

Notifier FirstCommand
NFC-50/100 & NFC-50/100E
Instruction 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 as required by National and/or local fire codes and should be performed by authorized professional life safety system installers only. Adequate written records of all inspections should be kept.

Limit-D2-2016

Section 4: Operating Instructions

4.1 Main Control Panel Keypad Labels

The NFC-50/100 is shipped with slide-in labels installed in the keypad as illustrated in the following figure. Blank labels are provided to allow the user to customize the zone and message description. Remove the center piece to access the label slots. Using a small, flat screwdriver, press and release the small plastic latch located on the left side of the center piece. The top row of labels can be easily removed by sliding them down through the slots in the middle of the keypad and installed by sliding them up. The bottom row of labels can be removed by sliding them up through the slots in the middle of they keypad and installed by sliding them down into position.

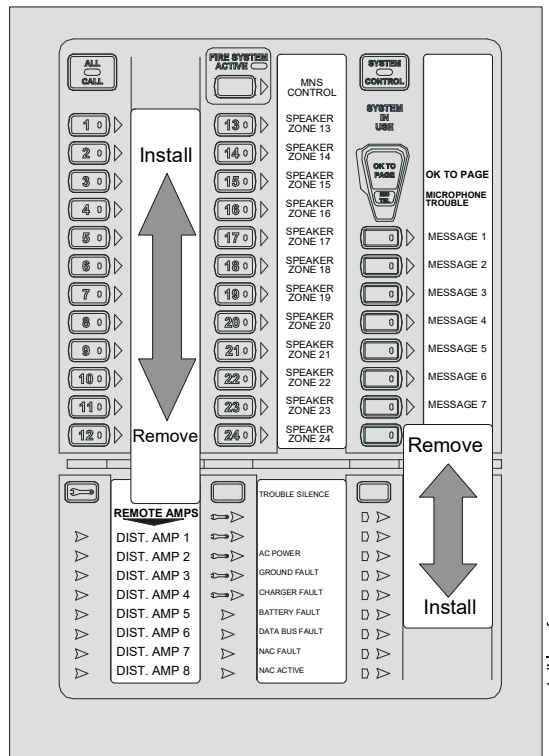


Figure 4.1 Keypad Labels

4.2 NFC-50/100 Switch Functions

The NFC-50/100 display consists of 38 tactile push-button keys. Pressing one or more of the keys while the panel is not in alarm will select the corresponding circuit for paging or to generate a manually activated evacuation or drill signal. If the panel is in alarm, pressing a key corresponding to an activated speaker circuit will turn off the circuit and turn on the Trouble LED.

All Call

Pressing this button activates all speaker circuits (that were not manually deactivated) for broadcast. ALL CALL paging from the main console's microphone will override paging/manual activation operations initiated from the other consoles (NFC-LOC, NFC-RPU, NFC-RM) or from a FACP (if programmed for priority to do so). If all consoles in the system are programmed for equal priority then the ALL CALL will only occur when the system is not already in use ("System in Use" LED is not on, remote console active LED is not on). Refer to the SYSTEM CONTROL button description. When the operator completes the page, any previously interrupted emergency broadcast will resume. Previously initiated emergency broadcast will also resume after the push-to-talk (PTT) switch is held for more than 3 minutes (timer is programmable).

MNS Control

This button is only used when the system is configured for combination fire/mass notification operation or mass notification only operation.

For mass notification only operation, pressing this button will activate the "MNS active" relay and the onboard NAC. A second press will de-activate the "MNS active" relay, turn main control board NAC off, and cancel all broadcasting.

For combination systems (fire and mass notification) where mass notification has a higher priority through user programming, pressing this button will result in the shutdown of audible FACP NACs and audio system speakers if they were active for fire. Pressing the button again causes the FACP to re-activate audible FACP NACs and audio system speakers if they were previously active for fire.

System Control

This button is used to manually gain control of the audio system in preparation for an ALL CALL, message activation, or general page. The main console will have system priority based upon user programming. If the main console has higher priority than other system consoles (NFC-LOC, NFC-RPU, NFC-RM) then the green LED will turn on steady to confirm control. If no other console is in control then pressing this button is not necessary to gain system control. A second press is required after paging to relinquish control of the system.

Speaker Select 1-24

These buttons are used to manually activate or deactivate speaker zones (circuits).

Message Select 1-14

These buttons are used to manually activate or deactivate stored messages. If the system has been programmed for greater than 8 messages then button 8 (the bottom button) becomes a “shift” button. To activate messages 8 through 14, the user must press the “shift” button followed by a message button physically above it. Messages are in priority order where message 1 (the top button) has highest priority. Pressing a higher priority message button after pressing a lower priority message button will result in a message override.

For combination fire and MNS applications, messages must be organized per the system priority setting. For example, if MNS has priority over fire, all MNS messages must be assigned/recorded to higher priority message buttons than the fire messages. If fire has priority, then all fire messages must be assigned/recorded to higher priority message buttons than the MNS messages.

Diagnostic Select

This button is used to examine specific trouble conditions for the remote amplifiers (distributed audio amplifiers). The button is used to select or “scroll” to a specific remote amplifier. The fault LEDs in the lower center of the display with “wrench” graphics will represent the amplifier selected. When no amplifier is selected, those fault LEDs represent the main console status.

Trouble Silence

This button is used to manually silence the local trouble sounder.

Console Lamp Test

This button is used to test the console LEDs and local sounder. When pressed, all LEDs temporarily light and the local sounder is turned on temporarily.

4.3 LED Indicators

Refer to Figure 1.3, “NFC-50/100 Keypad” on page 17.

Fire System Active

A green LED that turns on steady when the FACP is in alarm. This LED is used when the FACP to NFC data bus has signaled a fire alarm or when any of the command inputs (CMD1-CMD8) has activated for a fire alarm.

MNS Control

A green LED that turns on steady when an operator has initiated a mass notification event by pressing the MNS Control button or by pressing an MNS message button

System Control

A green LED that turns on steady when the main console has control of the audio system

System in Use

Green LED text that turns on steady when the main console, an LOC, an RPU, or an RM has control of the audio system

Speaker Zones 1-24

A green LED per speaker circuit button that turns on steady when a speaker circuit has been selected and is active

A yellow LED per speaker circuit button that turns on steady when a speaker circuit fault exists or when the speaker circuit has been turned off after having been automatically turned on by the FACP

OK to Page

Green LED text that turns on steady to instruct the operator that he/she may start paging

Microphone Trouble

A yellow LED that turns on steady to indicate a microphone wiring fault

Messages

A red LED per message button that turns on steady when the message has been selected and blinks when the message has been overridden

A yellow LED per message button that turns on steady when no message has been recorded or there is an associated command input fault. All eight (8) message button LEDs will turn on steady to indicate a message generator fault.

When more than eight (8) messages are enabled, the 8th message button becomes a “shift” key. The red LED turns on when viewing messages 8-14 and off when viewing 1-7. The yellow LED will turn on indicating an overridden message or message trouble in the group of messages *not* currently being viewed.

Remote Amplifiers 1-8 Fault

A yellow LED per remote amplifier (distributed audio) that turns on steady when an amplifier has a fault. Specific, additional fault indication is annunciated via the fault LEDs with the “wrench” graphic next to them on the keypad.

LOC/RPU/RM 1-8 Fault

A yellow LED per remote console that turns on steady when a remote console has a fault. Specific, additional fault indication is annunciated by LEDs at the remote consoles.

A green LED per remote console that turns on steady when a remote console is active

Main Console Fault

A yellow LED that turns on steady when the main (or primary operator) console has a fault

AC Power

A green LED that turns on steady when AC power is present

Ground Fault

A yellow LED that turns on steady when a ground fault exists in the system

Charger Fault

A yellow LED turns on steady when the battery charger voltage is too high or low

Battery Fault

A yellow LED that turns on steady when battery voltage is too low

Data Bus Fault

A yellow LED turns on steady when the main and remote console(s) cannot communicate

NAC Fault

A yellow LED that turns on steady when the onboard NAC wiring is open or short-circuited.

NAC Active

A green LED that turns on steady when the NAC output is on

System Trouble

A yellow LED that turns on steady when any fault exists in the system

Audio Riser Fault

A yellow LED that turns on steady when the audio riser wiring is open or short-circuited

4.4 Operation

The NFC-50/100 continuously monitors system status. When no system alarm or local trouble conditions exist, all LEDs are off except the AC Power On LED located on the front panel keypad. The Notification Appliance Circuits are off and all relays are in their normal state.

4.4.1 Paging from the Microphone

1. The NFC-50/100 main console must be in control of the system to perform a page. If the green System in Use LED is lit, press the SYSTEM CONTROL button. The NFC-50/100 is ready to page once the System in Use LED turns off and the System Control LED lights steady. If the System Control LED is already lit, this action is not required.
2. Activate desired paging areas. Press either the ALL CALL button, to page to *all* speaker zones, or individual speaker zone buttons (1-24). This will override the evacuation tone/message if the panel is in alarm and activate desired speaker circuits.
3. Key the microphone by pressing the push-to-talk switch on side of microphone. Speak clearly into the microphone.
4. When finished speaking, release the push-to-talk switch.
5. Press the ALL CALL button (or individual speaker zone buttons pressed in step 2) to end the broadcast and continue the evacuation tone/message.
6. Press the SYSTEM CONTROL button to relinquish control of the audio system.

4.4.2 Manual Message Control

1. The NFC-50/100 main console must be in control of the system to perform a page. If the green System in Use LED is lit, press the SYSTEM CONTROL button. The NFC-50/100 is ready to page once the System in Use LED turns off and the System Control LED lights steady. If the System Control LED is already lit, this action is not required.
2. Activate desired message areas. Press either the ALL CALL button, to broadcast to *all* speaker zones, or individual speaker zone buttons. This will override the evacuation tone/message if the panel is in alarm and activate desired speaker circuits.
3. Press the desired message button.
4. When the message has finished playing, press the ALL CALL button (or individual speaker zone buttons pressed in step 2) to deactivate the message areas and continue the evacuation tone/message.
5. Press the SYSTEM CONTROL button to relinquish control of the audio system.

4.4.3 Fire Alarm Response, System Configured for Fire Only

Upon detection of an alarm condition (any of CMD1 to CMD8 inputs active or automatic activation from the FACP Data Bus) the system will:

- Turn the appropriate speaker zone LED(s) on steady
- Turn the appropriate speaker circuits on
- Turn the appropriate audio amplifier(s) on
- Turn the 24 VDC aux. power output on (if programmed)
- Turn the speaker volume control override on
- Turn the “System in Use” LED on steady
- Turn the “Fire System Active” LED on steady
- Play a leading tone (if programmed)
- Play and repeat the appropriate audio message (if programmed to repeat)
- Play an inter-message tone (if programmed)
- Play a primary evacuation tone only (if programmed)
- Store the event in the history log

4.4.4 Fire Alarm Restoral, System Configured for Fire Only

Upon restoral the system will:

- Turn the speaker zone LED(s) off
- Turn the speaker circuits off
- Turn the audio amplifier(s) off
- Turn the 24 VDC aux. power output off (if programmed)
- Turn the speaker volume control override off
- Turn the “System in Use” LED off
- Turn the “Fire System Active” LED off

4.4.5 Manual Activation

Upon pressing speaker zone button(s) followed by pressing a message button the system will:

- Turn the appropriate speaker zone LED(s) on steady
- Turn the appropriate speaker circuit(s) on
- Turn the appropriate message LED on steady
- Turn the appropriate audio amplifier(s) on
- Turn the 24 VDC aux. power output on (if programmed)
- Turn the speaker volume control override on
- Turn the “System in Use” LED on steady
- Activate the “MNS active” relay (if the system is programmed for mass notification)
- Activate the NAC output (if programmed to do so for mass notification)
- Play a leading tone (if programmed)
- Play and repeat the appropriate audio message (if programmed to repeat)
- Play an inter-message tone (if programmed)
- Play a primary evacuation tone only (if programmed)
- Store the event in the history log

4.4.6 Manual Activation Restoral

Upon restoral the system will:

- Turn the speaker zone LED(s) off
- Turn the speaker circuit(s) off
- Turn the audio amplifier(s) off
- Turn the 24 VDC aux. power output off (if programmed)
- Turn the speaker volume control override off
- De-activate the “MNS active” output relay
- De-activate the NAC output (if programmed to do so for mass notification)
- Turn the “System in Use” LED off

4.4.7 Alarm/Alert Response, System Configured for Mass Notification Only

Upon detection of an alarm/alert condition (any of CMD1 to CMD8 inputs active) the system will:

- Turn all speaker zone LEDs on steady
- Turn all speaker circuits on
- Turn the appropriate audio amplifier(s) on
- Turn the 24 VDC aux. power output on (if programmed)
- Turn the speaker volume control override on

- Turn the “System in Use” LED on steady
- Activate the “MNS active” relay (if the system is programmed for mass notification)
- Activate the NAC output (if programmed to do so for mass notification)
- Play and repeat a leading tone (if programmed)
- Play and repeat the appropriate audio message (if programmed to repeat)
- Play an inter-message tone (if programmed)
- Play a primary alert tone only (if programmed)
- Store the event in the history log

4.4.8 Alarm/Alert Restoral, System Configured for Mass Notification Only

Upon restoral the system will:

- Turn the speaker zone LEDs off
- Turn the speaker circuits off
- Turn the audio amplifier(s) off
- Turn the 24 VDC aux. power output off (if programmed)
- Turn the speaker volume control override off
- De-activate the “MNS active” output relay
- De-activate the NAC output (if programmed to do so for mass notification)
- Turn the “System in Use” LED off

4.4.9 Alarm/Alert Response, System Configured for Combo Fire/Mass Notification with Fire Priority

If a fire alarm **only** occurs under this configuration, then the system will respond as in Section 4.4.3 above.

If a mass notification alarm/alert **only** occurs under this configuration, then the system will respond as in Section 4.4.7 above and additionally will:

- Signal the FACP of the alarm/alert using the FACP Data Bus such that the FACP can annunciate the alarm/alert and notify a central station (if programmed to do so).

If a fire alarm is active in the system and a subsequent mass notification alarm/alert occurs, then the system will not respond until the fire alarm has been restored.

4.4.10 Alarm/Alert Restoral, System Configured for Combo Fire/Mass Notification with Fire Priority

If the restoral is for a fire alarm **only** under this configuration then the system will respond as in Section 4.4.4 above.

If the restoral is for a mass notification alarm/alert **only** under this configuration then the system will respond as in Section 4.4.8 above and additionally will:

- Signal the FACP of the restoral using the FACP Data Bus such that the FACP can stop annunciation of the alarm/alert and notify a central station (if programmed).

If the restoral is for a fire alarm that overrode an earlier active mass notification alarm/event then the system will:

- Stop playing the fire alarm message
- Turn the “Fire System Active” LED off
- Return the system to the active state of the earlier mass notification alarm/event

4.4.11 Alarm/Alert Response, System Configured for Combo Fire/Mass Notification with Mass Notification Priority

If a fire alarm **only** occurs under this configuration then the system will respond as in Section 4.4.3 above.

If a mass notification alarm/alert **only** occurs under this configuration then the system will respond as in Section 4.4.7 above. and additionally will:

- Signal the FACP of the alarm/alert using the FACP Data Bus such that the FACP can annunciate the alarm/alert and notify a central station (if programmed to do so).

If a fire alarm is active in the system and a subsequent mass notification alarm/alert occurs, then the system will:

- Stop playing the current fire message
- Signal the FACP of the alarm/alert using the FACP Data Bus such that the FACP can annunciate the alarm/alert, notify a central station (if programmed), and turn off audible NACs (if programmed).
- Respond as in Section 4.4.7 above

If a mass notification alarm/alert is active in the system and a subsequent fire alarm occurs, then the system will not respond until the mass notification alarm/alert is restored.

4.4.12 Alarm/Alert Restoral, System Configured for Combo Fire/Mass Notification with Mass Notification Priority

If the restoral is for a fire alarm **only** under this configuration then the system will respond as in Section 4.4.4 above.

If the restoral is for a mass notification alarm/alert **only** under this configuration then the system will respond as in Section 4.4.8 above.

If the restoral is for a fire alarm that was over ridden by a currently active mass notification alarm/event then the system will:

- Continue playing the current mass notification message
- Turn the “Fire System Active” LED off

4.4.13 Trouble Condition Response

Upon detection of any trouble condition the system will:

- Activate (de-energize) the trouble relay
- Turn the local sounder on
- Turn the system trouble LED on
- Open command input 1 (CMD1) only if command input 1 is not in the alarm state
- Store the event in the history log

The following will occur on the display for more specific indication.

- For speaker circuit faults, the appropriate speaker zone fault LED(s) turns on steady
- For message faults, the appropriate message fault LED(s) turns on steady
- For a microphone fault, the microphone fault LED turns on steady
- For AC loss the AC power LED turns off, the AC loss and system trouble relays activate (de-energize) (after a programmable time out).
- For a earth ground fault, the ground fault LED turns on steady
- For a battery charger fault, the battery charger fault LED turns on steady
- For a battery voltage fault, the battery fault LED turns on steady
- For a fault on the data bus to peripheral consoles, the data bus fault LED turns on steady
- For an onboard NAC fault, the NAC fault LED turns on steady
- For an audio riser fault, the audio riser fault LED turns on steady
- For a peripheral console fault, the associated peripheral console fault LED turns on steady
- For a distributed amplifier fault, the associated distributed fault LED turns on steady

For distributed amplifier faults, the following will occur on the display when the operator uses the DIAGNOSTIC button to select a distributed amplifier for more specific indication.

- For a power fault, the AC power LED turns off
- For a ground fault, the ground fault LED turns on steady
- For a battery charger fault, the battery charger fault LED turns on steady
- For a battery voltage fault, the battery fault LED turns on steady
- For a fault on the data bus to peripheral consoles, the data bus fault LED turns on steady

The following will occur on the main control board for more specific indication.

- For speaker volume control fault, the speaker volume control fault LED(s) turns on steady
- For an amplifier over current fault, the amplifier over current fault LED turns on steady and all associated speaker circuit fault LEDs turn on steady
- For an option card missing (NFC-XRM-70V, NFC-BDA-25/70V, NFC-CE6), the option card LED turns on steady

The following actions will occur on the NFC-BDA-25/70V optional amplifier for more specific indication.

- For an over current condition, the over current LED turns on steady

4.4.14 Trouble Condition Restoral

Upon complete restoral the system will:

- De-Activate (energize) the trouble relay
- Turn the local sounder off
- Turn the system trouble LED off
- Close command input 1 (CMD1) only if command input 1 is not in the alarm state
- Store the event in the history log

The following will occur on the display for more specific indication when the specific fault restores.

- For speaker circuits, the appropriate speaker zone fault LED(s) turns off
- For messages, the appropriate message fault LED(s) turns off
- For the microphone, the microphone fault LED turns off
- For AC power, the AC power LED turns on, the AC loss and system trouble relays de-activate (energize)
- For earth ground, the ground fault LED turns off
- For the battery, the battery charger fault LED turns off
- For battery voltage, the battery fault LED turns off

- For the data bus to peripheral consoles, the data bus fault LED turns off
- For the onboard NAC, the NAC fault LED turns off
- For the audio riser, the audio riser fault LED turns off
- For a peripheral console, the associated peripheral console fault LED turns off
- For a distributed amplifier, the associated distributed fault LED turns off

For distributed amplifier restorals, the following will occur on the display when the operator uses the DIAGNOSTIC button to select a distributed amplifier for more specific indication.

- For power present, the AC power LED turns on
- For earth ground, the ground fault LED turns off
- For the battery charger, the battery charger fault LED turns off
- For battery voltage, the battery fault LED turns off
- For the data bus to peripheral consoles, the data bus fault LED turns off

The following will occur on the main control board for more specific indication when the specific fault restores.

- For the speaker volume control, the speaker volume control fault LED(s) turns off
- For the amplifier over current, the amplifier over current fault LED turns off and all associated speaker circuit fault LEDs turn off
- For the option cards (NFC-XRM-70V, NFC-BDA-25/70V, NFC-CE6) the option card missing LED turns off

The following actions will occur on the NFC-BDA-25/70V optional amplifier for more specific indication when the condition restores.

- For over current, the over current LED turns off

4.4.15 External Audio Input Operation

The external audio input (aux. audio) located on the display board terminal TB5 can serve as any one of the following:

- A background music input
- A message recording input from an audio source
- A general paging input from a paging microphone or telephone system
- A night ring input from a telephone system

The function of the external audio input must be selected in programming. Refer to “External Audio Input” on page 61. For external audio input electrical requirements, “Input/Output Circuit Specifications” on page 13.

When programmed, background music will play on all NFC-50/100 speaker circuits only when the audio system is in a normal, standby condition. During alarm or alert operation of the audio system, background music is suspended. Background music is also suspended during an AC power loss condition to preserve the batteries. Speaker circuits on the main NFC-50/100 panel are fully supervised while background music is playing. Speaker circuits on the NFC-50DA or NFC-125DA distributed amplifiers are not supervised while playing background music.

For programming messages using the external audio input, refer to “Recording Custom Messages” on page 61.

When programmed, the external audio input may be used for general paging or night ring operation. The building’s “Private Branch Exchange (PBX)” telephone system or a third party microphone system must provide the audio signal along with a contact closure to trigger the paging or night ring. Paging or night ring will occur only when the audio system is in a normal, standby condition. During alarm or alert operation of the audio system, paging or night ring is suspended. All speaker circuits are fully supervised during paging or night ring operation. Refer to “Input/Output Circuit Specifications” on page 13 for night ring electrical requirements. Refer to “Night Ring” on page 30 for wiring requirements.

Section 5: Getting Started

This section describes the basic guidelines for setting up the various NFC-50/100 systems, assuming that the speaker and FACP cabling has been installed.

5.1 System Requiring up to 50 Watts of Audio Power

1. Install backbox and chassis assembly as described in Section 2, “Installation”, on page 22.
2. Connect laptop or PC to Ethernet port (J2) and launch the web-based programming utility.
3. Configure the NFC-50/100 for Single Zone operation, if individual speaker circuit control is not required. The factory default setting is Single Zone output control. Refer to Section 3, “Programming”, on page 51.
4. Record any new voice messages as described in Section 4, “Operating Instructions”, on page 70.

5.2 System Requiring Up to 100 Watts of Audio Power

1. Install backbox, chassis assembly, and NFC-BDA-25/70V and circuit boards as described in Section 2, “Installation”, on page 22.
2. Connect laptop or PC to Ethernet port (J2) and launch the web-based programming utility.
3. Configure the NFC-50/100 for Single Zone operation. Refer to Section 3, “Programming”, on page 51.
4. Record any new voice messages as described in Section 4, “Operating Instructions”, on page 70.

5.3 System Requiring Greater Than 100 Watts of Audio Power

1. Install backbox and chassis assembly as described in Section 2, “Installation”, on page 22.
2. Connect the external Audio Riser and external Data Bus (for All-Call) cabling between the NFC-50/100 and NFC-125DA and/or NFC-50DA panels.
3. Connect laptop or PC to Ethernet port (J2) and launch the web-based programming utility.
4. Configure the NFC-50/100 for Single Zone operation. Refer to Section 3, “Programming”, on page 51.
5. Record any new voice messages as described in Section 4, “Operating Instructions” on page 70.
6. Program the FACP to operate with the NFC-50/100 per the FACP manual.
 - Enable the ACS-BUS serial link or ANN-BUS serial link.
 - Assign audio zones where applicable (see Section 3.6, “Programmed Activation by FACP”, on page 64).
 - Assign message numbers (1 - 5) where applicable (refer to Section 3.6, “Programmed Activation by FACP”, on page 64).
7. Connect the external Audio Riser and NFC external Data Bus cabling between the NFC-50/100 and the NFC-125DA and/or NFC-50DA.

Section 6: Power Supply Calculations

6.1 Overview

This section contains instructions and tables for calculating power supply currents in alarm and standby conditions. This is a four-step process, consisting of the following:

1. Calculating the total amount of AC branch circuit current required to operate the system
2. Calculating the power supply load current for non-fire and fire alarm conditions and calculating the secondary (battery) load
3. Calculating the size of batteries required to support the system if an AC power loss occurs
4. Selecting the proper batteries for your system

6.2 Calculating the AC Branch Circuit

The audio distribution panel requires connection to a separate, dedicated AC branch circuit, which must be labeled **FIRE ALARM**. This branch circuit must connect to the line side of the main power feed of the protected premises. No other non-fire alarm equipment may be powered from the fire alarm branch circuit. The branch circuit wire must run continuously, without any disconnect devices, from the power source to the transponder. Over-current protection for this circuit must comply with Article 760 of the National Electrical Codes as well as local codes. Use 14 AWG (2.00 mm²) wire with 600 volt insulation for this branch circuit.

The NFC-50/100 requires 3.5 amps from the AC branch circuit. The NFC-50/100E requires 2.0 amps from the AC branch circuit.

6.3 Calculating the System Current Draw

6.3.1 Overview

The secondary power source (batteries) must be able to power the system during a primary power loss. To calculate the non-fire alarm load on the secondary power source, use Calculation Column 1 in Table 6.3. The NFC-50/100 must support a larger load current during a fire alarm condition and primary power loss. To calculate the fire alarm load on the secondary power source, use Calculation Column 2 in Table 6.3.

When calculating current draw and the battery size, note the following:

- ‘Primary’ indicates that the audio panel is being powered by AC
- ‘Secondary’ indicates that the audio panel is being powered by battery backup during AC failure
- All currents are given in amperes (A) and refer to the DC current being supplied by the panel. Table 6.1 shows how to convert milliamperes and microamperes to full amperes

To convert....	Multiply	Example
Milliamperes (mA) to amperes (A)	mA x 0.001	3 mA x 0.001 = 0.003 A
Microamperes (µA) to amperes (A)	µA x 0.000001	300 µA x 0.000001 = 0.0003 A

Table 6.1 Converting to Full Amperes

6.3.2 How to use Table 6.2 to calculate system current draws

1. Enter the quantity of devices in both columns.
2. Enter the DC current draw where required. Refer to the *Notifier Device Compatibility Document* for compatible devices and their current draw.
3. Calculate the current draws for each in both columns.
4. Sum the total current for each column.
5. Copy the totals from Column 1 and Column 2 to Table 6.3 on page 80.

Following are the types of current that can be entered into Table 6.2:

- ✓ **Calculation Column 1** - The standby current load that the audio panel must support (from the batteries) during a non-fire alarm condition and a loss of AC power.
- ✓ **Calculation Column 2** - The alarm current draw that the audio panel must support (from the batteries) during a fire alarm condition and a loss of AC power

Table 6.2 contains two columns for calculating current draws. For each column, calculate the current and enter the total (in amps) in the bottom row. When finished, copy the totals from Calculation Column 1 and Calculation Column 2 to Table 6.3 on page 80.

Device Type	Calculation Column 1 Secondary (Battery) Power Source Standby Current (amps)			Calculation Column 2 Secondary (Battery) Power Source Alarm Current (amps)		
	Qty	X [current draw]=	total	Qty	X [current draw]=	total
NFC-50/100 Primary Console (Not including speaker load)	1	X [0.272]=	0.272	1	X [0.446]=	0.446
NFC-BDA-25/70V Optional Audio Amplifier Module ¹	[] (1 max.)	X [0.100]=	[]	[] (1 max.)	X [0.235]=	[]
NFC-CE6 Speaker Circuit Expander	[] (1 max.)	X [0.020]=	[]	[] (1 max.)	X [0.189]=	[]
NFC-LOC Local Operator Console ²	[]	X [0.085]=	[]	[]	X [0.100]=	[]
NFC-RM Remote Microphone ²	[]	X [0.050]=	[]	[]	X [0.064]=	[]
NFC-RPU Remote Page Unit ²	[]	X [0.050]=	[]	[]	X [0.068]=	[]
NFC-50DA, NFC-125DA, NFC-50/100DA Remote Amplifiers ³	[]	X [0.012]=	[]	[]	X [0.012]=	[]
NFC-FFT Firefighter Telephone	[]	X[0.120]=	[]	[]	X[0.230]=	[]
Speakers (50 watts maximum/amplifier)						
1/4 Watt				[]	X[0.017]=	[]
1/2 Watt				[]	X[0.033]=	[]
3/4 Watt				[]	X[0.050]=	[]
1 Watt				[]	X[0.068]=	[]
2 Watts				[]	X[0.132]=	[]
Additional Current Draw from TB17 Special Application Auxiliary Power Output (0.5 amp maximum)	[]	X []=	[]	[]	X []=	[]
NAC Circuit Output (2.0 amps maximum)				[]	X []=	[]
Power Supervision Relays ⁴	[]	X [0.025]=	[]	[]	X [0.025]=	[]
AIM-1A, RSM-1A Isolators	[]	X [0.0145]=	[]	[]	X [0.0145]=	[]
SP-SVC Volume Control	[]	X[0.010]=	[]	[]	X[0.010]=	[]
Sum each column for totals			Secondary Standby:			Secondary Alarm:

Table 6.2 System Current Draw Calculations

- 1 In backup configurations, the optional amplifier draws no additional current in alarm.
- 2 Maximum combined total of eight (8) operator interface devices.
- 3 Maximum combined total of eight (8) remote amplifiers.
- 4 Must use a compatible, UL-listed Power Supervision Relay

Appendix A: Digital Voice Messages

The FirstCommand digital message generator provides up to 14 messages each with up to 60 seconds of record time. The NFC-50/100 is provided with factory recorded messages which can be changed in the field. The prerecorded messages (female voice) are:

Fire Evacuation Messages:

- “May I have your attention, please? May I have your attention, please? A fire has been reported in the building. A fire has been reported in the building. Please proceed to the stairways and exit the building. Do not use the elevators.”
- Su atención por favor. Su atención por favor. Un incendio se ha reportado en el edificio. Un incendio se ha reportado en el edificio. Por favor, proceder a las escaleras y salir del edificio. No use los ascensores.
- “May I have your attention, please? May I have your attention, please? There has been a fire reported in the building. Please proceed to the nearest exit and leave the building.”
- Su atención por favor. Su atención por favor. Un incendio se ha reportado en el edificio. Un incendio se ha reportado en el edificio. Por favor, proceder a la salida más cercana y salir del edificio.
- “May I have your attention, please? May I have your attention, please? An alarm has been activated in the building. Please proceed to the stairways and exit the building. Do not use the elevators.”
- “May I have your attention, please? May I have your attention, please? There has been a fire reported on your floor. There has been a fire reported on your floor. Please proceed to the stairways and exit the building. Do not use the elevators.”
- “May I have your attention, please? May I have your attention, please? A fire has been reported in the building. A fire has been reported in the building. Please proceed to the nearest exit and leave the building. Do not use the elevator, but proceed to the nearest exit and leave the building.”

Fire Alert Message:

- “May I have your attention please? An alarm has been activated. We are investigating the cause. Please remain calm and stand by near the speakers for further instructions.”

Emergency Evacuation Messages:

- “May I have your attention, please? May I have your attention, please? There has been an emergency reported in this area. Please proceed to the closest exit or stairwell and leave the building. Do not use the elevators.”
- Su atención por favor. Su atención por favor. Una emergencia se ha reportado en este área. Por favor, proceder a la salida más cercana o escaleras y salir del edificio. No use los ascensores.

Emergency Alert Message:

- “Attention, please. This signal tone you have just heard indicates a report of an emergency in this building. If your floor evacuation signal sounds after this message, walk to nearest stairway and leave the floor. While the report is being verified, occupants on other floors should await further instructions.”

All Clear Emergency Messages:

- “Attention. Your attention, please. The building emergency condition has been cleared. You may return to your normal activities. The building emergency has been cleared. You may return to your normal activities.”
- Atención. Su atención por favor. La condición de emergencia del edificio se ha resuelto. Regrese a sus actividades normales. La emergencia del edificio se ha resuelto. Regresa a su actividades normales.

Severe Weather Message:

- “Your attention please. A severe weather warning has been received. Please walk to the nearest safe area and wait for further instructions. Elevator lobbies, stairwells, bathrooms and auditoriums are designated safe areas in the event of severe weather. Stay away from windows and glass. Do not use the elevators”

New messages can be recorded in the field. Be certain to get the approval of the local Authority Having Jurisdiction prior to recording new messages.

Slide-in Labels - Upper Portion

Carefully cut along the outside of each label. Identify keypad buttons as desired and slide the labels in. Refer to Section 4.1 on page 70 for installation instructions.

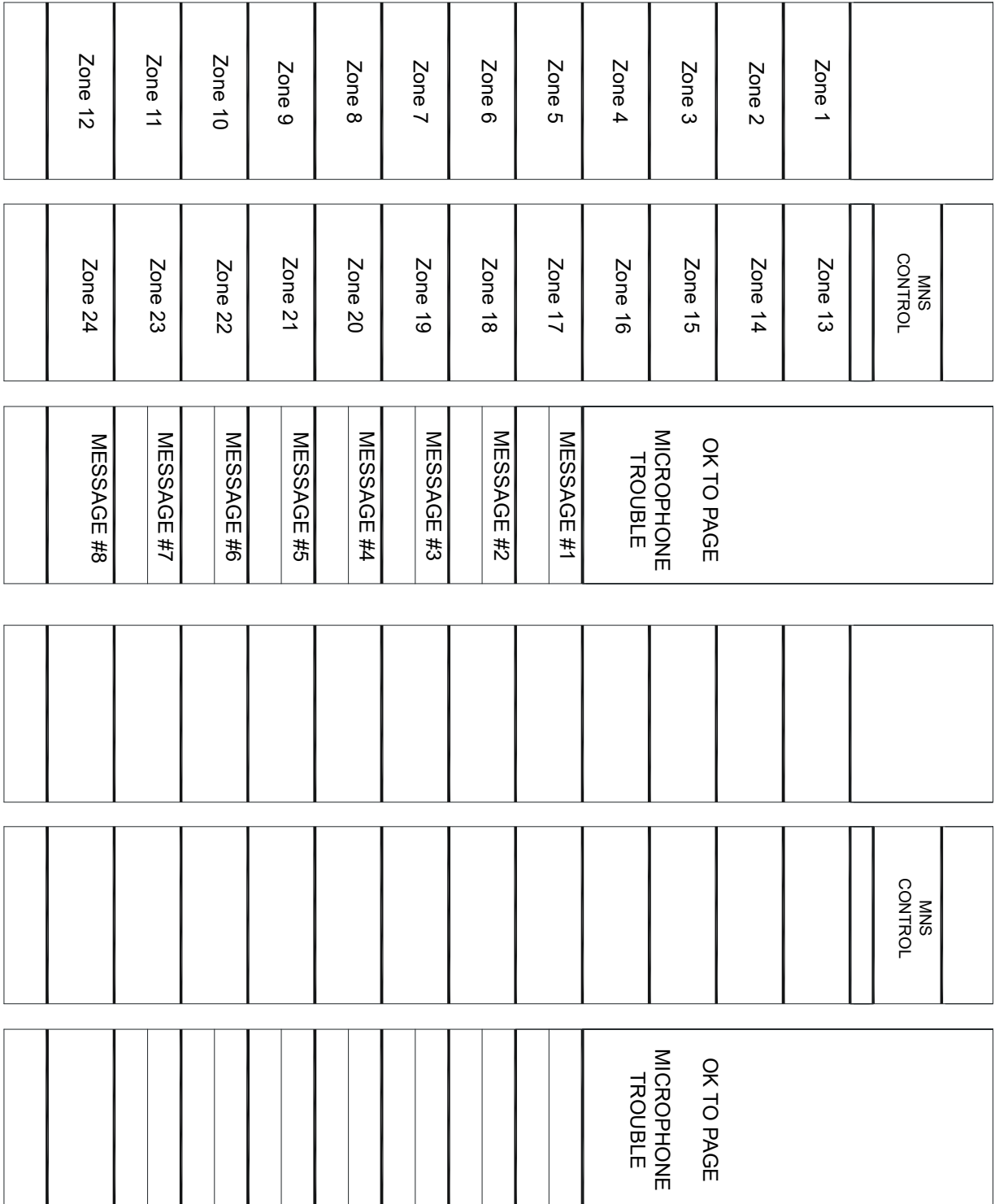


Figure 1.1 Slide-in Labels - Top Row of Keypad

NFC-50/100 and NFC-LOC OPERATING INSTRUCTIONS

Section 1 Operating Information

NORMAL STANDBY OPERATION.

1. Green AC POWER indicator lit steadily.
2. Yellow TROUBLE indicators off.
3. Green speaker zone indicators off.

ALARM CONDITION.

1. Green speaker zone indicator(s) lit steadily.
2. Green SYSTEM IN USE indicator lit steadily.
3. Audio message plays.
4. Green FIRE SYSTEM ACTIVE indicator lit steadily (when FACP is in alarm).
5. Green MNS CONTROL indicator lit steadily and relay activated (for mass notification events).

ALARM RESET. After locating and correcting a fire alarm condition at the FACP, the system will return to Normal Standby Operation. After correcting a mass notification event, press the MNS CONTROL button to clear the system and return to Normal Standby Operation.

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 pressing the TROUBLE SILENCE switch. The trouble indicator will remain illuminated.

Section 2 Paging and Manual Message Control

1. Press the SYSTEM CONTROL button if the green LED is not lit.
2. Press either the ALL CALL button or individual speaker zone buttons. This will override the evacuation tone/message if panel is in alarm and activate desired speaker circuits.
3. Once the OK TO PAGE lights green, broadcast:
 - By paging: Key the microphone by pressing the push-to-talk switch on side of microphone and speak clearly into the microphone.
 - By prerecorded message: Press the desired message button.
4. Press the ALL CALL switch (or individual speaker zone buttons) to end broadcast and continue evacuation tone/message.
5. Press the SYSTEM CONTROL button to relinquish control of the audio system.

Section 3 Switch Functions

ALL CALL. Activates all speaker circuits for broadcast.

MNS CONTROL (for systems configured for mass notification operation which has higher priority). Activates the MNS Active Relay and the onboard NAC. A second press turns these back off. For a combination fire and mass notification system, pressing MNS CONTROL will result in the shutdown of audible FACP NACs and audio system speakers, allowing the system to override the system. Pressing MNS CONTROL again causes the FACP to re-activate audible FACP NACs and audio system speakers.

SYSTEM CONTROL. Manually gains control of the audio system in preparation for an ALL CALL, message activation, or general page. The green LED will turn on steadily to confirm control. A second press is required after paging to relinquish control of the system. The main console will have system priority based upon user programming. In order for the LOC to gain control, the ECC must first relinquish control of the system.

SPEAKER SELECT 1-24. Manually activates or deactivates speaker zones (circuits).

MESSAGE SELECT 1-8. Manually activates or deactivates stored messages. 8th button becomes a "shift" for messages 9-14.

DIAGNOSTIC SELECT. selects a specific remote amplifier to examine specific trouble conditions for the remote amplifiers. The fault LEDs with wrench graphics represent the amplifier selected.

TROUBLE SILENCE. Manually silences the local trouble sounder.

CONSOLE LAMP TEST. Tests the local LEDs and sounder.

Section 4 LED Indicators

FIRE SYSTEM ACTIVE. Green LED that turns on steady when the FACP is in alarm.

MNS CONTROL. Green LED that turns on steady when an operator has initiated a mass notification event by pressing the MNS Control button or by pressing an MNS message button.

SYSTEM CONTROL. Green LED that turns on steady when the main console has control of the audio system.

SYSTEM IN USE. Green LED text that turns on steady when the main console, an LOC, an RPU, or an RM has control of the audio system.

SPEAKER ZONES 1-24. Green LED per speaker circuit button that turns on steady when a speaker circuit has been selected and is active. Yellow LED per speaker circuit button that turns on steady when a speaker circuit fault exists or when the speaker circuit has been turned off after having been automatically turned on by the FACP.

OK TO PAGE. Green LED text that turns on steady when the system is ready for paging.

MICROPHONE TROUBLE. Yellow LED text that turns on steady to indicate a microphone wiring fault.

MESSAGES 1-8. Red LED per message button that turns on steady when the message has been selected and blinks when the message has been overridden. Yellow LED per message button that turns on steady when no message has been recorded or there is an associated command input fault. All eight message button LEDs will turn on steady to indicate a message generator fault. 8th button "shift" key red off when viewing messages 1-7 and on steady when viewing messages 8-14. Yellow LED will turn on indicating a message trouble in the group of messages not currently being viewed.

REMOTE AMPLIFIERS 1-8 FAULT. Yellow LED per remote amplifier that turns on steady when an amplifier has a fault.

LOC/RPU/RM 1-8 FAULT. Yellow LED per remote console that turns on steady when a remote console has a fault. Green LED per remote console that turns on steady when a remote console is active.

MAIN CONSOLE FAULT. Yellow LED that turns on steady when the main (or primary operator) console has a fault.

AC POWER. Green LED that turns on steady when AC power is present.

GROUND FAULT. Yellow LED that turns on steady when a ground fault exists in the system.

CHARGER FAULT. Yellow LED turns on steady when the battery charger voltage is too high or low.

BATTERY FAULT. Yellow LED turns on steady when battery voltage is too low.

DATA BUS FAULT. Yellow LED that turns on steady when the main and remote console(s) cannot communicate.

NAC FAULT. Yellow LED that turns on steady when the onboard NAC wiring is open or short-circuited.

NAC ACTIVE. Green LED that turns on steady when the NAC output is on.

SYSTEM TROUBLE. Yellow LED that turns on steady when any fault exists in the system.

AUDIO RISER FAULT. Yellow LED that turns on steady when the audio riser wiring is open or short-circuited.

Section 5 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.

BEFORE TESTING: Notify fire department and/or central alarm receiving station 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, central station, and/or building personnel when testing is complete.



In the event of trouble, contact the local
Notifier Service Representative.

Name: _____

Address: _____

Telephone Number: _____