NOTIFIER®
by Honeywell

Fire Alarm Control Panel
N16
Instruction Manual

Document LS10239-000NF-E Rev: A
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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 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.

Alarm Signaling Communications:

- **IP connections** rely on available bandwidth, which could be limited if the network is shared by multiple users or if ISP policies impose restrictions on the amount of data transmitted. Service packages must be carefully chosen to ensure that alarm signals will always have available bandwidth. Outages by the ISP for maintenance and upgrades may also inhibit alarm signals. For added protection, a backup cellular connection is recommended.
- **Cellular connections** rely on a strong signal. Signal strength can be adversely affected by the network coverage of the cellular carrier, objects and structural barriers at the installation location. Utilize a cellular carrier that has reliable network coverage where the alarm system is installed. For added protection, utilize an external antenna to boost the signal.
- **Telephone lines** needed to transmit alarm signals from a premise to a central monitoring station may be out of service or temporarily disabled. For added protection against telephone line failure, backup alarm signaling connections 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 as required by National and/or local fire codes and should be performed by authorized professional

1.1 Panel Features

- 10 inch high definition color touchscreen display with customizable buttons
- 6.0 A power supply with four Class A/B built-in Notification Appliance Circuits (NAC). Selectable for System Sensor, Wheelock, and Gentex strobe synchronization
- Easy expansion of isolated intelligent Signaling Line Circuit (SLC) capacity
  - One expandable to three on N16e
  - One expandable to ten on N16x
- Up to 159 detectors and 159 modules per SLC; 318 devices per loop/3,180 per FACP or network node
- Self-test detector technology, detectors can be any mix of photo, thermal, or multi-sensor.
- Modules include addressable pull stations, relay modules and monitor modules
- Network options:
  - High-speed network for up to 200 nodes (NFS2-3030, NFS2-640, NFS-320, NFS-320SYS, NCD, NCA-2, DVC-EM, ONYXWorks)
  - Standard network for up to 103 nodes (NFS2-3030, NFS2-640, NFS-320(C), NFS-320SYS, NCD, NCA-2, DVC-EM, ONYXWorks). Up to 54 nodes when DVC-EM is used in network paging
  - Network Display Mode: allows the fire panel to act as a network display with the full capabilities of an NCD
- Weekly Occupancy Schedules allow changing sensitivity by time of day and day of week
- AIO Bus annunciators
- History Buffer (up to 10,000 events displayed)
- Advanced history filters allow sorting by event, time, date, or address
- Alarm Verification selection per point, with automatic counter
- Color-coded Icon-based event notification
- Event vectoring for quick viewing of event groups
- Optional Cloud connectivity for remote off-site monitoring through connected Life Safety Services (CLSS)
  - Multiple off-campus central station reporting through the CLSS Gateway (CGW-MB)
- Silence Inhibit and Auto Silence timer options
- Field programmable with VeriFire Tools programming
- Remote programing through CLSS

1.2 Specifications

Refer to Figure 1.1, “N16 Board Layout” on page 13 for terminal locations and connections.

1.2.1 N16 Core Board

Trouble Relay- TB2

30 VDC 2A, 0.35 PF non-power-limited.

Printer Connection (for supplemental use only)- TB3

Power-limited (Class 2), supervision of end-to-end communication, isolated printer connection (left side).

Equipment must be located in the same room within 20 feet of the panel with cables in conduit.

Internal AIO Bus- TB4

Characteristic impedance: 120 ohms, supervised, power-limited (Class 2).

80 AIO devices max per system, up to 10 routers with 15 peripherals max.

Equipment must be located within 20' of the panel, in the same room, with cable in conduit.

External AIO Bus- TB5

Characteristic impedance: 120 ohms, supervised, power-limited (Class 2).

80 AIO devices max per system, up to 10 routers with 15 peripherals max.

Long line resistance: 100 ohms.

Network Service Connection (NUP)- J10

Power-limited (Class 2), supervised.

Equipment must be in cabinet located in the same room within 20 feet of the panel with cables in conduit.

PMB Connection- J15

RS-485 interface to panel, 24VDC power IN, 6A max, alarm bus, sync bus, CLP bus terminated on Core board.

CLP Bus Connection- J16

RS-485 interface to panel, 24VDC power OUT, 6A max, alarm bus, sync bus, CLP bus terminated on Core board.

1.2.2 PMB Power Supply

NAC 1 and NAC 2- TB2

Power-limited (Class 2), 24VDC, 1.5 Amps

Special applications, 150ma regulated,

Class A/B, NAC power
Class D door holder power
Special application Class A/B aux power
UZC
2.8 ohm max line impedance

NAC 3 and NAC 4- TB3

Power-limited (Class 2), 24VDC, 1.5 Amps
Special applications, 150ma regulated,
Class A/B, NAC power
Class D door holder power
Special application Class A/B aux power
UZC
2.8 ohm max line impedance

Battery Connection- TB9

Charges 7-100 AH batteries
Charging current: 1A, 2A, and 4.25A
Charging voltage: 27.6VDC nominal

Remote Sync Input- TB6

Power-limited (Class 2)

Aux Power 1/Aux Power2- TB7

24VDC, 1.5Amps Class A/B, power-limited (Class 2), special applications, resettable/Non-Resettable

AC Power Connection- TB8

2.5A, 120VAC, 50/60 HZ, non-power-limited
1.25A, 240VAC, 50/60 Hz, non-power-limited

1.2.3 SLM-318 Signaling Loop Module

SLC Connection- TB1

24VDC, Class A/B/X, power-limited, 50 ohms max.
Alarm current: 210mA
Standby current: 159mA

1.2.4 Accessories/Sub-assemblies/Networked Panels Maximum System Capacity:

Monitor and Control Modules- 159 per loop, up to 1,590 total in FlashScan; 99 per loop, up to 990 in CLIP mode

Detectors- 159 per loop, up to 1,590 total in FlashScan; 99 per loop, up to 990 in CLIP mode

Signaling Line Circuits (SLC) 10

N16 Fire Alarm Control Panel System Size- High-Speed Noti•Fire•Net - 200 Nodes, Noti•Fire•Net - 103 Nodes. 54 nodes when DVC is used in network paging.

1.3 Controls and Indicators

N16 Display Regions

The N16 has as high-definition 10 inch touchscreen to display system events. The display features a touchpoint for menu access, a header bar which shows color-coded event status, and touchpoints for acknowledge, signal silence, and reset functions.

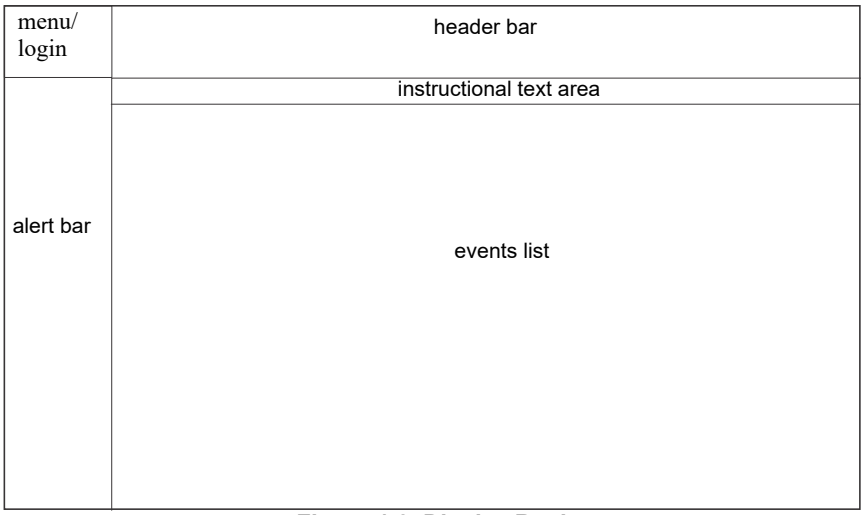

Figure 1.2 Display Regions

LED Indicators

LED indicators are located on the lower right hand corner of the N16 display. They include a power LED and an Off Normal LED.

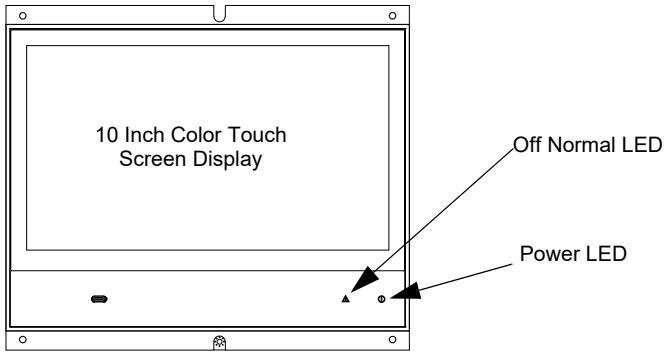

Figure 1.3 LED Indicators

USB Connections

USB connections are located on the front of the N16 display (USB-C) for ease of connecting VeriFire Tools for programming, as well as on the Core board (USB-A and USB-Micro)

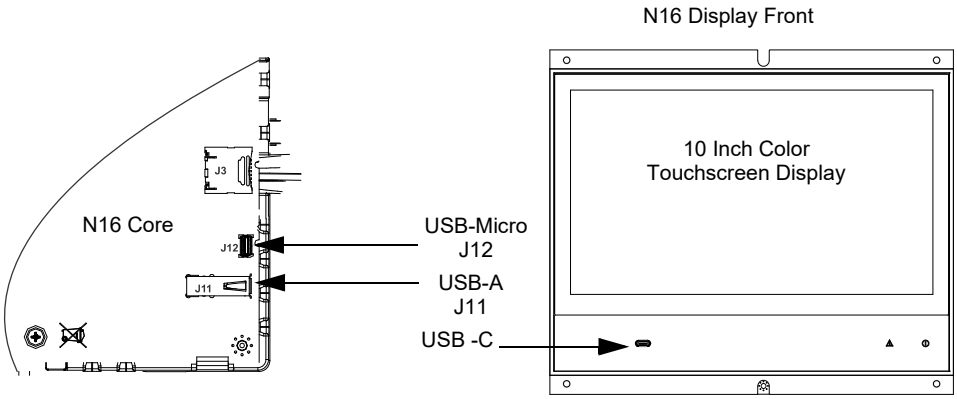

Figure 1.4 USB Connections

Exporting diagnostics to a USB flash drive Tap on the EXPORT DIAGNOSTICS touchpoint. A pop up box will appear prompting you to insert a USB memory drive and then tap CONTINUE. Diagnostics will be exported onto the USB memory drive. If the user wishes to cancel exporting of Diagnostics, tap the touchpoint CANCEL.

NOTE: The user must be logged in as either a lever 5 or 4 user to export panel history and diagnostic information.

3.3.9 Lamp Test

Tap the LAMP TEST touchpoint to turn on all pixels on the screen. This will illuminate the entire screen as well as the AC Power and Off Normal LED for approximately four seconds. During this time a tone will sound. A black spot on the screen will indicate that a pixel is out.

3.3.10 History

The history feature allows the user to view the panel history as well as the network history. History views may also be filtered.

Sorting and filtering Tap on the FILTER touchpoint. A touchpoint for SEARCH and CLEAR will appear along with a virtual keyboard. Enter a date under DATE RANGE to search a specific date range. Type in a keyword in the CONTAINS TEXT section to search the history for particular text. To clear a search, tap the CLEAR touchpoint. Tap on the EXCLUDE BACKGROUND ACTIVATIONS check box to select that feature. Tap again to clear the field.

History will show, and can be filtered, for the following:

All Events This displays the entire history buffer, regardless of event type. The history buffer can display up to a total of 10,000 events, including alarms.

Alarms Only This displays only the alarm events stored in the history buffer.

Troubles Only This displays only the trouble events stored in the history buffer.

Supervisory Only This displays only the supervisory events stored in the history buffer.

Security/Other This displays only security and events deemed "other" stored in the history buffer. (i.e. Critical Process, Prealarm CO Alarm, etc.)

Time Date Interval This displays a screen to allow for the selection of a time period to define the range of events displayed, as well as specific event type. (i.e. All Events, Alarms Only, etc.)

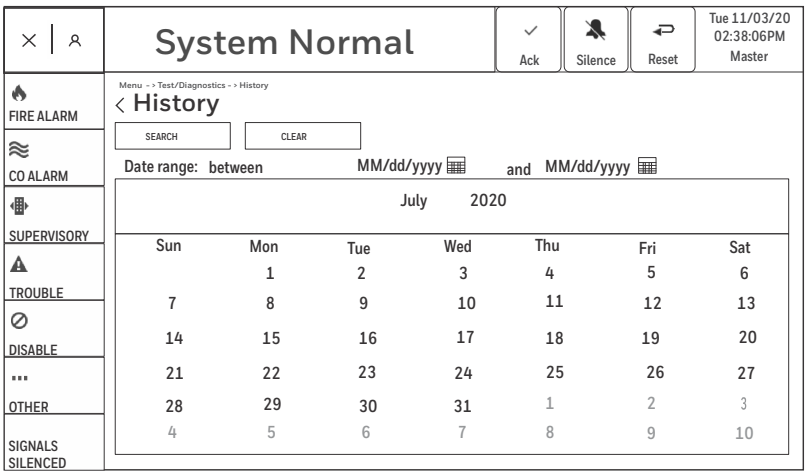

Figure 11 History Search Screen

Point Range This displays a screen to allow for the selection of a beginning and an end point that defines the range of events to be displayed.

Exporting History to USB Flash Drives: Tap on the EXPORT HISTORY touchpoint. A pop-up box will appear prompting the user to insert a USB flash drive and then tap CONTINUE. The history will be exported onto the USB flash drive. Tap the CANCEL Touchpoint to cancel history export.

NOTE: The user must be logged in as either a lever 5 or 4 user to export panel history and diagnostic information.

3.3.11 Cybersecurity History

Cybersecurity history events are stored in the panel history. A master level user is the only user level that can access Cybersecurity History.

Items logged in Cybersecurity history are as follows:

- Signing file failed
- Verify file signature failed
- Verify file signature failed-file open
- Verify file signature failed-start
- Verify file signature failed-sign fail
- N16 starting
- N16 shutting down
- N16 shutdown canceled
-

Section 4: Operations

The following are approved applications for the N16.

NOTE: ONYXWORKS-WS: When operating as a Protected Premises Control Unit, the ONYXWORKS-WS is UL Listed for monitoring and control of fire alarm notification devices.

The N16, when installed in accordance with the above manuals, comply with the following NFPA 72 standards for fire protective signaling systems:

- Central station (protected-premises unit, requires CGW-MB)
- Local, remote station (protected-premises unit, requires UL 864 10th edition listed contact closure DACT)
- Proprietary (protected-premises unit)
- Proprietary (receiving unit)
- Emergency communication (requires DVC/DAA/DAA-2)
- Relocation

The N16 is also suitable for use as the following:

- Proprietary burglar alarm unit, (multiplex requires ACM-30)
- Type of signaling service: Non-Coded, March Time, Coded.
- Class A or B power-limited initiating device circuits
- Class A or B power-limited notification appliance circuits
- Power-limited communications loop meeting NFPA 72 Class A, B, and X requirements
- Alarm signal cutoff (if enabled) programmable from 180 – 1200 seconds
- Presignal delay (if enabled) programmable from 60 – 180 seconds
- Signal inhibit (if enabled) programmable from 0 – 300 seconds
- Performance based Technologies (requires CGW-MB)

Types of signals: automatic fire alarm, manual fire alarm, waterflow alarm, sprinkler supervisory service

Type of signaling device: Type NM (non-monitoring) and SM (self-monitoring). Installation limits in all categories of service are under the jurisdiction of the local authority and in accordance with NFPA70 National Electrical Code. System and peripherals for indoor dry use (without specific marine listings) in a recommended environment with a nominal room temperature of 15°C to 27°C (60°F to 80°F).

Electrical ratings: 2.5A @ 120V or 1.25 A @ 240 V, 50/60 Hz (primary power source), and 24 VDC battery (standby power source). Operating system software: software version information may be displayed by navigating to the Settings > About menu on the main display.

Local Applications:

- Emergency relocation (paging, live and pre-recorded)
- Emergency communication (telephone)

Protected premises unit:

- Central station
- Remote station
- Proprietary
- Local

Communication transmission path:

- POTS communication off premises using CGW-MB
- Performance-based with CGW-MB

Process control, non-critical

Regional settings

- Chicago
  - Panel signal silence button will not function
  - Annunciator control modules and SLC modules given a drill or signal silence mode or type code will not allow local drill or signal silence initiation
  - Events must be acknowledged prior to system reset

4.1 Panel Features

- Custom banner/graphics
- Basic functions
  - Ack
  - Silence
  - Reset
- Date and time
- Display conditioning mode
- Alarm verification
- Pre-signal/alarm delay
- Fire Event List
- History
  - Filtering history
  - Extracting history
- Look-ahead warning
- Drill
- Disable/enable
- Custom action buttons (license)

- Co-operative detection
- Menu
- Alert bar and customization
- Instructional text
- Logic zones (license)
- Special function zones
- General zone (license)
- Control-by-event
- Networking
- User management
- Firmware update & backup (the trouble for running a backup partition)
- Force on/off
- Occupancy schedule
- Precedence
- Temperature measurements
- Network display node (license)
- Auto program
- Read status
- Reminders
- Configuration tool user
- Remote access

4.2 Functionality

The following are approved functions for the N16.

- Drift Compensation
- Connected Capabilities (CLSS gateway required for Connected Capabilities)
  - CLSS gateway
  - Remote access for diagnostics
  - Remote communication session- requires FACP to be in service mode. Technician required on site
- Service Mode
  - Remote programming. Technician required on-site
- Multiple Detector Operation
  - Units employing multiple detector operation shall include a minimum of two detectors in each protected space and reduce the detector installation spacing to 0.7 times the linear spacing in accordance with National Fire Alarm Code, NFPA
- Alarm Delay
- Pre-signal
- Alarm verification
- Two-wire compatibility
  - One alarm per initiating device circuit
- Polling Style limitations
  - Polling Style is FlashScan or CLIP (Classic Loop Protocol)
  - All detectors and modules on an SLC may be programmed as FlashScan. All detectors and modules must be FlashScan type devices. Maximum number of devices per SLC: 159 detectors, 159 modules.
  - All detectors and modules on an SLC may be programmed as CLIP. Detectors and modules may be a mix of CLIP and FlashScan type devices, but all must be programmed as CLIP. Maximum number of devices per SLC: 99 detectors, 99 modules.
  - All detectors may be programmed as CLIP, all modules as FlashScan, on an SLC. Detectors may be a mix of CLIP and FlashScan type devices, modules must all be FlashScan type devices. Maximum number of devices per SLC: 99 CLIP detectors, 159 FlashScan modules.
- NAC Resound
- Primary power source failure indication
- CGW-MB Communication Format
  - TCP/IP
- Interconnected control panels
  - Alarm, supervisory, and trouble conditions, as well as reset, alarm silence, or trouble silence actuation originating at this panel are annunciated at this panel.
- Integrated/network local functionality
- Circuit disables
- Network Mapping
- Detection/alarm algorithms
- Day/night sensitivity
- Detection sensitivity adjustment
- Extent/limitations of combination system
  - Priority of signals

4.3 N16 Display

The N16 has as high definition 10 inch touchscreen to display system events. The display features a touchpoint for menu access, a header bar which shows color-coded event status, and touchpoints for acknowledge, signal silence, and reset functions.

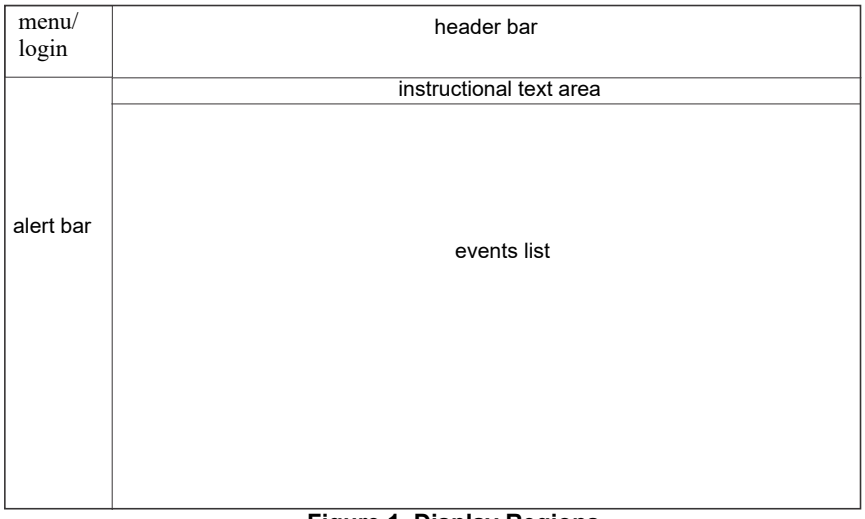

Figure 1 Display Regions

CAUTION: DISPLAY LIFE

SETTING THE DISPLAY BRIGHTNESS ABOVE 75% FOR PROLONGED PERIODS OF TIME WILL DECREASE THE OVERALL LIFE OF THE DISPLAY.

4.3.1 Display Conditioning Mode

Every 30 minutes, the display will enter Display Conditioning mode. During Display Conditioning, the display will transition through various screens including a completely blank screen. This process takes about seven seconds. It is done to prevent image persistence, and keeps information clear and undistorted. Any display interaction will abort Display Conditioning mode.

NOTE: Display Conditioning mode is not configurable. Display Conditioning will not engage when there is a Fire or CO alarm on the system, as well as Fire and CO pre-alarm.

4.3.2 Configurable Alert Bar

The number of events in the Alert Bar is customizable using VeriFire Tools. The Alert Bar can be configured for a minimum of four events up to a maximum of ten events

4.3.3 Alarm Verification

Alarm Verification delays a device from going into alarm to reduce false alarms. The user programs which devices participate in alarm verification, sets a panel-wide alarm verification time, alarm confirmation time, maximum verification count, and a verification pre-alarm setting. If a device reaches or exceeds the alarm threshold, it will delay going into alarm by the programmed amount of alarm verification time. If during this time, a second device on the same loop reaches its alarm threshold, the first device will immediately go into alarm.

4.3.4 Pre-Signal/Alarm Delay

The panel shall have an option to program a presignal/alarm delay time between one and three minutes (resolution in seconds). The default is 3 minutes. The panel shall have local alarm delay setting that can be turned on or off. Automatic detection devices and output devices shall have a setting designating them to participate in local alarm delay. Devices may not be programmed for both local alarm delay and alarm verification.

Note: when using the Alarm Delay feature, only local evacuation outputs configured to participate in the Alarm Delay feature will be delayed upon receipt of initial alarm. Off-premises signaling will IMMEDIATELY be transmitted upon initial alarm receipt.

4.4 Main Menu

From the Main Menu of the N16, the following options can be selected:

Settings This menu provides access to Display Settings, Panel Settings, About, Licensing Information and User Accounts.

Programming This menu provides access to network programming and Autoprogram options.

Point Information Allows the user to enable/disable points, control points on/off, perform read status of a point, and view point history.

Test/Diagnostics This menu provides access to Diagnostics, Lamp Test, History and also allows for the export of Diagnostics and History.

Custom Allows the user to customize virtual buttons that can be mapped and assigned to manually control common system commands such as enable/disable points.

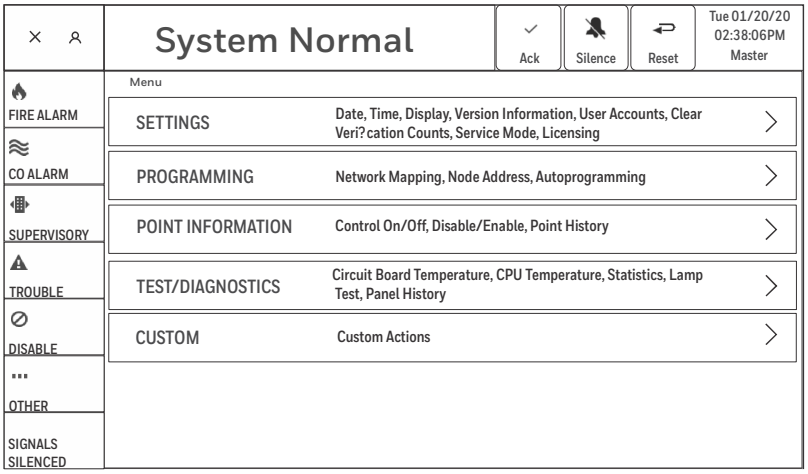

Figure 2 Main Menu Screen

4.5 Fire Alarm

Fire Alarm Event

- Produces a steady audible tone
- FIRE ALARM appears in the Header Bar
- FIRE ALARM illuminates in the Alert Bar as a red color indicator and provides fire event counts
- Illuminates the yellow Off Normal Event LED
- Displays FIRE ALARM and specific device information in the Events List
- Displays information on how to react to the event in the Instructional Text Area
- Latching events must be corrected and a Reset performed to clear the alarm state from the N16

Initiating Device Activation

- Produces a steady audible tone
- Flashes the FIRE ALARM
- Displays a type code that indicates the type of fire alarm being generated
- Latches the control panel in alarm (condition must be corrected and a reset performed to clear the alarm state from the panel)
- Activates the general alarm zone (Z000)
- Displays FIRE ALARM in the status banner on the control panel, along with information specific to the device
- Sends an alarm message to the graphic display, remote annunciators, history buffer, and installed printers
- Initiates any control-by-event actions
- Starts timers such as Silence Inhibit and Auto Silence
- Sends an alarm message to the proprietary receiver via the network, if applicable. If the panel is not networked, the CGW-MB will be directly connected to the fire panel and send the alarm message to the proprietary receiver via the CGW-MB

NOTE: If the alarm event is initiated by a device with a waterflow type Code, the control panel will disable the Signal Silence key and the Auto Silence Timer.

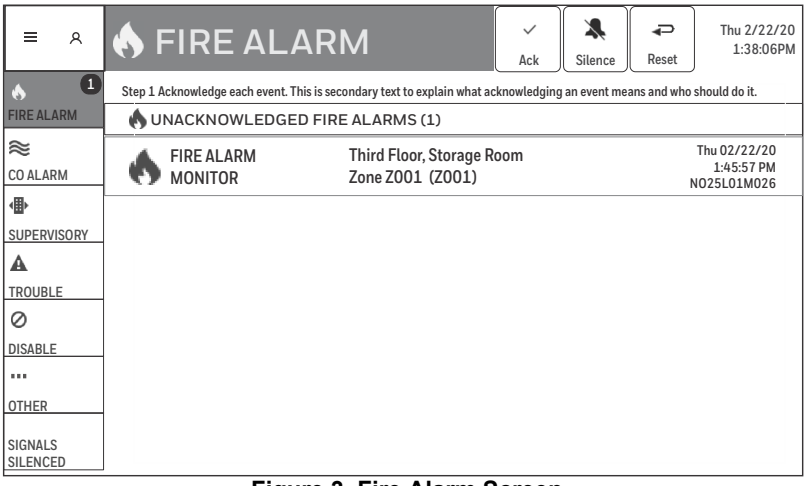

Figure 3 Fire Alarm Screen

Responding to a fire alarm event:

- The Informational Text Area on the screen will indicate step by step how to acknowledge and silence the event.
- Tap on the ACKNOWLEDGE touchpoint located in the Header Bar, which will be highlighted in blue. A check mark will appear next to the acknowledged event. ACKNOWLEDGE will need to be tapped for each Fire Event. Block Acknowledge is not available. Once all the events have been acknowledged, the blue highlight indicator will move from the ACKNOWLEDGE touchpoint to the SILENCE touchpoint.
- Tap on the SILENCE touchpoint located in the Header Bar. The SILENCE icon in the Alert Bar will illuminate yellow once the N16 has silenced and all silenceable outputs will turn off.
- Investigate and correct the condition that activated the Fire Alarm.
- Once the N16 has been silenced the blue highlight indicator will move from the SILENCE touchpoint to the RESET touchpoint.
- Tap the RESET touchpoint located in the Header Bar to return the N16 to normal operations.

4.6 System Trouble

Trouble Event

System or Point Trouble, electrical or mechanical faults (when no higher priority unacknowledged events exist)

- Produces a pulsed audible tone
- Turns on the trouble relay
- TROUBLE appears in the Header Bar
- TROUBLE appears in the Alert Bar as a yellow color indicator and provides Trouble event counts
- The Off Normal LED flashes yellow
- Displays TROUBLE and specific device information in the Events List
- Displays information on how to react to the event in the Informational Text Area

NOTE: If an unacknowledged, higher priority event exists, the control panel will retain the indications of the higher priority event, such as the Graphic, audible tone, etc. The Trouble relay, flashing the system Off Normal LED and sending the trouble message to the history buffer and printer, and annunciators will still occur at the time of the event.

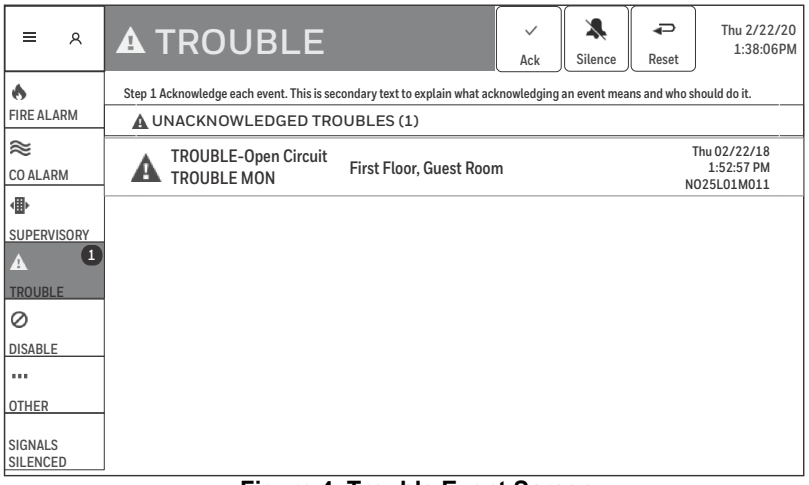

Figure 4 Trouble Event Screen

Responding to a Trouble Event

- The Informational Text Area on the screen will indicate step by step what needs to be done to acknowledge the event.
- Tap on the ACKNOWLEDGE touchpoint located in the Header Bar. The ACKNOWLEDGE touchpoint will be highlighted in blue. A check mark will appear next to the acknowledged event.
- BLOCK ACKNOWLEDGE allows for multiple events to be acknowledged at once.
- Investigate and correct the condition that initiated the trouble condition.

4.7 CO Alarm

CO Alarm Event

- Activation of a device (detector or module) with a CO Alarm type code. (Refer to Table G.2, “Type Codes for Monitor Modules,” on page 98)
- Produces a pulsed audible tone
- CO ALARM appears in the Header Bar
- CO ALARM illuminates in the Alert Bar as a blue color indicator and provides CO event counts
- Illuminates the yellow Off Normal LED
- Displays CO ALARM and specific device information in the Events List
- Displays information on how to react to the event in the Instructional Text Area

NOTE: If an unacknowledged, higher priority event exists, the control panel will retain the indications of the higher priority event, such as an audible tone, etc. The flashing the CO Pre-Alarm Graphic and sending the CO Pre-Alarm message to the history buffer and printer, and annunciators will still occur at the time of the event.

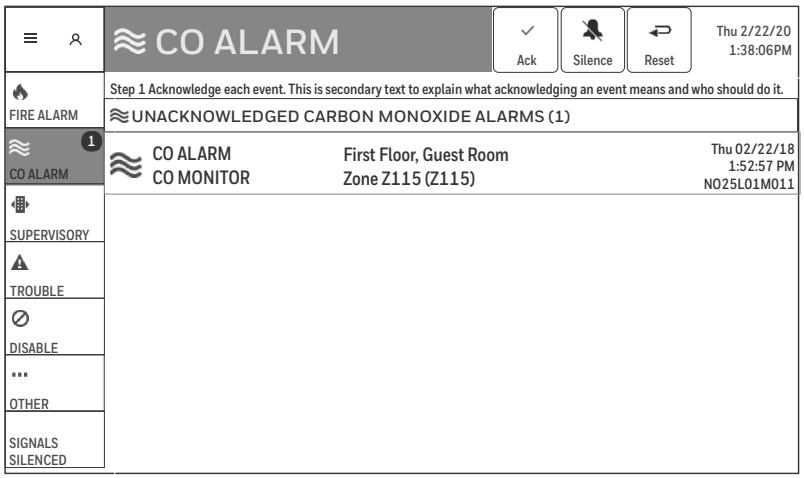

Figure 5 CO Alarm Screen

Responding to a CO Alarm Event:

- The Informational Text Area on the screen will indicate step by step what needs to be done to acknowledge and silence the event.
- Tap on the ACKNOWLEDGE touchpoint located in the Header Bar. The ACKNOWLEDGE touchpoint will be highlighted in blue. A check mark will appear next to the acknowledged event. Once all the events have been acknowledged the blue highlight indicator will move from the ACKNOWLEDGE touchpoint to the SILENCE touchpoint.
- Tap on the SILENCE touchpoint located in the Header Bar. The SILENCE icon in the Alert Bar will illuminate yellow once the N16 is silenced all silenceable outputs will turn off.
- Investigate and correct the condition that activated the CO Alarm point.
- Once all events on the N16 have been silenced the blue highlight indicator will move from the SILENCE touchpoint to the RESET touchpoint.
- Tap the RESET touchpoint located in the Header Bar to return the N16 to normal operations.

4.8 Other Events

Events listed as Other are as follows:

- CO Pre-Alarm (blue)
- Critical Processes (yellow)
- Security (blue)
- Pre-Alarm (red)
- Hazard/Weather Alert (Yellow)

NOTE: When more than one of these conditions have been activated, they will be listed in order of priority. CO-Pre Alarm will be listed first, followed by Critical Processes, Security, Pre-Alarm and Hazard/Weather Alert.

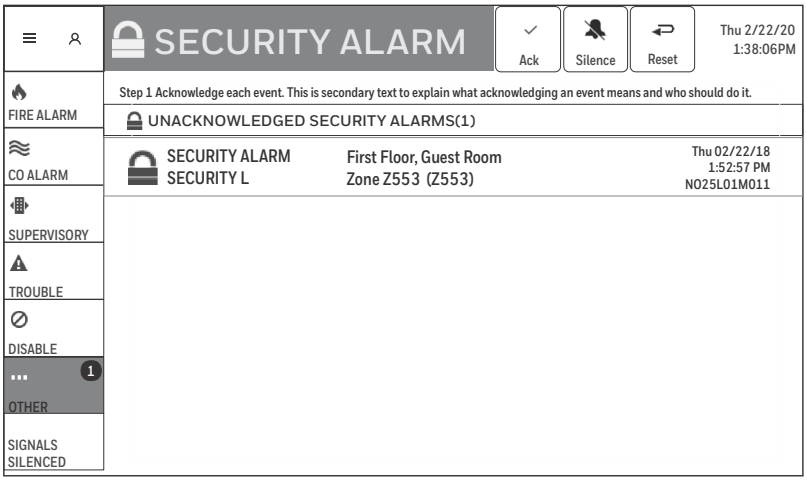

Figure 6 Other Event Screen

Responding to an Other Event:

- The Informational Text Area on the screen will indicate step by step what needs to be done to acknowledge and silence the event.
- Tap on the ACKNOWLEDGE touchpoint located in the Header Bar. The acknowledge touchpoint will be highlighted in blue. A check mark will appear next to the acknowledged event.
- BLOCK ACKNOWLEDGE allows for multiple events to be acknowledged at once.
- Tap on the SILENCE touchpoint located in the Header Bar. The SILENCE icon in the Alert Bar will illuminate yellow once the N16 is silenced.
- Once all the events have been acknowledged the blue highlight indicator will move from the ACKNOWLEDGE touchpoint to the SILENCE touchpoint.
- Tap RESET for a latched event.

4.9 Supervisory

Supervisory Event (If a fire alarm exists and alarms are silenced, a supervisory alarm will resound the panel sounder)

- Produces a warbling audible tone
- SUPERVISORY appears in the Header Bar
- SUPERVISORY illuminates on the Alert Bar as a yellow color indicator and provides Supervisory event counts
- Illuminates the yellow off normal LED
- Displays SUPERVISORY and specific device information in the Events List
- Displays information on how to react to the event in the Instructional Text Area

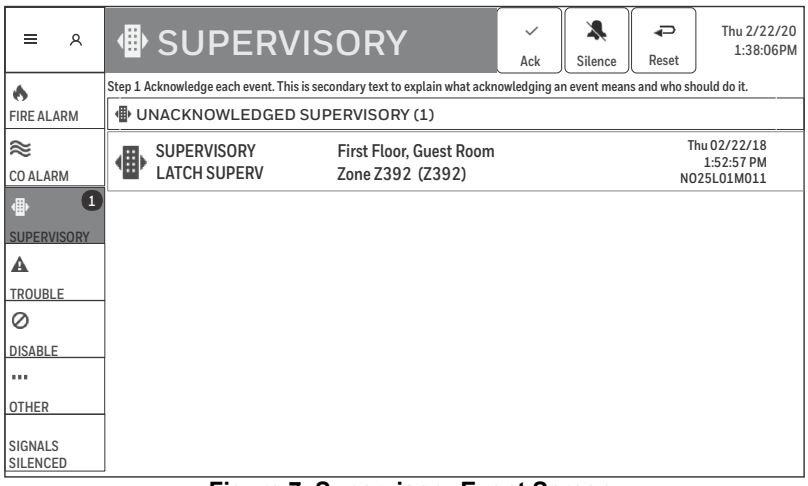

Figure 7 Supervisory Event Screen

Responding to a Supervisory event:

- The Informational Text Area on the screen will indicate step by step what needs to be done to acknowledge and silence the event.
- Tap on the ACKNOWLEDGE touchpoint located in the Header Bar. The ACKNOWLEDGE touchpoint will be highlighted in blue. A check mark will appear next to the acknowledged event.
- Tap on the SILENCE touchpoint located in the Header Bar. The SILENCE icon in the Alert Bar will illuminate yellow once the N16 is silenced. All silenceable will turn off.
- BLOCK ACKNOWLEDGE allows for multiple events to be acknowledged at once.
- Investigate and correct the condition that activated the Supervisory point.
- Once all the events have been acknowledged the blue highlight indicator will move from the ACKNOWLEDGE touchpoint to the SILENCE touchpoint.
- For a non-latching event, the N16 will return to normal once the supervisory condition is corrected.
- For a latching event, tap on the RESET touchpoint located in the Header Bar to return the N16 to normal.

4.10 Disabled Point

Disabled Point Event

- Produces a pulsed audible sound
- Turns on the trouble Relay
- DISABLED appears in the Header Bar
- DISABLED illuminates in the Alert Bar as a yellow icon and indicated device event count
- Illuminates the yellow off normal LED
- Displays DISABLED and specific point information in the Screen Area
- Displays information on how to react to the event in the Informational Text Area

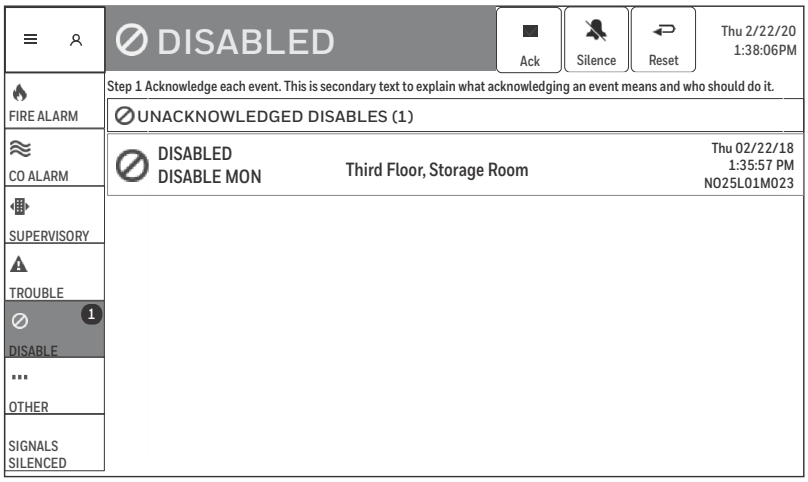

Figure 8 Disabled Point Screen

Responding to a Disabled Point

- The Informational Text Area on the screen will indicate step by step what needs to be done to acknowledge the event.
- Tap on the ACKNOWLEDGE touchpoint located in the Header Bar. The acknowledge touchpoint will be highlighted in blue. A check mark will appear next to the acknowledged event.
- BLOCK ACKNOWLEDGE allows for multiple events to be acknowledged at once.
- Enable the disabled point.

Section 6: Testing/Maintenance

When installation and programming is finished, conduct a complete operational test on the entire installation to verify compliance with applicable NFPA standards. Testing should be conducted by a factory-trained fire alarm technician in the presence of a representative of the Authority Having Jurisdiction and the owner's representative. Follow procedures outlined in NFPA Standard 72's section on Inspection, Testing and Maintenance.

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

CAUTION: ZONE DISABLE/ENABLE

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 A DISABLED OUTPUT IS ENABLED, IT WILL BE AFFECTED BY CONDITIONS PRE-EXISTING IN THE SYSTEM. WHEN A CONDITION EXISTS IN THE SYSTEM THAT WOULD NORMALLY TURN THE OUTPUT ON, THE OUTPUT WILL TURN ON WHEN IT IS ENABLED.

Disable/Enable Points or Zones: Points or zones can be disabled for testing or maintenance via the Point Information Menu in VeriFire Tools. Refer to *VeriFire Tools help files* for more information.

Disable/Enable: Choose enable or disable to either enable or disable an installed, programmed point or enable a previously disabled point.

Group Zone Disable: Disabling a general zone will disable all devices with that zone programmed in the first zone map position.

When a point associated with a FAAST device is disabled, all 5 detector addresses programmed for the device will be disabled.

6.1 Periodic Testing and Service

Periodic testing and servicing of the control panel, all initiating and notification devices, and any other associated equipment is essential to ensure proper and reliable operation. Test and service the control panel according to the schedules and procedures outlined in the following documents:

- NFPA Standard 72's section on Inspection, Testing and Maintenance.
- Service manuals and instructions for the peripheral devices installed in the system. Correct any trouble condition or malfunction immediately.
- Drill: Use the Drill Participation Setting to activate all silenceable outputs and NACs. Press and hold the Drill key for 2 seconds. During a drill the panel will turn on all silenceable NACs and sends a Manual Evacuate message to the History Buffer and installed printers.
- Lamp Test: Use the Lamp Test function to test the control panel LEDs and panel sounder. Activated through the GUI. The panel will light all control panel LEDs, turn on the panel sounder, and light all segments of the Graphic Display.

6.2 Operational Checks

Before proceeding: a) notify the fire department and the central alarm receiving station if transmitting alarm conditions; b) notify facility personnel of the test so that alarm sounding devices are disregarded during the test period; and c) when necessary, disable activation of alarm notification appliances and speakers to prevent their sounding.

- Check that the green POWER LED is illuminated.
- Check that the off normal LED is off, that there are no active events on the system, and that there are no active alert bar indicators.
- Tap the LAMP TEST touchpoint to turn on all pixels on the screen. This will illuminate the entire screen as well as the AC Power and Off Normal LED for approximately four seconds. During this time a tone will sound. A black spot on the screen will indicate that a pixel is out. Verify that all LEDs and all Graphic Display segments work.
- Activate an Initiating Device Circuit using an alarm initiating device or an addressable initiating device on the SLC and check that all programmed active notification appliances function. Reset the alarm initiating device, the control panel, and any other associated equipment. In voice alarm applications, confirm that the proper tone(s) and/or messages sound during alarm conditions. Select the paging function and confirm that the message can be heard in the affected fire zones. Repeat the above step with each Initiating Device Circuit and each addressable device.
- On systems equipped with a fire fighter's telephone circuit, make a call from a telephone circuit and confirm a ring tone. Answer the call and confirm communication with the incoming caller. End the call and repeat for each telephone circuit in the system.
- Remove AC power, activate an Initiating Device Circuit through an alarm initiating device or an addressable initiating device on the SLC, and check that programmed active notification appliances sound, and alarm indicators illuminate. Measure the battery voltage with notification appliances active. Replace any battery with a terminal voltage less than 21.6 VDC and reapply AC Power.

NOTE: The battery test requires fully charged batteries. If batteries are new or discharged due to a recent power outage, allow the batteries to charge for 48 hours before testing.

- Return all circuits to their pretest condition.
- Check that the off normal LED is off and the green POWER LED is on.
- Notify fire, central station and/or building personnel when you finish testing the system.

Battery Checks and Maintenance

Maintenance-free sealed lead-acid batteries used in the system do not require the addition of water or electrolyte. These batteries are charged and maintained in a fully charged state by the main power supply's charger during normal system operation. A discharged battery typically reaches the voltage of 27.6 VDC within 48 hours; the charge rate depends on the battery size (1 amp for 7-26AH, 2 amps for 33-55AH, 4.25A for 100AH).

Sealed lead-acid batteries must be replaced within at most 5 years from their date of manufacture. Minimal replacement battery capacity appears on the control panel marking label. Immediately replace a leaking or damaged battery. Replacement batteries are available from the manufacturer.

WARNING: SULFURIC ACID

BATTERIES CONTAIN SULFURIC ACID WHICH CAN CAUSE SEVERE BURNS TO THE SKIN AND EYES AND DAMAGE TO FABRICS.

If a battery leaks and contact is made with the Sulfuric Acid, immediately flush skin and/or eyes with water for at least 15 minutes. Water and household baking soda provides a good neutralizing solution for Sulfuric Acid.

- If Sulfuric Acid gets into eyes, seek immediate medical attention.
- Ensure proper handling of the battery to prevent short circuits.
- Take care to avoid accidental shorting of the leads from uninsulated work benches, tools, bracelets, rings, and coins.

WARNING: EQUIPMENT DAMAGE

SHORTING THE BATTERY LEADS CAN DAMAGE THE BATTERY, EQUIPMENT, AND COULD CAUSE INJURY TO PERSONNEL.

N16 Series Operating Instructions

Section 1 Operating Information

Normal Standby Operation.

1. System Normal indicated on the Header Bar.
2. Green POWER LED lit steadily.
3. No Red FIRE ALARM indication.
4. No Blue CO ALARM indication.
5. No Yellow SUPERVISORY, TROUBLE, DISABLE, OTHER or SIGNALS SILENCED indications.
6. Off Normal LED off

Alarm Condition.

1. Red FIRE ALARM, Blue CO ALARM, and/or Yellow OTHER indication(s) on the touch screen display.
2. Alarm signaling devices activated.
3. Alarm information is visible on the touch screen display
4. Off Normal LED illuminated

Pre-Alarm Condition.

Alarm Reset. After locating and correcting the alarm condition, reset the control panel by tapping the RESET touch point.

Trouble Condition. Activation of trouble signal under normal operation indicates a condition that requires **immediate** attention. Contact your local service representative. Silence the audible signal by tapping the ACK touch point. The trouble indication will remain on the N16 till the trouble is cleared.

Section 2 N16 Touch Point Functions

ACK (ACKNOWLEDGE). This silences the piezo sounder, steadies the flashing event on the header bars, and changes each condition to Acknowledged. If more than one event exists, it advances the display to the next item and displays it until ACKNOWLEDGE is tapped again. Only one tap is necessary for non-fire, trouble, or supervisory signals. Fire alarms require one tap for each activation.

SILENCE. The SILENCE touch point turns off all silenceable circuits and illuminates the SIGNALS SILENCED indicator on the Alert Bar. A subsequent alarm will then resound the system.

DRILL. The N16 waits for the DRILL switch to be pressed for 2 seconds (to prevent accidental activations), then turns on all silenceable circuits (all control modules/panel circuits that are programmed silenceable), and turns off the SIGNALS SILENCED LED. This event shows on the LCD, printer, and History file.

RESET. Resets the N16 in standalone applications. Resets the associated panel when enabled in network applications.

LAMP TEST. A Lamp Test can be performed via the Test/Diagnostics option on the N16. Press the Menu option and select Test/Diagnostics. Tap the LAMP TEST touch point to turn on all pixels on the screen, sound the piezo, and illuminate the Power and Off Normal Event LEDs for four (4) seconds.

Section 3 Event Indicators

Fire Alarm. Red indication on the Alert Bar and flashes on the Header Bar when one or more alarms occur. Illuminates steadily after alarms are acknowledged, and turns off when RESET is pressed after the alarm(s) clear.

CO Alarm. Blue indication on the Alert Bar and flashes on the Header Bar for a CO alarm. Illuminates steadily after alarms are acknowledged, and turns off when RESET is pressed after the alarm(s) clear.

Supervisory. Yellow Indication that flashes on the Alert Bar when a Supervisory or Tamper condition occurs, such as a sprinkler valve tamper condition. The indication illuminates steady after conditions are acknowledged, and turns off when the conditions are cleared. A Tamper indication will latch until RESET is pushed. RESET is required for any latched event.

Security. A blue indication on the Alert Bar and flashes on Header Bar when a security activation occurs. Illuminates steadily after acknowledge is pressed, and turns off when the security activation is cleared. RESET is required for any latched event.

Trouble. Yellow indication on the Alert Bar and flashes on the Header Bar when one or more troubles occur. Illuminates steadily when ACKNOWLEDGE is pressed, and turns off when all trouble conditions are cleared.

Disable. Yellow indication on the Alert Bar and flashes on the Header Bar when one or more points are disabled. The display will indicate which points have been disabled. Turns off when points are re-enabled.

Other Event. Yellow indication that flashes on the Alert Bar when a Critical Process or Hazard /Weather Alert occurs . When a CO Pre-alarm occurs, indication flashes blue, and a Pre-alarm indication will flash red. Illuminates steady when Acknowledge is pressed, and turns off when the condition is cleared.

Signals Silenced. Yellow indication that illuminates after SIGNALS SILENCED has been pressed. Turns off when DRILL or RESET is pressed.

Section 4 LED Indicators

Power. Green LED which illuminates when primary power is applied to the N16.

Off Normal. Yellow LED which illuminates when any off normal event is present on the N16.

Section 5 N16 Audible Sounder

Alarm. A continuous sounding tone.

Trouble, Disable, Pre-alarm. One beep per second.

CO-Alarm. Four beeps per second.

Supervisory. Four beeps per second.

Security. Eight beeps per second.

Other Event. Four beeps per second.

Section 6 Periodic Testing and Maintenance

To ensure proper and reliable operation, system inspection and testing should be scheduled monthly, or as required by NFPA 72 or local fire codes. A qualified Service Representative should perform testing.
Test batteries semi-annually, replace with lead acid free batteries according to the manufacture.

Before Testing. Notify fire department if alarm condition is transmitted. Notify facility personnel of the test so alarm sounding devices are ignored during the test period.

After Testing. Notify all fire, and/or building personnel when testing is complete.

Section 7 Local Service Representative:

NAME: _____

ADDRESS: _____

TELEPHONE NUMBER: _____

Cut along dotted line.