

NFC-50/100C

Notifier First Command



Voice Evacuation & Emergency Communications System

General

Notifier's First Command NFC-50/100C is a multipurpose emergency voice evacuation panel for fire applications, mass notification applications, or both. The First Command delivers 50 or 100 watts of audio power for distribution to up to eight speaker circuits (i.e. zones). The NFC-50/100C comes standard with a single speaker circuit and a built-in 50 watt, 25V amplifier. A secondary 50 watt amplifier (NFC-BDA-25/70V) can be added for single speaker circuit backup or to increase system capacity to two speaker circuits and an additional 50 watts of audio power. An optional NFC-CE6 module added to the NFC-50/100C will upgrade the system to a maximum of eight speaker circuit outputs. All speaker output circuits can be wired in either Class B or Class A configuration. The NFC-50/100C has fourteen field programmable messages (up to 60 seconds each), built-in field configurable pre- and post-announce tone generators and a fully supervised Notification Appliance Circuit (NAC) with 2.0 amps of synchronized NAC power. The NFC-50/100C includes three built-in Form-C relay contacts, (AC power, trouble and MNS active) a NAC follower and 500mA special application power. A built-in power supply delivers operational power and on board battery charger supports charging up to 26AH batteries (NFC cabinet holds up to 18AH batteries).

For fire protection applications, the NFC-50/100C is an adjunct (slave) to most ULC listed FACPs or as a stand-alone unit for non-fire applications. For seamless integration between fire and mass notification, the NFC-50/100C can be activated by the NFW2-100C(-FR) and NFS-320C(-FR) and NFS2-640 when connected to the serial communication bus. Activation of the NFC-50/100C via other FACP's uses the eight on board Command Input Circuits (CMD's). Two of the eight CMD circuits (CMD 1 & CMD 2) can be individually field programmed for activation by an FACP Notification Appliance Circuit reverse polarity and all eight can be activated by a contact closure. In addition, the NFC-50/100C can be activated from a building's Private Branch Exchange (PBX) with the integral night ring feature.

All NFC-50/100C programming is done by using a simple, built-in programming utility accessed from any laptop. For added flexibility, the NFC-50/100C supports both 25V and 70V speaker output operation. By adding a 70V transformer conversion module (NFC-XRM-70V) or an additional 70 volt secondary amplifier (NFC-BDA-25/70V) the system supports 70 volt speaker devices.

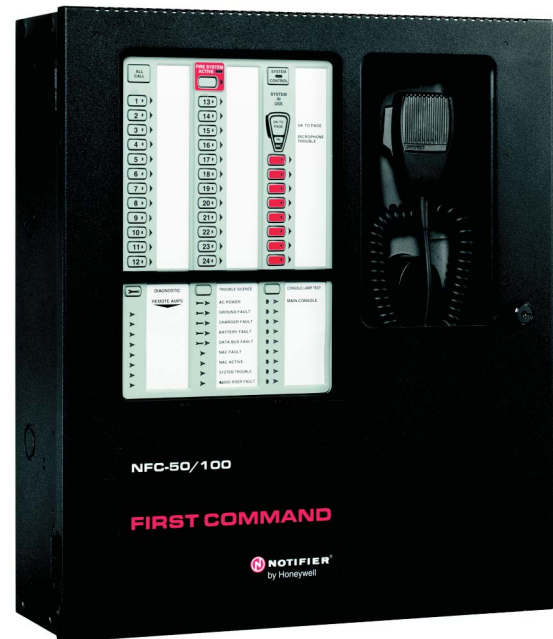
The NFC-50/100C can expand in order to accommodate larger or more complex installations. To add more control and increase system capacity, any combination of up to eight external remote consoles (including the NFC-LOC).

TYPICAL APPLICATIONS

- Schools
- Nursing Homes
- Factories
- Theaters
- Military facilities
- Restaurants
- Auditoriums
- Places of Worship
- Office Buildings
- Retail Outlets

Features

- Modular design for system flexibility and easy expansion



- Removable terminal blocks
- 50 watts of 25V audio power (expandable to 100 watts) RMS
- 2 amp Notification Appliance Circuit (NAC) output, sync generator, or follower for System Sensor, or Wheelock protocols
- Optional 70V transformer available for the primary amplifier. (Note that speaker wiring continues to be supervised in standby, alarm and when background music is playing with this optional transformer installed)
- Eight Command Input Circuits to activate messages 1 to 8:
 - CMD1 and CMD2 are field selectable to be activated from 12 or 24 VDC Notification Appliance Circuits (reverse polarity) or contact closures
 - CMD3-CMD8 are activated by contact closures
- Speaker Circuits
 - Single Class B or Class A speaker Circuit
 - Two Class B or Class A speaker circuits (with optional NFC-BDA-25/70V Audio Amplifier installed)
 - Eight Class B or Class A speaker circuits (with optional NFC-BDA-25/70V and NFC-CE6 installed)
- NFC-50/100C can be controlled by an FACP via the ANN/ACS (EIA-485) link of the NFW2-100.
- Certified for seismic applications when used with the appropriate seismic mounting kit
- Integral supervised microphone
- Microphone time-out feature which reverts back to pre-recorded message if emergency page exceeds the programmed time
- 14 recorded messages

- Field-selectable message and custom message recording capability using the local microphone, a USB port, or an external audio input
- External Audio Input can be used for background music
- Up to 60 second message duration for all messages
- Integral tone generators field selectable for multiple tone types
- Powered by integral AC power supply or batteries during AC fail
- Programmable delay of immediate, 2 hours or 6 hours reporting of AC Loss
- Piezo sounder for local trouble
- 100 event history log
- Three Form-C relays:
 - AC Power Loss Relay - TB1
 - System Trouble Relay - TB2
 - MNS Active - TB3
- 500mA (0.5A) Special Application (auxiliary power) output for addressable modules when interfaced with compatible addressable FACP's and End-of-Line power supervision relays
- System Status LEDs (refer to "Controls and Indicators" on product manual LS10001-000NF-E)
- Integral Dress Panel
- Optional TR-CE-B semi-flush trim ring
- Any combination of up to eight (8) external remote consoles:
 - Optional NFC-LOC Local operator console (includes cabinet). See DN-60812.

Optional Internal Expansion Modules

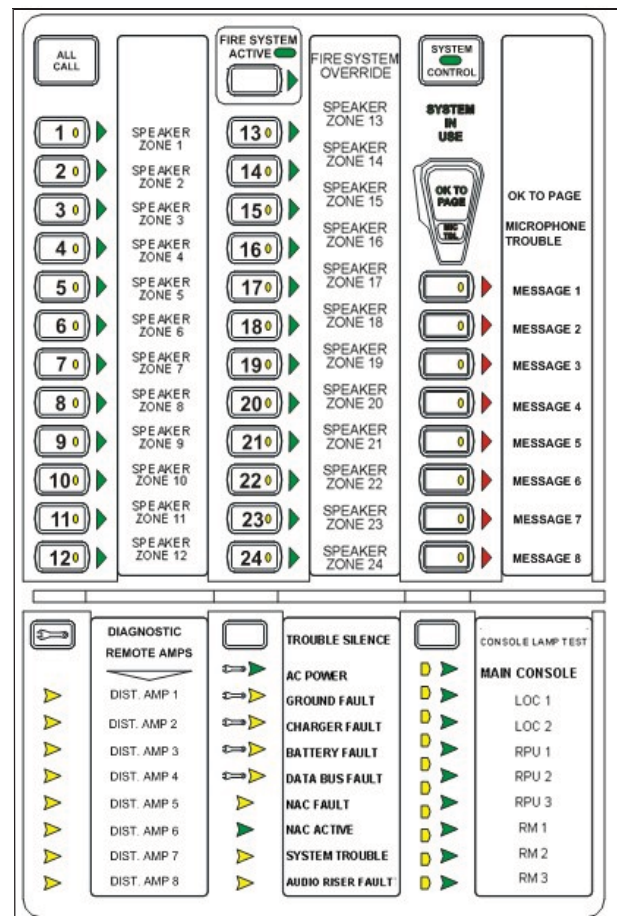
NFC-CE6: Circuit Expander Module provides connections for up to six Class A or Class B speaker circuits. Circuits are configured through the web-based programming utility.

NFC-BDA-25V: 25V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total NFC-50/100C power output to 100 watts or can also be used as a backup amplifier.

NFC-BDA-70V: 70V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total NFC-50/100C power output to 100 watts or can also be used as a backup amplifier.

NFC-XRM-70V: 70V Transformer Conversion Module. Converts the NFC-50/100C primary amplifier to a 70V output. This transformer mounts directly to the NFC-50/100C main control board by two metal brackets.

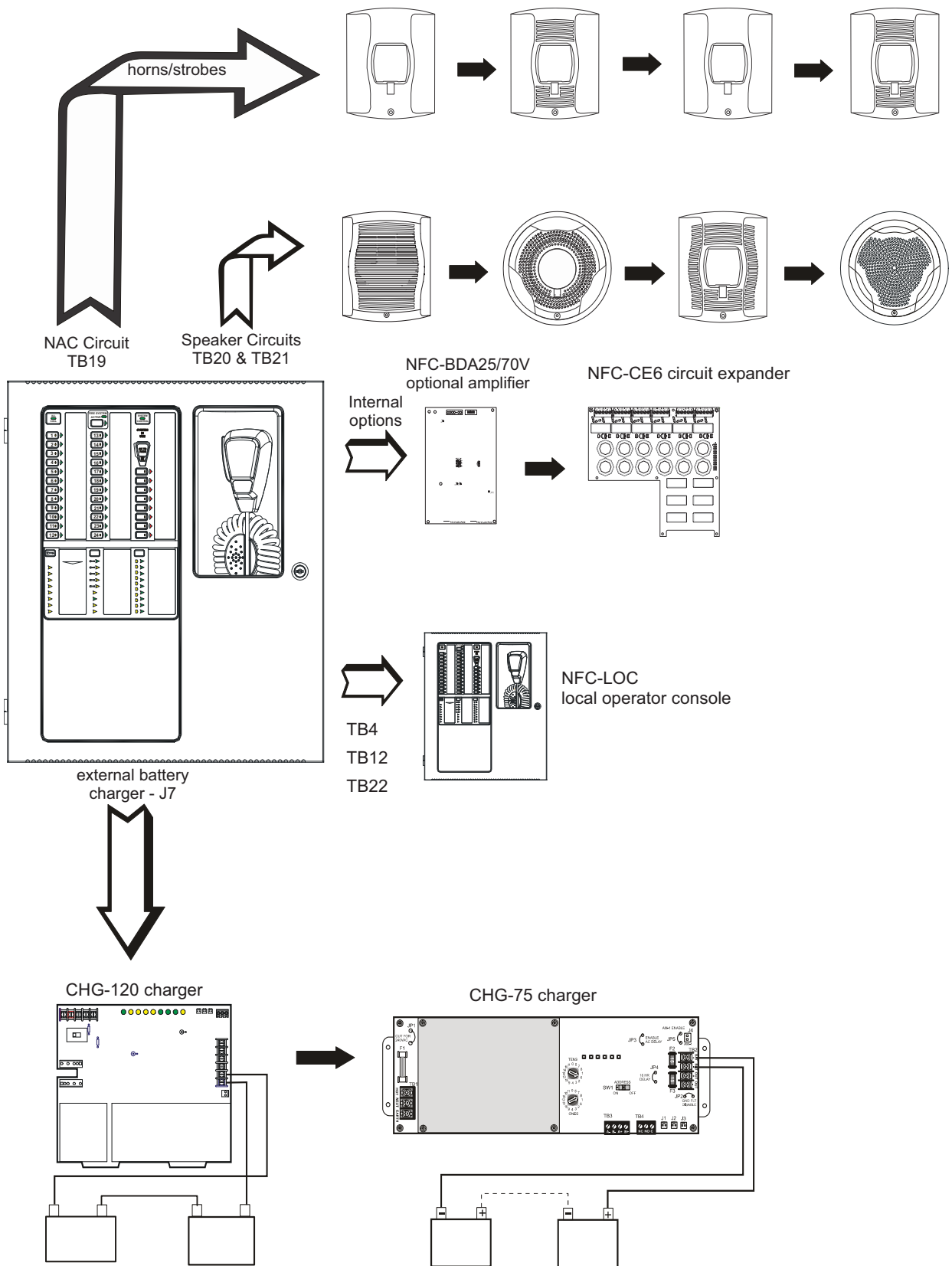
NFC-RTZM: Remote Telephone Zone Module. Allows for secure access to the NFC via cell phone or remote telephone means; not ULC listed.



Control and Indicators

PUSH BUTTON CONTROLS

- All Call
- MNS Control
- System Control
- Speaker Select 1-24
- Message Select 1-14
- Diagnostic Select
- Trouble Silence
- Console Lamp Test



NFC-50/100C FirstCommand (Possible Configurations)

LED Status Indicators (visible with door closed)

Fire System Active (green)	LOC/RM 1-8 Active (green)
MNS Control (green)	Main Console Fault (yellow)
System Control (green)	AC Power (green)
System in Use (green)	Ground Fault (yellow)
Speaker Zone 1-24 Active (green)	Charger Fault (yellow)
Speaker Zone 1-24 Fault (yellow)	Battery Fault (yellow)
OK to Page (green)	Data Bus Fault (yellow)
Microphone Trouble (yellow)	NAC Fault (yellow)
Message 1-8 Active (red)	NAC Active (green)
Message 1-8 Fault (yellow)	System Trouble (yellow)
Remote Amplifier 1-8 Fault (yellow)	Audio Riser Fault (yellow)
LOC/RM 1-8 Fault (yellow)	

LED Indicators (visible with door and dress panel open)

- Speaker Volume Control Fault (yellow).
- Option Card Fault (yellow).
- Amplifier Over Current Fault (yellow).

Product Line Information

NFC-50/100C: (Primary Operating Console) 50 Watt, 25V single speaker zone emergency voice evacuation system, integral microphone, built in tone generator and 14 recordable messages.

NFC-CE6: Speaker Circuit/Zone Expander Module.

NFC-BDA-25V: 25V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total NFC-50/100C power output to 100 watts or can also be used as a backup amplifier.

NFC-BDA-70V: 70V, 50 watt audio amplifier module. Adding a second speaker circuit increases the total NFC-50/100C power output to 100 watts or can also be used as a backup amplifier.

NFC-XRM-70V: 70V Transformer Conversion Module. Converts the NFC-50/100C primary amplifier to a 70V output. This transformer mounts directly to the NFC-50/100C main control board by two metal brackets.

NFC-RTZM: Remote Telephone Zone Module. *Allows for secure access to the NFC via cell phone or remote telephone means; not ULC listed.*

NFC-LOC: Local Operator Console (Complete user interface), *Please refer to the data sheet DN-60812 for more information.*

SEISKIT-COMMENC: Seismic kit for the NFC-50/100C. Includes battery bracket for two 12 AH or 18 AH batteries.

TR-CE-B: Optional Trim Ring.

THUMBLTCH: Optional Thumb Latch. (Non ULC-Listed).

CHG-75: 25 to 75 ampere-hours (AH) External Battery Charger.

CHG-120: 25-120 ampere-hours (AH) External Battery Charger.

ECC-MICROPHONE: Replacement Microphone only.

BAT-1270: Battery, 12 volt, 7.0 AH (Two required).

BAT-12120: Battery, 12 volt, 12.0 AH (Two required).

BAT-12180: Battery, 12 volt, 18.0 AH (Two required).

BAT-12260: Battery, 12 volt, 26.0 AH (Two required).

BB-26: Battery cabinet mounts up to two 26 AH batteries.

Wiring Requirements

See product manual, part number LS10001-001NF-E for detailed wiring requirements.

Total System Capacity: (NFC-50/100C only)

- Total Built-in Audio Power: 50 Watts.
- Total Expandable Audio Power: 100 Watts.
- Total Built-in Speaker Circuits: 2.
- Total Expandable Speaker Circuits: 8.
- Audio Message Max Time Duration: 60 seconds.
- External Audio Input: 1.

Electrical Specifications

PRIMARY (AC) POWER (TB15)

NFC-50/100C: 120 VAC, 60 Hz, 3.5 amps.

Wire size: minimum #14 AWG (2.00mm²) with 600 V insulation.

SECONDARY POWER (BATTERY) CHARGING CIRCUIT (J7)

- Supports lead-acid batteries only.
- Float charge voltage at 27.3V
- Maximum charge current: 1.0 Amp
- Maximum battery charge capability: 2.8 Amps, 26AH (NFC cabinet holds max. 18AH battery).
- Minimum Battery size: 12 Amp Hour.

AC LOSS RELAY CONTACT RATING (TB3)

- 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 30 VAC (resistive).

FORM C - TROUBLE RELAY CONTACT RATING (TB2)

- 2.0 amps @ 30 VDC (resistive), 0.5 amp @ 30 VAC (resistive).

MNS ACTIVE RELAY CONTACT RATING (TB1)

- 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 30 VAC (resistive).

NOTIFICATION APPLIANCE CIRCUIT (NAC) OUTPUT RATING (TB19)

- One (1) Class B or Class A circuit.
- Power-limited circuitry, (Class 2) supervised.
- Nominal operating voltage: 24 VDC.
- Maximum signaling current for special application power: 2.0A.
- Maximum signaling current for regulated power: 200mA.
- Maximum wiring impedance: 1Ω.
- Current limit: fuse-less, electronic, power-limited.
- End-Of-Line Resistor: 4.7 KΩ, ½ watt, (P/N 71252) required for Class B operation.

Refer to the Device Compatibility Document 15378 for listed compatible devices.

NAC FOLLOWER OUTPUT REMOTE SYNC (TB18)

- Connections for FACP NAC synchronization trigger signal.
- Trigger input voltage: 9 to 32 VDC, 24 VDC rated.
- Input current draw in Alarm condition: 10 mA at rated voltage.

SPECIAL APPLICATION POWER (AUX. POWER) (TB17)

- 500 mA @ 24 VDC
- Used for powering addressable modules and associated End-of-Line power supervision relays

Power-limited circuitry. Refer to the Device Compatibility Document 15378 for a list of compatible devices.

SPEAKER VOLUME CONTROL OVERRIDE (TB23)

- Class B or Class A circuit
- Special application power
- Power-limited circuitry, supervised
- Nominal operating voltage: 24 VDC
- Maximum signaling current: 0.25 amps
- Current limit: fuse-less, electronic, power-limited
- End-Of-Line Resistor: 4.7 K Ω , ½ watt, (P/N 71252) required for Class B operation

Speaker Circuits

- Primary Speaker Circuit (TB20)
- Secondary Speaker Circuit (TB21) (with optional amplifier only)
 - Circuit can be wired Class B or Class A
 - Power-limited circuitry
 - Normal Operating Voltage: 25 VRMS @ 2 amps max and maximum Load Impedance of 12.5 Ω (70V @ 700 mA max. with maximum load Impedance of 100 Ω operation possible by plugging optional NFC-XRM-70V conversion transformer into J12 of the main control board)
 - Output Power: 50 watts (10 watts when background music is employed)
 - Frequency Range: 400Hz - 4,000Hz
 - Maximum total capacitance for each speaker circuit: 250 μ F
 - End-of-Line Resistor required for Class B circuit: 15 K Ω , 1 watt (P/N: ELR-15K)

Command Input Circuits (alarm polarities shown)

CMD1 - TB4 Terminals 3(+) & 4(-) are input terminals and Terminals 1(-) and 2(+) are output terminals which provide feed through of the NAC circuits to NAC devices down stream.

CMD2 - TB5 Terminals 3(+) & 4(-) are input terminals and Terminals 1(-) and 2(+) are output terminals which provide feed through of the NAC circuits to NAC devices downstream.

CMD3 - TB6 Terminals 1(+) & 2(-) are input terminals for contact closure only.

CMD4 - TB6 Terminals 3(+) & 4(-) are input terminals for contact closure only.

CMD5 - TB7 Terminals 1(+) & 2(-) are input terminals for contact closure only.

CMD6 - TB7 Terminals 3(+) & 4(-) are input terminals for contact closure only.

CMD7 - TB8 Terminals 1(+) & 2(-) are input terminals for contact closure only.

CMD8 - TB8 Terminals 3(+) & 4(-) are input terminals for contact closure only.

- Power-limited and supervised circuitry
- Normal Operating Voltage Range: 10.5 VDC - 29 VDC; (Maximum Voltage: 29 VDC)
- NAC Reverse Polarity Current (requires End-of-Line Resistor from NAC): 1.6 mA maximum

- Contact Closure Operation Current (requires 4.7K Ω , ½ watt End-of-Line Resistor P/N 27072): 6.6 mA maximum
- Maximum Wiring Impedance CMD1 - CMD8 (Contact Closure Operation): 200 Ω

NOTE: When the system is programmed for Mass Notification, CMD1 and CMD2 will be programmed for Reverse Polarity only. See manual P/N: LS10001-001NF-E for more details.

MAXIMUM INPUT IMPEDANCE:

- CMD1 & CMD2 (Reverse Polarity Operation): 20K Ω
- CMD1 - CMD8 (Contact Closure Operation): 4.75K Ω

NIGHT RING INPUT - TB16, TERMINALS 1 (+) & 2 (-)

- Contact closure input
- Isolated, non-supervised
- Operation current: 3.8 mA, maximum
- Maximum wiring impedance: 30K Ω
- Minimum isolation withstand voltage: 1500 VRMS

EXTERNAL OPERATOR INTERFACE POWER OUTPUT (TB24)

- Non-resettable power for external operator interface components
- Power-limited circuitry, non-supervised
- Nominal operating voltage: 24 VDC
- Maximum output current: 0.80 amps
- Current limit: fuse-less, electronic, power-limited circuit

EXTERNAL DATA BUS (EIA-485) (TB12)

- Data connections for external operator interface components
- Redundant transceiver circuitry for Class A operability
- Power-limited circuitry, supervised
- Maximum wiring impedance: 13.2 Ω .

FACP DATA BUS (EIA-485) (TB13)

- Dedicated connection to FACP serial bus
- Output terminals: pass-through to other system components.
- Isolated, supervised
- Minimum isolation withstand voltage: 1500 VRMS
- Maximum wiring impedance: 40 Ω (ANN-BUS), 26 Ω (ACS-BUS)
- External Audio Riser (TB22)
- Class B or Class A audio connections to external operator interface components
- Power-limited circuitry, supervised
- Audio signal level: 3.85 V, maximum
- Frequency range: 400 Hz - 4 KHz RMS
- Frequency range (NFC-50/125DA): 800Hz - 2KHz RMS

EXTERNAL AUDIO INPUT (TB5)

- Input Impedance: 8.5K Ω nominal @1KHz
- Input Voltage: 700 mVrms maximum
- Input Current: 0.1 mA maximum @ 700 mV

NOTE: Some laptops/personal computers only provide an audio output for headphones. It may be necessary to adjust the headphone output level for proper recording of voice messages.

NFC-CE6 Circuit Expander Module Specifications

- Power-limited circuitry
- Up to six (6) circuits on the NFC-CE6 can be wired as Class B or Class A)
- Normal Operating Voltage for Speaker Circuits: 25 V @ 2.0 amps max. (Maximum Load Impedance of 12.5 Ω)

- 70.0 V @ 700 mA max. with maximum Load Impedance of 100Ω operation possible for the primary circuit by plugging in an optional NFC-XRM-70V conversion transformer into J12 of the main control board. The same operation is possible for the optional 50W amplifier by selecting the NFC-BDA-70V model
- Speaker circuit wiring is supervised during standby, background music, and alarm
- Output Power: 50 watts total; Frequency Range: 400Hz - 4,000Hz
- Maximum total capacitance: 250 μF. (Note that the total capacitance for the speaker outputs must not exceed the maximum of 250 μF)
- End-of-Line Resistor required for Class B speaker circuit: 15 KΩ, 1 watt (P/N: ELR-15K) TB13 on the main control board: ACS/ANN (EIA-485) electrically isolated link to FACP provides programmed speaker control

Cabinet Specifications

Backbox: 19.0"(48.26 cm) high x 16.65"(42.29 cm) wide x 5.20"(13.23 cm) deep.

Door: 19.26" (48.92 cm) high x 16.82"(42.73 cm) wide x 0.12"(0.30 cm) deep.

Trim Ring (TR-CE-B): 22.00" (55.88 cm) high x 19.65" (49.91 cm) wide.

Shipping Specifications

Base Unit Weight: 27.85 lbs (12.63 kg).

Temperature and Humidity ranges

This system meets ULC requirements for operation at 0-49° C/ 32-120° F and at a relative humidity 93% ± 2% RH (non-condensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15-27° C/60-80° F.

Agency Listings and Approvals

The listings and approvals below apply to the basic NFC-50/100 control panel. In some cases, certain modules may not be listed by certain approval agencies or listing may be in process. Consult factory for latest listing status.

- UL/ULC Listed S635
- CSFM: 6911-0028:0265
- NYC Fire Dept.Certificate of Approval: #6163

Standards and Codes

The NFC-50/100C complies with the following ULC Standard International Building Codes.

- ULC: S635
- IBC 2012, IBC 2009, IBC 2006, IBC 2003, IBC 2000 (Seismic).

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