NOTIFIER®
by Honeywell

Fire Alarm Control Panel
NFS2-3030
Operations Manual

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. Over-tightening 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 radio-oelectriques 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: General Information

1.1 UL 864 Compliance

1.1.1 Products Subject to AHJ Approval

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.

Products that have not received UL 864 9th Edition certification may only be used in retrofit applications. Operation of this panel 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).

A complete listing identifying which products have not received UL 864 9th Edition certification is located in the installation manual of this fire alarm system.

1.2 Related Documents

The table below provides a list of document sources (manuals) containing additional information regarding the NFS2-3030 and optional peripherals. The NOTIFIER document (DOC-NOT) provides the current document revision. A copy of this document is included in every shipment.

Compatible Conventional Devices (Non-addressable)	Document Number
Device Compatibility Document	15378
Fire Alarm Control Panel (FACP) and Main Power Supply Installation	**Document Number**
NFS2-3030 Installation, Operations, and Programming Manuals	52544, 52545, 52546
AMPS-24/E Addressable Power Supply Manual	51907
SLC Wiring Manual	51253
Mass Notification Systems Configuration, Programming and Operations Manual	LS10063-000NF-E
Note: For individual SLC Devices, refer to the *SLC Wiring Manual* *Note: Also documents some retrofit equipment manufactured under UL 8th edition	
Audio System and Component Installation	**Document Number**
DVC/DVC-EM Digital Voice Command Manual	52411
DAL Devices Reference Document	52410
DVC-RPU Manual	50107425-001
DVC-RPU UL Listing Document	50107424-001
DAA2 and DAX Series Digital Audio Amplifiers	53265
DS-DB Digital Series Distribution Board and Amplifier	53622
AA-Series Audio Amplifier Manual	52526
Heat Dissipation for Cabinets with Audio Products	53645
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
Power Supplies, Auxiliary Power Supplies & Battery Chargers	**Document Number**
ACPS-610 Instruction Manual	53018

Table 1.1 Related Documents (1 of 3)

ACPS-2406 Installation Manual	51304
APS2-6R Instruction Manual	53232
CHG-120 Battery Charger Manual	50641
FCPS-24 Field Charger/Power Supply Manual	50059
FCPS-24S6/S8 Field Charger/Power SUpply manual	51977
Networking	**Document Number**
Noti•Fire•Net Manual, Network Version 4.0 & Higher	51584
*Note: Also documents some retrofit equipment manufactured under UL 8th edition	
High Speed Noti•Fire•Net Manual	54013
NCM-W/F Installation Document	51533
HS-NCM High Speed Network Control Module Installation Document	54014
NCS ONYX® Network Control Station, Network Version 4.0 & Higher Manual	51658
NCA-2 Network Control Annunciator Manual	52482
NCA Network Control Annunciator Manual	51482
System Components	**Document Number**
Annunciator Control System Manual	15842
Annunciator Fixed Module Manual	15048
ACM-8R Annunciator Control Module Manual	15342
LCD-80 Manual	15037
LCD-80TM Manual	50182
LCD2-80 Liquid Crystal Display Module	53242
LCD-160 Manual	51850
LDM Series Lamp Driver Annunciator Manual	15885
SCS Smoke Control Manual (Smoke and HVAC Control Station) Manual	15712
RPT-485W/RPT-485WF EIA-485 Annunciator Loop Repeater	15640
DPI-232 Manual	51499
TM-4 Installation Document (Reverse Polarity Transmitter)	51490
UDACT Manual (Universal Digital Alarm Communicator/Transmitter)	50050
UDACT-2 Manual (Universal Digital Alarm Communicator/Transmitter)	54089
ACT-1 Installation Document	52527
ACT-2 Installation Document	51118
ACT-4 Installation Document	53431
ACT-25 Installation Document	53432
ACT-70 Installation Document	53240
FireVoice 25/50 Series Manual	52290
NFC-50/100 FirstCommand Instruction Manual	LS10001-001NF-E
RM-1 Series Remote Microphone Installation Document	51138
RA100Z Remote LED Annunciator Document	I56-0508
RFX Wireless Interface Manual	51012
UZC-256 Universal Zone Coder Manual	15216
UZC-256 Programming Manual	15976
XP Transponder Manual	15888
XP10-M Ten Input Monitor Module Installation Document	I56-1803
XP5 Series Manual	50786

Table 1.1 Related Documents (2 of 3)

XP6-C Supervised Control Module Installation Document	I56-1805
XP6-MA Six Zone Interface Module Installation Document	I56-1806
XP6-R Six Relay Control Module Installation Document	I56-1804
FSA-8000 Intelligent Aspiration Sensing Technology Document	I56-3903
XPIQ Audio Transponder Manual	51013
SLC-IM Listing Document	LS10026-051NF-E
SLC-IM Manual	LS10026-000NF-E
SWIFT™ Network Manual	LS10036-000NF-E

Table 1.1 Related Documents (3 of 3)

1.3 About This Manual

The following graphics appear in the manual to indicate a caution, a warning, or a note.

> **CAUTION:**
> INFORMATION ABOUT PROCEDURES THAT COULD CAUSE PROGRAMMING ERRORS, RUNTIME ERRORS, OR EQUIPMENT DAMAGE.

> **WARNING:**
> INFORMATION ABOUT PROCEDURES THAT COULD CAUSE IRREVERSIBLE DAMAGE TO THE CONTROL PANEL, IRREVERSIBLE LOSS OF PROGRAMMING DATA OR PERSONAL INJURY.

> **NOTE:**   Information that highlights an important part of the preceding or subsequent text or illustration.

1.4 Introduction to the Control Panel

The NFS2-3030 is an intelligent Fire Alarm Control Panel (FACP) with features suitable for most applications. The CPU2-3030 comes with a front display/keypad option, which allows programming and viewing options at the panel.

There are two basic configuration options for the NFS2-3030. It can be ordered with:

- a front display/keypad, which allows programming and viewing options at the panel, or
- no display keypad.

This manual gives instructions using the front display/keypad.

Displayless Mode

When there is no keypad/display at the NFS2-3030, the panel is controlled by remote annunciators. VeriFire® programming is required. The displayless panel has four buttons on its circuit board that are service-level switches for local operation should it become necessary. They are the only buttons, and are clearly marked with ACK for Acknowledge, SIGSIL for Signal Silence, SYSRST for System Reset, and LAMP TEST. These buttons are mainly for installer use: the operator should utilize a remote annunciator for these functions, if possible. The status indicator LEDs on the circuit board are the same as on the display/keypad (refer to Section 1.5.1, "The Display/Keypad", on page 11 of this manual).

Refer to VeriFire® Tools or the *NCA-2 Manual* for information on programming without the NFS2-3030 display/keypad.

1.5 Operating Features

- Alarm Verification selection, to reduce unwanted alarms
- Positive Alarm Sequence (PAS) and Presignal per NFPA 72
- Silence Inhibit timer and Auto Silence timer for Notification Appliance Circuits (NACs)
- Programmable Signal Silence, System Reset, and Alarm Activate functions through monitor modules
- Automatic time-of-day and day-of-week control functions, with holiday option
- Intelligent Sensing with nine field-adjustable Pre-Alarm levels with programmable Control-By-Event (CBE)
- Operate automatic smoke or heat detector sounder/relay base on action Pre-Alarm level, with general evacuation on alarm level
- Security alarm point option with separate audible signal code
- Centralized voice paging and audible alarm signaling options
- Programmable Control-By-Event control of outputs from individual alarm or supervisory addressable devices
- Networks with other FACPs and equipment for large applications
- Automatic detector sensitivity adjustments based on programmable building occupancy schedules
- Compatible with Mass Notification Systems

1.5.1 The Display/Keypad

The display/keypad provides an easy-to-use keypad and large LCD (liquid crystal display) that simplifies the programming process.
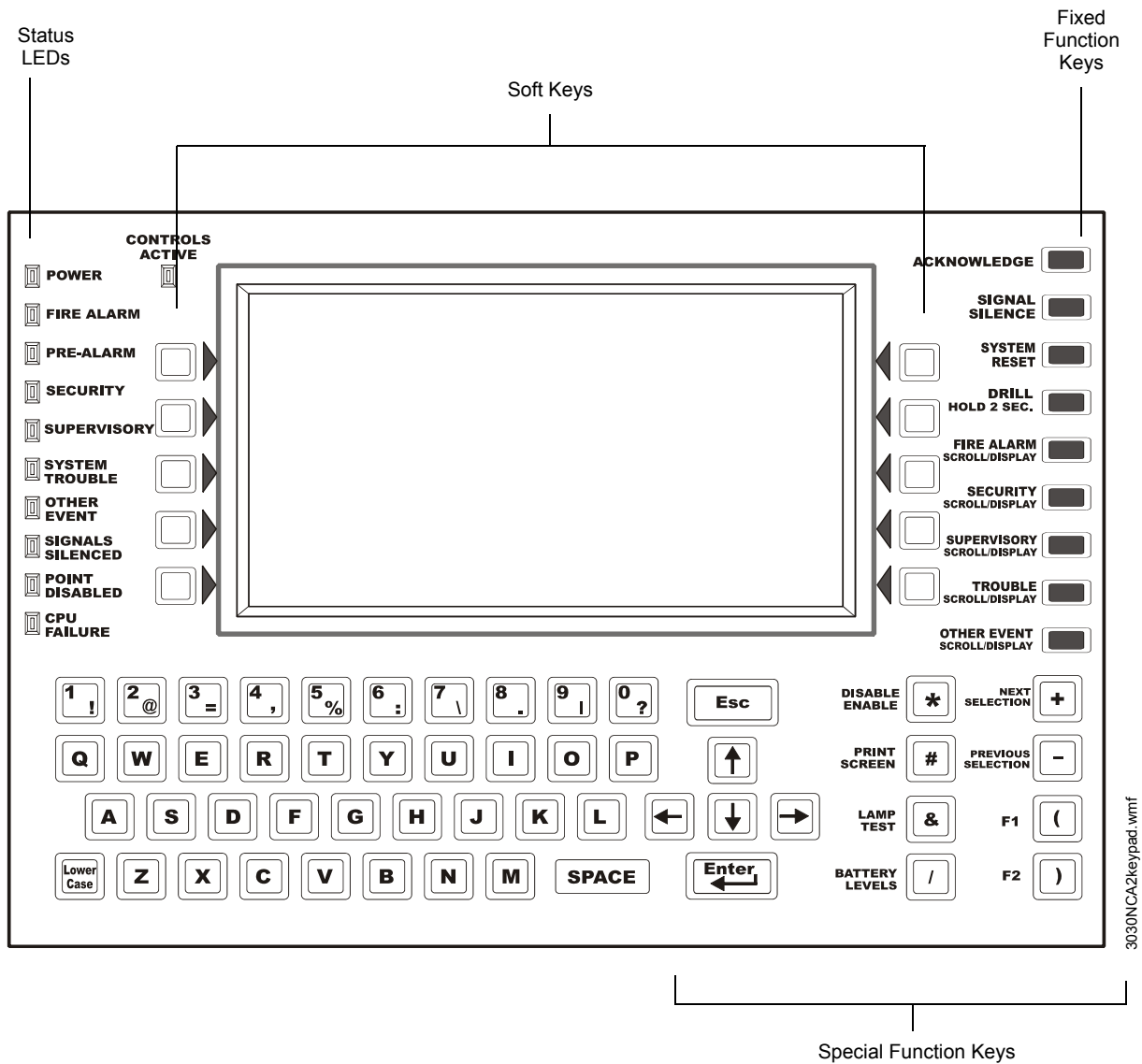
Figure 1.1 The Display/Keypad

The Liquid Crystal Display

The display is 40 characters wide by 16 lines. It displays all programming screens, as well as events, history, device and other information.

Fields may be entered or changed and commands may be issued on the display using the keypad.

The Keypad

The keypad has several types of keys, described below.

The keypad consists of several types of keys: alphanumerics, special function keys, soft keys, and fixed function keys.

NOTE: Key functions are as described below unless the Local Control option is disabled, or the Display and Control Center (DCC) option is enabled and the DCC is at another location. When the Local Control option is disabled, the panel does not have local control of the Signal Silence, System Reset, and Drill Fixed Function keys, or the SIGNAL SILENCE, SYSTEM RESET, and ACKNOWLEDGE soft keys. These functions must be performed by a remote device preprogrammed for this purpose. 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.

■ Keypad

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 these keys results in no entry.

■ Soft Keys

The ten keys to the right and left of the display function to select commands that appear on the display. 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.

■ 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.

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.

SIGNAL SILENCE - Press this key to turn off all control modules and panel output circuits that have been programmed as silenceable. Signal Silence is disabled while the Silence Inhibit Timer is in effect, or when a device with a Waterflow type code initiates a fire alarm.

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

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 unless the panel is programmed for Receive Mode (refer to the note on page 25). The SYSTEM RESET key will not function if the programmable Silence Inhibit Timer is running.

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 both Fire and Mass Notification events exist on the fire panel at the same time, a second System Reset will need to be performed to reset the fire panel. The NFS2-3030 will display MN SYSTEM RESET or FIRE SYSTEM RESET, depending on which event has priority. For information regarding event priority, refer to the *NFS2-3030 Programming Manual*.

■ Special Function Keys

To the right of the QWERTY keypad are special function keys.

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

Enter - Pressing this key navigates through the programming fields on a display screen by advancing the cursor.

Esc - Press this key once to leave the current field without saving the entry. Press this key twice in succession to discard any changes made on the screen and exit to the previous screen.

DISABLE/ENABLE - For future use. No function at this time.

PRINT SCREEN - Press this key to print what is displayed on the display screen.

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 and charger current.

NEXT SELECTION/PREVIOUS SELECTION - Use these keys to scroll through the list of possibilities in a data field on the display screen.

F1 and F2 - For future use. No function at this time.

■ LED Indicators

There are eleven labeled LEDs aligned along the left edge of the keypad. They light to annunciate certain conditions, as described in Table 1.2 below.

LED INDICATOR	COLOR	FUNCTION
Controls Active	Green	Illuminates when the panel assumes control of local operation as primary display. For MN applications, will illuminate when controls are 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 will flash if any of these events are unacknowledged.
Pre-alarm	Red	Illuminates when at least one pre-alarm event exists. It will flash if any of these events are unacknowledged.
Security	Blue	Illuminates when at least one security event exists. It will flash if any of these events are unacknowledged.
Supervisory	Yellow	Illuminates when at least one supervisory event exists. It will flash if any of these events are unacknowledged.
System Trouble	Yellow	Illuminates when at least one trouble event exists. It will flash if any of these events are 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 are unacknowledged.
Signals Silenced	Yellow	Illuminates if the NFS2-3030 Notification Appliances have been silenced. It flashes if some but not all of the NFS2-3030 NACs have been silenced.
Point Disabled	Yellow	Illuminates when at least one device has been disabled. It will flash until all disabled points have been acknowledged.
CPU Failure	Yellow	Illuminates if there is an abnormal hardware or software condition. Contact technical support. The panel is out of service when this LED is illuminated or flashing.

Table 1.2 LED Indicators

1.6 Message Formats

This section describes the formats for system normal, device events and system events screens. For a definition of these types of events, as well as instructions for dealing with them, refer to Section 2, "Operation of the Control Panel" in this manual.

1.6.1 System Normal Screen

The System Normal message appears at the top of the display when no off-normal events exist. It consists of two lines, each 40 characters long. Line one is a custom network message. Line 2 is a standard message giving the System Normal message, the time, day of the week, and date. The Main Menu is selectable using the lower right soft key.

Line 5 indicates the current time and date.
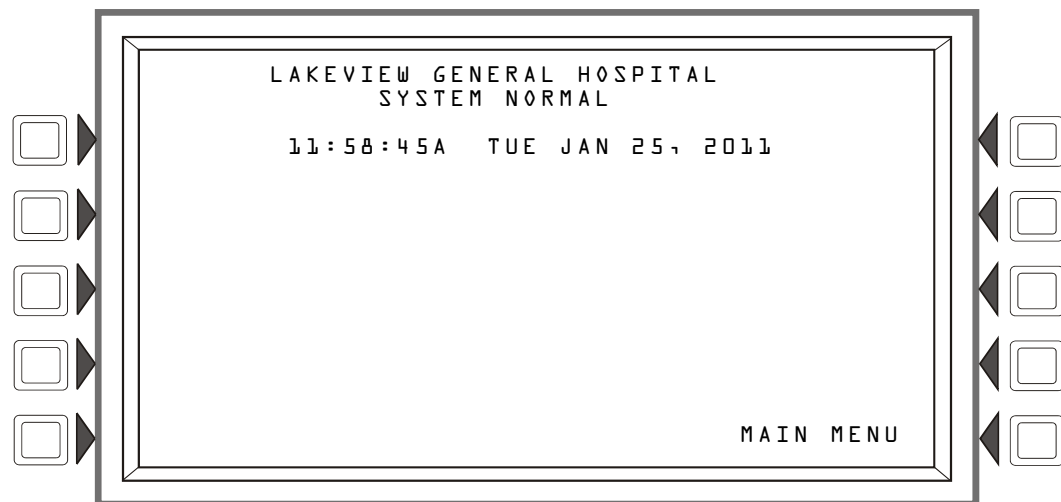
Figure 1.2 System Normal Screen

A custom graphic may be displayed below the system normal message: the graphic must be entered using VeriFire® Tools.The text "Main Menu" will overlay the graphic, if it extends into the last line of the display.

1.6.2 Event Reporting Format

The message formats used for event reporting appear at the top of the display, replacing the System Normal message. There are two basic types of message formats: point event formats, which are generated from changes in the state of SLC and panel devices, and system event formats, which are generated from system errors and troubles.

Point Events Format

When a change of state occurs to an SLC or panel point device, a message is generated to the panel that displays on the top of the LCD screen, and soft keys display available functions that may be used to handle the event. The top four lines contain the event and point information. Event counts display in the next three lines, the current time and soft key information appears after the event counts.

The format of the first line will vary slightly as follows, depending on the type of event.:

Event Format (not trouble or pre-alarm)   Line 1 → Displays the type of event, and whether it has been acknowledged or cleared.

```
FIRE ALARM
ELEVATOR LOBBY              EAST WING
FIFTH FLOOR              Z239   SMOKE(PHOTO)
11:58:45A TUE JAN 25, 2011        L03D002
```

Event Format (trouble)   Line 1 → Displays TROUBLE, the type of trouble, and whether it has been acknowledged or cleared.

```
TROUBLE              DETECTOR FAILED TEST
ELEVATOR LOBBY              EAST WING
FIFTH FLOOR              Z239   SMOKE(PHOTO)
11:58:45A TUE JAN 25, 2011        L03D002
```

Event Format (pre-alarm)   Line 1 → Displays PREALARM, the sensitivity reading and whether it has been acknowledged or cleared.

```
PREALARM 120% OF FIRE SENSITIVITY LEVEL5
ELEVATOR LOBBY              EAST WING
FIFTH FLOOR              Z239   SMOKE(PHOTO)
11:58:45A TUE JAN 25, 2011        L03D002
```

The second, third and fourth lines always contain the same device information, as follows:

Line 2 - Displays the custom label and the extended label

Line 3 - Displays the primary zone label, the primary zone number, and the software Type ID.

Line 4 - Displays event time, event date and device address.

```
FIRE ALARM
ELEVATOR LOBBY              EAST WING
FIFTH FLOOR              Z239   SMOKE(PHOTO)
11:58:45A TUE JAN 25, 2011        L03D002
```

Loop number ⎯⎯⎯
Detector ⎯⎯⎯
Device address ⎯⎯⎯

The point event example screen below shows a trouble condition that has been generated by the detector on loop 3, address 2.

```
TROUBLE              DETECTOR FAILED TEST
ELEVATOR LOBBY              EAST WING
FIFTH FLOOR              Z239   SMOKE(PHOTO)
11:58:45A TUE JAN 25, 2011        L03D002
━━━━━━━━━  EVENT COUNTS  ━━━━━━━━━
FIRE ALARMS:000 PREALARM:000  TROUBLE:001
SUPERVISORY:000 SECURITY:000 OTHER:  000
━━━━━━  11:58:46A TUE JAN 25, 2011━━━━━━

ACKNOWLEDGE              SIGNAL SILENCE


MORE INFORMATION              SYSTEM RESET


PROGRAM/ALTER STATUS              BACK
```
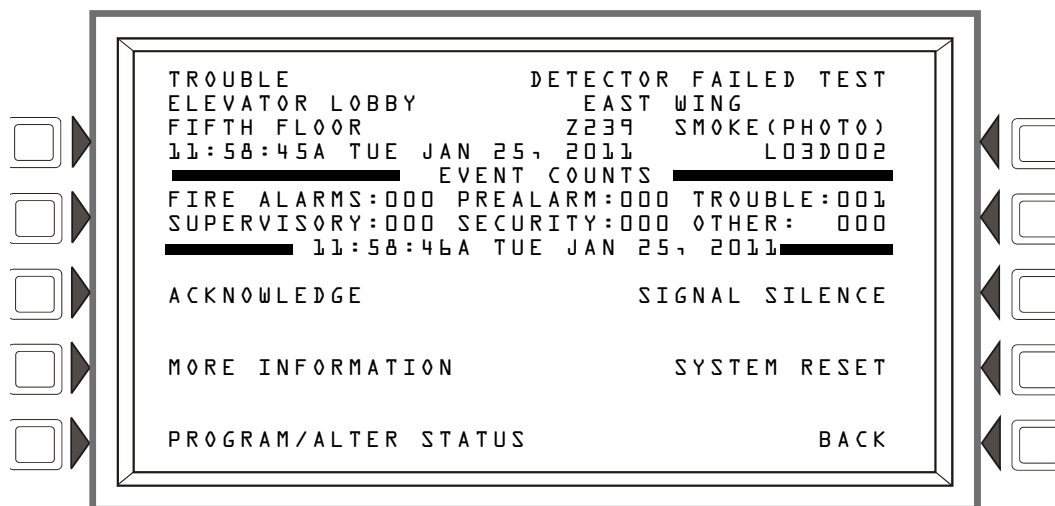
Figure 1.3 Point Event Display Example

The event counts display shows the counts for outstanding events. The date in line eight gives the current time. The soft keys may be used to deal with the event; their functions are described in the Operation section of this manual.

System Events Format

When a system trouble occurs, a message is generated to the panel that displays on the top of the LCD screen, and soft keys display available functions that may be used to handle the event.

The top four lines contain event information, and are formatted as follows:

Line 1 - Displays TROUBLE and whether it has been acknowledged or cleared

Line 2 - Displays trouble type

Line 3 - Displays custom message.

Line 4 - Displays event time and date and node address.

```
TROUBLE
ANNUN 1 TROUBLE
LAKEVIEW GENERAL HOSPITAL
11:58:45A TUE JAN 25, 2011
```
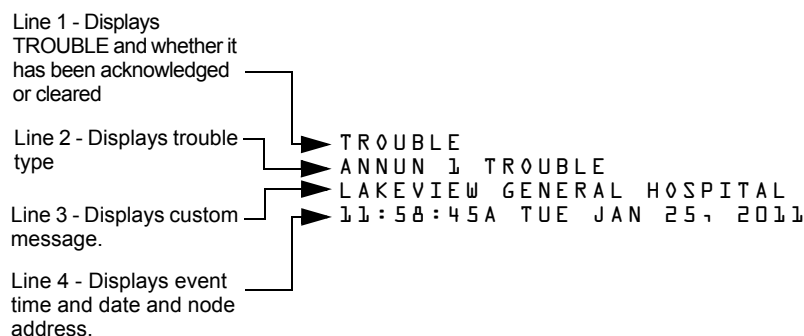
The system trouble event example screen below shows an annunciator trouble condition.

```
TROUBLE
ANNUN 1 TROUBLE
LAKEVIEW GENERAL HOSPITAL
11:58:45A WED TUE JAN 25, 2011
              EVENT COUNTS
FIRE ALARMS:000 PREALARM:000 TROUBLE:001
SUPERVISORY:000 SECURITY:000 OTHER:  000
          11:58:46A TUE JAN 25, 2011

ACKNOWLEDGE                    SIGNAL SILENCE

MORE INFORMATION               SYSTEM RESET

PROGRAM/ALTER STATUS                    BACK
```
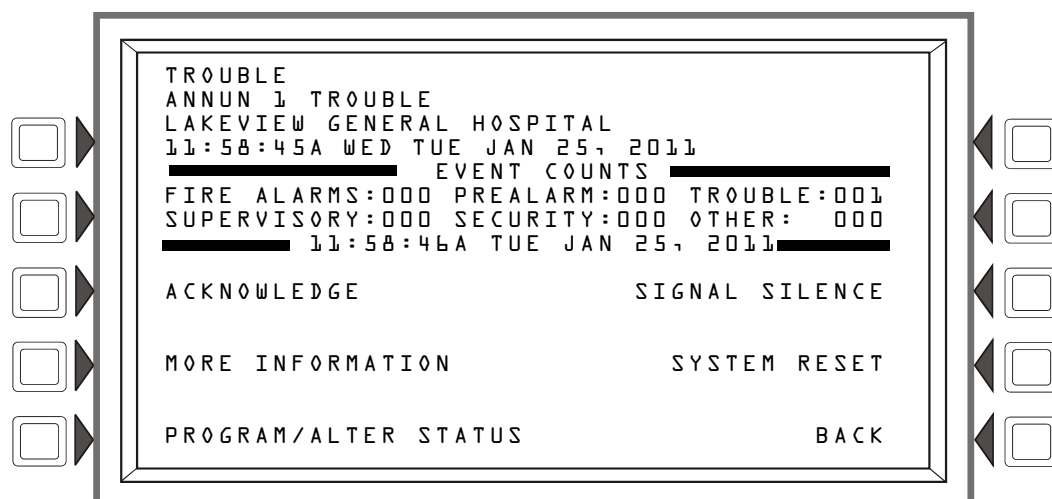
Figure 1.4 System Event Display Example

The event counts display shows the counts for outstanding events. The date in line eight gives the current time. The soft keys may be used to deal with the event; their functions are described in the Operation section of this manual.

Mass Notification Events

When a local mass notification event occurs on the fire panel, a message is generated to the panel that displays on the top of the LCD screen, and soft keys display available functions that may be used to handle the event.
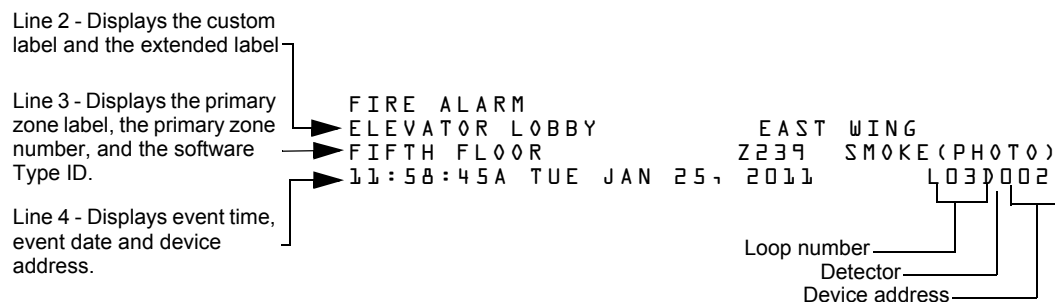
The format of the first line will vary slightly as follows, depending on the type of event.:

Event Format (not trouble or supervisory)
Line 1 ——► Displays the type of event, and whether it has been acknowledged or cleared.

```
MN ALARM
SECURITY OFFICE            MAIN BLDG
FIRST FLOOR                ZF20  MN MON
11:58:45A TUE JAN 22, 2013        L03M002
```

Event Format (trouble)
Line 1 ——► Displays MN TROUBLE, and whether it has been acknowledged or cleared.

```
MN TROUBLE          DETECTOR FAILED TEST
SECURITY OFFICE            MAIN BLDG
FIRST FLOOR                ZF22  MN MON
11:58:45A TUE JAN 22, 2013        L03M003
```

Event Format (supervisory)
Line 1 ——► Displays MN SUPERVISORY and whether it has been acknowledged or cleared.

```
MN SUPERVISORY
SECURITY OFFICE            MAIN BLDG
FIRST FLOOR                ZF21  MN SUPL
11:58:45A TUE JAN 22, 2013        L03M004
```

The second, third and fourth lines always contain the same device information, as follows:

Line 2 - Displays the custom label and the extended label

Line 3 - Displays the primary zone label, the primary zone number, and the software Type ID.

Line 4 - Displays event time, event date and device address.

```
MN ALARM
SECURITY OFFICE            MAIN BLDG
FIRST FLOOR                ZF20  MN MON
11:58:45A TUE JAN 22, 2013        L03M002
```

Loop number
Monitor
Device address

Refer to Figure 1.3 on page 15 for an example of a Point Event Display.

If the fire panel is ALL SYSTEMS NORMAL and a Mass Notification event occurs over the network on a MNS mapped node, the panel will display NETWORK MN ACTIVE. Refer to VeriFire Tools for MN Mapping information.

```
NETWORK MN ACTIVE


11:58:45A WED TUE JAN 25, 2011
━━━━━━━━━━━━━  EVENT COUNTS  ━━━━━━━━━
FIRE ALARMS:000 PREALARM:000 TROUBLE:000
SUPERVISORY:000 SECURITY:000 OTHER:  000
━━━━━━━━  11:58:46A TUE JAN 25, 2011━━━

ACKNOWLEDGE                 SIGNAL SILENCE


MORE INFORMATION            SYSTEM RESET


PROGRAM/ALTER STATUS            BACK
```
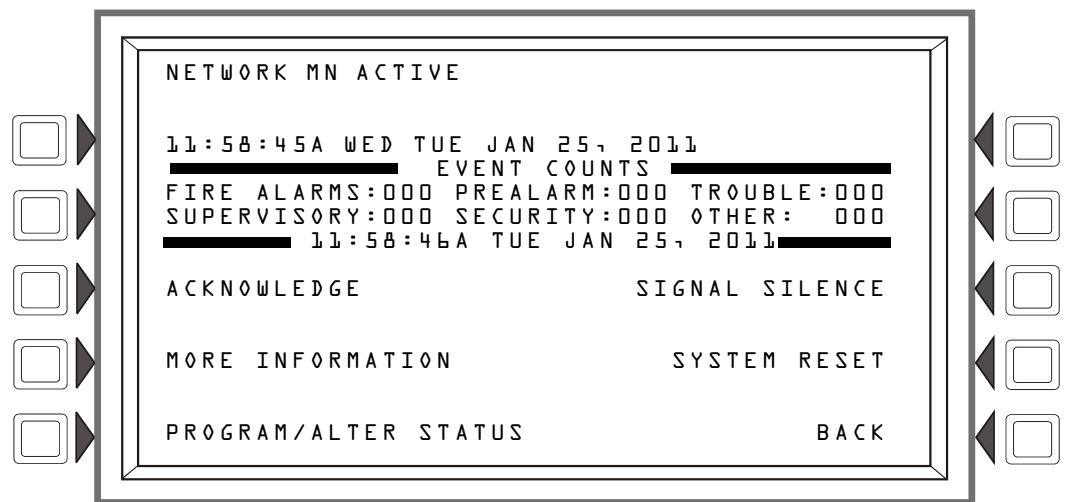
Figure 1.5 Network Mass Notification Event Example

1.7 Navigating Menu and Programming Screens

The Main Menu (refer to Figure 1.6) leads to screens with various menu options. Choices may be made from the menu screens by pressing the soft key closest to the menu option.

Field information may be added/modified using the keypad and special function keys.

Arrow keys on the keypad can be used to navigate between fields on a screen if there are no soft keys to select the fields.

Pressing a BACK soft key on a screen returns the programmer to the previous screen without saving the information entered.

Pressing an ACCEPT soft key will save information entered on the screen. It may also return to the previous screen and/or perform other functions as described in the soft key section for each screen.

When the panel can not read a specified point (that is, if the point entered on the screen for processing does not exist in the panel's programming) it will display an error screen for several seconds, then return to the screen where the address was entered. The user must check his input and investigate the state of the point.

1.8 The Main Menu

The Main Menu screen is the means by which the programmer can access displays, history information, printing and programming menus. This screen is accessible from the System Normal Screen (Refer to Figure 1.2), and from most other screens by pressing the BACK soft key until it displays.

```
        L A K E V I E W   G E N E R A L   H O S P I T A L
                    S Y S T E M   N O R M A L

         ━━━━━    11:58:45A TUE JAN 25, 2011   ━━━━━

       EVENT COUNTS DISPLAY                    READ STATUS

                               PROGRAM/ALTER STATUS

       MULTIPLE EVENT LIST        PRINTER FUNCTIONS

       HISTORY DISPLAY                            BACK
```
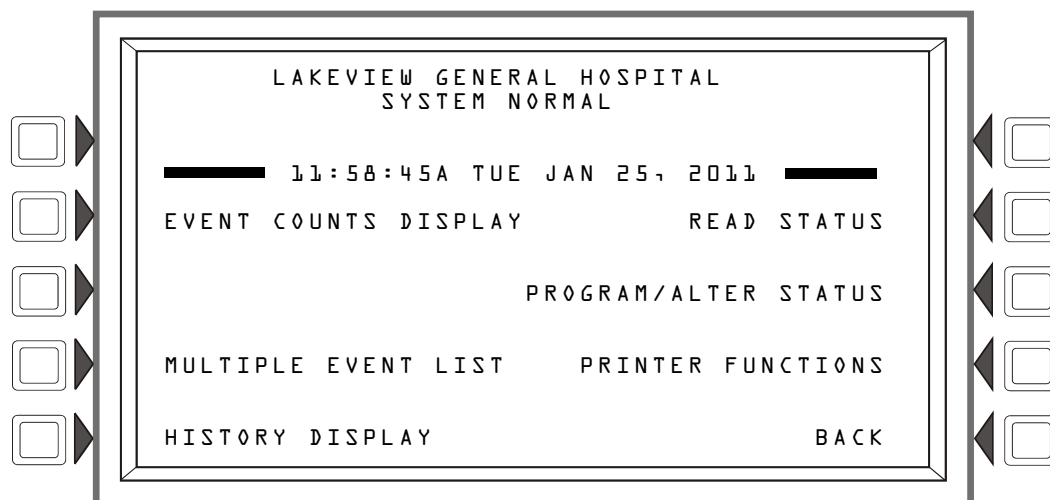
Figure 1.6 Main Menu Screen

Soft Keys

Pressing the soft keys brings the user to the screens described below.

1.8.1 Event Counts Display

Pressing the soft key to the left of the Event Counts Display message on the Main Menu brings up the Event Counts screen. This screen will automatically display if an off-normal event requiring acknowledgement occurs, unless the panel is in programming mode. Fire alarm events will display even in programming mode.

Lines six and seven display current counts of off-normal events in six categories. The counts include both acknowledged and unacknowledged events.

```
     FIRE ALARM
     ELEVATOR LOBBY          EAST WING
     FIFTH  FLOOR            ZOO5   SMOKE(PHOTO)
     11:57:45A  TUE JAN 25, 2011        LO3DO52
     ▬▬▬▬▬▬▬ EVENT COUNTS ▬▬▬▬▬▬
     FIRE ALARMS:001 PREALARM:000 TROUBLE:000
     SUPERVISORY:000 SECURITY:000 DISABLE:000
        ▬▬▬▬ 11:58:45A  TUE JAN 25, 2011▬▬▬

     ACKNOWLEDGE FIRE ALARM      SIGNAL SILENCE


     MORE INFORMATION           SYSTEM RESET


     PROGRAM/ALTER STATUS               BACK
```
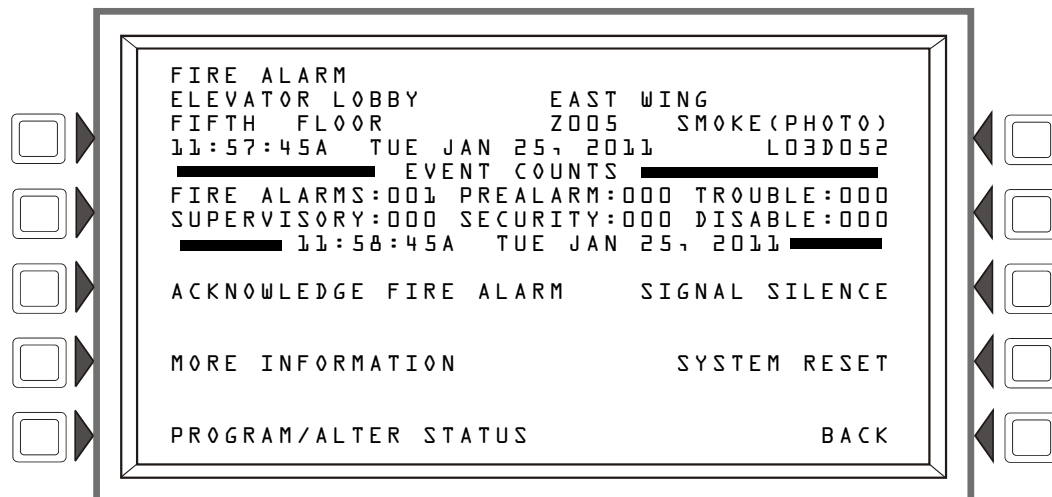
Figure 1.7 Events Count Display Screen

Soft Keys

ACKNOWLEDGE FIRE ALARM - Press this key to acknowledge an event. The command will read ACKNOWLEDGE FIRE ALARM if the event is a fire alarm. It will read ACKNOWLEDGE if the event is any other type. The command will not display if there are no events to acknowledge.

MORE INFORMATION - Press this key to go to the MORE INFORMATION screen, described in Section 1.8.2 below. This button will not display if no off-normal events exist.

PROGRAM/ALTER STATUS - Press this key to go to the PROGRAM/ALTER STATUS screen, which also can be reached from the main menu. This screen will require a password. For programming instructions, refer to the *NFS2-3030 Programming Manual*.

SIGNAL SILENCE - Press this key to silence all NFS2-3030 outputs programmed as silenceable.

SYSTEM RESET - Press this key to reset the system.

1.8.2 More Information

Pressing the More Information soft key displays a screen that contains additional information about the event shown in the top four lines.

```
     ACKNOWLEDGED FIRE ALARM
     ELEVATOR LOBBY          EAST WING
     FIFTH  FLOOR            ZOO5   SMOKE(PHOTO)
     11:58:45A  TUE JAN 25, 2011        LO3DO52
     ▬▬▬▬▬ INFORMATION/ACTION ▬▬▬▬▬
     CALL 203-555-1212
     GO TO ALARM SITE AND INVESTIGATE
     APPROACH THE ALARM LOCATION WITH CAUTION
     BRING CELL PHONE AND REPORT WHEN ON SITE

     VALUES: 121% OF ALARM, 145% OF PREALARM
     ALARM: 6= 1.66%, PREALARM; 3= 0.47%
     ACTION/STATUS: NONE/VERY CLEAN
     PEAKS:56% VERIFY COUNT:02 CO-OP:D100,158
     ▬▬▬▬▬▬12:22:34P  TUE JAN 25, 2011▬▬▬
                                        BACK
```

Figure 1.8 More Information Screen

Display

Lines 1 through 4 - Event information

Line 5 - Screen title

Lines 6 through 9 - The Custom Action Message programmed for the point in alarm
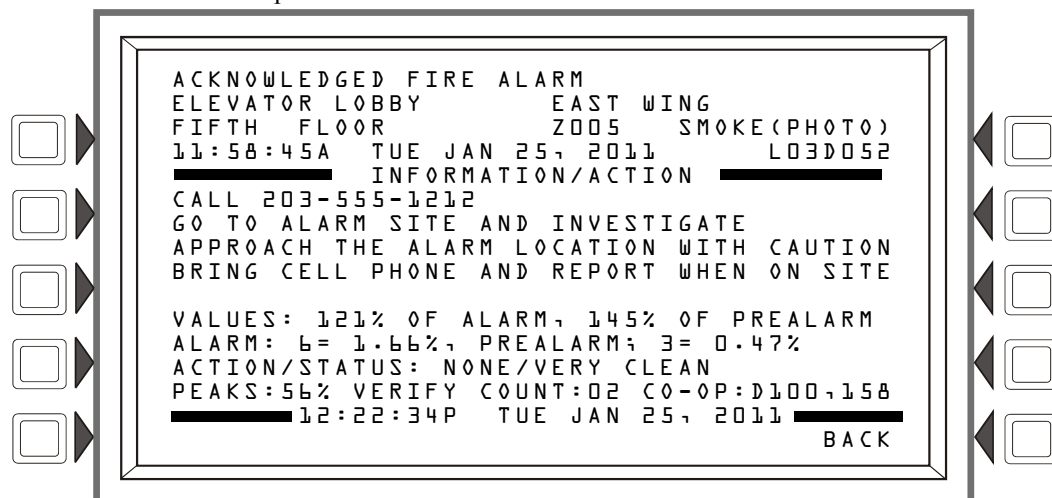
Line 10 - blank

Line 11 and 14 - These lines exist only for smoke/heat detectors. They do not display for wireless smoke detectors.

Line 11

VALUES:

The screen displays the Alarm and Prealarm values that are in effect when more information is requested. For example, if occupied settings are in effect, occupied values will display.

121% OF ALARM - This field gives the detector reading as it relates to its preprogrammed alarm level value (indicated in the next line on the screen). The example above shows the detector exceeding the alarm level by 21%.

Note: For Beam detectors in CLIP mode, the alarm value will always equal zero (0)% when it is not in alarm or 100% when it is in alarm.

145% OF PREALARM - This field gives the detector reading as it relates to its preprogrammed prealarm level value (indicated in the next line on the screen). The example above shows the detector exceeding the prealarm level by 45%.

Line 12

The screen displays the Alarm and Prealarm levels that are in effect when more information is requested. For example, if unoccupied settings are in effect, they will display.

ALARM: 6=1.66% - Six is the preprogrammed alarm level value for this detector: its value is 1.66%, indicating the percent per foot obscuration value assigned to level 6.

PREALARM: 3=0.47% - Three is the preprogrammed alarm level value for this detector: its value is 0.47%, indicating the percent per foot obscuration value assigned to level 3.

Line 13

ACTION/STATUS: NONE/VERY CLEAN - This displays 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 contaminants 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. Refer to the following table for messages and required action.

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.

For FSC-851 IntelliQuad 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

PEAKS: 56% - This value represents the highest percent per foot obscuration reading taken by this detector. It can be a historical figure, and does not necessarily represent the highest reading for this particular alarm. Re-initializing the detector would reset this value to zero.

VERIFY COUNT: 02 - This displays the number of times the detector has gone into alarm. This count aids in differentiating false alarms from actual alarms by showing repeated alarm events that have come into the device. In this example, the detector has gone into alarm two times since the verification count was begun. The FACP will signal a trouble condition when the verify count is exceeded. Displays as COUNT for FSC-851 IntelliQuad and aspiration detectors.

CO-OP: D100,158 - Indicates the address(es) of any detector(s) linked with the detector that's in alarm for Co-operative Multi-alarm Sensing. This field does not display for Acclimate, FSC-851 IntelliQuad, FCO-851 detectors, Beam detectors or Heat detectors.

CO: - FSC-851 IntelliQuad and FCO-851 detectors only, FlashScan only - Carbon Monoxide reading in parts per million.

TEMP: - Displays degrees Centigrade for Acclimate, FSC-851, FCO-851, heat, and aspiration detectors

Line 15 - The current time and date are displayed in this line.

Line 16

BACK - Press to return to the previous screen.

1.8.3 Multiple Event List

Pressing the Multiple Event List soft key shows off-normal events simultaneously in groups of eight. One event is shown at the top, and seven are shown in the list below it. The list will consist of the events immediately following the event at the top, with the priority of event types determined by the programmed Event Ordering setting (USA or Canada)

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

Note: Fire/MNS priority dependent on programming. Refer to the fire panel programming manual for additional information.

- Using the Next Selection/Previous Selection special function keys to scroll through the list will replace the event at the top of the screen with the first event in the series displayed below it.

- Using the Up/Down arrow keys to scroll through the list will not replace the event at the top of the screen: pressing the arrow keys will scroll a cursor through the seven events below without changing what is displayed at the top. The arrows will scroll through the list of events sequentially, but will skip the event at the top.

- Pressing Enter while the cursor is present will cause the event selected by the cursor to move to the top of the screen, and the list will reflect the events immediately following it.

- Pressing one of the Scroll Display fixed function keys will cause the first event of that type (e.g., alarm, trouble, etc.) to display at the top, and subsequent events of that type to display in sequence below it. Press the key again to begin scrolling. If there are no events of the type denoted by the Scroll Display key, pressing the key will have no effect.
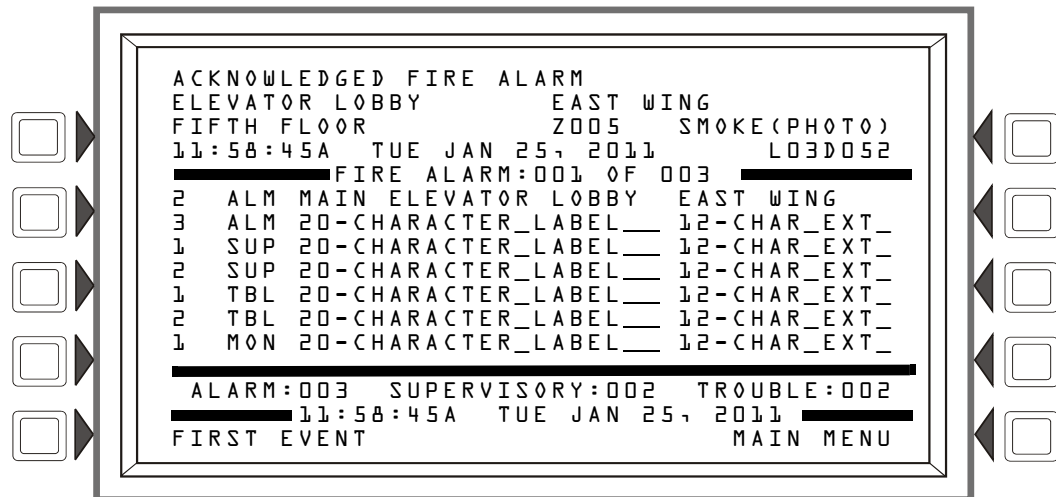
Figure 1.9 Multiple Event List Screen

Soft Keys

FIRST EVENT - Press this soft key to return the first event in the event ordering sequence to the top of the screen if scrolling has placed it elsewhere.

NOTE: If an unacknowledged event occurs while the Multiple Event list is displayed:

For USA event ordering - the Event Count Screen will appear with the Acknowledge button only. Acknowledging the event(s) will bring the Multiple Event list back up.

For Canadian event ordering - the Multiple Event list screen will display the unacknowledged event at the top.

1.8.4 History Display (History Select Screen)

The History Select screen allows the user to select a type of history file to view, and to set time/date or point range viewing parameters. The particular menu items will not appear on the History Display screen if no associated events are in the queue.

```
              LAKEVIEW GENERAL HOSPITAL
                   SYSTEM NORMAL

    11:58:45A  TUE JAN 25, 2011              N124
                 HISTORY SELECT

    ALL EVENTS                      SECURITY/OTHERS

    ALARMS ONLY                     TIME/DATE INTERVAL

    TROUBLES ONLY                       POINT RANGE

    SUPERVISORY ONLY                           BACK
```

Figure 1.10 History Display Select Screen

Soft Keys

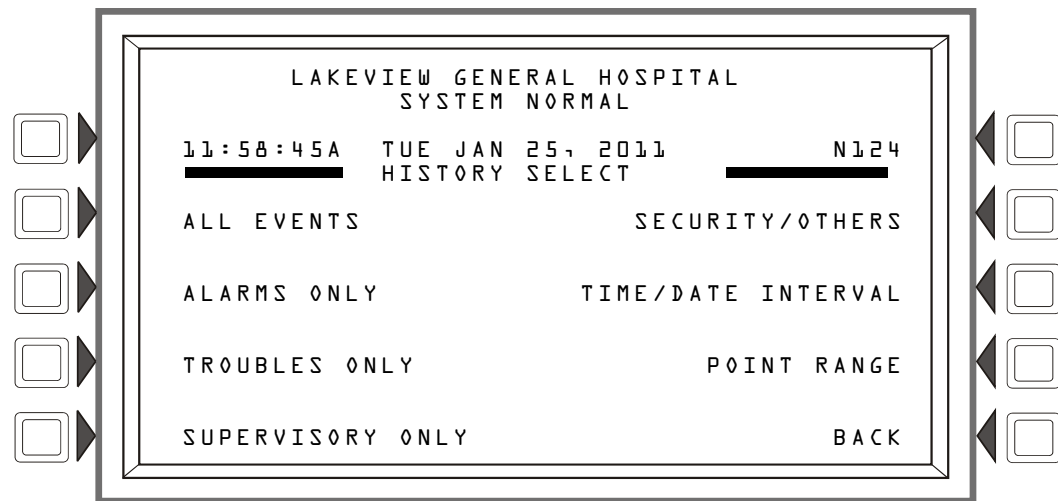ALL EVENTS, ALARMS ONLY, TROUBLES ONLY, SUPERVISORY ONLY, AND SECURITY/OTHERS - Pushing the associated soft key selects the type of history to be viewed.

TIME/DATE INTERVAL - Sets a time/date interval of events to be displayed.

POINT RANGE - Sets a range of points for which events will be displayed.

Refer to the section Section 4, "Viewing and Printing History Information", on page 65 for a full description of History Select.

1.8.5 Read Status

Pressing the Read Status soft key brings up screens to view the present status of points, zones, and other system information. Refer to the section Section 3, "Read Status", on page 51 for a full description of Read Status.

1.8.6 Program/Alter Status

Pressing the Program/Alter Status soft key brings up screens for panel programming, point programming, autoprogramming, clear programming, altering the status of points, walk test, and other information. A password is required. Refer to this panel's programming manual for information on these functions.

1.8.7 Printer Functions

Pressing the Printer Functions soft key brings up screens to print reports. Refer to Section 5, "Printing Reports", on page 69 for descriptions and illustrations. This key will appear only if a printer has been selected through programming. Refer to this panel's programming manual for information on printer selection.

Section 2: Operation of the Control Panel

2.1 Overview

The control panel periodically checks for events. An event can be any change in the status of a device, a transfer of information between a device and the FACP, or a transfer of information between two devices. Some events are considered background events and are not seen by the user. 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 such as a detector or module
- System troubles, such as battery problems, device supervision problems, etc.

When there are no off-normal events, the panel displays the System Normal screen (refer to Figure 2.1). When there is an off-normal event, the panel will display it (for event formats, refer to Section 1.6.2, "Event Reporting Format", on page 14). The action required will vary according to the type of event.

2.1.1 System Normal

The system operates in System Normal mode when no alarms or troubles exist. In this mode, the control panel displays a System Normal message as follows
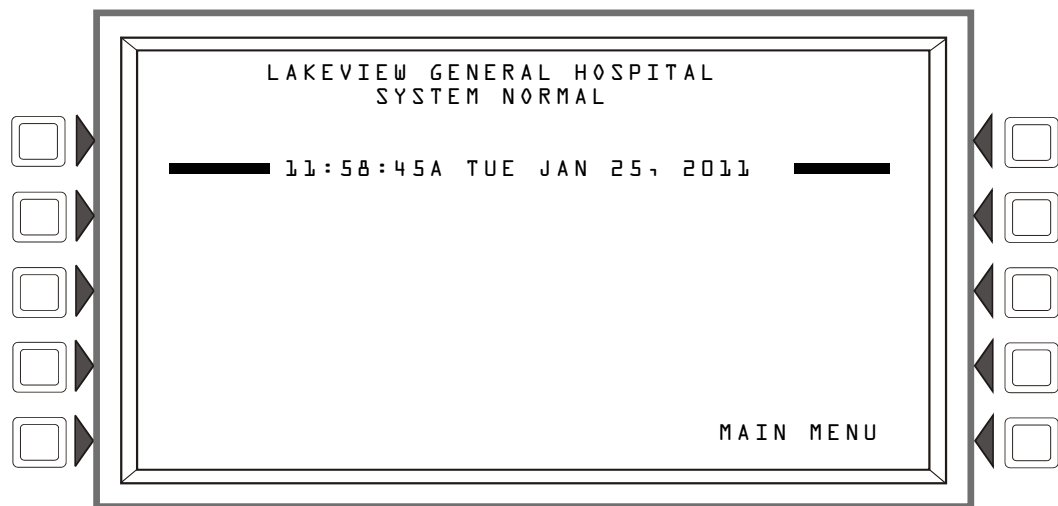
Figure 2.1 System Normal Screen

The control panel performs the following functions at regular intervals:

- Polls all SLC devices to check for valid replies, alarms, troubles, circuit integrity, and supervisory signals, etc.
- Checks power supply troubles and batteries
- Refreshes the panel display and updates time
- Scans for any panel screen, keypad, and Control Key entries
- Performs a detector automatic test operation
- Tests system memory
- Monitors for microcontroller failure

No action is required of the operator when the panel is operating in Normal mode.

2.1.2 Acknowledging an Event

When the panel detects an off-normal event and the information is displayed on-screen, one of the soft keys displayed on the screen is `ACKNOWLEDGE`. Use this key to respond to new alarm or trouble signals. When this key is pressed, the control panel does the following:

- It silences the piezo sounder on the panel if it is enabled
- It transfers the event to the history buffer
- If the panel is networked, it will send a network message.

There are two types of acknowledge; point and block. Point acknowledge is for fire alarms: fire alarms are acknowledged one at a time when the Acknowledge soft key is pressed. Block acknowledge is for all other types of off-normal events: these events are acknowledged all at the same time, with a single stroke to the Acknowledge soft key.

NOTE: If Local Control is disabled, acknowledgements can not be made by pressing the `ACKNOWLEDGE` soft key on the panel display. Events must be acknowledged from a preprogrammed remote location. When DCC (Display and Control Center) participation is enabled, panel acknowledgement can be performed when it is the DCC. When it is not, permission must be granted from the DCC before the panel can make an acknowledgement. Pressing the `ACKNOWLEDGE` soft key will automatically request permission from the DCC.

NOTE: If the panel is programmed for Receive Mode, events and the clearing of events must be handled one at a time: each event must be acknowledged, and each clear (whether the clear occurs automatically or as the result of a panel reset) must be acknowledged.

2.2 Fire Alarm Event

2.2.1 How the Control Panel Indicates a Fire Alarm

When an initiating device (detector or monitor module) activates, the control panel does the following:

- Produces a steady audible tone (if the piezo is enabled)
- Activates the System Alarm relay (TB4). It will also activate the Security (TB1) and Supervisory (TB2) relays if their switches have been configured for alarm
- Flashes the FIRE ALARM LED
- Displays FIRE ALARM in the upper left corner of the display, a Type Code that indicates the type of device that activated the fire alarm, and other information specific to the device. The message occupies the top four lines of the screen, replacing the System Normal message as shown in Figure 2.2 below. Refer to "Point Events Format" on page 14 for a full description of each message field
- Sends an Alarm message to the History buffer and installed printer and annunciators
- Latches the control panel in alarm. (You cannot return the control panel to normal operation until you correct the alarm condition and reset the control panel)
- Initiates any Control-By-Event actions
- Starts timers (such as Silence Inhibit, Auto Silence)
- Activates the general alarm zone (Z000)

NOTE: If a monitor module programmed with a WATERFLOW Type Code initiates a fire alarm, the control panel disables the SIGNAL SILENCE key and the Auto Silence Timer.
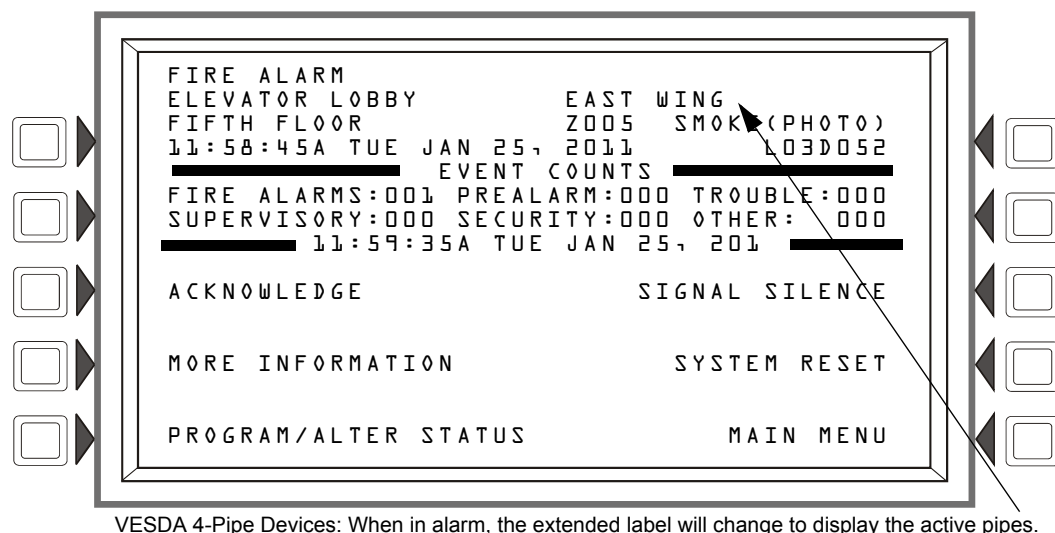
VESDA 4-Pipe Devices: When in alarm, the extended label will change to display the active pipes.

Figure 2.2 Fire Alarm Message Display Example

2.2.2 How to Respond to a Fire Alarm

If the control panel indicates a fire alarm, the operator can do the following:

- To silence the panel sounder:

  Press the ACKNOWLEDGE soft key. The local sounder will silence and the FIRE ALARM LED will change from flashing to steady. The control panel will send an acknowledge message to the panel display, history buffer, installed printers and annunciators.

- To silence any activated outputs that are programmed as silenceable:

  Press the SIGNAL SILENCE soft key. SIGNALS SILENCED LED light steady. The control panel sends a Signal Silenced message to the History buffer, installed printers and annunciators.

1. Check the Alarm message for its location and type. Press the MORE INFORMATION soft key to display the MORE INFORMATION screen and view additional information on the device and possibly preprogrammed text for recommended action. (Refer to Figure 1.8 on page 19 for an example of the this screen and an explanation of its fields.)

2. Correct the condition causing the alarm.

3. When the alarm condition is corrected, press the SYSTEM RESET soft key to return the control panel to normal operation (indicated by the "System Normal" message). The control panel sends a "System Normal" message to the panel display, History buffer and installed printer. If both fire and mass notification events are present on the fire panel at the same time, a second System Reset will need to be performed to reset the fire panel. The panel will display MN SYSTEM RESET or FIRE SYSTEM RESET, depending on which event has priority. Refer to the *NFS2-3030 Programming Manual* for event priority programming information.

The soft key PROGRAM/ALTER STATUS is also displayed on this screen. A password is required to enter these menus, which are described in the *NFS2-3030 Programming Manual*.

2.2.3 Interpreting Type ID Codes

The Type ID code that displays in the fire alarm message is related to the type and function of the point that initiates the fire alarm. For example, a monitor module with a PULL STATION Type ID code means that the monitor module connects to a manual pull station. If the Type ID code is unfamiliar, refer to Appendix A, "Software Type ID Codes", on page 78. This appendix is an alphabetical list of Type ID codes with an explanation of each.

2.3 System or Point Trouble Event

2.3.1 How the Control Panel Indicates a System or Point Trouble

A system or point trouble occurs when the control panel detects an electrical or mechanical fault. The panel will react differently depending on whether or not there are higher priority unacknowledged events.

When no higher priority unacknowledged events are exist, the control panel:

• Produces a pulsed audible tone (if the piezo is enabled)

• Activates the Trouble relay (TB3)

• Flashes the SYSTEM TROUBLE LED

• Displays a Type Code that indicates the type of device with a trouble (if a point trouble)

• Displays TROUBLE in the upper left corner of the panel display and, if a point trouble, the type of trouble and information specific to the device. (A system and a point trouble message are shown in the figures below)

• Sends a Trouble message to the history buffer, installed printer and annunciators

When an unacknowledged event with a higher priority exists, the control panel retains the indications of the higher priority event (the message, lit LED, audible tone, etc.) while activating the Trouble relay, flashing the SYSTEM TROUBLE LED, and sending a Trouble message to the history buffer, installed printer and annunciators.

A system trouble message is shown in Figure 2.3, and a point trouble is shown in Figure 2.4. Refer to Section 1.6.2, "Event Reporting Format", on page 14 for identification of each message field.
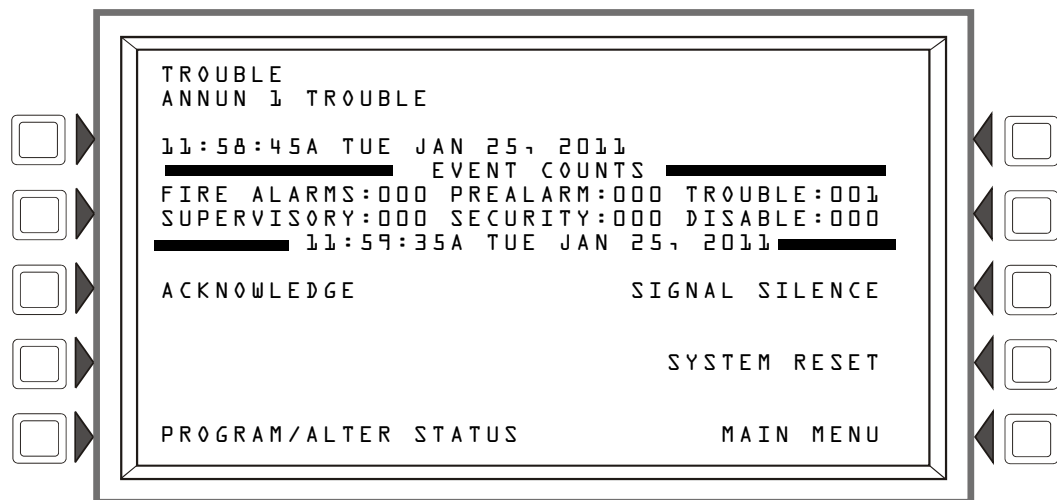

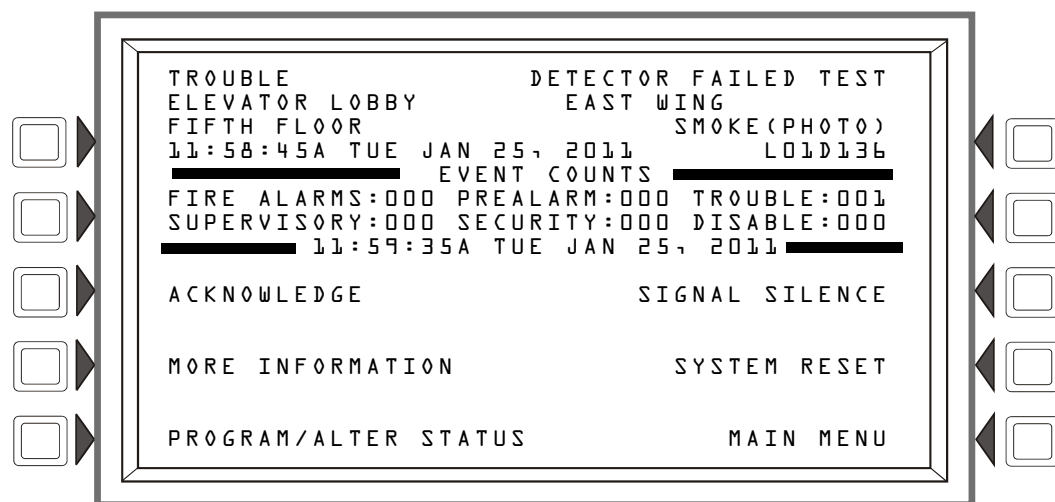**Figure 2.3   Sample Message for System Trouble**

Figure 2.4   Sample Message for Point Trouble

2.3.2 How to Respond to a System or Point Trouble

If the control panel indicates a trouble, the operator can do the following:

1. Press the ACKNOWLEDGE soft key to silence the panel sounder and switch the SYSTEM TROUBLE LED from flashing to steady—regardless of the number of troubles, alarms, security and supervisory signals.

   The control panel sends an acknowledge message to the History buffer, installed printers and annunciators.

2. Check the trouble message for an indication of the trouble.
   • Refer to Table 2.1 or Table 2.2 below for point and system trouble explanations, if necessary.
   • Press the MORE INFORMATION soft key to display the MORE INFORMATION screen and view additional information on the device and possibly preprogrammed text for recommended action. (Refer to Figure 1.8 on page 19 for an example of the this screen and an explanation of its fields.)

3. Correct the condition causing the trouble. If the trouble clears, the control panel sends a Clear Trouble message to the History buffer, installed printers and annunciators.

If all troubles clear and no supervisory signals or fire alarms exist, the control panel does the following:

• Returns to Normal operation (indicated by the "System Normal" message)

• Sends a "System Normal" message to the panel display, History buffer, installed printers and annunciators

• Restores troubles automatically - even if troubles are not acknowledged

The soft key PROGRAM/ALTER STATUS is also displayed on this screen. A password is required to enter these menus, which are described in this panel's programming manual.

2.3.3 Trouble Types

There are a variety of point or system trouble types that may appear in the trouble message. The tables below give lists of the troubles and indications of their cause.

Point (Device) Troubles

A message from the "Trouble Type" column in Table 2.1, "Point (Device) Troubles," on page 29 will appear in the upper right corner of the panel display when a point (device) trouble occurs. Use this table to help determine what the trouble is.

POINT TROUBLES		
TROUBLE TYPE	TROUBLE DESCRIPTION	ACTION
AC FAILURE	The main or auxiliary power supply has lost AC power.	Determine whether there is an AC power loss or whether the power supply and wiring is correct.
ADDRESS FAULT†	A wireless device's address is set to zero (0)	Find and correct the wireless device's address.
ALIGNMENT MODE	A beam detector is in configuration mode.	No action is necessary, as the trouble will clear when the configuration is complete. However, the detector will not detect a fire while this trouble exists.
AMPLIFIER LIMIT	The DAL device is overloaded,	Remove outputs to lower the load on the speaker circuits. Press reset when done.
AMPLIFIER SUPERVISION	The amplifier's internal supervision on the DAL device is not working,	Call Technical Services.
ANALOG OUTPUT x̲ TROUBLE	A trouble has occurred on the DVC-AO analog output x̲ (1-4). The analog output is configured for Style 7, but no audio signal is returned.	Investigate and fix.
ASPIRATOR FAULT	There is a problem with the FAAST detector.	Replace the FAAST detector.
AUDIO LIBRARY CORRUPT	The Audio Library is corrupt.	The database must be re-downloaded, or all programming must be cleared and re-entered. if the trouble does not clear, call Technical Services.
AUDIO LIBRARY INCOMPATIBLE	The Audio Library is not compatible with the programming database.	Download the correct application or version.
AUTOLEARN FAILURE	The Autolearn function has failed to complete.	Refer to the associated detector's product guide for additional information.
AUXIN TROUBLE	This trouble will be generated when the auxiliary input on the DVC is supervised (as determined by VeriFire Tools programming) and insufficient signal is detected on the input.	Check the DVC wiring and source.
BATTERY HIGH	The power supply's battery charge is too high.	Check the batteries for problems. Replace batteries if necessary.
BATTERY LOW	The power supply's battery charge is low OR One or more of the four (4) batteries of a wireless device missing or dead and the device has a minimum of one (1) week of operation remaining.	Check the power supply batteries for problems and replace batteries if necessary. OR To clear a low battery event, tamper the device and replace all four (4) batteries. When a device is tampered, it drops out of the mesh network and attempts to rejoin as soon as the batteries are replaced and the tamper event is cleared. Once a low battery trouble is indicated, there is a minimum of one (1) week of operation before the device is non-functional. (This trouble will latch for wireless devices until a reset is performed on the FACP and/or FWSG)
BEAM BLOCKED	Something has come between the detector's beam and its reflector.	Investigate and clear the blockage.
BRAND MISMATCH	The brand of this SLC device is incompatible with this FACP system.	Replace with compatible device.
BUZZER OFF	The DVC's piezo is disabled.	Re-enable the piezo at switch 5.
CHARGER FAULT*	The power supply's battery charger is not working properly.	Correct the fault.
CLASS A FAULT†	The wireless device has a single parent connection and is missing the redundant class A connection.	If a suitable parent is available, the background mesh restructuring routine should self-heal the network. If the network does not self-heal after ten minutes, reduce the spacing between devices or utilize SWIFT Tools for suggested repeater placement to add stronger parents. Toggle mesh formation to trigger a mesh restructuring routine to re-evaluate the trouble condition after taking action.
CO 6 MONTHS	The CO (carbon monoxide) detection element on a detector has six months left to expiration.	Replace the detector.
CO EXPIRED	The CO (carbon monoxide) detection element on a detector has expired.	Replace the detector.
CO TROUBLE	The CO element on a detector is not working properly. This trouble is generated for FlashScan mode only.	Replace the detector.
COMM LOSS	Communication has been lost between the FMM-4-20 module and its 4-20 mA sensor.	Check connections between the FMM-4-20 module and the 4-20 mA sensor.
CONFIGURATION FAULT	A problem has occurred after the configuration was sent from the PipeIQ to the FAAST detector.	Re-download the configuration.
DAL DOWNLOADING	The DVC is currently downloading to a DAL device.	n/a
DAL DUAL ADDRESS CONFLICT	More than one DAL device has the same address.	Re-address DAL device(s).

Table 2.1 Point (Device) Troubles (1 of 4)

POINT TROUBLES		
TROUBLE TYPE	TROUBLE DESCRIPTION	ACTION
DAL NO ANSWER	The DAL device is not communicating.	The DAL device address will display at the panel or network annunciator. Investigate and fix.
DAP PORT x FAILURE	Digital Audio Port x (A or B), wire or fiber, is not communicating due to a break in the connection, a short, or faulty hardware.	Locate and fix the break or short. If the problem is not a short or break, call technical Services.
DATABASE CORRUPTED	The database that houses the DVC/DAL devices programming is corrupt.	The database must be re-downloaded or all programming must be cleared and re-entered. If the trouble still does not clear, call Technical Services.
DATABASE INCOMPATIBLE	The programming database version is not compatible with the application version.	The correct application or version must be downloaded.
DUAL ADDR†	Two or more wireless devices on the same mesh network that are set to the same address report a duplicate address trouble. An address set to zero will report an illegal address.	Change the address of the device(s) to avoid duplication and error.
DET FAILED TEST	This detector has failed the FACP's periodic detector test for alarm capabilities.	The detector should be removed and replaced by an authorized service representative.
DETECTOR FAULT	The detector unit has detected a trouble condition.	Check wiring and air flow to the unit. Refer to the detector's product guide for additional information.
DEVICE INHIBIT	The FMM-4-20 module is in a self-calibration state.	No action is required.
DUAL ADDRESS	There is more than one device of a single type (detector or module) with the same SLC address. A detector and a module can share the same address on an SLC, but two detectors, or two modules, can not. Note that some addressable devices (e.g. certain power supplies and RFXs) may not appear to be detectors or modules, but are addressed on the SLC as such.	Readdress the incorrect device.
DVC COMM LOSS	The DAL device is not in communication with the DVC.	The DVC will generate a DAL NO ANSWER error to the panel or network annunciator for investigation.
EXTERNAL RAM ERROR	The internal RAM test failed on the DVC or DAL device.	Call Technical Services.
FFT TROUBLE	There is a short or open on the FFT riser.	Check the 4-wire switch is correctly set and that there is an end-of-line resistor in place for 2-wire operation.
FILTER FAULT	The device's air filter needs to be replaced.	Refer to the related device's product guide for air filter replacement procedures.
FLASH IMAGE TROUBLE	The DVC or DAL device software is corrupt.	Re-download the panel code software from VeriFire Tools. If the trouble still does not clear, call Technical Services.
GENERAL TROUBLE	The power supply is not working properly.	Check the battery for problems. Replace battery if necessary.
GROUND FAULT	There is a ground fault on the main, auxiliary, or DAL device power supply.	Locate and correct the fault.
GROUND FAULT PORT x	A ground fault has occurred on the Digital Audio Port (DAP) x. Wire versions only.	Locate and correct the fault.
HIGH FLOW	Air flow to the device is too high.	Inspect the pipes for damage.
INCORRECT POSITION	The address of the detector does not match that of the sounder base it is plugged into.	Correct the addressing error. Re-install the device in its original physical position on the loop.
INIT MODE†	The wireless device is in initialization and mesh formation is in progress.	This trouble will clear once mesh formation is complete and the device is no longer in initialization.
INITIALIZATION MODE	A beam detector is running through its initialization sequence.	The detector will not detect a fire until the initialization process is complete and this trouble has cleared.
INVALID RESPONSE	The device has returned a response to the panel that the panel did not expect.	Check the device for functionality, addressing and wiring.
IR TROUBLE	The infrared element is not working properly on a FSC-851 detector. This trouble is generated for FlashScan mode only.	Replace the detector.
LOADING...NO SERVICE	The DVC or DAL device is in bootloader mode. The DVC/DAL device is NOT providing fire protection communication while this trouble is active.	Proper authorities should be notified while this trouble is active so that other means od protection can be supplied, if necessary.
LOCAL MIC TROUBLE	The local microphone is in trouble. There is no communication, or paging has been enabled for over 28 seconds and no signal has been received.	Investigate whether the mic is plugged into the DVC, or whether there is a problem with the handset.
LOCAL PHONE TROUBLE	The local FFT handset is in trouble. There is either a failure with the local handset, or paging from FFT has been enabled for over 28 seconds and no signal has been received.	Investigate whether the handset is plugged into the DVC, or whether there is a problem with the handset.
LOW FLOW	Air flow through the pipe is too low.	Inspect the pipes for damage or clogging.
LOW TEMPERATURE	The temperature read by a Heat+ or Acclimate™+ detector is too low.	Raise the heat in the area of the detector.

Table 2.1 Point (Device) Troubles (2 of 4)

POINT TROUBLES		
TROUBLE TYPE	TROUBLE DESCRIPTION	ACTION
LOW THRESHOLD	The detector chamber reading is too low; the detector is not operating properly.	The detector must be removed and replaced by an authorized service representative.
MAINTENANCE REQ	The detector is dirty and needs cleaning	Clean the detector.
MAINT URGENT	The detector requires cleaning immediately. It is a false alarm risk.	Clean the detector immediately.
MISMAT HDWE TYPE	The programming information in the panel's database for this device does not match the type of device at the address specified.	Correct programming.
MOD EXT PWR LOSS	The control module or sounder base has lost external power.	Determine whether there is a DC power loss.
NCM COMM LOSS	Communication has been lost between the fire panel or DVC and the NCM/HS-NCM (Network Communication Module).	Investigate cause and restore communication.
NETWORK FAIL PORT x	Communication lost between the Noti•Fire•Net port x and corresponding node.	Investigate cause and restore communication.
NO ANSWER	The device (module or detector) is not responding to the poll. Either the device is not working or it is not connected properly.	Determine whether the device is functional, and connected and addressed properly on the SLC.
NO THRESHOLDS PROGRAMMED	No threshold parameters have been programmed for the FMM-4-20 module.	Refer to the *NFS2-3030* programming manual.
NORMAL	Indicates activated monitor module set to monitor trouble condition.	Correct trouble condition.
NUMBER OF CO-EXISTANT WIRELESS SYSTEMS EXCEEDED[†]	The maximum number of wireless systems within the allowable range has been exceeded.	No more than four (4) wireless systems can operate within a specified range. Remove additional system or combine systems to eliminate device overlap.
NVRAM BATT TROUBLE	The Battery backup and or clock backup is low.	Replace the battery.
OPEN CIRCUIT	The module device has an open circuit on its supervised wiring.	Check the connections from the module to the input or output device to which it is wired.
OPEN ON x	There is an open on speaker circuit x	Locate and fix the open.
OVER RANGE	The FMM-4-20's 4-20 mA sensor has exceeded 20 mA.	Determine if the sensor is functional and correctly installed.
POWER FAULT	The GPI (General Purpose Input) on the detector has detected a closure of the contact it is monitoring.	Inspect the local Vesda power supply and correct the condition.
POWER SUPPLY TROUBLE	There is a communication failure with the fire panel or DAL device power supply.	If the power supply is onboard, service is required. If the power supply is standalone, investigate the cause at the power supply.
PRIMARY x SUPERVISION TROUBLE	Internal supervision is not working on the primary amplifier at address x (one through four).	Call Technical Services.
RADIO JAMMING[†]	Jamming occurs when a wireless device is overloaded with an interfering RF signal and is unable to process incoming messages, but is able to report the condition to its parents.	A jammed device will automatically remove itself from the mesh network after reporting the jamming. The device will attempt to self-heal and recover into the network. Identify any possible sources of the jamming signal and see if the spacing can be increased to an acceptable range. A site survey RF scan test can be used to categorize the jamming signal.
REMOTE MICROPHONE TROUBLE	The remote microphone is in trouble. It is installed and supervised, but no signal is coming from it.	Investigate and fix.
RFX COMM LOSS	Communication has been lost with an RFX device	Check the RFX to determine the problem.
SCANNER FAULT	The scanner unit has detected a problem.	Inspect the unit's valve for possible jam and correct the condition.
SECURITY TAMPER	A wireless device has been removed from its base.	Check the wireless device for tampering. (This trouble will latch for wireless devices until a reset is performed on the FACP and/or FWSG)
SELF TEST FAILED	Diagnostic test failed.	Call Technical Services.
SERVICE MODE	The FAAST is in Service Mode.	n/a
SHORT CIRCUIT	The module device has a short circuit on its supervised wiring.	Check the connections from the module to the input or output device to which it is wired.
SHORT ON x	There is a short on DAA speaker circuit x.	Locate and fix the short.
SOFTWARE MISMATCH	The software installed on a device is incompatible with the fire alarm control panel, or devices installed on the system are programmed with software that is incompatible with each other.	Investigate and correct the software revision.

Table 2.1 Point (Device) Troubles (3 of 4)

POINT TROUBLES		
TROUBLE TYPE	TROUBLE DESCRIPTION	ACTION
SOUNDER NO ANSWER	The sounder base is no longer communicating with the loop card.	Investigate and fix.
THERM. TROUBLE	The thermistors are not functioning properly on a FSC-851 detector. This trouble is generated for FlashScan mode only.	Replace the detector.
TIME BASE FAULT	The time needs to be set on the FAAST detector.	Use PipeIQ to download the FAAST configuration.
TROUBLE1	An FMM-4-20 module threshold trouble as determined in point programming.	Refer to the *NFS2-3030* programming manual.
TROUBLE2	An FMM-4-20 module threshold trouble as determined in point programming.	Refer to the *NFS2-3030* programming manual.
UNDER RANGE	The FMM-4-20's 4-20 mA sensor has dropped below 4 mA.	Determine if the sensor is functional and correctly installed.
VERIFY OVER MAX	This detector or FZM-1 monitor module, which has been programmed to participate in alarm verification, has gone into and come out of its programmed verification limit without going into alarm. Either something is wrong with the detector or there is a condition nearby (such as someone smoking) that causes it to go into verification frequently.	Check the detector and the conditions nearby to determine the problem.
WEAK LINK FAULT[†]	The weak link trouble denotes a connection of insufficient primary parent link signal strength.	To resolve a weak link fault: Reduce the distance between devices, place them away from obstructions, or add a repeater. Tamper the device when moving it to a new location. Restart mesh formation after a repeater is installed or after a device has been relocated and the tamper condition is cleared. Terminate mesh formation once the devices have joined the mesh or allow mesh formation to timeout. Restructuring will automatically start and the FWSG will reevaluate the link connectivity between all devices and select suitable signal paths.
WIRELESS NO ANSWER[†]	The wireless device is not responding. Either the device is not working or it is not connected properly.	Determine whether the device is functional, and connected and addressed properly on the FWSG. (This trouble will latch until a reset is performed on the FACP and/or FWSG)
WIRING FAULT	The detector has discovered a fault in the VESDAnet wiring.	Inspect the VESDAnet wiring and correct the condition.
* This trouble may be fire panel or backup battery related. Test and replace backup batteries if necessary. [†]For additional information on wireless device troubles, refer to the *SWIFT Smart Wireless Integrated Fire Technology* manual.		

Table 2.1 Point (Device) Troubles (4 of 4)

System Troubles

A message from the "Trouble Type" column in Table 2.2 will appear in the second line on the left of the panel display when a device trouble occurs. Use this table to help determine the cause of the trouble.

SYSTEM TROUBLES	
TROUBLE MESSAGE TYPE	TROUBLE DESCRIPTION
AA TROUBLE BUS FAIL	The AA Trouble Bus has failed. Investigate and fix.
AC FAIL	Loss of AC power. Investigate whether there is an AC power loss, or whether the power supply is correctly installed and wired.
ADV WALK TEST	There is an Advanced Walk Test in progress.
AMPLIFIER LIMIT	The DAA is overloaded. Remove outputs to lower the load on the speaker circuits. Press reset when done.
AMPLIFIER SUPERVISION	The amplifier's internal supervision is not working. Call Technical Services.
AMPLIFIER TROUBLE	The DAA is in trouble. The output is overloaded or the amplifier is damaged. Remove outputs to determine if the DAA was overloaded. If it still does not work, call Technical Services.
ANALOG OUTPUT x TROUBLE	A trouble has occurred on DVC-AO analog output x (1 - 4). The analog output is configured for Style 7, but no audio signal is returned. Investigate and fix.
ANNUN x NO ANSWER	The annunciator at address x is not responding.
ANNUN x TROUBLE	The annunciator at address x is in trouble.
AUDIO LIBRARY CORRUPTED	The DVC's audio library is corrupted. Re-create and/or re-download an intact database.
AUDIO LIBRARY INCOMPATIBLE	The audio library version is incompatible with the database and/or the application version.
AUXILIARY TROUBLE	Auxiliary device connected to the NFS2-3030 CPU at J5 is in trouble or cable is missing.

Table 2.2 System Troubles (1 of 4)

SYSTEM TROUBLES	
TROUBLE MESSAGE TYPE	TROUBLE DESCRIPTION
AUXIN TROUBLE	Generated when the auxiliary input is supervised (as determined in VeriFire® Tools programming) and no signal is coming from the input. Check wiring and source.
BACKUP AMP x FAIL	The Backup Amp at address x has failed. Call Technical Services.
BACKUP AMP x HARDWARE FAIL	The Backup Amp at address x has had a hardware failure. Call Technical Services.
BACKUP AMP x LIMIT	The Audio Circuit of the Backup Amplifier at address x has been overloaded or shorted so the Audio Signal has been attenuated. Check wiring and source and ensure that there are no shorts.
BACKUP AMP x OVERCURRENT	The Backup Amplifier at address x has overloaded and shut down. Check the total Load calculations fir the DS-AMP and/or DS-BDA and ensure the total values do not exceed 120 watts.
BACKUP AMP x NOT INSTALLED	The Backup Amplifier that is programmed at address x is not communicating with the DS-AMP. Ensure the ribbon and power cables are properly attached to the DS-AMP and DS-BDA. If there is no Backup Amplifier at that address, remove the Backup Amplifier from programming.
BACKUP AMP x TRIP	The DS-BDA at DS-BUS address x (1-4) is drawing more current from the power supply than expected and has been disabled. Refer to the DVC manual for additional troubleshooting.
BASIC WALK TEST	A Basic Walk Test is in progress.
BATTERY	The power supply's battery voltage is too high or too low. Check the batteries for problems. Replace batteries if necessary.
BUZZER OFF-LINE	The piezo is disabled.
CHARGER FAIL*	The power supply's battery charger is not functioning. Investigate and correct.
CORRUPT LOGIC EQUAT	The database that houses the panel's logic equations is corrupt. It must be re-downloaded, or all programming must be cleared and re-entered.
DAA ADDRESS CONFLICT	More than one DAA has the same address. Readdress DAA(s).
DAA DOWNLOAD IN PROGRESS	A DAA download is in progress.
DAA NO ANSWER	A DAA is not responding. Investigate and fix.
DAL DEVICE NO ANSWER	The DAL device is not communicating with the fire panel. Check wiring and source.
DAP PORT x FAILURE	Digital Audio Port x (A or B) is not communicating due to a break in the connection, a short, or faulty hardware. Locate and fix the break or short. If the problem is not a short or break, call Technical Services.
DATABASE CORRUPTED	The DVC database programming file is corrupted. Re-download or re-recreate & download an intact database.
DATABASE INCOMPATIBLE	The DVC database programming file is incompatible with the application version.
DIGIN TROUBLE	The DAA has determined that its DVC has stopped transmitting audio data to the Digital Audio Loop (DAL), even though the loop is still functional. Update code, ensure all code on the DAL is compatible. If the DVC still does not transmit digital audio data, call Technical Services.
DISPLAY NODE LIMIT EXCEEDED	The number of display nodes on the network has been exceeded. This trouble will only be displayed if at least one of the NFS2-3030s on the network are in Network Display Mode and the total number of display nodes has exceeded 25. Remove one or more display nodes to correct this trouble. (Display nodes include NCA, NCA-2, a Gateway node, or an NFS2-3030 in Network Display Mode.)
DRILL INITIATED	Drill has been initiated locally.
DRILL RECEIVED	Drill has been initiated remotely.
DSBUS x AC FAIL	The DSBUS at address x has lost AC power. Check wiring and source.
DSBUS x COMMFAIL	The DSBUS at address x is not communicating with the fire panel. Check wiring and source.
DSBUS x HIGH BATT	The battery voltage for the DSBUS at address x has exceeded 28 V. If the batteries are shared, ensure that only one power supply is charging the batteries. Remove the batteries and measure the charging voltage from the supply to ensure it is not exceeding 27.6 V. Call Technical Services.
DSBUS x LOW BATT	The battery voltage for the DSBUS at address x has fallen below 20.4 V. Charge or replace batteries.
DSBUS x SELF TEST FAIL	A device on the DSBUS at address X has failed self test. Reboot the device. If this does not repair it, update the software of the device. If the self test fail trouble continues to be displayed, call Technical Services.
EPROM ERROR	The application and/or boot code is corrupt. Service required.
EXTERNAL RAM ERROR	The external RAM test failed. Service required.
FLASH IMAGE ERROR	The software is corrupt. Re-download the panel code software from VeriFire® Tools. If the trouble does not clear, call Technical Services.
FFT TROUBLE	There is a short or open on an FFT riser on a Digital Audio Loop. Check that the DVC's 4-wire switch is set properly and that there is an end-of-line resistor in place for 2-wire operation.
GROUND FAULT	A ground fault has occurred within the panel.
GROUND FAULT PORT x	A ground fault has occurred on DAP x (A or B).
GROUND FAULT LOOP x	There is a ground fault on loop x.
HARDWARE MISMATCH	The device installed does not match what was previously installed. Install the correct device.
INTERNAL RAM ERROR	The internal RAM test failed. Service required.
INVALID NODE TYPE MAPPED	An invalid node type has been mapped to the NFS2-3030 for Network Display Mode. Check network mapping and correct. Refer to the *NFS2-3030 Programming Manual* for valid network types.
LCD80 SUPERVISORY	Communication has been lost with an LCD-80.

Table 2.2 System Troubles (2 of 4)

SYSTEM TROUBLES	
TROUBLE MESSAGE TYPE	TROUBLE DESCRIPTION
LOADING...NO SERVICE	A program or database download is in progress. The panel is NOT providing fire protection during the download. Proper authorities should be notified while a download is in progress so that other means of fire protection can be supplied.
LOCAL MIC TROUBLE	The DVCs local microphone is in trouble. There is no communication, or paging has been enabled for over 28 seconds and no signal has been received. Investigate whether the mic is plugged into the DVC, or whether there is a problem with the local mic.
LOCAL PHONE TROUBLE	The DVC's local FFT handset is in trouble. There is no communication, or paging has been enabled for over 28 seconds and no signal has been received. Investigate whether the handset is plugged into the DVC, or whether there is a problem with the handset.
LOOP x- x COMM FAILURE	Loops x and x are not responding. The LCM and LEM for those loops must be serviced.
MAN EVAC INITIATED	Local initiation of DRILL.
MAN EVAC RECEIVED	Network initiation of DRILL.
MANUAL MODE ENTERED	An annunciator has been placed in manual mode.
MODBUS COMMUNICATIONS FAULT	The VESDA Gateway can not communicate with the HLI, the HLI may be damaged or not powered, or the VESDA Gateway may be damaged.
NCM COMM LOSS	Communication is lost between the CPU2-3030 or DVC and the network communications module.
NCM CONNECTION LIMIT EXCEEDED	More than two panels have been connected to a high-speed network communications module.
NCM SNIFFER MODE ACTIVE	The network is in diagnostic mode.
NETWORK FAIL PORT x	Communication lost between NCM Port x and corresponding node.
NETWORK INCOMPATIBILITY	An incompatible product exists on this network.
NETWORK MAPPING LIMIT EXCEEDED	More than 1 fire panel or more than 4 DVCs has been mapped to the NFS2-3030 for Network Display Mode. Check network mapping and correct.
NFN PAGING CHANNEL LIMIT EXCEEDED	Multiple paging sources are attempting to page over the NFN, exceeding the limit of one (1). reduce the number of paging sources to clear this trouble.
NFPA 24HR REMINDER	This message occurs every day at 11 am if any troubles exist.
NVRAM BATT TROUBLE	Battery backup and/or clock backup is low. Replace battery.
NO DEV. INST ON L1	No devices are installed on the system.
NO POWER SUPPLY INST	The AMPS-24 (main power supply) AC fail address (base plus one) has not been correctly entered or the loop is not installed. The AMPS-24 is not configured for "Trouble Reporting". All four of the main power supply addresses are not programmed for MOD TYPE=Monitor and/or TYPE CODE LABEL=Power Monitor and/or FLASHSCAN=PS Mon.
PANEL DOOR OPEN	The panel door is open.
PHONE CHANNEL LIMIT EXCEEDED	The DVC has allocated all it's phone channels to DAAs but there are still phones ringing in requesting more channels
POWER SUPPLY TROUBLE	There is a communication failure with the DAA onboard power supply. Call Technical Services.
PRIMARY AMP x FAIL	The Primary Amp at address x has failed. Call Technical Services.
PRIMARY AMP x HARDWARE FAIL	The Primary Amp at address x has had a hardware failure. Call Technical Services.
PRIMARY AMP x LIMIT	The Audio Circuit of the Primary Amplifier at address x has been overloaded or shorted so the Audio Signal has been attenuated. Check wiring and source and ensure that there are no shorts.
PRIMARY AMP x OVERCURRENT	The Primary Amplifier at address x has overloaded and shut down. Check the total Load calculations fir the DS-AMP and/or DS-BDA and ensure the total values do not exceed 120 watts.
PRIMARY AMP x TRIP	The DS-BDA at DS-BUS address x (1-4) is drawing more current from the power supply than expected and has been disabled. Refer to the DVC manual for additional troubleshooting.
PRINTER OFF LINE	Communication loss with printer. Restore power and/or printer's online status.
PRINTER PAPER OUT	Add paper.
PROGRAM CORRUPTED	The database that houses the panel's programming is corrupt. It must be re-downloaded, or all programming must be cleared and re-entered. Service required.
PROG MODE ACTIVATED	A user is currently using the panel's programming menus.
REMOTE DISPLAY x NO ANSWER	The remote display at address x is not responding.
REMOTE DISPLAY x TROUBLE	The remote display at address x is in trouble.
REMOTE MIC TROUBLE	The DVC's remote microphone is in trouble. It is installed and supervised, but no signal is coming from it. Investigate and fix.
SELF TEST FAILED	Diagnostic test failed. Call Technical Services.
SOFTWARE MISMATCH	LCM and/or LCD-160 software does not match the version number expected by the panel; and/or the NCM is not network version 5.0; and/or one or more DAAs has a software revision that does not match other DAA software revisions. Update software as necessary.
STYLE 4 SHORT x LOOP x	Service required. Call Technical Services.

Table 2.2 System Troubles (3 of 4)

SYSTEM TROUBLES	
TROUBLE MESSAGE TYPE	TROUBLE DESCRIPTION
STYLE 6 POS. LOOP x	There is an open circuit on the positive side of loop x. Style 6 and Style 7 are supervised methods of communicating with addressable devices. If the control panel detects a trouble (open), it will drive both ends of the loop, maintaining communication in an unsupervised method. The latching trouble will display on the panel as a Style 6 trouble until you correct the condition and press reset. Style 7 configuration of the SLC requires the use of isolator modules & bases.
STYLE 6 NEG. LOOP x	There is an open circuit on the negative side of loop x. Style 6 and Style 7 are supervised methods of communicating with addressable devices. If the control panel detects a trouble (open), it will drive both ends of the loop, maintaining communication in an unsupervised method. The latching trouble will display on the panel as a Style 6 trouble until you correct the condition and press reset. Style 7 configuration of the SLC requires the use of isolator modules & bases.
STYLE 6 SHORT LOOP x	Style 6 and Style 7 are supervised methods of communicating with addressable devices. If the control panel detects a trouble (short), it will drive both ends of the loop, maintaining communication in an unsupervised method. The latching trouble will display on the panel as a Style 6 trouble until you correct the condition and press reset. Style 7 configuration of the SLC requires the use of isolator modules & bases.
SYSTEM INITIALIZATION	One or more devices (detectors or modules) can not report activation. This can occur following system startup, when exiting Walk Test, following an autoprogram, or following a device trouble of No Response. Will clear when all un-initialized devices are initialized.
VESDA TROUBLE	A trouble has occurred on a VESDA node. Possible troubles may include: Communication failure on the VESDA detector loop, incompatible VESDA software versions, or a VESDA configuration error.
* This trouble may be fire panel or backup battery related. Test and replace backup batteries if necessary.	

Table 2.2 System Troubles (4 of 4)

2.3.4 Interpreting Type ID Codes

The Type ID code that displays in a point trouble message is related to the type and function of the point that initiates the trouble. For example, a monitor module with a PULL STATION Type ID code means that the monitor module connects to a manual pull station. If the Type ID code is unfamiliar, refer to Appendix A, "Software Type ID Codes", on page 78. This appendix is an alphabetical list of Type ID codes and an explanation of each.

2.4 Pre-alarm Event

The Pre-alarm function is used to receive an early warning of potential or incipient fire conditions. The Pre-alarm function provides one of two settings as follows:

• Alert – a non-latching setting that causes a Pre-alarm when a detector reaches its programmed Pre-alarm sensitivity threshold. Non-latching means the condition will automatically restore to normal once the detector's obscuration readings drop below its Pre-alarm threshold.

• Action – a latching setting that causes a Pre-alarm when a detector reaches its programmed Pre-alarm level. Latching means the condition will not restore itself to normal once the detector's obscuration readings drop below its Pre-alarm threshold. The panel must be reset.

Alert and Action settings are set individually with detector point programming. Individual detector sensitivity threshold settings can have a value of one through nine, and are set by the programmer. A sensitivity threshold setting of zero indicates the detector does not participate in prealarm.

For more detailed information on Pre-alarm, refer to this panel's programming manual.

2.4.1 How the Control Panel Indicates a Pre-alarm

When a detector activates a Pre-alarm, the control panel does the following if there are no higher priority unacknowledged events:

• Pulses the panel sounder (if the piezo is enabled)

• Flashes the PRE-ALARM LED

• Displays PREALARM in the upper left corner of the LCD, as well as the sensitivity reading, the type code and other information specific to the detector as shown in Figure 2.5.

• Sends a Pre-alarm message to the History buffer, installed printer and annunciators.

When an unacknowledged event with a higher priority exists, the control panel retains indications of the higher priority event (the message, lit LED, audible tone, etc.) while flashing the PRE-ALARM LED and sending a Pre-alarm message to the History buffer, installed printer and annunciators.

The Pre-alarm screen display is the same for both alert and action conditions. Following is a sample screen for a Pre-alarm message.

```
PREALARM 120% OF FIRE SENSITIVITY LEVEL4
ELEVATOR LOBBY            EAST WING
FIRST FLOOR DOOR              SMOKE(PHOTO)
11:58:45A TUE JAN 25, 2011        L01D134
━━━━━━━━━━━  EVENT COUNTS  ━━━━━━━━━━━
FIRE ALARMS:000 PREALARM:001 TROUBLE:000
SUPERVISORY:000 SECURITY:000 DISABLE:000
━━━━━━━━━ 11:59:35A TUE JAN 25, 2011 ━━━━━

ACKNOWLEDGE              SIGNAL SILENCE

MORE INFORMATION          SYSTEM RESET

PROGRAM/ALTER STATUS         MAIN MENU
```
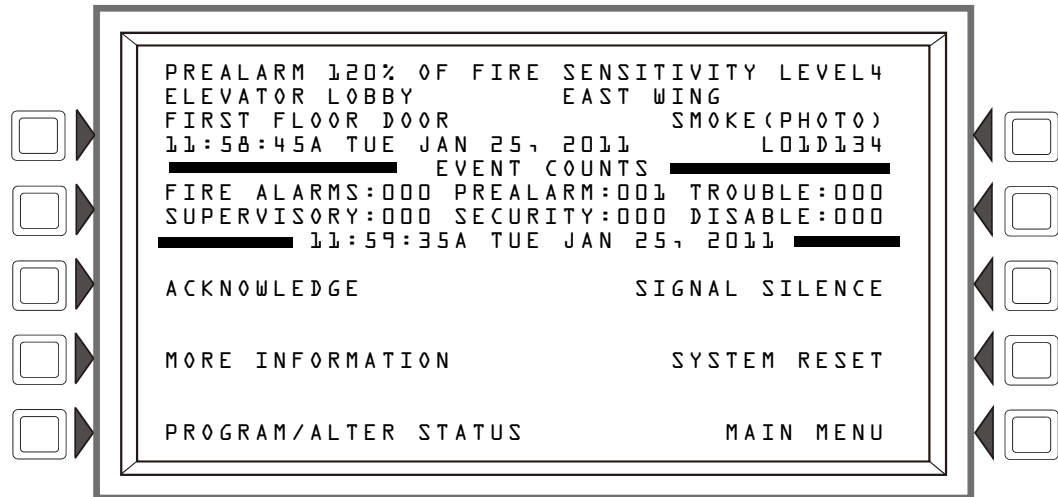
Figure 2.5   Sample Pre-alarm Message

2.4.2 How to Respond to a Pre-Alarm Warning

If the control panel indicates a Pre-alarm, the operator can do the following:

1. Press the `ACKNOWLEDGE` soft key to acknowledge the Pre-alarm.
2. Press the `MORE INFORMATION` soft key to display the `MORE INFORMATION` screen and view additional information on the device and possibly preprogrammed text for recommended action. (Refer to Figure 1.8 on page 19 for an example of this screen and an explanation of its fields.)
3. Investigate and correct the condition causing the Pre-alarm.

NOTE: An Alert Pre-alarm automatically restores to normal when the detector obscuration reading drops below the programmed Pre-Alarm level.

---

4. Press the `SYSTEM RESET` soft key if the Pre-alarm message does not clear when the condition causing it is cleared.

A subsequent alarm condition for this detector clears the Action indication from the panel display.

The soft key `PROGRAM/ALTER STATUS` is also displayed on this screen. A password is required to enter these menus, which are described in the *NFS2-3030 Programming Manual*.

2.4.3 Interpreting Type ID Codes

The Type ID code that displays in a pre-alarm message is related to the type and function of the detector point that initiates the pre-alarm. For example, a detector with a SMOKE(PHOTO) Type ID code means that the detector is a photoelectric type detector. If the Type ID code is unfamiliar, refer to Appendix A, "Software Type ID Codes", on page 78. This appendix is an alphabetical list of Type ID codes and an explanation of each.

2.5 Security Alarm Event

(Not Suitable for Canadian Applications)

2.5.1 How the Control Panel Indicates a Security Alarm

The system indicates a Security alarm when a monitor module point programmed with a security Type Code activates. The panel will react differently depending on whether or not there are higher priority unacknowledged events.

When no higher priority unacknowledged events exist, the control panel:

*   Produces a warbling audible tone (if the piezo is enabled)
*   Activates the Security relay (TB1) if it has been selected for security
*   Flashes the SECURITY LED (blue)
*   Displays a Type Code that indicates the type of security alarm being generated
*   Displays SECURITY in the upper left corner of the panel display along with information specific to the device
*   Sends a Security message to the History buffer, installed printers and annunciators

When an unacknowledged event with a higher priority exists, the control panel retains the indications of the higher priority event (the message, lit LED, audible tone, etc.) while activating the Security relay if it is selected for security, flashing the SECURITY LED, and sending a Security message to the history buffer, installed printer and annunciators. If there are silenced alarms (the SIGNALS SILENCED LED is lighted), a Security alarm will resound the panel sounder.

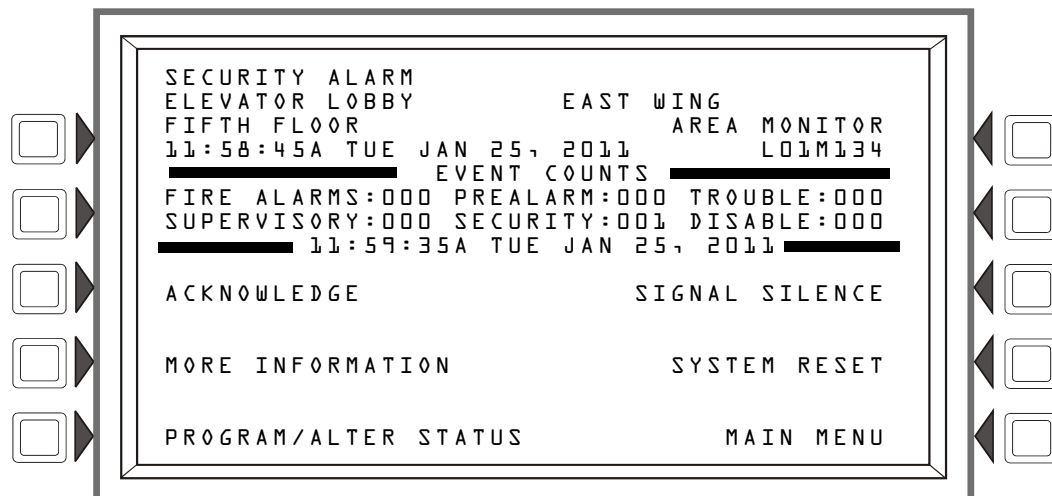A Typical security message that appears on the panel display:

```
 SECURITY ALARM
 ELEVATOR LOBBY              EAST WING
 FIFTH FLOOR                     AREA MONITOR
 11:58:45A TUE JAN 25, 2011         L01M134
                 EVENT COUNTS
 FIRE ALARMS:000 PREALARM:000 TROUBLE:000
 SUPERVISORY:000 SECURITY:001 DISABLE:000
              11:59:35A TUE JAN 25, 2011

 ACKNOWLEDGE                   SIGNAL SILENCE

 MORE INFORMATION              SYSTEM RESET

 PROGRAM/ALTER STATUS            MAIN MENU
```

Figure 2.6   Sample Security Alarm Message

2.5.2 How to Respond to a Security Alarm

A latching Security Type Code latches the control panel in a security alarm. To return the control panel to normal operation, it is necessary to correct what is causing the security condition, as indicated in the numbered steps below, then reset the control panel.

If the control panel indicates a security alarm, take the following action:

1. Press the ACKNOWLEDGE soft key to silence the panel sounder and switch the SECURITY LED from flashing to steady—regardless of the number of troubles, alarms, supervisory, and security signals. The control panel sends a Security message to the History buffer and installed printers.

2. Press the MORE INFORMATION soft key to display the MORE INFORMATION screen and view additional information on the device and possibly preprogrammed text for recommended action. (Refer to Figure 1.8 on page 19 for an example of the this screen and an explanation of its fields.)

3. Correct the condition that activated the Security point.

4. When the Security condition is corrected, press the SYSTEM RESET soft key to return the control panel to normal operation (indicated by the "System Normal" message). The control panel sends a "System Normal" message to the panel display, History buffer, installed printers and annunciators.

The soft key PROGRAM/ALTER STATUS is also displayed on this screen. A password is required to enter these menus, which are described in the *NFS2-3030 Programming Manual*.

2.5.3 Interpreting Security Type Codes

The Type ID code that displays in a security alarm message is related to the type and function of the point that initiates the security alarm. For example, a monitor module with a TAMPER Type ID code means that the monitor module connects to a tamper switch. If the Type ID code is unfamiliar, refer to Appendix A, "Software Type ID Codes", on page 78. This appendix is an alphabetical list of Type ID codes and an explanation of each.

2.6 Supervisory Signal Event

2.6.1 How the Control Panel Indicates an Active Supervisory

The system indicates a Supervisory alarm when a monitor module point programmed with a supervisory Type Code activates. The panel will react differently depending on whether or not there are higher priority unacknowledged events.

When no higher priority unacknowledged events are exist, the control panel:

- Produces a warbling audible tone (if the piezo is enabled)
- Activates the Supervisory relay (TB2) if it has been selected for supervisory
- Flashes the SUPERVISORY LED (yellow)
- Displays a Type Code that indicates the type of supervisory signal being generated
- Displays SUPERVISORY in the upper left corner of the panel display along with information specific to the device
- Sends a Supervisory message to the History buffer, installed printer and annunciators.

When an unacknowledged event with a higher priority exists, the control panel retains the indications of the higher priority event (the message, lit LED, audible tone, etc.) while activating the Supervisory relay if it is selected for supervision, flashing the SUPERVISORY LED, and sending a Supervisory message to the history buffer, installed printer and annunciators. If there are silenced alarms (the SIGNALS SILENCED LED is lighted), a Supervisory alarm will resound the panel sounder.

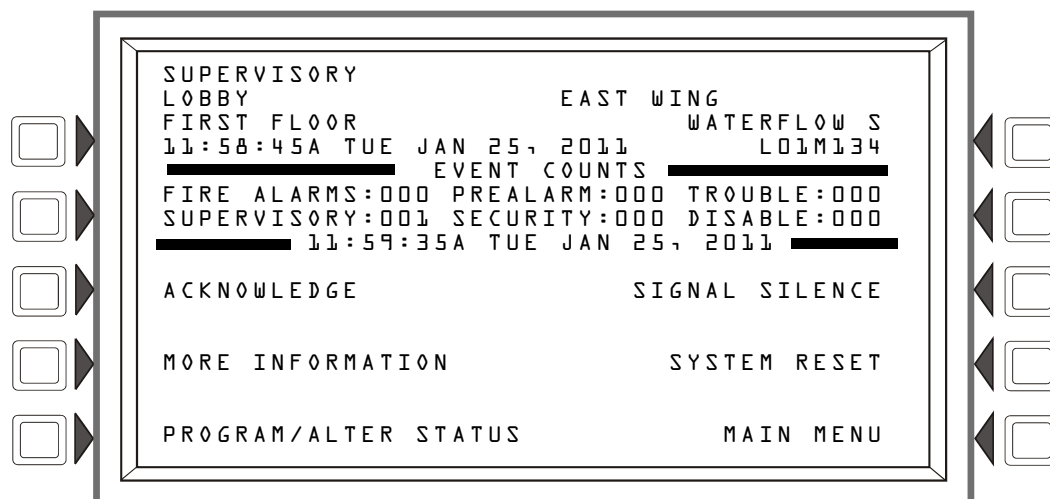Following is a typical supervisory message that would appear on a panel display:


```
SUPERVISORY
LOBBY                       EAST WING
FIRST FLOOR                         WATERFLOW S
11:58:45A TUE JAN 25, 2011          L01M134
                        EVENT COUNTS
FIRE ALARMS:000 PREALARM:000 TROUBLE:000
SUPERVISORY:001 SECURITY:000 DISABLE:000
                11:59:35A TUE JAN 25, 2011

ACKNOWLEDGE                     SIGNAL SILENCE

MORE INFORMATION                SYSTEM RESET

PROGRAM/ALTER STATUS               MAIN MENU
```

Figure 2.7   Sample Supervisory Trouble Message

2.6.2 How to Respond to an Active Supervisory

If the control panel indicates a Supervisory condition, the operator can do the following:

1. Press the ACKNOWLEDGE soft key to acknowledge the Supervisory message.
2. Press the MORE INFORMATION soft key to display the MORE INFORMATION screen and view additional information on the device and possibly preprogrammed text for recommended action. (Refer to Figure 1.8 on page 19 for an example of this screen and an explanation of its fields.)

3. Investigate and correct the condition causing the Supervisory.

> 📄 **NOTE:** A supervisory condition caused by a device with a "tracking" type code automatically clears and restores the panel to normal when the condition causing its activation disappears.

4. Press the SYSTEM RESET soft key to clear any supervisory condition caused by a device with a latching type code: the supervisory will not automatically clear when the condition causing it is cleared. Latching supervisory type codes are WATERFLOW S, LATCH SUPERV, and SPRINKLR SYS.

The panel will send a system normal message to the History buffer, installed printer and annunciators.

2.6.3 How to Interpret Type Codes

The Type Code that displays in the Supervisory message indicates the function of the point that initiates the Supervisory. For example, a monitor module with a WATERFLOW S Type Code means that the module monitors the state of a waterflow switch. If the Type ID code is unfamiliar, refer to Appendix A, "Software Type ID Codes", on page 78. This appendix is an alphabetical list of Type ID codes and an explanation of each.

2.7 CO Alarm Event

2.7.1 How the Control Panel Indicates a CO Alarm

When a CO alarm occurs on a detector or monitor module with a CO type code, the control panel does the following:

- Produces a pulsed audible tone (if the piezo is enabled)
- Flashes the OTHER LED (yellow)
- Displays CO ALARM in the upper left corner of the display, a Type Code that indicates the type of device that activated the CO alarm, and other information specific to the device.
- Sends a CO Alarm message to the History buffer and installed printer and annunciators
- Latches the control panel in CO alarm. (You cannot return the control panel to normal operation until you correct the alarm condition and reset the control panel)
- Initiates any Control-By-Event actions. Activates CBE position 4.
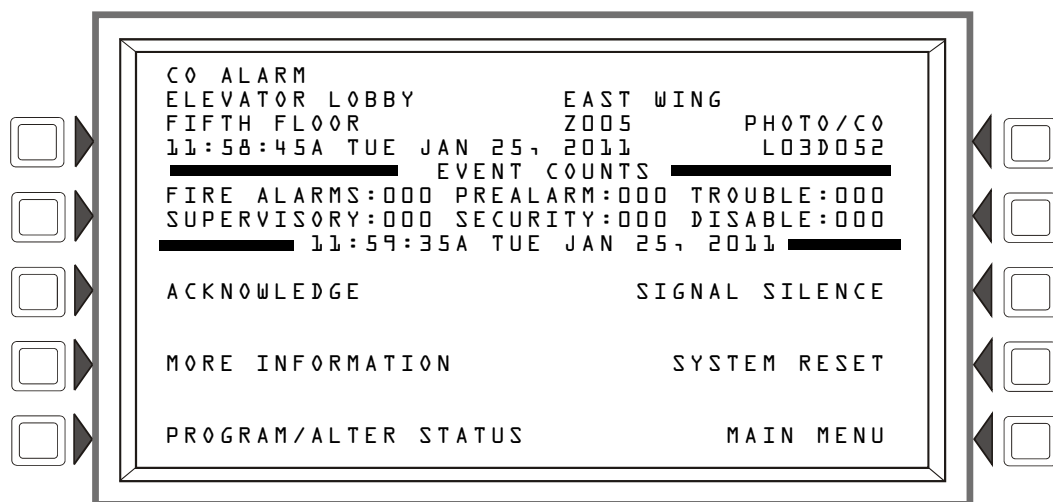- Activates Special Function Zone 18 (ZF18)

Figure 2.8 CO Alarm Message Display Example

2.7.2 How to Respond to a CO Alarm

If the control panel indicates a fire alarm, the operator can do the following:

•   To silence the panel sounder:

Press the `ACKNOWLEDGE` soft key. The local sounder will silence and the OTHER LED will change from flashing to steady. The control panel will send an acknowledge message to the panel display, history buffer, installed printers and annunciators.

•   To silence any activated outputs that are programmed as silenceable:

Press the `SIGNAL SILENCE` soft key. SIGNALS SILENCED LED lights steady. The control panel sends a Signal Silenced message to the History buffer, installed printers and annunciators.

5. Check the Alarm message for its location and type. Press the `MORE INFORMATION` soft key to display the `MORE INFORMATION` screen and view additional information on the device and possibly preprogrammed text for recommended action. (Refer to Figure 1.8 on page 19 for an example of the this screen and an explanation of its fields.)

6. Correct the condition causing the CO alarm.

7. When the CO alarm condition is corrected, press the `SYSTEM RESET` soft key to return the control panel to normal operation (indicated by the "System Normal" message). The control panel sends a "System Normal" message to the panel display, history buffer and installed printer.

The soft key `PROGRAM/ALTER STATUS` is also displayed on this screen. A password is required to enter these menus, which are described in the *NFS2-3030 Programming Manual*.

2.7.3 Interpreting Type ID Codes

The Type ID code that displays in the CO alarm message is related to the type and function of the point that initiates the CO alarm. For example, a monitor module with a CO MONITOR Type ID code means that the monitor module monitors a conventional CO detector. If the Type ID code is unfamiliar, refer to Appendix A, "Software Type ID Codes", on page 78. This appendix is an alphabetical list of Type ID codes with an explanation of each.

2.8 CO Pre-alarm Event

The CO Pre-alarm function is used to receive an early warning of potential or incipient CO conditions.

2.8.1 How the Control Panel Indicates a CO Pre-alarm

When a detector activates a CO Pre-alarm, the control panel does the following if there are no higher priority unacknowledged events:

- Pulses the panel sounder (if the piezo is enabled)
- Flashes the OTHER LED (yellow)
- Displays CO PREALARM in the upper left corner of the LCD, the type code and other information specific to the detector as shown in Figure 2.9.
- Sends a CO Pre-alarm message to the History buffer, installed printer and annunciators.
- Activates CBE position 5.
- Activates Special Function Zone 19 (ZF19)

When an unacknowledged event with a higher priority exists, the control panel retains indications of the higher priority event (the message, lit LED, audible tone, etc.) while flashing the OTHER LED and sending a CO Pre-alarm message to the History buffer, installed printer and annunciators.

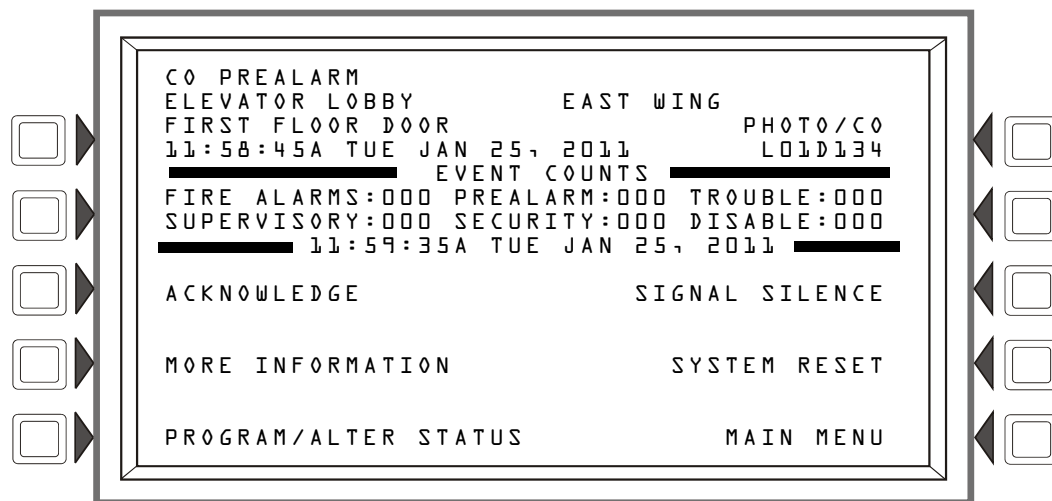The following is a sample screen for a CO Pre-alarm message.

Figure 2.9 Sample CO Pre-alarm Message

2.8.2 How to Respond to a CO Pre-Alarm Warning

If the control panel indicates a Pre-alarm, the operator can do the following:

1. Press the ACKNOWLEDGE soft key to acknowledge the CO Pre-alarm.
2. Press the MORE INFORMATION soft key to display the MORE INFORMATION screen and view additional information on the device and possibly preprogrammed text for recommended action. (Refer to Figure 1.8 on page 19 for an example of this screen and an explanation of its fields.)
3. Investigate and correct the condition causing the CO Pre-alarm.

The soft key PROGRAM/ALTER STATUS is also displayed on this screen. A password is required to enter these menus, which are described in the *NFS2-3030 Programming Manual*.

2.8.3 Interpreting Type ID Codes

The Type ID code that displays in a CO pre-alarm message is related to the type and function of the detector point that initiates the CO pre-alarm. For example, a detector with a PHOTO/CO Type ID code means that the detector is a photo/CO type detector. If the Type ID code is unfamiliar, refer to Appendix A, "Software Type ID Codes", on page 78. This appendix is an alphabetical list of Type ID codes and an explanation of each.

2.9 Mass Notification Alarm Event

2.9.1 How the Control Panel Indicates a Mass Notification Alarm

When an Mass Notification initiating device (monitor module) activates, the control panel does the following:

- Produces a steady audible tone (if the piezo is enabled)

- Does not activate the System Alarm relay(s) (TB4, or TB1 and TB2 if set as Alarm).

- Flashes the OTHER LED

- Displays MN ALARM in the upper left corner of the display, a Type Code that indicates the type of device that activated the fire alarm, and other information specific to the device. The message occupies the top four lines of the screen, replacing the System Normal message as shown in Figure 2.10 below. Refer to "Mass Notification Events" on page 16 for a full description of each message field

- Sends an MN Alarm message to the History buffer and installed printer and annunciators

- Latches the control panel in MN alarm. (You cannot return the control panel to normal operation until you correct the alarm condition and reset the control panel). If a fire condition is present on the control panel, a second system reset may be required to clear the MN alarm, depending on MN Priority programming. Refer to the *NFS2-3030 Programming Manual*.

- Activates any devices programmed as General Pending

- Activates special zone ZF20.

- Initiates any Control-By-Event actions

- Does not activates the general alarm zone (Z000) or any devices programmed as General Alarm or Alarm Pending

- Does not cause any devices programmed as "Resound on Fire" to resound.

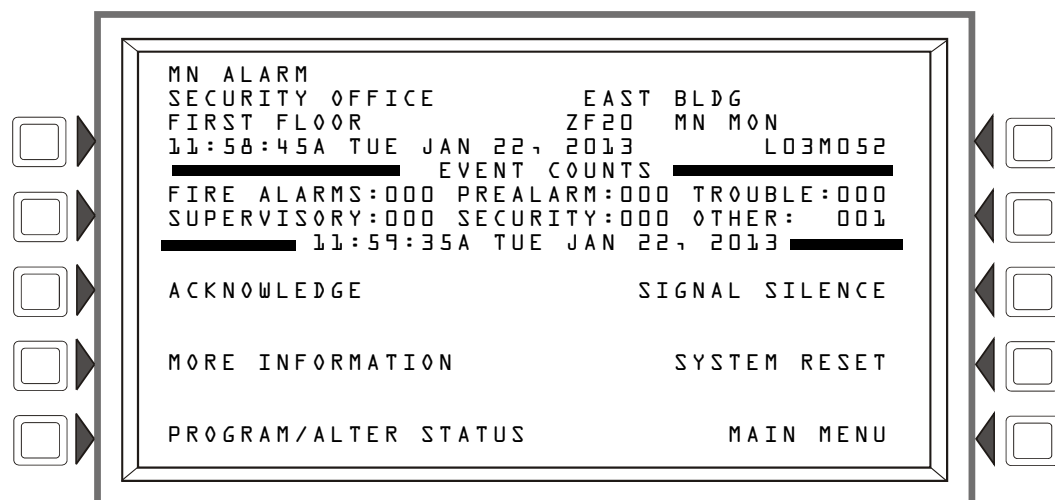- Does not send an MN Alarm message to the proprietary receiver via the network, if applicable.

Figure 2.10 Mass Notification Alarm Message Display Example

2.9.2 How to Respond to an MN Alarm

If the control panel indicates a MN alarm, the operator can do the following:

1. To silence the panel sounder:

   Press the `ACKNOWLEDGE` soft key. The local sounder will silence and the OTHER LED will change from flashing to steady. The control panel will send an acknowledge message to the panel display, history buffer, installed printers and annunciators. If more than one MN alarm is present on the control panel, Acknowledge must be pressed for each alarm.

2. To silence any activated outputs that are programmed as silenceable:

   Press the `SIGNAL SILENCE` soft key. SIGNALS SILENCED LED light steady. The control panel sends a Signal Silenced message to the History buffer, installed printers and annunciators.
   NOTE:
   If MN events have priority over fire events, any active silenceable devices that were activated by the fire event will silence when the MN Alarm occurs.
   If fire events have priority over MNS events, silenceable outputs will remain active when an MN Alarm occurs until `SIGNAL SILENCE` is pressed or a system reset is initiated.

3. Check the MN Alarm message for its location and type. Press the `MORE INFORMATION` soft key to display the `MORE INFORMATION` screen and view additional information on the device and possibly preprogrammed text for recommended action. (Refer to Figure 1.8 on page 19 for an example of the this screen and an explanation of its fields.)

4. Correct the condition causing the MN alarm.

5. When the alarm condition is corrected, press the `SYSTEM RESET` soft key to return the control panel to normal operation (indicated by the "System Normal" message). The control panel sends a "System Normal" message to the panel display, History buffer and installed printer. If both fire and MN alarms are present on the control panel and MN events have priority over fire events, the initial reset will clear the MN alarm from the control panel. If fire has priority over MN events, a second reset must be initiated to clear the MN alarm from the panel.

The soft key `PROGRAM/ALTER STATUS` is also displayed on this screen. A password is required to enter these menus, which are described in the *NFS2-3030 Programming Manual*.

2.9.3 Interpreting Type ID Codes

The Type ID code that displays in the fire alarm message is related to the type and function of the point that initiates the fire alarm. For example, a monitor module with a MN MON Type ID code means that the monitor module connects to a mass notification device. If the Type ID code is unfamiliar, refer to Appendix A, "Software Type ID Codes", on page 78. This appendix is an alphabetical list of Type ID codes with an explanation of each.

2.10 Mass Notification Supervisory Event

An MN Supervisory point event will occur when a monitor module programmed with an MN supervisory type code activates.

2.10.1 How the Control Panel Indicates an MN Supervisory Point Event

The panel will react differently depending on whether or not there are higher priority unacknowledged events.

When no higher priority unacknowledged events are exist, the control panel:

• Produces a warbling audible tone (if the piezo is enabled)

• Activates the Supervisory relay (TB2) and any devices programmed as General Supervisory and General Pending

- Flashes the SUPERVISORY LED (yellow) on the fire panel and any annunciator points programmed for general supervisory

- Displays a Type Code that indicates the type of supervisory signal being generated

- Displays MN SUPERVISORY in the upper left corner of the panel display along with information specific to the device

- Sends a MN Supervisory message to the History buffer, installed printer and annunciators.

- Activates special zone ZF21

- Does not cause any devices programmed for "Resound on Supervisory" to resound

- Does not suppress any fire events regardless of MN/Fire priority programming

- Sends a Supervisory message to the proprietary receiver via the network, if applicable

When an unacknowledged event with a higher priority exists, the control panel retains the indications of the higher priority event (the message, lit LED, audible tone, etc.), flashing the SUPERVISORY LED, and sending a Supervisory message to the history buffer, installed printer and annunciators. If there are silenced alarms (the SIGNALS SILENCED LED is lighted), a Supervisory alarm will resound the panel sounder.

Following is a typical MN supervisory message that would appear on a panel display:
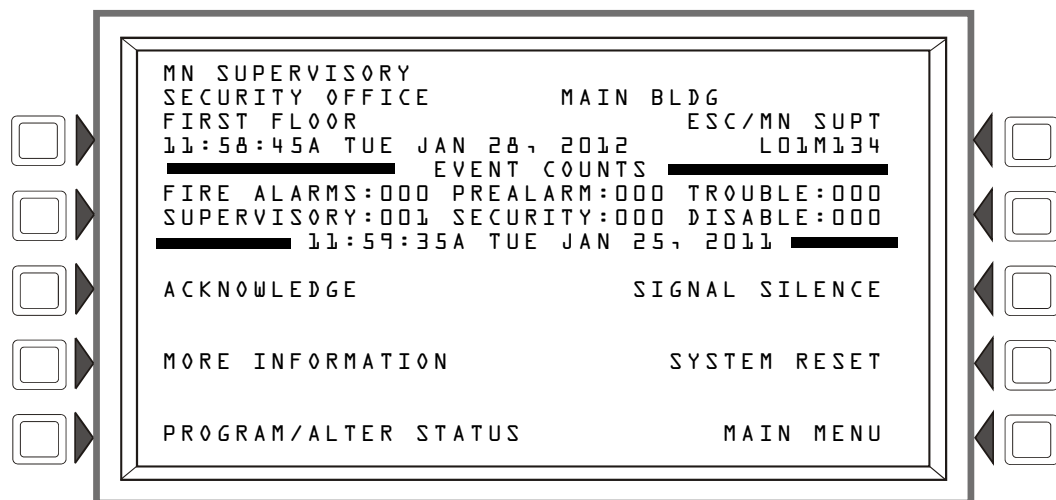


```
MN SUPERVISORY
SECURITY OFFICE          MAIN BLDG
FIRST FLOOR                    ESC/MN SUPT
11:58:45A TUE JAN 28, 2012        L01M134
━━━━━━━━━━━━━━  EVENT COUNTS  ━━━━━━━━━━
FIRE ALARMS:000 PREALARM:000  TROUBLE:000
SUPERVISORY:001 SECURITY:000  DISABLE:000
━━━━━━━━  11:59:35A TUE JAN 25, 2011  ━━━

ACKNOWLEDGE                  SIGNAL SILENCE

MORE INFORMATION             SYSTEM RESET

PROGRAM/ALTER STATUS           MAIN MENU
```

Figure 2.11   Sample MN Supervisory Point Message

2.10.2 How to Respond to an Active MN Supervisory

If the control panel indicates a MN Supervisory condition, the operator can do the following:

1. Press the ACKNOWLEDGE soft key to acknowledge the MN Supervisory event, steady the SUPERVISORY LED, and silence the panel sounder. An acknowledge message is sent to the remote annunciators, history buffers, installed printers, and CRT-2s

2. Press the MORE INFORMATION soft key to display the MORE INFORMATION screen and view additional information on the device and possibly preprogrammed text for recommended action. (Refer to Figure 1.8 on page 19 for an example of this screen and an explanation of its fields.)

3. Investigate and correct the condition causing the Supervisory.

4. **For tracking MN Supervisory events:** If the supervisory condition was initiated by a device that is programmed with an MN supervisory type code that tracks, the panel will return to Systems Normal once the condition has been corrected.
   For latching MN Supervisory events: If the supervisory condition was initiated by a device that is programmed with an MN supervisory type code that latches upon activation or a General MN Supervisory event occurs, press the SYSTEM RESET soft key to clear the event.

The panel will send a system normal message to the History buffer, installed printer and annunciators.

2.10.3 How to Interpret Type Codes

The Type Code that displays in the MN Supervisory message indicates the function of the point that initiates the MN Supervisory. For example, a monitor module with a ESC/MN SUPT Type Code means that the module monitors the state of a mass notification device. If the Type ID code is unfamiliar, refer to Appendix A, "Software Type ID Codes", on page 78. This appendix is an alphabetical list of Type ID codes and an explanation of each.

2.11 Mass Notification Trouble Event

2.11.1 How the Control Panel Indicates a Mass Notification Trouble

A mass notification trouble point activates when a device programmed as MN Trouble activates due to an electrical short or open. The panel will react differently depending on whether or not there are higher priority unacknowledged events.

When no higher priority unacknowledged events are exist, the control panel:

- Produces a pulsed audible tone (if the piezo is enabled)
- Flashes the SYSTEM TROUBLE LED on the fire panel and any annunciator points programmed for general trouble
- Displays a Type Code that indicates the type of device with a trouble
- Displays TROUBLE in the upper left corner of the panel display the type of trouble and information specific to the device.
- Sends a Trouble message to the history buffer, installed printer and annunciators
- Activates special zone ZF22
- Activates the Trouble relay (TB3) and any devices programmed as General Trouble and General Pending
- Does not cause any devices programmed as "Resound on Trouble" to resound
- Sends a Trouble message to the proprietary receiver via the network, if applicable

When an unacknowledged event with a higher priority exists, the control panel retains the indications of the higher priority event (the message, lit LED, audible tone, etc.) while flashing the SYSTEM TROUBLE LED, and sending a Trouble message to the history buffer, installed printer and annunciators.
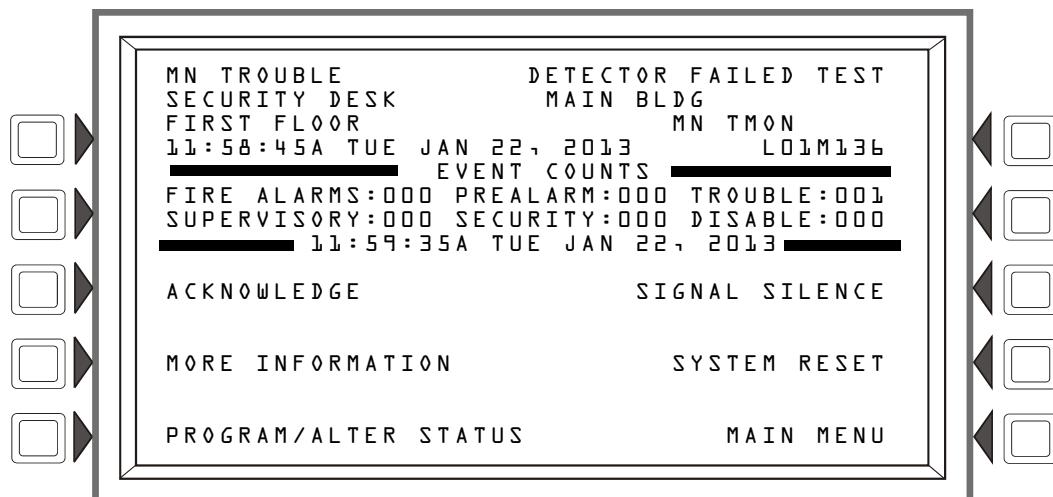
```
┌─────────────────────────────────────────────────┐
│  ┌───────────────────────────────────────────┐  │
│  │                                           │  │
│  │  MN TROUBLE            DETECTOR FAILED TEST│  │
│  │  SECURITY DESK           MAIN BLDG         │  │
│  │  FIRST FLOOR                    MN TMON     │  │
│  │  11:58:45A TUE JAN 22, 2013       L01M136  │  │
│  │  ▬▬▬▬▬▬▬▬▬▬▬▬ EVENT COUNTS ▬▬▬▬▬▬▬▬▬▬▬▬     │  │
│  │  FIRE ALARMS:000 PREALARM:000 TROUBLE:001  │  │
│  │  SUPERVISORY:000 SECURITY:000 DISABLE:000  │  │
│  │  ▬▬▬▬▬▬▬▬ 11:59:35A TUE JAN 22, 2013 ▬▬▬▬▬  │  │
│  │                                           │  │
│  │  ACKNOWLEDGE              SIGNAL SILENCE   │  │
│  │                                           │  │
│  │  MORE INFORMATION          SYSTEM RESET    │  │
│  │                                           │  │
│  │  PROGRAM/ALTER STATUS         MAIN MENU    │  │
│  └───────────────────────────────────────────┘  │
└─────────────────────────────────────────────────┘
```

Figure 2.12   Sample Message for MN Trouble

2.11.2 How to Respond to a Mass Notification Trouble

If the control panel indicates a trouble, the operator can do the following:

1. Press the ACKNOWLEDGE soft key to silence the panel sounder and switch the SYSTEM TROUBLE LED from flashing to steady—regardless of the number of troubles, alarms, security and supervisory signals.

    The control panel sends an acknowledge message to the History buffer, installed printers and annunciators.

2. Check the trouble message for an indication of the trouble.
    Press the MORE INFORMATION soft key to display the MORE INFORMATION screen and view additional information on the device and possibly preprogrammed text for recommended action. (Refer to Figure 1.8 on page 19 for an example of the this screen and an explanation of its fields.)

3. Correct the condition causing the trouble. If the trouble clears, the control panel sends a Clear Trouble message to the History buffer, installed printers and annunciators.

If all troubles clear and no supervisory signals or fire alarms exist, the control panel does the following:

*   Returns to Normal operation (indicated by the "System Normal" message)

*   Sends a "System Normal" message to the panel display, History buffer, installed printers and annunciators

*   Restores troubles automatically - even if troubles are not acknowledged

The soft key PROGRAM/ALTER STATUS is also displayed on this screen. A password is required to enter these menus, which are described in this panel's programming manual.

2.12 Disabled Points Event

The control panel indicates disabled points by displaying a screen for each disabled detector, monitor module, and control/relay module. Disabled points do not cause an alarm or any Control-by-event activity. If more than one point is disabled, the control panel automatically displays each point in the sequence in which the point was disabled.

⚠ **CAUTION:**
WHEN A ZONE IS DISABLED, ANY INPUT AND OUTPUT DEVICES MAPPED TO THE ZONE ARE DISABLED IF THE ZONE IS THE POINT'S PRIMARY ZONE. (THE PRIMARY ZONE IS THE ZONE IN THE FIRST POSITION OF THE ZONE MAP.)

When one or more points are disabled, the control panel does the following:

• Holds all disabled output points in the off-state

• Flashes the SYSTEM TROUBLE LED

• Lights the POINT DISABLED LED

• Sends a Disabled Point message to the History buffer, installed printer and annunciators

• Displays a message for each disabled point, with DISABLED in the upper left corner of the LCD as well as other information about the point.
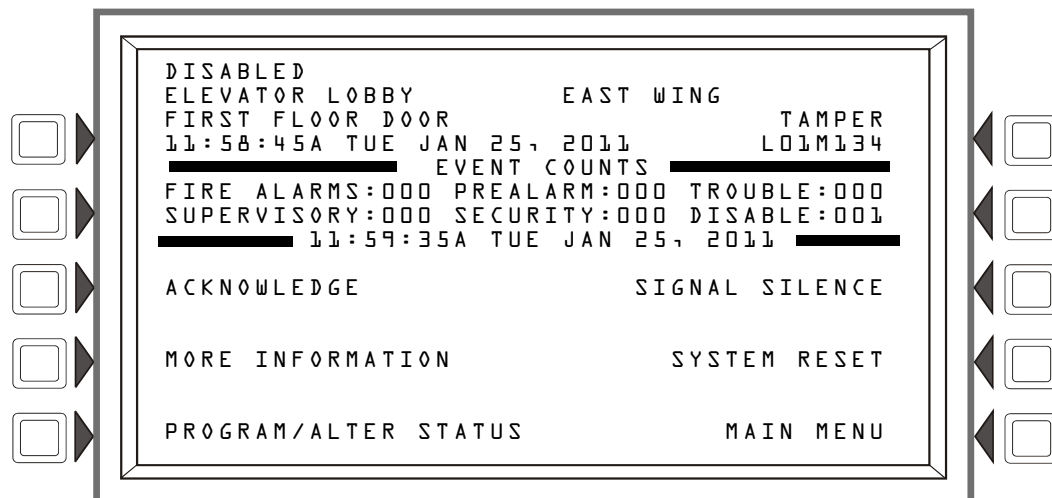

Figure 2.13 Sample Disabled Point Message

Soft Keys

ACKNOWLEDGE: Press to acknowledge the disable message.

MORE INFORMATION: Press to view more information on the disabled point.

PROGRAM/ALTER STATUS: A password is required to enter these menus.

2.13 Active Event

2.13.1 How the Control Panel Indicates an Active Fire Control Point

A point with a Type ID of FIRE CONTROL is used for air handler shutdown, intended to override normal operating automatic functions.

Activation of a FIRE CONTROL point causes the control panel to do the following:

- Initiates the monitor module Control-by-Event
- Send a message to the panel display, History buffer, installed printer and annunciators
- Does NOT light an indicator at the control panel
- Displays `ACTIVE` in the upper left corner of the LCD, as well as a FIRE CONTROL Type Code and other information specific to the device

2.13.2 How the Control Panel Indicates an Active Non-fire Point

A point with a Type ID of NON-FIRE is used for energy management or other non-fire situations. NON-FIRE point operation does not affect control panel operation, nor does it display a message at the panel LCD. Activation of a NON-FIRE point activates CBE—but does not cause any indication on the control panel. For example, you can program a NON-FIRE point to turn lights in a zone to a lower setting when activated. In this case, when the point activates the control panel activates the point's CBE to turn the lights down without any audio or visual indication on the control panel.

2.14 Operation of Special System Timers, Presignal, and PAS

2.14.1 System (Panel) Timers

There are user-programmable time delays for four specific functions: Alarm Verification, AC Fail, Silence Inhibit, and Auto Silence. Refer to this panel's programming manual for instructions on viewing or modifying these values. (They may be viewed only in programming mode.)

Alarm Verification Timer (`VERIFY TIME`)

A timer that directs the control panel to ignore a fire alarm for a smoke detector, programmed for Alarm Verification, while the Alarm Verification Timer is counting. The timer value can be set from 0-60 seconds, and may not exceed 30 seconds for ULC installations. Table 2.3 contains a summary of how the Alarm Verification Timer works.

If this event occurs	The control panel does this
A second fire alarm occurs while the Alarm Verification Timer is counting	Ignores the Alarm Verification Timer and alarms are reported by the panel for both detectors.
The Alarm Verification Timer elapses and a fire alarm still exists	Activates the fire alarm
The Alarm Verification Timer expires and a fire alarm no longer exists	The control panel returns to normal operation and increments the verification counter

Table 2.3 Alarm Verification Timer Operation

AC Fail Delay Timer

This timer delays the time from the start of AC failure to when the trouble is reported. The timer value may be set to none, or from 1-12 hours. A value of "none" will cause immediate notification. The onboard trouble relay and municipal box output will activate when the countdown is complete. Note that this panel notifies the central station communicator as soon as AC failure occurs, and the central station communicator follows its own programmed schedule for reporting the failure.

Silence Inhibit Timer

This timer disables the SIGNAL SILENCE and RESET key function for the programmed time (MM:SS seconds) when a fire alarm occurs. A Silence Inhibit Timer starts at the first fire alarm. A panel reset is required to re-enable this timer. It can be set with a value from 0 (the timer is disabled) to 5 minutes.

Auto Silence Timer

This timer functions like pressing the SIGNAL SILENCE key. When the Auto Silence Timer reaches its programmed value (0, 10 minutes, 15 or 20 minutes, with the setting = 20 for Canadian installations), the control panel automatically shuts off all active outputs programmed as silenceable.

2.14.2 Presignal

Presignal is a feature that initially delays activation of outputs with ZF0 in their zone map until the Presignal timer has expired. This feature allows for the initial sounding of outputs only in specific areas, monitored by qualified personnel. To participate in Presignal, inputs and outputs must include Special Zone ZF0 in their zone map. The Presignal timer is programmed to a value from 60 to 180 seconds.

How the Panel Indicates a Presignal Alarm

When an initiating device participating in Presignal goes into alarm, the panel LCD displays a fire alarm message. (Refer to Section 2.2, "Fire Alarm Event", on page 25.) If a second alarm occurs while the Presignal timer is counting down, the control panel aborts the Presignal timer countdown and activates all programmed outputs. The fire alarm LED flashes and the panel sounder pulses a steady tone. The control panel latches until the alarm is corrected and the SYSTEM RESET key is pressed to reset the panel.

How to Respond to a Presignal Alarm

Once the Presignal timer has begun counting down, the operator has the duration of the countdown time to respond to the alarm before the control panel automatically activates all outputs with ZF0 in their zone map and CBE linkage to the alarm. The operator can reset the panel if the alarm is determined false, or press DRILL to evacuate the building immediately.

2.14.3 PAS (Positive Alarm Sequence)

PAS (Positive Alarm Sequence), used in conjunction with Presignal, allows a 15-second time period for acknowledging an alarm signal from a fire detection/initiating device. If the alarm is not acknowledged within 15 seconds, all programmed outputs activate. If the alarm is acknowledged within 15 seconds, the control panel will enter Presignal mode as described above.

The PAS Inhibit switch can be used to turn off the PAS delay timer when the control panel is unattended.

Section 3: Read Status

This section contains instructions and screen illustrations for Read Status functions and menus using the NFS2-3030 display.

Read Status allows viewing of detailed device status information without entering a password or halting full fire protection. Information can be viewed while a fire alarm or trouble condition exists. Read Status screens are refreshed periodically with up-to-date information.

Read Status can be reached from the Main Menu screen, which is accessible from the System Normal screen and from most other screens by pressing the BACK soft key until it displays. (Refer to Figure 1.6 for an illustration of the Main Menu screen.)

Press the READ STATUS soft key on the Main Menu screen to bring up the following screen.

3.1 Point Select Screen

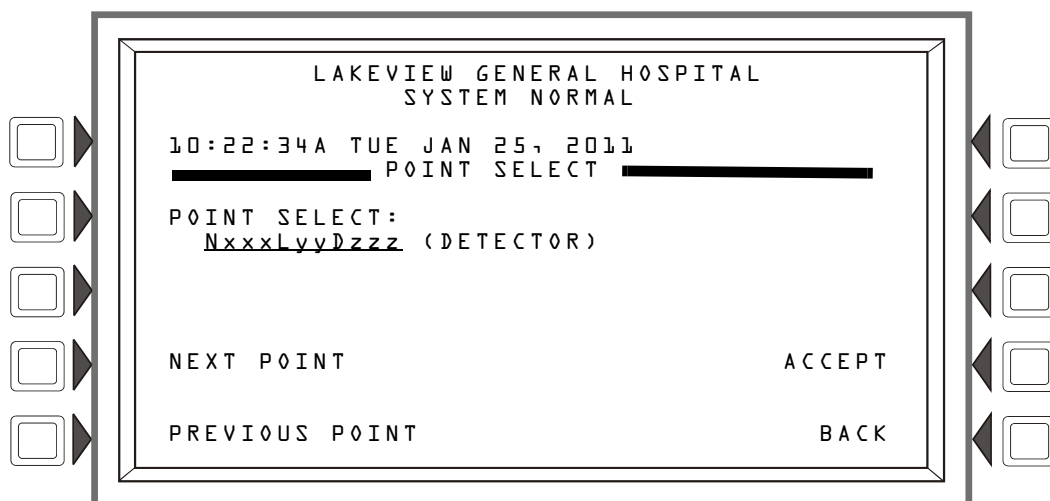When READ STATUS is pressed at the Main Menu, the following screen appears.


```
                LAKEVIEW GENERAL HOSPITAL
                     SYSTEM NORMAL

        10:22:34A TUE JAN 25, 2011
        ━━━━━━━━━━━━━━  POINT SELECT  ━━━━━━━━━━━

        POINT SELECT:
          NxxxLyyDzzz (DETECTOR)



        NEXT POINT                           ACCEPT


        PREVIOUS POINT                        BACK
```

Figure 3.1 Point Select Screen for Read Status

Soft Keys

POINT SELECT - Pressing this soft key scrolls through the various device types. The types and their address formats are illustrated in Table 3.1, "Address Formats," on page 51.

Type	Address Format*	
Detector	NxxxLyyDzzz	L=Loop, yy=Loop number (1-10) D=Detector, zzz=Detector address (1-159)
Module	NxxxLyyMzzz	L=Loop, yy=Loop number (1-10) M=Module, zzz=Module address (1-159)
General Zone	NxxxZyyy	Z=Zone, yyy=General Zone number (0-999)
Logic Zone	NxxxZLyyyy	ZL=Logic Zone, yyyy=Logic Zone number(1-1000)
Annunciator Point	NxxxAxxPyy	A=Annunciator, xx=ACS address (1-32), P=Point, yy=Point address (1-96)
PAM (Prioritized Audio Matrix)	NxxxIyyyyAzzSn	N indicates Node number, xxx=DVC/DVC-EM Node number, I indicates audio input number, yyyy=audio input number, A indicates DAA-5025 or DAA-5070 Audio Amplifier, zz=DAA address (01 through 32), S indicates DAA speaker circuit, n=DAA speaker circuit (A, B, C or D).
Release Zone	NxxxZRyy	R=Releasing Zone, yy=Releasing Zone number (00-09)

Table 3.1 Address Formats (1 of 2)

Type	Address Format*	
Special Function Zone	NxxxZFxx	ZF=Special Function Zone, x=Special Function Zone number (00, 01 - 07, 09 - 22)
Trouble Zone	NxxxZTyyy	ZT=Trouble Zone, yyy=Trouble Zone number (1-100)
DAA Speaker CKT	NxxxAyySn	N indicates Node number, xxx=DVC/DVC-EM Node number, A indicates DAA-5025 or DAA-5070 Audio Amplifier, yy=DAA address (01 through 32), S indicates Speaker circuit, n = Speaker circuit number (1-4).
* The Nxxx preface to all the above address formats refers to the node number, where N = node, xxx = the network node number.		

Table 3.1 Address Formats (2 of 2)

Enter an address to view its attributes (the cursor will be in the underlined section).

NEXT POINT/PREVIOUS POINT - Press to view next or previous point.

ACCEPT - Press to accept the displayed point for further viewing.

Pressing the ACCEPT soft key on the Point Select Screen will display the information that corresponds to the chosen point. Each point type has its own screen.

NOTE: The first four lines of the display may indicate an alarm for a point unrelated to the requested point information displayed below them.

3.2 Smoke Detector

When a detector address is entered into the Point Select Screen and the ACCEPT soft key is pressed, the following screen will display if the detector is a smoke detector.
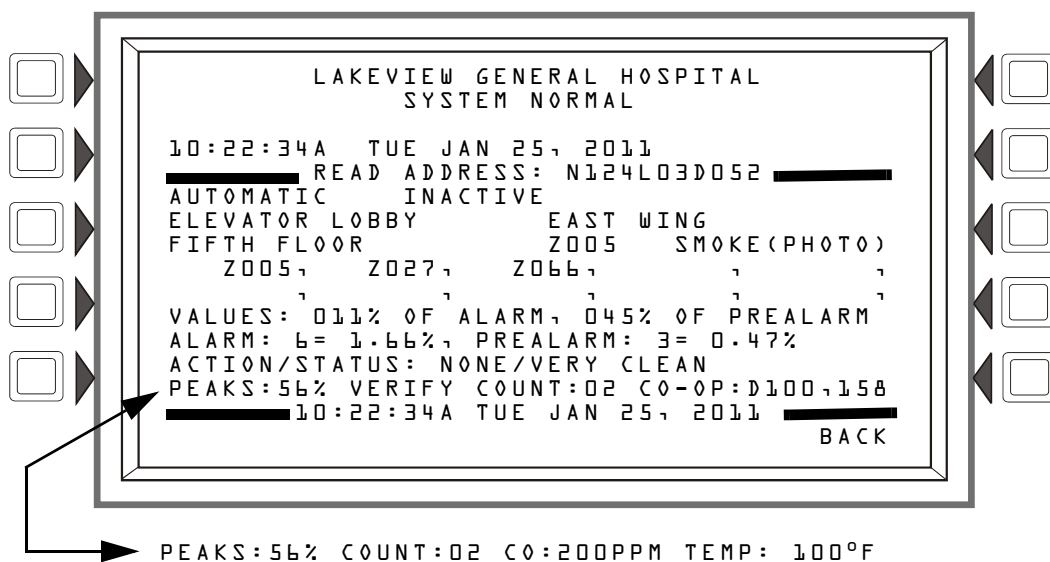
For FSC-851 detectors, the values appear in line 14 above. Refer to More Information on page 19 for explanation of fields.

Figure 3.2 Smoke Detector Screen - Read Status

Display

Lines 1- 4 - This could display any current event message, or, as in this example, the System Normal message.

Line 5 - This line contains the screen title and the address of the point being read.

The area between the separator lines, lines 6-14, shows all information concerning the selected point, which is N124L03D052 in the above example.

Line 6 - Line 6 displays two statistics that display for inputs (detectors and modules) and zones; in the above example they are:

```
AUTOMATIC        INACTIVE
```

The first field displays the point control. There are three designations that could appear in this field

Point Control Designation	Description
AUTOMATIC	The point is being controlled automatically by the panel.
DISABLED	The point has been disabled by an outside source.
TROUBLE	The point is in a trouble state and is no longer functioning automatically.

The second field displays the point status. There are three designations that could appear in this field.

Point Status Designation	Description
INACTIVE	The point is currently reporting no events.
ACTIVE	The point is currently in an off-normal status.
PRE-ALARM	The point is currently in a prealarm status.

The device is a detector (an input device) so by referring to the descriptions below, it can be determined that the point is in a normal state.

Inputs: (detectors, monitor modules, zones)

If the point is not in trouble or disabled, and the point is automatically controlled by the panel, the display will be one of the following:

```
AUTOMATIC       INACTIVE
AUTOMATIC       ACTIVE
AUTOMATIC       PREALARM
```

If the point is disabled, the display will be one of the following. The Trouble Status field will appear if the point is in trouble.

```
DISABLED        INACTIVE        <Trouble Status>*
DISABLED        ACTIVE          <Trouble Status>*
DISABLED        PREALARM        <Trouble Status>*
```

If the point is in trouble, the display will read:

```
TROUBLE         INACTIVE        <Trouble Status>*
TROUBLE         ACTIVE          <Trouble Status>*
TROUBLE         PREALARM        <Trouble Status>*
```

*The field <Trouble Status> will contain one of the device trouble messages listed in Table 2.1, "Point (Device) Troubles," on page 29.

Line 7 - The custom label for this point.

Line 8 - Continuation of the point's custom label, first zone, and device type.

Lines 9,10 - a display of all the zones that contain the current point being read. These lines will have values in them only if the device is a detector.

Lines 11 through 14 - These lines display only if the device being read is a smoke, heat, or aspiration detector. Refer to Section 1.8.2, "More Information", on page 19 for an explanation of these fields.

Line 16 - B A C K - Press to return to the previous screen.

3.3 Heat Detector

When a detector address is entered into the Point Select Screen and the ACCEPT soft key is pressed, the following screen will display if the detector is a heat detector.
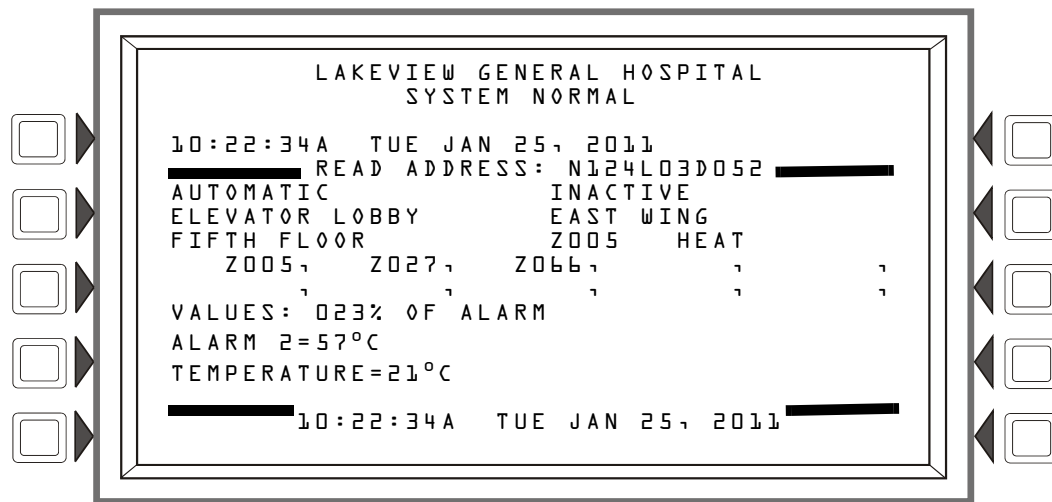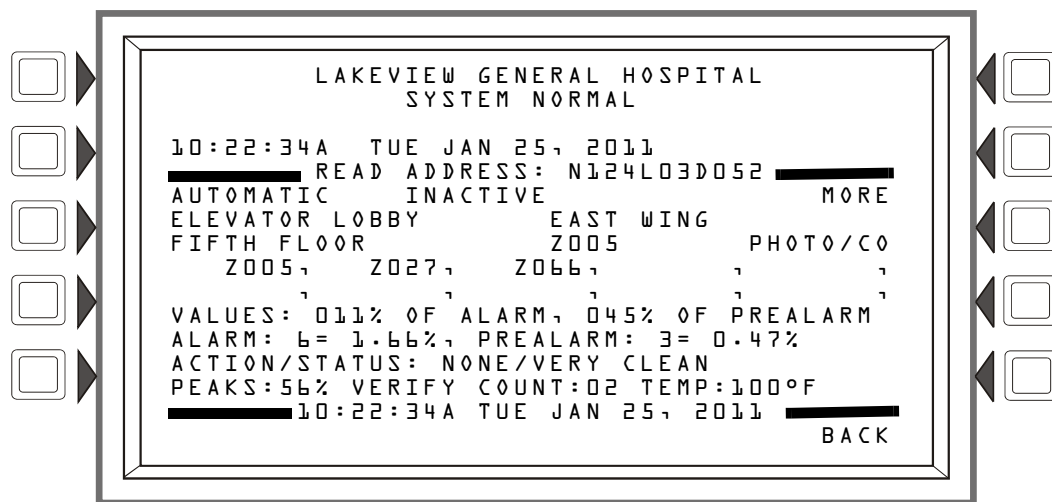
```
        LAKEVIEW GENERAL HOSPITAL
             SYSTEM NORMAL

10:22:34A  TUE JAN 25, 2011
           READ ADDRESS: N124L03D052
AUTOMATIC             INACTIVE
ELEVATOR LOBBY          EAST WING
FIFTH FLOOR             Z005   HEAT
   Z005,   Z027,   Z066,      ,      ,
      ,      ,      ,      ,      ,
VALUES: 023% OF ALARM
ALARM 2=57°C
TEMPERATURE=21°C

           10:22:34A  TUE JAN 25, 2011
```

Figure 3.3 Heat Detector Screen - Read Status

Display

Lines 1 through 10 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

Line 11 - VALUES - This field indicates the percentage of alarm value being read by the detector.

Line 15 - The current time and date are displayed in this line.
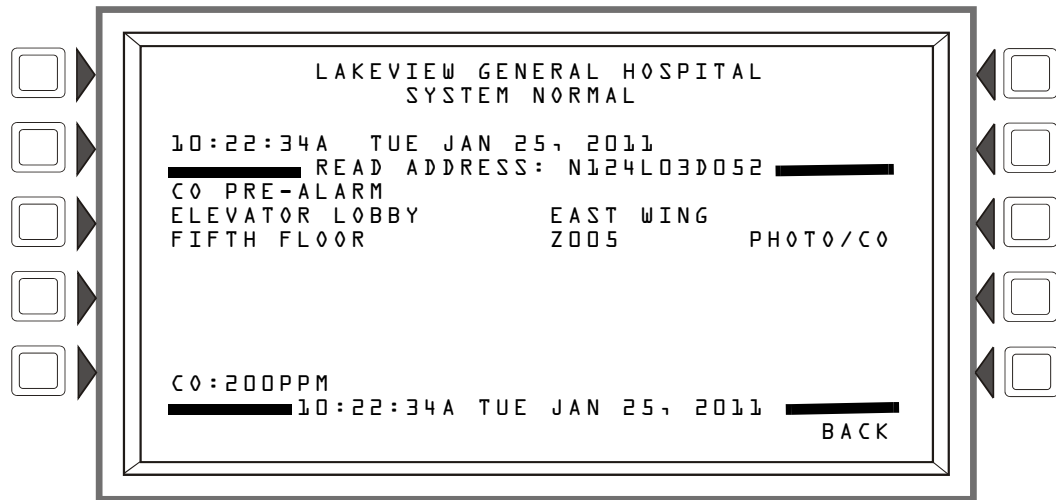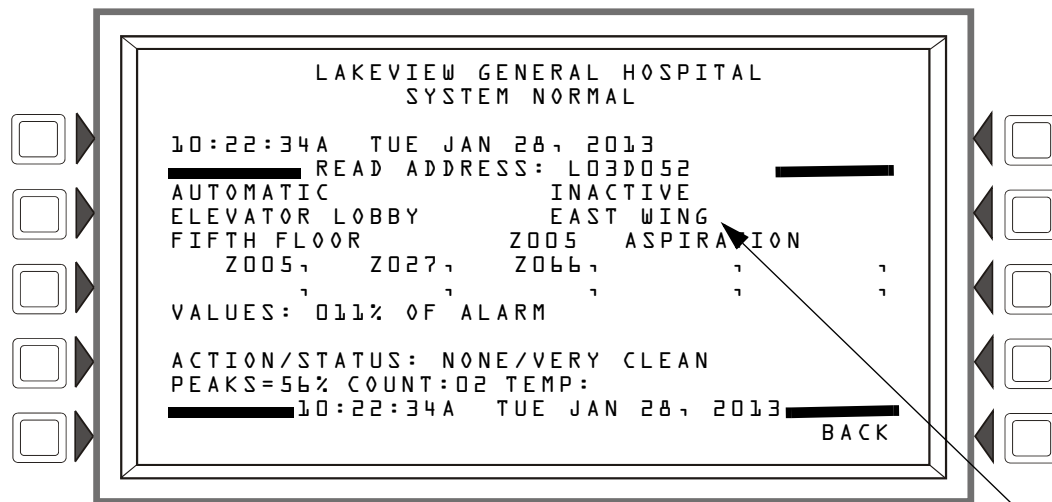
Line 16 - Press BACK to return to the previous screen.

3.4 Photo/CO Detector

When a detector address is entered into the Point Select Screen and the ACCEPT soft key is pressed, the following screen will display if the detector is a smoke detector.

```
        LAKEVIEW GENERAL HOSPITAL
             SYSTEM NORMAL

10:22:34A  TUE JAN 25, 2011
           READ ADDRESS: N124L03D052
AUTOMATIC   INACTIVE               MORE
ELEVATOR LOBBY          EAST WING
FIFTH FLOOR          Z005          PHOTO/CO
   Z005,   Z027,   Z066,      ,      ,
      ,      ,      ,      ,      ,
VALUES: 011% OF ALARM, 045% OF PREALARM
ALARM: 6= 1.66%, PREALARM: 3= 0.47%
ACTION/STATUS: NONE/VERY CLEAN
PEAKS:56% VERIFY COUNT:02 TEMP:100°F
           10:22:34A TUE JAN 25, 2011
                                   BACK
```

Figure 3.4 Photo/CO Smoke Detector Screen - Read Status

Display

Lines 1 through 5 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

Line 6 - Refer to the description for Status in Section 3.2, "Smoke Detector", on page 52. The MORE option will only be displayed when performing a Read Status on a Photo/CO detector. Refer to the MORE option screen below for further details.

Lines 7 through 14 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

Line 15 - The current time and date are displayed in this line.

Line 16 - Press BACK to return to the previous screen.

Figure 3.5 Photo/CO Smoke Detector Screen (2) - Read Status

Lines 1 through 13 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

Line 14 - CO - This field represents the level of Carbon Monoxide for the device. The value is in parts per million.

Line 15 - The current time and date are displayed in this line.

Line 16 - Press BACK to return to the previous screen.

3.5 Aspiration Detector

When a detector address is entered into the Point Select Screen and the ACCEPT soft key is
pressed, the following screen will display if the detector is an aspiration detector.


VESDA 4-Pipe Devices: When in alarm, the extended label will change to display the active pipes.

Figure 3.6 Aspiration Detector Screen - Read Status

Display

Lines 1 through 14 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

Line 15 - The current time and date are displayed in this line.

Line 16 - Press B A C K to return to the previous screen.

3.6 Monitor Module

When a module address is entered into the Point Select Screen and the ACCEPT soft key is pressed,
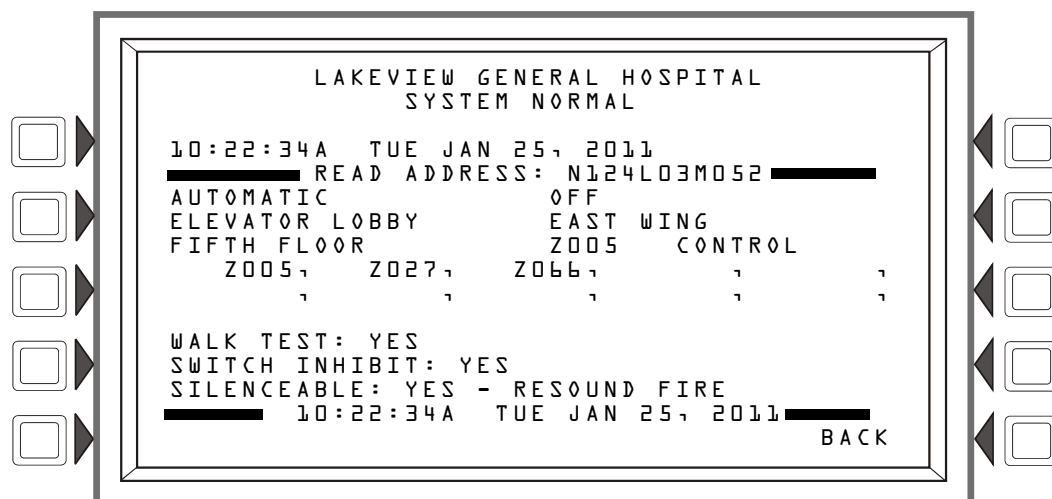the following screen will display if the point is a monitor module.
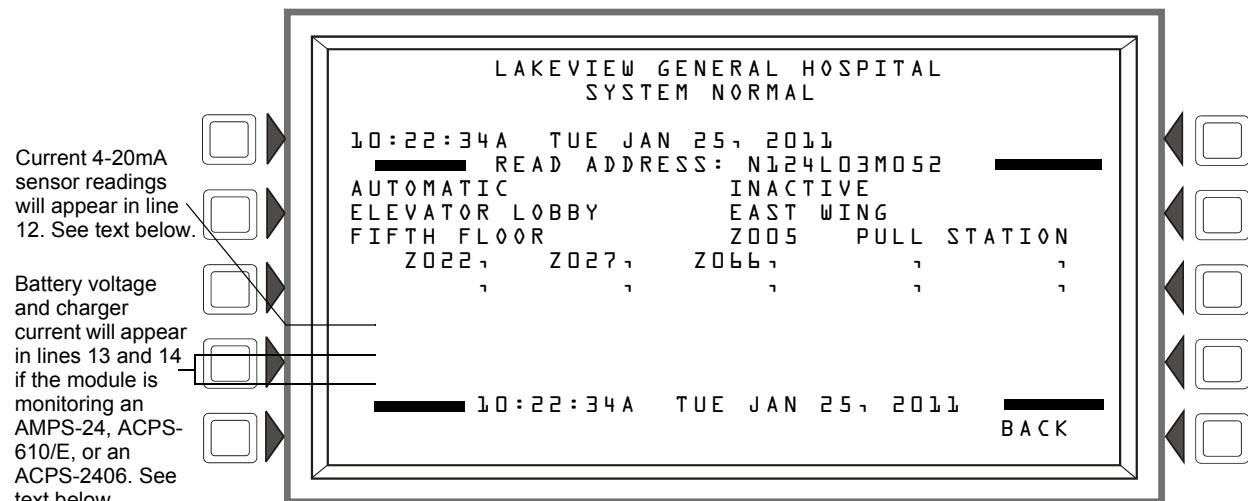
Figure 3.7 Monitor Module Screen - Read Status

Display

Lines 1 through 10 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

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.

Lines 13 and 14 - When a module is monitoring an AMPS-24, ACPS-610/E, or an ACPS-2406, information will appear in these lines in the following format.

```
BATTERY VOLTAGE: 27.9 VOLTS
CHARGER CURRENT:  0.0 AMPS
```

Line 15 - The current time and date are displayed in this line.

Line 16 - Press BACK to return to the previous screen.

3.7 Control Module

When a module address is entered into the Point Select Screen and the ACCEPT soft key is pressed, the following screen will display if the module is a control module.

```
        LAKEVIEW GENERAL HOSPITAL
             SYSTEM NORMAL

10:22:34A  TUE JAN 25, 2011
           READ ADDRESS: N124L03M052
AUTOMATIC              OFF
ELEVATOR LOBBY        EAST WING
FIFTH FLOOR           ZOO5   CONTROL
    ZOO5,   ZO27,   ZO66,      ,      ,
       ,       ,       ,       ,      ,

WALK TEST: YES
SWITCH INHIBIT: YES
SILENCEABLE: YES - RESOUND FIRE
        10:22:34A  TUE JAN 25, 2011
                               BACK
```

Figure 3.8 Control Module Screen - Read Status

Display

Lines 1 through 10 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52 with the exception of line 6, which is described below.

Line 6 - This line displays statistics that display for control module output points; in the above example they are:

```
AUTOMATIC        OFF
```

The first field displays the point control. There are four designations that could appear in this field

Point Control Designation	Description
AUTOMATIC	The point is being controlled automatically by the panel.
MANUAL	The point has been forced into manual control state by an outside source.
DISABLED	A status change other than a change to MANUAL control has caused the
TROUBLE	point to go off automatic control.

The second field displays the point status. There are three designations that could appear in this field.

Point Status Designation	Description
OFF	The point is currently not activated.
ON	The point is currently activated.
OFF-HOOK	The telephone point is currently off-hook.

The device is a control module (an output device) so by referring to the descriptions below, it can be determined that the point is in a normal state.

Outputs: (Control Modules)

If the point is not in trouble or disabled and the status is Automatic, the display will read:

        AUTOMATIC   OFF
        AUTOMATIC   ON
        AUTOMATIC   OFF-HOOK

If the point has been forced into a manual control state, the display will read as follows. <Trouble Status> will appear when there is a point trouble.

        MANUAL   OFF   <Trouble Status>*
        MANUAL   ON   <Trouble Status>*
        MANUAL   OFF-HOOK   <Trouble Status>*

If the point is disabled, the display will read as follows. <Trouble Status> will appear when there is a point trouble.

        DISABLED   OFF   <Trouble Status>*
        DISABLED   ON   <Trouble Status>*
        DISABLED   OFF-HOOK   <Trouble Status>*

If the point is in trouble, the display will read:

        TROUBLE   OFF   <Trouble Status>*
        TROUBLE   ON   <Trouble Status>*
        TROUBLE   OFF-HOOK   <Trouble Status>*

   *The field <Trouble Status> will contain one of the device trouble messages listed in Table 2.1, "Point (Device) Troubles," on page 29.

Line 11 - blank.

Line 12 - WALK TEST - Displays YES if the device sounds during audible Walk Test.

Line 13 - SILENCEABLE - Displays YES if the operator can manually silence an activated output. The output resounds for fire.

Line 14 - SWITCH INHIBIT: YES - Displays YES if the operator can not manually activate an output.

Line 15 - The current time and date are displayed in this line.

Line 16 - Press B A C K to return to the previous screen.

3.8 General Zone

When a general zone address is entered into the Point Select Screen and the `ACCEPT` soft key is pressed, the following screen will display:
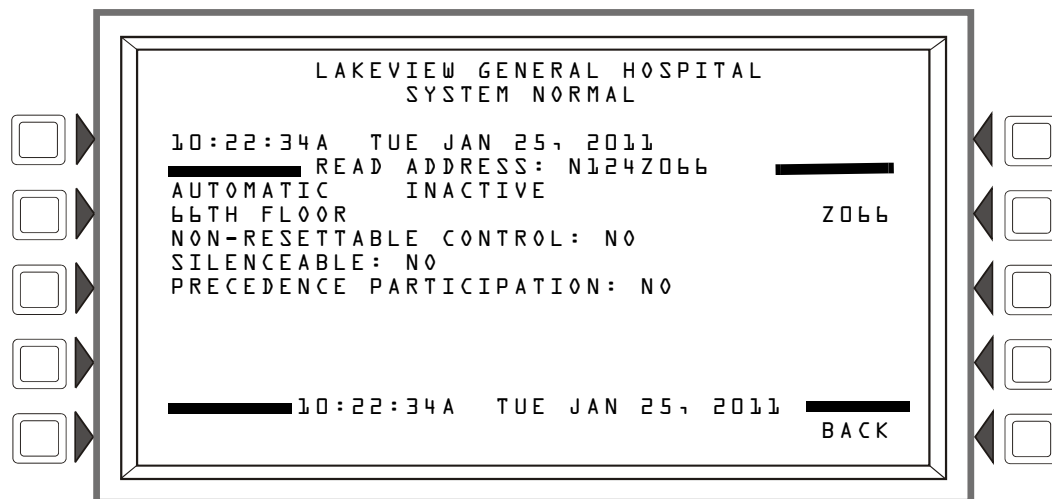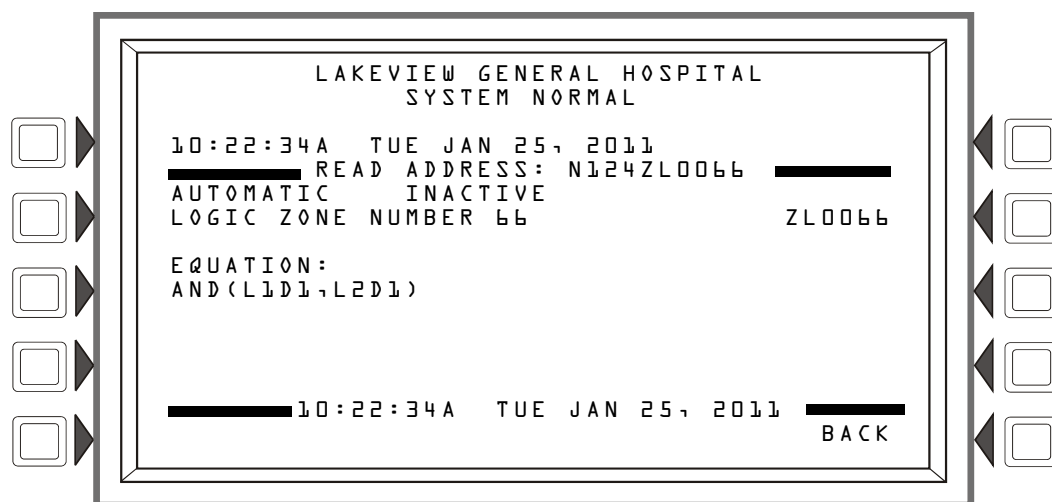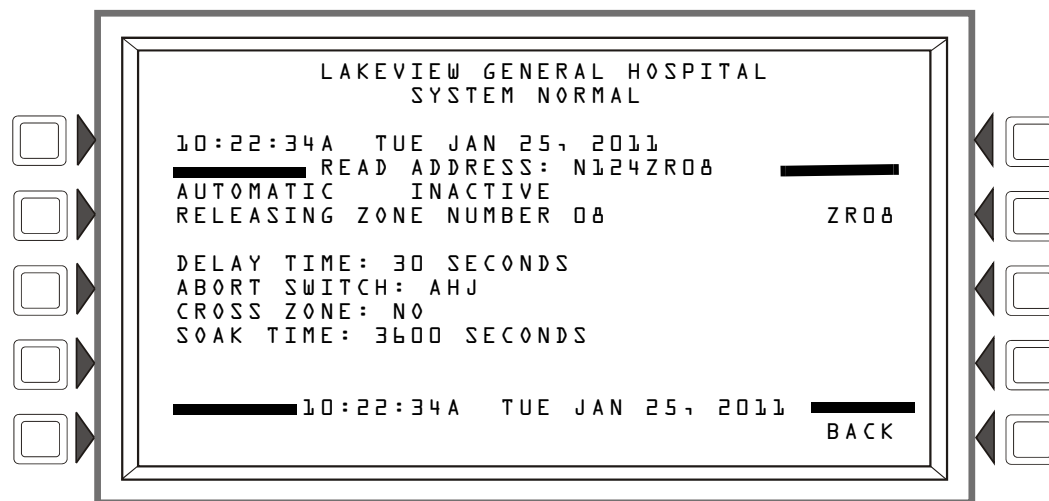
```
                  LAKEVIEW GENERAL HOSPITAL
                       SYSTEM NORMAL

        10:22:34A   TUE JAN 25, 2011
                    READ ADDRESS: N124Z066
        AUTOMATIC    INACTIVE
        66TH FLOOR                              Z066
        NON-RESETTABLE CONTROL: NO
        SILENCEABLE: NO
        PRECEDENCE PARTICIPATION: NO



               10:22:34A   TUE JAN 25, 2011
                                           BACK
```
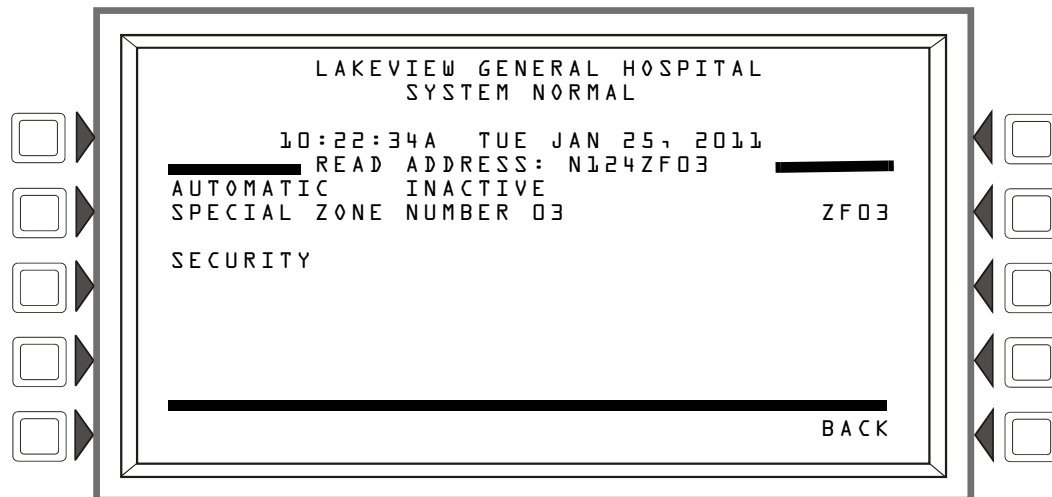
Figure 3.9 General Zone Screen - Read Status

Display

Lines 1 through 7 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

Line 8 - The non-resettable control setting for this zone is displayed on this line.

Line 9 - The silenceable setting for this zone is displayed on this line.

Line 15 - the current time and date

3.9 Logic Zone

When a logic zone address is entered into the Point Select Screen and the `ACCEPT` soft key is pressed, the following screen will display:

```
                  LAKEVIEW GENERAL HOSPITAL
                       SYSTEM NORMAL

        10:22:34A   TUE JAN 25, 2011
                    READ ADDRESS: N124ZL0066
        AUTOMATIC    INACTIVE
        LOGIC ZONE NUMBER 66                 ZL0066

        EQUATION:
        AND(L1D1,L2D1)



               10:22:34A   TUE JAN 25, 2011
                                           BACK
```
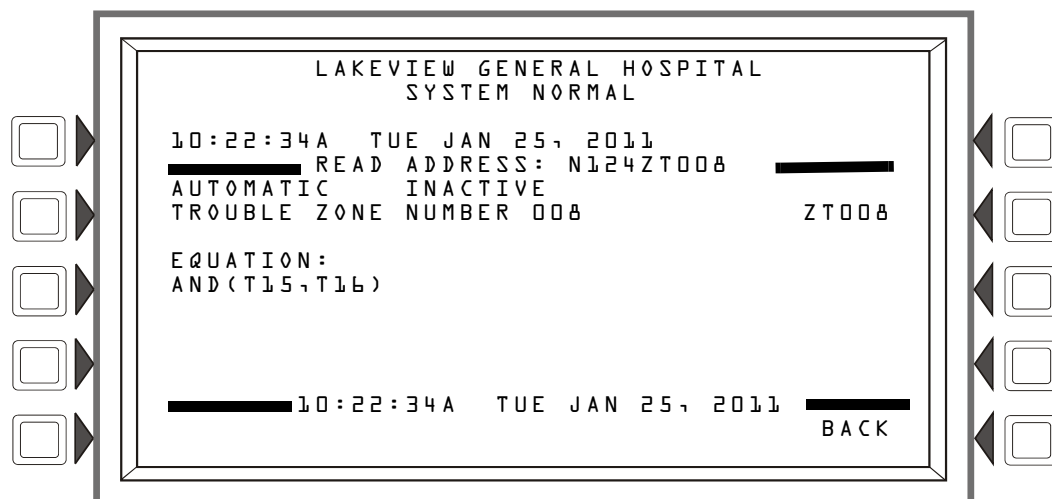
Figure 3.10 Logic Zone Screen - Read Status

Display

Lines 1 through 6 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

`EQUATION:` The logic equation for this logic zone is displayed here

Line 15 - Current time and date.

3.10 Releasing Zone

When a releasing zone address is entered into the Point Select Screen and the `ACCEPT` soft key is pressed, the following screen will display:

```
         LAKEVIEW GENERAL HOSPITAL
              SYSTEM NORMAL

    10:22:34A   TUE JAN 25, 2011
              READ ADDRESS: N124ZR08
    AUTOMATIC    INACTIVE
    RELEASING ZONE NUMBER 08              ZR08

    DELAY TIME: 30 SECONDS
    ABORT SWITCH: AHJ
    CROSS ZONE: NO
    SOAK TIME: 3600 SECONDS


          10:22:34A   TUE JAN 25, 2011
                                         BACK
```
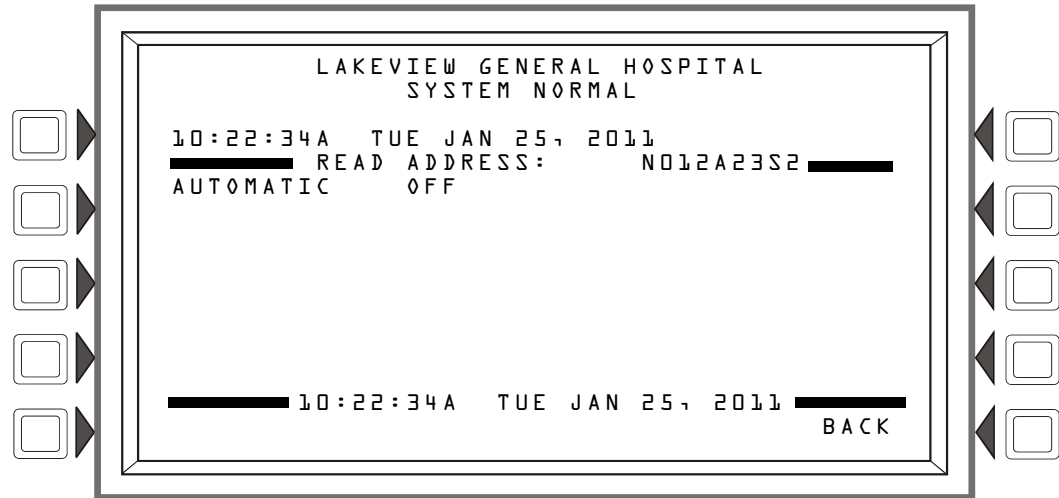
Figure 3.11 Releasing Zone Screen - Read Status

Display

Lines 9 through 7 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

Line 9 - `DELAY TIME` - Gives the delay time setting - a value from 0 to 60 seconds - for this releasing zone.

Line 10 - `ABORT SWITCH` - Displays the type of abort switch; ULI, IRI, NYC or AHJ.

Line 11 - `CROSS ZONE` - Displays the cross zone setting; NO, YES, ZONE, or HEAT.

Line 12 - `SOAK TIME` - Displays the Soak Time setting; 0 to 9999 seconds.

Line 15 - Displays the current time and date.

For further information on Releasing Zones, refer to Appendix B of this manual.

3.11 Special Function Zone

When a special function zone address is entered into the Point Select Screen and the ACCEPT soft key is pressed, the following screen will display:

```
        LAKEVIEW GENERAL HOSPITAL
              SYSTEM NORMAL

      10:22:34A  TUE JAN 25, 2011
          READ ADDRESS: N124ZF03
AUTOMATIC    INACTIVE
SPECIAL ZONE NUMBER 03              ZF03

SECURITY



                                    BACK
```
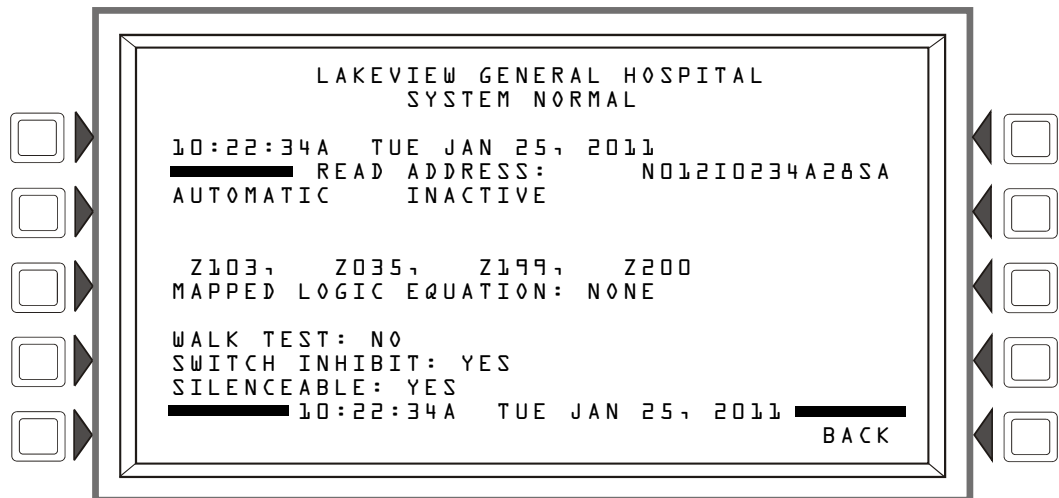
Figure 3.12 Special Function Zone Screen - Read Status

Display

Lines 1 through 6 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

Line 7 - The special zone number and function is displayed here.

3.12 Trouble Zone

When a trouble zone address is entered into the Point Select Screen and the ACCEPT soft key is pressed, the following screen will display:

```
        LAKEVIEW GENERAL HOSPITAL
              SYSTEM NORMAL

10:22:34A  TUE JAN 25, 2011
          READ ADDRESS: N124ZT008
AUTOMATIC    INACTIVE
TROUBLE ZONE NUMBER 008            ZT008

EQUATION:
AND(T15,T16)


       10:22:34A  TUE JAN 25, 2011
                                    BACK
```

Figure 3.13 Trouble Zone Screen - Read Status

Display

Lines 1 through 6 - Refer to the descriptions in Section 3.2, "Smoke Detector", on page 52.

EQUATION: The equation for this trouble zone is displayed here.

Line 15 - Current time and date.

3.13 Annunciator

When an annunciator address is entered into the Point Select Screen and the ACCEPT soft key is pressed, the following screen will display if the point is a monitor module.
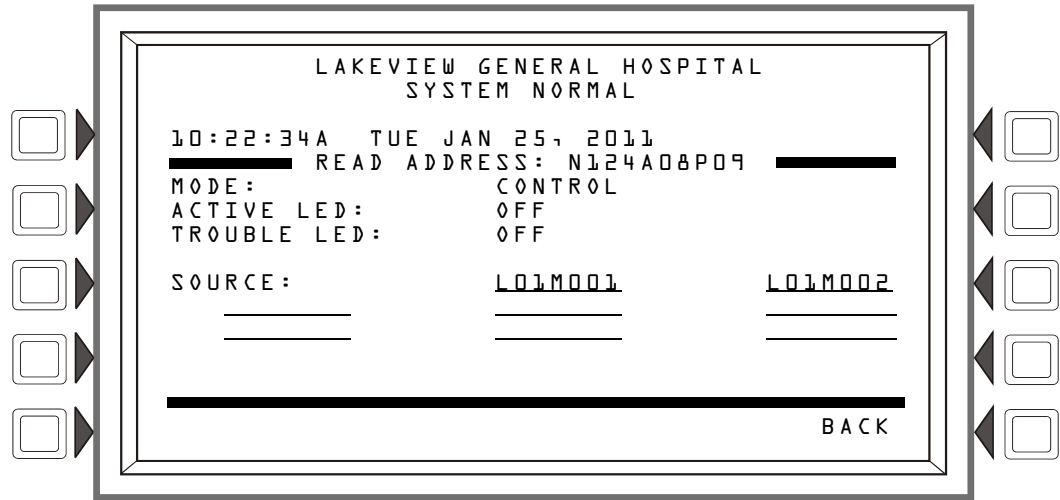
Figure 3.14 Annunciator Screen - Read Status

Display

Lines 1- 4 - This could display any current event message, or, as in this example, the System Normal message

Line 5 - Screen title and the address of the point being read.

Line 6 - Displays the annunciator mode.

Line 7 - Displays the state of the active LED.

Line 8 - Displays the state of the trouble LED.

Line 10 - Displays the annunciator source(s).

3.14 DAA Speaker Circuit

When a DAA Speaker circuit address is entered into the Point Select Screen and the ACCEPT soft key is pressed, the following screen will display.

```
          LAKEVIEW GENERAL HOSPITAL
               SYSTEM NORMAL

10:22:34A  TUE JAN 25, 2011
          READ ADDRESS:     N012A23S2
AUTOMATIC    OFF




          10:22:34A  TUE JAN 25, 2011
                                       BACK
```

Figure 3.15 Speaker Point - Read Status

Lines 1- 4 - This could display any current event message, or, as in this example, the System Normal message

Line 5 - Screen title and the address of the point being read.

Line 6 - Refer to the line 6 description in "Control Module" on page 57 for explanations of the messages that can appear in this line.

3.15 PAM Points

When a PAM (Prioritized Audio Matrix) address is entered into the Point Select Screen and the ACCEPT soft key is pressed, the following screen will display.

```
          LAKEVIEW GENERAL HOSPITAL
               SYSTEM NORMAL

10:22:34A  TUE JAN 25, 2011
          READ ADDRESS:     N012I0234A28SA
AUTOMATIC    INACTIVE


 Z103,   Z035,   Z199,   Z200
MAPPED LOGIC EQUATION: NONE

WALK TEST: NO
SWITCH INHIBIT: YES
SILENCEABLE: YES
          10:22:34A  TUE JAN 25, 2011
                                       BACK
```

Figure 3.16 PAM (Prioritized Audio Matrix) Point - Read Status

Lines 1 - 6 - Refer to the line 6 description in "Smoke Detector" on page 52

Line 9 - DVC General Zone Map.

MAPPED LOGIC EQUATION: - The logic equation associated with this PAM point is displayed here, or NONE if there is no associated equation.

WALK TEST: - The screen will display the PAM point's programmed setting for Walk Test participation (Yes or No).

SWITCH INHIBIT: - The screen will display the PAM point's programmed setting for Switch Inhibit (Yes or No).

SILENCEABLE: - The screen will display the PAM point's programmed Silenceable setting (Yes or No).

Section 4: Viewing and Printing History Information

The control panel maintains a history file of alarm, trouble, supervisory, and security events, each with a time/date stamp. An alarm history is maintained in a buffer that can include up to 1000 events. All events, including alarms, are included in a 4000-event buffer. History events may be viewed onscreen, and a printed list may be generated.

To choose a history display screen:

Press the HISTORY SELECT soft key at the Main Menu. The following menu screen titled History Select will appear.

```
        LAKEVIEW GENERAL HOSPITAL
              SYSTEM NORMAL

    11:58:45A   TUE JAN 25, 2011              N124
              HISTORY SELECT

    ALL EVENTS                    SECURITY/OTHERS

    ALARMS ONLY                   TIME/DATE INTERVAL

    TROUBLES ONLY                      POINT RANGE

    SUPERVISORY ONLY                         BACK
```
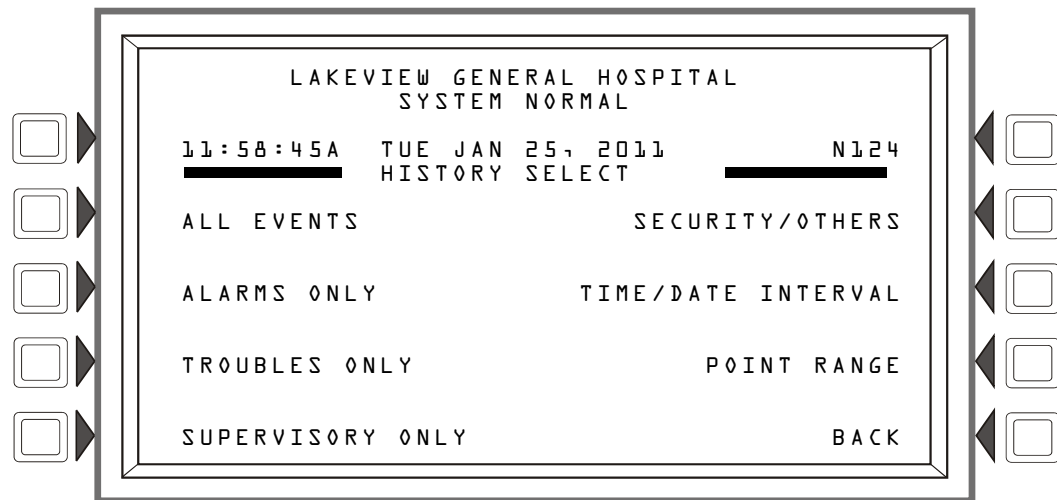
Press the soft key for the type of event history desired to view all of those types of events that are in the history buffer,

OR

Press the TIME/DATE INTERVAL or POINT RANGE soft key to choose limiting parameters for what will display onscreen.

The following sections illustrate and explain the history displays.

4.1 Events History

Pressing a soft key on the History Select screen will display the history for whatever event type chosen. The SECURITY/OTHERS softkey will display disable, pre-alarm, active, active outputs, and security events. If the ALL EVENTS soft key is pressed, any events in the history file will display, no matter what the type.

The screen below is an example of what displays when the ALL EVENTS soft key is pressed. The displayed fields are the same for each event type.

```
        LAKEVIEW GENERAL HOSPITAL
             SYSTEM NORMAL

    11:58:45A  TUE JAN 25, 2011
                   EVENT HISTORY
              EVENT 004 OF 017

    FIRE ALARM                      MAGNET
    ELEVATOR LOBBY      EAST WING
    FIFTH FLOOR         Z005    SMOKE ACCLIM
    10:43:45A  TUE JAN 25, 2011        L03D157

    NEXT EVENT               PRINT EVENT HISTORY


    PREVIOUS EVENT                      BACK
```
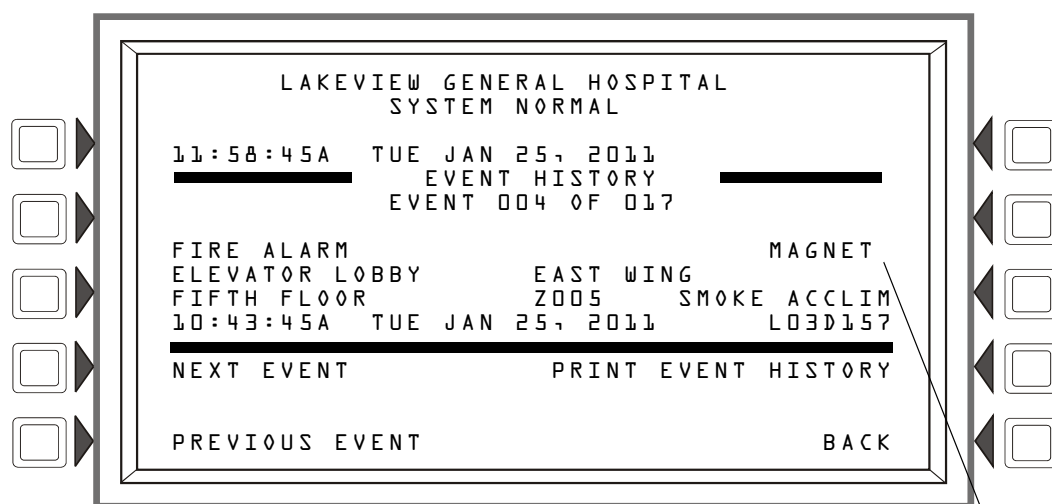
MAGNET indicates that the device event occurred due to a magnet activation.

Figure 4.1 Event History Screen

Display

Lines 1-4: Displays any current event message, or, as in this example, the System Normal message

Line 5: Screen title. It will vary depending on the history type chosen for viewing. For example, it will display ALARM HISTORY if the ALARMS ONLY soft key is pressed at the History Select screen.

Line 6: Queue location of event that is described in lines 8-11: In the above example, the fire alarm is the fourth of 17 events in the history file.

Lines 8 through 11 give more information about the event. Refer to Section 1.6.2, "Event Reporting Format", on page 14 for an explanation of these fields.

NOTE: If an Acclimate™ Detector activates, the event history screen will display whether it was due to heat or smoke. This will be shown in Line 8 and will also show in a printed history report.

Soft Keys

NEXT EVENT - Press to view next event (In the above example, event 005 of 017).

PREVIOUS EVENT - Press to view previous event (In the above example, event 003 of 017).

PRINT "xxx" HISTORY - Press to print the history for the event(s) chosen. (In the above example, all 17 events). The report will look like this:

```
******EVENT HISTORY****************************************************************
TROUBLE
TM4 NO ANSWER                      08:52:05P SAT MAR 5, 2011

ACK TROUBLE
TM4 NO ANSWER                      08:53:35P SAT MAR 5, 2011

CLEAR TROUBLE
TM4 NO ANSWER                      08:54:05P SAT MAR 5, 2011

**********************************************************************************
```

4.2 Time and Date Range Selection for All Events

Pressing the Time/Date Interval soft key on the History Select screen displays the Time & Date Range Select screen. This screen allows for selection of a time period that defines the range of events to be viewed and/or printed.

```
          LAKEVIEW GENERAL HOSPITAL
               SYSTEM NORMAL

       11:58:45A   TUE JAN 25, 2011
       ━━━━━━━  TIME & DATE RANGE SELECT ━━━━━━━

       START TIME: 12:00A THU 01/10/07


       END TIME: 02:00P MON 01/14/08


       EVENT TYPE: ALL EVENTS          ACCEPT


                                       BACK
```
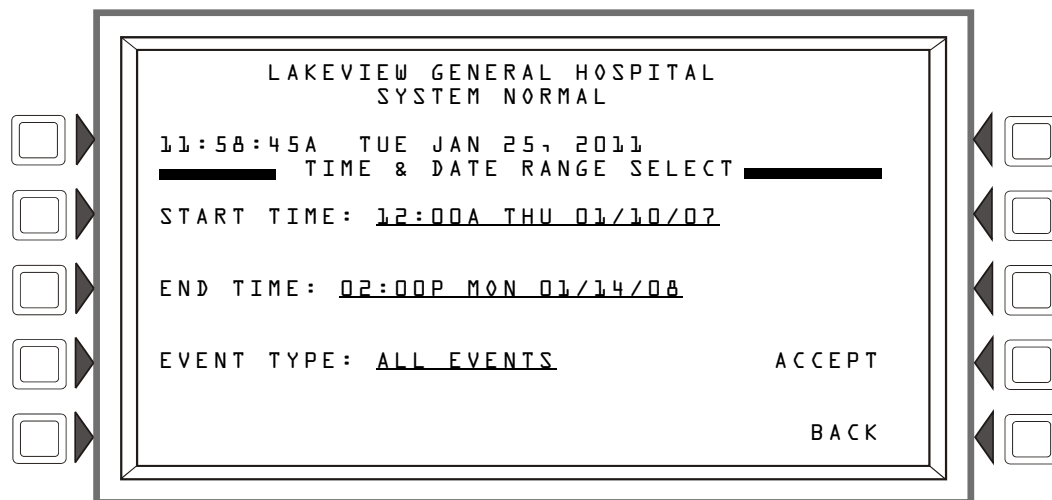
Figure 4.2 Time & Date Range Select Screen

Display

See description in Section 4.1, "Events History", on page 65 for lines 1-5.

Soft Keys

START TIME: - Use the keypad to enter a start time for event viewing in the following format:

   HH:MMA/P DDD MM/DD/YY

END TIME: - Use the keypad to enter an end time for event viewing.

EVENT TYPE: - Press this soft key to scroll through the following: ALL EVENTS, ALARMS ONLY, TROUBLES ONLY, SUPERVISORY ONLY, SECURITY ONLY, OTHER ONLY. Stop scrolling at the desired event type.

ACCEPT: - When entries are made, press this soft key to proceed to the All Events in Interval Screen.

All Events in Interval Screen

This screen is the same as the Event History screen, except for its title. Refer to Figure 4.1 on page 66.

4.3 Point Range Select for All Events in Range

Pressing the Point Range soft key on the Local History Select screen displays the Point Range Select screen. This screen allows for selection of a beginning and an end point that defines the range of events to be viewed and/or printed.

Range is selected in the following order:

1. Loop 1 Detectors
2. Loop 2 Detectors, etc.…
3. Loop 10 Detectors
4. Loop 1 Modules
5. Loop 2 Modules, etc. …

This FACP can have up to 10 loops, which would all follow the above order for range selection.

20. Loop 10 Modules

The range selected below includes all supervisory event types for every point: the selection begins with the first detector on loop one and ends with the last module on loop 10.

```
        LAKEVIEW GENERAL HOSPITAL
            SYSTEM NORMAL

  11:58:45A   TUE JAN 25, 2011
  ▬▬▬▬▬▬▬▬▬▬    POINT RANGE SELECT ▬▬▬▬▬▬▬▬▬

  START POINT:
       L01D001 (DETECTOR)

  END POINT:
       L10M159 (MODULE)

  EVENT TYPE: SUPERVISORY          ACCEPT

                                   BACK
```
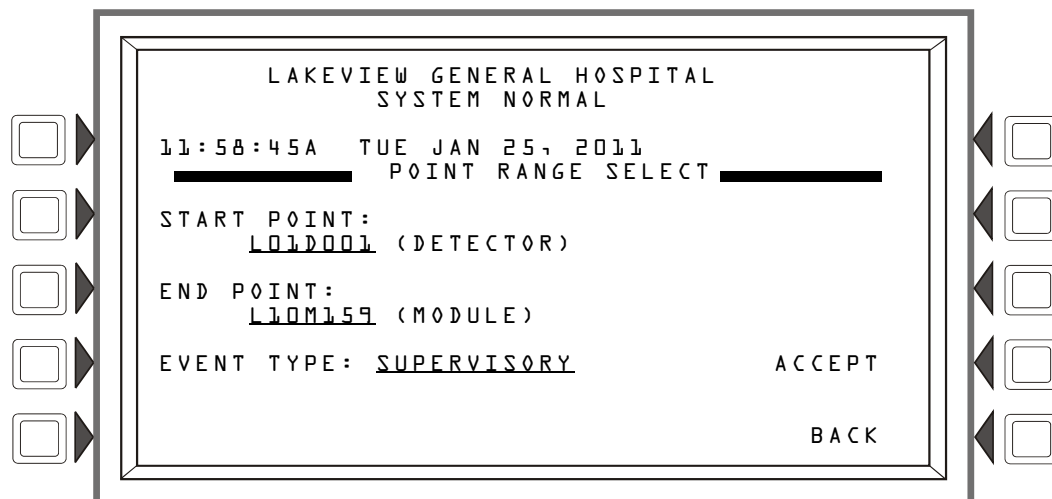
Figure 4.3 Point Range Select Screen

Display

See description in Section 4.1, "Events History", on page 65 for lines 1-5.

Soft Keys

START POINT: - Press this key to scroll through the list of various device types: the format will change for each device. Stop at the desired format/device type, then use the keypad to enter a start point for event viewing.

END POINT: - Press this key to scroll through the list of various device types: the format will change for each device. Stop at the desired format/device type, then use the keypad to enter an end point for event viewing.

EVENT TYPE: - Press this soft key to scroll through the following: ALL EVENTS, ALARMS ONLY, TROUBLES ONLY, SUPERVISORY ONLY, SECURITY ONLY, OTHER ONLY. Stop scrolling at the desired event type.

ACCEPT: - When entries are made, press this soft key to proceed to the All Events in Range Screen.

All Events in Range Screen

This screen is the same as the Event History screen, except for its title. Refer to Figure 4.1 on page 66.

Section 5: Printing Reports

A variety of reports can be generated and printed from the NFS2-3030. Reports listing all event, alarm, trouble, supervisory, or security history can be generated from the history screens in Section 4, "Viewing and Printing History Information", on page 65. The following section describes how to print programming, Walk Test, and active point information.

NOTE: Report formats are shown below as printed by an 80-column printer. When these reports are printed on a Keltron, which is a 40-column printer, the formats are the same except they are displayed on two lines instead of one.

5.1 Printer Functions Screen

The following screen displays when the `Printer Functions` soft key is pressed at the Main Menu. This key will appear only if a printer has been selected through programming.
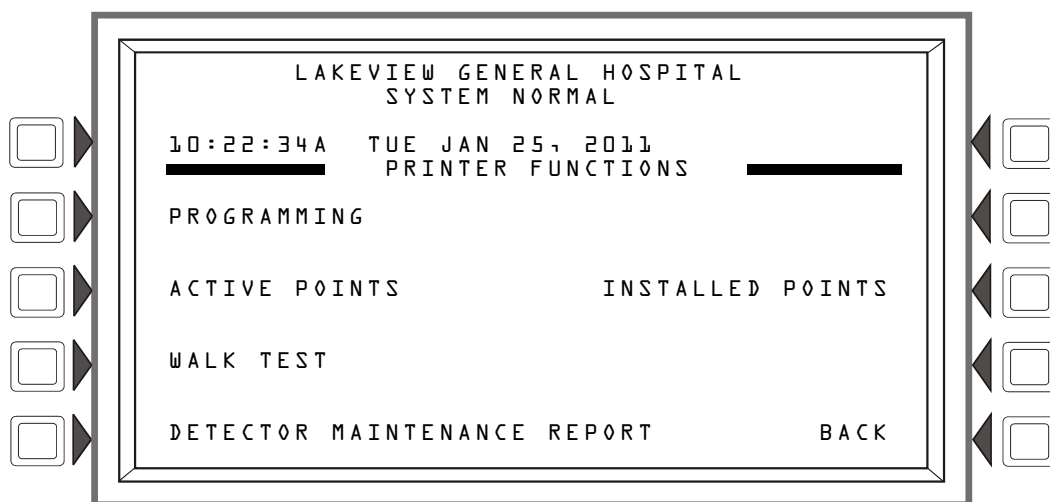
Figure 5.1 Printer Functions Screen

Soft Keys

`PROGRAMMING:` Press this soft key to display the Print Programming Menu screen.

`ACTIVE POINTS:` Press this soft key to display the Active Points Menu screen.

`WALK TEST:` Press this soft key to print point activations for the last Walk Test performed. The report looks like this:

```
******WALK TEST RESULTS***********************************************************
TEST NO ANSWER                          DETECTOR 73
                  Z003       SMOKE(ION)    02:54:04P WED MAR 9,2011      L01D073
TEST FIRE ALARM                         ROOM 101               1ST FLOOR
                  Z001       HEAT          02:54:31P WED MAR 9,2011      L01D003
TEST FIRE ALARM                         ROOM 221               2ND FLOOR
                  Z001       SECURITY L    02:54:59P WED MAR 9,2011      L01M004
TEST ACTIVE                             LAB                    3RD FLOOR
                  Z004       CONTROL       02:55:09P WED MAR 9,2011      L01M005
```

DETECT MAINTENANCE REPORT: Press this soft key to print a list from the printer connected to the control panel that contains the detector maintenance status for each installed addressable detector. The report looks like this:

```
******DETECTOR MAINTENANCE*****************************************************
NORMAL SMOKE(LASER) Detector     L01D001 000330us 000340us  Comp:000% Pk: 002%
Alarm:  000% PreAlarm:   000% A6P6 V000                              L01D001


NORMAL SMOKE ACCLIM Detector     L01D002 000030us 000000us  Comp:000% Pk: 000%
Alarm:  000% PreAlarm:   000% A8P8 V000                              L01D002
```

Field Identification
Detector Maintenance Report

                                        Long term average of
                                        raw analog value in
                                        microseconds

                   Current reading of raw analog
                      value in microseconds   Compensation
                                                               percentage
                           Extended
                           Label   Detector peak
State   Label
```
NORMAL SMOKE(LASER) Detector      L01D001 000330us 000340us  Comp:000% Pk: 002%



Alarm:  000% PreAlarm:   000% A6P6 V000                              L01D001
```
   Percent of   Percent of | | | Address
    alarm   prealarm | | Verification count
   threshold*   threshold* | Programmed prealarm sensitivity*
                                     Programmed alarm sensitivity*

* Whichever occupancy value is in effect when the report is printed.

INSTALLED POINTS: Press this soft key to display the Installed Points Menu screen.

5.2 Print Programming Menu Screen

This screen displays when the PROGRAMMING soft key is pressed on the PRINTER FUNCTIONS screen. Refer to Figure 5.1 on page 69).

```
            PRINT  PROGRAMMING  MENU

NETWORK  PARAMETERS              LCD  DISPLAY



SETTINGS


TIMERS                                 MORE


                                       BACK
```
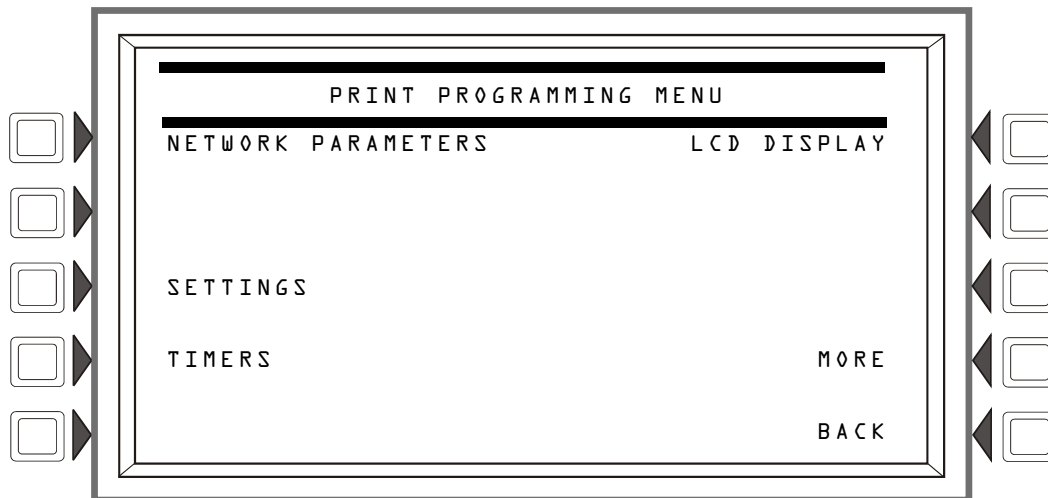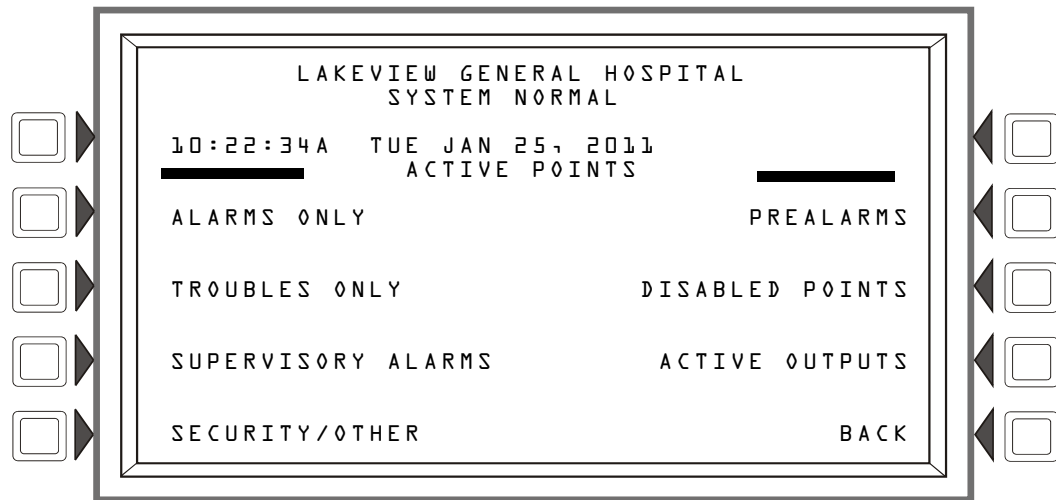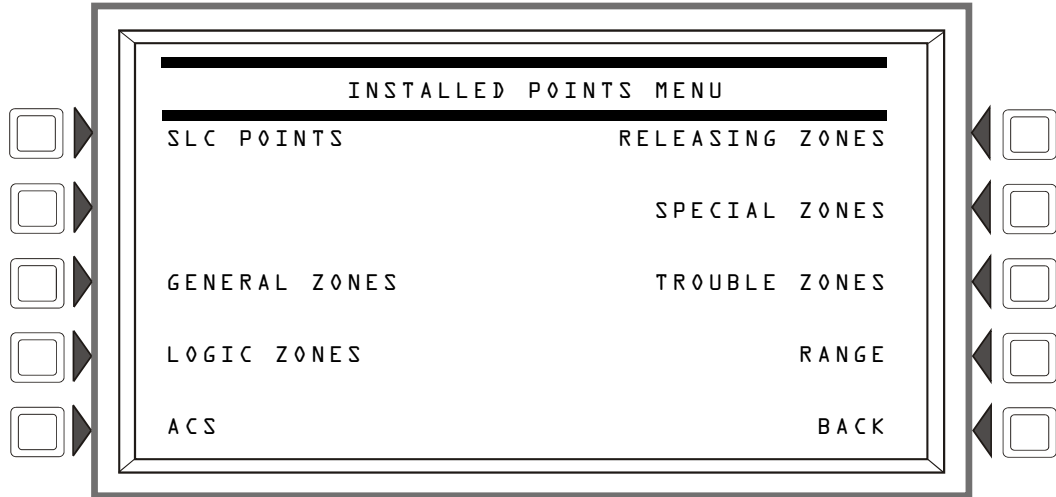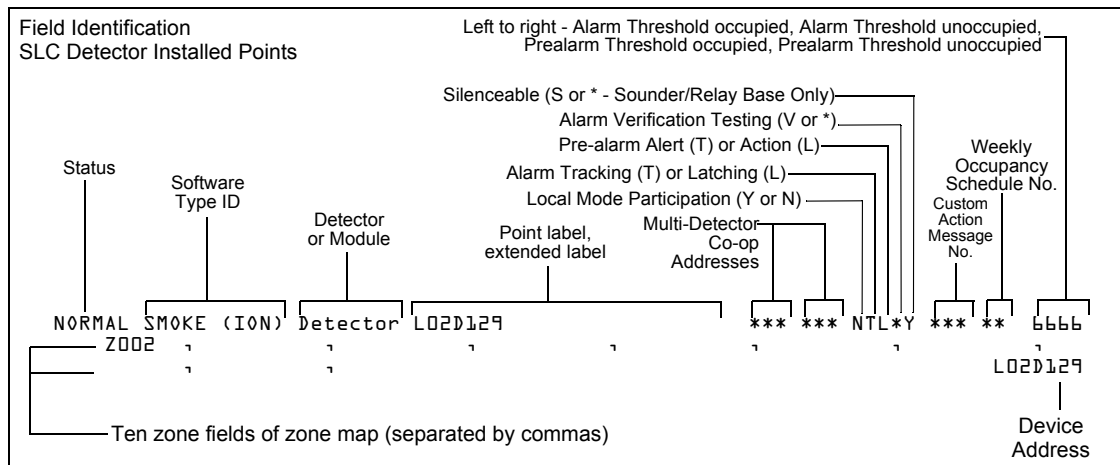
Figure 5.2 Print Programming Screen

Soft Keys

NETWORK PARAMETERS: Press to print node number, node label, Channel A and B threshold, network style. The report looks like this:

```
******NETWORK PARAMETERS*********************************************************
NODE:N124                           STYLE 7                 NO
NODE LABEL: LAKEVILLE GENERAL HOSPITAL
CH A. THRESHOLD:      HIGH          CH B. THRESHOLD:     HIGH
IP ACCESS:OFF
********************************************************************************
```

SETTINGS: Press to print broadcast time, event ordering, and block acknowledge. The report looks like this:

```
******PANEL SETTINGS***********************************************************
LOCAL CONTROL:        NO            TROUBLE REMINDER:    YES
PIEZO:                ON            POWER MANAGEMENT MODE:          OFF

PROPRIETARY SUPERVISING STATION:    NO
EVENT ORDERING:       USA
DISPLAY ADDRESS:      YES
DCC PARTICIPATION:            NO
REGIONAL SETTING      DEFAULT
LCM LOCAL MODE:       NO
RAPID ALL CALL:       NO
SILENCEABLE WATERFLOW:        NO
MN PRIORITY OVER FIRE:        YES
DRILL CONFIGURATION:    AUDIBLE AND VISIBLE
SILENCE CONFIGURATION:  AUDIBLE
********************************************************************************
```

TIMERS: Press to print timer values for Auto Silence, Silence Inhibit, AC Fail Delay time and whether it has been enabled, Proprietary Reminder, and Remote Reminder timers. The report looks like this:

```
******PANEL TIMERS*************************************************************
VERIFY TIME:            30              VERIFY=PREALARM:      NO
MAXIMUM VERIFICATION COUNT:    00
AC FAIL DELAY:          8 HOURS
SILENCE INHIBIT:        00:00
AUTO SILENCE:           10 MINUTES
PAS                     OFF
PRESIGNAL DELAY         03:00
*****************************************************************************
```

LCD DISPLAY: Press to print information about backlight handling during fire alarm, backlight intensity, and display language. The report looks like this:

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

LANGUAGE:               ENGLISH
*****************************************************************************
```

5.3 Print Programming Menu Screen (2)

The second PRINT PROGRAMMING MENU screen displays when MORE is pressed at the first PRINT PROGRAMMING MENU screen:
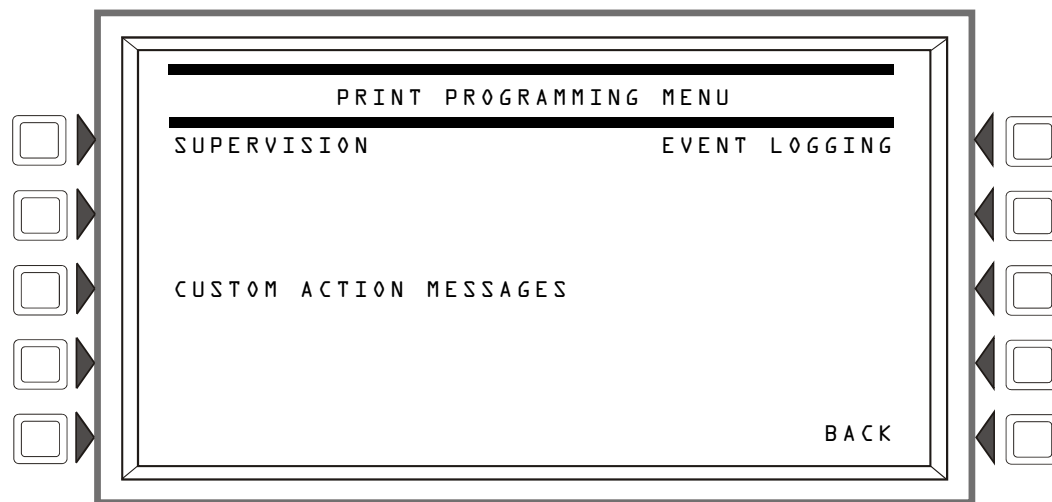
Figure 5.3 Print Programming Screen

Soft Keys

SUPERVISION: Press to print information on power supply and printer monitoring. The report looks like this:

```
******SUPERVISION*************************************************************
MAIN POWER SUPPLY ADDRESS:      L01M006
PRINTER:                80-column
TAMPER INPUT:           NO
AUXILIARY TROUBLE:      NO
*****************************************************************************
```

CUSTOM ACTION MESSAGES: Press to print all custom action messages (1-100). The report looks like this:

```
******CUSTOM ACTION MESSAGE****************************************************
CUSTOM ACTION MESSAGE: 001
GO TO ALARM SITE AND INVESTIGATE   APPROACH THE ALARM LOCATION WITH CAUTION
BRING CELL PHONE AND REPORT WHEN ON SITE

CUSTOM ACTION MESSAGE: 002
CALL MANAGER WITH REPORT
*******************************************************************************
```

EVENT LOGGING: Press to print non-fire and output activations if these events have been chosen for logging during panel programming. The report looks like this:

```
******EVENT LOGGING***********************************************************
NON-FIRE ACTIVATIONS:NO                 OUTPUT ACTIVATIONS:  NO
LOG WIRELESS STATES:NO
*******************************************************************************
```

5.4 Active Points Report Screen

This screen displays when the ACTIVE POINTS soft key is pressed on the PRINTER FUNC-TIONS screen (refer to Figure 5.1 on page 69).

```
            LAKEVIEW  GENERAL  HOSPITAL
                   SYSTEM  NORMAL

    10:22:34A   TUE JAN 25, 2011
                   ACTIVE  POINTS

    ALARMS  ONLY                      PREALARMS

    TROUBLES  ONLY            DISABLED  POINTS

    SUPERVISORY  ALARMS        ACTIVE  OUTPUTS

    SECURITY/OTHER                         BACK
```

Figure 5.4 Print Active Points Screen

Soft Keys

This screen provides a menu for printing a list of *active* points for whatever type of list is chosen. The soft key will display on the screen only if there is at least one event in the queue.

NOTE: For a printed list of *history* information, refer to the history screens in Section 4, "Viewing and Printing History Information".

5.5 Installed Points Report Screen

This screen displays when the INSTALLED POINTS soft key is pressed on the PRINTER
FUNCTIONS screen (refer to Figure 5.1 on page 69)

```
          INSTALLED POINTS MENU

SLC POINTS                    RELEASING ZONES

                              SPECIAL ZONES

GENERAL ZONES                 TROUBLE ZONES

LOGIC ZONES                   RANGE

ACS                           BACK
```

Figure 5.5 Print Programming Screen

Soft Keys

SLC POINTS: Press to print information on installed SLC points. When the soft key is pressed, a
field appears to allow choice of a single SLC or ALL. Toggle until the desired choice appears in the
field, then press ACCEPT. The report looks like this.

```
******INSTALLED POINTS*************************************************************

NORMAL SMOKE (ION) Detector L02D129            *** *** NTL*Y *** **  6666
    Z002  '           '           '           '           '           '
          '           '                                              L02D129

ON    RELAY    Module    L02M005                        NL * *** **
    ZL001  '          '           '           '          '           '
           '          '                                            L02M005

*********************************************************************************
```

Field Identification
SLC Detector Installed Points

Left to right - Alarm Threshold occupied, Alarm Threshold unoccupied,
Prealarm Threshold occupied, Prealarm Threshold unoccupied

Silenceable (S or * - Sounder/Relay Base Only)
Alarm Verification Testing (V or *)
Pre-alarm Alert (T) or Action (L)
Weekly Occupancy Schedule No.
Alarm Tracking (T) or Latching (L)
Local Mode Participation (Y or N)
Custom Action Message No.

Status
Software Type ID
Detector or Module
Point label, extended label
Multi-Detector Co-op Addresses

```
NORMAL SMOKE (ION) Detector L02D129            *** *** NTL*Y *** **  6666
      Z002  '          '           '          '           '
            '          '                                  L02D129
```

Ten zone fields of zone map (separated by commas)

Device Address

GENERAL ZONES: Press to print a report of installed general zones.

```
******INSTALLED POINTS*******************************************************
ON    GENERAL ZONE General Alarm                                        Z000
ON    GENERAL ZONE Zone 001                                             Z001
OFF   GENERAL ZONE Zone 002                                             Z002
*****************************************************************************
```

LOGIC ZONES: Press to print a report of installed logic zones.

An asterisk in this position indicates this zone appears in a point's zone map.

```
******INSTALLED POINTS*******************************************************
ON    LOGIC ZONE   AND(Z1,NOT(L2M6)
                                                      ZL0001*
OFF   LOGIC ZONE   AND(ZL10,NOT(Z75))
                                                      ZL0011
*****************************************************************************
```

ACS: Press to print information on the device types for addresses 1-32. The report looks like this:

Point function column   Mapped point column   ACS point address column

```
******INSTALLED POINTS********************************************************
BOARD     01: 64SYS
  ALARM/TROUBLE                                              N00A01P01
  SILENCE                                                    N00A01P02
  RESET                                                      N00A01P03
  SUPERVISORY                                                N00A01P04
  (SECURITY)                                                 N00A01P05
  BATTERY LOW                                                N00A01P06
  AC FAIL                                                    N00A01P07
  MONITOR                   L01D01                           N00A01P08
*****************************************************************************
```

RELEASING ZONES: Press to print a report of installed releasing zones.

An asterisk in this position indicates this zone appears in a point's zone map.

```
******INSTALLED POINTS*******************************************************
OFF   RELEASE ZONE                                                      ZR0*
OFF   RELEASE ZONE                                                      ZR1
*****************************************************************************
```

SPECIAL ZONES: Press to print a report of installed releasing zones.

An asterisk in this position indicates this zone appears in a point's zone map.

```
******INSTALLED POINTS*******************************************************
OFF   SPECIAL ZONE                                                      ZF0*
*****************************************************************************
```

TROUBLE ZONES: Press to print a report of installed trouble zones.

```
******INSTALLED POINTS***********************************************************
OFF    TROUBLE ZONE   OR(ZT049,ZT050)
********************************************************************************
```

RANGE: Press to bring up the following screen, which allows the programmer to choose a range of installed points to print.

Figure 5.6 Installed Points Menu - Range

Soft Keys

START POINT: Press to place the cursor in this field, and to toggle between the choices, which appear in print order: DETECTOR (loop1, detector 1 through loop 10, detector 159), MODULE (loop 1, module 1 through loop 10, module 159), GENERAL ZONE, LOGIC ZONE, RELEASE ZONE, ACS PTS, SPECIAL ZONE, TROUBLE ZONE. Using the keypad, type in the start point address.

END POINT: Press to place cursor in this field, and to toggle between the choices as described above. Using the keypad, type in the end point address.

Appendix A: Software Type ID Codes

A.1 Alphabetical List

The following chart lists NFS2-3030 Type ID codes in alphabetical order. These codes are assigned during programming based on the types and functions of the devices they are assigned. The codes appear in point message formats.

Software Type ID Code	Device
ABORT SWITCH	Monitor that provides an abort function for a releasing zone through connection to a UL-listed abort station)
ACCESS MONTR	Monitor for building access
ACK SWITCH	Monitor used to silence panel sounder, and to give an acknowledge message on the panel display
AIR REF	FSL-751 detector used to monitor air quality entering a protected area
ALARMS PEND	Control module or NAC for output that will activate upon receipt of an alarm condition, and remain in the alarm state until all alarms have been acknowledged. Programmed for switch inhibit
ALARM TRACK	Monitor used to monitor fire alarm equipment
ALLCALL PAGE	Monitor used for emulation of AMG-1 All-call switch, activating all speaker circuits
AREA MONITOR	Monitor for building access
ASPIR. (NON)	For use with an aspiration detector, reports to the fire panel as a non-fire event when its threshold is reached
ASPIR. (PRE)	For use with an aspiration detector, reports to the fire panel as a prealarm condition when its threshold is reached
ASPIR. (REF)	For use with an aspiration detector, reports to the fire panel as a non-fire activation, used as a reference for other aspiration detectors on the loop
ASPIR. (SUP)	For use with an aspiration detector, reports to the fire panel as a supervisory when its threshold is reached
ASPIRATION	For use with an aspiration detector, reports to the fire panel as a fire alarm when threshold is reached
AUDIBLE CKT	Control module/ relay used on audible circuit NAC
AUDIO SYSTEM	Monitor for audio equipment
BELL CIRCUIT	Control module used with NAC with bells
blank	Operates as CONTROL with no Type ID label
CO MONITOR	Monitor Module for use with conventional CO detectors. Activation will generate a CO Alarm on the FACP.
CONTROL	Control module used with NAC
CONTROL NAC	Control module or NAC
DRILL SWITCH	Monitor used for activation that emulates panel Drill switch, activating silenceable fire outputs
ECS/MN MON	Monitor for mass notification alarms, latching
ECS/MN SUPL	Monitor for mass notification supervisory inputs, latching
ECS/MN SUPT	Monitor for mass notification supervisory inputs, tracking
ECS/MN TMON	Monitor used for mass notification trouble inputs, tracking
EQUIP MONITR	Monitor used for recording access to equipment
EVACUATE SWITCH	Monitor used for activation that emulates panel Drill switch, activating silenceable fire outputs
FIRE CONTROL	Monitors non-fire activations
FMM-420	Monitors 4-20 mA industrial sensors
FORM C RESET	Control module used to interrupt 24V power to four-wire conventional detectors for 30 seconds upon reset. Used in conjunction with a monitor module with a conventional detector Type ID

Table A.1 Software Type ID Codes, Alphabetical List (1 of 4)

Software Type ID Code	Device
GEN ALARM	Control module, XPC-8 circuit, or XP5-C (NAC mode) configured as a Municipal Box Transmitter for NFPA 72 Auxiliary Fire Alarm Systems applications (MBT-1 required). This Type ID can also be used for general alarm activation. It is programmed as "switch inhibit".
GEN PEND	Control module, XPC-8 circuit, or XP5-C (NAC mode) that will activate upon receipt of an alarm and/or trouble condition, and remain in the ON state until all events have been acknowledged
GEN SUPERVIS	Control module, XPC-8, or XP5-C (NAC mode) activated under any supervisory condition (includes sprinkler type). It is programmed as "switch inhibit"
GEN TROUBLE	Control module, XPC-8, or XP5-C (NAC mode) activated under any System Trouble condition. It is programmed as "switch inhibit"
HAZARD ALERT	Indicated a hazard condition, tracking
HEAT	Adjustable threshold heat detector
HEAT+	Adjustable threshold heat detector with a low temperature warning.
HEAT(FIXED)	Intelligent 135ºF thermal sensor detector
HEAT(ROR)	15ºF per minute rate-of-rise detector
HEAT DETECT	Monitor for conventional heat detector
HORN CIRCUIT	Control module relay module used with NAC with horns
INST RELEASE	Control module used with NAC. Always non-silenceable and switch-inhibited
ISOLATED NAC	Supervised NAC for notification appliance, used with audio isolators. Activates even if there is a short on its NAC circuit. Canada installations only.
ISOLATED SPK	Supervised NAC for speaker circuit, used with audio isolators. Activates even if there is a short on its audio circuit. Canada installations only.
LATCH SUPERV	Indicates latching supervisory condition
MAN RELEASE	Monitor module that provides manual release for a releasing zone through connection to a UL-listed pull station
MAN REL DELAY	Monitor module that provides manual release with a 10 second delay for a releasing zone through connection to a UL-listed pull station
MONITOR	Alarm-monitoring device
MNS CONTROL	Activates control module mass notification devices when an MNS event occurs
MNS GENERAL	Activates NAC mass notification devices when an MNS event occurs
MNS RELAY	Activates relay mass notification devices when an MNS event occurs
MNS SPEAKER	Activates speaker mass notification devices when an MNS event occurs
MNS STROBE	Activates strobe mass notification devices when an MNS event occurs
NON FIRE	Monitors non fire activations
NONRESET CTL	Output unaffected by "System Reset" command
PAS INHIBIT	Monitor used to inhibit Positive Alarm Sequence (PAS)
P/CO (C SUP)	For use with a Photo/CO detector. If the CO element in the detector activates, a supervisory condition is generated on the fire panel. An activation via the heat or photo element of the Photo/CO detector will generate an alarm condition on the panel.
P/CO (P SUP)**	For use with a Photo/CO detector. If the photo element in the detector activates, a supervisory condition is generated on the fire panel. An activation via the CO or heat element of the Photo/CO detector will generate an alarm condition on the panel.
PHOTO/CO	For use with a Photo/CO detector. Activation of the CO, photo or heat elements will generate an alarm condition on the fire panel.
POWER MONITR	Monitor for main and auxiliary power supplies
PROCESS AUTO	Indicates process condition, tracking
PROCESS MON	Indicates process condition, latching
PULL STATION	Manual fire-alarm activating device
REL AUDIBLE	Activates audio or visual devices steady when releasing starts
REL END BELL	Control module used to activate NAC audio or visual device when releasing circuits shut off
REL CKT ULC	Control module used to direct outputs to perform a release function as required by ULC
RELAY	Form-C relay control module

Table A.1 Software Type ID Codes, Alphabetical List (2 of 4)

Software Type ID Code	Device
REL. FORM C	Form-C relay that directs outputs to perform a releasing function
RELEASE CKT	Directs outputs to perform a releasing function
RESET SWITCH	Monitor used to reset the control panel
RF MON MODUL	Wireless alarm-monitoring device
RF PULL STA	Wireless manual fire alarm-activating device
RFSMOKE(PHOTO)	Wireless smoke detector
RF SUPERVSRY	Wireless supervisory-monitoring device
SECOND SHOT	Monitor module that provides a second manual release for a releasing zone through connection to a UL-listed pull station
SECURITY L	Monitor for activation of latching security alarm
SIL SWITCH	Monitor used as Signal Silence switch, turning off all activated silenceable outputs
SMOKE ACCLIM	Combination photoelectric/heat detector
SMOKE(ACCLIM+)	Combination photoelectric/heat detector with low temperature warning
SMOKE CONVEN	Conventional smoke detector attached to an FZM-1
SMOKE DETECT	Conventional smoke detector attached to an FZM-1
SMOKE(DUCTI)	Duct ionization smoke detector
SMOKE(DUCTL)	Duct laser smoke detector
SMOKE(DUCTP)	Duct photoelectric smoke detector
SMOKE(HARSH)	HARSH smoke detector
SMOKE(ION)	Ionization smoke detector
SMOKE(LASER)	Laser smoke detector
SMOKE(MULTI)	Multisensor smoke detector
SMOKE(PHOTO)	Photoelectric smoke detector
SPEAKER	Control module for speaker
SPRINKLR SYS	Monitor for a waterflow device
STROBE	Control module used with NAC with strobes
SUP L(DUCTI)	Duct ionization smoke detector, latching
SUP L(DUCTL)	Duct laser smoke detector, latching
SUP L(DUCTP)	Photoelectric smoke detector used as a duct detector to report supervisory condition rather than alarm, latching
SUP L(ION)**	Ionization smoke detector, latching
SUP L(LASER)**	Laser smoke detector, latching
SUP L(PHOTO)**	Photoelectric smoke detector, latching
SUP T(DUCTI)*, **	Duct ionization smoke detector, tracking
SUP T(DUCTL)*, **	Duct laser smoke detector, tracking
SUP T(DUCTP)*, **	Photoelectric smoke detector used as a duct detector to report supervisory condition rather than alarm, tracking
SUP T(ION)*, **	Ionization smoke detector, tracking
SUP T(LASER)*, **	Laser smoke detector, tracking
SUP T(PHOTO)*, **	Photoelectric smoke detector, tracking
SYS MONITOR	Monitor for equipment security
TAMPER	Monitor for activation of tamper switch
TELE PAGE	Monitor used to emulate the page button on an FFT-7, allowing remote paging to a fire area
TELEPHONE	Control module for standard telephone circuit
TRACKING SUPERV	Monitor for waterflow tamper switches for alarm points
TROUBLE MON	Monitor for trouble inputs

Table A.1 Software Type ID Codes, Alphabetical List (3 of 4)

Software Type ID Code	Device
WATERFLOW	Monitor for waterflow alarm switch
WATERFLOW S	Monitor for supervisory condition for activated waterflow switch
WEATHER ALRT	Monitor for weather condition, tracking
*Not suitable for Canadian applications. **Subject to AHJ approval.	

Table A.1 Software Type ID Codes, Alphabetical List (4 of 4)

Appendix B: Releasing Zones

B.1 Introduction

The control panel provides ten Releasing Zones (ZR00-ZR09). These are special zones that can be used for up to ten independent releasing operations. This section contains descriptions of each releasing function option and an example of how Releasing Zone options work.

For instructions on programming Releasing Functions, refer to this panel's programming manual.

Each Releasing Zone includes the following releasing options:

Option		Description
Cross Zone		Cross Zones let you program the control panel to activate a Releasing Zone when two or more detectors or modules are alarmed. Cross Zone selections are:
	Yes	Two or more detectors or modules are alarmed that are mapped to one of the ten Releasing Zones (ZR00-ZR09).
	Zone	Two or more detectors or modules are alarmed that are mapped to two different Software Zones and mapped to one of the ten Releasing Zones (R0-R9).
	Heat	At least one smoke detector mapped to one of the ten Releasing Zones (ZR00-ZR09) is alarmed *and* at least one heat detector mapped to the same Releasing Zone as the smoke detector is alarmed.
	None	Cross Zones are not used.
Delay Timer		A 0–60 second programmable delay before activating a zone.
Abort Switch		An Abort Switch Type Code used to abort activation of a zone.
Manual Release		Allows immediate zone activation by overriding the abort function, cross-zone function, and delay timer.
Soak Timer		Automatically shuts off the releasing device after a preprogrammed period of time. Select 0001-9999 seconds for Soak Time or 0000 seconds for no Soak Time.

Table B.1 Releasing Options

The Read Status function allows the operator to view the current selections for a Releasing Zone. Refer to Section 3.10, "Releasing Zone", on page 60 for more information.

B.2 How Releasing Zones Operate

The figure below contains an illustrated example of how Releasing Zones work, using cross zone selections with four detectors and an NAC mapped to Releasing Zone 1 (listed as ZR01 in the zone map). Table B.2 on page 84 lists the cross zone selections and the conditions that activate the Releasing Zone:
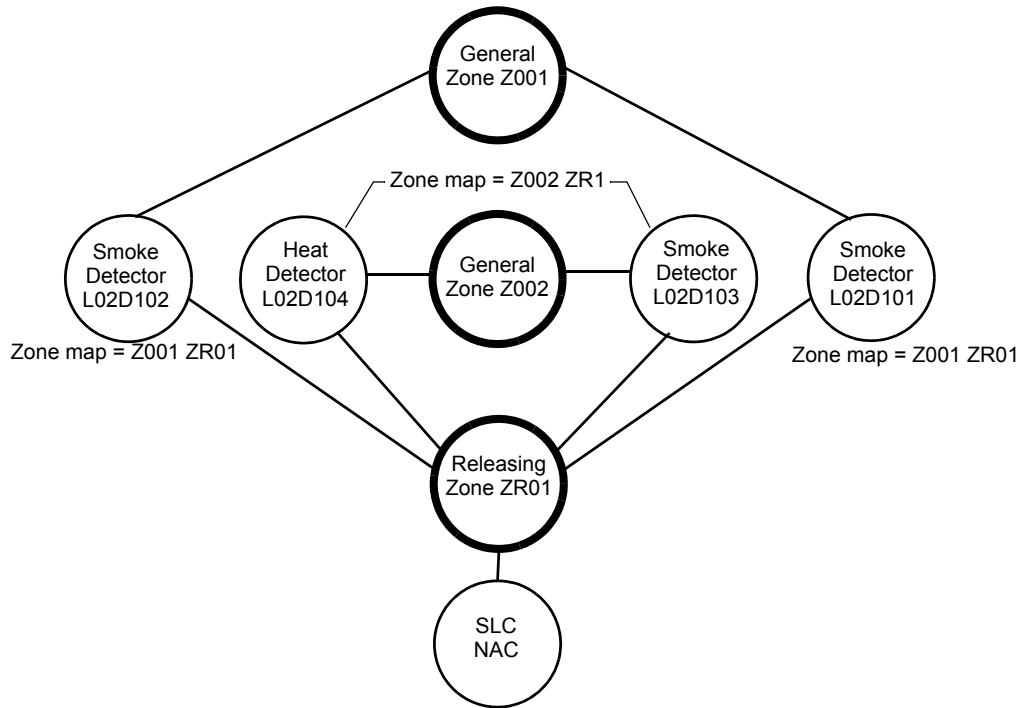
INPUTS		ZONE MAP
	L02D101 Smoke Detector	Z001, ZR01
	L02D102 Smoke Detector	Z001, ZR01
	L02D103 Smoke Detector	Z002, ZR01
	L02D104 Heat Detector	Z002, ZR01
OUTPUT		
	SLC Module Releasing Circuit	ZR01

Figure B.1 Illustrated Example of Cross Zone Programming

Listing of each Cross Zone option and the conditions required to activate the Releasing Zone, according to the example shown in Figure B.1 on page 83.

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Cross Zone Selection (Cross=)	Condition(s) Required to Activate the Releasing zone
Cross=**NONE**	An alarm from any detector or module activates the releasing circuit.
Cross=**YES**	An alarm from any two detectors or modules activates the releasing circuit.
Cross=**ZONE**	An alarm from two detectors or modules mapped to different Software Zones, but mapped to the same Releasing Zone. • An alarm from L02D101 and L02D103 – detectors mapped to different zones, but both list ZR01 in their zone map. • An alarm from L02D102 and L02D104 – detectors mapped to different zones, but both list ZR01 in their zone map. • An alarm from L02D101 and L02D104 – detectors mapped to different zones, but both list ZR01 in their zone map. • An alarm from L02D102 and L02D103 – detectors mapped to different zones, but both list ZR01 in their zone map.
Cross=**HEAT**	Activation of heat detector L02D104 and one smoke detector (L02D101, L02D102, or L02D103).

Table B.2 Example of Cross Zone Selections

Section C: Factory Mutual Applications

The FMM-4-20:

The FMM-4-20 is intended for use in intelligent, two-wire systems, allowing Control Panels to interface and monitor two-wire or three-wire sensors with a 4-20 mA signal.

📄 **NOTE:** Factory Mutual (FM) Approval does not include or imply Approval of gas detector heads or other apparatus to which the FMM-4-20 may be connected. In order to maintain an FM Approved system, the sensor to which the FMM-4-20 is connected must also be FM approved.

The FMM-4-20 monitor can be used in FlashScan mode only. CLIP mode operation will generate a trouble message at the panel.

📄 **NOTE:** The FMM-4-20 is compatible for display at the NCA-2 and ONYXWorks.

The following is a list of troubles that can occur on the FMM-4-20. For further information and suggested action to evaluate these troubles, refer to Section 2.3 on page 27.

Trouble:	Description:
DEVICE INHIBIT	The FMM-4-20 is in a self-calibration state.
DUAL ADDRESS	There is more than one device with the same SLC address.
INVALID RESPONSE	The device has returned a response to the panel that the panel did not expect.
MISMAT HDWE TYPE	The programming information in the panel's database does not match the device at the address specified.
MOD EXT PWR LOSS	The module has lost external power.
NO ANSWER	The device is not responding to the poll.
NO THRESHOLDS PROGRAMMED	No threshold values have been programmed for the FMM-4-20.
OPEN CIRCUIT	The module has an open circuit on it's supervised wiring.
OVER RANGE	The FMM-4-20's 4-20 mA sensor has exceeded 20 mA.
SHORT CIRCUIT	The module has a short circuit on it's supervised wiring.
TROUBLE1	An FMM-4-20 module threshold trouble as determined in point programming.
TROUBLE2	An FMM-4-20 module threshold trouble as determined in point programming.
UNDER RANGE	The FMM-4-20's 4-20 mA sensor has dropped below 4 mA.

📄 **NOTE:** If the FMM-4-20 is monitoring a sensor that supports the Device Inhibit condition, it is recommended that the user program one of the 4-20 mA thresholds to support this condition.

EXAMPLE:

The following is an example of the FMM-4-20 programmed for use with a gas detection device:

Programming Field:	Setting:	Explanation:
• 4 mA Scale Value	• 0	
• 20 mA Scale Value	• 200	
• Units	• PPM	
• Hysteresis	• 2%	
• Threshold Settings	• **Threshold 1:** • Threshold value = 52 • Event = Non-Fire • Tracking/Latching = Tracking • Event trigger = Upper Level	When the gas sensor has a reading that reaches 52ppm, a Non-Fire event will be reported at the FACP.
	• **Threshold 2:** • Threshold Value = 148 • Event = Supervisory • Tracking/Latching = Latching • Event Trigger = Upper Level	When the gas sensor has a reading that reaches 148ppm, a Supervisory event will be reported at the FACP.
	• **Threshold 3:** • Threshold Value = -25 • Event = Trouble • Trouble Type = Device Inhibit • Tracking/Latching = Tracking • Event Trigger = Same Level	For the gas sensor in this example, a Device Inhibit condition will occur at 2 mA. This is below the 4 mA Scale Value. To calculate the threshold value for the Device Inhibit condition, use the following equation: **(20 mA Scale Value - 4 mA Scale Value) / 16 mA** This will give the ppm value for each mA. For this example: **(200ppm - 0ppm) / 16mA = 12.5ppm/mA** Each mA is the equal to a gas sensor reading of 12.5ppm. The Device Inhibit setting is 2 mA below the 4 mA Scale Value. If each mA has a value of 12.5ppm, the threshold value is 2 mA x 12.5ppm, which equals 25. Since the Device Inhibit condition occurs at a value that is below the 4 mA Scale Value, the Threshold Value will be subtracted from it. In this example, the 4 mA Scale Value is zero, so the Threshold Value will be programmed as a negative number.

NOTE: For further information on programing the FMM-4-20, refer to the Programming Manual provided with the FACP.

- When monitoring gases, the most significant threshold must be latching. Less significant thresholds may be non-latching.
- When monitoring combustible gases, the most significant threshold must not be set higher than 60% of the flammable limit of the gas.
- If the gas sensor that the FMM-4-20 Module is monitoring supports a Device Inhibit condition, one of the FMM-4-20 thresholds should be programmed to detect the Device Inhibit condition.

NOTE: If the intensity of the LCD display on the fire panel needs to be increased or decreased to improve legibility, please refer to *LCD Display Programming* in the *NFS2-3030 Programming Manual*.

Index

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