

NX-8V2 Control Panel Installation Instructions

Introduction

This is the NX-8V2-Control Panel Installation Instructions.

Installations should only be done by trained professionals. Use this document to install the system with default settings that comply with UL requirements.

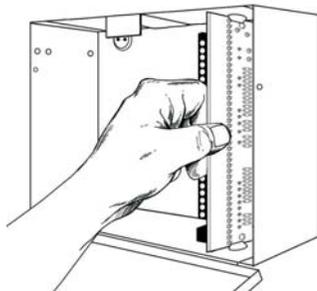
To install the keypad, other peripherals, and sensors, refer to the documentation for those devices.

Installation

There are four slots for board insertions inside the metal enclosure, two on the top and two on the bottom. These allow the PC board to be positioned vertically (Figure 1 below). When you slide the board between the grooves of the slots, make sure the terminal strip is toward the front opening (toward you) to allow for the wire connections.

Note: Install the metal enclosure with the door opening from the top to bottom.

Figure 1: Board installation



NetworX keypad maximum wire run

Table 1 below lists wire lengths for one keypad at the end of the wire. When connecting more than one keypad to the end of the wire, a higher gauge wire is required

Table 1: Maximum keypad wire run

Length in feet	Wire gauge for NX-8V2	Wire gauge for NX320-E
250	24	22
500	20	18
1000	18	16
1500	16	14
2500	14	12

Terminal descriptions

Table 2 below describes the panel terminals.

Table 2: NX-8V2 terminals

Terminal	Description
R1	House telephone ring (grey)..
R	Telephone ring (red).
T	Telephone tip (green).
T1	House telephone tip (brown).
AC	AC input. Connect to a 16.5 V 40 or 50 VA Class II UL approved transformer.
EARTH	Earth ground. Connect to a cold water pipe or a 6 to 10 ft. driven rod.
Bell + and Bell -	If used as a siren output (default), the speaker rating should be 15 watt at 8 or 16 ohm, or 30/40 watt at 4, 8, or 16 ohms. If voltage output is selected in location 37, this output becomes voltage output, 12 VDC, 1 Amp maximum load. Note: A 3.3 kohm resistor may be required across the bell terminals when a 12 VDC siren is used. If no resistor is used, you may experience voltage leakage into the siren, which will cause these devices to output a small signal.
KP Data	Connect to the data terminal on the keypads and the expanders. Maximum number of devices (keypads plus expanders) is 32. See Maximum Wire Run table.
KP COM	Connect to the common terminal on the keypads and the expanders.

Terminal	Description
KP POS	Connect to the POS terminal on the keypads and the expanders. Individually, this terminal is limited to 1 amp. Combined, this terminal and AUX PWR+ are limited to 2 amps total current.
SMOKE+	Smoke detector power 12 VDC, 1.5 amps maximum (for those jurisdictions which allow the Priority zone to be used with smoke detectors).
COM	Common negative wire of powered devices such as motion detectors and smoke detectors.
AUX PWR +	Connect positive wire of all powered devices except smoke detectors and keypads. Individually, this terminal is limited to 1 amp. Combined, this terminal and KP POS are limited to 2 amps total current.
ZONE8	Connect to one side of zone 8 loop. Connect the other side to com terminal. Open or short causes alarm. Only zone 8 may be used for a two-wire smoke detector using a 680 ohm EOL resistor. Refer to the wiring diagram. Program location 37, segment 6, option 1.
COM	Common (-) terminal for zones 7 and 8.
ZONE7	Connect to one side of zone 7 loop. Connect the other side to COM terminal. Open or short causes alarm.
ZONES 6 to 1	Connect as described for zones 7 and 8. Only zone 8 can be a two-wire zone. Refer to the wiring diagram for examples.
AUX1 to AUX4	Connect negative lead of low current device [relay, LED (install 1kohm resistor in series with LED), etc.] Connect positive lead of device to COM. Current is limited to 50 mA when output is negative, and 250 uA when output is positive.

Module list

Table 3 below shows the modules that are compatible with the NX-8V2 system. Additional information and a catalog listing all system components is available from Customer Support

Table 3: Modules that can be added to the NX-8V2

Terminal	Description
NX-108E	8-zone LED keypad
NX-116E	16-zone LED keypad
NX-124E	24-zone LED keypad
NX-148E	Alphanumeric 48-zone LCD keypad
NX-148E-RF ^b	Alphanumeric 48-zone LCD keypad with built-in 48-zone wireless receiver
NX-200 ^a	Zone doubling kit (includes one hundred 3.74k and one hundred 6.98k resistors)
NX-320E	Smart power supply and bus extender
NX-408E	8-zone wireless expansion module (UL listed part #60-904)
NX-416E	16-zone wireless expansion module (UL listed part #60-904)

Terminal	Description
NX-448E	48-zone wireless expansion module (UL listed part #60-904)
NX-508E	Eight-output module
NX-534E	Two-way listen-in module
NX-540E ^a	Operator telephone interface module
NX-548E ^b	48-zone wireless receiver
NX-591E-GSM ^a	Cell interface
NX-1192E	192-zone LCD keypad
NX-1208E	8-zone LED keypad
NX-1248E	48-zone LCD keypad
NX-1308E	8-zone LED door design keypad
NX-1316E	16-zone LED door design keypad
NX-1324E	24-zone LED door design keypad
NX-1448E	48-zone fixed language icon keypad

a> These products have not been tested and approved by Underwriters Laboratories, In.

b> These wireless devices are UL listed only for residential applications.

Note: The NX-8V2 control panel sends a trouble condition once each hour if it senses that no devices have been enrolled. This report shows expander trouble--device zero (0).

Control panel programming

Programming the control panel requires you to enter program mode, select the module to program, program a location, and then exit the location and program mode.

Enter program mode

To enter program mode, do the following:

1. Press *, 8. The five function LEDs (Stay, Chime, Exit, Bypass, and Cancel) begin flashing.
2. Enter the go to program *code* (default is 9, 7, 1, 3). If the go to program *code* entry is valid, the Service LED flashes, and the five function LEDs illuminate. You are now in program mode and can select the module to program.

Select the module to program

Since all modules connected to the NX-8V2 are programmed through the keypad, the module you are programming should be the first entry. To select the module to program, enter 0, #. The 0 is the module number of the control, and # is the entry key. You can find other module entry numbers in the module documentation.

Program a location

Once you enter the module number, the Armed LED illuminates, indicating the keypad is waiting for you to enter a programming location. To program a location, do the following:

1. To access any location, enter the desired programming location, followed by #. If the location is a valid location, the Armed LED extinguishes, the Ready LED illuminates, and the binary data for the first segment of the location is shown by the Zone LEDs.
2. While entering new data, the Ready LED begins flashing to indicate a data change in process.
3. Press * to store the newly entered data. The keypad advances to the next segment and displays its data. Repeat this procedure until the last segment is reached.
4. To move to another location after exiting a location (Armed LED illuminated):
 - Press the Police key for the next sequential location.
 - Press the Fire key for the previous location.
 - Press the Medical key for the same location.
5. To review the data in a specific location, repeat the above procedure, pressing * but with no numeric data entry. Each time you press *, the programming data of the next segment displays.

Exit a location

To exit the current programming location, do the following:

1. Press the * key. The Ready LED goes off and the Armed LED goes on. You must press the * key to save the data.
2. To exit before the last segment, press # (Armed LED illuminates).

You are now ready to enter another programming location. If you attempt to program an invalid entry for a particular segment, the keypad beeps three times indicating an error and remains in that segment awaiting a valid entry.

Exit program mode

To exit program mode, do the following:

1. When you have completed all programming, press Exit to leave the selected module.
2. If there is another module to be programmed, select it by entering its address, followed by #. The procedure for programming these devices is the same as for the control panel, except the locations are for the module selected.
3. If no additional modules are to be programmed, press Exit again to leave program mode.

Loading factory defaults

To load factory defaults, enter program mode, enter the device address and number and then enter 9, 1, 0, #. The keypad beeps three times indicating that loading is in progress. The process takes about six seconds. You cannot exit the location until loading is completed.

Enrolling modules and keypads

The NX-8V2 automatically finds and stores all keypads, zone expanders, wireless receivers, and other modules connected to the data terminal into the NX-8V2 memory. This allows the modules to be supervised by the control panel.

To enroll the modules, do the following:

1. Enter program mode and program the desired settings for each module.
2. When you exit program mode, the NX-8V2 automatically enrolls the devices. The enrolling process takes about 12 seconds, during which time the Service LED illuminates. If a speaker is attached to the NX-8V2, it clicks at this time. If a siren or bell is attached to the NX-8V2, it sounds for about one second. If the module is not detected, the Service LED illuminates.

Note: User codes are not accepted during the enrolling process.

Quick start programming locations

For most routine installations, the quick start locations allow you to enable a majority of the options available with the NX-8V2 (when communicating in Contact ID or SIA formats). The quick start locations include:

- Location 0 - Phone 1
- Location 1 - Phone 1 account code
- Location 2 - Phone 1 communicator format
- Location 3 - Phone 1 dial attempts/backup control

Location 0 - Phone 1

Location 0 has 20 segments of numerical data. Use this location to program phone 1. The default for each segment is 14.

- To program a delay of four seconds, enter 13 in the appropriate segment.
- To program tone dialing, enter 15 in the segment where tone dialing begins.
- If the entire number is tone dialing, enter 15 in the first segment.
- Enter 11 for a *, and 12 for a #.

Caution: A call-waiting cancel on a non call-waiting line prevents successful connection to the central station.

Location 1 - Phone 1 account code

Location 1 has six segments of numerical data. Use this location to program the account code sent when phone 1 is dialed. The default for each segment is 10. Program a 10 in the segment immediately after the last digit of the account code. If the account code is six digits long, program all six segments.

Location 2 - Phone 1 communicator format

Location 2 has one segment of numerical data. Use this location to program the communicator format used to transmit to the receiver connected to phone 1. Refer to your central station receiver documentation to determine which format is compatible. Table 4 below describes the formats for this location. If you need a format other than those listed, review the override options described in “Location 18 - Custom communicator format” on page 5 to build the appropriate format. Program a 15 to create a special format (in addition to the entries in Location 18). The default is 0. If this location contains a 0, the built-in communicator is disabled and the NX-8V2 functions as a local-only control.

Table 4: Communicator formats

Data	Format	Description
0	Local	Communicator is disabled
1	Universal 4+2	Two-digit event code 1800 Hz transmit 2300 Hz handshake double round parity 40 pps ^a
2	3+1 fast (or 4+1)	One-digit event code 1900 Hz transmit 1400 Hz handshake double round parity 20 pps
3	Reserved	Reserved
4	Pager	Two-digit event code DTMF transmission

Data	Format	Description
5	3/1 or 4/1 slow	1800 Hz transmit 2300 Hz handshake double round parity 20 pps hex capability
6	3/1 or 4/1 slow	1800 Hz transmit 1400 Hz handshake double round parity 20 pps hex capability
7	3/1 or 4/1 fast	1800 Hz transmit 2300 Hz handshake double round parity 40 pps hex capability
8	3/1 or 4/1 fast	1800 Hz transmit 1400 Hz handshake double round parity 40 pps hex capability
9	3/1 or 4/1 fast with parity	1800 Hz transmit 2300 Hz handshake single round parity 40 pps hex capability
10	3/1 or 4/1 fast with parity	1800 Hz transmit 1400 Hz handshake single round parity 40 pps hex capability
11	4+2 express	Two-digit event code DTMF transmission
12	4+2 fast	Two-digit event code 1900 Hz transmit 1400 Hz handshake double round parity 20 pps
13	Ademco contact ID	DTMF
14	SIA	Frequency shift keys
15	Custom format	See “Location 18 - Custom communicator format” on page 5
16	3/1 or 4/1 slow	Same as 5, but sends the alarm event code rather than the zone number
17	3/1 or 4/1 slow	Same as 6, but sends the alarm event code rather than the zone number
18	3/1 or 4/1 fast	Same as 7, but sends the alarm event code rather than the zone number
19	3/1 or 4/1 fast	Same as 8, but sends the alarm event code rather than the zone number
20	3/1 or 4/1 fast with parity	Same as 9, but sends the alarm event code rather than the zone number
21	3/1 or 4/1 fast with parity	Same as 10, but sends the alarm event code rather than the zone number
22	SIA	SIA with area modifiers

a> Pulses per second.

Location 3 - Phone 1 dial attempts/backup control

Location 3 has two segments of numerical data.

Segment 1 - Phone 1 dial attempts

Program the number of dial attempts (1 to 15) the communicator makes to phone 1 before ending the notification process. The default is 8, which means that the communicator makes eight attempts to the first number.

Segment 2 - Phone 1 backup control

Program the backup control for phone 1. The default is 0.

- Program a 0 in segment 2 to cause the NX-8V2 to make the designated number of attempts to phone 2 before setting the fail to communicate condition to stop reporting.
- Program a 1 in segment 2 to cause the NX-8V2 to stop trying to communicate after the designated number of attempts have been made to phone 1.
- Program a 2 in segment 2 to cause the NX-8V2 to make the dial attempts in increments of two. The first two attempts are made to phone 1, the next two attempts to phone 2. This repeats until the total number of attempts designated in segment 1 is completed.

Location 4 - Phone 1 events reported

Location 4 has two segments of feature selection data. Use this location to select those events reported to phone 1.

- If you do not want dual or split reporting, use Location 4 to select all events to phone 1.
- If you want dual or split reporting and the split is based on the event type (alarm, open/close, etc.), use Location 4 to select only those events that are reported to phone 1.
- If you don't want events reported to phone 1, program 0 in Location 4 (disabling all options).

Segment 1

1. Alarms and alarm restores.
2. Opening and closings.
3. Zone bypass and bypass restores.
4. Zone trouble and trouble restores.
5. Power fail, low battery, power restore, and low battery restore.
6. Bell cut, telephone line cut, bell cut restore, telephone line restore.
7. Test reports.
8. Start and end programming, download complete.

Segment 2

1. Zone and box tamper and tamper restore.
2. Auxiliary power overcurrent, ground fault, and restore for both.
3. Wireless sensor missing and restore.
4. Wireless sensor low battery and restore.
5. Expander trouble and restore.
6. Fail to communicate.
7. Zone activity monitor.
8. Reserved

Location 18 - Custom communicator format

Location 18 has four segments of feature selection data. Use this location to program the communicator format used to transmit to the receiver connected to phone 3. Refer to your central station receiver documentation to determine which format is compatible. Select a format from Table 4 on page 4. If you need a format other than those listed, review the override options described in this location to build the appropriate format.

Segment 1

1. On for 1800 Hz transmit; off for 1900 Hz.
2. On for 2300 Hz handshake; off for 1400 Hz.
3. On for cksum parity; off for double round parity.
4. On for two-digit event code; off for one-digit event code.
5. Reserved.
6. Reserved.
7. On for 20 pps; off for 10 or 40 pps.
8. On for 10 pps; off for 20 or 40 pps.

Segment 2

1. On for pager format (no handshake required).
2. On for 1400/2300 handshake.
3. Reserved.
4. Reserved.
5. On for contact ID.
6. On for SIA.
7. On for contact ID or 4+3.
8. On for DTMF.

Segments 3 and 4 - Reserved

Location 25 - Zones 1 to 8 zone type

Location 25 has eight segments of numerical data. Use this location to program the zone type for zones 1 to 8. Use segment 1 for zone 1, segment 2 for zone 2, etc. The segment defaults are 3, 5, 6, 6, 6, 6, 6, 6.

Zones are programmed to be one of thirty different types. Use zone types 17 through 20 for wireless, or for hardwired zones using European double EOL configuration

Table 5 below describes the zone types.

Table 5: Zone types

Zone type	Description
1. Day zone	This zone is instant when the system is armed; trouble zone when the system is disarmed.

Zone type	Description
2. 24-hour audible.	This zone creates an instant yelping siren alarm regardless of the armed state of the control panel.
3. Entry/exit delay 1	A trip starts entry delay 1. The lack of a trip during exit delay enables the automatic bypass or instant mode if programmed.
4. Follower with autobypass disabled	This zone is instant when the system is armed and no entry or exit delays are being timed. It is delayed during entry and exit 1 times. This zone does not automatically bypass even if enabled in segment 1 of Location 23.
5. Interior follower with autobypass	This zone is instant when the system is armed and no entry or exit delay is being timed. It is delayed during entry and exit 1 times. This zone automatically bypasses if enabled in segment 1 of Location 23.
6. Instant	This zone creates an instant alarm whenever it is tripped and the armed LED is on.
7. 24-hour silent	This zone creates an instant silent alarm regardless of the armed state of the control panel. It does not display on the keypad.
8. Fire	This zone illuminates the fire LED and sounds the temporal siren each time the zone is shorted. The fire LED flashes rapidly indicating a problem if the zone is open.
9. Entry/exit delay 2	A trip starts entry delay 2. The lack of a trip during exit delay enables the automatic bypass or instant mode if programmed.
10. 24-hours silent supervised	This zone creates an instant silent alarm regardless of the armed state of the control panel. It displays on the keypad.
11. Reserved	
12. Interior follower with cross zone	This zone is instant when the system is armed and no entry or exit delay is being timed. It is delayed during entry and exit delay times. If a <i>cross zone</i> is not being timed, it starts a <i>cross zone</i> timer. If a <i>cross zone</i> is being timed, it creates an instant alarm. This zone automatically bypasses when enabled in segment 1.
13. Instant entry guard	This zone creates an instant alarm whenever it is tripped and the stay LED is off. It starts an entry delay type 2 if it is tripped, the system is armed, and the stay LED is on.
14. Entry/exit delay 1 with group bypass	A trip starts entry delay 1. This zone bypasses when the group bypass command is entered at the keypad. The lack of a trip during exit delay enables the automatic bypass or instant mode if programmed.
15. Interior follower with group bypass	This zone is instant when the system is armed and no entry or exit delays are being timed. It is delayed during entry/exit delay times. This zone bypasses when the group bypass command is entered at the keypad. This zone automatically bypasses if enabled in segment 1.
16. Instant with group bypass	This zone creates an instant alarm whenever it is tripped and the armed LED is on. This zone bypasses when the group bypass command is entered at the keypad.

Zone type	Description
17. Entry/exit delay 1 with tamper	A trip starts entry delay 1. The lack of a trip during exit delay enables the automatic bypass or instant mode if programmed. This zone type is used to enable the tamper on a wireless transmitter.
18. Interior follower with tamper and autobypass	This zone is instant when the system is armed and no entry or exit delay is being timed. It is delayed during entry and exit delay times. This zone automatically bypasses if enabled in segment 1. This zone type is used to enable the tamper on a wireless transmitter.
19. Instant with tamper	This zone creates an instant alarm whenever it is tripped and the armed LED is on. This zone type is used to enable the tamper on a wireless transmitter.
20. Entry/exit delay 2 with tamper	A trip starts entry delay 2. The lack of a trip during exit delay enables the automatic bypass or instant mode if programmed. This zone type is used to enable the tamper on a wireless transmitter.
21. Gas detection	This zone creates an instant alarm regardless of the armed state of the control panel. It displays on the keypad and activates the keypad sounder
22. Low temperature detection	This zone creates an instant silent alarm regardless of the armed state of the control panel. It displays on the keypad and activates the keypad sounder.
23. High temperature detection	This zone creates an instant silent alarm regardless of the armed state of the control panel. It displays on the keypad and activates the keypad sounder.
24. Manual fire	This zone illuminates the fire LED and sounds the temporal siren each time the zone is shorted. It also flashes (rapidly) the fire LED, indicating a problem if the zone is open.
25. Chime only	This zone creates no alarm regardless of the armed state of the control panel. It chimes anytime it is faulted and displays on the keypad. Local only.
26. Interior follower delay 2	This zone is instant when the system is armed and no entry or exit delay is being timed. It is delayed during entry and exit 2 times. This zone automatically bypasses if enabled in segment 1 of Location 23.
27. Interior follower force armable	This zone is instant when the system is armed and no entry or exit delay is being timed. It is delayed 1 time during entry and exit. This zone automatically bypasses if enabled in segment 1.
28. Entry/exit force armable delay 2	A trip starts entry delay 2. The lack of a trip during exit delay enables the automatic bypass or instant mode if programmed.
29. Interior follower with activity supervision	This zone is instant when the system is armed and no entry or exit delay is being timed. It is delayed during entry and exit delay times. It sends a report if the zone activity time is reached without a change of state. This zone automatically bypasses if enabled in segment 1:
30. Entry/exit with activity supervision	A trip starts entry delay 1. It sends a report if the zone activity time is reached without a change of state. The lack of a trip during exit delay enables the automatic bypass or instant mode if programmed.

Underwriters laboratories information

The NetworX NX-8V2 holds the following listings from Underwriters Laboratories (US and Canadian):

UL294	Access control system units
UL365	Police station connected burglar alarms
UL609, CAN/ULC-S303-M91	Mercantile, police station connect with basic line security requires NX-003-C enclosure
UL985, CAN/ULC-S545-M89	Household fire
UL1023, ORD-C1023-1974	Household burglary
UL1610	Central station burglar alarm unit
UL1635	Digital alarm communicator system units
UL1637	Home health care signaling

When installing an NX-8V2 in compliance with Underwriters Laboratories, the following instructions must be observed:

- Initiating and indicating devices must be rated at 11.5 to 12.4 VDC residential, 12.0 VDC commercial.
- Force arming and auto arming must not be enabled.
- For residential fire applications, the indicating devices shall be a Wheelock 34T-12 or equivalent.
- The listen in feature shall not be enabled.
- The siren/bell test must be enabled. The auxiliary outputs controlling the audible device require a minimum cutoff time of 15 minutes for commercial burglary, four minutes for residential applications, or 30 minutes for commercial burglary for Canada.
- For residential fire installations, the dynamic battery test time cannot exceed four hours.
- Ringback must be enabled on UL commercial burglary installations.
- On commercial burglary installations, the fire initiating circuits must not be connected.
- The entry guard feature must be disabled.
- Group bypassing must be disabled.
- Delay before dial seizure must be set to 0.
- Total current draw from auxiliary power connections at terminal positions POS, AUX PWR, and SMOKE PWR must not exceed 400 mA.
- Remote downloading must not be used on UL listed systems.
- For residential burglary applications, the maximum entry and exit delay times are 45 and 60 seconds respectively. The exit delay time must not exceed 60 seconds for commercial burglar alarm applications.
- The keyswitch option must not be used.
- The telephone line monitor must be enabled.
- The telephone line cut delay must not exceed 90 seconds.
- The 24-hour communicator test transmission is required.
- For 24-hours of standby power using a 7.0 Ah battery, limit auxiliary power load to 140 mA.
- For 24-hours of standby power using a 17.2 Ah battery, limit auxiliary power load to 400 mA.

- The silent keypad option must not be enabled.
- UL has only verified compatibility with the following listed DACRs and formats: Sure-Gard SG-MLR2-DG: 2,9,10,12,13,14; Silent Knight 9000 - 2,12; FBI - CP220FBI, 13; and Ademco 685: 2,11,12, and 13.
- For burglary installations, cross zoned detectors must overlap 100 percent in the area of coverage, and similar coverage areas must be used. For example, interior protection is cross zoned with interior protection, and so on.
- Expander trouble must activate the siren.
- For UL 1637, expander trouble must activate the keypad sounder.
- If the late to close/early to open feature is enabled, the opening and closing reports must be enabled.
- For Canadian installations, the class II transformer secure tab must not be employed.
- The four-wire smoke detector employed must be rated to operate over the voltage range of 11.5 to 12.4 V.
- Compatible listed devices: (special applications):
 - Bell output (sirens): Wheelock models: NS-1215W, NS-121575W, NS4-1215W, NS4-121575W, AS-1215W, AS-121575W
 - Horn/strobe system sensor: S1224MC strobe series; 1224MC Horn/strobe series; H12/24 Horn series
 - Smoke output (four-wire detectors): ESL: 500N series; 449CTE series; 521 series; 541 series
 - System sensor models: 2112/24R; 2112/24TR; 2112/24AT; 2112/ATR; 2112/24AITR; 4WTA-B; 4WTR-B; 4WTAR-B; 4WITAR-B
 - Detection systems: F220-B6C; D273 series; Hochiki: SBC-4/12, 4/12W

Additional UL 609 installation requirements

The alarm housing for a mercantile alarm system without a remote alarm transmission connection shall be mounted on the outside of the building, visible from a public street or highway. It shall be accessible for examination and repair. It shall also be located not more than four stories above the street level unless:

- A second alarm sounding device and housing, intended for outside service is mounted adjacent to the premises or area of the building in which the alarm system is installed or
- A second alarm sounding device, intended for inside service is mounted within the premises.

In either case, the outside alarm sounding device and housing may be mounted as high as the seventh floor.

Additional UL 365 installation requirements

In a mercantile burglar alarm system, a mercantile alarm sounding device located within a building, but outside the

protected area, is acceptable, provided it is rated for outside service and alarm conditions are transmitted to:

a) The dispatch location of the law enforcement agency having jurisdiction over the protected property or

b) A central station or residential monitoring station complying with the Standard for Central-Station Alarm Services, UL 827.

In a mercantile burglar alarm system, an alarm sounding device located within the area of greatest protection, or outside the area of greatest protection but within an area protected by an alarm system and that shares a common control unit with the system installed in the area of greatest protection, is acceptable provided it is rated for inside service and alarm conditions are transmitted to:

a) The dispatch location of the law enforcement agency having jurisdiction over the protected property or

b) A central station or residential monitoring station complying with the Standard for Central-Station Alarm Services, UL 827.

An inside sounding device shall be mounted at least 10 feet (3.05 m) above the floor or at the surface of the ceiling. When there is fixed construction within the area that could provide access for an intruder, the alarm sounding device shall also be mounted at least 4 feet (1.2 m), as measured horizontally away from the edges of the fixed construction or at least 10 feet (3.05 m) above it so as to minimize access by an intruder.

Table 6: Use markings

Model number	Use marking
Subassemblies	
NX-8 (*S)	Res Fire1 and Burg2, Com Burg4, Acc5, Homehealth Care Control Unit Motherboard
NX-8E (*S)	Res Fire1 and Burg2, Com Burg4, Acc5, Homehealth Care Control Unit Motherboard
NX-8V2 (*S)	Res Fire1 and Burg2, Com Burg4, Acc5, Homehealth Care Control Unit Motherboard
NX-508, NX-508E	Res Fire1 and Burg2, Com Burg4, Acc5 Output
NX-507	Res Fire1 and Burg2, Com Burg4, Acc5 Relay Output Module
NX-216, NX-216E	Res Fire1 and Burg2, Com Burg4, Acc5 Zone Expander
Accessories	

Model number	Use marking
NX-148, NX-148E (*S), NX-124, NX-124E (*S), NX-116, NX-108, NX-108E (*S), NX-1208E (*S), NX-1248E (*S), NX-1308, NX-1308E, NX-1316, NX-1316E, NX-1324, NX-1324E (*S), NX1348E (*S), NX-1508E, NX-1516E (*S), NX1616E, NX-1648E	Res Fire1 and Burg2, Com Burg4, Acc5 , and Homehealth Care Keypad
NX-148E-RF (*S)	Res Fire1 and Burg2, Acc5 , and Homehealth Care Keypad
NX-003	Res Fire1 and Burg2, Acc5 Enclosure

- 1 Res Fire = Residential Fire
- 2 Res Burg = Residential Burglar
- 3 Com Fire = Commercial Fire
- 4 Com Burg = Commercial Burglar
- 5 Acc = Access Control

Table 7: System markings (+)

Model number	Signaling means	Other
NX-8 (*S), NX-8V2 (*S)	DACT	Central Station, Local Mercantile and Police Station Connected
NX-8E (*S)	DACT	Central Station, Local Mercantile and Police Station Connected, Proprietary

WARNING: Electrical codes will vary, depending upon the country and city where the system is installed. It is the installer’s responsibility to ensure that the electrical installation is safe and conforms to all applicable codes, laws, or regulations. Only qualified persons should connect this device to the main supply..

Minimum system configurations for UL installations

The following requirements apply to residential fire, residential burglary, and commercial burglary installations.

- The NetworX NX-8V2 panel is necessary to initiate residential and commercial installations.
- At least one compatible keypad is needed for all applications.
- The AD10-12 bell and UL Approved bell-housing shall be used for all applications.
- Commercial UL applications require the NX-003-C metal enclosure. Supplied screws to be used.
- A minimum of two keypads is required for home health applications, and each keypad must be set to a unique address.
- The wireless devices are only UL listed for residential applications.

- The DACT shall be enabled for all commercial burglary applications.

UL requires that an alarm panel work for a minimum amount of time during a power failure. Table 8 below lists the battery capacities needed to meet time limits based on the current draw of the panel and all attached devices.

Table 8: Battery capacities

Standby time	Total auxiliary current	Standby battery capacity	Alarm current
24-hours	1.9 A 1.25 A 600 mA	51 Ah 34 Ah 17 Ah	600 mA 1 A 1 A
48-hours	900 mA 600 mA 300 mA	51 Ah 34 Ah 17 Ah	1 A 1 A 1 A
72-hours	600 mA 400 mA 200 mA	51 Ah 34 Ah 17 Ah	1 A 1 A 1A

Note: Calculations are based on three 17 A batteries.

WARNING: Replace only with a Panasonic LC12V4BP or Yuasa NP5-12 battery. There is a risk of explosion if the battery is replaced with an incorrect type.

If separate power supplies are necessary to accommodate additional devices, safety standards require that each power supply be prominently marked with adequate instructions for removing all power from the unit.

Caution: Observe polarity when installing a new battery. Installing the battery backwards may cause damage to the panel. Dispose of used batteries in according to the manufacturers instructions and/or local government authorities.

Specifications

Operating power 16.5 VAC 40 or 50 VA transformer

Auxiliary power
w/25 VA transformer 12 VDC regulated 500 mA
w/40 or 50 VA transformer 12 VDC regulated 1 A

(MG Electronics part number 22-156 for US or 22-156-CN for Canadian installations)

Loop resistance
Standard loop 300 ohms maximum

Fuse	Type T 200 mA 250 VAC
Built in siren driver	Two tone (temporal and yelp)
Loop response	Selectable 50 mS or 500 mS
Operating temperature	32 to 120°F (0 to 49°C)
LED keypad	
Current draw	130 mA max.
Zones normal w/o sounder	55 mA
Dimensions	6.4 x 4.0 x 1.1 in. (16.3 x 10.2 x 2.8 cm)
NX148E LCD keypad	
Current draw	110 mA max.
Without sounder	75 mA
Dimensions	6.4 x 5.3 x 1.0 in. (16.3 x 13.5 x 2.5 cm)
Metal enclosure dimension	11.25 x 11.25 x 3.50 in. (28.58 x 28.58 x 8.90 cm)
Shipping weight	9 lb. (4.1 kg)

Regulatory information

Manufacturer	UTC Fire & Security Americas Corporation, Inc. 1275 Red Fox Rd., Arden Hills, MN 55112-6943, USA
FCC compliance	This device complies with part 15 of the FCC rules. Operation is subject to the following conditions: This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Complies with Part 68 FCC Rules. ACTA (FCC) ID: GCQUSA-33408-AL-E IC: 1175A-NXV2

Contact information

www.utcfireandsecurity.com or www.interlogix.com

For customer support, see www.interlogix.com/customer-support

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ANSI/SIA CP-01 requirements

CP-01 feature descriptions and specifications are listed in Table 9 below. The following are requirements for compliance with ANSI/SIA CP-01 standards.

Note: Where a conflict exists, UL requirements take precedence over ANSI/SIA requirements.

- Minimum system requirements:
 - One control panel
 - Two keypads
- Do not enable remote arming in SIA classified installations.
- Off premise transmission must be in the SIA format.
- Do not exceed 1 minute for the abort window and entry delay.

Note: A call-waiting cancel on a noncall-waiting line prevents successful connection to the central station.

Table 9: CP-01 feature descriptions and specifications

CP-01 feature description	Feature description as shown in manual	Program location	Seg/opt	Default	CP-01 required setting
Exit time	Exit 1 delay	24	2	60	45 to 240 seconds
	Exit 2 delay	24	4	60	45 to 240 seconds
Progress annunciation / disable - for silent exit	Silent keypad option	93 ^a	2	All annunciators enabled	Allowed (individual keypads may be disabled)
Exit time restart (reexit)	This feature is not programmable in the panel.				Enabled
Auto stay arm on unvacated premises	Auto bypass	23	1/3	Enabled	Enabled
Exit time and progress annunciation/disable for remote arm	This feature is not programmable in the panel. Exit time and progress are always enabled.				Enabled (disabled for remote arming)
Entry delays ^b	Entry 1 delay	24	1	30	30 to 240 seconds
	Entry 2 delay	24	3	30	30 to 240 seconds
Abort window - for nonfire zones	Dialer delay	40	8	30	Enabled (may be disabled by zone/zone type, but no cancel reports will be sent)
Abort window time - for nonfire zones ^b	Dialer delay	40	8	30	15 to 45 seconds
Abort annunciation	This feature is not programmable in the panel. Flashing cancel LED goes off when disarming.				Enabled
Cancel annunciation	Cancel	23	3/6	Enabled	Enabled
Duress feature	Duress	44		Disabled	Disabled
Cross zoning	Two trips on cross zone	37	5/4	Disabled	Required
	Keypad sounds on cross zone trip	39	5	Disabled	
	Zone type characteristic	111	3/4	Disabled	
Programmable cross zoning time	Cross zone time	40	6	5 minutes	Allowed
Swinger shutdown	Swinger shutdown count	38	n/a	n/a	For all nonfire zones, shut down at 1 to 2 trips
Swinger shutdown disable	Swinger shutdown count	38	n/a	Enabled for 1 trip	Allowed
Fire alarm verification	Fire alarm verification time	40	9	Enabled for 1 trip	Required (depends on panel and sensors)

CP-01 feature description	Feature description as shown in manual	Program location	Seg/opt	Default	CP-01 required setting
Call waiting cancel	Must be programmed as part of the phone number	0	n/a	n/a	Required (depends on user phone line)
Default changes (from prior versions):	Recent closing	23	3/7	Enabled	
	Exit error	23	3/8	Enabled	
	Power up delay	40	3	60 seconds	

a> Refer to your keypad installation manual.

b> Combined abort window time and entry delay must not exceed one minute.