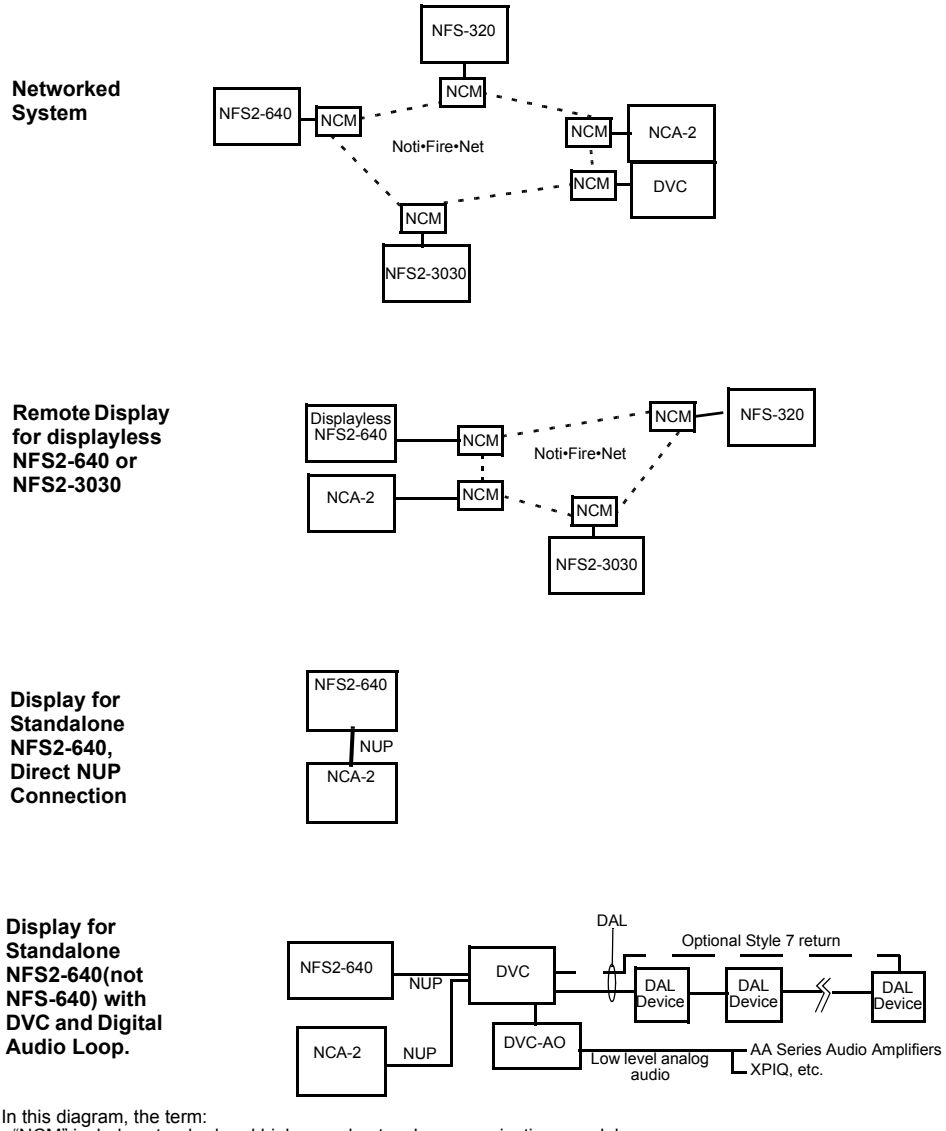
Section 2: Overview

2.1 General Description

The NCA-2 Network Control Annunciator provides a text-based display and control device for a NOTI•FIRE•NET™ or High-Speed NOTI•FIRE•NET™ system. The NCA-2 uses a 640-character LCD (16 x 40), a high-speed 32-bit microprocessor, flash memory and a rubberized QWERTY keypad. It can display all events from a NOTI•FIRE•NET™ or High-Speed NOTI•FIRE•NET™ system and can co-exist with other NCA-2s, DVC Series, DVC-RPU, DVC configured as a DVC-RPU, ONYXWorks, and NFS2-3030, NFS2-640, and NFS-320 fire alarm control panels (FACPs).

NOTE: The NCA-2 is compatible with NOTI•FIRE•NET™ version 5.0 and higher, and with the High-Speed NOTI•FIRE•NET™.

Figure 2.4 gives simplified overview illustrations of typical applications for the NCA-2.



In this diagram, the term:
- "NCM" includes standard and high-speed network communications modules.
- "Noti•Fire•Net" includes standard and high-speed network versions.

Figure 2.1 Block Diagram, Typical NCA-2 Applications

2.1.1 NCA-2 Features

- Notifier Universal Protocol (NUP) compatible
- Optically isolated EIA-232 printer interface
- EIA-485 ACS annunciator interface
- Piezo electric sounder
- 640-character, 16 row X 40 column Liquid Crystal Display (LCD)
- Ten “soft keys” that point to current choices on the LCD.
- 11 Status LEDs indicate:
  - Power
  - Fire Alarm
  - Pre-Alarm
  - Security
  - Supervisory
  - System Trouble
  - Other Event
  - Signals Silenced
  - Point Disabled
  - CPU Failure
  - Controls Active
- Support for a custom “system-normal” bitmap graphic
- Support for a 160-character display
- Nonvolatile Real-Time Clock (RTC)
- Power supply supervision with AMPS-24 power supply
- Acknowledge (Local, Network-wide or single node)
- Signal Silence (Network-wide or single node)
- System Reset (Network-wide or single node)
- Lamp Test (Local to NCA-2)
- Read Status (any point on a node)
- Alter Status (any point or selected node)
- 4000 Event History capacity
- 1000 Alarm History capacity
- Display and Control Center participation/indication
- Support for Remote Text Display (LCD-160, LCD-80)
- Support for Mass Notification Systems

2.1.2 Compatibility with NOTI•FIRE•NET™ Panel Nodes

FACP	Network Board
NFS2-640, NFS-640	NCM-W/F, HS-NCM-W/SF/MF/WSF/WMF/MFSF
NFS-320	NCM-W/F, HS-NCM-W/SF/MF/WSF/WMF/MFSF
NFS2-3030, NFS-3030	NCM-W/F, HS-NCM-W/SF/MF/WSF/WMF/MFSF
DVC Series	NCM-W/F, HS-NCM-W/SF/MF/WSF/WMF/MFSF
Note: To be compatible with the NCA-2, all networked nodes must be running NOTI•FIRE•NET™ version 5.0 or higher or a high-speed NOTI•FIRE•NET™.	

Table 2.1 NOTI•FIRE•NET™ Compatible Fire Panels

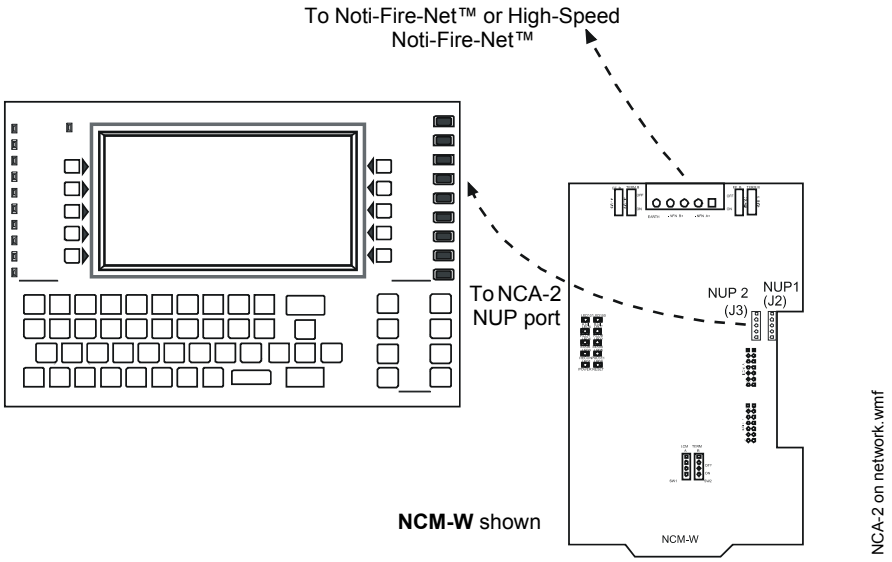


Figure 2.2 NCA-2 Network Connection Overview

2.2 NCA-2 and Displayless Panels

When there is a displayless NFS2-640 or NFS2-3030 on a Noti•Fire•Net™, the NCA-2 acts as a remote display.

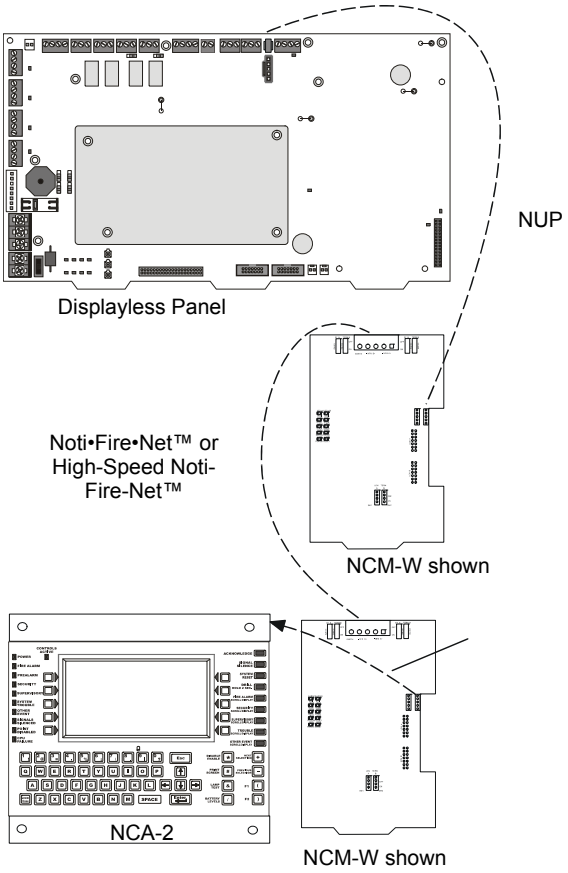


Figure 2.3 NCA-2 and Displayless Panels

2.3 NCA-2 / NFS2-640 Standalone Application

The NCA-2 can mount in a chassis in the same cabinet as the NFS2-640 panel and connect directly to it via the NUP ports using the NUP cable (P/N 75577); with this option, NCMs are unnecessary. Refer to Section 3.7, "NCA-2 / NFS2-640 Standalone", on page 28 for instructions on how to use the NCA/640-2-KIT for this installation.

Connect the NUP cable from J1 on the NCA-2 to J1 on the NFS2-640 panel. Make this connection only when using the NCA-2 as the NFS2-640 display. Refer to Figure 2.4.

If the NCA-2 and NFS2-640 are used as a stand-alone pair, each device must be programmed separately using VeriFire® Tools in its off-line programming mode. Because the VeriFire® Tools computer also uses the NUP port, the NFS2-640 and NCA-2 must be temporarily disconnected for programming. If the NFS2-640/NCA-2 pair is connected to a network, there are two additional options for programming: either connect the VeriFire® Tools programming PC to the NUP port on the NCM board, or program the NFS2-640 through another network node. Refer to the VeriFire® Tools on-line help for details.

NOTE: Use a NUP cable to connect the two NUP ports (J1 on the NCA-2 and J1 on the NFS2-640). Make this connection only when using the NCA-2 as the NFS2-640 display.

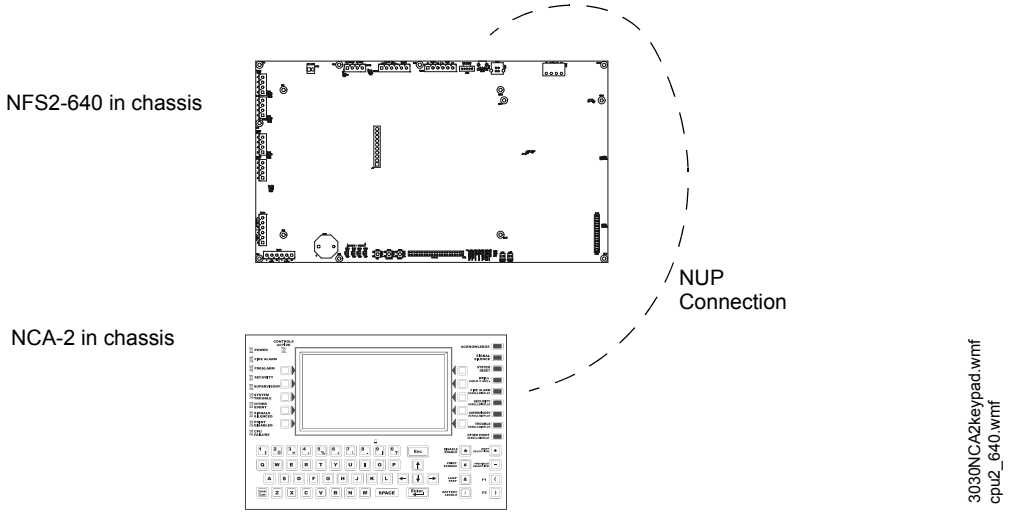


Figure 2.4 The NCA-2 as the NFS2-640 Display

NOTE: This system design is required for Canadian standalone applications.

2.4 NCA-2 Board Layout

Figure 2.5 shows NCA-2 circuit board layout; descriptions of the components follow in the next sections.

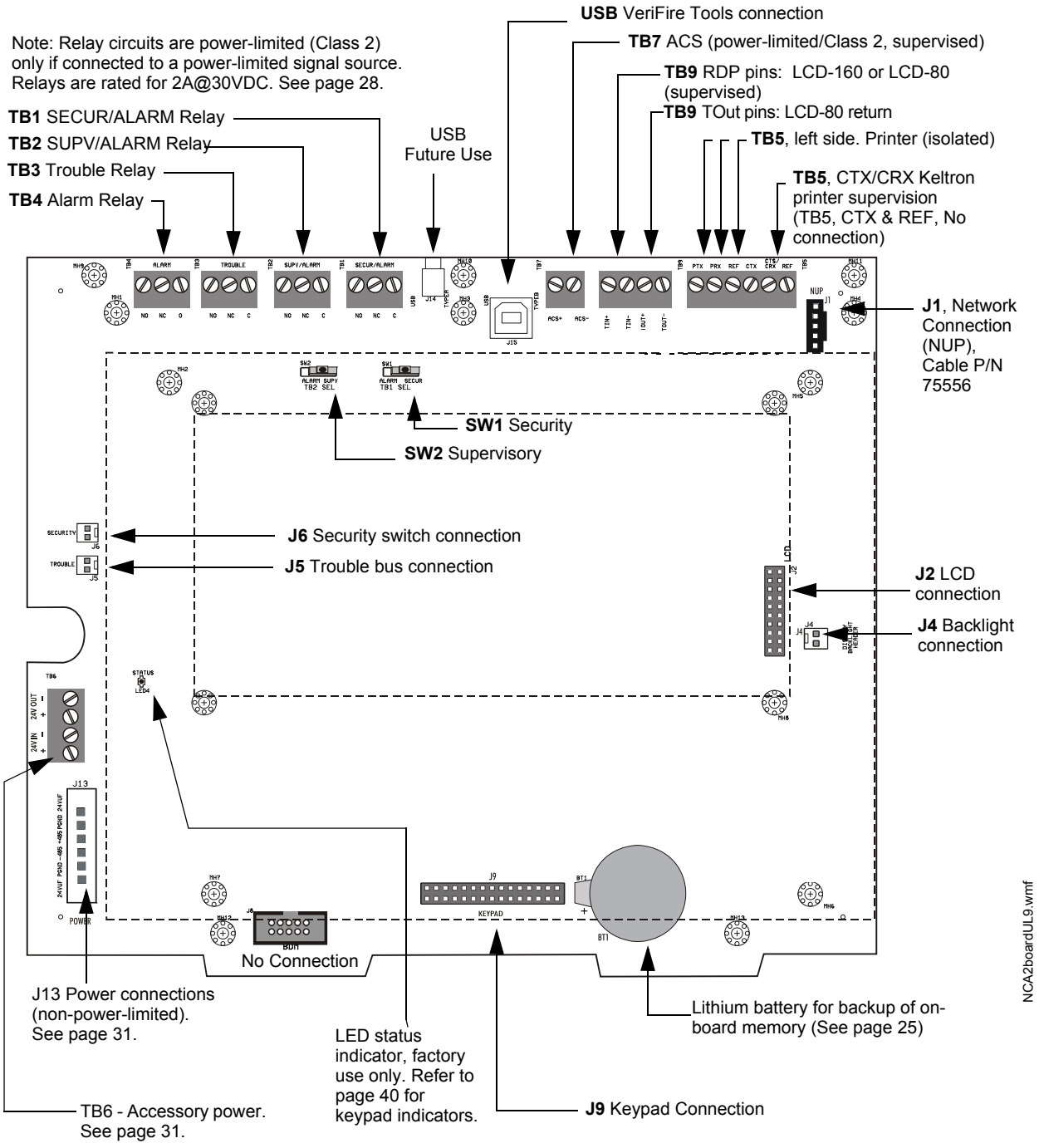


Figure 2.5 NCA-2 Board Layout

2.5 NCA-2 Keypad Layout

The keyboard figure below illustrates the basic layout. The keypad is described in detail in the operation section of this manual, in "The Keypad" on page 40.

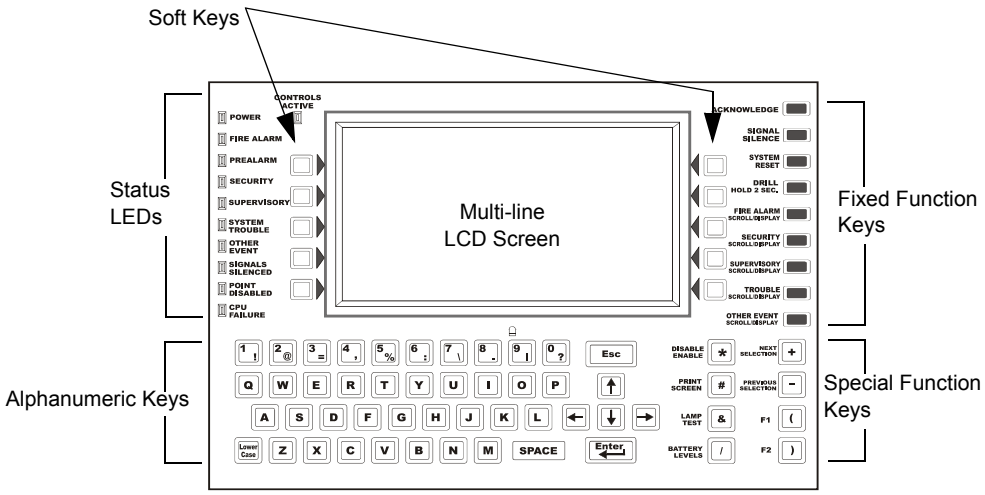


Figure 2.6 The NCA-2 Keypad

2.6 NCA-2 Components

2.6.1 NCA-2 Basic Components

The NCA-2 assembly includes the following components: NCA-2 motherboard, QWERTY keypad with LCD display, and NUP communications cables (#75577) used when connecting the NCA-2 to other NUP-compatible devices.

2.6.2 EIA-232 Optional Devices

The NCA-2 supports the following optional printer and display devices: PRN series printers and Keltron printer connecting to the NCA-2 via EIA-232 interfaces.

PRN Series Printer. This is an 80-column, 9" x 11" tractor-feed printer that can be located up to 50 feet (15.24 m) from the Fire Alarm Control Panel (FACP). The PRN series prints a record of all system events and status changes within the network monitoring system. It also time-stamps the printout with the current date and time.

Keltron Printer. The VS4095 is a two-color (red/black), 40-column, 24 VDC printer that mounts in a separate cabinet next to the FACP. The VS4095 meets UL fire and security requirements for an ancillary device.

NOTE: Refer to the appropriate manual for detailed information on any of the above EIA-232 devices.

2.6.3 EIA-485 Annunciator Devices

The NCA-2 can be used to monitor annunciator devices and Annunciator Control System (ACS) modules. ACS modules connect to the NCA-2 using an EIA-485 ACS Mode connection. The NCA-2 can support up to 32 annunciator devices. ACS devices use LED arrays to show the status of points or zones within the network monitoring system. Annunciator points are programmable from the NCA-2 interface. The following annunciator modules (and their corresponding expander modules) are supported by the NCA-2:

ACM-8R. The Annunciator Control Module-8R provides the control panel with a mappable relay control module. Relays can be selected for mapping anywhere in the system memory (in groups of eight). The ACM-8R provides eight Form-C relays with 5A @125 VAC (resistive) or 5A @30 VDC (resistive) or 2A @125 VAC (inductive) contacts. It tracks any group of eight zones within the system.

ACM-16AT and AEM-16AT. The Annunciator Control Module-16AT has 16 red alarm and 16 yellow trouble LEDs. The Annunciator Expander Module-16AT expands the ACM-16AT by 16 annunciator points. Up to three of these expander modules can be supported by an ACM-16AT, for a maximum of 64 annunciator points.

ACM-24AT and AEM-24AT. The Annunciator Control Module-24AT has 24 color programmable on/alarm LEDs (set to red, green, or yellow) and 24 yellow trouble LEDs. An ACM-24AT can support up to three Annunciator Expander Modules (AEM-24AT) for a maximum of 96 points.

ACM-32A and AEM-32A. The Annunciator Control Module-32AT has 32 red alarm LEDs and a system trouble LED. The Annunciator Expander Module-32A expands the ACM-32A by 32 annunciator points, for a maximum of 64 points.

ACM-48A and AEM-48A. The Annunciator Control Module-48A has 48 color programmable on/alarm LEDs (set to red, green, or yellow). The corresponding expander module expands the ACM-48A by 48 points for a maximum of 96 points.

LDM-32 and LDM-R32. The Lamp Driver Annunciator Module-32 provides 32 alarms or 16 alarm and 16 trouble lamp driver outputs, corresponding to 32 annunciator points that can be connected to external devices like custom graphic annunciators. The Lamp Driver Annunciator Module expander module expands the LDM-32 by 32 annunciator points, for a maximum of 64 points.

SCS-8 and SCE-8. The Smoke Control Station (SCS-8) module uses eight groups of four annunciator points for fan shutdown control or other heating, ventilation or air conditioning functions. The Smoke Control Expander (SCE-8) module expands the SCS-8 by eight groups of four annunciator points.

SCS-8L and SCE-8L. The Smoke Control Lamp Driver Station (SCS-8L) module uses eight groups of four annunciator points for fan shutdown control or other heating, ventilation or air conditioning functions. The SCS-8L must be mounted in a custom graphic annunciator panel. The Smoke Control Expander (SCE-8L) is used to expand the SCS-8L by eight groups of four annunciator points.

UDACT and UDACT-2. The Universal Digital Alarm Communicator/Transmitters transmit system status to UL listed Central Station Receivers via the public switched telephone network.

TM-4. The Transmitter Module provides a means for an FACP to control Alarm, Trouble and Supervisory reverse polarity outputs (15mA, 24VDC nominal) or a Fire Municipal Box Trip output. All output circuits are supervised. The TM-4 mounts easily in standard module locations within the cabinet or external boxes. Refer to the Transmitter Module TM-4 installation document for further information and installation instructions.

NOTE: For details on any of the above annunciator modules, refer to the appropriate manual.

2.6.4 Other Optional Devices

NCM-W and NCM-F. The network communications module provides a means for connecting specific control panels to a standard NOTI•FIRE•NET™. There are two types of network communications modules available: NCM-W for connecting nodes with twisted pair wire and NCM-F for connecting nodes with fiber-optic cable. A network communications module is required when networking the NCA-2.

HS-NCM-W/MF/SF/WMF/WSF/MFSF. A high-speed network communications module provides a means for connecting specific control panels to a high-speed network. There are two categories of modules available for this purpose: wire versions for connecting nodes with twisted-pair wire, and fiber versions for connecting nodes with fiber-optic cable. A network communications module is required for networking the NCA-2. High-speed modules may also be used as network repeaters, extending the communication distance between nodes on a high-speed network.

VeriFire® Tools. VeriFire® Tools is an off-line programming and test utility that is Windows® based. The installer can create the program for a control panel from any PC running the VeriFire® Tools software, test the program, store a backup file, then bring it to the site and download from a laptop into the panel. VeriFire® Tools can also be used to create a custom graphic for the main screen of the NCA-2.

NCS Network Control Station. The NCS is a PC application with text and graphics display capability of all network events and points. It is compatible with release 5.0 and higher of a standard NOTI•FIRE•NET™ system.

ONYXWorks Workstation. This workstation provides a PC-based graphical interface for monitoring and controlling activity of multiple nodes on a network. It allows the user to program network nodes, display network information, and display the network in desirable groups of nodes. Compatible with standard and high-speed networks.

LCD-160 Display. The LCD-160 is a remote display that can mimic the top half of the panel's display, or display custom messages or graphics. It has the capability to store character sets for multiple languages.

LCD-80 Display. The LCD-80 is a remote alphanumeric display module that, when set to terminal mode, operates as a simplified version of this panel's display, with Acknowledge, Signal Silence, and Reset.

LCD2-80 Display. The LCD-80 is a remote alphanumeric display module that operates as a simplified version of this panel's display, with Acknowledge, Signal Silence, Reset, Drill, and Lamp Test.

UZC-256. The Universal Zone Coder is a circuit board, used for NAC coding applications, that provides three NAC output circuits and up to 256 zone codes. Refer to the *UZC-256 Universal Zone Coder* and *UZC-256 Programming manuals* for further information and installation instructions.

STS-1. A Security Tamper Switch can be connected to the NCA-2 and installed in its cabinet (e.g., CAB-4 series backbox). The STS-1 can then be used to monitor the door and indicate a door tamper condition whenever the door is opened.

RKS-1. The Remote Key Switch provides external access security for the control switches on the NCA-2.

AKS-1B. The Annunciator Keyswitch enables/disables the NCA-2 keypad.

Section 3: Installation

3.1 Preparing for Installation

Choose a location for the NCA-2 that is clean, dry, and vibration-free with moderate temperature. The area should be readily accessible with sufficient room to easily install and maintain it. There should be sufficient space for cabinet door(s) to open completely.

Carefully unpack the system and inspect for shipping damage. Count the number of conductors needed for all devices and find the appropriate knockouts. (Refer to Section 3.13 “UL Power-limited Wiring Requirements” for selection guidelines.)

Before installing the fire alarm system, read the following:

- Review the installation precautions at the front of this manual.
- Installers should be familiar with the standards and codes specified in Section 1.1 “Standards and Specifications”.
- All wiring must comply with the National and Local codes for fire alarm systems.
- Do not draw wiring into the bottom 9 inches (22.86 cm) of the cabinet except when using a separate battery cabinet; this space is for internal battery installation.
- Review installation instructions in Section 3.2 “Installation Checklist”.

WARNING: Risk of irreparable equipment damage
Make sure to install system components in the sequence listed below. Failure to do so can damage the control panel and other system components.

WARNING: Risk of irreparable equipment damage
Wear a static discharge strap on wrist to prevent equipment damage.

3.2 Installation Checklist

The checklist that follows contains references to information included in other manuals; see Section 1.4 “Related Documentation” for document part numbers.

	Task	Refer to:
1.	Mount the cabinet backbox to the wall.	Section 3.3 “CAB-4 Series Cabinet” and Section 3.4 “ABS-2D, ABS-4D Cabinets”
2.	Attach NCA-2 to chassis	Section 3.4 “ABS-2D, ABS-4D Cabinets”, Section 3.5 “CHS-M3 Chassis”, and Section 3.6 “CA-2 Chassis Assembly”
3.	Attach option boards (e.g. network communications modules and other devices of the same size) to chassis.	• Section 3.5.4 “Option Boards” and Section 3.4 “ABS-2D, ABS-4D Cabinets” • Installation document for the specific device
4.	Complete backbox/chassis mounting.	Section 3.4 “ABS-2D, ABS-4D Cabinets”, Section 3.5 “CHS-M3 Chassis”, and Section 3.6 “CA-2 Chassis Assembly”
5.	Wire Relays	Section 3.9 “Form-C Relays” on page 28
6.	Attach & wire other system components	
	☐ Digital Voice components	*Digital Voice Control Manual,* etc.
	☐ Annunciators and other ACS devices	*ACS Manual*, etc.
	☐ Remote Data Port devices	*LCD-160 Manual, LCD-80 Manual (Terminal Mode)*
	☐ Printer or other output device(s)	Section 3.14 “Installing Printers”
	☐ Network devices	*Noti•Fire•Net Version 5.0 & Higher Manual*, or *High-Speed Noti•Fire•Net Manual* and/or Installation document for specific device(s)
7.	Calculate the proper battery rating.	Main Power Supply Manual
8.	Install main power supply & batteries. Run cable to main & optional power supplies, DC power outputs, relays, etc.	Section 3.12 “Connecting Power Sources and Outputs” Section 3.13 “UL Power-limited Wiring Requirements”
	WARNING: Do not activate power at this time. Do NOT connect batteries.	
	☐ Main power supply.	Main Power Supply Manual *BB-100/200 Cabinet Installation Instructions*
9.	Check that all mounting holes are secured to insure a proper Earth Ground connection.	
10.	Connect wire shielding to Earth Ground.	
11.	Remove insulator from lithium battery on NCA-2.	Section 3.5.3 “Memory-Backup Battery”
12.	Apply AC power to the control panel by placing the external circuit breaker to the ON position. **Do NOT connect batteries until AC power is checked (see next step).**	
13.	Check AC power.	Section 3.12.3 “Checking AC Power”
14.	Connect the batteries using interconnect cable as described in power supply manual.	
15.	Install the dress panels, doors and covers.	CAB-3/CAB-4 Series Cabinet Installation Document
16.	Program the NCA-2.	Section 5, “Programming”, on page 63
17.	Field test the system.	

Table 3.1 Installation Checklist

3.3 CAB-4 Series Cabinet

This section provides instructions for mounting the CAB-4 Series backbox to a wall. Follow these guidelines when mounting the backbox:

Locate the cabinet backbox on a surface that is in a clean, dry, vibration-free area. The top should be located so that all operational buttons, switches, displays, etc. are easily accessible and/or viewable to the operator - usually no more than 66 inches (1.7m.) above the floor. Allow sufficient clearance around the cabinet for the door to swing freely, and for easy installation and maintenance of equipment.

- Use the four holes in the back surface of the backbox to provide secure mounting (See Figure 3.1).
- Mount the backbox on a surface that is in a clean, dry, vibration-free area.

CAUTION:
Unless you are familiar with the placement of components within this backbox, only use the knockout locations provided for conduit entry.

Follow the instructions below.

1. Mark and pre-drill holes for the top two keyhole mounting bolts.
2. Select and punch open the appropriate knock-outs. (For selection guidelines, see Section 3.13 “UL Power-limited Wiring Requirements”.)
3. Using the keyholes, mount the backbox over the two screws.
4. Mark the location for the two lower holes, remove the backbox and drill the mounting holes.
5. Mount the backbox over the top two screws, then install the remaining fasteners. Tighten all fasteners securely.
6. Feed wires through appropriate knockouts.
7. Install NCA-2 and other components according to this section, before installing hinges and door (see *CAB-3/CAB-4 Series Cabinet Installation Document).*

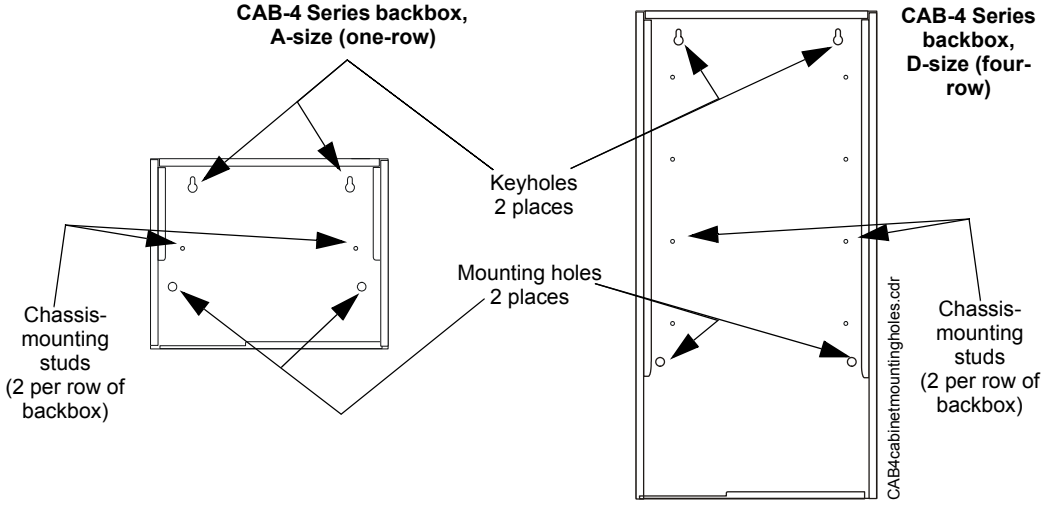
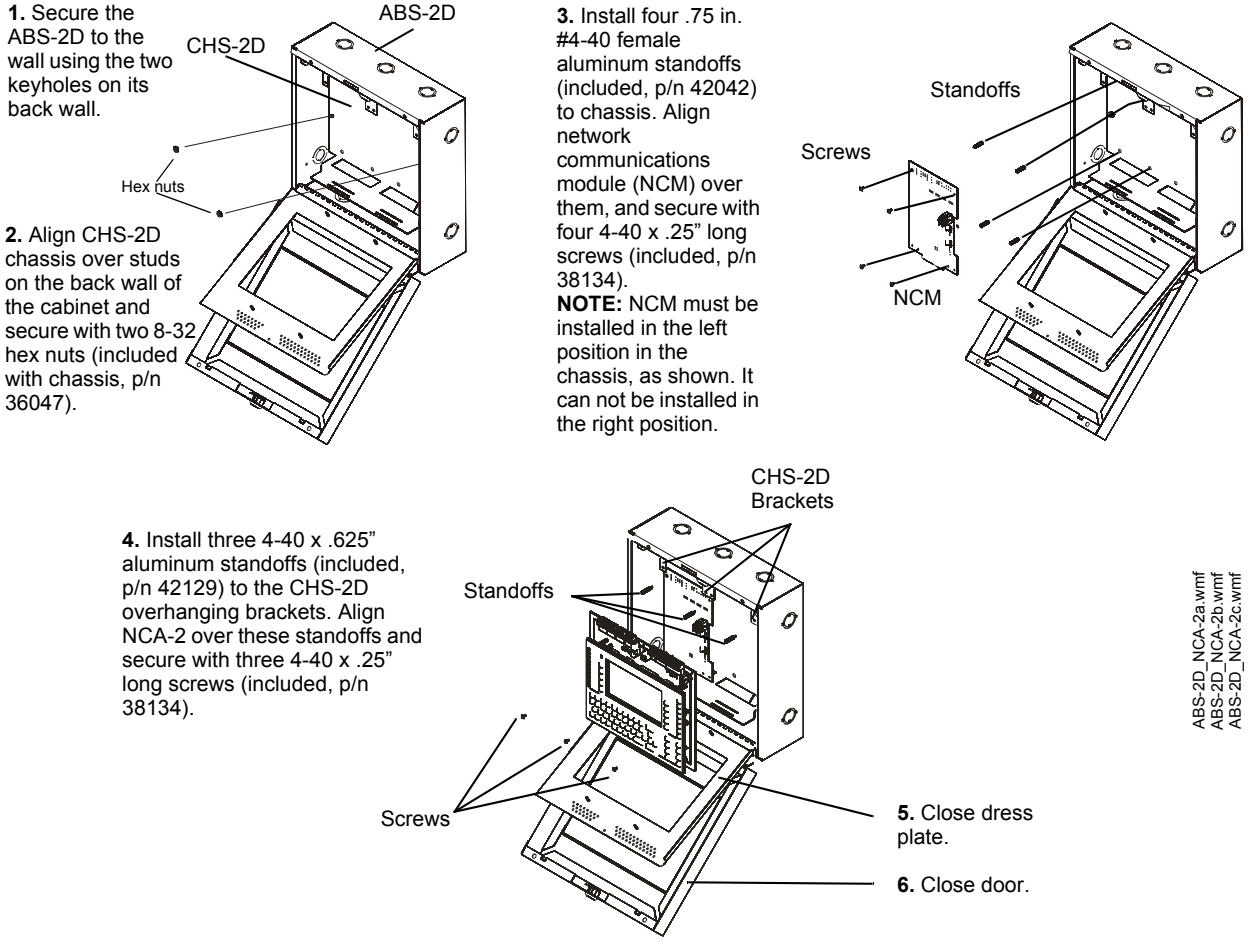


Figure 3.1 Backbox-Mounting Holes and Chassis-Mounting Studs

3.4 ABS-2D, ABS-4D Cabinets

ABS-2D

To mount an NCA-2 in an ABS-2D cabinet, follow the directions in the illustration below.



NOTE: When installing a fiber connection network control module, use the CHS-RL-MP chassis Refer to the *CHS-RL-MP Product installation Document* for additional information.

Figure 3.2 NCA-2 Mounting in ABS-2D Cabinet

ABS-4D

An NCA-2 Retro Kit will be required to mount the NCA-2 in an ABS-4D cabinet. Refer to the NCA-2 Retro Kit Product and ABS-4D Installation Documents for installation instructions. Note that the NCA-2 must be mounted in the center position of the ABS-4D, and blank plates or modules must surround it.

3.5 CHS-M3 Chassis

3.5.1 Layout

The NCA-2 mounts in chassis CHS-M3 in the top row of the cabinet. The NCA-2 occupies the left half of the chassis (positions 1 and 2, see Figure 3.3).

Positions 3 and 4 of CHS-M3 can hold up to four layers of equipment including annunciators and option boards. See Figure 3.4 for possible configurations of these four layers.

The BMP-1 Blank Module Plate covers unused positions and also provides a location to door-mount some option boards (see *BMP-1 Product Installation Drawing* for details).

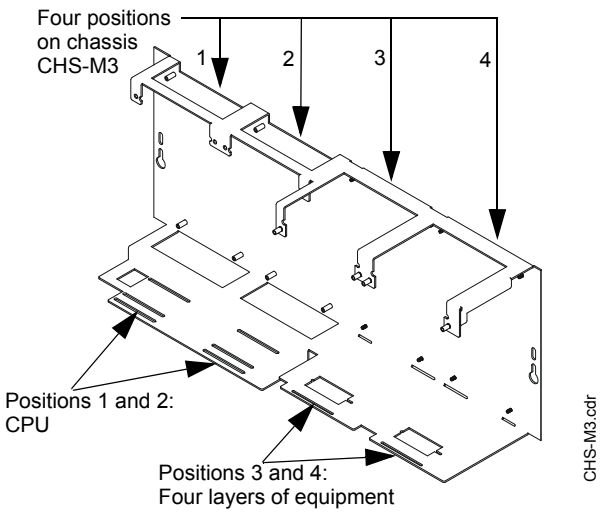


Figure 3.3 Chassis CHS-M3

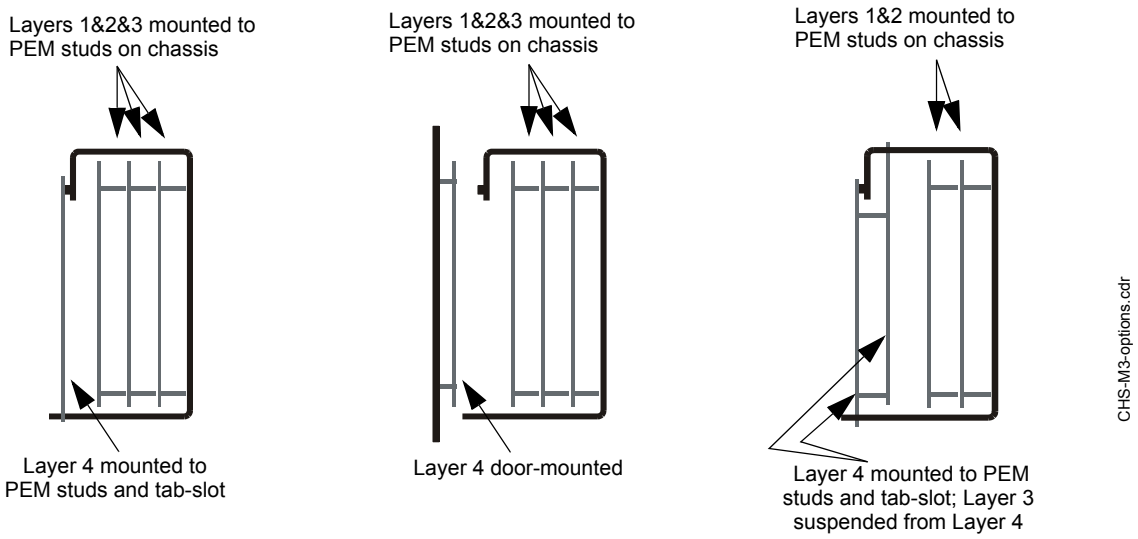


Figure 3.4 Configuring Equipment in Chassis Positions 3 and 4 of CHS-M3 (Side View)

3.5.2 NCA-2 Mounting

Mount NCA-2 into positions 1 and 2 of CHS-M3 as follows; equipment may be mounted to the chassis before or after the chassis is mounted in the backbox.

1. Attach three 1-15/16” (4.92 cm) aluminum male/female 4-40 standoffs (P/N 42076, included with NCA-2) to chassis as shown in Figure 3.5.
2. Slide circuit-board tabs into slots on chassis as shown in Figure 3.5.
3. Place the board over the stand-offs so that mounting holes line up with those on the chassis. Secure all stand-offs with 4-40 screws provided (P/N 38134).

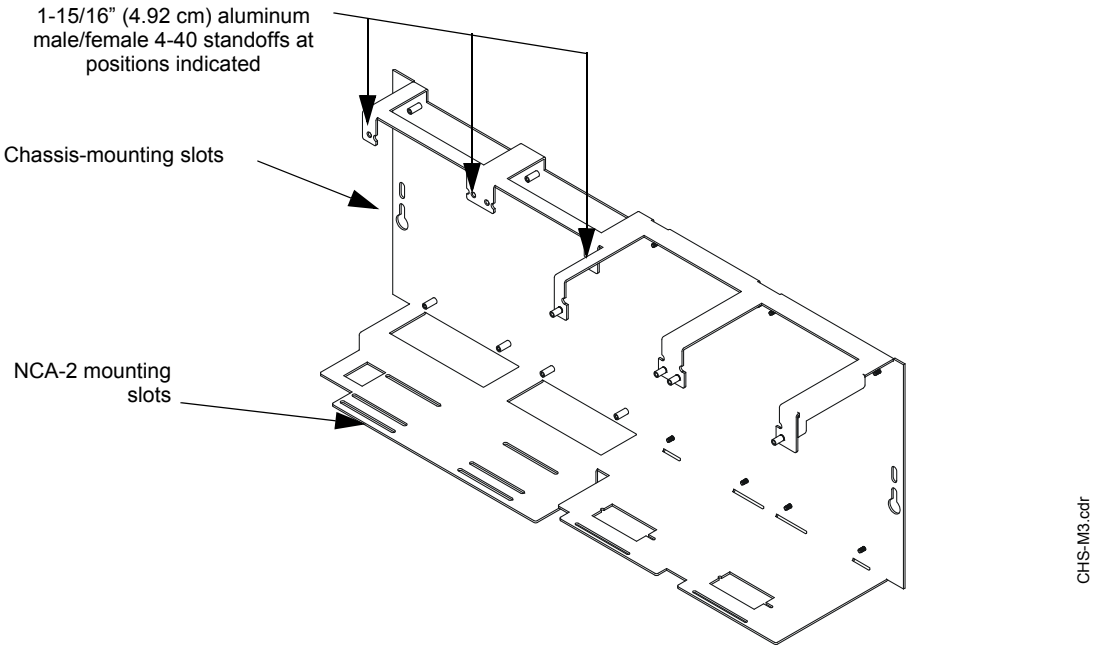


Figure 3.5 Standoffs on Chassis CHS-M3

CAUTION:
It is critical that all mounting holes of the NCA-2 are secured with a screw or stand-off to insure continuity of Earth Ground.

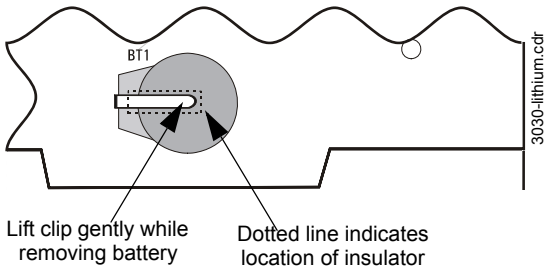
Mounting Chassis in Backbox

Align chassis-mounting slots with chassis-mounting studs (see Figure 3.1 and Figure 3.5 for locations). Secure with nut & lock-washer provided with chassis.

3.5.3 Memory-Backup Battery

The lithium battery on the CPU provides backup of the NCA-2’s on-board memory during power loss. The NCA-2 ships with an insulator to prevent the battery from discharging. To preserve the battery, the insulating tube should be left in place as long as possible before applying AC power.

If the insulator is *not* removed before applying AC power, the control panel will show a trouble situation.



This battery’s shelf-life should exceed 10 years, but if for some reason it fails, the control panel will show a trouble when powered up. To replace the lithium battery (P/N 31004, RAYOVAC Lithium 3V BR 22335):

1. Make a full backup of all system settings to prevent loss of all programming data.
2. Disconnect all power sources.
3. Disconnect wiring and remove NCA-2 from backbox (3 screws at top, lift board tabs out of slot) and remove keypad (4 screws on back, LCD display stays attached).

4. Remove battery from under clip (use fingers, because screwdriver could damage components) and insert new battery.

CAUTION:
The battery used in this device may present a risk of fire or chemical burn if mistreated. Do not recharge, disassemble, heat above 212°F (100°C), or incinerate. Replace battery with Notifier P/N 31004 only. Use of another battery may present a risk of fire or explosion.

5. Replace keyboard, reinstall NCA-2 into chassis, and reconnect wiring.
6. Follow system power-up procedures.
7. Dispose of used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

3.5.4 Option Boards

If installing option boards on the CHS-M3, connect them at this time. As described in Section 3.5.1 "Layout", up to eight option boards can be mounted in CHS-M3 to the right of the NCA-2.

There are no slots in the first (back) two layers, but option boards with tabs (such as NCM-W) will still fit in those positions.

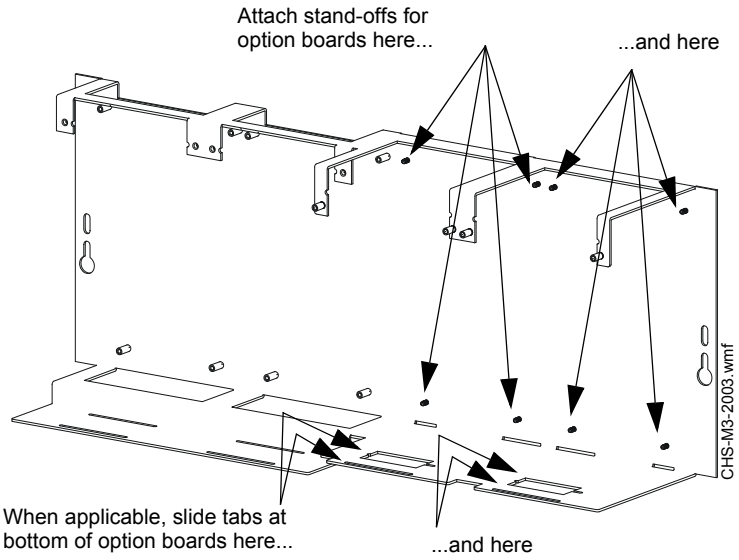


Figure 3.6 Mounting Option Boards in CHS-M3

Mounting Procedures

1. Install four 1 inch (25.4 mm) female stand-offs onto the chassis (P/N 42040, included with chassis) as shown in Figure 3.6.
2. Place the first option board over the stand-offs so that holes line up.
3. If no more option boards will be mounted in that position, securely fasten all stand-offs with screws (provided with module). If mounting a second or third option board, attach another layer of stand-offs and repeat steps 2-3. **Note:** Set the switches on an option board before mounting another layer in front of it.
4. For the top (fourth) layer of option boards, slide the tab at the bottom of the board into the slots on the chassis, and lay the board back onto the top of the chassis so that the studs line up with mounting holes on the option board. Securely fasten all stand-offs with screws provided with module.

3.6 CA-2 Chassis Assembly

The NCA-2 will mount into a CA-2 chassis assembly - along with a DVC-EM, microphone and optional telephone handset - as part of an audio command center installation.

The CA-2 is a two-row assembly consisting of

- a back plate that attaches to the backbox
- two half-chassis, each of which takes up the left half of a backbox row
- a microphone and telephone handset well
- a microphone.

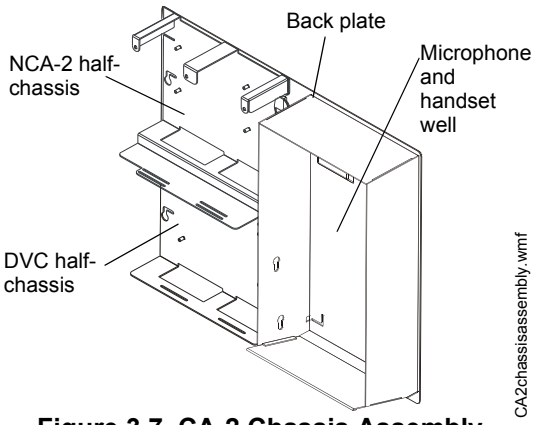


Figure 3.7 CA-2 Chassis Assembly

The NCA-2 mounts in the upper left corner. (Refer to Figure 3.7 and Figure 3.8.) Mount the NCA-2 to its half-chassis without removing the half-chassis from the back plate. Refer to “Memory-Backup Battery” on page 25 for removal of insulator.

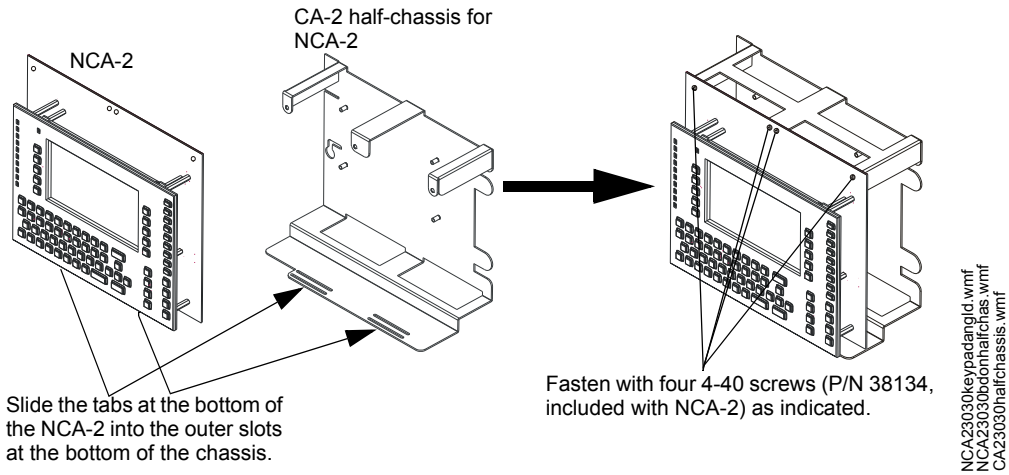


Figure 3.8 Mounting the NCA-2 onto the CA-2 Half-chassis

Refer to the *DVC Manual* and CA-2 product installation document for installation of the DVC-EM, microphone and handset into the CA-2.

3.7 NCA-2 / NFS2-640 Standalone

The NCA-2 may be mounted over a displayless NFS2-640 using the hardware from attachment kit p/n NCA/640-2-KIT. Refer to Figure 3.9.

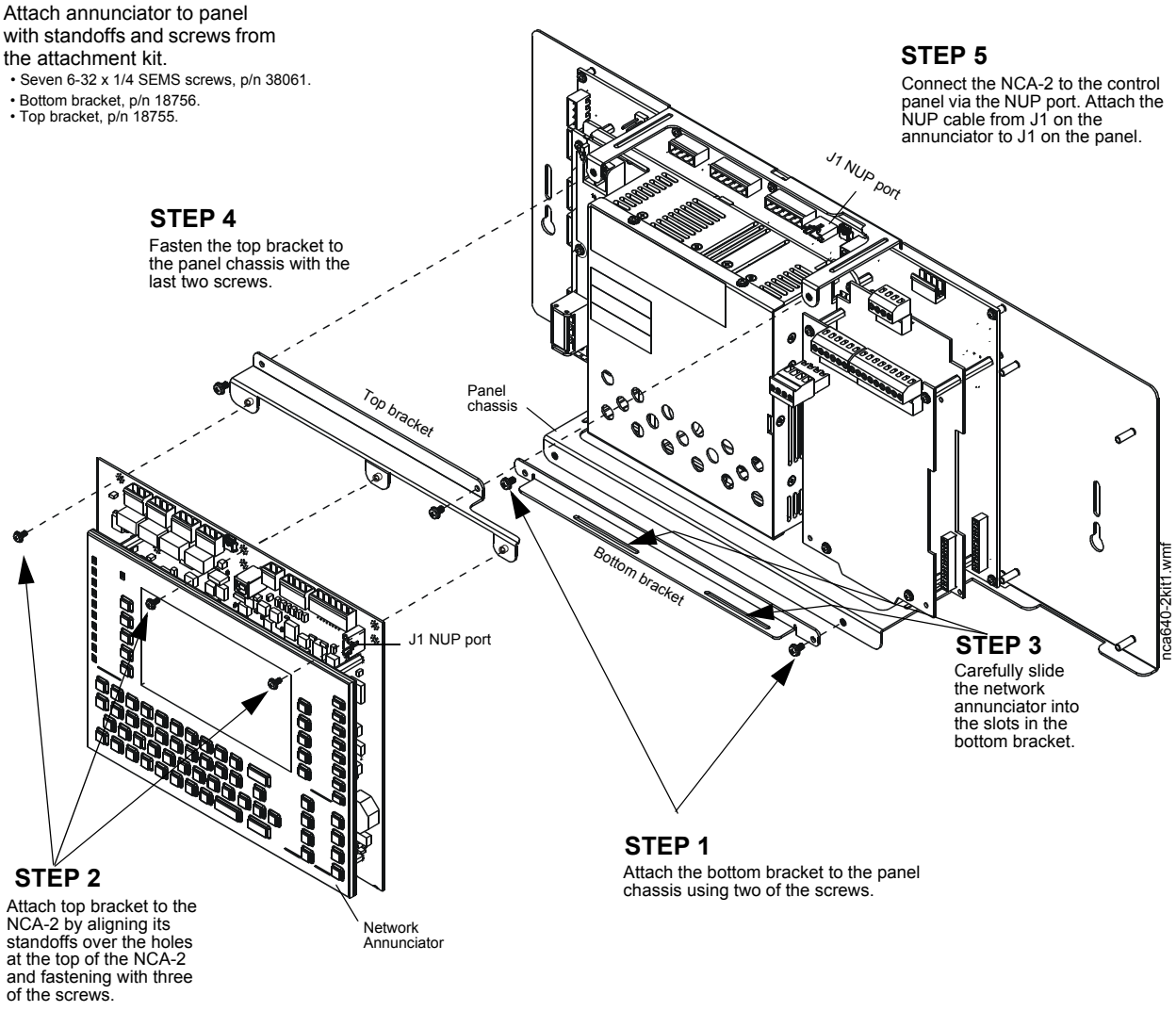


Figure 3.9 NCA-2 on a Displayless Panel

3.8 Retrofits

The NCA-2 RETRO kit provides hardware to change the footprint of an NCA-2 to fit on older dress panels. Refer to the *NCA-2RETRO Production Installation Document*.

3.9 Form-C Relays on the NCA-2

The panel provides a set of Form-C relays. These are rated for 2 A at 30 VDC (resistive):

- Alarm - TB4
- Trouble - TB3
- Supervisory - TB2
- Security - TB1

The Supervisory and Security contacts can also be configured as Alarm contacts by setting switches SW1 and SW2 away from the factory default positions shown in Figure 3.10.

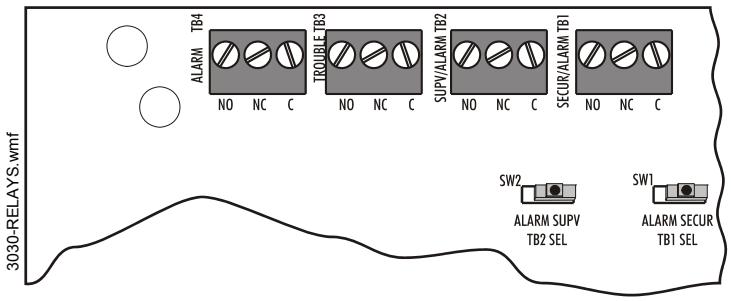


Figure 3.10 Form-C Relay Connections

3.10 Network Communications Module

Standard Network Communications Module, NCM-W/F

If networking two or more control panels on a standard NOTI•FIRE•NET™ (including NCA-2s):

- One standard network communications module is required per NOTI•FIRE•NET™ node.
- Do not share a network communications module with an NCA-2 and an FACP.
- Do not connect two network communications modules together via NUP ports (NUP to NUP).

High-Speed Network Communications Module, HS-NCM-W/SF/MF/WSF/WMF/MFSF

If networking two or more control panels on a High-Speed NOTI•FIRE•NET™ (including NCA-2s)

- One high-speed network communications module may be used for up to two nodes.
- Do not connect two network communications modules together via NUP ports (NUP to NUP).

Installation

The standard or high-speed network communications module can be installed in the CHS-M3 immediately to the right of the main circuit board.

It can also be installed in a CA-2 behind the DVC-EM, as described in the *DVC Digital Voice Command*. Note that if your network is not high-speed, two network communications modules are necessary - one each for the NCA-2 and the DVC - so the second NCM-W/F must be installed in a separate chassis within the cabinet. (A DAA chassis provides a slot for a network communications module to the right of the DAA board. Refer to the *DVC manual*.)

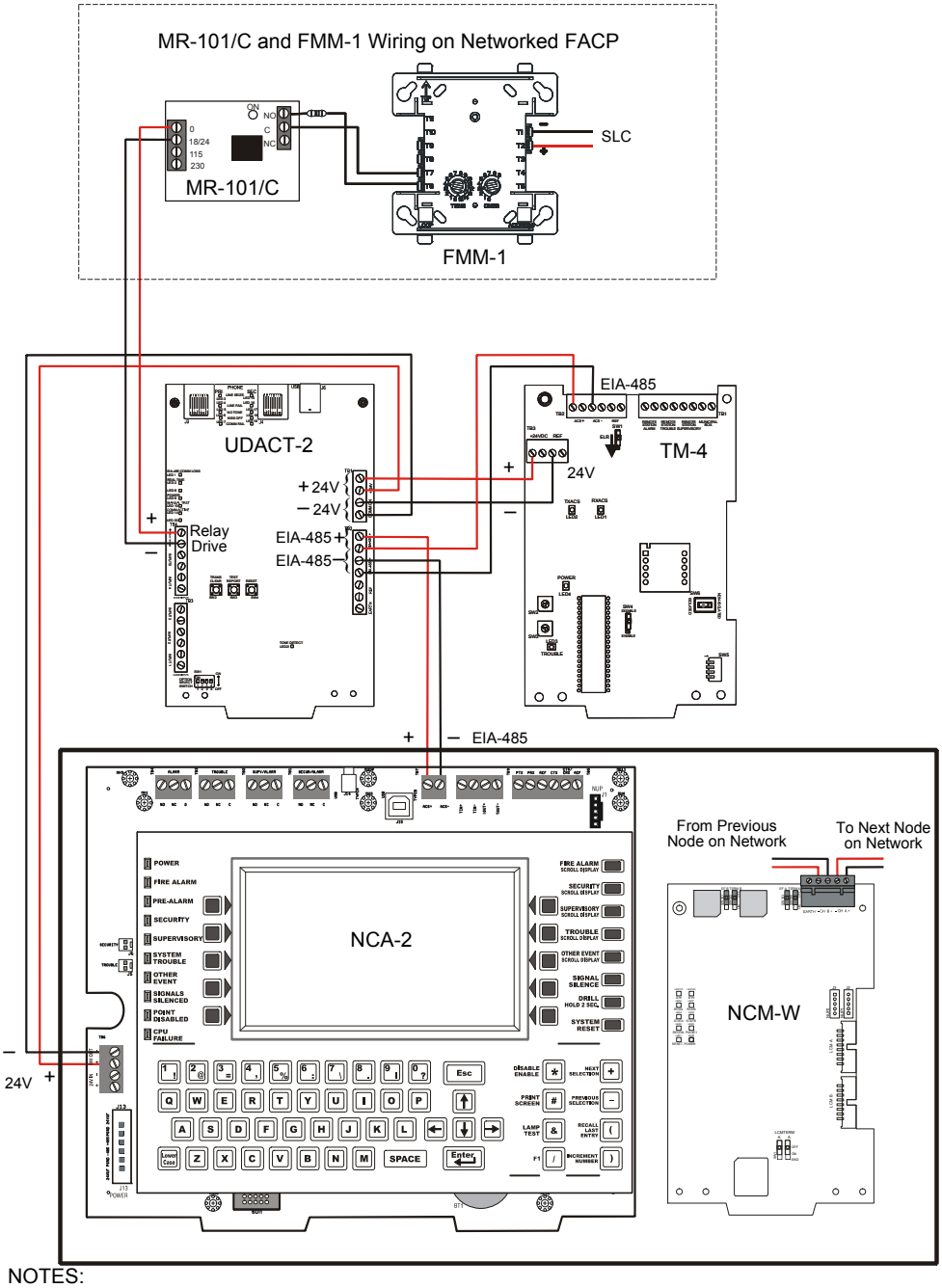
See the *NOTI•FIRE•NET™ Manual* and *NCM Installation Document* or *High-Speed NOTI•FIRE•NET™ Manual* and *High-Speed NCM Installation Document* for system configuration information.

1. Mount the module in the selected position. If another board is going to be mounted in the slot immediately in front of it, use stand-offs to secure it in place. Otherwise use the screws provided.
2. Connect J1 on the NCA-2 (Figure 2.5 on page 16) to J2 or J3 on the standard network communications module (whichever is closest) or to J6 on the high-speed network communications module, using the network cable provided (P/N 75556). Do not connect two network communications modules via NUP ports (aka NUP to NUP).
3. Connect Channel A and/or Channel B as described in the appropriate Network Control Module installation document.

See the BMP-1 Product Installation Drawing if considering mounting the module (wire version) behind a blank module plate in a dress plate or annunciator backbox.

3.11 Central Station Fire Alarm System Canadian Requirements

For Canadian applications requiring a second dial-out option, refer to the following illustration for UDACT/UDACT-2 and TM-4 setup:



NOTES:

- Drawing is not to scale.
- The UDACT/UDACT-2 should be set for “Receive Only” for this configuration. For additional UDACT/UDACT-2 setup information, refer to the *UDACT Installation Manual*. or *UDACT-2 Instruction Manual*.
- This illustration is show with the NCM-W. For other NCM or HS-NCM setup, refer to the *NCM Installation* or *HS-NCM Installation* documents.
- For additional setup information on the TM-4, refer to the *TM-4 Instruction Manual*.

Figure 3.11 Central Station Canadian Requirements for Second Dial-Out Connection

3.12 Connecting Power Sources and Outputs

WARNING:
Remove all power sources to equipment while connecting electrical components. Leave the external, main power breaker OFF until installation of the entire system is complete.

WARNING:
Several sources of power can be connected to the control panel. Before servicing the control panel, disconnect all sources of input power *including the battery*. While energized, the control panel and associated equipment can be damaged by removing and/or inserting cards, modules, or interconnecting cables.

3.12.1 Overview

Complete all mounting procedures and check all wiring before applying power. Electrical connections include the following:

- **Primary power source.** +24VDC, delivered through:
  - AMPS-24/AMPS-24E main power supply. If AMPS-24/E is mounted in a separate cabinet, power-supply wiring must be in conduit (for cabinet placement information see the AMPS-24/E manual.
  - the NFS2-640 or NFS-320 on-board power supply.
  - a *supervised* +24VDC power supply that is UL/ULC-listed for fire protective service.
- **Secondary power source.** +24 VDC from batteries, installed in the cabinet with the NCA-2's power supply (or in an optional battery cabinet). Secondary (battery) power is required to support the system during loss of primary power.
- **Accessory power for peripheral devices.** When the NCA-2 is not powered by the NFS2-640, TB6 can be used to supply +24 VDC power to devices within the same enclosure as the NCA-2. If those devices have outputs, the outputs must be power-limited (Class 2).

NOTE: The NCA-2 ships with an insulator to prevent its lithium battery from discharging. To preserve the battery, this insulator should be left in place as long as possible before applying AC power. Refer to "Memory-Backup Battery" on page 25. Some installers may find it convenient to remove the insulator before mounting all equipment.

NOTE: If using multiple power supplies with one set of batteries, refer to main power supply manual for connection requirements.

NOTE: Use 0 (zero) ohm impedance when testing wire-to-wire faults.

3.12.2 Connecting the Power Supply

AMPS-24/E

Connect J13 Power on the NCA-2 to MAIN 24V connection on AMPS-24/E with Cable 75637 (see Figure 3.12). This cable is 20 feet long, and must run in conduit between the backbox containing the fire alarm control panel and the backbox containing the AMPS-24/E. See AMPS-24/E manual for full details and installation precautions.

In order to conserve batteries, connect AC power and check it before connecting batteries. Follow the procedures specified in the power supply manual.

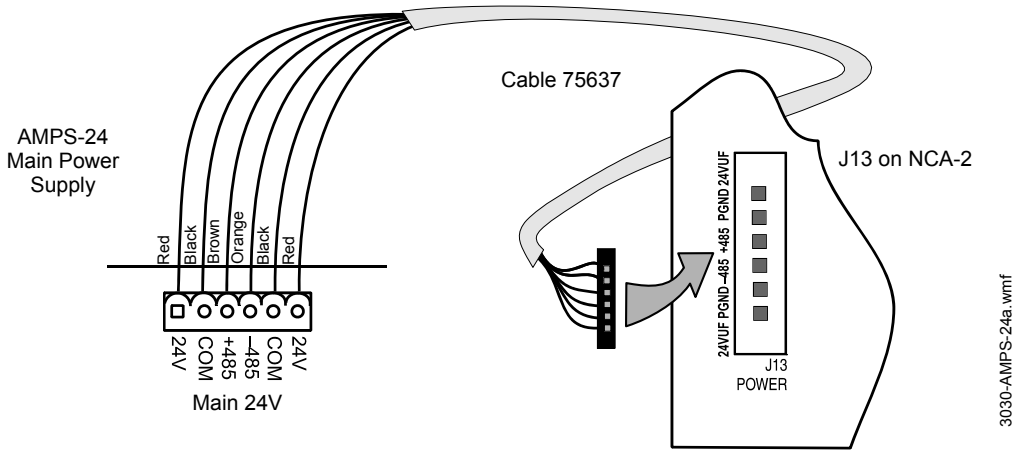


Figure 3.12 DC Power Connections: Main Power Supply

NFS2-640 or NFS-320 Power Supply

To power the NCA-2 using the NFS2-640 or NFS-320, make the power connections according to Figure 3.13. Set NCA-2 power-supply supervision to the NFS2-640 or NFS-320 node number, as described in Section 5.5.7 “Supervision”.
Note that the NCA-2 will report AC power failure from the NFS2-640 or NFS-320 power supply.

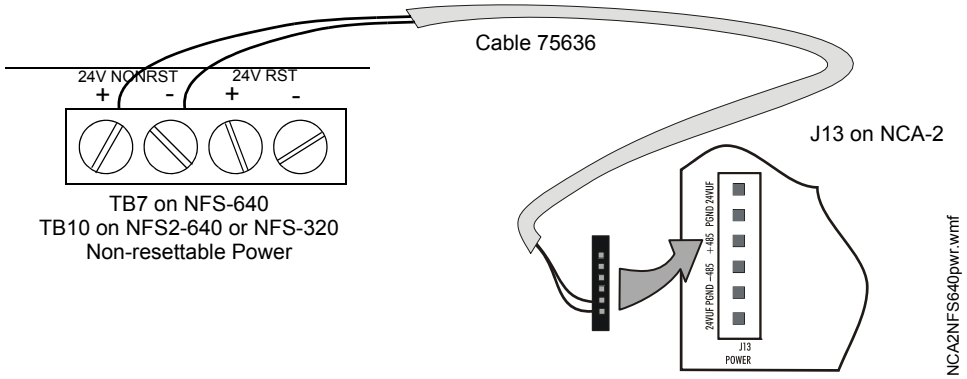


Figure 3.13 Connecting Power from the NFS2-640

3.12.3 Checking AC Power

Table 3.2 contains a checklist for checking the system with AC power applied to the main power supply:

CAUTION:
While checking AC power, make sure batteries are not connected.

Component	Status
NCA-2	The green Power indicator will come on when power is coming from the main power supply. The yellow Trouble indicator will come on until batteries are connected.
Main power supply	The green AC indicator will come on when AC is supplied. The yellow Trouble indicator will come on until batteries are connected.

Table 3.2 AC Power Checklist

3.12.4 Power Considerations When Servicing

When servicing the NCA-2, perform the following steps before removing or connecting any power or supervisory cables:

- Remove battery/secondary power.
- Remove AC power.
- Wait 60 seconds.
- Remove all EIA-485 connections.

WARNING:
Several different sources of power can be connected to the NCA-2. Disconnect all sources of power before servicing. This device and associated equipment may be damaged by removing and/or inserting cards, modules or interconnecting cables while this unit is powered. This damage may adversely affect the operation of this control unit, but its effect may not be readily apparent.

3.13 UL Power-limited Wiring Requirements

Power-limited (Class 2) and non-power-limited circuit wiring must remain separated in the cabinet. All power-limited circuit wiring must remain at least 0.25 inches (6.35 mm) from any non-power-limited circuit wiring. All power-limited and non-power-limited circuit wiring must enter and exit the cabinet through different knockout and or conduits. To maintain separations easily, it is recommended that non-power-limited modules are grouped together. For example, use a separate row or designated side of the enclosure so that power-limited and non-power-limited wiring do not cross. Install tie wraps and adhesive squares to secure the wiring.

For a quick reference to control panel circuits, refer to Figure 2.5 at the start of this manual. The power-limiting label inside your cabinet door identifies which compatible modules have power-limited or non-power-limited wiring.

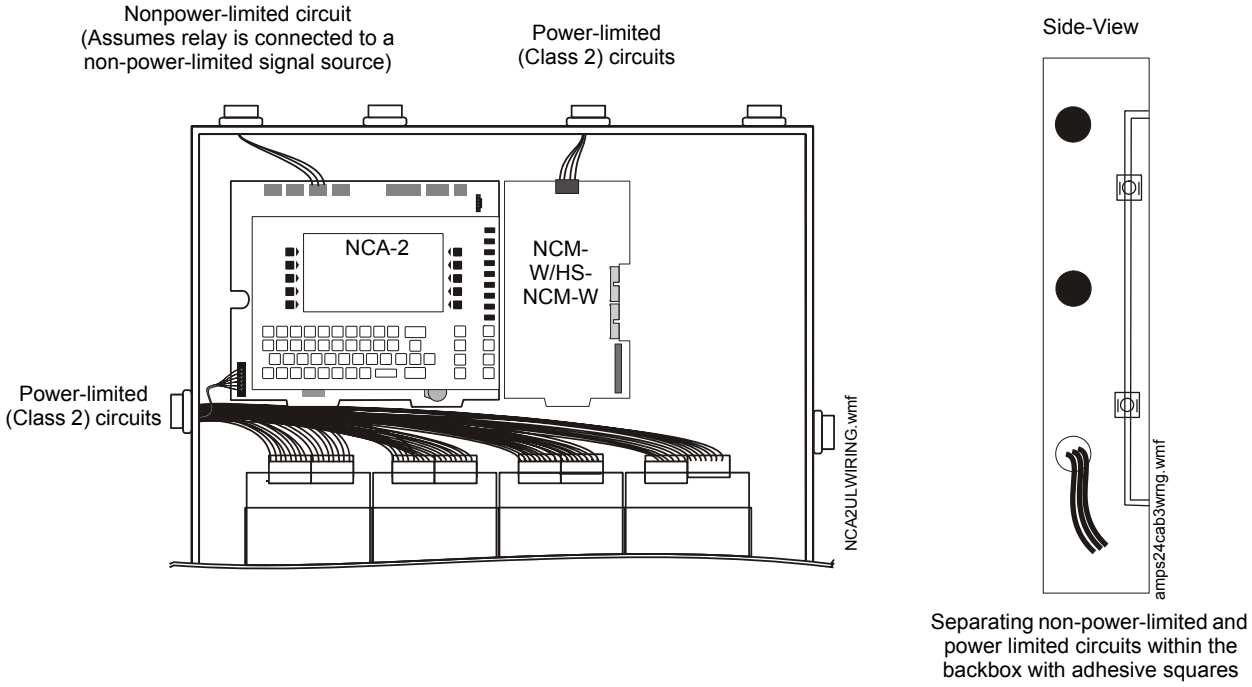


Figure 3.14 Typical Wiring in a Four-row Backbox

Some devices (such as the ACM-8R) are power-limited only when connected to power-limited sources. When one of these devices is connected to a non-power-limited source, the power-limited marking must be removed, and at the time of installation, each non-power-limited circuit connected to these modules must be identified in the space provided on the cabinet door label.

NOTE: Relays are power-limited only when connected to power-limited sources for the relay outputs.

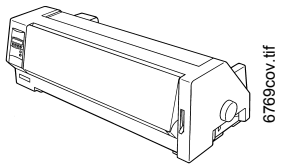
3.14 Installing Printers

This section contains information on connecting a printer to the CPU and for setting the printer options. The basic steps are as follows:

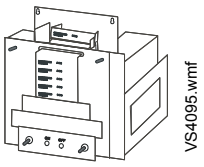
1. Make custom cable & connect it from printer to EIA-232 terminal on the NCA-2.
2. Connect printer's power supply.
3. Configure printer settings as described in printer documentation.

■ Overview: PRN Printer

The PRN provides a printed record (80 columns on standard 9" x 11" tractor-feed paper) of all system events (alarm, trouble) and status changes within the system. The control panel can be configured to time-stamp the printout with the current time-of-day and date for each event. The printer can be located up to 50 feet (15.25 m) from the control panel. Installation and configuration instructions follow.



■ Overview: Keltron Remote Printer (Model VS4095)

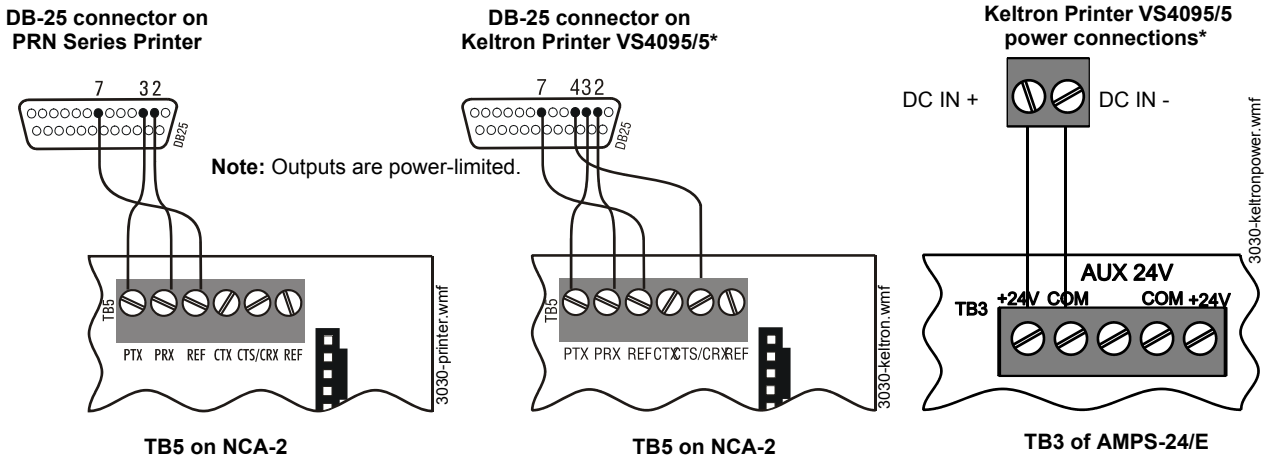


The VS4095 is a two-color (red and black), 40-column, 24 VDC printer that can print up to 50 messages in 90 seconds. This printer connects to the EIA-232 TB5 on the CPU and to the +24V screw on TB3 of AMPS-24/E, and mounts in a separate cabinet next to the control panel. The VS4095 meets UL fire and security requirements for an ancillary device per UL 864, 8th Edition (Refer to "UL 864 Ninth Edition Compliance" on page 8 for more information); it is not ULC-listed. For more information on the Keltron printer, contact the manufacturer (Keltron Corp., Waltham, MA). Installation and configuration instructions follow.

NOTE: Depending on which version of the AMPS-24/E is used, the terminal block designations may differ from those listed here. Please refer to the AMPS-24/E manual if that is the case.

3.14.1 Printer Installation Sequence

1. Fabricate a custom cable to connect a printer to the system. Length of the cable will vary with each installation, but should not exceed a maximum length of 50 feet (15.24 meters). Printer must be installed in the same room as panel. Using overall foil/braided-shield twisted-pair cable, properly connect one end to the DB-25 Connector (provided) using the wiring specifications shown in Figure 3.15.
2. Tighten clamp on connector to secure cable. Connect the four open leads of the custom cable to the TB5 terminal block on the CPU as shown in Figure 3.15.



*Note: VS4095/5 is not ULC-listed.

Figure 3.15 Printer Connections

3. If installing a Keltron Printer VS4095/5, connect 24 VDC non-resettable power from a UL-listed power supply to the Keltron printer as shown in Figure 3.15 (14 AWG).
4. If installing a PRN series printer, plug it into your AC power source. **Note:** PRN printers require a 120 VAC, 50/60 Hz primary power source. If required for the fire alarm system configuration (for example, a Proprietary Fire Alarm System), a remote printer requires a secondary power source (battery backup). Because a secondary power source is not provided, use a separate Uninterruptable Power Supply (UPS) that is UL-listed for Fire Protective Signaling.
5. Plug the DB-25 connector end of the custom cable into the EIA-232 port of your printer. Tighten securely.
6. Configure the printer as described in Section 3.14.2 "Configuring the Printer".

3.14.2 Configuring the Printer

Refer to the documentation supplied with your printer for instructions on configuring your printer.

PRN Printer Settings

Set the printer options (under the menu area) according to the settings listed in Table 3.3.

Option	Setting
L/R Adjust	0
Font	HS Draft
CPI	10 CPI
LPI	6 LPI
Skip	0.0
ESC Character	ESC
Emulate	FX-850
Bidirectional Copy	ON
I/O	
Interface	Serial
Buffer	40K
Serial	
Baud	9600, 4800, 2400
Format	8 Bit, None, 1 Stop
Protocol *	ENQ/STX
CG-TAB	Graphic
Character Set	Standard
Country	E-USA ASCII
Select Zero	ON
Auto-CR	OFF
Auto-LF	OFF

Option	Setting
Menu Lock	ON
Language	English
Paper	
Single	
Form Adjust	12/72
Trac 1	
Form Adjust	12/72
Trac 2	
Form Adjust	12/72
Auto Sheet Feeder	
Form Adjust	12/72
Auto Tear	OFF
F-Eject	OFF
Form Length	
Trac 1	
Lines	66
Standard	10.5”
Trac 2	
Lines	66
Standard	10.5”
Barcode	Off
Barmode	Unsecured

*Protocol: When printing in graphics mode, set I/O Serial Protocol to “Robust XON/OFF”.

Table 3.3 PRN Setup Options

Keltron Printer VS4095/5 Settings

The printer communicates using the following protocol:

- Baud Rate
  - Supervised mode: 2400
  - Unsupervised mode: 300

  (Supervision is a programmed setting; refer to the Panel Programming section of the Programming Manual for instructions.)
- Data bits: 8
- Parity: None
- Stop bits: 1

Set the printer DIP switches SP1 and SP2 according to settings in Table 3.4.

Supervised			Unsupervised			Supervised and Unsupervised		
SP1	On	Off	SP1	On	Off	SP2	On	Off
1		X	1	X		1		X
2	X		2		X	2		X
3		X	3	X		3		X
4		X	4		X	4		X
5	X		5	X		5	X	
6		X	6		X	6		X
7	X		7	X		7	X	
8	X		8	X		8	X	

Table 3.4 Keltron DIP Switch Settings

3.15 Connecting a PC for Programming

A PC running the VeriFire® Tools programming utility can upload and download the operating program of the control panel when attached to J1 Network/Service Connection (NUP) or to the second Network/Service connection on an attached network communications module. Refer to the VeriFire® Tools CD for instructions.

NOTE: Download operations that change the basic program of the control panel must be performed by responsible service personnel in attendance at the control panel. After downloading a program, test the control panel in accordance with NFPA 72.

3.16 Annunciator Key Switch (AKS-1B)

Some jurisdictions allow one node on a network to control the network at a time; one way to meet this requirement uses AKS-1B or Connector J6. For details, refer to Section 5.1 “Security Access” and your local Authority Having Jurisdiction.

The AKS-1B can provide access security for the control switches on the NCA-2. When key switch monitoring is enabled as described in the Programming Section 5.5.7 “Supervision”, the NCA-2 keypad can only be used when the AKS-1B key is inserted and unlocked.

AKS-1B

The AKS-1B kit includes a key switch and hardware for mounting to the ABF-4B. The AKS-1B switch mounts to the ABF-4B trim plate as shown in Figure 3.16. Plug the switch leads from the AKS-1B into Connector J6 on the NCA-2. When an AKS-1B is installed and enabled, the key must be inserted and turned for the keypad to be used.

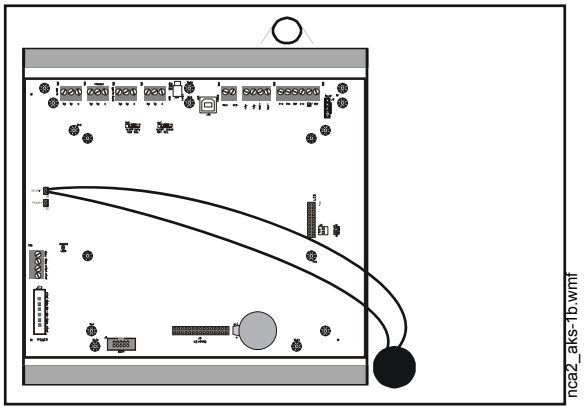


Figure 3.16 Connecting AKS-1B on J6

3.17 Security Tamper Switch

A security tamper switch (STS-1) installed in the cabinet door will indicate a door tamper condition whenever the door is open. If the NCA-2 indicates a Security alarm, you can acknowledge, silence or reset the condition from the NCA-2.

There are two options regarding the tamper switch:

- If the NCA-2 is in its own cabinet, the tamper switch can be installed on the cabinet and connected directly to the NCA-2.
- If the NCA-2 is mounted in the same cabinet as the control panel, the tamper switch can be connected to the FACP.

3.18 ACS Devices and the NCA-2

The NCA-2 can be used to monitor Annunciator Control System (ACS) modules and can support up to 32 ACS annunciators. ACS devices use LED arrays to show the status of points or zones within the network monitoring system. Annunciator points are programmable from the NCA-2 interface.

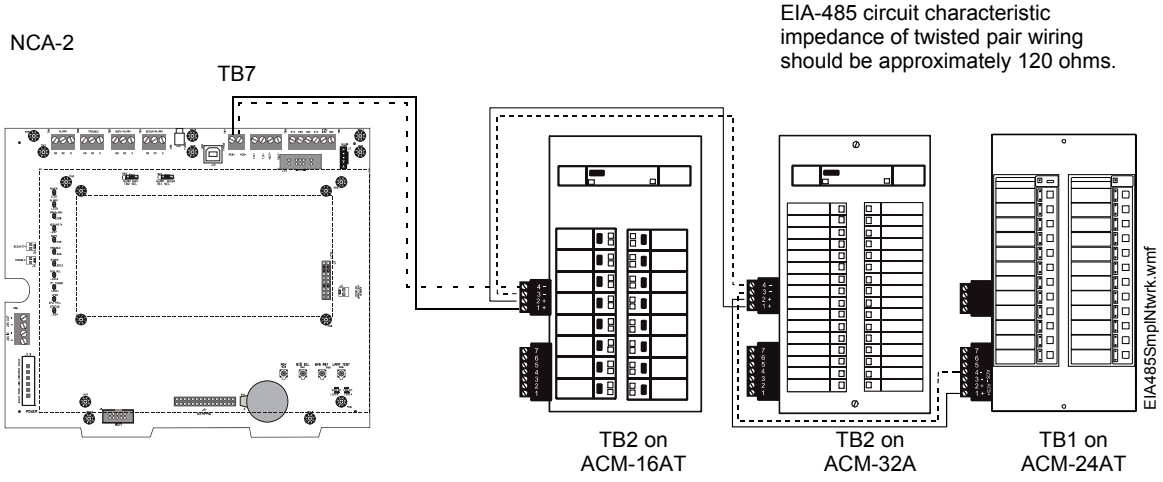


Figure 3.17 NCA-2-to-ACS Connection

Refer to the appropriate ACS manual for EIA-485 circuit ratings and limitations.

NOTE: Some ACS devices will have two 2-pin connectors adjacent to each other, one for NCA-2 connections and one for connecting to the next ACS device.

3.19 LCD-160, LCD-80, LCD2-80 and NCA-2

LCD-160 - The NCA-2 connects to the LCD-160 via the two RDP pins on TB9: T IN+ and T IN-. If it is the last device on the RDP bus, the LCD-160's end-of-line resistor must be enabled. Refer to the LCD-160 manual for connection information.

LCD-80 - The NCA-2 connects to the LCD-80 at TB9, using all four pins. Refer to the LCD-80 manual for connection information.

LCD2-80 - The NCA-2 connects to the LCD2-80 at TB2, using all four pins. Refer to the LCD2-80 manual for connection information.

Section 4: Operation

This chapter covers basic operation of the NCA-2 and control features available to the operator using the NCA-2's keypad and 640-character LCD display.

4.1 The Keypad

The keypad includes the Status LED indicators, soft keys, alphanumeric keys, fixed and special function keys. The alphanumeric portion of the keypad is in standard QWERTY format. This keypad is functional mainly when an entry is requested by the system. Otherwise, pressing the keys results in no entry.

NOTE: Key functions are as described below unless the Display and Control Center (DCC) option is enabled and the DCC is at another location. When this panel is not the DCC on a network, permission must be granted from the DCC before Signal Silence, System Reset, Acknowledge or Drill can be performed at this panel. Pressing one of these keys will automatically send a permission request to the DCC.

NOTE: When key switch monitoring is enabled, the keypad is usable when the AKS-1B is unlocked.

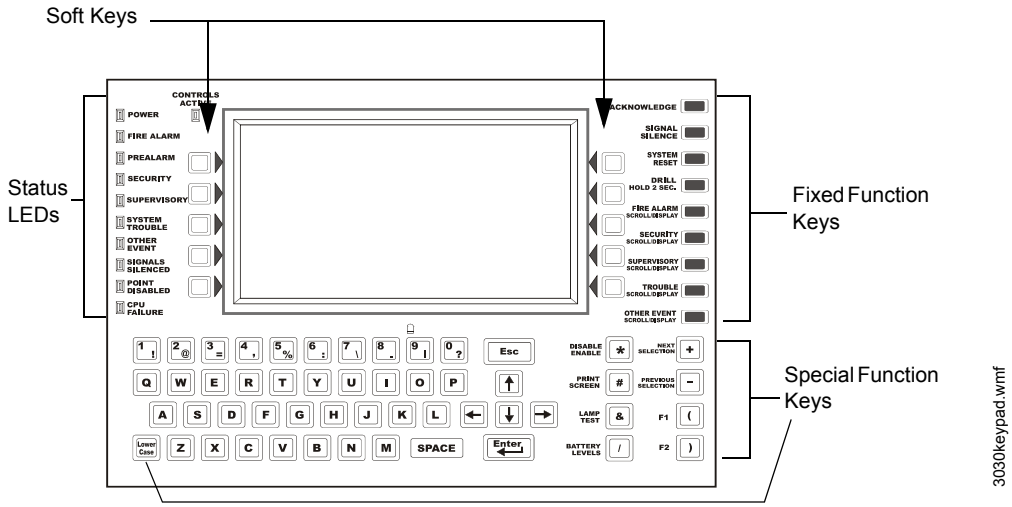


Figure 4.1 The QWERTY Keyboard Interface

4.1.1 Fixed Function Keys

The nine keys aligned along the upper right edge of the keypad/display are fixed function keys.

ACKNOWLEDGE - Press this key to acknowledge an off-normal event displayed on the screen. Use to respond to a new alarm or event.

SIGNAL SILENCE - Press this key to turn off all control modules that have been programmed as silenceable. (all nodes mapped to NCA-2).

SYSTEM RESET - Press this key to clear all latched alarms and other events as well as turn off event LEDs. If alarms or other off-normal events exist after reset, they will resound the system and relight the LEDs. Unacknowledged events will not prevent reset from functioning.

The System Reset key will not immediately silence active outputs. If the Control-by-event programming

conditions for the output are not met after reset, the output will deactivate. (Typically 30 seconds local, 60 seconds network.)

If Fire and MNS alarms exist on the network at the same time, a second System Reset needs to be performed to fully reset the network. The NCA-2 will display MN SYSTEM RESET or FIRE SYSTEM RESET, depending on which event type has priority.

DRILL HOLD 2 SEC. - Press this key, holding it down for 2 seconds, to activate all silenceable fire output circuits (all nodes mapped to NCA-2).

LAMP TEST - Press this key to test the LED indicators on the left of the keypad and the piezo. Pressing the key longer than 5 seconds will display firmware version numbers on the display screen.

BATTERY LEVELS - Press this key to display battery voltage.

FIRE ALARM SCROLL/DISPLAY
SECURITY SCROLL/DISPLAY
SUPERVISORY SCROLL/DISPLAY
TROUBLE SCROLL/DISPLAY
OTHER EVENT SCROLL/DISPLAY

Scroll through a list of events of these types, each of which will appear on the display once the associated button is pushed. The **OTHER EVENT SCROLL/DISPLAY** key also scrolls between prealarm and disabled events.

4.1.2 Special Function Keys

At the bottom of the keypad are the special function keys.

Arrow Keys - Pressing these keys navigates through the programming fields on a display screen by advancing or reversing the cursor position.

+, – Keys - Use these keys to scroll forward to the next selections (+) or back to previous selections, on the display screen. The keys are used when setting parameters in NCA-2 data fields, such as choosing a device type as a filter for requesting a Node History.

4.1.3 Soft Keys

The ten keys to the right and left of the display function to select commands that appear on the display. Each soft key points to a line of text on the LCD screen; a particular soft key will select the item in that corresponding line of text. The currently selected item will flash, serving as a cursor. Each screen has different information, and each key changes function to suit the screen. Beneath each screen in this manual is a description of the function of each soft key.

4.1.4 Diagnostic Indicators and Controls

The NCA-2 keypad has eleven LED status indicators that light to annunciate conditions. Refer to Table 4.1 for the list of LED indicators and their descriptions.

Indicator	Color	Description
CONTROLS ACTIVE	Green	Fire applications: Illuminates when the NCA-2 assumes control of the network as primary display. (See Appendix D, “Display and Control Center (DCC)”. Mass Notification applications: Illuminates when control is available.
POWER	Green	Illuminates when AC power is within normal operating limits.
FIRE ALARM	Red	Illuminates when at least one fire alarm event exists. It flashes when any of these events remain unacknowledged.
PRE-ALARM	Red	Illuminates when at least one prealarm event exists. It flashes when any of these events remain unacknowledged.

Table 4.1 Status LED Indicator Descriptions

Indicator	Color	Description
SECURITY	Blue	Illuminates when at least one security event exists. It flashes when any of these events remain unacknowledged.
SUPERVISORY	Yellow	Illuminates when at least one supervisory event exists. It flashes when any of these events remain unacknowledged.
SYSTEM TROUBLE	Yellow	Illuminates when at least one trouble event exists. It flashes when any of these events remain unacknowledged.
OTHER EVENT	Yellow	Illuminates when an MNS alarm, process monitor, CO alarm, CO Pre-alarm, hazard alert, or weather alert occurs. It will flash if any of these events remain unacknowledged.
SIGNALS SILENCED	Yellow	Illuminates if the NCA-2 Signal Silence key has been depressed or if any other node sends a Network Silence command. It flashes if some points on a node are silenced.
POINT DISABLED	Yellow	Illuminates when at least one disabled device exists.
CPU FAILURE	Yellow	Illuminates if there is an abnormal hardware or software condition. The panel is out of service when this LED is illuminated or flashing. Contact technical support.

Table 4.1 Status LED Indicator Descriptions

4.2 The LCD Display

The home screen is displayed when no alarms or troubles exist. It will display a message at the top which says “SYSTEM NORMAL.” The LCD display is a 640-character screen, 16 lines x 40 characters. The user can customize the NCA-2 home screen.

In a System Normal message, Line one displays the local NCA-2’s 40-character custom node label saved in non-volatile memory (created under the NCA-2’s Program/Alter Status menu or downloaded from VeriFire® Tools); Line 2 states “System Normal”; and Line 4 contains the local NCA-2’s node number.

The Main Menu is accessible using the corresponding soft key in the lower right of the LCD display. A text label should be drawn into the custom bitmap graphic so that it is also visible on the graphic screen. The Main Menu screen is also selectable from any other screen unless unacknowledged events exist. This allows the user, for example, to disable a point while a fire alarm exists.

If an event occurs, the Event Counts screen will be displayed automatically, displaying a count of different acknowledged and unacknowledged events as discussed in Section 4.2.2 “Event Counts Display”. You can select Multiple Event List to instead display a list of all events, sorted as discussed in Section 4.2.3 “Multiple Event List”.

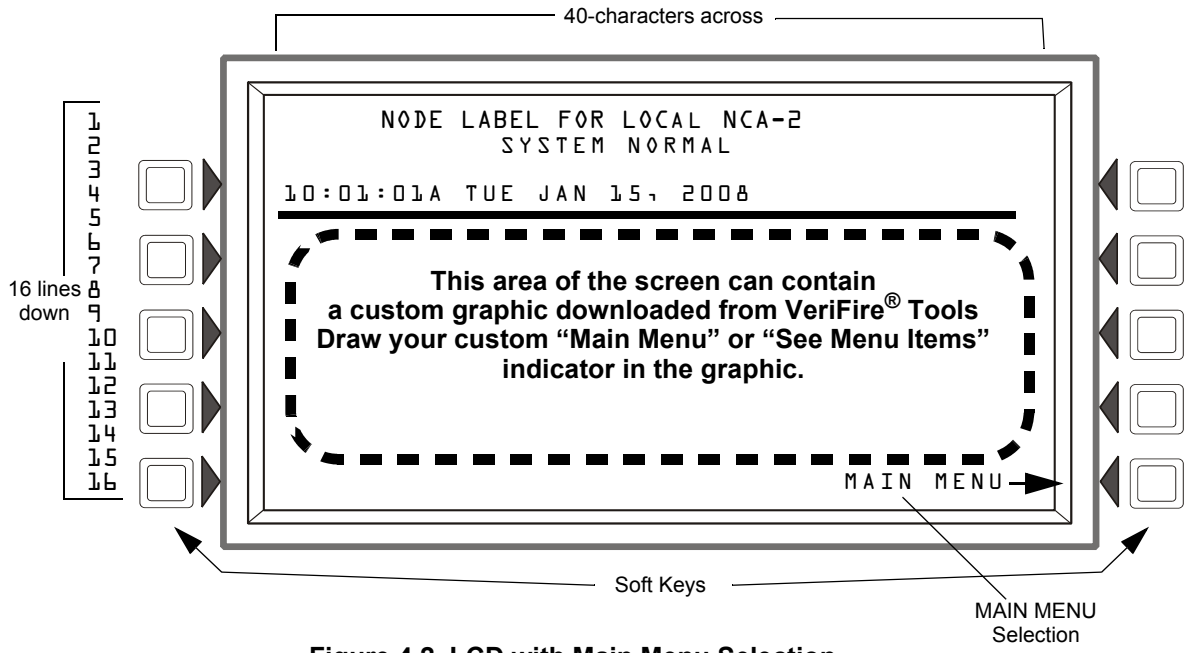


Figure 4.2 LCD with Main Menu Selection

4.2.1 Basic Screen Navigation: The Main Menu

The main menu is a navigational screen that navigates to the selected submenu. The different options are as follows:

EVENT COUNTS DISPLAY - accesses the Event Counters screen where all events are listed by event type. (See Section 4.2.2 "Event Counts Display" on page 44.)

MULTIPLE EVENT LIST - displays events simultaneously in groups of eight. These lists can be scrolled forward and back. (See Section 4.2.3 "Multiple Event List" on page 46.)

HISTORY DISPLAY - navigates to the History Main Menu screen, where the user can view the history of remote nodes on the NOTI•FIRE•NET™ system or the NCA-2 local history. (See Section 4.2.4 "Local and Node History Display" on page 47.)

READ STATUS - navigates to the Read Status Point Select screen, where you can specify a point and obtain detailed information about it. (See Section 4.2.5 "Read Status" on page 51.)

PROGRAM/ALTER STATUS - programs the system and changes fundamental configuration settings. Examples include: change time/date, disable/enable point, change detector sensitivity, and change point label. A password is required. (See Section 5, "Programming", on page 63.)

PRINTER FUNCTIONS - prints reports of events and configurations. (See Section 4.2.7 "Printer Functions" on page 57.)

There are several NCA-2 features that require the user to specify a device address or point, such as Read Status or History Display.

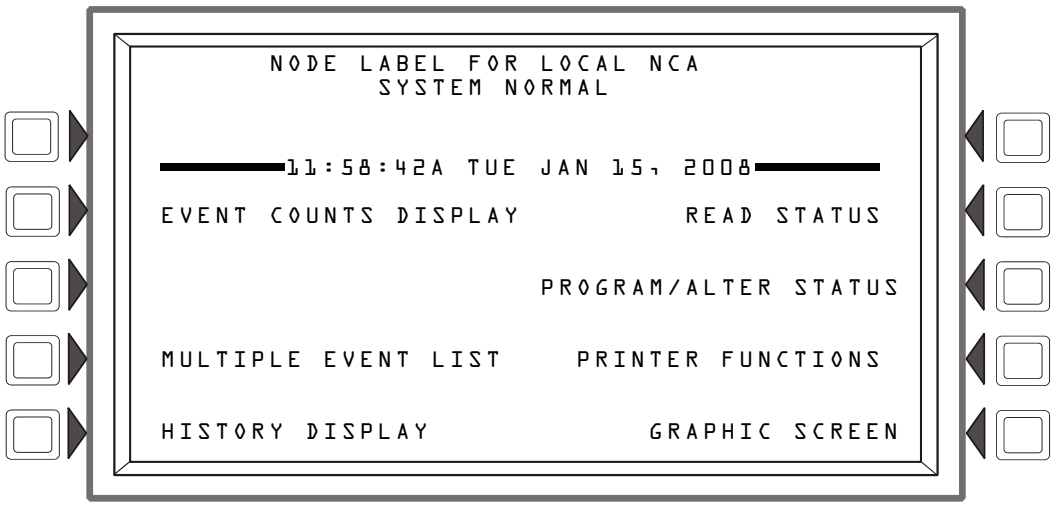
- If a device does not exist at the selected address, an "INVALID POINT" error message will display for 3 seconds and then return to the point-select screen. Press "NEXT POINT" or "PREVIOUS POINT" to read the next/previous programmed point of that type. An error message will indicate if there are no further devices of that type programmed.

NOTE: If attempting an operation on a point on an NFS-320, NFS2-640, or NFS2-3030, the NCA-2 will display the error message "INVALID POINT - SELECTING NEXT POINT" and automatically select the next valid point.

- The selected point must already be mapped in local NCA-2 programming or else the error message “NODE NOT MAPPED” will display. If the selected point is on a remote node, both that node and the local NCA-2 must be on-line or the error message “NODE OFF-LINE” will display.

↳ Main menu: System Normal

When system status is normal, Line 1 displays the local node label.



↳ Main menu: Uncleared event in system

Line 1: Event summary
Line 2: Point label for the affected hardware
Line 3: 1st position in CBE zone list.
Line 4: Date/time and point number of event.

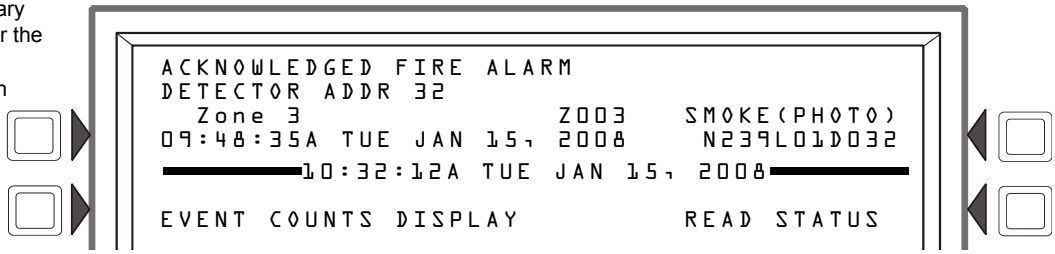


Figure 4.3 NCA-2 Main Menu

4.2.2 Event Counts Display

The Event Counts screen, accessed from the main menu, can be displayed any time regardless of whether events exist. This screen is automatically displayed whenever an off-normal event is present, unless the NCA-2 is in programming mode. However, the NCA-2 will always display a Fire Alarm, even during programming mode.

The two lines directly below the screen header display current counts of the six types of off-normal events, acknowledged and unacknowledged.In addition, a Telephone Ring-In on the NFS2-640 and NFS2-3030 panels will cause the Event Counts screen to be automatically displayed and the following message to be displayed in reverse text:

EMERGENCY PHONE - RINGING - ANSWER PHONE

When the phone message first appears, it will be flashing and the buzzer will be sounding. The Ring-In must be acknowledged to clear these conditions. Refer to on page 82 for additional information.

NOTE: In Canadian mode, the operator must press a key to display the Event Counts screen. The NCA-2 will prompt by showing the message “PRESS ANY KEY.”

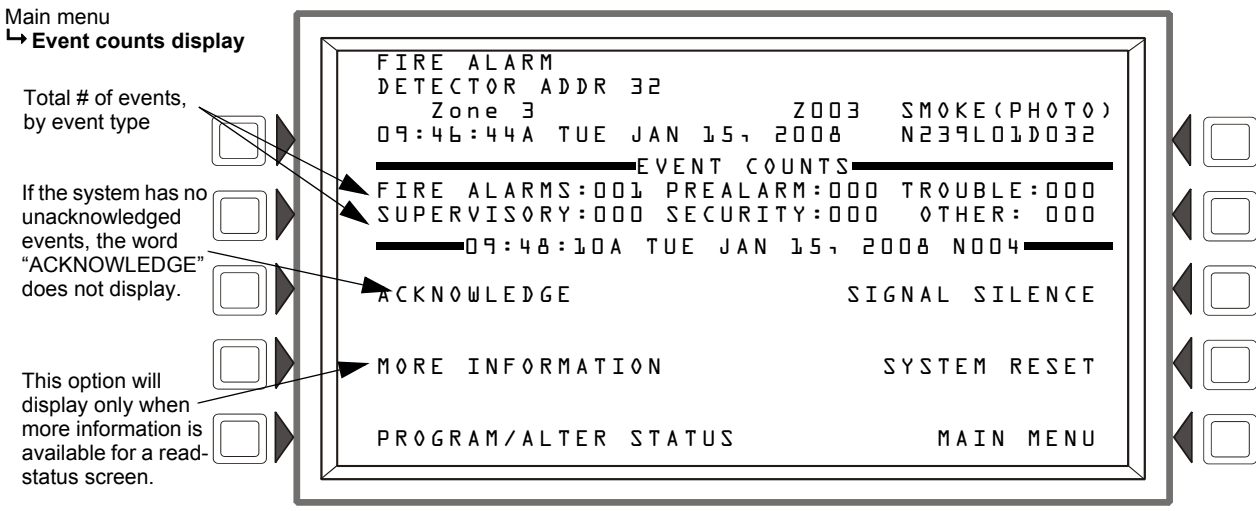


Figure 4.4 Event Counts Display

Acknowledge

If there are no unacknowledged events, the ACKNOWLEDGE soft key will not be shown. In Figure 4.4, an arrow indicates where it will appear if there are unacknowledged events.

More Information

The MORE INFORMATION option is displayed when an off-normal event occurs for an input device. It is not displayed if the event is an output point or a system trouble (that is, an event not associated with any specific point). This option is shown in Figure 4.4 to demonstrate where it is once the event occurs. Press the MORE INFORMATION soft key to navigate to the Read Status screen, which shows more detailed information about the displayed event. For details on the Read Status feature, refer to Section 4.2.5 "Read Status".

Program/Alter Status

The soft key PROGRAM/ALTER STATUS allows a user with the proper access level to change various NCA-2 settings. Examples include change time/date, disable/enable point, change detector sensitivity, and change point label. This option is not visible if an unacknowledged event is present. The PROGRAM/ALTER STATUS functions are password protected and require the proper access level as defined by the system administrator. For details on the Program/Alter Status menu option, also present in the Main Menu, refer to Section 4.2.6 "Program/Alter Status" on page 57. This option is not present if there are unacknowledged events that are higher priority system troubles (Alarm, Supervisory, Security), or Pre-alarm.

Signal Silence

Use this command to turn off all devices that are mapped to the NCA-2 and programmed as Silenceable.

System Reset

Use this command to clear all latched alarms and other events and turn off event LEDs of nodes that are mapped to the NCA-2. If both Fire and MNS alarms exist on the network, a second System Reset must be performed to clear the events from the network.

Main Menu

The soft key MAIN MENU returns user to the Main Menu screen. This option is not visible if an unacknowledged event is present.

4.2.3 Multiple Event List

To access the Multiple Event List, press the corresponding soft key option from the Main Menu. The resulting list shows all events that have occurred after the event displayed at the top of the screen, which is the most recent acknowledged event.

NOTE: If an unacknowledged event comes in, it will remain on this screen, and the NCA-2 will display "PRESS ANY KEY" on the screen header on line 5. Pressing any key, including navigational keys, will navigate to the Event Counts screen, where you must acknowledge the event(s).

Screen Navigation

- The SCROLL DISPLAY hard keys scroll through the list of active events. You can also scroll through events by pressing the up/down arrow keys directly above the <ENTER> key. The up and down arrows will scroll the cursor through the list. The event at the top will remain at the top. If the event at the top of the screen is sequenced in such a way that it would normally appear in the list, the display will skip over it, and the numbers will be out of sequence. (Figure 4.5 shows events 3-9 in sequence.)
- The NEXT SELECTION/PREVIOUS SELECTION hard keys will scroll to the next or previous event after the event shown at the top. This event will then be displayed at the top of the screen, and the list will show the events following the event just placed at the top.
- Highlight an event in the list by moving the cursor with left/right arrows, and press ENTER to bring that event to the top. The list will then show the events following the event you just placed at the top.
- Output activations are not displayed, but they are put in History if reporting is enabled. This is configured via the Programming/Alter Status option.
- To switch this screen between USA standard priority and CANADIAN priority in terms of the order of event classes displayed, select PROGRAM/ALTER STATUS, PROGRAM MENU, SETTINGS. Within an event class, events will be displayed in time order with the first listed event being the first event received. See Section 5.5.3 "Panel Settings" for more details on the NCA-2 SETTINGS menu.
- Eight events can be displayed on the screen at one time. If the first event is not displayed in the list, a FIRST EVENT soft key option will be available in the lower left of the screen which will display this first event and the next seven following.

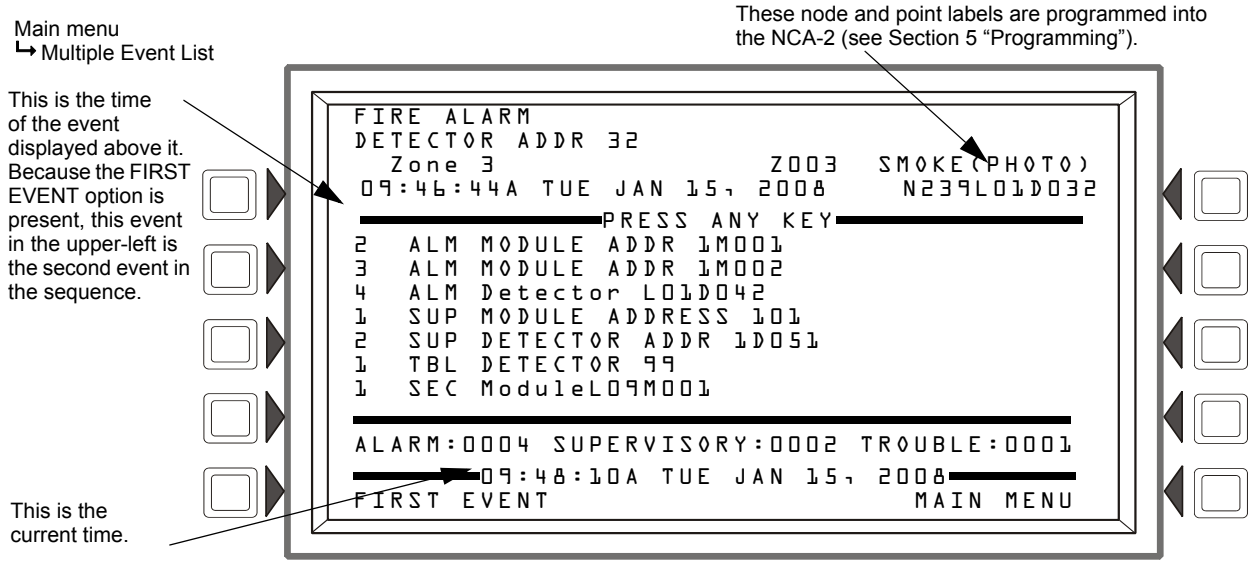


Figure 4.5 Multiple Event List - Fire Alarms Sample Screen

4.2.4 Local and Node History Display

The History Menu is accessed from the main menu screen by pressing the HISTORY DISPLAY soft key. The NCA-2 will then display the History Select menu.

Main menu
↳ History display

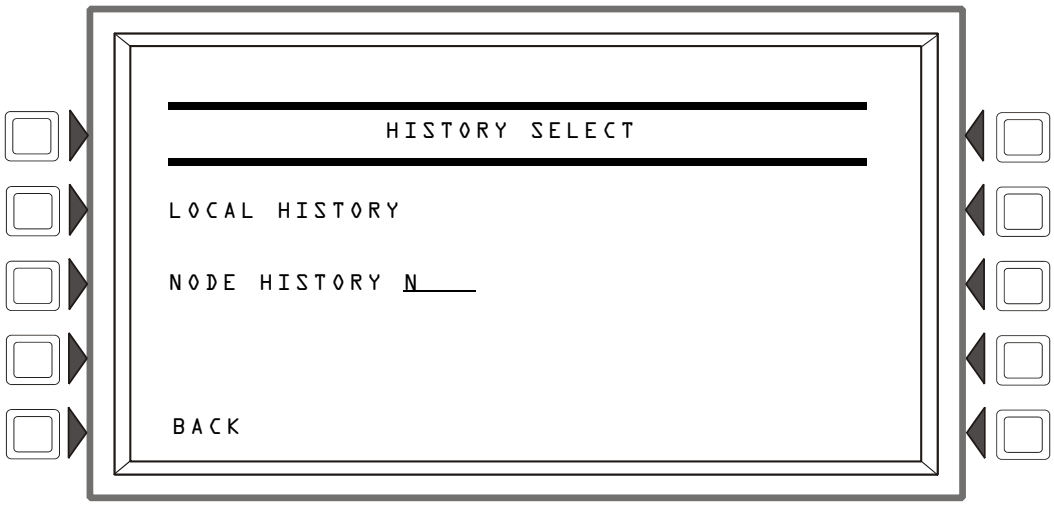


Figure 4.6 History Select Menu

NOTE: It is not possible to display or print the history for prealarms or disabled points exclusively.

Local History

When you select this option, the Local History Select menu appears (see Figure 4.7 on page 47). The soft keys ALL EVENTS, ALARMS ONLY, TROUBLES ONLY, SUPERVISORY ONLY, and SECURITY/OTHERS are used to select the type of history to be viewed. Options will not appear if their associated history queue is empty. The TIME/DATE INTERVAL and POINT RANGE options allow the user to select only events within those given parameters.

Main menu
↳ History display
↳ Local history

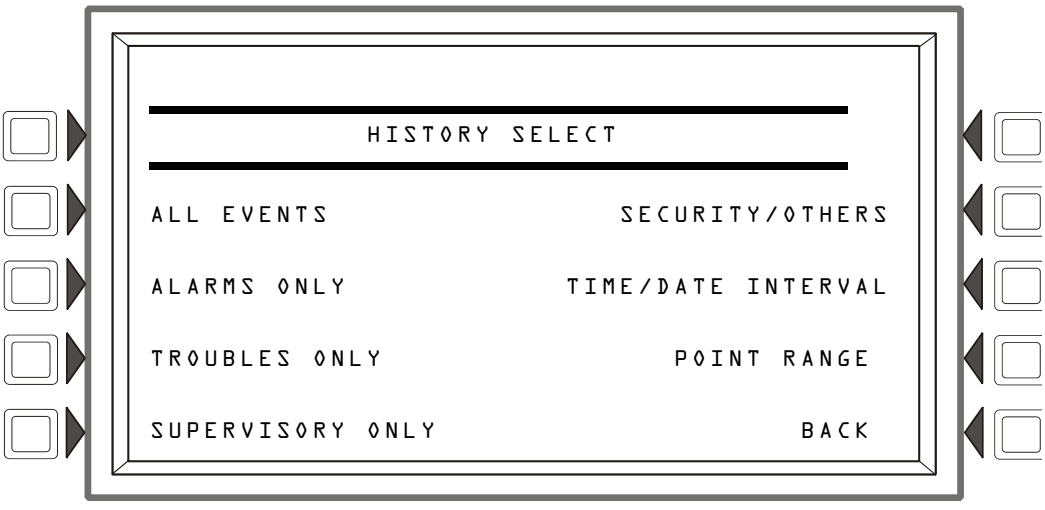


Figure 4.7 Local History Select Screen

For example, if a user selects TROUBLES ONLY, a screen similar to the full screen in at the top of Figure 4.8 may be displayed. All Trouble events are shown in descending date order (from most recent to least recent). Event details are displayed in the middle area marked off by separating lines. Details include the event type, node number, node location as defined by the operator, device type, and the date and time of the event. The user can scroll through the Trouble event history by pressing the NEXT EVENT or PREVIOUS EVENT soft keys. PRINT TROUBLE HISTORY will print the history of the selected event type. Pressing the BACK key will return to the History Main menu.

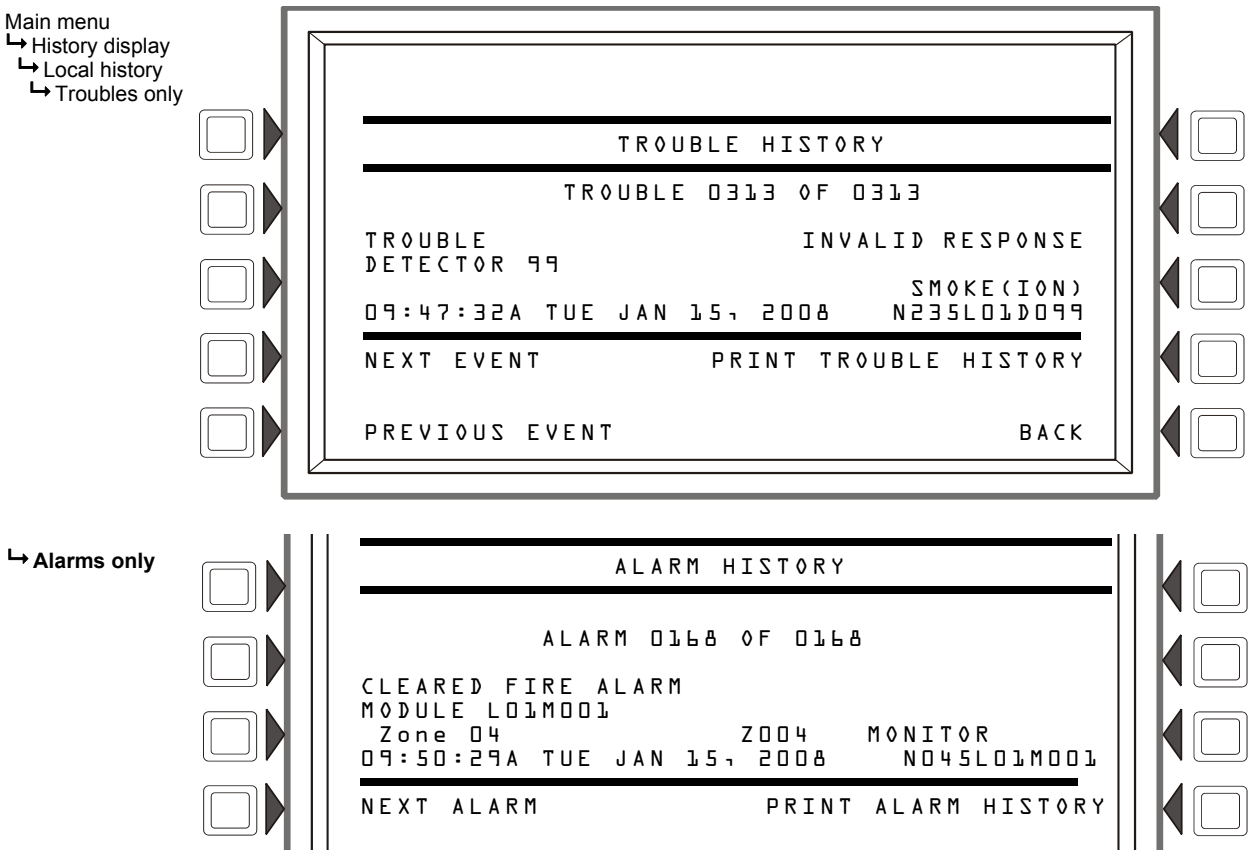


Figure 4.8 Event History Sample Display

Local History: Time/Date Interval

Selecting the **TIME /DATE INTERVAL** soft key on the Local History Select Screen filters events for display within a specified time/date interval.

- The user will be prompted to enter a start/end time and date. The keypad will be used to enter/edit the data in each field.
- The default start time is 12:00 a.m. of the current day, and the default end time is the current date and time. This allows a default printing of all events for the current day.
- The default event type is ALL EVENTS. To scroll through event types, press the EVENT TYPE soft key. Choose between ALL EVENTS, ALARMS ONLY, TROUBLES ONLY, SUPERVISORY ONLY, SECURITY ONLY, or OTHER ONLY. Once you have set the parameters, press the ACCEPT soft key. Press the <ESC> key to exit the current field without saving any changes. Press the <ESC> key twice to return to the previous menu.
- NEXT/PREVIOUS FIELD hard keys will move the cursor to the next/previous parameter field (the arrow keys will perform the same function).
- The soft key BACK will return to the History Main Menu.

Once you press the ACCEPT key, events within the set parameters will be displayed as shown in Figure 4.8. When viewing events within a time/date interval, if more than one event exists, a counter will indicate which event is displayed and the total number of events. If there are no events of the specified type available within the specified range, the message "HISTORY FILE IS EMPTY" will be displayed. The soft keys NEXT EVENT and PREVIOUS EVENT are used to scroll through events. PRINT HISTORY will print the history for the specified parameters.

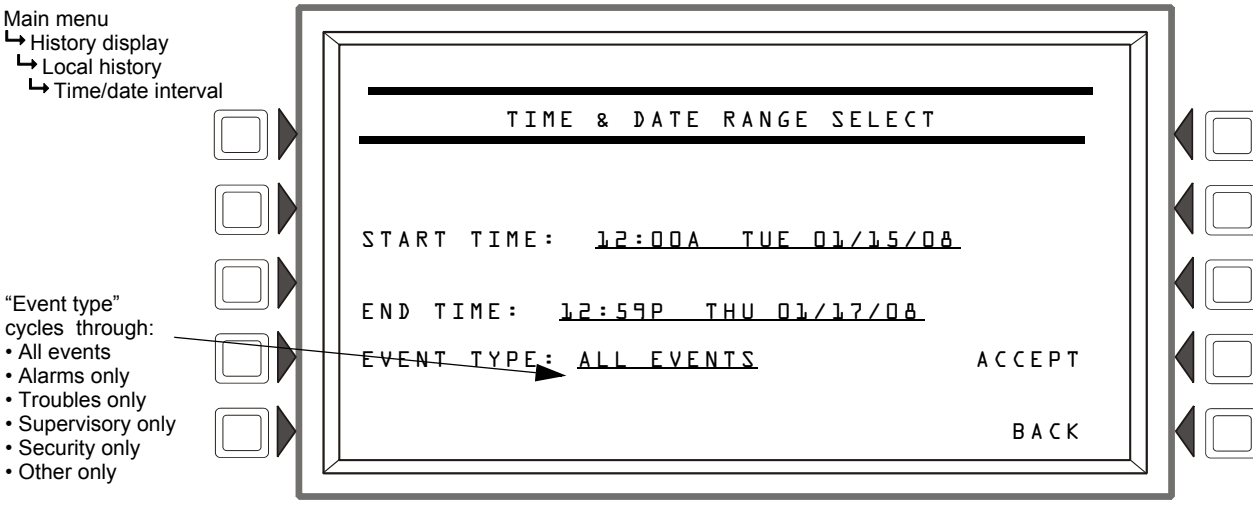


Figure 4.9 Time/Date Range Select Screen

Local History: Point Range

Selecting the **POINT RANGE** soft key on the Local History Select screen sets a range of device points for event display as shown in Figure 4.10 on page 50.

- From the Local History Select screen, press the POINT RANGE soft key (see Figure 4.10).
- Enter a start point by typing in the node identifier directly, or by pressing the corresponding soft key to toggle through device types. The four device types are Detector, Module, Panel Circuit, and Bell Circuit, in that order. Enter the end point in the same way. The default range is N001L01D001 for the start point, and N240B04 for the end point.
- The Event Type default is ALL EVENTS. To filter the history file by event type, use the EVENT TYPE soft key to scroll through event types. Once you have set desired parameters, press the ACCEPT soft key, and the NCA-2 will display all events within those parameters. Press the <ESC> key to exit the current field without saving any changes. Press the <ESC> key again to return to the previous menu.
- The soft key BACK will return to the previous menu.

As with viewing the events within a time/date interval, when viewing events within a specific point range, if more than one event exists, a counter will indicate which event is displayed and the total number of events. The user has options to PRINT EVENTS IN RANGE and view the PREVIOUS/NEXT EVENT (when multiple events exist).

The following is a sample point range inquiry:

Start Point: N001L01M001

End Point: N001L01B04

Event Type: All Events

This example requests a history of all events on Node one only, Loop one only, for all modules, panel circuits and bell circuits. Since the start point specifies module device addresses (M001), detectors would not be included in this query as they are first in the device type order. Figure 4.10 shows how this inquiry would appear on the screen.

Ordering of devices on a node:

1. Node One, Loop One Detectors, Modules, etc.
2. Node One, Loop Two Detectors, Modules, etc.
3. Node One Panel Circuits
4. Node One Bell Circuits
5. Node Two, Loop One Detectors, Modules, etc.
6. Node Two, Loop Two Detectors, Modules, etc.
7. Node Two Panel Circuits
8. Node Two Bell Circuits

etc…

NOTE: If the Start and End Point nodes are not consecutive, e.g. the Start Point is Node 1 and the End Point is Node 3 or above, the NCA-2 will display all event types on all nodes between the Start Point and End Point.

Main menu
↳ History display
↳ Local history
↳ Point range

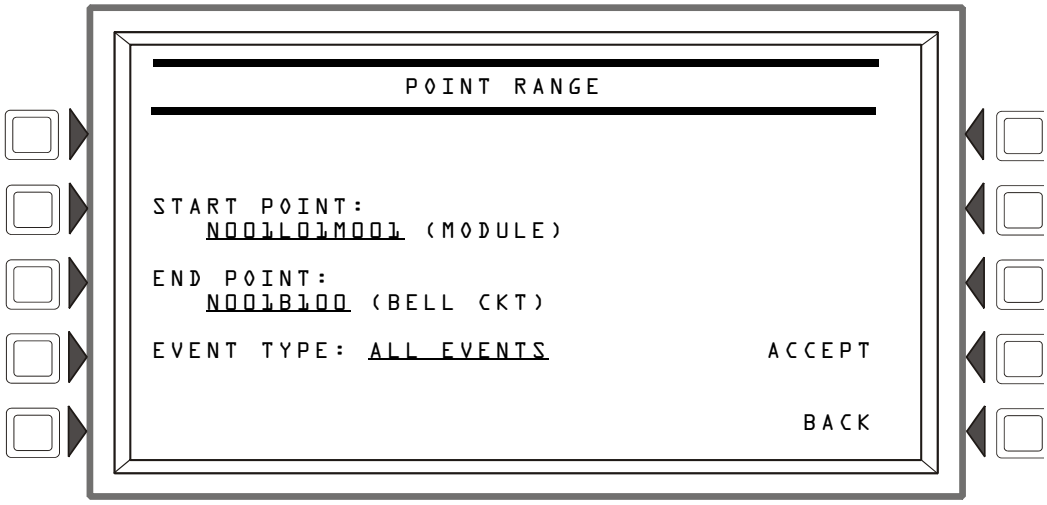


Figure 4.10 Point Range Select Screen

Node History

When you select this option from the History Select menu (see Figure 4.6 on page 47), you can display or print event details for a specified node. Enter the node number in the NODE HISTORY N____ field, then press the corresponding soft key. The local NCA-2 must be on-line, and the node selected must be mapped in the local NCA-2's programming. The choices from the Node History menu are:

- ALL EVENTS
- ALARMS ONLY

For example, if a user selects ALL EVENTS, a screen similar to that of Figure 4.11 on page 51 will be displayed. In this example, the first four lines show the System Normal message, the date and the time. The screen specifies the node on which the event or events occurred, and displays the

event counter, which in this instance would show all events in descending date order (from most recent to least recent). Event details are displayed after the event counter. Details include the event type, node address, node location (which is custom defined by the operator), device type, and the date and time of the event. The user can scroll through the event history by pressing the soft keys NEXT EVENT or PREVIOUS EVENT. Pressing the BACK key will return to the History Main menu.

NOTE: For use with NFS-320, NFS2-640, NFS2-3030, and DVC nodes.

Main menu
↳ History display
↳ Node history
for Node 003

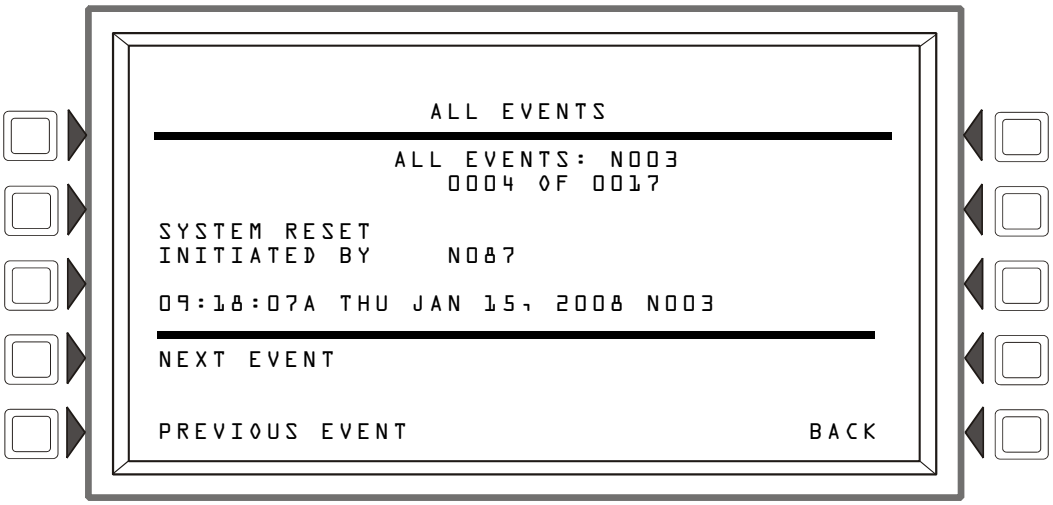


Figure 4.11 Event Details Sample Screen

4.2.5 Read Status

The Read Status menu option provides the user with status information about devices and modules attached to a remote node. It is for use across a network only. If an NCA-2 is used to perform a read status on itself, only ACS point status is valid.

To display status for a device, select Read Status from the main menu, then enter the device's address in the Point field and press Accept. If no event is present, the default format will be that of a detector (see Figure 4.12 on page 52). If there is an acknowledged event in the display area, that address will be the default. This allows the user quick access to the point being displayed.

Selecting a point is a two-step process:

1. You must first choose the device type, which is shown in parentheses. Scroll through device types by pressing the soft key corresponding to the POINT SELECT field.
2. Once you have the device type selected, enter the device address in the NxxxLyyDzzz address field.

After you have set all parameters, press the ACCEPT soft key to accept or <ESC> to cancel the request. Once the NCA-2 reads the point, it will display the Read Status screen (see Figure 4.13).

Following are the possible types from which to choose, depending on your control panel.

- Detector - i.e., smoke or heat detection.
- Module - Used for monitoring and controlling devices, SLC loops.
- Panel circuit - For direct monitoring and controlling.
- Bell circuit (NAC) - Fire panel control outputs for horns, sirens, and similar devices. (Not available to NFS2-3030.)
- Zone - A group of points.

- Logic zone - A zone based on an equation. (Available to NFS-320, NFS2-640, and NFS2-3030.) Logic Zone format is ZLxxxx, where xxxx = 0001 - 2000.
- ACS Point - A point associated with any ACS annunciator point (Available to NFS2-3030 and NCA-2.)
- PAM point - A Prioritized Audio Matrix (PAM) point (the programmed address of the intersection between an audio input and output in the PAM) in a DVC or DVC-EM - refer to the DVC manual for more information). The format is NxxxIyyyyAzzSn, where xxx = the DVC-EM node number, yyyy = the audio input number, zz = the DAA address on the Digital Audio Loop (01 through 32), and n = the DAA speaker circuit (1 through 4).
- Release zone - Used to release chemicals to aid in fire suppression. (Available to NFS-320, NFS2-640 and NFS2-3030)
- Special Zone - Special zones as provided by particular fire alarm control panels
- Trouble Zone - Zone based on an equation that includes a system trouble. (Available to NFS2-3030.)
- DAA SPEAKER CKT - ADAA digital audio amplifier speaker circuit point. The format is NxxxAyySn, where xxx = the DVC-EM (Digital Voice Command) node number, yy = the DAA address on the Digital Audio Loop (01 through 32), and n = the speaker circuit (1 through 4).

If a device does not exist at the selected address, an Invalid Point error message will display. Press "NEXT POINT" or "PREVIOUS POINT" to read the next/previous programmed point of that type. If communicating with an NFS-320, NFS2-640, or NFS2-3030, the NCA-2 will automatically proceed to the next point. In either case, an error message will indicate if there are no further devices of that type programmed.

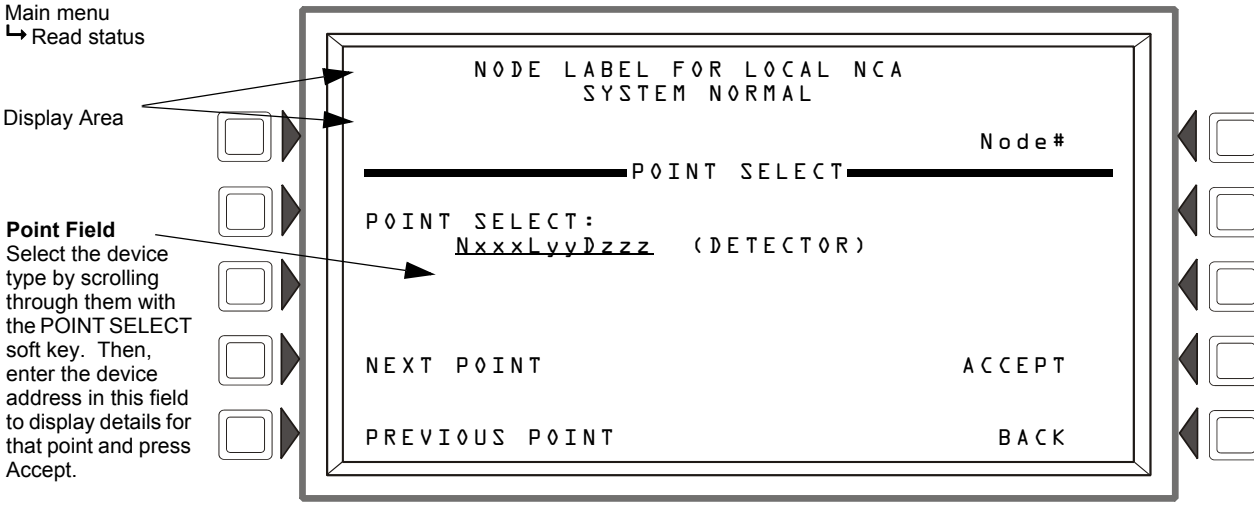


Figure 4.12 Read Status Point Select Screen

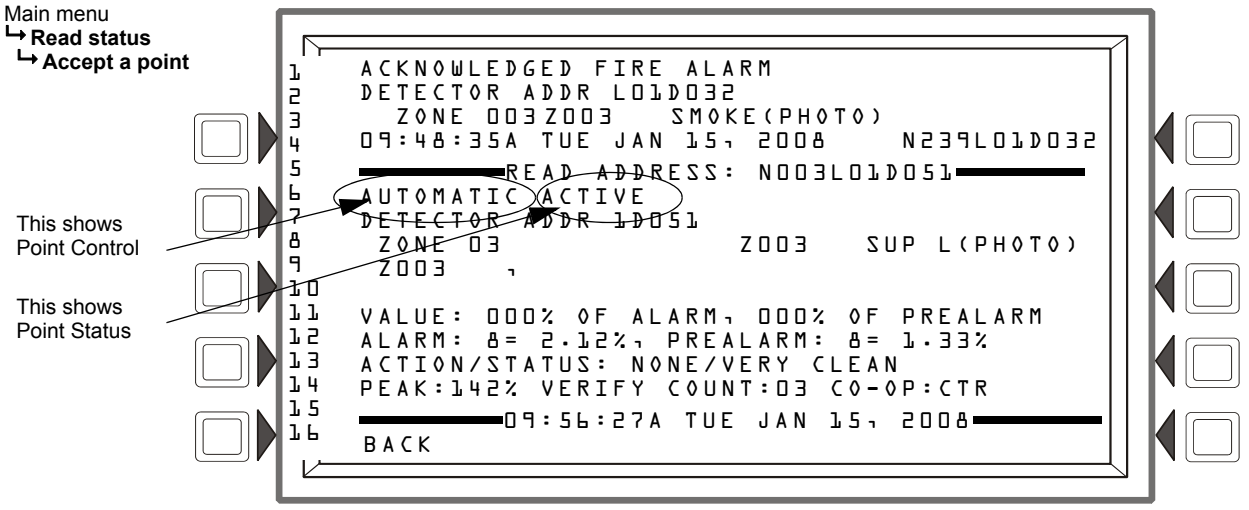


Figure 4.13 Read Status Details - Smoke Detector Point Installed on an NFS-320 or NFS2-640

Figure 4.13 shows a sample status screen for a smoke detector point. Following is an explanation of the screen elements:

- Lines 1-4 can be any present event message or the System All Normal message.
- Line 5 is the screen header. It will display the current address of the point being read.

The area between the separator lines, lines 6-14, shows all information concerning the selected point, which is N003L01D051 in the example above.

- Line 6 displays two statistics:
  —Point Control:
  Automatic - the point is being controlled automatically by the panel.
  Manual - a status change has caused the point to go off of automatic control.
  Forced - the point has been forced into another state by an outside source (such as another network node).
  Disabled - the point is disabled.
  —Point Status:
  Active - the point is currently in an off-normal state.
  Inactive - the point is currently reporting no events.
  Pre-alarm - the point is in pre-alarm.

Inputs: i.e. Detectors, Monitor Modules, Zones, etc.

If the point is in normal condition and the STATUS is Auto, the display shows:

```
AUTOMATIC      INACTIVE    (State = Normal)
AUTOMATIC      ACTIVE      (State = Active)
AUTOMATIC      PREALARM    (State = PreAlarm)
```

If the point is in normal condition and the STATUS is Disable, the display shows:

```
DISABLED       INACTIVE    (Tracking State = Normal)
DISABLED       ACTIVE      (Tracking State = Active)
DISABLED       PREALARM    (Tracking State = PreAlarm)
```

If the point is in Trouble condition, the display shows:

```
TROUBLE        <TROUBLE STATUS>
```

If the point is in Trouble condition and the STATUS is Disable, the display shows:

```
DISABLED       <TROUBLE STATUS>
```

Outputs: Control Modules, Bell Circuits, Notification Appliances, etc.

If the point is in normal condition and the STATUS is Auto, the display shows:

```
AUTOMATIC      OFF         (State = Normal)
AUTOMATIC      ON          (State = Active)
```

If the point is in normal condition and the STATUS is Disable, the display shows:

```
DISABLED       OFF        (Tracking State = Normal)
DISABLED       ON         (Tracking State = Active)
```

If the point is in Trouble condition, the display shows:

```
TROUBLE        <TROUBLE STATUS>
```

If the point is in Trouble condition and the STATUS is Disable, the display shows:

```
DISABLED       <TROUBLE STATUS>
```

If the point is in normal condition and the STATUS is Force, the display shows:

```
MANUAL         OFF         (State = Normal)
MANUAL         ON          (State = Active)
```

- Lines 7-8 specify the user defined loop, zone, and device type.
- Lines 9-10 display all the CBE zones that contain the current point being read; these lines only appear for smoke detectors.
- The percent values in Line 11 (VALUES) represent the amount of smoke detected by the device. If these values are above a certain percentage chamber value, the panel will give a prealarm warning, then an actual fire alarm.
- Line 12 (ALARM) displays detector sensitivity levels for Alarm and Prealarm, both of which range from one to nine, one being the most sensitive. These levels can be set via the NCA-2 Programming menu.

- Line 13 (ACTION/STATUS) is the maintenance status of the device. The message that appears in this field depends on the drift compensation value. A detector will automatically compensate for environmental contaminates and other factors over time, until the tolerance value has been exceeded. The FACP will signal a trouble condition when this level has been reached. When READ STATUS is performed for a detector, the displayed message is based on the percentage of the drift compensation tolerance that is used (see Table 4.2).

Message*	Drift Compensation %	Description
None/Very Clean	Less than 50	No action necessary. The detector readings are near ideal.
None/Fairly Clean	50 - 69	No action necessary. The detector will activate at the selected sensitivity level.
Needs Cleaning	70 - 79	Clean the detector soon. The detector may cause a false alarm because it has reached the drift compensation tolerance value.
Needs Immediate Cleaning	80 - 100	Clean immediately! The detector is a false alarm risk. The drift compensation tolerance value has been exceeded.

Table 4.2 Drift Compensation Messages/Actions

* For detectors in CLIP mode, the status will display as None/Very clean until it displays Needs Immediate Cleaning. No intermediate levels are displayed.

- Line 14 shows PEAKS, which is the highest value read by the device. Also shown is VERIFY COUNT, which displays how many times the panel detected an alarm. This verification aids in differentiating false alarms from actual ones by showing repeated alarm events that have come in on this device. The last element on this line is Detector Cooperation (DET CO-OP: CTR in Figure 4.13). Detector cooperation is when multiple detectors exist in close proximity and are programmed to operate together in order to make smoke detection more accurate. The text after the colon can be an abbreviation denoting detectors used together to detect smoke. Refer to Table 4.3 for detector cooperation abbreviation descriptions.
  NOTE: Verify Count is only available for detectors that support the feature.

  FSC-851 IntelliQuad detectors display the following in line 14:

  PEAKS:56% COUNT:02 CO:200PPM TEMP:100°F

  The CO figure is a carbon dioxide (200 parts per million).
- Line 15 displays the current time and date.

<+ NEXT SELECTION> and <- PREVIOUS SELECTION> hard keys will scroll to the next/previous point, respectively. To return to the previous screen, press the BACK soft key.

Abbreviation	Description
NONE	Detector used alone
ABV	Current detector and the one above (preceding)
BLW	Current detector and the one below (following)
CTR	Current detector and the ones above and below

Table 4.3 NFS-320 and NFS2-640 Detector Cooperation Abbreviations

NOTE: To print a point's status, use the PRINT SCREEN special function key located near the bottom right of the keypad.

The NFS2-3030 Read Status Screen

The Read Status screen for a point on an NFS2-3030 is similar to the NFS-320/NFS2-640 display, except in cases of an active/incoming event, lines 6-9 of the NFS2-3030 screen display an NFS2-3030 user-defined message, such as an operator response directive, and a "MORE INFORMATION" soft key will be available for the input point. The information in lines 1-4 displays the current or most recent event message. The information in lines 6-9 references a device for which information has been requested. The ACK STEP DISPLAY hard keys may be used to scroll through the details on all other off-normal points.

Lines 11-14 detail the status and settings of the device referenced in lines 6-9 with the following variations;

- Line 12 - When a Read Status is performed on an FMM-4-20 module, the current 4-20 mA sensor's reading will be displayed in the units specified in point programming.
- Line 14 - for Detector Cooperation (DET CO-OP), the NFS2-3030 uses the corresponding detector number instead of an abbreviation when this feature is in effect. In the example below, the event displayed is for Detector L01D0074 (displayed on line 7 at the left), and the detector to which it is linked for detector cooperation is detector 003 (displayed as D003 on line 14 at the right).
- Line 14 displays as follows for IntelliQuad FSC-851 detectors:

  PEAKS:56% COUNT:02 CO:200PPM TEMP:100°F

  The CO figure is a carbon dioxide (200 parts per million).

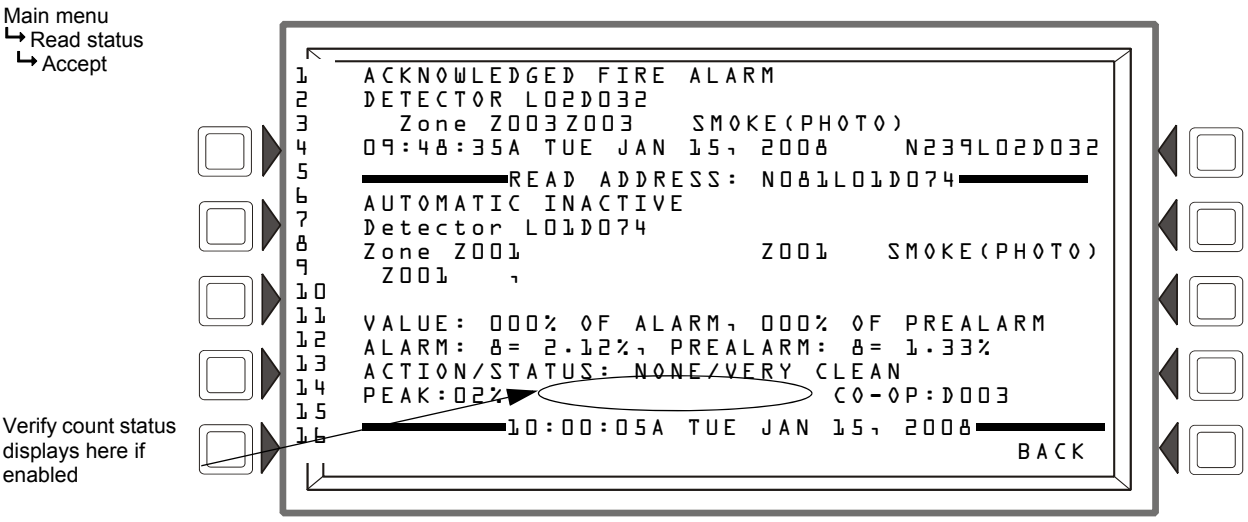


Figure 4.14 Read Status Details - Smoke Detector Point Installed on an NFS2-3030

4.2.6 Program/Alter Status

For a complete discussion of Program/Alter Status features, see “Programming” on page 63.

4.2.7 Printer Functions

Select the Printer Functions option from the main menu to print reports of current settings. Actual configuration is accomplished via the Program/Alter Status menu. For details on the actual NCA-2 programming options, refer to “Programming” on page 63.

NOTE: Pressing the Print Screen key at any time will capture the current LCD screen. If a printer is not installed on the system, the NCA-2 will return to the main menu.

Main menu
↳ **Printer Functions**

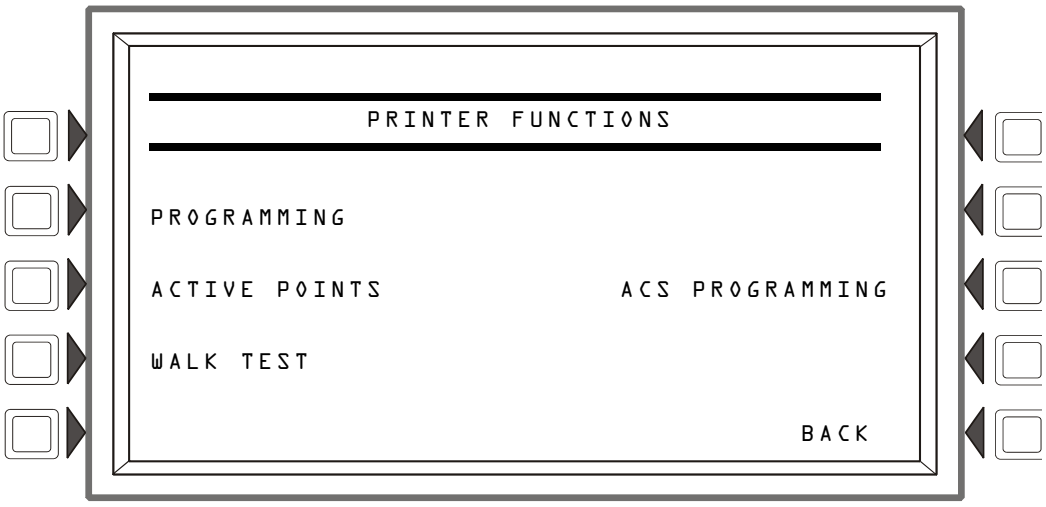


Figure 4.15 Printer Functions Menu

NCA-2 Programming Reports

This printer functions option allows the user to print a report of current NCA-2 configuration settings. When you select the PROGRAMMING soft key, the NCA-2 will bring up menu screens showing the various reports that can be printed.

Note: When you select an option and print the report, the display returns to the main menu.

Main menu
↳ Printer functions
↳ Programming

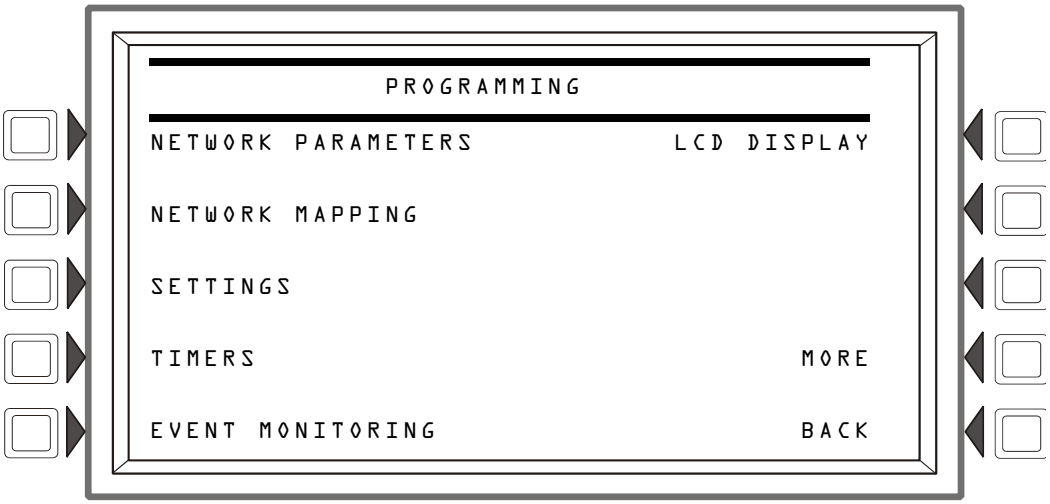


Figure 4.16 Options for NCA-2 Programming Reports (Screen 1)

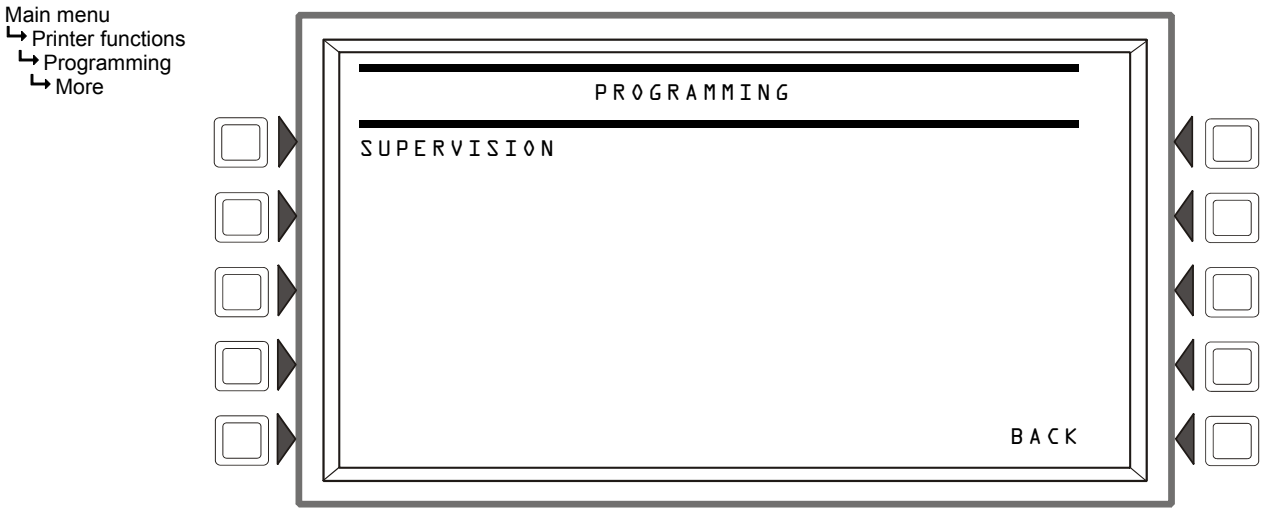


Figure 4.17 Options for NCA-2 Programming Reports (Screen 2)

Network Parameters - Prints a report containing the local NCA-2's node number, whether it is using Style 4 or 7 wiring, its node label (if defined), channel A and B thresholds, and IP ACCESS setting. (See the *NOTI•FIRE•NET™ Manual* or *High-Speed NOTI•FIRE•NET™ Manual* for an explanation of network functions.)

```
******NETWORK PARAMETERS*************************************************************
NODE:              102                  STYLE:           STYLE 4
NODE LABEL:        NCA-2
CHA A. THRESHOLD: HIGH                  CH B. THRESHOLD: HIGH
IP ACCESS:         OFF
*****************************************************************************************
```

Figure 4.18 Printer Functions: Network Parameters Report

Network Mapping - This report lists the remote nodes which this NCA-2 unit has been programmed to monitor and/or control. Remote nodes not in this list will be ignored by the NCA-2 unit.

```
******NETWORK MAPPING*****************************************************************
003 009 019 083 095 153 215 235 239
*****************************************************************************************
```

Figure 4.19 Printer Functions: Network Mapping Report

Settings - Prints a report of the NCA-2 Settings screen. (See Section 5.5.3 "Panel Settings".)

```
******SETTINGS************************************************************************
EVENT ORDERING:    USA                      DISPLAY ADDRESS:      YES
TROUBLE REMINDER:  YES                      PROPRIETARY REMINDER: YES
REMOTE REMINDER:   YES
DCC PARTICIPATION: NO
*****************************************************************************************
```

Figure 4.20 Printer Functions: NCA-2 Settings Report

Timers - Prints a report of the NCA-2 time settings for Auto Silence and AC Fail Delay.

```
******TIMERS**************************************************************************
AC FAIL DELAY: 8 HOURS
AUTO SILENCE:  OFF
*****************************************************************************************
```

Figure 4.21 Printer Functions: NCA-2 Timers Report

Event Monitoring - Prints a report of the settings for event monitoring.

```
******EVENT MONITORING************************************************************

FIRE ALARM:        YES               SECURITY:          YES
OTHER:             YES               SUPERVISORY:       YES
TROUBLE:           YES               PREALARM:          YES
DISABLED POINT:    YES
*******************************************************************************
```

Figure 4.22 Printer Functions: NCA-2 Event Monitoring Report

LCD Display - Prints a report showing the brightness settings of the display, whether its backlight is on, and language of the display.

```
******LCD DISPLAY*****************************************************************
LCD INTENSITY: 040                      BACKLIGHT:     ON
LANGUAGE:      ENGLISH
*******************************************************************************
```

Figure 4.23 Printer Functions: LCD Display Report

ACS Programming - Print a list of all installed ACS devices and their types (64-point, 96-point, UDACT, TM4, etc.)

```
******INSTALLED POINTS*******************8*********************************
  BOARD 01: 96 PT
    MONITOR             N102P01.1                                   N000A01P01
*******************************************************************************
```

Figure 4.24 Printer Functions: ACS Installed Points Report

ACS Installed Points - Print a list of installed ACS devices, their types, and their programmed points.

```
******ACS POINT PROGRAMMING*******************************************************
  BOARD 03: 64 PT
    POINT 01:  ACKNOWLEDGE                      POINT 02: SILENCE N000
    POINT 03:  RESET N000                       POINT 04:  DRILL N000
*******************************************************************************
```

Figure 4.25 Printer Functions: ACS Installed Points Report

Supervision - Print a report showing whether there is supervision for the power supply and tamper input, and what type of printer is being used. When there is power supply supervision, the power supply node will be displayed.

```
******SUPERVISION*****************************************************************
MAIN PS NODE:           N000
PRINTER:                80-COLUMN
Tamper Input:           NO
AUXILIARY TROUBLE:      NO
*******************************************************************************
```

Figure 4.26 Printer Functions: Supervision Report

Event Logging - Prints a report of the NCA-2 Event Logging settings for Non-Fire Activations and Output Activations.

```
******EVENT LOGGING***************************************************************

NON-FIRE ACTIVATIONS:NO                 OUTPUT ACTIVATIONS: NO
*******************************************************************************
```

Figure 4.27 Printer Functions: NCA-2 Output Activations Report

Active Points Reports

This printer functions option shows active points directly from the alarm queues. The SECURITY and OTHER queues are combined in one printout. Only buttons which have active events are visible. Pressing one of these buttons will print the report and return the user to the main menu. It is not possible to select all queues for printout at the same time.

Main menu
↳ Printer functions
↳ Active points

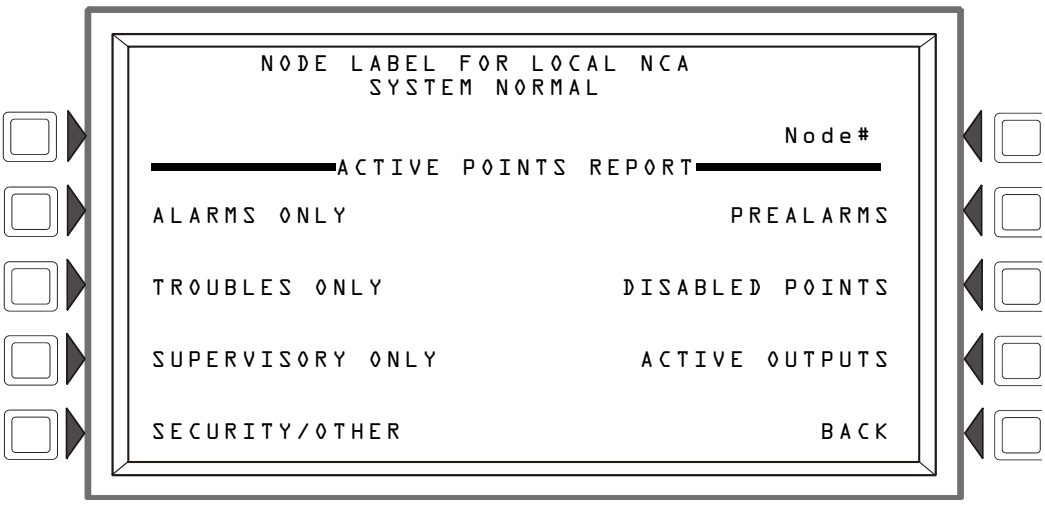


Figure 4.28 Printer Functions: Active Points Report Menu

Walk Test Reports

This printer functions prints a report of the last walk test performed.

```
******WALK TEST RESULTS*************************************************************
TEST TROUBLE          NO ANSWER          DETECTOR 73
                Z003      SMOKE(IOM)       02:54:04P TUE MAR 18,2008 N001L01D073
TEST FIRE ALARM                          ROOM 101                    1ST FLOOR
                Z001      HEAT(ANALOG)     02:54:31P TUE MAR 18,2008 N001L01D003
TEST FIRE ALARM                          ROOM 221                    2ND FLOOR
                Z001      SECURITY         02:54:59P TUE MAR 18,2008 N001L01M004
TEST ACTIVE                              LAB                         3RD FLOOR
                Z004      CONTROL          02:55:09P TUE MAR 18,2008 N001L01M005
*****EVENTS*************************************************************************
```

Figure 4.29 Printer Functions: Walk Test Report

4.3 Events

4.3.1 About Events

An event is any change in the status of a device, a transfer of information between a device and the NCA-2, or a transfer of information between two devices. Some of these events are considered background and housekeeping events and are not seen by the user under normal circumstances. These events may appear, however, during a Walk Test operation.

The events that are of primary concern to the operator are those identified as Off-Normal Events. An off-normal event is an event which indicates activity or change in condition that requires the attention and/or response of an operator. Examples of possible off-normal events are:

- Activation or change in condition of a monitoring device (Smoke Alarms, Fire Alarms, etc.).
- System troubles, such as network problems, device supervision problems, etc.

4.3.2 Types of Events

Events which come into the NCA-2 and are displayed on the LCD screen can be divided into the following fundamental categories:

- **Fire Alarm Events -** Events issued by fire alarm initiating devices such as pull stations, smoke detectors, and sprinkler systems.
- **Mass Notification Events** - Events issued by Mass Notification initiating devices. These events include MN Alarms, MN Supervisories, and MN troubles.

- **Pre-Alarm Events -** Prealarms are precursors to fire alarms; a fire detector device issues this event when its level surpasses the programmed limit.
- **Security Events -** Events issued by security devices such as motion detectors, glass break detectors, and door contacts.
- **Supervisory Events -** Supervisory alarms are special alarms to indicate an action that has functionally disabled a key device (for either fire protection or security). An example would be an event generated if the water valve is shut off for a sprinkler system.
- **Trouble Events -** Trouble events indicate a functional problem with a device on the network. Examples of trouble events include a device going off-line, a battery low or no power event, a clogged head on a smoke detector, etc.
- **Other Events -** Events which do not fit the other categories, such as Critical Process or Life Safety.
- **Disabled/Enabled Events -** Events resulting from enabling or disabling a device.

4.3.3 Event Handling

When an off-normal event is sent to the NCA-2 from an FACP or ACS device, it must be acknowledged either at the NCA-2 or locally at the panel. Acknowledging an event performs the following functions:

- Silences the Piezo sounder on the NCA-2.
- Transfers the event to the NCA-2's History buffer.
- Sends a network event to the associated panel.

How to Acknowledge an Event

When an event comes in, the NCA-2's alarm will sound a specific pattern depending on the event type. The event type will be displayed in the upper left corner of the screen. The ACKNOWLEDGE option will appear, also displaying the event type. This option will flash along with the appropriate LED indicator. Once you press the ACKNOWLEDGE soft key (or the ACKNOWLEDGE Fixed Function key, the upper left message will change to "acknowledged."

NOTE: If the device initiating the event has become disabled in such a manner that it can no longer communicate over the network, the NCA-2 message will display "Local Acknowledge" in the upper left corner, indicating the event has been acknowledged at the NCA-2 only.

For details on operator response to various events, refer to the pertinent FACP or ACS manual.

Figure 4.30 on page 62 and Figure 4.31 on page 62 are examples of screens displaying an incoming event and an acknowledged event, respectively.

Events can be scrolled by pressing the appropriate hard key. Events are displayed and logged in the history. When additional unacknowledged events exist, the first four screen lines advance to the next highest priority unacknowledged event, and this process repeats. After the history log is full, the next event that gets logged causes the least recent event in the log to be dropped.

Block Acknowledging

The default settings for all event types, with the exception of fire alarms, is Block Acknowledgment. Fire Alarms are always acknowledged on a point-by-point basis.

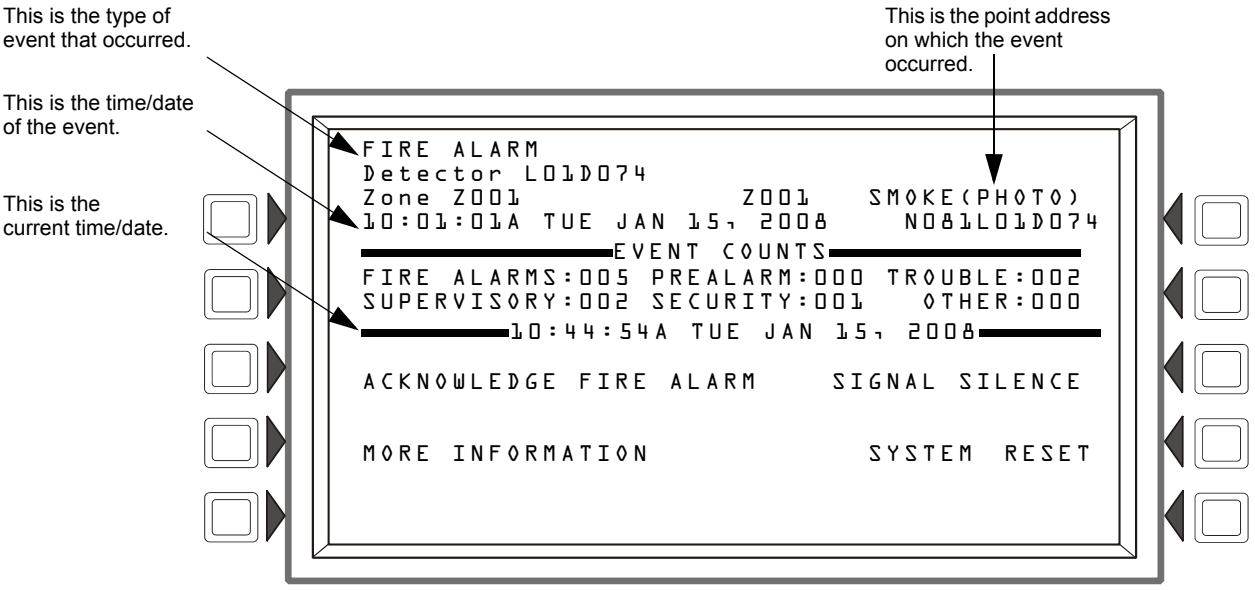


Figure 4.30 An Unacknowledged Event

NOTE: When there are no unacknowledged events or if the System is Normal, the ACKNOWLEDGE soft key will not be visible.

NOTE: For detectors, modules and panel circuits connected to the NFS2-3030, custom action messages are displayed for the “MORE INFORMATION” soft key on the events screen. Other types of points and FACPs display the “READ STATUS” soft key.

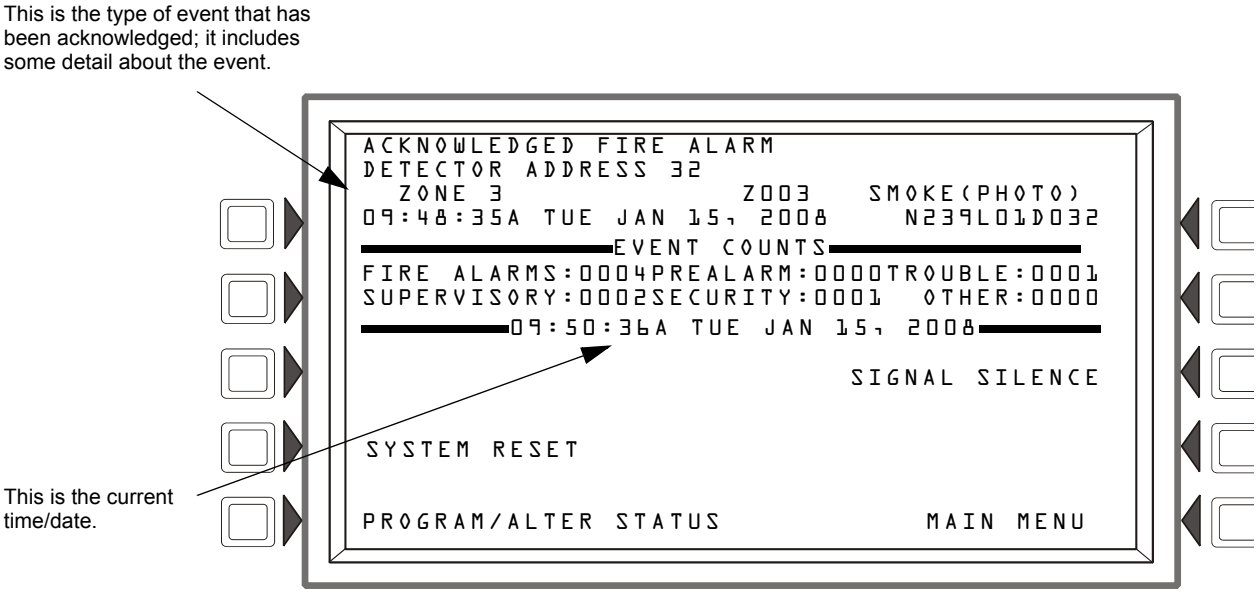


Figure 4.31 An Acknowledged Event

Section 5: Programming

5.1 Security Access

The NCA-2 has two password levels: master and user. There is one master password, which grants access to all system programming. There are nine user passwords, each of which may be assigned access to the programming change menus, the alter status menus, or both. A user password does not give access to or allow change to any password parameters, not even its own. Only the master password will allow access to all password change screens.

The panel arrives with factory default settings of 00000000 for the master password, and 11111111 for one user password. These should be changed immediately.

Follow the steps below to change the factory settings:

1. Press PROGRAM/ALTER STATUS at the Main Menu screen.
2. Using the keyboard, enter eight zeroes (00000000) after ENTER PASSWORD.
3. Press the ACCEPT soft key.
4. Press the PANEL PROGRAM MENU soft key.
5. Press the PASSWORD CHANGE soft key.
6. Select MASTER PASSWORD to set the primary password, or select USER PASSWORD to set user permission levels. NOTE: Only the master password can be used to create or change passwords.

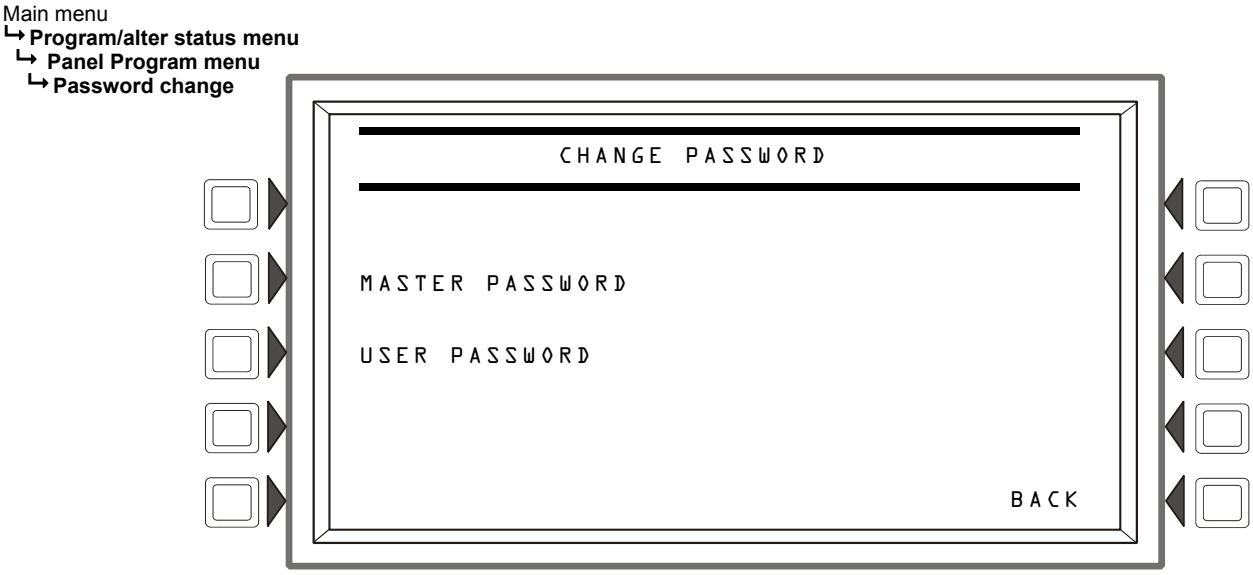


Figure 5.1 Change Password Screen

5.1.1 Master Password

Press the MASTER PASSWORD Soft Key and type in the new password that will replace the factory default password: there can be up to eight alphanumeric characters. Press the enter key on the keyboard. RE-ENTER PASSWORD will appear. Retype the password for verification. Press ACCEPT to save the new password. Press <ESCAPE> or <BACK> to exit without saving changes.

5.1.2 User Password

1. Press the USER PASSWORD soft key.
2. Press the USER soft key to scroll through the nine user password numbers. When this key is pressed, the rest of the display will update to reflect information for each new record. Stop at the password number to be updated.
3. Press the MODE soft key to select the user's level of access. Levels are as follows:
4. **PROGRAM/ALTER STATUS** Gives access to both the Program Change Menu and the Alter Status Menu.
5. **ALTER STATUS** Gives access to only the Alter Status Menu
6. **NONE** Gives no access. Use to deactivate an existing password.
7. Press the REFERENCE soft key to enter an alphanumeric label to identify the user (maximum 20 characters). This is used only as a reference and is not used by the NCA-2 for any functions.
8. Press ENTER and type in a new password at the prompt (up to 8 alphanumeric characters). Press ENTER again and re-type the password at the RE-ENTER PASSWORD prompt for verification.
9. After entering all password information and retyping the password at the prompt, press the ACCEPT soft key to save all the password information.

NOTE: Only the master password has rights to change user passwords.

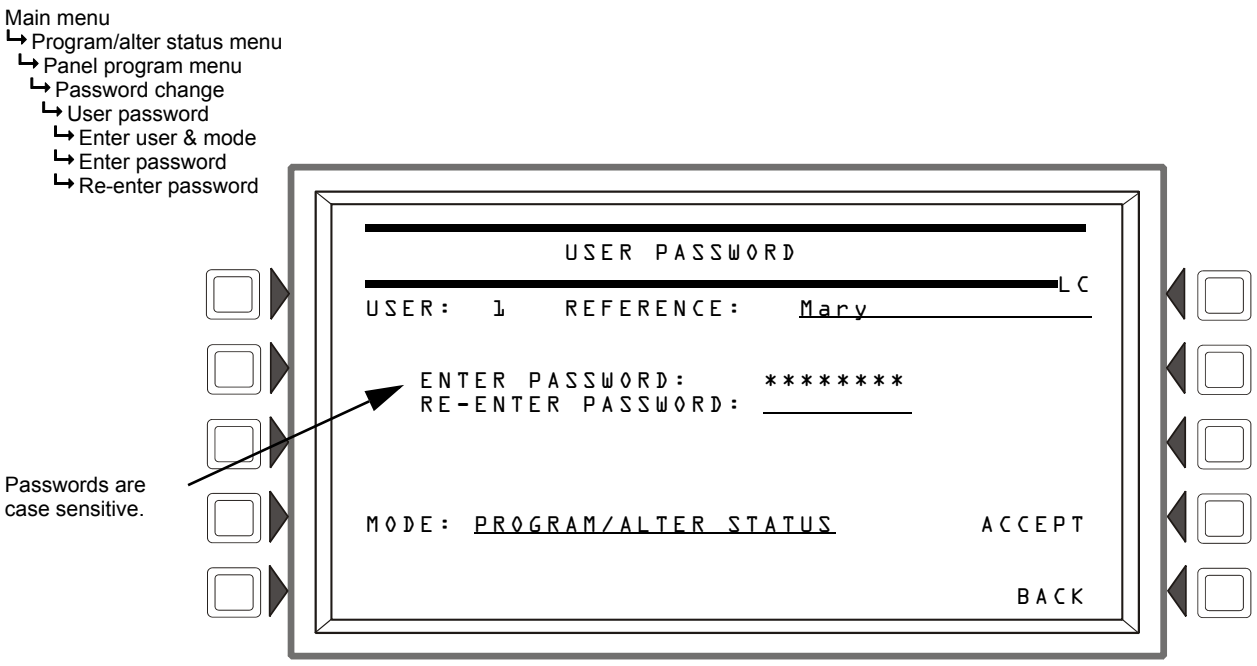


Figure 5.2 Change User Password

5.1.3 Unprotected Functions

Operators without a password can do basic tasks; if a key switch is installed on J6 and enabled, a key is required to enable the keypad. The operator can perform the following keypad or menu-displayed functions:

- Acknowledge alarms, troubles, and restorations (clears).
- View acknowledged alarms and troubles.
- Silence the sounding of fire alarm notification appliances.
- Simultaneously reset all panels which are associated through programming.
- Point Read Status for network devices and local NCA-2 annunciator points.
- Test the NCA-2 LED indicators and Liquid Crystal Display (LCD).
- View or print the event history stored in nonvolatile memory.

If the main operator of the system requires access to a function which is password protected, contact the Notifier distributor who installed the system for the required password(s).

5.1.4 Key Switches

An AKS-1B Annunciator Key Switch is required for each NCA-2 unless the NCA-2 is installed in a lockable cabinet such as a CAB-4 series backbox. The AKS-1B is used to enable and disable the NCA-2 keypad. (see Section 3.16 “Annunciator Key Switch (AKS-1B)”). In some jurisdictions, only one NCA-2 may have the keypad enabled at any given point in time; all other NCA-2 keypads must be disabled using the AKS-1B If an NCS is installed on the network, each NCA-2 keypad must be disabled by enabling key switch monitoring for the NCA-2 and locking the AKS-1B. A wiring diagram is provided in Section 3.16, “Annunciator Key Switch (AKS-1B)”, on page 37.

5.2 The Program/Alter Status Menu

Press PROGRAM/ALTER STATUS on the Main Menu screen. The user must enter a password/user ID of up to eight digits to advance to the Alter Status Menu or Program Menu.

If the password does not match a password in the database, an encrypted version of the master password will be shown.

Access to Program/Alter Status menu registers as a “Programming Mode” trouble and is tracked in event history.

NOTE: All events are annunciated during programming. If one of the annunciated events occurs, the NCA-2 will exit the Programming screen and go to the Event Counts menu with the exception of troubles. Troubles will sound the piezo, but will not cause an exit to the Events Counts Screen.

Main menu
↳ Program/alter status

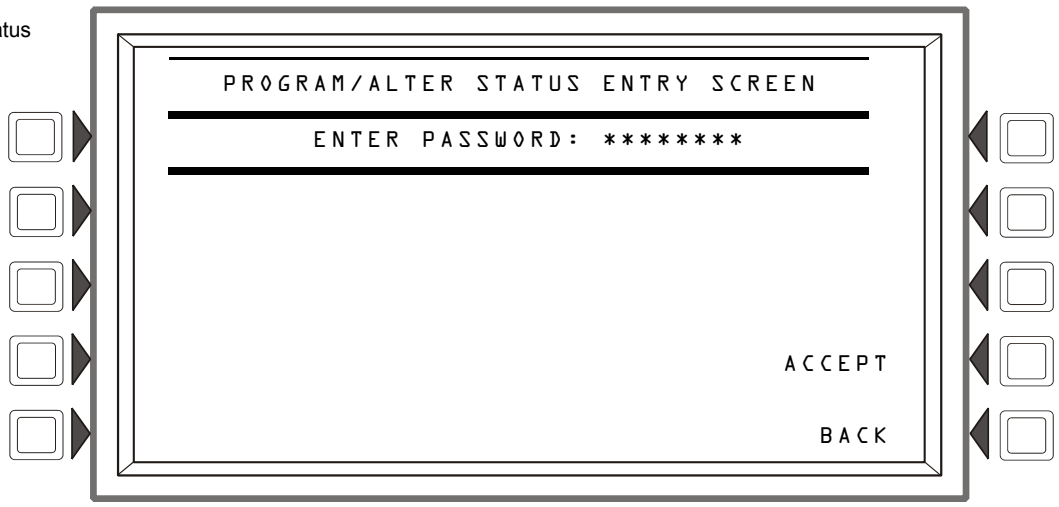


Figure 5.3 Alter-Status Password Screen

After a valid password is entered, the NCA-2 will navigate to the PROGRAM/ALTER STATUS ENTRY screen. There are three possible menus, which are detailed in the upcoming sections:

- ALTER STATUS MENU (Section 5.3 on page 67)
- NODE PROGRAM N____ (Section 5.4 on page 75)
- PANELPROGRAM MENU (Section 5.5 on page 77)
- POINT PROGRAM MENU

The password access level determines which of these menus will be displayed. For example, a user who was not set up to have programming rights, will only be allowed to access the Alter Status Menu. The master password always gives full access to all three options.

Main menu
↳ Program/alter status

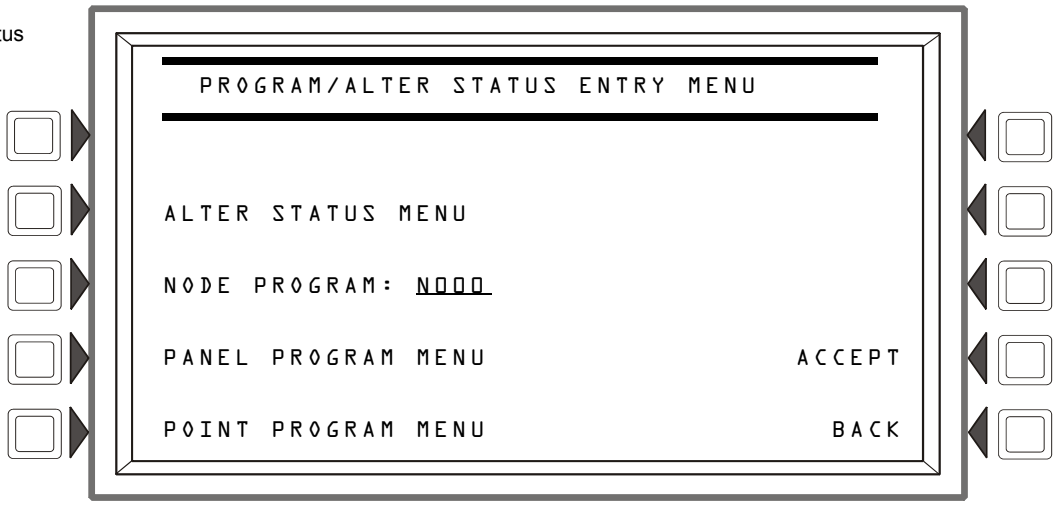


Figure 5.4 Program/Alter Status Entry Menu

NOTE: Access to ACS board label screen is by selecting local NCA-2 node only.

5.3 Alter Status Menu

5.3.1 Alter Status Menu Options

After you enter the correct password/user ID and press the ALTER STATUS soft key from the Program/Alter Status menu, the NCA-2 navigates to the screen with menu options shown in Figure 5.5. BACK or <ESC> will return to the PROGRAM/ALTER STATUS ENTRY screen discussed in "After a valid password is entered, the NCA-2 will navigate to the PROGRAM/ALTER STATUS ENTRY screen. There are three possible menus, which are detailed in the upcoming sections:" on page 66.

Main menu
↳ Program/alter status
↳ Alter status

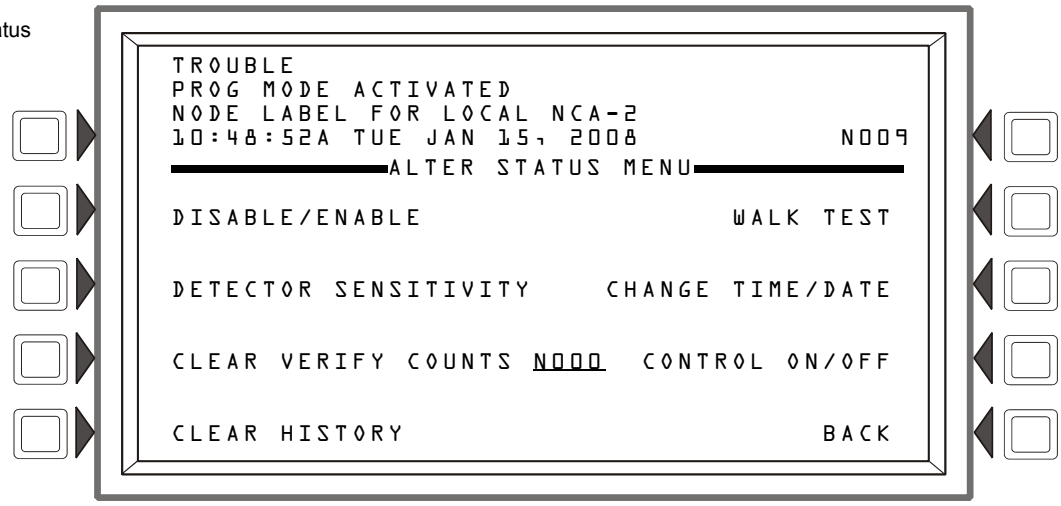


Figure 5.5 Alter Status Menu

5.3.2 Disable/Enable

Disable/enable individual control points on a remote fire panel node. It is for use across a network only; not for use with display nodes such as the NCA-2 or NCS.

Figure 5.6 is displayed when you select DISABLE/ENABLE from the Alter Status Menu. Identify which point(s) to disable/enable. If there is an event in the display area, that address will be the default. This allows you to quickly read the point being displayed. If no event is present, the default format is that of a detector. To scroll through device types, press the POINT SELECT soft key. When you have selected the desired device type, enter the device address, then press the ACCEPT soft key to accept the entry or <ESC> to exit. The soft key BACK will also exit without saving. The NCA-2 will display the Enable/Disable screen. If the point does not exist or the node is off-line, the NCA-2 will display an error screen. This screen will be displayed for three seconds and return to the previous screen.

After selecting a point, the NCA-2 will display that point and give the option of enabling or disabling it. If the point is enabled, the corresponding option is not visible, letting the user know the current setting of that point. To exit the screen without changing the enable/disable status, press BACK or the <ESC> key.

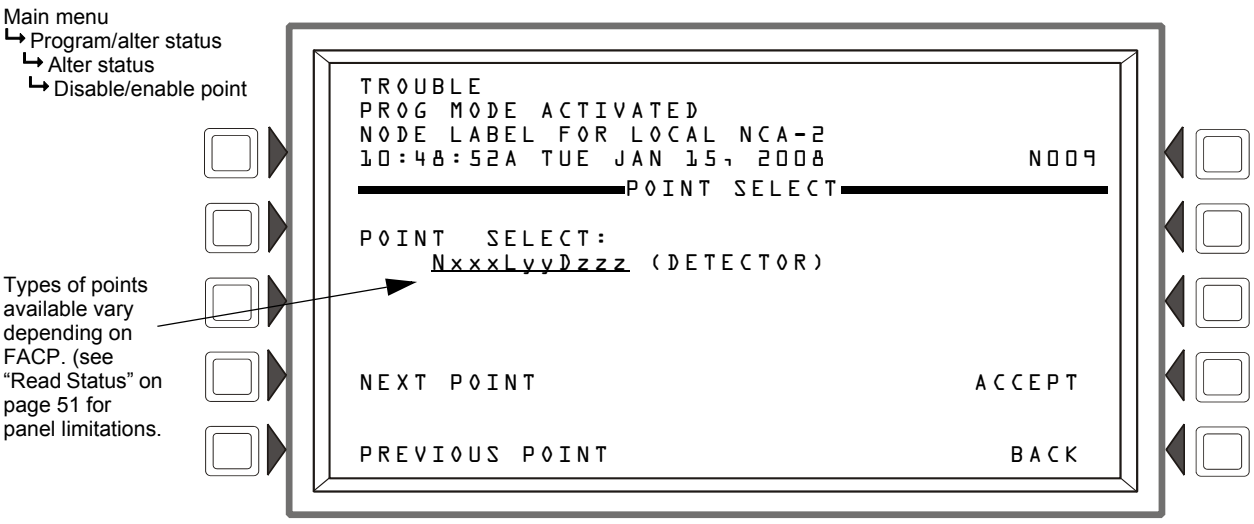


Figure 5.6 Alter Status: Disable/Enable Point, Point Select

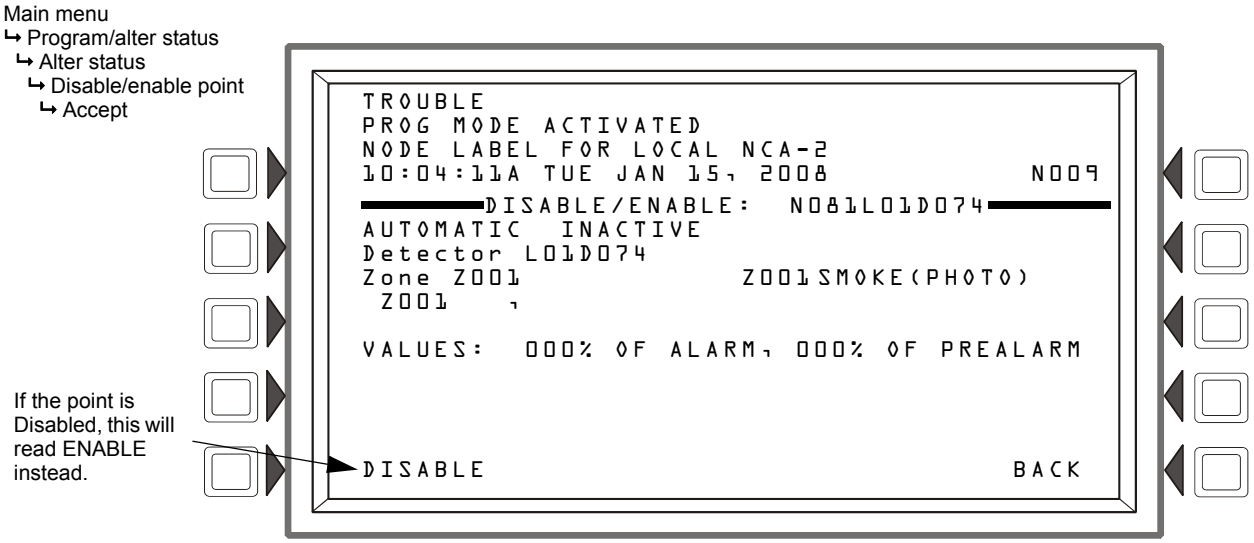


Figure 5.7 Alter Status: Disable/Enable Screen

NOTE: Disabling a point could compromise fire protection, and the system will prompt you to confirm the change.

5.3.3 Changing Detector Sensitivity

NOTE: For use with NFS-320, NFS2-640, and NFS2-3030 nodes.

Selecting DETECTOR SENSITIVITY will display the corresponding menu screen. It is identical to the Point Select screen shown in Figure 5.6, except the header will read SENSITIVITY POINT SELECT. Press the POINT SELECT soft key to scroll through and choose the desired device type. In the POINT: NxxxLyyDzzz field, enter the address of the point you wish to change. If an event for a detector is in the display area, that address will be the default. This allows you to quickly access the point being displayed. The NEXT SELECTION/PREVIOUS SELECTION soft keys will increment to the next Node # or next device on the loop. The loop number will automatically

increment when the last device on the loop is passed. After the last loop number and detector number are reached, the display will issue an informational message indicating that there are no more devices. Once you type the desired address, select ACCEPT to display the Detector Sensitivity screen, or hit <ESC> to exit.

If a device does not exist at the selected address, an Invalid Point error message will display. Press "NEXT POINT" or "PREVIOUS POINT" to read the next/previous programmed point of that type. If communicating with an NFS-320, NFS2-640, or NFS2-3030, the NCA-2 will automatically proceed to the next point. In either case, an error message will indicate if there are no further devices of that type programmed.

The selected point must already be mapped in local NCA-2 programming; if the selected point is on a remote node, both that node and the local NCA-2 must be on-line.

When the NCA-2 reads a valid point, its details are displayed in the resultant screen (Figure 5.8 on page 69). One is most sensitive; nine is least sensitive. To alter one of the four settings, press the corresponding soft key; Figure 5.9 on page 69 shows the screen's format.

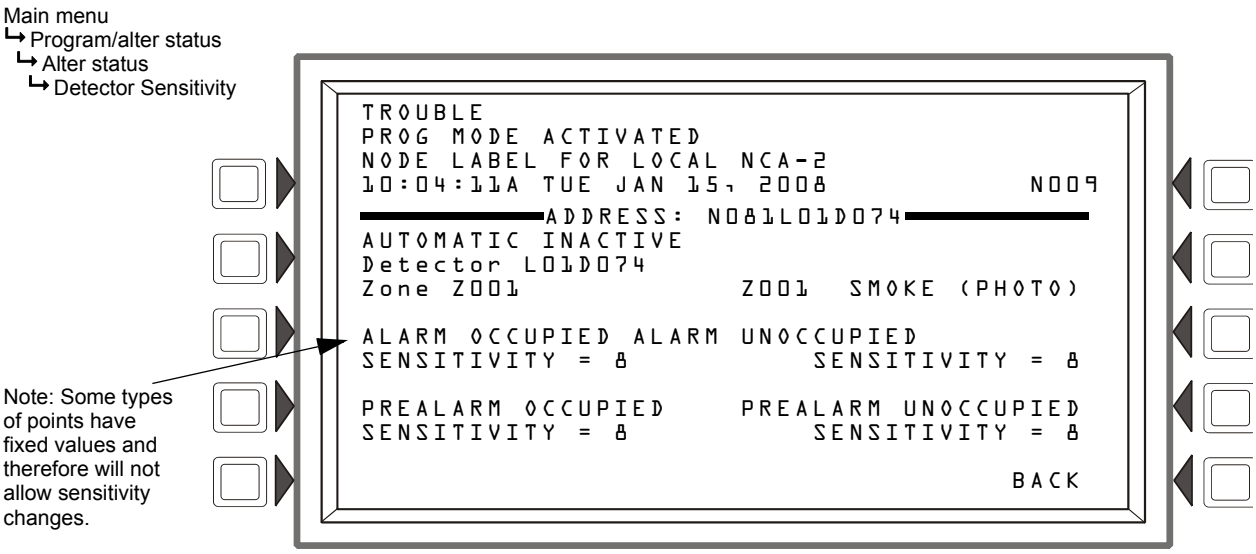


Figure 5.8 Alter Status: Detector Sensitivity

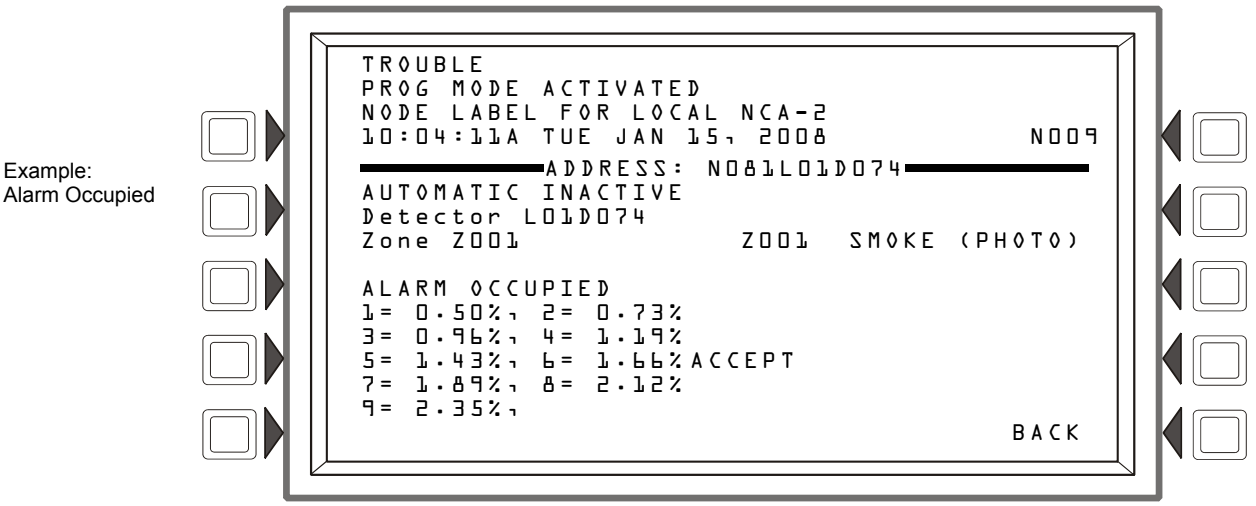


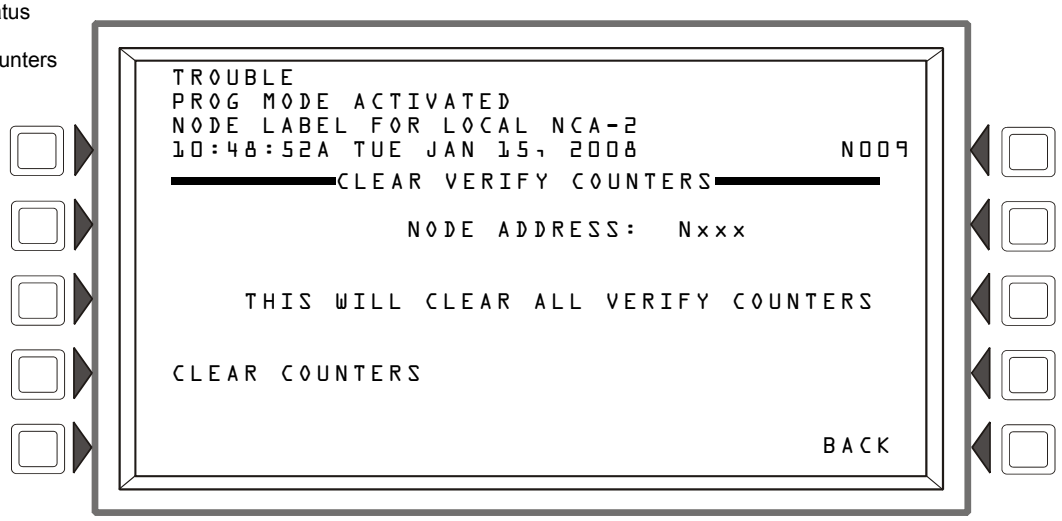
Figure 5.9 Setting Detector Sensitivity: Alarm Occupied

5.3.4 Clear Verify Counters

Prior to an alarm, a detector may go through a verification sequence to make sure it is not a false alarm. From the Alter Status menu, once you type in a node address and press the CLEAR VERIFY COUNTERS soft key, the screen in Figure 5.10 is displayed. This action will reset verification counters for that node, preventing an inaccurate verification reading if an alarm is subsequently activated.

NOTE: For use with NFS-320, NFS2-640, and NFS2-3030 nodes.

Main menu
↳ Program/alter status
↳ Alter status
↳ Clear verify counters



NOTE: For remote nodes only.

Figure 5.10 Alter Status - Clear Verify Counters

5.3.5 Clear History

Select Clear History from the Alter Status Main Menu, then choose NCA-2 HISTORY or NODE HISTORY N___. The NCA-2 will navigate to the Clear History menu, where there are three options: ALARM HISTORY, which clears only the alarm history buffer, EVENT HISTORY, which clears only non-alarm events in the history buffer, and ALL HISTORY, which clears both the alarm buffer and the event buffer. Once you clear a history buffer, the data is not recoverable. BACK or <ESC> will return the user to the Alter Status menu. Refer to Figure 5.11 on page 71.

NOTE: For use with NFS-320, NFS2-640, and NFS2-3030 nodes.

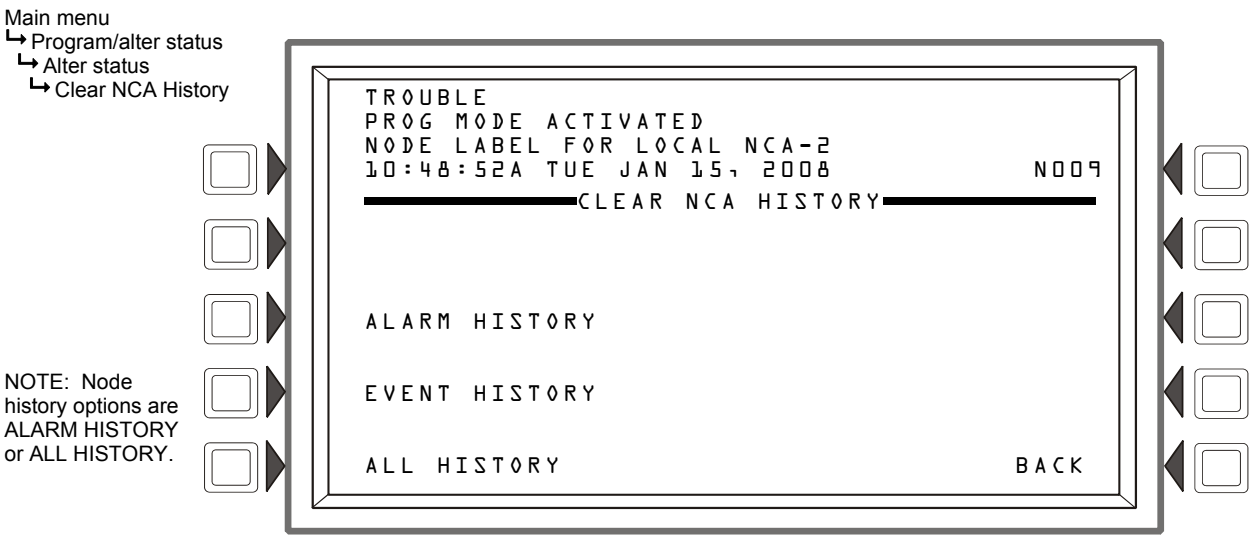


Figure 5.11 Alter Status - Clear NCA-2 History

5.3.6 Walk Test

When connected to an FACP that supports the function (e.g. NFS2-640 and NFS2-3030), the NCA-2 walk test allows you to remotely test all active alarms on the monitoring network. There are two types of tests: Basic and Advanced. The advanced test allows you to retain Control-By-Event (CBE) and Cooperative-Control-By-Event (CCBE) actions.

NOTE: Network zones and network logic zones may be used as part of a logic equation; network trouble zones may be used as part of a trouble equation. CCBE (Cooperative Control-by-event) is the term used to refer to programming over the network in this manner.

To perform a walk test, select the corresponding option from the Alter Status menu.

- **BASIC/ADVANCED -** Toggles between the basic and advanced Walk Test. When ADVANCED is selected, there is an END TEST option. END TEST is not an option for the basic test.
- **SILENT/AUDIBLE -** future use.
- **PARAMETER -** Toggles between NODES, LOOPS, DEVICES, and ZONES (LOOPS and ZONES are for use with NFS2-3030 only). Selecting NODES in this field allows multiple nodes to be tested (see Figure 5.13 on page 72). If NODE is selected, you will have an ALL NODES option, allowing you to put the entire network into Walk Test mode. NOTE: This is limited to the nodes mapped to the NCA-2.
- **DISABLE ACS BOARDS -** allows the user to disable ACS annunciation of the events generated by the walk test.
- **ACCEPT -** applies the settings and advances to the Start/End Test screen. BACK will return the user to the previous screen without performing the test.

NOTE: For use with NFS-320, NFS2-640, and NFS2-3030 nodes.

NOTE: The NCA-2 normally does not display point activations for various type codes that are unrelated to an alarm event, such as the NONFIRE type code. When in Walk Test mode, however, the NCA-2 will display activations for these types of points as TEST events.

Main menu
↳ Program/alter status menu
↳ Alter status menu
↳ Walk Test

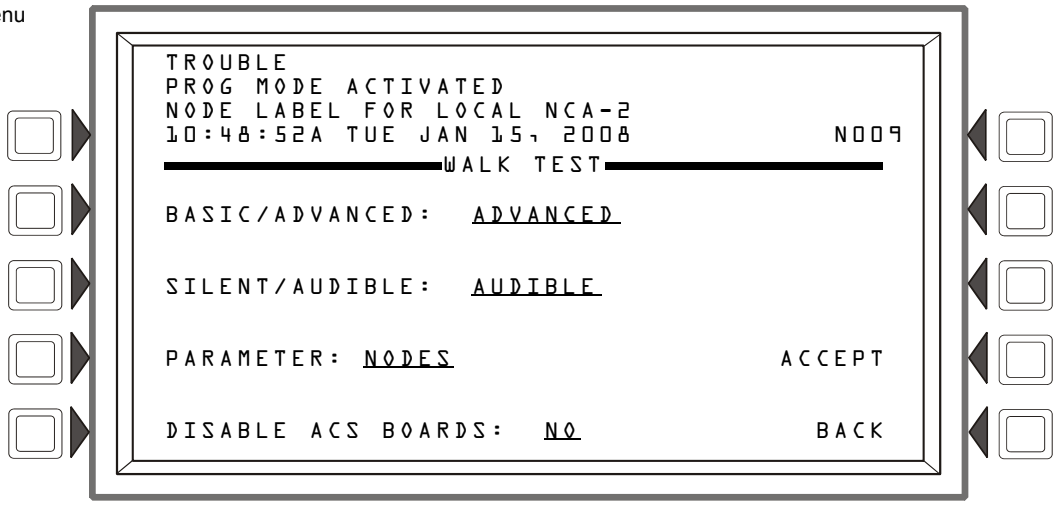


Figure 5.12 Walk Test Menu

The settings selected from the Walk Test Menu are displayed below the screen header. Up to 10 items may be selected for each test. The formats are as follows:

Nodes = Nxxx

Loop = NxxxLyy

The START TEST soft key begins the test using the parameters entered. Once a test has been started, the header will change from WALK TEST SELECT to WALK TEST IN PROGRESS. ABORT will terminate the current test and exit to the Walk Test menu. In Advanced mode, NEXT TEST will end the current test sequence and start a new one. Walk Test results are sent to the printer and to History. The event will be listed as "TEST…"

Main menu
↳ Program/alter status menu
↳ Alter status menu
↳ Walk Test
↳ Accept

This sample screen shows a walk test for two nodes.

"Next Test" is only available in Advanced mode after a Walk Test has been started.

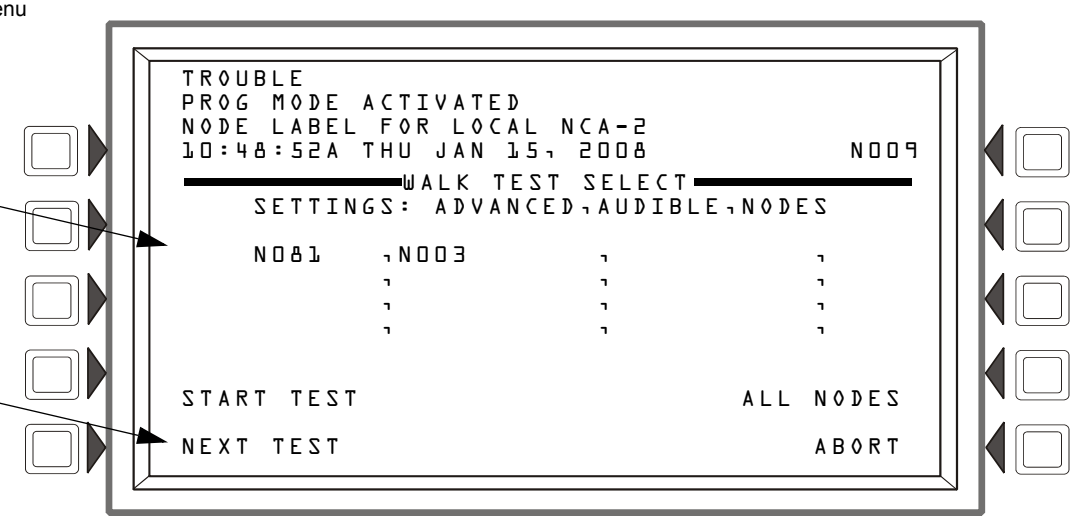


Figure 5.13 Walk Test Select Screen

The advanced test provides more information for the operator by allowing him/her to track the activation of a single input point/zone to the set of points that responded to the activation across the portion of the networked points specified at the start of testing. The operator will be allowed to set activation and response times to be included for each set of points.

5.3.7 Change Time/Date

Select the CHANGE TIME/DATE option from the alter status menu to access this feature. This allows you to change the system time and date. The current time and date will be displayed using the selected format. Use the keypad to enter the numeric values for the following fields: Hour, A.M. or P.M. (A or P), Minute, Month, and Year. The system automatically displays the day of the week regardless of format.

- The TIME FORMAT soft key will toggle between the following format choices:
  HH:MM AM/PM
  H:MM AM/PM
  HH:MM
  H:MM

Note: The H:MM format will replace leading zeros in the hour with a space character.

- The DATE FORMAT soft key will toggle between US (MM/DD/YY) and European (DD/MM/YY) format.
- The TIME ZONE soft key toggles between 34 time zone selections. The selection of time zone also has an inherent selection for whether daylight saving is in effect and the switch-over time. For example, USA EASTERN and INDIANA EAST are the same time zone, except INDIANA EAST does not change times with the Daylight Saving Time (DST) changes in the spring and fall.
- The ACCEPT key will implement the changes shown.
- The BACK soft key will return to the Alter Status Menu screen without making any changes.

Main menu
↳ Program/alter status menu
↳ Alter status menu
↳ Change time/date

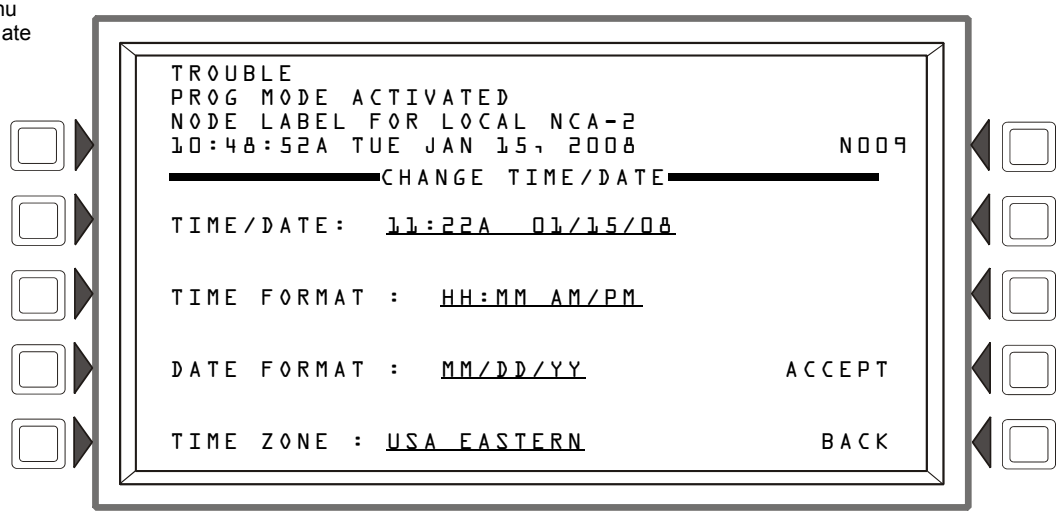


Figure 5.14 Change Time/Date

5.3.8 Control On/Off

Control On/Off enables you to control a point on a remote node. It is for use across a network only; not for use with display nodes such as the NCA-2, NCS, etc.

Press the POINT SELECT soft key to scroll through device types. The NEXT SELECTION/PREVIOUS SELECTION soft keys will increment to the next/previous Node number or device on the loop. When you have selected the desired device type, enter the device address, then press the ACCEPT soft key to accept the entry or <ESC> to exit. The soft key BACK will also exit without

saving. After selecting the point, the NCA-2 will display it and give the following options: FORCE ON and FORCE OFF. If the point is currently on, the FORCE ON option is not visible, letting the user know the current setting of that point.

NOTE: Control on/off is for use across a network only.

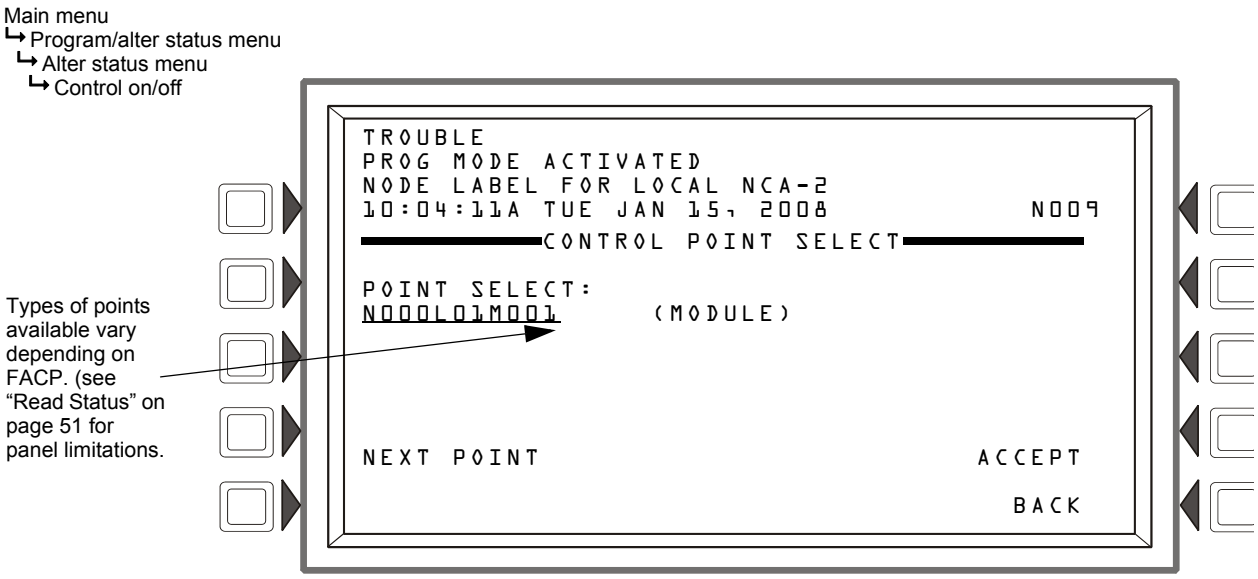


Figure 5.15 Control On/Off Point Select

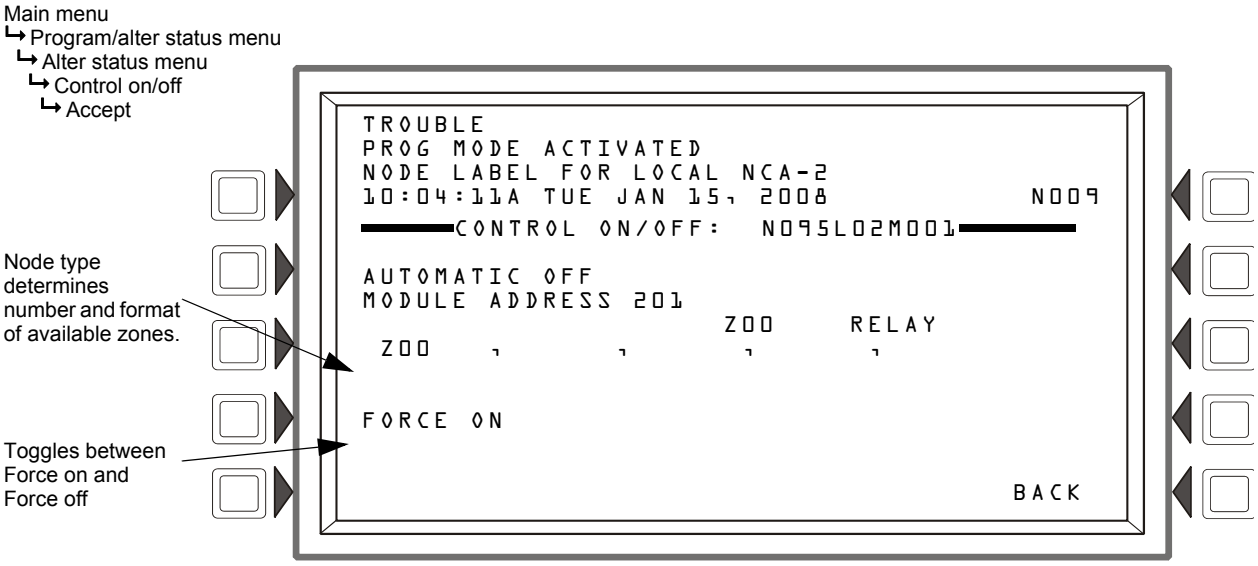


Figure 5.16 Control On/Off Screen

5.4 Node Program Menu

The NODE PROGRAM menu is available to make changes to point or node labels.

5.4.1 Node Program Menu Options

Main menu
↳ Program/alter status menu
↳ Node program menu
(Remote node selected)

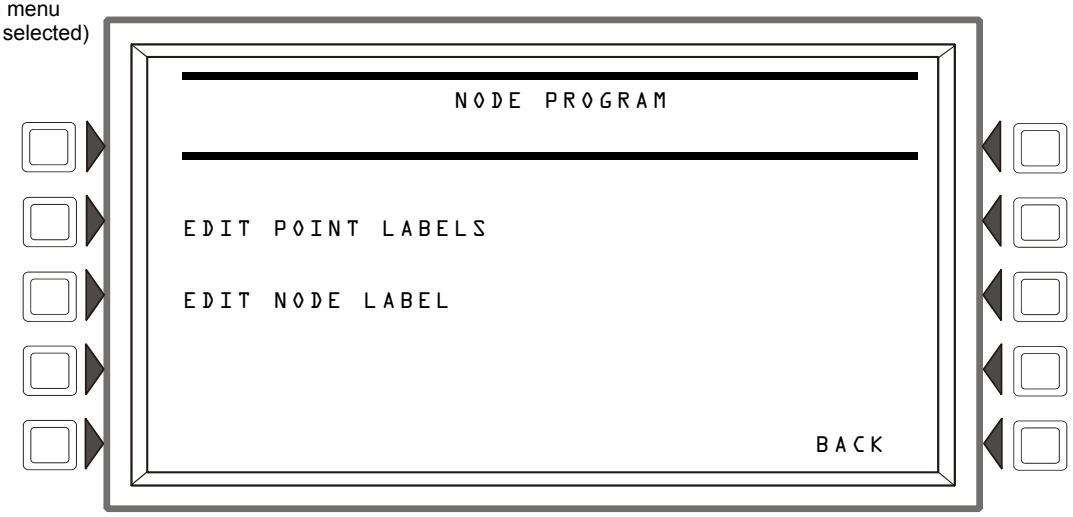


Figure 5.17 Node Program Menu, Remote Node Selected

Main menu
↳ Program/alter status menu
↳ Node program menu
(local NCA selected)

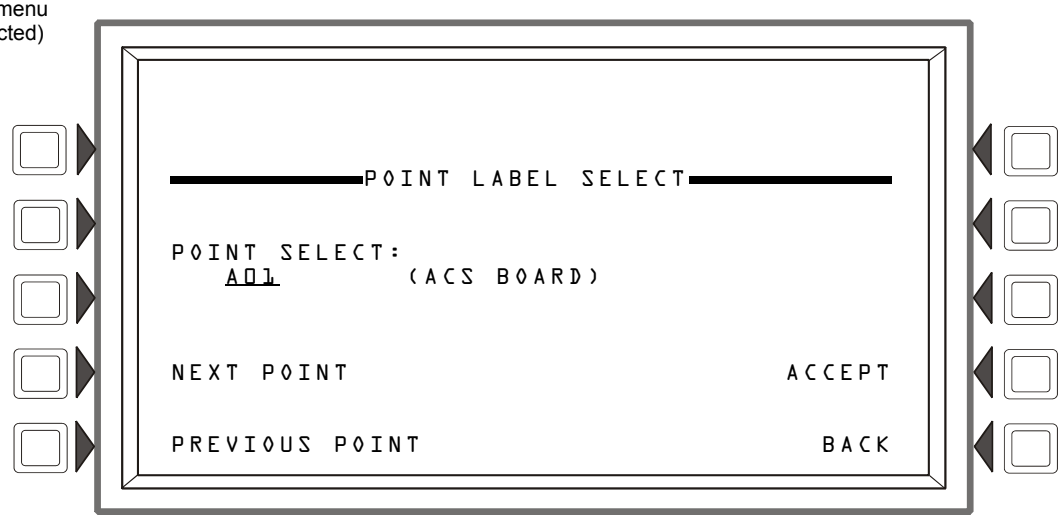


Figure 5.18 Node Program Menu, Local NCA-2 Selected

5.4.2 Edit Point Labels

This option allows you to name and/or provide an abbreviated description for individual points.

1. Select the point on the node that you wish to edit, then press the ACCEPT soft key.
2. Once the Edit screen is active, change the point label and/or the extended point label by using the alphanumeric keys to enter the desired text.
3. Press the ACCEPT key to implement the changes, or BACK to exit without changing anything.

NOTE: Not applicable for changing the label of other network annunciators on the network.

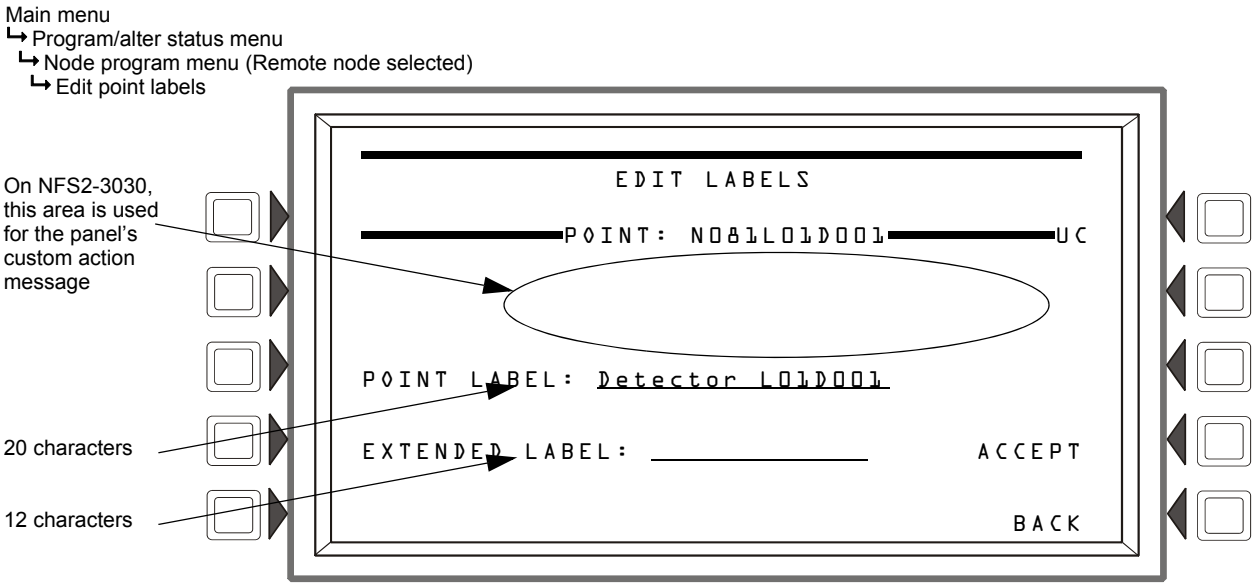


Figure 5.19 Node Program Menu: Edit Point Labels

5.4.3 Edit Node Label (for a Remote Node)

A node label is designed to give more descriptive information about a node than just its number. This label can be changed in the NCA-2 if the user has access to this menu. To access this feature, select NODE PROGRAM MENU N____ , enter the desired node number in the N field, then select EDIT NODE LABEL. Line 4 displays the node number that you will be labeling. Type in a description of up to 40 characters. Press ACCEPT to implement this, or select BACK or <ESC> to exit this screen without making any changes.

Main menu
↳ Program/alter status menu
↳ Node program menu (Remote node selected)
↳ Edit node label

When the screen comes up, this will display the current node label for a remote node. Enter the new label name, and press ACCEPT to make the change.

Figure 5.20 Node Program Menu: Edit Node Label

NOTE: To edit the node label for the local NCA-2, see Figure 5.22 on page 79.

5.5 Panel Program Menu

The Program menu options adjust the general operational settings for the local NCA-2: how it communicates over the monitoring network, how it handles events, display settings, password configurations, etc. For example, with EVENT MONITORING you can control what event types will be monitored. If multiple NCA-2s exist on the network, a user may not want all of them to monitor all types of events. In this case, one NCA-2 could monitor alarm events, and another one could monitor status events like trouble and enable/disable events. To bring up a menu, activate the keypad and press the soft key next to the option.

Main menu
↳ Program/alter status menu
↳ Panel program menu

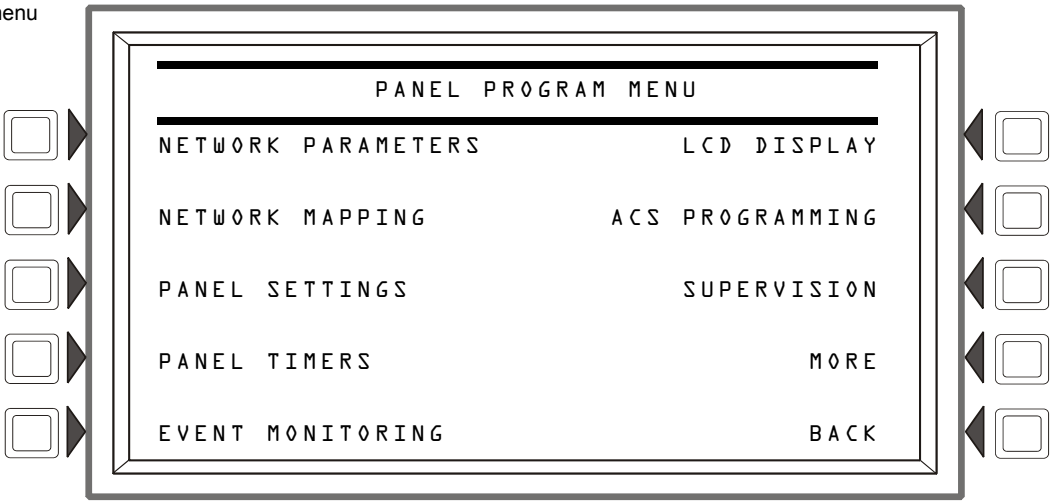


Figure 5.21 Program Menu

Event Monitoring

If any event types in Event Monitoring are set to NO, control functions such as Drill, System Reset, and Signal Silence are disabled. However, Acknowledge functions are dependent on the panel's Local Control settings (Refer to Section 5.5.3, "Panel Settings", on page 81). The following table shows Acknowledge function operation with any event type set to NO in Event Monitoring.

Local Control Setting:	Acknowledge Function:
Yes	Pressing the Acknowledge softkey on the NCA-2 will locally acknowledge events and silence the piezo on the NCA-2 only. Any unacknowledged events on networked fire panels will remain unaffected.
No	The Acknowledge softkey on the NCA-2 is disabled. Local and networked events remain unacknowledged.

Table 5.1 Event Monitoring and Acknowledge Function Operation

NOTE: If Trouble and Disable events in the Event Monitoring menu are set to NO, critical information that may impact the fire system may be missed, It is suggested that Trouble and Disable events remain set to YES.

5.5.1 Network Parameters

Use the following soft keys to select the corresponding field and make changes for that NCA-2 network setting (refer to Figure 5.22 and Figure 5.23 on page 79):

- NODE NUMBER allows you to change the NCA-2 node number. NOTE: Make sure you do not assign the NCA-2 a node number already being used by another monitoring device.
- NODE LABEL allows you to edit the local NCA-2's custom label. This appears in Line 1 as part of the "all-systems normal" message when there are no active events, and in Line 3 of an active-event summary. There is a 40-character maximum. NOTE: This is the local node label; to change a remote node label, see Section 5.4.3 "Edit Node Label (for a Remote Node)"on page 76.
- STYLE: _____ selects the style as STYLE 4 or STYLE 7.
- CH A THRESHOLD sets the channel A threshold to HIGH or LOW. (See the *NOTI•FIRE•NET™ Manual* or *High-Speed NOTI•FIRE•NET™ Manual* for an explanation of this network function.)
- CH B THRESHOLD sets the channel B threshold to HIGH or LOW. (See the *NOTI•FIRE•NET™ Manual* or *High-Speed NOTI•FIRE•NET™ Manual* for an explanation of this network function.)
- IP DOWNLOAD allows you to enable VeriFire software downloads through the internet. (This setting will not affect VeriFire downloads via non-internet connections). Pressing the IP DOWNLOAD soft key will display a screen with the following options:
  IP ACCESS: OFF - disables internet access for VeriFire downloads
  IP ACCESS: ON - enables internet access for VeriFire downloads
  IP ACCESS: TIMED - enables internet access for two hours, then times out to disabled

NOTE: Enabling IP Access allows VeriFire downloads over the internet through a Noti-Fire-Net Web Server (NWS).

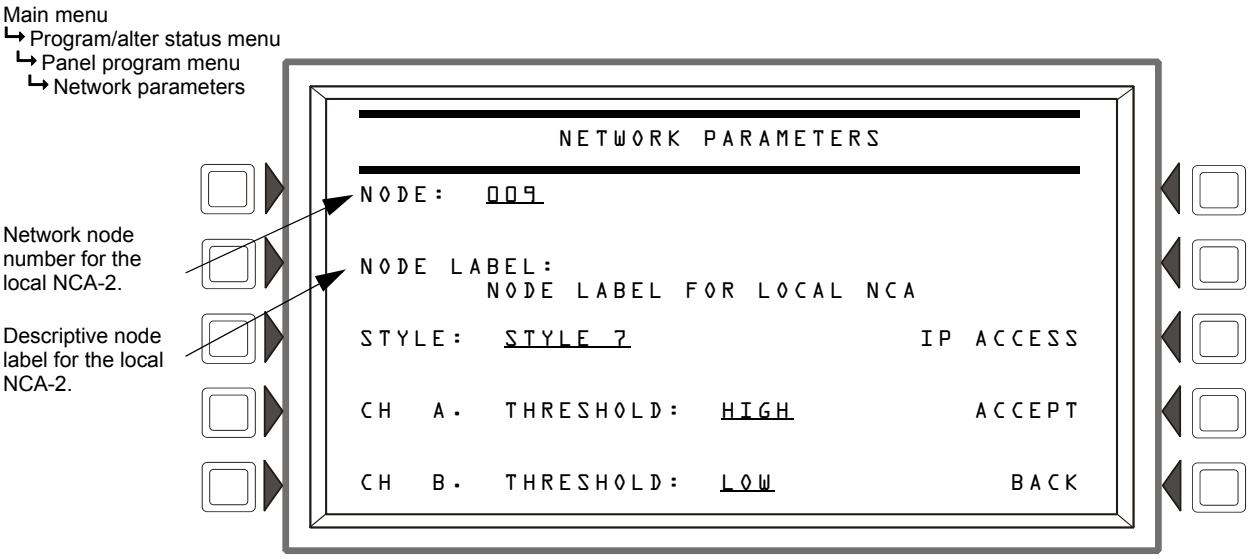


Figure 5.22 Program Menu: Network Parameters

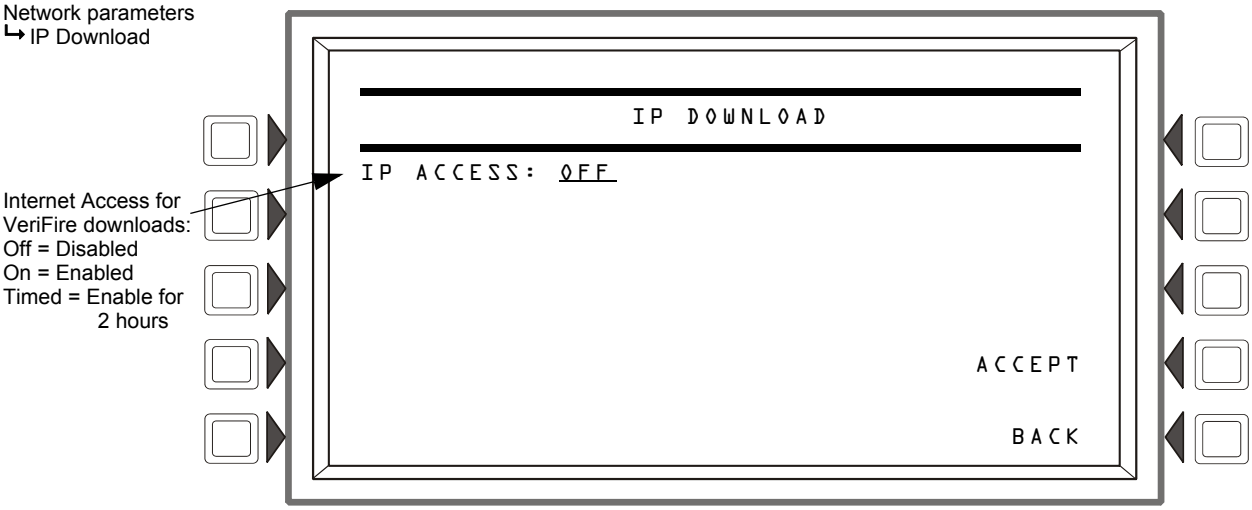


Figure 5.23 Network Parameters: IP Download

NOTE: Use of an IP Access setting other than OFF is subject to the approval of the local AHJ.

5.5.2 Network Mapping

The NCA-2 can be programmed to monitor only a select group of nodes on a standard or high-speed NOTI•FIRE•NET™ system. Consequently, the NCA-2 would only control or monitor those nodes, ignoring messages received from any other nodes on the network. This mapping feature does not affect time synchronization with the NCA-2; therefore, if the NCA-2 is the master time keeper of the network, it will transmit the time-synchronization message to all nodes on the network, whether or not they are being monitored by the NCA-2.

There are 15 of these screens covering nodes 1 through 240. Each screen will have 16 nodes on it. The up and down arrow keys are used to select which node to edit. When a field is selected, the NEXT SELECTION/PREVIOUS SELECTION keys will toggle between OFFLINE/ONLINE, MAPPED/UNMAPPED.

- **OFFLINE -** The node is not communicating on the network.
- **ONLINE -** The node is communicating on the network.
- **MAPPED -** Events are annunciated by the NCA-2.
- **UNMAPPED (blank) -** Events are ignored by the NCA-2.

NEXT navigates to the next screen in the sequence. The last screen will not have a NEXT key. BACK will go to the preceding screen in the sequence or to the Node Programming menu if the current screen is the first one in the 15-screen sequence. ACCEPT implements any changes that have been made up to this point and returns the user to the Node Programming menu. AUTO PROGRAM will consult the internal map of which nodes are on the network and automatically set all 240 Nodes according to the map, regardless of which screen is being shown. The results will not be saved to flash until the ACCEPT key is pressed.

Main menu
↳ Program/alter status menu
↳ Panel program menu
↳ Network mapping

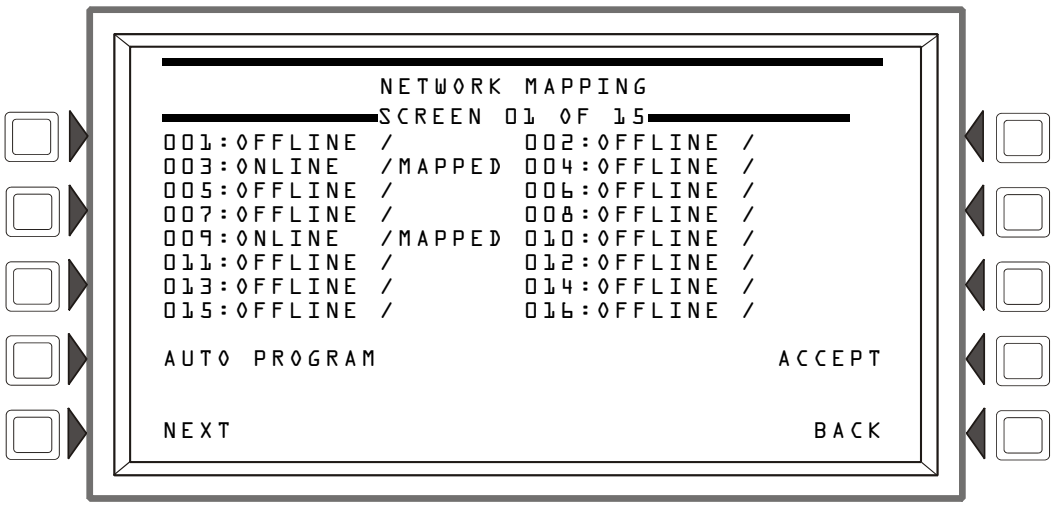


Figure 5.24 Program Menu: Network Mapping

5.5.3 Panel Settings

General NCA-2 preferences can be set from this program screen.

- **LOCAL CONTROL** - Press this soft key to toggle between Yes and No. This option disables (No) or enables (Yes) local panel control of the Signal Silence, System Reset, and Drill Fixed Function keys, as well as SIGNAL SILENCE, SYSTEM RESET, and ACKNOWLEDGE soft keys. A setting of No (disable) turns the panel piezo sounder off, overriding the next field if PIEZO is set to ON. Default: Yes.
- **PIEZO** - Press to toggle between Off and On. This option enables (On) or disables (Off) the panel piezo from sounding when alarms or troubles occur. Default: On.
- **DISPLAY ADDRESS -** Selecting NO instructs the NCA-2 not to display the node and point in the event at the top of the screen. Selecting YES displays all node and point information defined from the NCA-2 Node Program menu options.
- **EVENT ORDERING -** Switches between USA and CANADA ordering. USA priority events come in on the Event Counts screen and Canada priority events come in on the Multiple Event List screen.
- **REMINDER MENU** - These reminders occur daily at 11:00 AM (not configurable). Local reminders restart the NCA-2 piezo and require re-acknowledgment of trouble events. Proprietary reminders re-send trouble messages across the network. Remote reminders cause connected ACS devices to re-display trouble conditions.

With Fire as the highest priority:	
USA Event Order	**Canada Event Order**
Fire	Fire
CO Alarm	CO Alarm
MN Alarm	
CO Pre-alarm	CO Pre-alarm
Security	—
Supervisory	Supervisory
MN Supervisory	
Trouble	Trouble
MN Trouble	
Pre-alarm	Pre-alarm
Disabled	Disabled

With MNS as the highest priority:	
USA Event Order	**Canada Event Order**
MN Alarm	
Fire	Fire
CO Alarm	CO Alarm
CO Pre-alarm	CO Pre-alarm
Security	—
MN Supervisory	
Supervisory	Supervisory
MN Trouble	
Trouble	Trouble
Pre-alarm	Pre-alarm
Disabled	Disabled

Note: Fire/MNS priority dependent on programming.

Main menu
↳ Program/alter status menu
↳ Panel Program menu
↳ Panel settings

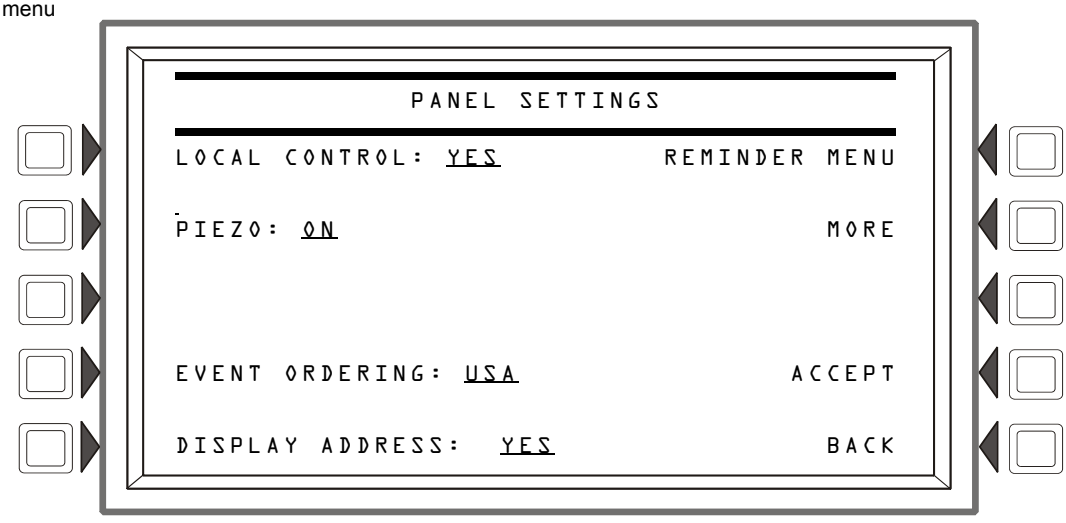


Figure 5.25 Panel Program Menu: Panel Settings

The Reminder Menu

Press the REMINDER MENU soft key to select Trouble Reminder or Telephone Ring-In Annunciation.

- **Trouble Reminder** - Press this soft key to toggle between the two possibilities:

  YES: Choose this to initiate a daily 11:00AM reminder that there are uncleared troubles in the system. The reminder will appear on the screen and will sound a piezo (if the piezo is enabled).

  NO: Choose this if no reminder is desired. Default: YES

- **Telephone Ring-In Annunciation** - toggles enable between YES and NO. If enabled, Telephone Ring-In will provide an audible and visible indication that a fire fighters telephone circuit has been activated, indicating a call-in from emergency response personnel.

NOTE: Enabling Telephone Ring-In supervision will indicate an active telephone circuit from any NFS2-640 or NFS2-3030 panel on the network.

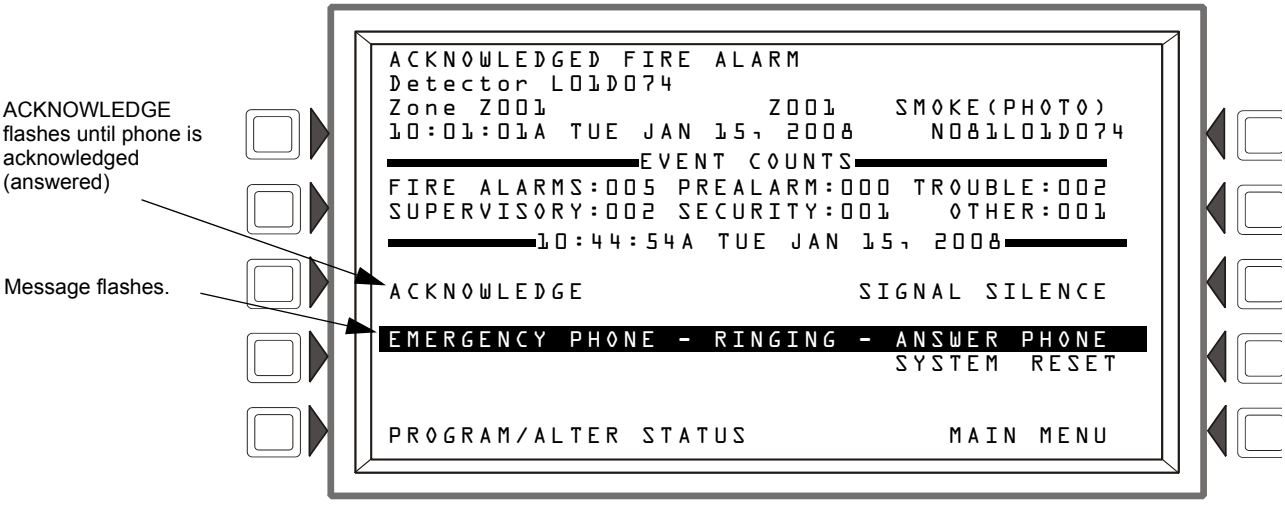


Figure 5.26 Telephone Ring-In

Panel Settings 2 (MORE) Menu

Pressing MORE at the Panel Settings screen brings up the following screen.

Main menu
↳ Program/alter status menu
↳ Panel Program menu
↳ Panel settings
↳ More

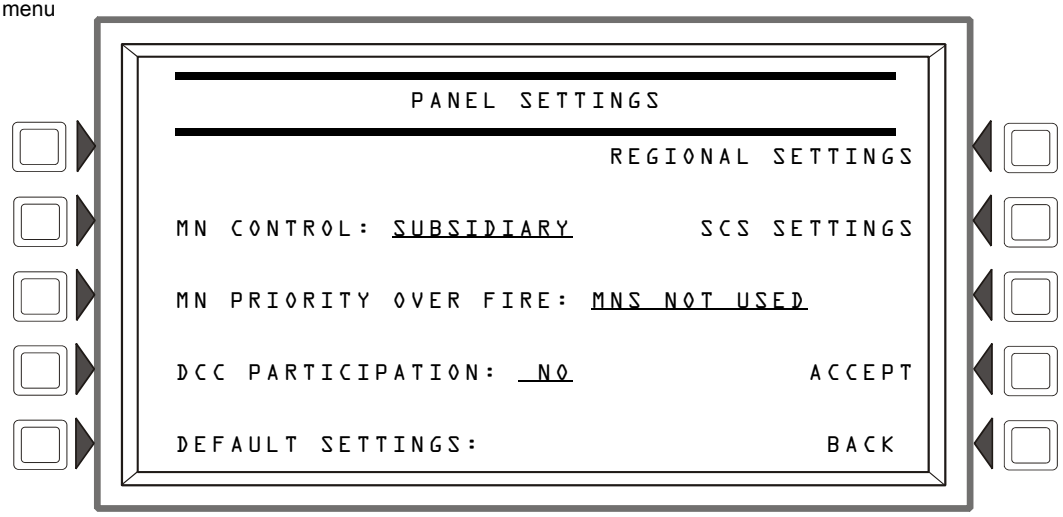


Figure 5.27 Panel Settings 2 (MORE)

MN Control - Press to toggle between SUBSIDIARY, ACU, LOC, and CCS. Set this option to subsidiary if the NCA-2 does not have an associated DVC set as an ACU, LOC or CCS. Select ACU, LOC, or CCS for this option to match the configuration programming of an associated DVC used for Mass Notification.

MN Priority Over Fire - Press to toggle between YES, NO and MN NOT USED. If the MN PRIORITY OVER FIRE option is set to NO, Fire events will have a higher priority than Mass Notification (MN) events. If set to YES, MN events will have a higher priority than Fire events. If set to MN NOT USED, this system is being used for fire protection only. Refer to Event Ordering on page 81.

NOTE: For network applications, the MN Priority Over Fire setting should be set the same for each applicable node.

DCC Participation - Toggles the Display & Control Center supervision between YES and NO. See Appendix D, “Display and Control Center (DCC)”for details.

CAUTION:
On system utilizing the DCC function, all locations that can participate in DCC should be set to YES.

Regional Settings - Press this soft key to proceed to the Regional Settings screen.

SCS Settings - Press this soft key to proceed to the SCS Settings screen.

Default Settings - Press to activate NCA-2 default settings for the following:

Program setting for:	Default:
Local Control	Yes
Piezo	On
Trouble Reminder	Yes

Table 5.2 Programming Defaults

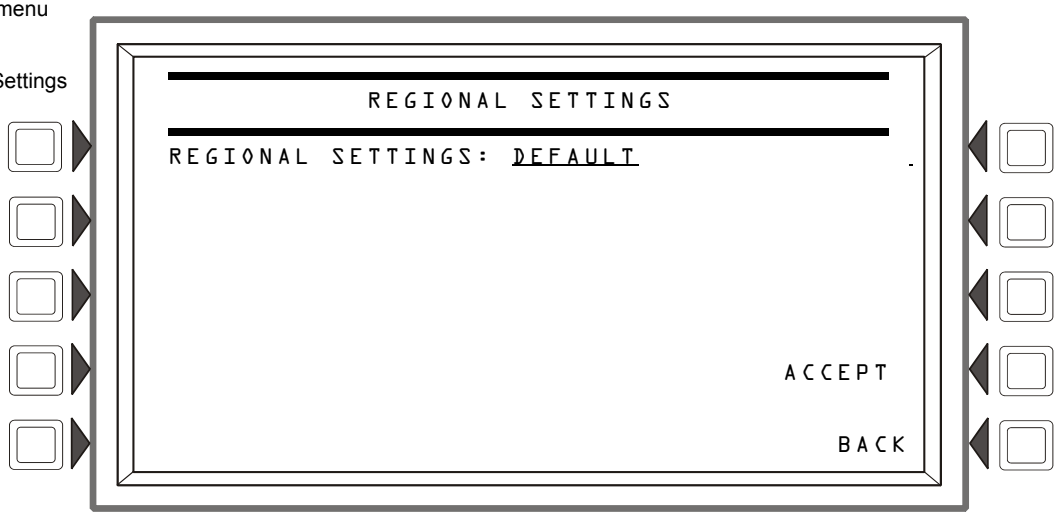
Event Ordering	USA
Display Address	Yes
DCC Participation	No
Regional Settings	Default

Table 5.2 Programming Defaults

Regional Settings

Use the Regional Settings softkey to access the Regional Settings screen:

Main menu
↳ Program/alter status menu
↳ Panel Program menu
↳ Panel settings
↳ More
↳ Regional Settings

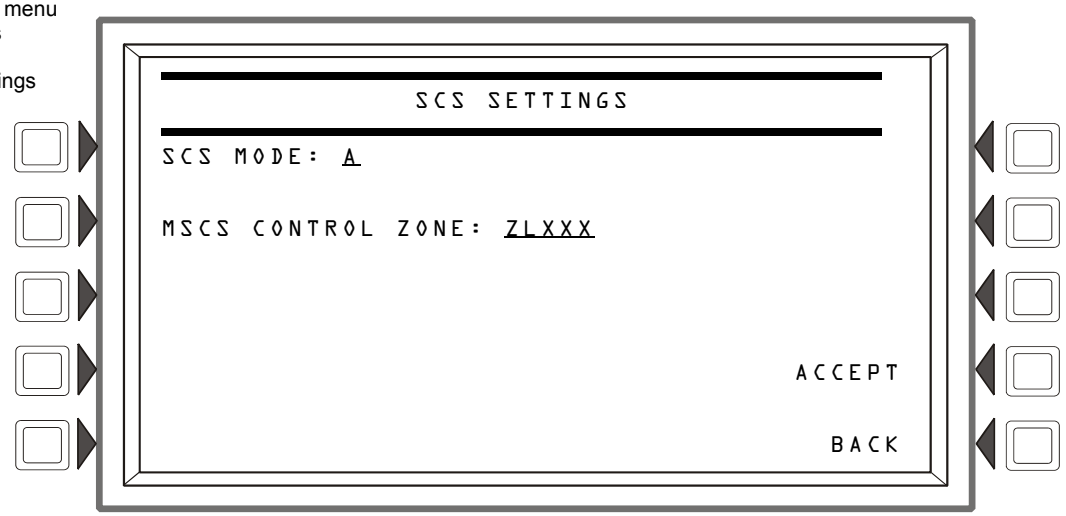


Regional Settings - Press the soft key to scroll through the selections. The Default is that there are no special local settings. Refer to Appendix E, “Regional Settings”, on page 110.

SCS Settings

Use the SCS Settings softkey to access the SCS Settings screen:

Main menu
↳ Program/alter status menu
↳ Panel Program menu
↳ Panel settings
↳ More
↳ SCS Settings



SCS Mode - Press the soft key to select mode A or B for FSCS applications. Refer to the SCS Installation manual for additional information. Default: A

MSCS Control Zone - Press the soft key to enter the logic equation associated with multiple smoke control stations. Refer to the SCS manual for an MSCS programming example. The Default is that there is not an MSCS configuration.

5.5.4 Panel Timers

Use the soft key (or the arrow keys) to select a setting to change:

- **AUTO SILENCE** changes the auto silence timer. The range is from 10, 15, or 20 minutes (OFF=disabled). Default: 0FF
- **AC FAIL DELAY** changes the time delay between an AC failure event and switching of the Trouble relay. Hour settings are as follows: 1 -12 hours. Default: 8 hours

NOTE: Use of an AC FAIL DELAY setting other than 0, 1, 2, or 3 is subject to the approval of the local AHJ.

- **SILENCE INHIBIT**: Press to enter a value from 0 (disabled) to 5 minutes. This software timer disables the SIGNAL SILENCE key function for the time entered when a fire alarm occurs. The timer starts at the first alarm only; it does not restart with each new alarm. Default: 0

DEFAULT TIMERS (Press the MORE key to access) activates default settings for the following:

Program setting for:	Default:
Auto Silence	Off
AC Fail Delay	8 hours
Silence Inhibit	0

Table 5.3 Timer Defaults

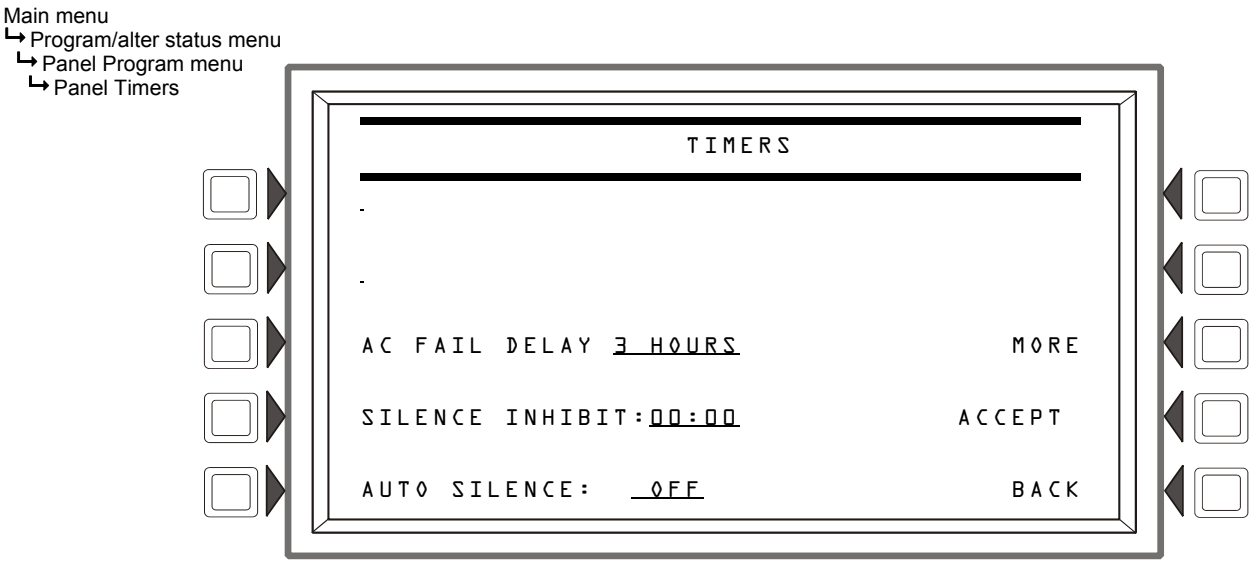


Figure 5.28 Panel Program Menu: Panel Timers

5.5.5 LCD Display

Selecting LCD DISPLAY from the Panel Programming menu will allow you to alter the display's appearance by modifying brightness (intensity) and by turning the backlight on or off. Refer to Figure 5.29 on page 86.

- **BRIGHTER -** Press this soft key to increase contrast. The intensity will increase approximately 5% with each press of the key.

- **DARKER -** Press this soft key to decrease contrast. The intensity will decrease approximately 5% with each press of the key.
- **DEFAULT -** selects the factory default setting (60%).
- **CURRENT -** selects the intensity setting that was in effect when the screen was accessed.
- **LANGUAGE -** cycles among available languages.
  (Note: For Hebrew, also set the printer for graphics mode; see Section 5.5.7 “Supervision” on page 94).
- **BACKLIGHT -** cycles among the following options: ON EXCEPT AC FAIL, OFF, or ON. The <NEXT SELECTION> and <PREVIOUS SELECTION> selection function keys will also toggle between these states.

While this screen is in effect, the intensity of the display will match the value shown on the line below the screen header. Press ACCEPT to implement changes or BACK to exit without saving.

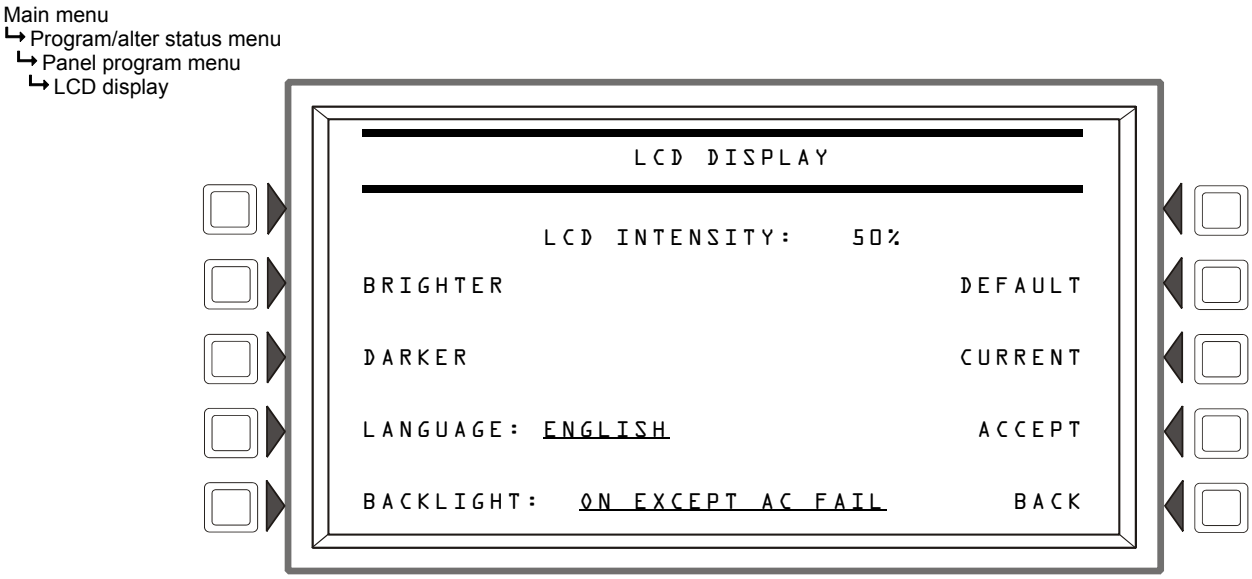


Figure 5.29 Program Menu: LCD Programming

5.5.6 ACS Programming

The ACS device is a remote, limited control device used by the NCA-2; the function of each ACS point is defined at the NCA-2. The NCA-2 can be programmed to allow an ACS device to perform a variety of tasks, such as silencing a specific node, or a network-wide function, such as silencing all panels on the network that are mapped to the NCA-2. You use an ACS device when you do not need the depth of functionality of a NCA-2, or when you wish to perform NCA-2 functions remotely without having to go to the NCA-2’s physical location. ACS devices are connected to the NCA-2 via the EIA-485 ACS mode connector (TB3). Multiple ACS devices can be connected by daisy-chaining to the previous ACS device.

You can move the cursor between fields with the up and down arrows. Press the ANNUNCIATOR TYPE soft key to scroll through the following list of types. Stop at the appropriate type.

Type:	Used for:
NONE	(Nothing installed)
64 PT	64-point annunciation
64SYS	64-point annunciation, with first 8 points reserved
64SVC*	64-point service mode for Two Level Bypass
96DCC	96 point annunciation to be used with multiple Command Centers
96PT	96-point annunciation

96SYS	96-point annunciation, with first 8 points reserved
96SVC*	96-point service mode for Two Level Bypass
UDACT	UDACT or UDACT-2
TM4	TM-4. (The TM-4 has the option to program the reverse polarity/relay outputs.)
AMG**	AMG-1
FSCS	Smoke control modules set for FSCS mode
HVAC	Smoke control modules set for HVAC mode
UZC	64-point UZC programmed for monitor type only

Press ACCEPT to save any configuration changes or BACK to exit without saving. The POINT PROGRAMMING soft key navigates to the point programming menu.

***Two Level Bypass:** When an ACS board is programmed as a 64SVC or 96SVC type, the operator must enter the Program/Alter Status mode of operation before pressing any push buttons to control points on these boards. If a push button is pressed while not in the Program/Alter Status screen, and no unacknowledged events exist, the password screen will automatically be displayed so the operator can enter the Program/Alter Status mode.

****AMG Type Programming:** An AMG (Audio Message Generator) at address 32 can be programmed by the NCA-2 for only the Page function. AMGs at any other address cannot be programmed at the NCA-2.

NOTE: The local NCA-2 is not available as a target node for ACS point mapping; only remote devices can be targeted.

Smoke Control Devices

Smoke Control Devices must be set as Firefighters Smoke Control Station (FSCS) or Heating, Ventilation and Air-Conditioning (HVAC) annunciator types. In addition to its 64 smoke control points, when an SCS device is operating in FSCS mode, there are 32 additional points which function as alarm points (Points 65 through 96). They can be mapped to a zone or point to send the SCS device into a fire alarm state when any of the additional 32 points is activated. Any of the 32 alarm points that are used must be set to MONITOR mode from the panel. Any of these points that are not used can be set to NONE. Refer to the *Smoke Control System Manual* for further information on smoke control devices.

Main menu
↳ Program/alter status menu
↳ Panel program menu
↳ ACS programming

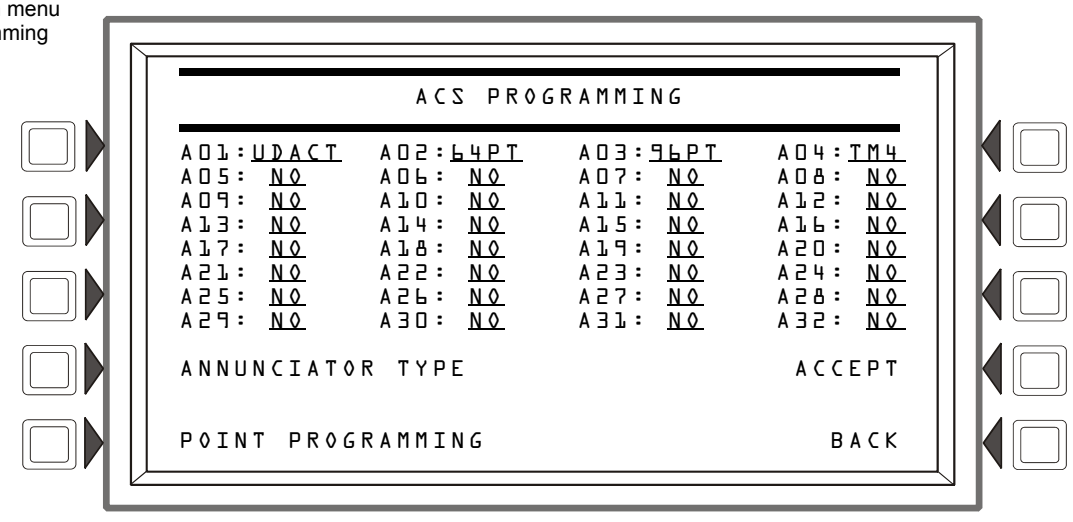


Figure 5.30 Program Menu: ACS Programming

ACS Point Programming

Press the POINT key and enter the ACS point number. The format is as follows:

AxxPyy A=ACS device number, P=point number

NEXT POINT and PREVIOUS POINT will go to the next and previous points.

Use the NCA-2 to program the ACS device's functions.

The MODE key cycles among the various ACS mapping modes. The possibilities are as follows:

ACS Point Mode	Function:	Explanation
None	The point is not programmed.	No messages are sent from or received at this point. LEDs at this point do not light.
Control	The point will change the state of up to eight control modules *OR,* (for NFS2-3030 only) up to eight general zones, when its button is pushed. Selecting this point mode will bring up the Control Point Select screen, where the points that will be controlled by this button can be selected. **NOTE:** For some board types (96PT, 96SYS, 96SVC, 64PT, 64SYS, 64SVC), up to eight outputs may be activated or deactivated with this point type.	The Point Active LED is lit if a corresponding mapped point is active. The Status (trouble) LED is lit when a point or zone is in trouble.
Monitor	The point will show the current status of a specified source point or zone.	The Point Active LED is lit if the corresponding mapped point or zone is active. The Status (trouble) LED is on if that point or zone is in trouble. If the point has a button, it has no effect when pushed.
Telephone	This point supports telephone functionality when mapped to a telephone point on a NUP panel. Press the button to connect the mapped point with the telephone station.	Both the Point Active LED and the Status (trouble) LED will flash if a telephone has been placed in the jack at the mapped telephone point. Otherwise, the Point Active LED is lit if the corresponding point or zone is active. The Status (trouble) LED is lit if that point or zone is in trouble.
Disable	This point will enable/disable a specified point, zone or logic zone on an NFS2-3030, as well as DAA speaker circuit(s). CAUTION: When a disabled output is enabled, it will be affected by conditions existing in the system that would normally affect it. For example, when a condition exists in the system that would normally turn the output ON, the output will turn ON when it is enabled.	The Point Active LED is lit if the corresponding mapped point or zone is active. The Status (trouble) LED is lit if that point or zone is disabled.
Acknowledge	This point will act like an Acknowledge soft key or button on the panel, acknowledging a single fire alarm event or block acknowledging other events when its button is pushed.	The Point Active LED is lit when there are any fire alarms in the system. The Status (trouble) LED is lit when there are troubles in the system.
Silence	This point will silence the silenceable outputs on one panel or all panels that are mapped to the NCA-2, depending on programming.	The Point Active LED is lit if all silenceable outputs have been silenced. The Status (trouble) LED is lit if not all silenceable outputs have been silenced after the button is pushed.
System Reset	This point will reset one panel or all panels that are mapped to the NCA-2, depending on programming.	No LED will ever light at this point.

Table 5.4 ACS Point Mapping: Explanation of Point Modes (1 of 3)

ACS Point Mode	Function:	Explanation
Drill	This point will initiate a fire drill when its button is pushed for one panel or all panels that are mapped to the NCA-2, depending on programming.	The Point Active LED is lit if a corresponding mapped point is active. The Status (trouble) LED is on when a point or zone is in trouble.
Enable Paging	This point will cause the associated input (a DVC's Telephone, RM-1, AUX A or AUX B) to become an active audio source on Noti•Fire•Net. The user may then choose to activate specific PAM points on remote Digital Voice Commands to use this network input, or to perform a paging function such as ALL CALL from this input.	The Point Active LED is lit if a corresponding mapped point is active. The Status (trouble) LED is on when a point or zone is in trouble.
All Call	This point will activate ALL CALL. (Speaker Circuits will be turned on according to programming.) Mapping can include either all nodes (program the node = 0) or a single node (program the node = the node number.) **NOTE:** Re: AMG-1 - If the ALL CALL function is programmed for a Node 0 ACS point in a specific NCA-2, pressing the ALL CALL button will activate the AMG-1s and Speaker circuits on nodes that are mapped into that NCA-2, or as modified by any Page functions programmed into the AMG-1 mapping at address 32.	The Point Active LED is lit if a corresponding mapped point is active. The Status (trouble) LED is on when a point or zone is in trouble.
PAGE INACTIVE	This point will, when pressed after an "Enable Paging From__" button, allow PAGE INACTIVE paging (Page Inactive Areas) from the source (Telephone, RM-1, AUX A or AUX B). The Special Paging Function map programming at the DVC will receive the page function.	The Point Active LED is lit if a corresponding mapped point is active. The Status (trouble) LED is on when a point or zone is in trouble.
FFT-NFN	....will, when pressed: • Notify a DVC in the map formal Nxxx,Nxxx,NxxxLyyMzzz or Nxxx,Nxxx,NxxxAyyT to open the FFT-NFN link and turn on the mapped FFT point or riser. A second press will notify the DVC to turn off that FFT point or riser and determine whether the FFT-NFN link should be closed or remain open. • Notify the DVC in the map format Nxxx,Nxxx to close or open the FFT-NFN link between two DVCs.	The Point Active LED is lit if a corresponding mapped point is active. The Status (trouble) LED is on when a point or zone is in trouble.
Page Evac	...will, when pressed after an "Enable Paging" button, allow PAGE EVAC paging from that source (Telephone, RM-1, AUX A or AUX B). The Special Paging Function map programming at the DVC will receive the page function.	The Point Active LED is lit if a corresponding mapped point is active. The Status (trouble) LED is on when a point or zone is in trouble.
Page Alert	...will, when pressed after an "Enable Paging" button, allow PAGE ALERT paging from that source (Telephone, RM-1, AUX A or AUX B). The Special Paging Function map programming at the DVC will receive the page function.	The Point Active LED is lit if a corresponding mapped point is active. The Status (trouble) LED is on when a point or zone is in trouble.
Shadow	Supports direct shadowing of ACS points when the NCA-2 communicates with an AM2020/AFP-1010 or AFP-300/400. Complete annunciator programming at the FACP local to the point to be shadowed must be complete before NCA-2 shadow programming is performed. The lights on the ACS points will shadow the lights on the mapped ACS point, except any flashing sequence may be different.	The lights on the ACS points will shadow the lights on the mapped ACS point, except any flashing sequence may be different.

Table 5.4 ACS Point Mapping: Explanation of Point Modes (2 of 3)

ACS Point Mode	Function:	Explanation
Page	Use this mode only when ACS point A32 is programmed as AMG. This function allows the user to define a group of standard or high-speed NOTI•FIRE•NET™ control panels to function as one “system” for the purpose of Fire Fighter's Telephone and ALL CALL paging. An ACS point in the range of A32P1 - A32P64 may be programmed as PAGE. The source for this point is a single node address. If either an ALL CALL or Fire Fighter's Telephone's remote ALL CALL PAGE is active, the NCA-2 will only command the programmed list of nodes to participate. **NOTE:** If none of the points A32P01 - A32P64 are defined as the page function, the NCA-2 will command the entire list of mapped nodes to participate.	The Point Active LED is lit if a corresponding mapped node is active. The Status (trouble) LED is on when a point or zone is in trouble.

Table 5.4 ACS Point Mapping: Explanation of Point Modes (3 of 3)

SAVE will save the current point programming without exiting the menu. Press NEXT to advance to the next ACS address for configuring.

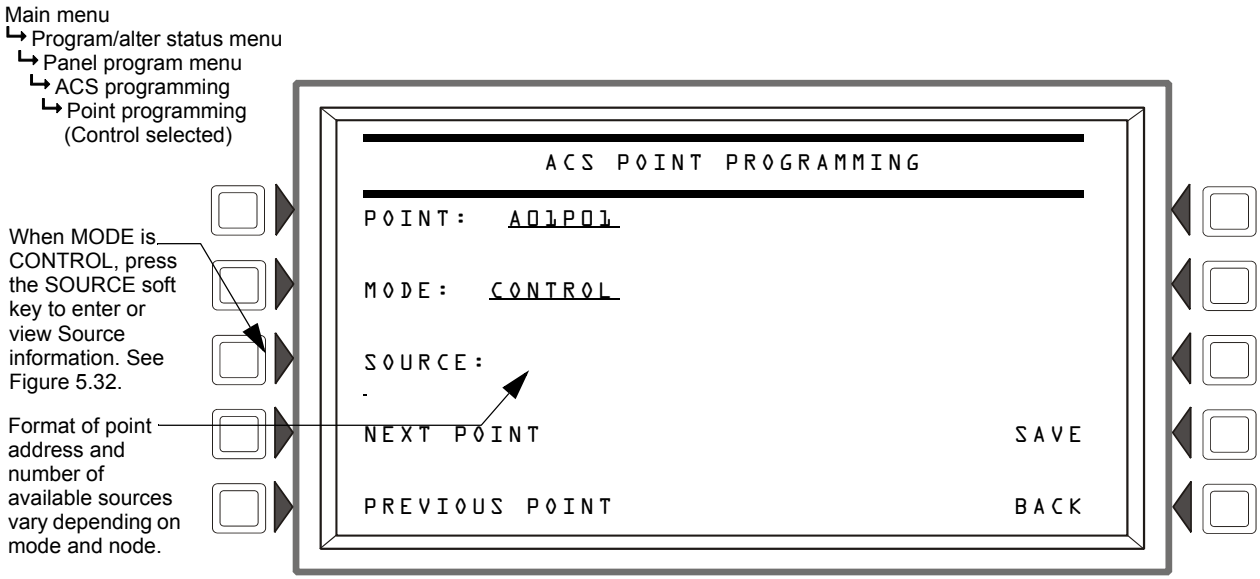


Figure 5.31 ACS Point Programming Screen

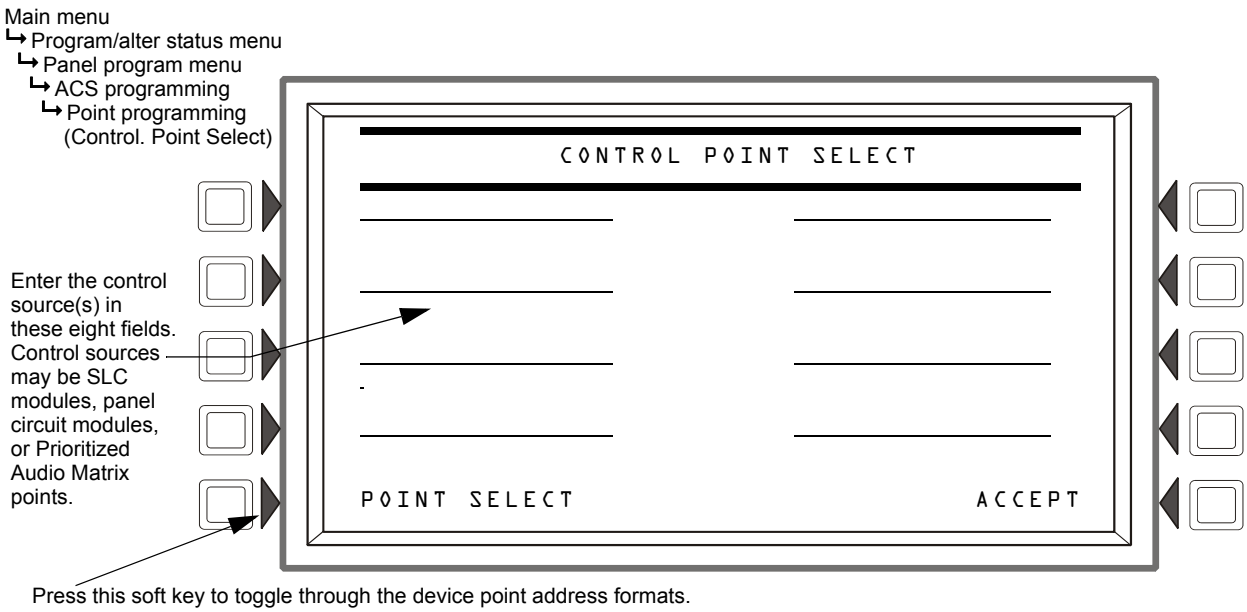


Figure 5.32 ACS Source Programming Screen

Control mode source field entries may be:

- SLC modules in the format NxxxLyyMzzz. xxx = FACP node number, yy = the SLC loop number, zzz = module SLC address.
- Panel Circuit modules in the format NxxxPyy.z. xxx = FACP node number, yy = panel circuit module number, z = panel circuit pushbutton number.
- Prioritized Audio Matrix (PAM) speaker points, in the format NxxxIyyyyAzzSn. xxx = the DVC node number, yyyy = the input number in the PAM, zz = the DAA address on the Digital Audio Loop (01 through 32), and n = the speaker circuit (1 through 4).
- General zones in the format NxxxZyyy.xxx = FACP node number, yyy=General zone number (Z001-Z999), not Z000. Zone 0 is not valid.

CAUTION:
Do not mix general zones with other source types for an ACS control Point. Program up to eight general zones OR up to eight other control point types.

For ALL CALL, PAGE INACTIVE, PAGE EVAC, and PAGE ALERT modes, enter the node number of the DVC where the source is connected. These modes are used in conjunction with ENABLE PAGING FOR ____ mode.

`FFT-NFN` mode sources:

- format Nxxx,Nxxx,NxxxLyyMzzz: Telephone control module (NxxxLyyMzzz) preceded by the node numbers of the two DVCs (Nxxx,Nxxx) that will communicate over FFT-NFN link.
- format Nxxx, Nxxx: Numbers of the two DVCs that will communicate over the FFT-NFN link.
- format NxxxAyyT: Use this address (N = the DVC node number and A = the DAL device address on the digital audio loop) when no telephone control modules are installed on a DAL device's FFT riser.

Refer to the FFT-NFN section of the *DVC Manual,* the *DS-DB Digital Amplifier Manual,* and the *DAA2 and DAX Amplifiers Manual* for programming and application examples.

ACS LED Designations

The LEDs on an ACM-16AT or ACM-24AT each have a user defined meaning, depending on how the NCA-2 is programmed. For each point programmed in NCA-2, the annunciator has two lights. The colors of these lights may vary depending on the model of the annunciator. On the ACM-24AT, the colors of the lights may be dynamically reprogrammed. We will use the designation ‘state’ for the top light, and ‘status’ for the bottom light.

Program each point in one of the following ways:

1. ACKNOWLEDGE

- The state light is on if there are any fire alarms in the system.
- The status light is on if there are any troubles in the system.
- Other types of events are not annunciated at the ACS board level.
- Pressing the button is analogous to pressing the ‘ACKNOWLEDGE’ soft key of the NCA-2, i.e. either one fire alarm will be acknowledged, or troubles and so forth will be block acknowledged. The lights will continue to blink until all corresponding events are acknowledged.

2. **SIGNAL SILENCE -** There are two cases: the node number may be 0 (all mapped nodes) or the node number may be a specific node.

a. All Mapped Nodes - This reflects the silence status as shown on the NCA-2 silence light.

- Neither light is ever on.
- Pressing the button attempts to silence all mapped nodes.

b. Specific Node - This reflects the silence status of a single node.

- Neither light is ever on.
- Pressing the button attempts to silence the single node.

3. **SYSTEM RESET -** There are two cases: the node number may be 0 (all mapped nodes) or the node number may be a specific node.

a. All Mapped Nodes

- Neither light is ever on.
- Pressing the button attempts to reset all mapped nodes.

b. Specific Node

- Neither light is ever on.
- Pressing the button attempts to reset the single node.

4. **DRILL -** There are two cases: the node number may be 0 (all mapped nodes) or the node number may be a specific node.

a. All Mapped Nodes

- The state light is on if any mapped node has entered the drill state.
- The status light is never on.
- Pressing the button attempts to drill all mapped nodes.

b. Specific Node

- The state light is on if the node has entered the drill state.
- The status light is never on.
- Pressing the button attempts to drill the single node.

5. DISABLE

- The State light is on if the corresponding point or zone is active.

- The status light is on if the corresponding point or zone is disabled. Note that for most panels, the state light will not be on when the point is disabled (however, this can vary in different panels).
- Pressing the button will modify the state of the point or zone as follows:
  -If the point is enabled, pressing the button will disable it.
  -If the point is disabled, pressing the button will enable it.

6. MONITOR

- The State light is on if the corresponding point or zone is active.
- The status light is on if the corresponding point or zone is in trouble.
- Pressing the button has no effect.

7. CONTROL

- The State light is on if any of the corresponding points or zones are active.
- The status light is on if any of the corresponding points or zones are in trouble. The light will also be on if any of the points in the group fail to activate.
- Pressing the button will modify the state of the point or zone as follows:
  -If the point or zone is currently active, pressing the button will deactivate it
  -If the point or zone is currently inactive, pressing the button will activate it

NOTE: Attempts to change the state of a point or zone in this manner may be overridden by some system settings, such as a panel auto-silencing an output after a certain amount of time, or CBE equations based on events at another network node.

8. **ALL CALL -** The node number is a specific node:
   - The state light is on if the node has entered the all call state.
   - If Node 0 is selected, the state light is on if any of the nodes are active.

9. PAGE INACTIVE, PAGE EVAC, PAGE ALERT

- The state light is on when the program function is active.
- The status light is on if the point is in trouble.

10. TELEPHONE

- Both lights will flash if a telephone has just been placed in the jack. Otherwise, the State light is on if the corresponding point or zone is active.
- The status light is on if the corresponding point or zone is in trouble.
- Pressing the button will activate or deactivate the telephone circuit.

11. SHADOW

- Lights on the ACS points will shadow (mimic) the lights on the mapped ACS point, except any flashing sequence may be different.

12. PAGE

- Intended for DVC, not LED annunciators; the state and status light are not applicable.

5.5.7 Supervision

The Supervision screen allows you to make supervision settings for various ancillary devices. The EIA-232 and EIA-485 ports are unsupervised, but a programmed NCA-2 will detect loss of communication with the device(s) on these circuits.

- **MAIN PS NODE:** - To enable supervision of the NCA-2's main power supply, enter the node number where the power supply is located. If the NCA-2. is powered by its own power supply, the node number will be the same as the NCA-2's. node number. If power supply supervision is not desired, enter 000. Default = 000.

- **PRINTER: -** Press to scroll through the types of printer supervision: NONE, 40 COLUMN, 40 COLUMN SUPERVISED, 80 COLUMN, 80 COLUMN SUPERVISED, 40 GRAPHIC, 80 GRAPHIC, 80 GRAPHIC SUPERVISED. The printer will not be active if NONE is selected. If a SUPERVISED selection is made, the printer will be supervised. Default = NONE.
- **CRT BAUD RATE:** Press to scroll through CRT baud rates. "SUP" after the rate indicates supervised. Select from: 4800, 4800 SUP, 9600, 9600 SUP, 19200, 19200 SUP, 38400, 38400 SUP, 57600, 57600 SUP. Default: NONE
- **AUXILIARY TROUBLE REPORTING: -** Press to toggle between YES and NO. Choose YES if a trouble bus cable has been attached at J5. Default: NO
- **TAMPER INPUT: -** Selections are YES, NO, and AKS-1. Default = NO.

  YES/NO reports (YES) or does not report (NO) a tamper situation at the panel cabinet door (as determined by an STS-1 tamper switch. Section 3.17, "Security Tamper Switch" provides installation information.

  AKS-1 should be selected when using an AKS-1 key switch connected to the panel cabinet door (which allows the operator to use Signal Silence, Reset, Drill and Acknowledge functions when a key turns the lock to "Enable). Section 3.16 provides installation instructions.
- **MORE** - Select MORE to bring up the second supervision screen.

Main menu
↳ Program/alter status menu
↳ Panel program menu
↳ Supervision

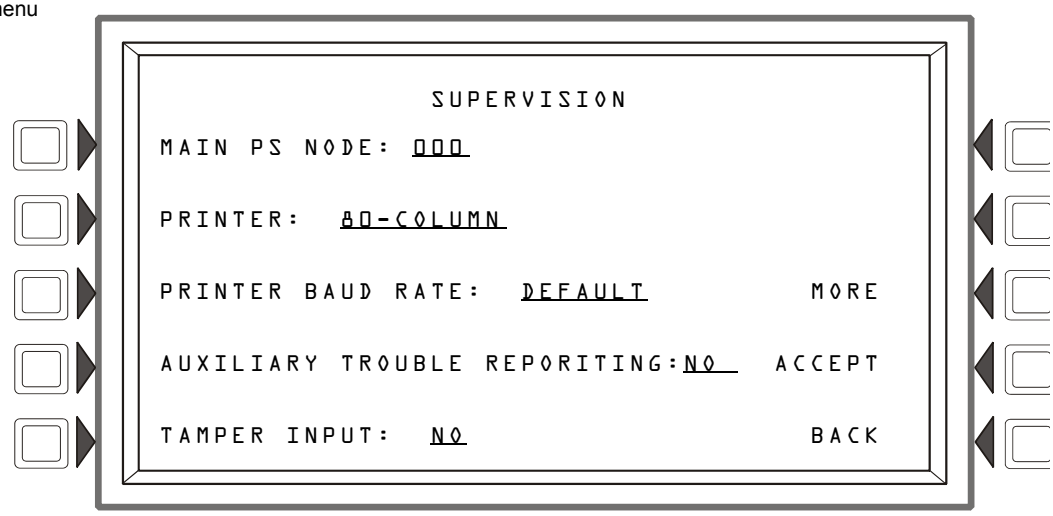


Figure 5.33 Panel Program Menu: Supervision

TERMINAL: Select NONE or LCD-80. (Default: NONE.) When LCD-80 is selected, LCD-160 programming is not allowed.

Main menu
↳ Program/alter status menu
↳ Panel program menu
↳ Supervision menu
↳ More menu

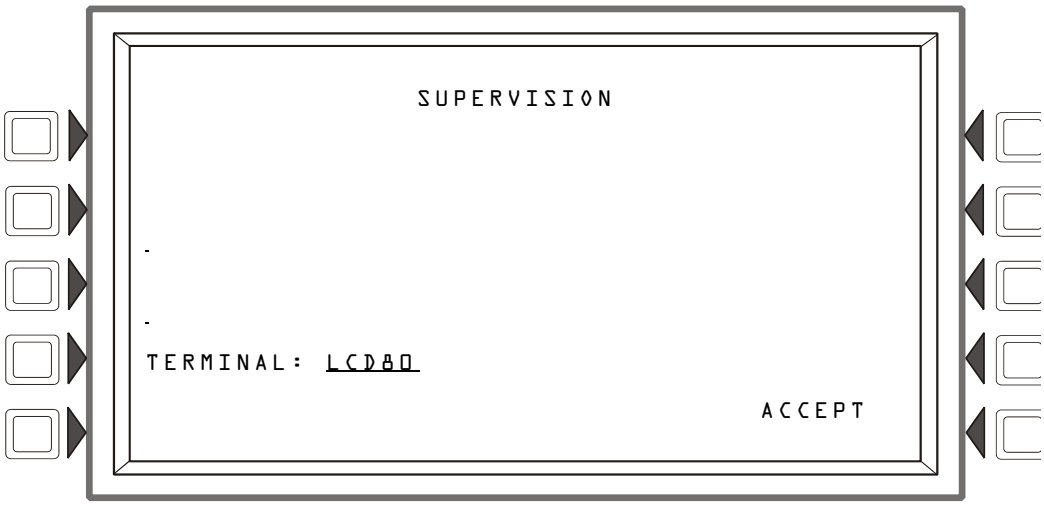


Figure 5.34 Supervision Screen: More

5.5.8 MORE Menu

Pressing "MORE" at the Panel Program Menu will bring up the Event Logging screen.

Main menu
↳ Program/alter status menu
↳ Panel Program menu
↳ More

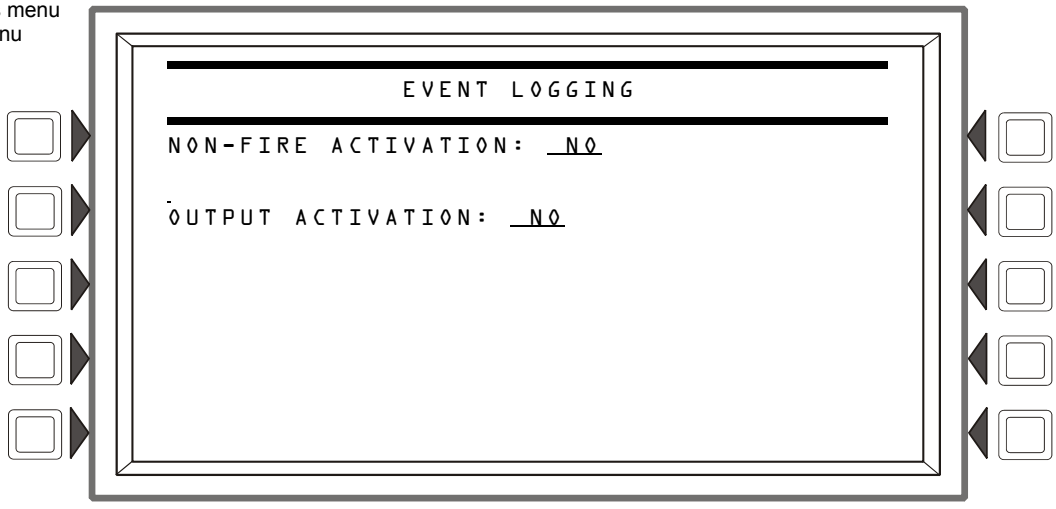


Figure 5.35 Panel Program Menu: More

Press the appropriate soft key to toggle between YES (log the event activation) and NO (do not log the event activation.

5.6 Point Program Menu

The point program menu allows the programmer to change the volume setting on any networked DVC or DAA or program Logic Equations.

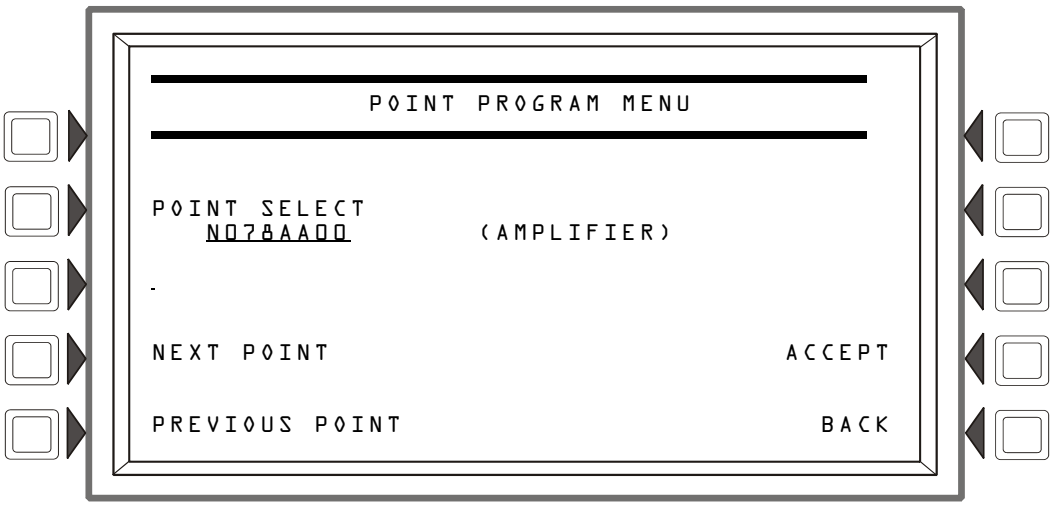


Figure 5.36 Point Programming Menu

Type	Address Format	
LOGIC ZONE	ZLyyyy	ZL=Logic Zone, yyyy=Logic Zone number(1-1000)
DVC/DAA	NxxxAAyy	N = Node, xxx=DVC or DVC-EM Node number, AA = DAA Audio Amplifier, yy=DAA address (01 through 32). Note: When yy=00, the address format is the DVC or DVC-EM address.
ACS	Ayy+Custom Label	A=Annunciator, yy=Annunciator address
GENERAL ZONE	Zyyy	Z=General Zone, yyy=General Zone number

Table 5.5 Address Formats

5.6.1 DVC/DAA

Setting the DVC/DAA Volume

Volume setting on any networked DVC or DAA can be changed via Point Programming. The setting will affect the analog output circuits on the DVC, the speaker output circuits on the DAA, as well as auxiliary inputs A and B on the DVC.

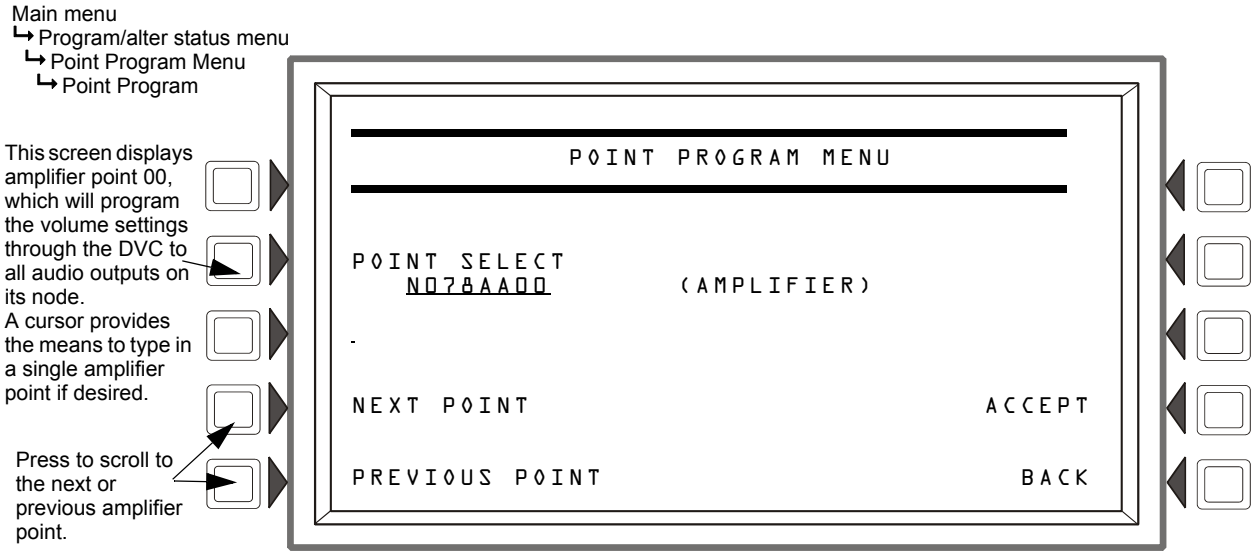


Figure 5.37 Point Selection

Press ACCEPT when the desired point is displayed. The Audio Volume Control screen will appear.

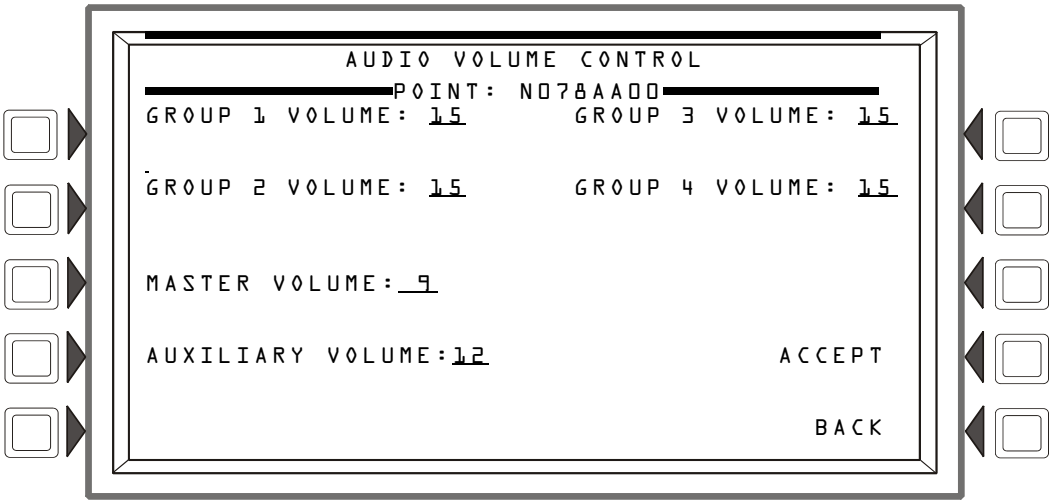


Figure 5.38 Audio Volume Control

GROUP x VOLUME: This field can set the volume for all audio outputs in Group x on the DS-DB or DAA2. Set this field to any volume setting from 0 (off) to 15 (high). Default: 15. For more information, refer to the *DVC Digital Voice Command Manual,* the *DS-DB Digital Amplifier Manual,* and the *DAA2 and DAX Manual*.

MASTER VOLUME: - This field can set the volume for all audio outputs at the DVC node. When the audio amplifier point is set to 00, as it is in Figures 5.37 and 5.38, the setting affects all audio outputs on the DVC node (this includes all outputs on the DVC and all its DAAs). When a specific

DAA point is entered at the point program menu (for example, N078AA01) the MASTER VOLUME setting will apply to the audio outputs at that DAA (the DAA with its address set to 01). Set this field to any volume setting from 0 (off) to 15 (high). Default: 15

AUXILIARY VOLUME: - This field sets the volume for DVC inputs AUXA (background music from various sources or a telephone paging source) and AUXB (AMG-1 input). The field does not appear if a specific DAA address has been entered. The DAAs have onboard volume control for AUXA and AUXB inputs. Set this field to any volume setting from 0 (off) to 15 (high). Default: 15.

ACCEPT - Press to program the displayed volume.

5.6.2 Logic Zone

Logic Zone Programming

This screen displays when a logic zone is entered at the Point Programming Menu (see Figure 5.36 on page 96).

The logic equation for that zone will display in line 6. Line 4 indicates the current state of the logic zone (ON or OFF). If there is no equation at the logic zone number entered, nothing will display in lines 4 and 6, and the user must press the EDIT EQUATION soft key to proceed to the next screen and enter an equation.

Refer to Appendix G, "Logic Equations" for information on how to create a logic equation, and how logic equations operate.

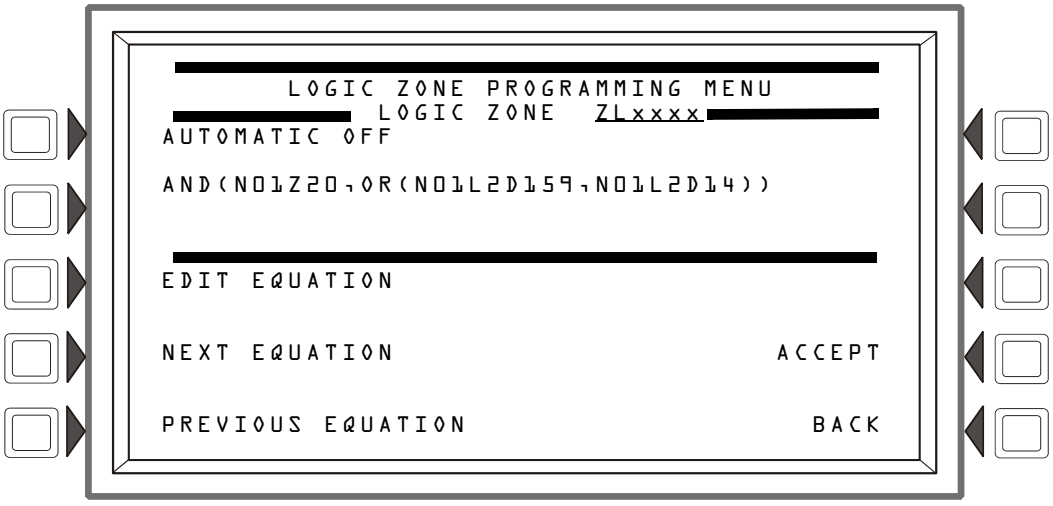


Figure 5.39 Logic Zone Programming Menu Screen

Soft Keys

EDIT EQUATION: Press to proceed to the edit screen to add or edit a logic equation.

NEXT/PREVIOUS EQUATION: Press to view the next or previous logic equation.

Edit Logic Equation

This screen displays when the EDIT EQUATION soft key is pressed on the Logic Zone Programming Menu

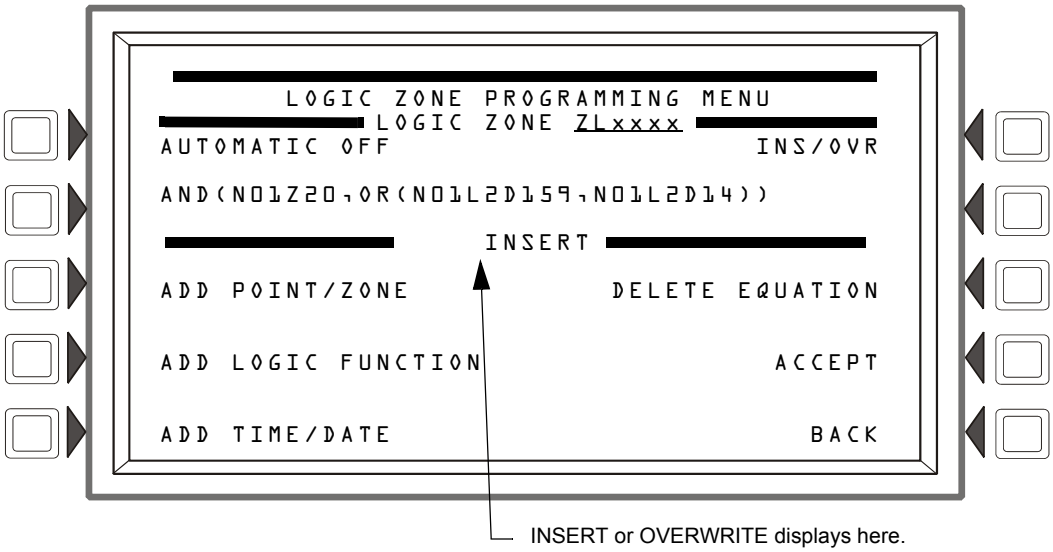


Figure 5.40 Edit Logic Equation Screen

The cursor will be present in the equation, and can be moved by pressing the left/right arrow keys on the keyboard. To add or delete information, use the INS/OVR soft key function described below. Use the keypad to type in an equation. The ADD POINT/ZONE and ADD LOGIC FUNCTION soft keys may be used to facilitate creating a logic equation; however, commas must be added by using the keypad.

Soft Keys

INS/OVR: Press to toggle between insert and overwrite. Stop at the appropriate mode, which displays in line 8 of the screen. Insert will add information to the equation, overwrite will write over information already in the equation.

ADD POINT/ZONE: Press to proceed to the Add Point/Zone screen. This screen is an alternative to typing in the information at this screen; it provides point and zone formats that make it less likely for typographical errors to occur.

ADD LOGIC FUNCTION: Press to proceed to the Add Logic Function screen. This screen is an alternative to typing in the information at this screen; it provides logic function formats that make it less likely for typographical errors to occur.

ADD TIME/DATE: Press to proceed to the Add Time/Date screen.

DELETE EQUATION: Press to delete the entire equation.

ACCEPT: Press to save changes made on this screen and return to the previous screen.

NOTE: When the ACCEPT soft key is pressed to save an equation, the panel checks the equation for errors. If there is an error in the equation, the previous screen will not appear, and the cursor will appear at the error point. Correct the equation, and re-press the ACCEPT soft key.

Add Point/Zone

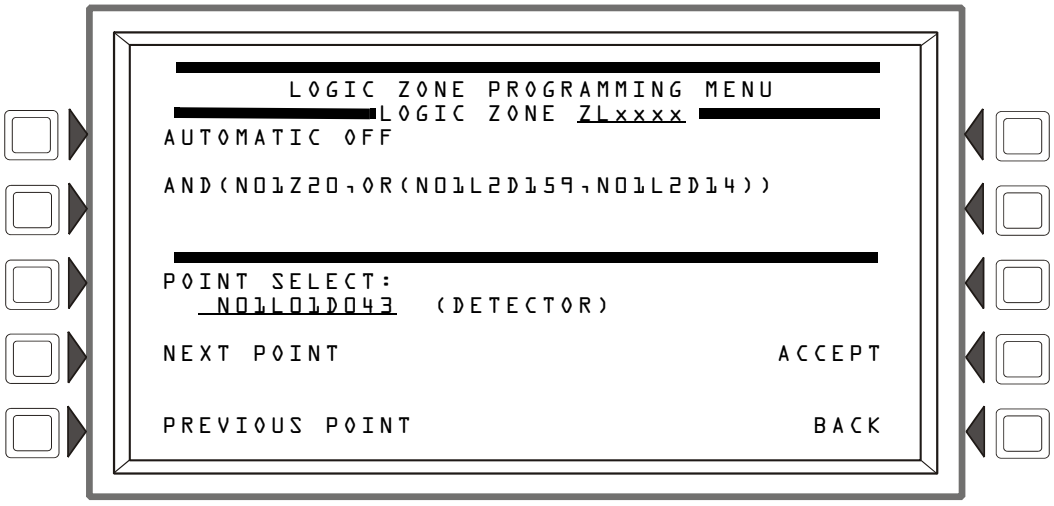


Figure 5.41 Add Logic Point/Zone Screen

The cursor will be present in the logic equation. Place it, using the arrow keys on the keyboard, at the place where the additional point should be inserted.

Soft Keys

`POINT SELECT:` Press to scroll through the list of possible formats (detector, module, etc.). Stop at the desired format. Type in the address for the additional point.

`ACCEPT:` Press to insert the point into the equation where the cursor is blinking, and to return to the previous screen.

`NEXT/PREVIOUS POINT:` Press these soft keys to scroll forward or backward from the displayed point to the next installed point.

Add Logic Function

This screen appears when the `ADD LOGIC FUNCTION` soft key is pressed at the Logic Zone Programming Menu screen.

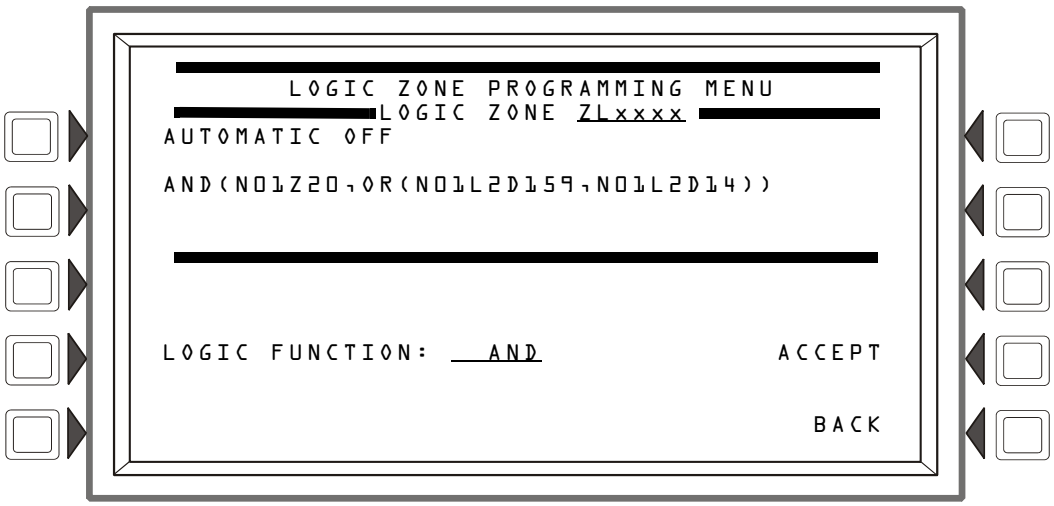


Figure 5.42 Add Logic Function Screen

The cursor will be present in the logic equation. Place it, using the arrow keys on the keyboard, at the place where the logic function should be inserted.

Soft Keys

LOGIC FUNCTION: Press to scroll through the list of possible logic functions.

ACCEPT: Press to insert the logic function into the equation where the cursor is blinking, and to return to the previous screen.

Add Time/Date

This screen appears when the ADD TIME/DATE soft key is pressed at the Logic Zone Programming Menu screen

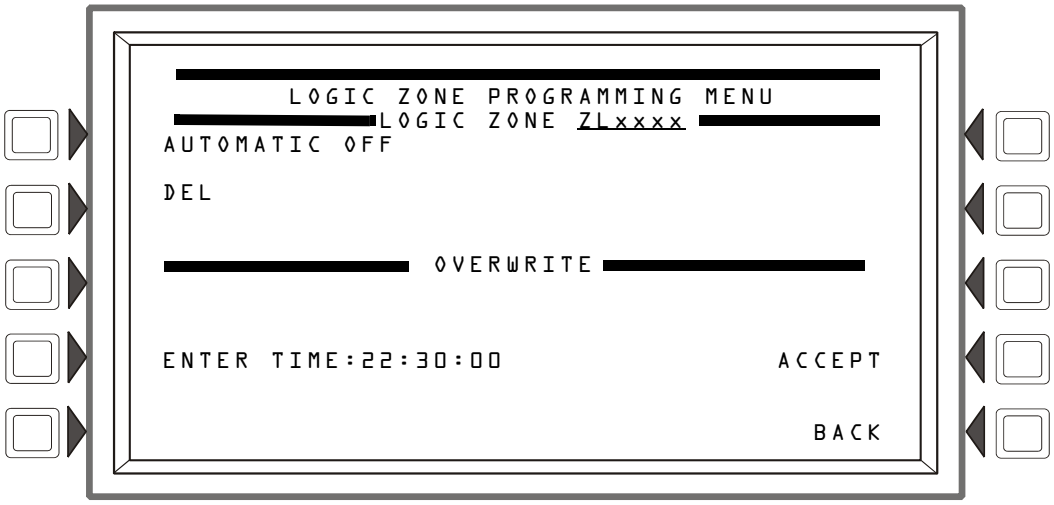


Figure 5.43 Add Time/Date to Logic Zone Screen

Soft Keys

ENTER TIME: _ _:_ _:_ _ Press this soft key to toggle between the time/date formats. Choose one based on the type of time-based function used.

Time-based function	Screen Field	Time/date format
DEL, SDEL, TIM	ENTER TIME:_ _:_ _:_ _	HH:MM:SS, entered as military time (22:30:00 = 10:30 P.M.)
TIM	ENTER DATE:_ _-_ _-_ _	(MM-DD-YY)
TIM	ENTER DAY: MO	(Use the TOGGLE DAY soft key that appears to scroll through and choose a day of the week.

5.6.3 Annunciator Board Label

When ACS BOARD is selected from the Point Program Menu, the ACS Label Menu appears.

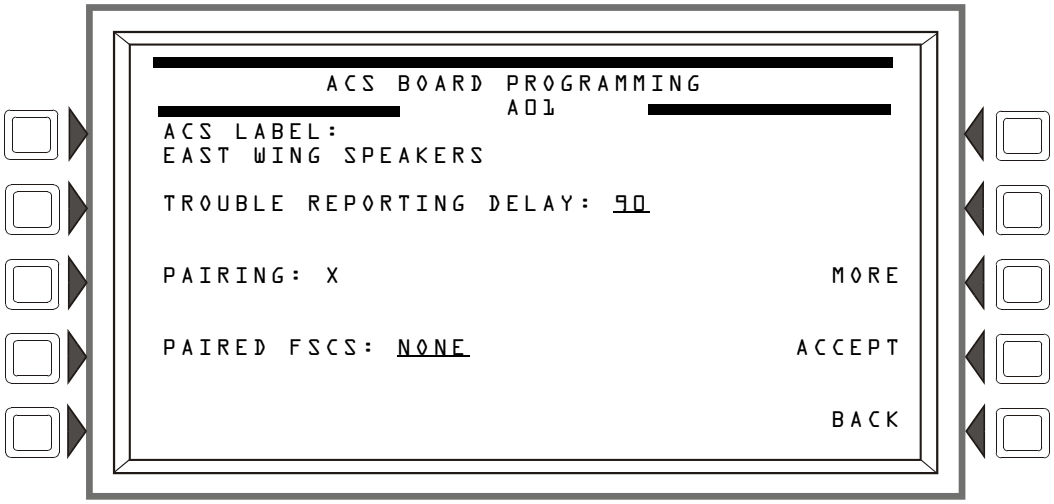


Figure 5.44 ACS Label Menu Screen (1)

Soft Keys

ACS LABEL: Type a label for the selected annunciator. The label can have up to 40 characters.

TROUBLE REPORTING DELAY: Smoke Control Systems only: Adjustable trouble timer for FSCS. Programmable range is 0 to 180 seconds. Default: 90

NOTE: This value may not exceed 90 seconds for ULC installations.

PAIRING: Smoke Control Systems only: Select group 1, 2 or 3 to pair up to eight (8) FSCS boards so that multiple smoke control modules can act as a single unit. If enabled, each FSCS address can only be assigned to one group and each group can be assigned up to eight (8) FSCS addresses, Default: X

PAIRED FSCS: Smoke Control Systems only: Displays any FSCS boards that have been paired to this annunciator.

ACCEPT: Press to insert the logic function into the equation where the cursor is blinking, and to return to the previous screen.

Press the MORE softkey to display the second ACS label screen.

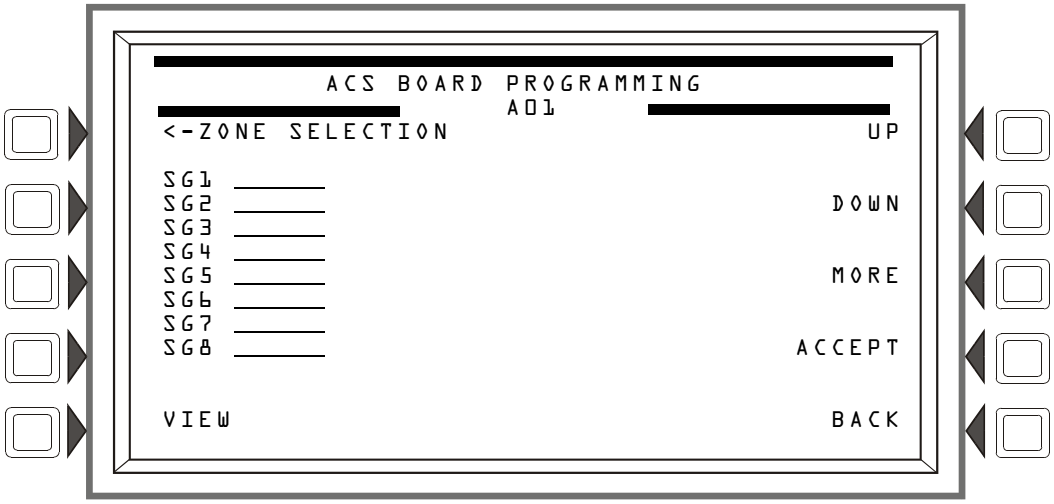


Figure 5.45 ACS Label Menu Screen (2)

Soft Keys

ZONE SELECTION: Press to assign the zone label that is to be displayed for the switch group selected.

VIEW: Press to view the associated zone label for the switch group selected.

UP/DOWN: Press to move between switch group selections.

Press the MORE softkey to display the third ACS label screen.

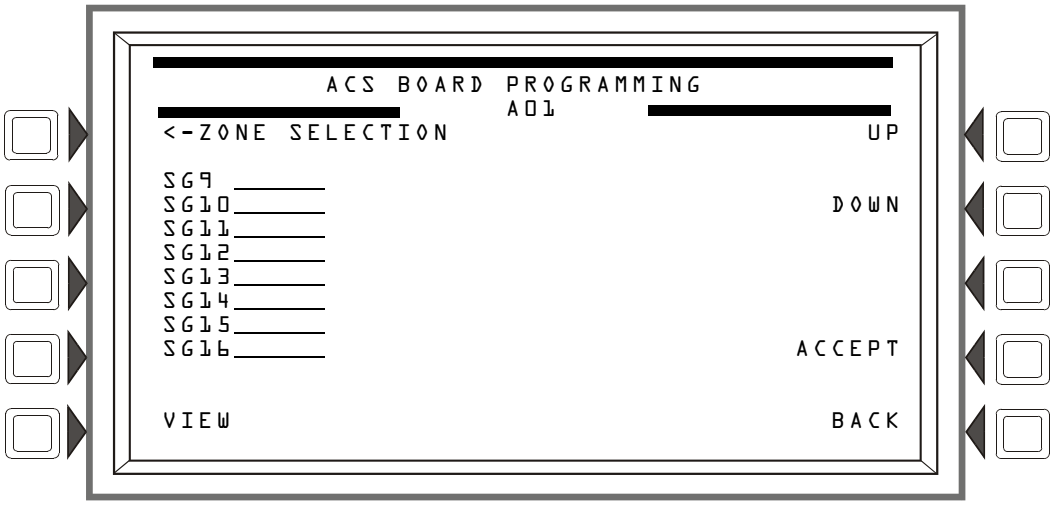


Figure 5.46 ACS Label Menu Screen (3)

Soft Keys

ZONE SELECTION: Press to assign the zone label that is to be displayed for the switch group selected.

VIEW: Press to view the associated zone label for the switch group selected.

UP/DOWN: Press to move between switch group selections.

5.6.4 General Zone

This screen displays when a general zone is chosen at the Point Program menu.

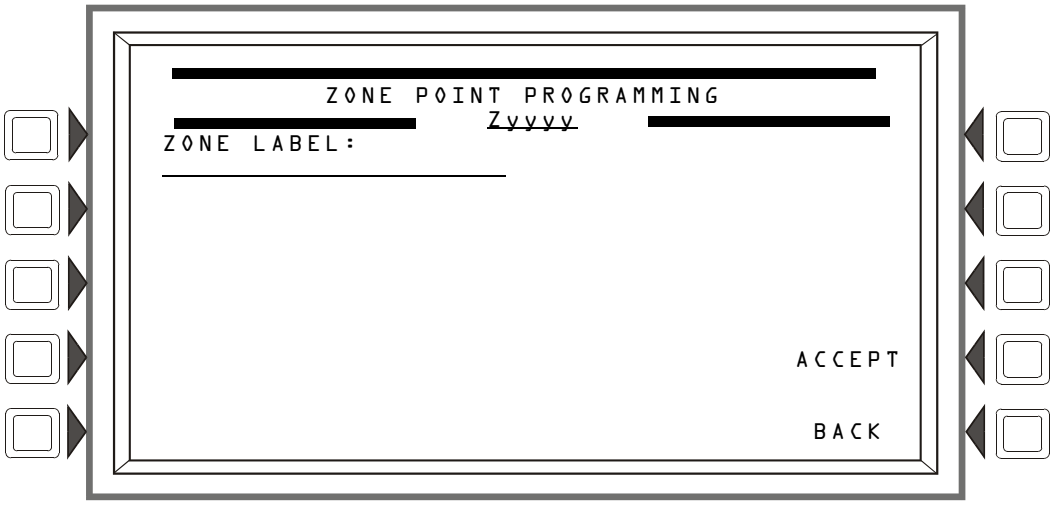


Figure 5.47 Zone Point Programming Screen

Soft Keys

ZONE LABEL: Press to type in a 20-character maximum zone description that will appear in the zone's display messages. The zone label can referenced in ACS Board programming to assign a label to a switch group.

ACCEPT: Press to save the message and return to the previous screen.

5.7 Delete Programming

The following menu allows complete or partial clearing of programming.

Main menu
↳ Program/alter status menu
↳ Delete Programming

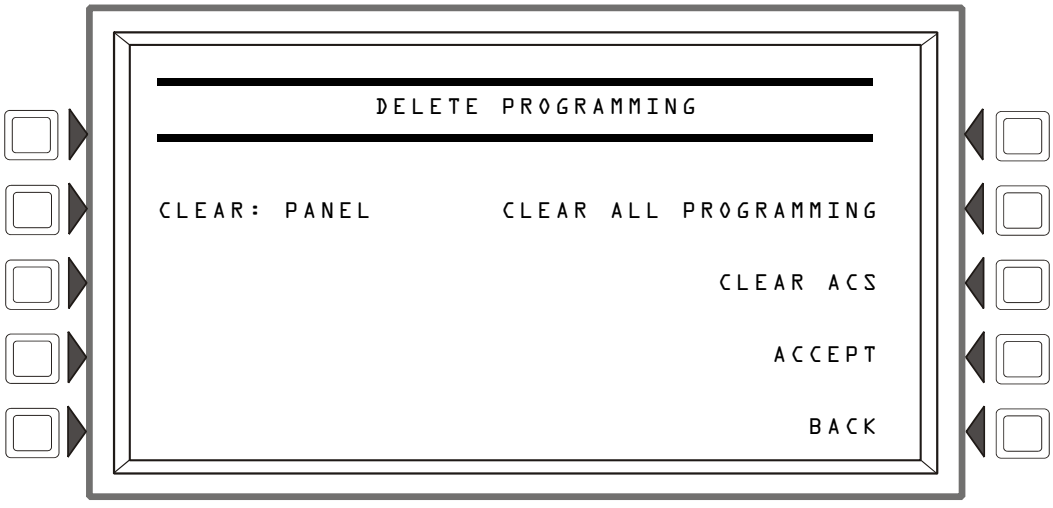


Figure 5.48 Delete Programming

CLEAR ALL PROGRAMMING - Press to remove all panel and ACS programming information. Pressing this key removes everything except passwords. A confirmation screen will display asking the user to confirm the deletion command. Pressing this key causes a reboot.

CLEAR: PANEL - Press to remove all programmed panel setting information from control panel memory. This does not remove ACS programming. A confirmation screen will display asking the user to confirm the deletion command. Pressing this key causes a reboot.

CLEAR ACS - Press to remove all ACS programming from panel memory. A confirmation screen will display asking the user to confirm the deletion command. Pressing this key causes a reboot.

Appendix A: Power Supply Calculations

Category	Primary, Non-Fire Alarm Current (Amps)			Primary, Fire Alarm Current (Amps)			Secondary, Fire Alarm Current (Amps)		
	Qty	x [current draw]=	Total	Qty	x [current draw]=	Total	Qty	x [current draw]=	Total
NCA-2 - backlight ON NCA-2 - backlight OFF	[ ] [ ]	x [0.400]= x [0.200]=		[ ] [ ]	x [0.400]= x [0.200]=		[ ] [ ]	x [0.400]= x [0.200]=	
NCM-W/F HS-NCM-W/MF/SF/WSF/WMF/MFSF RPT-W, RPT-WF, RPT-F RPT-485W RPT-485WF	[ ] [ ] [ ] [ ] [ ]	x [0.110] = x [0.400] = x [0.017] = x [0.047] = x [0.049] =		[ ] [ ] [ ] [ ] [ ]	x [0.110] = x [0.400] = x [0.017] = x [0.047] = x [0.049] =		[ ] [ ] [ ] [ ] [ ]	x [0.110] = x [0.400] = x [0.017] = x [0.047] = x [0.049] =	
ACM-24AT, ACM-48A AEM-24AT, AEM-48A ACM-16AT, ACM-32A AEM-16AT, AEM-32A ACM-8R (refer to Doc. 15342) LDM Series (refer to Doc. 15885) SCS-8 (refer to Doc. 15712)	[ ] [ ] [ ] [ ] [ ] [ ] [ ]	x [0.016]= x [0.002]= x [0.040]= x [0.002]= x [ ]= x [ ]= x [ ]=		[ ] [ ] [ ] [ ] [ ] [ ] [ ]	x [0.070]= x [0.056]= x [0.056]= x [0.018]= x [ ]= x [ ]= x [ ]=		[ ] [ ] [ ] [ ] [ ] [ ] [ ]	x [0.016]= x [0.002]= x [0.040]= x [0.002]= x [ ]= x [ ]= x [ ]=	
Number of Annunciator LEDs illuminated during non-fire alarm conditions ACM-16AT, ACM-32A AEM-16AT, AEM-32A	[ ] [ ]	x [0.016]= x [0.016]=		[ ] [ ]	INCLUDED ABOVE		[ ] [ ]	x [0.016]= x [0.016]=	
UDACT UDACT-2	[ ] [ ]	x [0.100]= x [0.052]=		[ ] [ ]	x [0.100]= x [0.087]=		[ ] [ ]	x [0.100]= x [0.087]=	
Sum each column for totals	Primary, non-alarm total:			Primary, alarm total:			Secondary, non-alarm total:		

Appendix B: Menu Hierarchy

<table>
<tr><td rowspan="11">Main Menu
(see page 45)</td><td colspan="2">Read Status (see page 51)</td></tr>
<tr><td rowspan="3">Program/Alter Status
(see page 45)</td><td>Alter Status (see page 57)
• Disable/Enable
• Detector Sensitivity
• Clear Verify Counts
• Clear History
• Walk Test
• Change Time/Date
• Control On/Off
• Back</td></tr>
<tr><td>Node Program
...for specified remote node (see page 76)
• Edit point labels
• Edit node labels
• Back
...for specified ACS point on local NCA-2 (see page 88)
• ACS label
• Back</td></tr>
<tr><td>NCA-2 Program (see page 77)
• Network Parameters
• Network Mapping
• NCA-2 Settings
• Reminder Menu
• NCA-2 Timers
• Event Monitoring
• LCD Display
• ACS Programming
• Supervision
• Password Change
• Point Program
• Back</td></tr>
<tr><td>Event Counts Display
(see page 44)</td><td>More Information
Program/Alter Status
Signal Silence
System Reset
Main Menu</td></tr>
<tr><td>Multiple Event List
(see page 46)</td><td>First Event
Main Menu</td></tr>
<tr><td rowspan="2">History Display
(see page 47)</td><td>Local History (see page 47)
• All Events
• Alarms Only
• Troubles Only
• Supervisory Only
• Security/Other
• Time/Date Interval
• Point Range
• Back</td></tr>
<tr><td>Node History (see page 50)
• All events
• Alarms only</td></tr>
<tr><td rowspan="3">Printer Functions
(Print reports)
(see page 57)</td><td>NCA-2 Programming Reports (see page 57)
• Network Parameters
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• Event Monitoring
• LCD Display
• ACS Programming
• ACS Point Programming
• Supervision
• Back</td></tr>
<tr><td>Active Points (see page 59)</td></tr>
<tr><td>Walk Test (see page 71)</td></tr>
</table>

Appendix C: Wire Requirements

Circuit Type	Circuit Function	Wire Requirements	Distance (ft/m)	Typical Wire Type
EIA-485 (power limited)	Connects to ACS modules, or TM-4 Transmitter	Twisted-shielded pair with a characteristic impedance of 120 ohms 18 AWG (0.75 mm^2) minimum	6,000/1,829 (max)*	16 AWG (1.30 mm^2) (e.g. Belden 9860)
EIA-232 (power limited)	Connects to Printers, or PC	Twisted-shielded pair. 18 AWG (0.75 mm^2) minimum	50/15.24 (without modem)	16 AWG (1.30 mm^2) (e.g. Belden 9860)

Table C.1 Wire Requirements

*In ACS mode, the distance is the total length of the EIA-485 cable from the NCA-2 to the last device on the circuit.

Appendix D: Display and Control Center (DCC)

A Display and Control Center (DCC) is a display location which can respond to events occurring at other participating locations. While there may be multiple Display and Control Centers on a network, an individual location can only accept the commands of one DCC at a time. The user's actions at any participating station, panel, or remote display determine which location will be the DCC.

For Fire Applications: When the NCA-2 is not the Display and Control Center, pressing Signal Silence, System Reset, Acknowledge or Drill will automatically send a permission request to the current DCC. The DCC must release control of the node to the requesting NCA-2 before the key will be processed. If no DCC already exists, the key is processed and the acknowledging panel or station assumes control. Unless specifically denied authorization, the NCA-2 will assert control over any NCA-2, NFS-320, NFS2-640, NFS2-3030, NFS-3030 and NCS node that is mapped to it. When it assumes control, the CONTROLS ACTIVE LED on the keypad will illuminate.

Pressing an ALL CALL, PAGE ACTIVE EVAC AREAS, PAGE ACTIVE ALERT AREAS, PAGE INACTIVE AREAS or ENABLE TELEPHONE PAGE button on a DVC-KD that has been programmed to participate in DCC with the NCA-2, will cause permission to be requested

ACS points programmed on an annunciator with a type of 96DCC will also cause permission to be requested.

Partial control is also possible, where one or more of the nodes denies authorization and one or more nodes allows it to assert control.

DCC participation is set on the NCA-2 Settings screen under the NCA-2 Programming menu (see "Panel Settings" on page 81).

CAUTION:
On systems utilizing the DCC function, all locations that can participate must be enabled.

CAUTION:
When re-booting a NCA-2 that is participating in DCC, wait until system is completely initialized before sending DCC commands to a remote node.

For Mass Notification Applications: DCC must be turned off for mass notification applications. When the NCA-2 is used as part of an ACU, LOC or CCS configuration, the DVC must have Mass Notification Control Settings selected and the NCA-2 node number selected. The CONTROLS ACTIVE LED will remain lit unless control is taken from another node, indicating that Acknowledge, System Reset, Signal Silence and Drill functions are available for the NCA-2. If a mass notification page is initiated from a DVC, the node associated with that DVC will assume control of the network and its CONTROL ACTIVE LED will remain lit. Control functions for that node will remain available.

Other nodes on the network: For all other nodes, the CONTROLS ACTIVE LED will turn off and control functions will be blocked for the duration of the MN page. Once the page is complete, control will be returned to all nodes and their CONTROLS ACTIVE LEDs will turn back on.

LCD-160: Any LCD-160s connected to the NCA-2 will turn off their CONTROLS ACTIVE LED during an MN page from the DVC. If the MN page is performed from the DVC-RPU, the NCA-2 will not have control, so the CONTROLS ACTIVE LED will turn off and control functions will not be available. The LCD-160 that shares the same address as the DVC-RPU will have control and its CONTROLS ACTIVE LED will remain lit.

Annunciators (ACM, LCD2-80, etc.): Any annunciators connected will follow the control status of the NCA-2 and will have the same control functions, if available.

For additional information, refer to the Mass Notification Systems Configuration, Programming and Operations Manual.

Appendix E: Regional Settings

The panel programming REGIONAL SETTINGS choices, available through the Panel Settings (2) screen (refer to page 83) are described below. The REGIONAL SETTINGS screen (Refer to Figure E.1) allows scrolling through the available choices by pressing the soft key. Choices are CHICAGO, SINGAPORE, AUSTRALIA, CHINA or DEFAULT (no special regional settings).

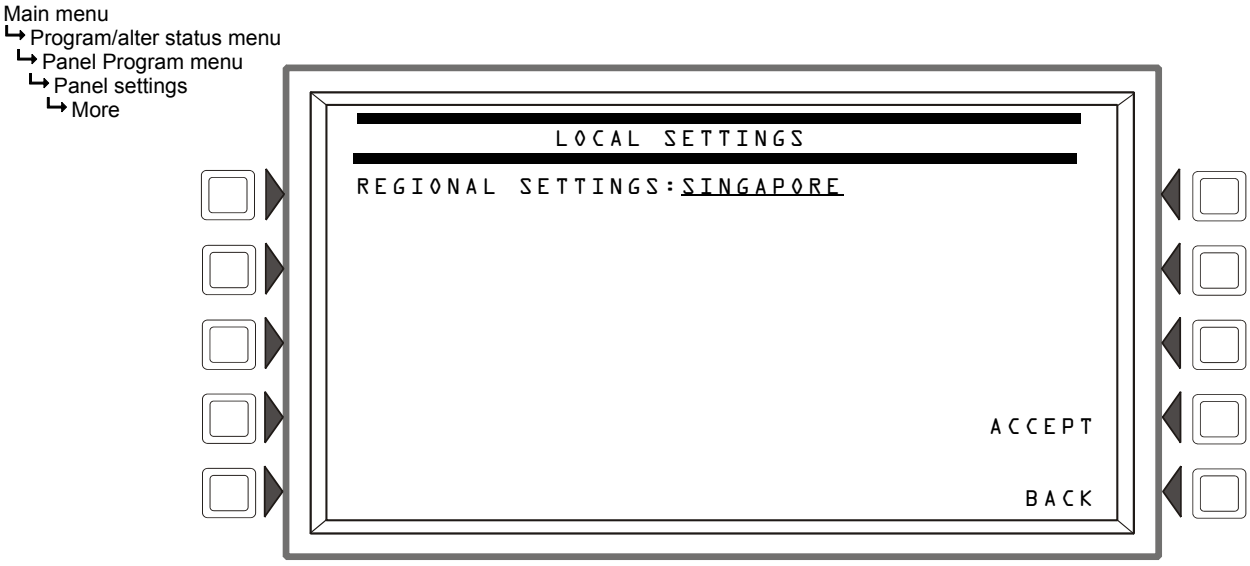


Figure E.1 Regional Settings Screen

E.1 Singapore

The REGIONAL SETTING choice of SINGAPORE:

- Does not turn ON the System Trouble LED or the System Trouble relay for disabled points.
- Does not turn ON the System Trouble LED, the System Trouble relay, or the piezo when Drill is initiated.
- Turns ON keypad LEDs, PCB LEDs, and all ACM-24/48 LEDs during Lamp Test.
- Requires the user to initiate the start of the application when the panel boots/reboots. The CPU Failure LED will be ON until the user initiates startup. (Refer to Figure E.2.)
- Will sound the piezo when local control is set to OFF.

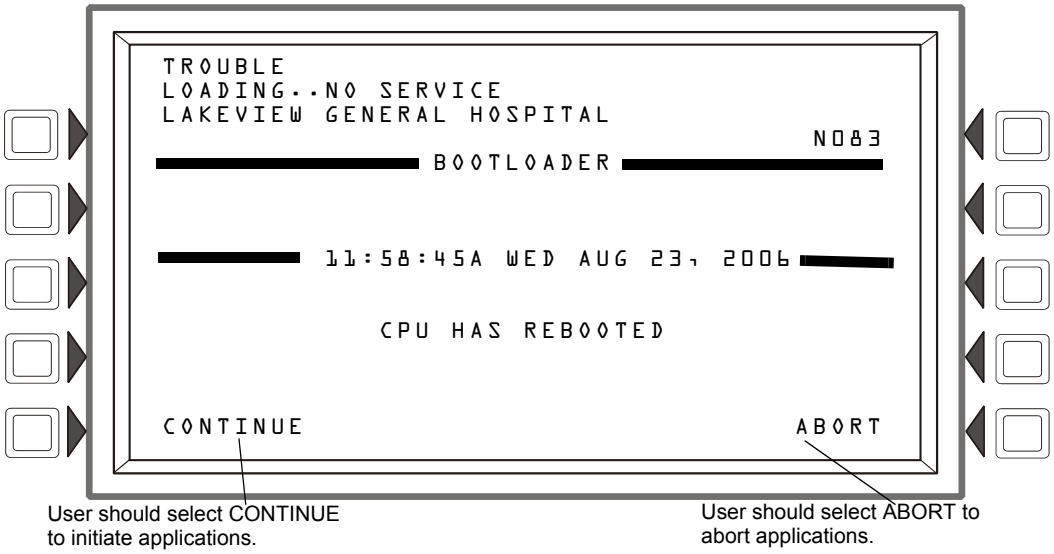


Figure E.2 Singapore Application Initiation

E.2 Chicago

The REGIONAL SETTING choice of CHICAGO disallows local drill or signal silence.

- The DRILL and SIGNAL SILENCE keys at the panel will not function.
- Annunciator Control Modules and SLC modules given a drill or signal silence Mode or Type Code will not allow local drill or signal silence initiation.
- Events must be acknowledged prior to system reset.

E.3 Australia

The REGIONAL SETTING choice of AUSTRALIA activates the following features:

- allows use of the Australian smoke control module SCS-8AU.
- "Brigade Act" LED is controlled by ZL1000.
- Test LED is lit during walktest.
- Special passwords for testing memory corruption detection.
  "Corrupta" will temporarily corrupt a location in the application.
  "Corruptb" will temporarily corrupt a location in the boot.
  "Corruptd" will temporarily corrupt a location in the database.
  "Remove corruption" will uncorrupt the panel and reboot.
- Plant Isolate button will disable/enable ZL999.
- No softkeys on the panel will function while there is an unacknowledged alarm *EXCEPT* scroll, silence, reset and disable.
- Silence key acknowledges everything before silencing.
- Disable key disables the current event on the screen.
- Fan control function per AS/NZS 1668:1:1998, section 4.13.2.
- First zone in alarm displayed at top of display. Additional zones in alarm also displayed, until panel reset. Alarm zones not currently on display may be viewed using the scroll button.
- Security events will light the supervisory LED. The supervisory scroll key will scroll through security events.
- Pre-alarm events will be displayed after alarms.
- The Main Menu includes an "Other events" menu key to scroll through other events.
- Password Bypass Timer enabled. After entering a valid password, the user does not need to enter a password again until no key is pressed for ten minutes.
- Active Output events are displayed if Output Activations are enabled in the Event Logging menu.
- Disable/Enable button will disable or enable the currently-displayed event.
- AMPS-24 supervision disabled.
- When the primary supply is not an AMPS-24, selecting AUX trouble supervisory setting will generate a general power supply fault.

E.4 China

The REGIONAL SETTING choice of *CHINA* activates the following features:

- POM-8a support
- Active output events displayed. A counter is displayed for active outputs.
- Municipal Communication panel settings
- New special function zone for alarm verification

- Prealarm automatically cleared after five minutes
- Co-op detectors alarm functions
- Dual alarm window
- Points in trouble will not activate
- Ten minute limit for DEL and SDEL delay functions
- Disable events do not light LED or trip the trouble relay
- No system trouble generated upon entering program mode
- Low AC operation of FACP
- Power supply troubles.

Appendix F: UL 8th Edition Panel Applications

The NCA-2 is compatible with the FACPs in this appendix that have software as described in Table F.1. Display differences and programming requirements are noted in each section.

FACP	Compatible with NCA-2 at Software Level:
AFP-200	Rev. 3.02 or greater
AFP-300, AFP-400	Rev. 3.65 or greater
AM2020, AFP-1010	SIB, DIA, CPU Rev. 4.0 or greater

Table F.1 Software Compatibility

Use of the NCA-2 with these FACPs is subject to AHJ approval. Refer to “UL 864 Ninth Edition Compliance” on page 8.

F.1 Conversions Common to UL 8th Edition Panels

Device Trouble Types

Device trouble types for the AFP-200, AFP-300/400,and AM2020/AFP-1010 FACPs will be displayed on the NCA-2 as follows:

FACP Device Trouble	NCA-2 Displays:
Invalid Reply	No Response
Low Chamber Value < 20% of alarm level	Low Threshold
Maintenance required > 80% of alarm level	Maintenance Alert
Sensitivity High	Maintenance Alert
Sensitivity Low	Maintenance Alert
Open Circuit	Open Circuit
Short Circuit	Short Circuit
Point Trouble	General Trouble
Detector Failed Chamber Test	Detector Failed Test
Drift Compensation Error	Maintenance Alert
Verification Count Overflow	Verify Count Over 20
Security Tamper	Security Tamper
Security Invalid Reply	No Response

Table F.2 NCA-2 Device Trouble Display

Detector Sensitivity

NCA-2 screens that display detector sensitivity translate the AFP-200, AFP-300/400, and AM2020/AFP-1010FACP levels as follows:

FACP Sensitivity Level	NCA-2 Displays Sensitivity Level:
Low Sensitivity	9
Medium Sensitivity	5
High Sensitivity	1

Table F.3 NCA-2 Detector Sensitivity Display

F.2 AM2020/AFP-1010

Device Point Types

The device types for this panel will display according to the NCA-2 in Table F.4.

AFP-1010/AM2020 Device Point Type	NCA-2 Displays:
HEAT(ANALOG)	HEAT
FIXED THER D	HEAT(FIXED)
MON NORM CLD	NC MONITOR
SPRNKLR MNTR	SPRINKLER SYS
FORM C RELAY	RELAY
POWER(CONV)	CONTROL
TRBLES PEND	TROUBLE PEND
TRBL MONITOR	TROUBLE MON
CMX CONTROL	CONTROL
CMX FORM C	FORM C RESET
NON ALM MON	NON FIRE
GN ALARM EVC	GEN ALARM
GN ALARM	GEN ALARM
GN ALARM FORC	GEN ALARM
GN WATER FLW	GEN ALARM
GN TRBL FORC	GEN TROUBLE
GN WAT FORC	GEN ALARM
GN SUPR FORC	GEN SUPERVIS

AFP-1010/AM2020 Device Point Type	NCA-2 Displays:
TROUBLE	GEN TROUBLE
TROUBLE FORC	GEN TROUBLE
FIXED PHOT D	SMOKE(PHOTO)
PAGE	TELE PAGE
MON PULL STA	PULL STATION
MONITOR PAGE	TELE PAGE
ION DUCT DET	SMOKE(DUCT I)
NON ALARM	NON FIRE
FORMC MANUAL	RELAY
SYSTEM MONTR	SYS MONITOR
DACT CONNECT	GEN TROUBLE
SPRVSRY MNTR	TRACK SUPERV
SMOKE ION HP	SMOKE(DUCT I)
SMOKE ION LP	SMOKE(DUCT I)
SMOKE(COMBO)	SMOKE(MULTI)
SMOKE(PHOTV)	SMOKE(PHOTO)
SMOKE(IONV)	SMOKE(ION)

Table F.4 NCA-2 Display for AM2020/AFP-1010 Device Point Types

Annunciator Point Types

The annunciator types for this panel will display according to the NCA-2 Column in Table F.5.

CAUTION:
When using the NCA-2 to annunciate points on the AM2020/AFP-1010 over the network, enable state reporting in the AM2020/AFP-1010 panel for control module points and “NONA”NOA” module points. Otherwise, any changes in the state of these points on the FACP will not be annunciated over the network to annunciator points mapped to the NCA-2.

1. Choose option “I=PSYS” from the FACP programming menu for partial system programming.
2. Choose option “6=EXTEQ”.
3. Answer YES to the following questions:
   - *DO YOU WANT TO CHANGE THE CONTROL MODULE STATE REPORTING?*
   - *DO YOU WANT TO REPORT CONTROL MODULE STATE CHANGES?*
   - *DO YOU WANT TO CHANGE THE “NONA”/”NOA” MDULE STATE REPORTING?*
   - *DO YOU WANT TO REPORT “NONA”/”NOA” MODULE STATE CHANGES?*

OR, if completely programming the panel:

1. Choose option “2-FSYS”.
2. Answer YES to the following questions:
   - *DO YOU WANT TO REPORT CONTROL MODULE STATE CHANGES?*
   - *DO YOU WANT TO REPORT “NONA”/”NOA” MODULE STATE CHANGES?*

.

AFP-1010/AM2020 Annunciator Point Type	NCA-2 Displays:
AMAN	MANUAL
AAST	ACKNOWLEDGE
ASGS	SILENCE

AFP-1010/AM2020 Annunciator Point Type	NCA-2 Displays:
AMON	MONITOR
AINP	MONITOR
ACON	CONTROL

Table F.5 NCA-2 Display for AM2020/AFP-1010 Annunciator Point Types

AFP-1010/AM2020 Annunciator Point Type	NCA-2 Displays:
ARES	RESET
ALMP	NONE
AZON	MONITOR
ADET	MONITOR

AFP-1010/AM2020 Annunciator Point Type	NCA-2 Displays:
ATEL	TELEPHONE
ASUP	MONITOR
AFCM	CONTROL

Table F.5 NCA-2 Display for AM2020/AFP-1010 Annunciator Point Types

F.3 AFP-300/AFP-400

Device Point Types

The device types for this panel will display on the NCA-2 as follows:

AFP-300/AFP-400 Device Point Type	NCA-2 Displays:
HEAT(ANALOG)	HEAT
MULTISENSOR	SMOKE(MULTI)
SUPERVISORY	TRACK SUPERV
SILENCE	SIL SWITCH
SYSTEM RESET	RESET SWITCH
EVACUATE	EVACUATE SW
BURGLAR ALA	SECURITY L
COMB.MONITOR	SMOKE(MULTI)

Table F.6 NCA-2 Display for AFP-300/AFP-400 Device Point Types

System Troubles

There is one FACP System Trouble that displays differently at the NCA-2.

AFP-300/AFP-400 System Trouble	NCA-2 Displays:
PROG. MODE ENTERED	PROG MODE ACTIVATED

Table F.7 NCA-2 Display for AFP-300/AFP-400 System Trouble

Read Status

Read Status of Special Function Zone 7 on the AFP-300/AFP-400 is not supported.

Disable/Enable

Disable/Enable of zones on an AFP-300/AFP-400 is not supported.

Control ON/OFF

Control ON/OFF on the AFP-300/AFP-400 is not supported.

Shadow Points

Shadow points are not supported on an AFP-300/AFP-400.

MONITOR and CONTROL ACS points can not look at output modules, bell circuits or panel circuits on an AFP-300/AFP-400.

Auto-Acknowledge

A Network Adaptor Module (NAM) connected to an AFP-300/AFP-400 will auto-acknowledge an event on the panel. The panel then shows the event as acknowledged, and this event can not be acknowledged again at the panel since it has already been acknowledged locally. The NCA-2 or another display node must be used for acknowledgement.

F.4 AFP-200

The device types for this panel will display on the NCA-2 as follows:

AFP-200 Device Point Type	Displayed at NCA-2 as Device Point Type:
HEAT(ANALOG)	HEAT
BURGLAR ALA	SECURITY L
SUPERVISORY	TRACK SUPERV
SILENCE	SIL SWITCH
SYSTEM RESET	RESET SWITCH
EVACUATE	EVACUATE SW

Table F.8 NCA-2 Display for AFP-200 Device Point Types

System Troubles

There are two FACP System Troubles that display differently at the NCA-2.

AFP-200 System Troubles	Displayed at NCA-2 as:
NO DEVICES INSTALLED	NO DEV.INST ON L1
PROG. MODE ENTERED	PROG MODE ACTIVATED

Table F.9 NCA-2 Display for AFP-200 System Troubles

Read Status

Read Status is not supported on the AFP-200.

Disable/Enable

Disable/Enable on an AFP-200 is not supported.

Control ON/OFF

Control ON/OFF on the AFP-200 is not supported.

Shadow Points

Shadow points are not supported on an AFP-200.

MONITOR ACS points can not look at output modules, bell circuits or panel circuits on an AFP-200.

Auto-Acknowledge

A Network Adaptor Module (NAM) connected to an AFP-200 will auto-acknowledge an event on the panel. The panel then shows the event as acknowledged, and this event can not be acknowledged again at the panel since it has already been acknowledged locally. The NCA-2 or another display node must be used for acknowledgement.

Appendix G: Logic Equations

G.1 Equations

Logic Equations can define complex relationships between input and output devices.

The NCA-2 supports up to 1000 Logic Equations, each designated with a Logic Zone number of ZL1 through ZL1000.

1. Equations will always begin with a logic function. The function set is listed below.
2. Equations will be a maximum of 80 characters long, including parentheses and commas.
3. Logic Equations can have a maximum of 10 logic functions unless a time delay function is used: a time delay function must be the only function in its equation.
4. Equations are evaluated after all other devices have been evaluated.
5. One logic equation can be used as an argument in another logic equation, only if the equation used has previously been evaluated; that is, only zones with a lower number than the zone currently being edited can be used as arguments.
6. A logic function can have a maximum of 20 arguments (inclusive start and stop address).
7. Maximum for the delay timer is 23 hours, 59 minutes, 59 seconds (23:59:59).
8. Mass Notification enabled systems: Logic zones must be written conditionally to ensure proper event suppression. Refer to the Mass Notification manual for additional information.

Equations are entered using Point Programming for logic zones. Refer to these sections in this manual for instruction. The panel will check for errors after the user has entered the complete equation. Possible errors are too many or two few parentheses, too many or two few arguments inside the parentheses, unknown function and unknown device type.

Equations are made up of two basic components: functions (either logic or time delay) and arguments.

G.1.1 Arguments

Arguments are discrete parts of a logic or time delay function used in a logic or trouble equation. They can consist of another function, another equation, or any of the devices listed below.

(Nxxx)LxxD1 - (Nxxx)LxxD159	detectors loop xx	(159 per loop)
(Nxxx)LxxM1 - (Nxxx)LxxM159	modules loop xx	(159 per loop)
(Nxxx)Z0 - (Nxxx)Z999*	general zones	(1000)
(Nxxx)ZF0 - ZF7, ZF9 - ZF22	special zones	(22)
(Nxxx)ZL1 - (Nxxx)ZL1000	logic zones	(1000)
(Nxxx)A1 - A32	SCS device address	32
(Nxxx)A1G1 - A32G16	SCS switch group	(16 per annunciator)
xx = loop number (01 through 10) (Nxxx) = Node number, necessary for CCBE programming. The node number identifies what node the panel will watch for a particular zone activation.		

Table G.1 Table of Arguments

G.1.2 Logic Equations

Logic Functions

- **The "AND" Operator**

  Requires that each argument be active.

  Example: AND(N01Z02,N01Z05,N01L2D12)

  All three arguments in the equation must be active for the logic zone to be activated.

- **The “OR” Operator**

  Requires that any argument be active

  Example: OR(N01Z02,N02Z05,N01L2D12)

  If any one of the three arguments in the equation is active the logic zone will be activated.

- **The “NOT” Operator**

  Inverts the state of the argument (activated to deactivated OR deactivated to activated).

  Example: NOT(N01Z02)

  The logic zone will remain activated until the argument activates.
  If the argument activates the logic zone will deactivate.

- **The “ONLY1” Operator**

  Requires that only one argument be active.

  Example: ONLY1(N01Z02,N02Z05,N01Z09)

  If only one of the arguments activates the logic zone will be activated.

- **The “ANYX” Operator**

  Requires that the amount of arguments specified by the number preceding the arguments be active.

  Example: ANYX(2,N01Z02,N01Z05,N02Z09)

  If any two or more of the arguments are in alarm the output point will be activated.

  The X amount may be a value from 1 through 9.

- **The “RANGE” Operator**

  Each argument within the range must conform to the requirements of the governing function. The range limit is 20 consecutive arguments.

  Example: AND(RANGE(N01Z1,N02Z20))

  Zone 1 through Zone 20 must all be active to activate the logic zone.

- **The “DIS(point argument)” Operator**

  Requires that the point argument be disabled for the operator to go active.

- **The “PRE(point argument)” Operator**

  Requires that the point argument be in prealarm for the operator to go active.

  Example: AND(N01L1D1,PRE(N01L1D2))

  The detector at address N01L1D1 must be active and the detector at N01L1D2 must be in prealarm for this equation to go active.

- **The “SUP(point argument)” Operator**

  Requires that the point argument be in an active supervisory state for the operator to go active.

  Example: OR(N01L1D1,SUP(N02L1M1))

  The detector at address L1D1 must be active, or the module at N01L1M1 must be in an active supervisory state, for the equation to go active.

- **The “FIRE(point argument)” Operator**

  Requires that the point argument be in an active fire alarm state for the operator to go active.

  Example: AND(N01L1D1,FIRE(N01L1M1),FIRE(N02L1M2))

  The detector at address N01L1D1 must be active, and the modules at N01L1M1 and N02L1M2 must be in an active fire alarm state, for the equation to go active.

- **The “NON(point argument)” Operator**

  Requires that the point argument be in an active non-alarm state for the operator to go active.

  Example: AND(N01L1D1,NON(N02L1M1))

  The detector at address N01L1D1 must be active, and the module at address N02L1M1 must be in an active non-fire alarm state, for the equation to go active.

- **The "SEC(point argument)" Operator**

  Requires that the point argument be in an active security alarm state for the operator to go active.

  Example: AND(N01L1M1,SEC(N01L1M2))

  The module at address N01L1M1 must be active, and the module at address N01L1M2 must be in an active security alarm state, for the equation to go active.

- **The "AUTO(point argument)" Operator[1]**

  This operator will evaluate as "Active" if all of the SCS switches or specified switch group are in the "Auto" position.

  Examples:
  OR(AUTO(A1G16))
  The switch associated with switch group 16 on Annunciator 1 must be set as "Auto" for the equation to go active.

  OR(AUTO(A1))
  All the switches of Annunciator 1 must be set to "Auto" for the equation to go active.

- **The "NORM(point argument)" Operator[1]**

  This operator will evaluate as "Active" if the entire SCS device or specified switch group is in a "normal" state.

  Examples:
  OR(NORM(A1G16))
  The switch associated with switch group 16 on Annunciator 1 must be in the "normal" state for the equation to go active.
  OR(NORM(A1)
  All switches on Annunciator 1 must be in the "normal" state for the equation to go active.

- **The "SCSDIS(point argument)" Operator[1]**

  For use with the SCS-8L only. This operator will evaluate as "Active" if the keyswitch on the specified SCS device is in the disabled position.

  Example: OR(SCSDIS(A25))

  If the keyswitch on annunciator 25 is disabled, this equation will go active.

[1]For use with Smoke Control applications only.

Time-based Functions

The panel supports three time-based functions: DEL, SDEL, and TIM. Special rules apply to an equation containing a time-based function:

- Only one time-based function may be used in an equation.
- The time-based function must appear only once, as the first entry of the equation.
- It may not be nested within parentheses in the equation.
- Logic functions may be used in an equation that begins with a DEL or SDEL time-based function: however, they must appear within parentheses following the time-based function.

Delay and duration times are in 24-hour format (HHMMSS); the allowable range is 00:00:00 to 23:59:59.

The "DEL" Function

Used for delayed operation.

Example: DEL(HH.MM.SS, HH.MM.SS,AND(L1M1,L1M140))

- The first HH.MM.SS is the delay time, the second HH.MM.SS is the duration time. If the argument - AND(N01L1M1,N01L1M140) - in the example above activates, the function becomes true after the argument has been active for the delay time, and continues to be true for the duration time as long as the argument stays active. If the argument goes inactive during the delay time or the duration time, the function reverts to false and the timing would begin all over again if reactivated.

- If duration time of zero is entered (00.00.00), the equation will evaluate true when the delay time expires if the argument remains active throughout the delay time period.
- If no duration or delay is specified, then the function will follow the input argument, indicating true while it is active and false when it is inactive. DEL assumes a value of false on reset.

The "SDEL" Function

A latched version of the DEL function.

Example: SDEL(HH.MM.SS, HH.MM.SS,N01L1M140)

- The first HH.MM.SS is the delay time, the second HH.MM.SS is the duration time. If the argument (N01L1M140 in the example above) activates, the function becomes true after the delay time, and will remain active for the duration even if the argument becomes inactive during either the delay or duration time.
- If delay time of zero is entered (00.00.00), the equation will evaluate true as soon as the argument (N01L1M140) activates and will remain that way for the specified duration, even if the argument becomes inactive during that time.
- If no duration or delay time is specified, then the argument will not deactivate until reset, even if the argument becomes inactive.

The "TIM" Operator

The TIM function is used to specify activation on specific days of the week or year.

Examples:

TIM(7-11-06) will evaluate as true for 24 hours starting at midnight (00:00:00) on July 11, 2006.

TIM(MO,TU,WE,TH,FR,08:00:00,23:00:00) will evaluate as true at 8:00 AM and remain true until 11:00 PM (23:00) for the list of days supplied.

TIM(MO,TU,WE,TH,FR,08:00:00) will evaluate as true at 8:00 AM and remain true until 23:59:59 of the current day for the list of days supplied.

TIM(TU,07:45:00,18:30:00) will evaluate as true every Tuesday between 7:45 AM until 6:30 PM.

TIM(MO,TU,WE,TH,FR) will evaluate as true from Monday morning at 12:01 AM until Friday evening at 11:59:00 PM.

Logic Equation Syntax Example

OR(AND(L1D1,L1D4),AND(L2D6,L2M3,NOT(L2M4)),ANYX(2,L1M13,L1M14,L1M15))

Equation begins with a logic function - OR

67 *Characters* (maximum of 80) - includes parentheses and commas.

5 *Logic Functions* (maximum of 10) - OR, AND, AND, NOT and ANYX.

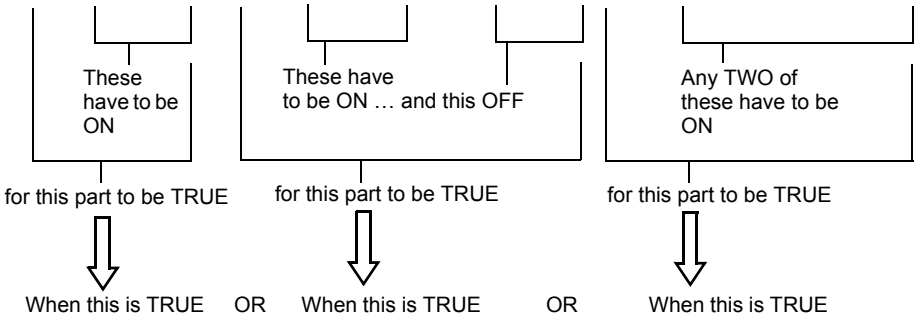
8 *Arguments* (maximum of 20 per logic function) - L1D1,L1D4,L2D6,L2M3,L2M4…

The equation contains no spaces.

Evaluating an Equation

To evaluate an equation, start from the innermost part of the equation and work outwards. For this equation to evaluate TRUE and thus turn on any output mapped to it, the following conditions must be met:

OR(AND(L1D1,L1D4),AND(L2D6,L2M3,NOT(L2M4)),ANYX(2,L1M13,L1M14,L1M15))



Then all outputs programmed with this equation will be turned ON.

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