NetworX

NetworX Series™

NX-1700E Proximity Card Reader

Installation and Startup

These instructions do not purport to cover all details or variations in equipment nor to provide every possible contingency to be met during installation, operation, and maintenance. If further information is desired or if particular problems arise that are not covered sufficiently for the purchaser's purpose, the matter should be referred to GE Interlogix, Gladewater, Texas, USA.

Please refer to the current GE Interlogix product catalog for detailed warranty information.

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Symbol Legend

Warning — Indicates a procedure, practice, condition, or statement that, if not strictly observed, could result in personal injury.
* This symbol indicates electrical warnings and cautions.

Caution — Indicates a procedure, practice, condition, or statement that, if not strictly observed, could result in damage to or destruction of equipment or property.
** This symbol indicates general warnings and cautions.

Note — Indicates an essential or important procedure, instruction, condition, or statement.

Tip — Indicates a user tip. Provides helpful information that is not normally defined in regular use, but from an experienced user.

Enter — Indicates a key or button should be pressed to enter data.

I. GENERAL DESCRIPTION

The NetworX NX-1700E is a proximity card reader / door control module used to expand the capabilities of the NetworX control panels.

- Microprocessor-controlled
- Includes one (1) low current trigger output, which can be used to control a door strike relay
- Up to 15 card readers can be connected to the NetworX control panel
- Can be programmed to control access in any or all partitions
- LEDs can be programmed to follow the output and/or the armed or ready status of the system
- Has an optional optical tamper switch

II. WIRING DESCRIPTION

DESCRIPTION	
GREEN (**DATA**)	Connect to the control panel **DATA** terminal. This wire is the data-signaling terminal to all the devices on the buss.
BLACK (**COM**)	Connect to the control panel **COMMON** terminal. Supplies the common side of the power to the card reader module.
RED (**POS**)	Connect to control panel **AUX POWER +** terminal. Supplies power to the card reader module.
WHITE (**EGRESS**)	This is an optional (exit) **EGRESS** input. To use this feature, connect the normally open egress switch between this terminal and **COM**. If this feature is not used, there is no need to connect this wire.
BLUE (**OUTPUT**)	This is an optional open-collector (negative trigger) **OUTPUT**. To use this feature, connect the coil contacts of a relay between this terminal and **AUX POWER +**. Absolute maximum 14 volts @ 25mA. ✍ **This is a low current output and must not be used to directly energize high current door openers.**

III. INSTALLATION

To install the card reader, simply wire it into the system. Refer to the above wiring table for details.

IV. ENROLLING

The NetworX control panels have the ability to automatically find and store in memory the presence of all keypads, zone expanders, wireless receivers, output modules, and any other device on the keypad buss. This allows these devices to be supervised by the control panel. To enroll the devices, enter the Program Mode using the procedure outlined in the control panel Installation Manual. When the Program Mode is exited, the NX-8 control will automatically enroll the devices. The enrolling process takes about 12 seconds, during which time the Service LED will illuminate. User codes will not be accepted during the enrolling process. Once a module is enrolled, if it is not detected by the control, the Service LED will illuminate.

V. ADDRESSING

Once the reader is wired into the system, the module needs to be addressed. Unlike most NetworX expanders, the address of any particular reader is determined by itself after installation is complete. Follow the procedures outlined under the section "PROGRAMMING". When prompted to enter the module device number, a card must be scanned at the reader to initiate addressing (one short beep). When completed (1-2 seconds), the reader will beep back its address (long beeps):

__Scan__: To "present" or pass a card or FOB within sensing range of the card reader module.

Table V-1

Beeps	Address	Beeps	Address
1	113	9	121
2	114	10	122
3	115	11	123
4	116	12	124
5	117	13	125
6	118	14	126
7	119	15	127
8	120		

VI. PROGRAMMING

A. USING THE LED KEYPAD

ACTION	RESULT

ENTERING THE PROGRAM MODE

☞ ✱ ❽

Enters the Program Mode.

Stay, *Chime*, *Exit*, *Bypass* & *Cancel* LEDS will flash.

☞ [Go To Program Code]

Factory Default is ❾❼❶❸

If the "Go To Program Code" is valid, the "Service" LED will flash and the 5 function LEDs will illuminate steady. You are now in the Program Mode and ready to select the module address.

ENTERING THE MODULE ADDRESS

Scan a card.

The card reader will address itself.

☞ ❶❷❿ #

(example only)

Enters the module address. Refer to Table V-1 on page 6 for the address assigned by the card reader module itself.

The Armed LED will illuminate while it is waiting for a programming location to be entered.

ACTION	RESULT

PROGRAMMING A LOCATION

✐ *If an attempt is made to program an invalid entry for a particular segment, the keypad sounder will emit a triple error beep (beep, beep, beep), and remain in that segment awaiting a valid entry.*

To Enter a Location:

☞ [location] #

The Armed LED will flash. If the location is valid, the "Armed" LED will extinguish, the "Ready" LED will illuminate, and the zone LED's will show the data for the first segment of this location.

To Change Location Data:

☞ [changed data]

The "Ready" LED will flash to indicate a data change in process and will continue until the data is saved.

☞ ✱

The new data is saved.
The keypad will increment and display the next segment's data.

NOTE: Repeat these steps until the last segment is reached.

To Exit a Location:

☞ #

Exits from this location. The "Ready" LED will extinguish. The "Armed" LED will illuminate waiting for a new programming location to be entered.

To Review The Data:

☞ [location] #

The Armed LED will flash. If the location number is valid, the "Armed" LED will extinguish, the "Ready" LED will illuminate, and the zone LEDs will show the binary data for the first segment of this location.

☞ ✱

(Do not enter data.)
The next segment is displayed. Each time ✱ is pressed, the data of the next segment will be displayed for review.

Shortcuts:

☞	🔥	Previous location.
☞	➕	Same location.
☞	🛡	Next sequential location.

EXITING THE PROGRAM MODE:

☞ EXIT EXIT

Exits this programming level.

B. USING THE LCD KEYPAD

All steps required for programming are the same as the aforementioned LED keypad. The LCD keypad display will prompt you for the data required. While in the programming mode, and not in a location, the number in parenthesis is the location you were previously changing. For example, if the display reads "Enter location, then # (5)", it is reminding you that location 5 was the last location you programmed. In feature selection data, the numbers of the enabled features will be displayed. The features **not** enabled will display a hyphen (-).

C. PROGRAMMING DATA TYPES

a) **Numerical Data**
    Numerical data can take on values from 0-255 or 0-15 depending on the segment size.
b) **Feature Selection**
    Feature selection data is used to turn features on or off.

VII. ADDING/DELETING USER CARDS

Adding and deleting users is done through a combination of entering information at the keypad and scanning cards. Before a card can be entered, one reader on the system must be programmed with User Card Programming enabled (Location 242, Segment 1, Option 1, page 11). It is recommended that only one reader on the system be enabled to add/delete user cards and that this reader be located near a keypad. This reader will transfer information to all other readers in the system once programming is finished. Once a reader is enabled to add/delete users, it must be placed into one of the three following modes: *1) Add One User; 2) Add Multiple Users (or Add User w/ Auto-Increment), and 3) Delete One User.* Adding and/or deleting users on a card reader is similar to modifying user codes at a keypad.

✍ **MUST BE A MASTER USER IN ORDER TO ADD OR DELETE USERS.**

ACTION	RESULT
☞ ✱ ❺	Accesses Code Programming
☞ [master code] Factory Default is ❶❷❸❹	If the code is valid, the Ready LED will flash. User Number 2 is used to program user cards, so…
☞ ❶ ❷ if the control is an NX-4, NX-6, or NX-8 ☞ ❶ ❶ ❷ if the control is an NX-8E	Unit is now ready for you to choose one of the User Card Programming modes (as if user code 2): *1)* Add One User *2)* Add Multiple Users (or Add User w/ Auto-Increment) *3)* Delete One User

IMPORTANT NOTE
Adding or deleting user cards from a reader causes the code for User Number 2 to become invalid. Therefore, it will need to be reentered after all user cards are programmed into the readers.

ADDING ONE USER

To add a single user, enter [**STAY**] followed by the 3-digit "user number" if control is programmed for 4-digit user codes or followed by [**0**]-[**0**] and the 3-digit "user number" if control is programmed for 6-digit user codes. A total of 4 or 6 digits must be entered depending on the programming of the control panel; the first being the [**STAY**] key, the last three being the "user number". If a valid user number is entered,

LED1 on any enabled readers will begin to flash. Scan the card designated for the entered user. If the user card is not already in the system, it will be added and mapped to the entered user number and LED1 will stop flashing. If the card is already in the system, the reader will triple beep and LED1 will continue flashing. After about 40 seconds, all the readers in the system will be updated with the new user card information.

ADDING USER W/ AUTO-INCREMENT

To add multiple users, enter [**CANCEL**] followed by the 3-digit "user number" of the first user to be entered if control is programmed for 4-digit user codes or followed by [**0**]-[**0**] and the 3-digit "user number" of the first user to be entered if control is programmed for 6-digit user codes. A total of 4 or 6 digits must be entered depending on the programming of the control panel; the first being the [**CANCEL**] key, the last three being the "user number" of the first user to be entered. If a valid user number is entered, LED1 on any enabled readers will begin to flash. Scan the card designated for the entered user. If the user card is not already in the system, it will be added and mapped to the entered user number and LED1 will continue flashing indicating that the next user card can be scanned for the next user number. If the card is already in the system, the reader will triple beep and LED1 will continue flashing; the user number is not incremented in this case. After about 40 seconds of no cards being scanned, all the readers in the system will be updated with the new user card information.

DELETE ONE USER

To delete a single user, enter [**EXIT**] followed by the 3-digit "user number" if control is programmed for 4-digit user codes or followed by [**0**]-[**0**] and the 3-digit "user number" if control is programmed for 6-digit user codes. A total of 4 or 6 digits must be entered depending on the programming of the control panel; the first being the [**EXIT**] key, the last three being the "user number". If a valid user number is entered, LED1 on any enabled readers will begin to flash. Scan any card. The user card information for the entered user number will be cleared and LED1 will stop flashing. After about 40 seconds, all the readers in the system will be updated with the new user card information.

If an individual keeps the card, it can still be deleted.

VIII.   PROGRAMMING LOCATIONS

LOCATION 0   PROGRAMMING THE SCAN FUNCTIONS

(3 segments of binary data) Location 0 is used to select the particular function(s) that are activated when a card is scanned. More than one function may be selected. If more than one function is selected, they will execute in order from function 1 to function 8.

Segment 1   Single Scan Function
Program the functions that are performed when a card is scanned once.

LED 1 - ***"On" to send Code Entry function to the control panel. (Default is "On")***
LED 2 - "On" to activate the Armed Away mode.
LED 3 - "On" to activate the Armed Stay mode.
LED 4 - "On" to send the Disarm function to the control panel.
LED 5 - "On" to send Auxiliary Function #1 to the control panel.
LED 6 - "On" to send Auxiliary Function #2 to the control panel.
LED 7 - "On" to broadcast an X-10 function (see Location 241 for programming).
LED 8 - "On" to activate the relay driver output.

Segment 2   Double Scan Function
Program the functions that are performed when a card is scanned twice within the 2 Scan Hold Time (Location 244, Segment 1). The descriptions of the options are the same as for Single Scan Function. (Default is **1**)

Segment 3   Single Scan Hold Function
Program the functions that are performed when a card is scanned and held at the reader for the duration of the 2 Scan Hold Time (Location 244, Segment 1). The descriptions of the options are the same as for Single Scan Function. (Default is **1**)

LOCATIONS 1 - 240   SERIAL NUMBERS MAPPING USER CARDS TO USERS

(8 segments of hexadecimal data)

⚠ **DO NOT EDIT LOCATIONS 1- 240.   YOU MAY LOSE THE ABILITY TO SCAN A CARD!!**

LOCATION 241   PROGRAMMING THE X-10 ADDRESS FOR THE SCAN FUNCTIONS

(5 segments of numerical data)

Segment 1
Program a number from 0-15 to represent the corresponding X-10 **Module Number** from the following table. (Default is **0**)

Module	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Seg 1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Segment 2   Program a number from 0-15 to represent the corresponding X-10 **House code** from the following table. (Default is **0**)

X-10 ADDRESS CODES			
0=A	4=E	8=I	12=M
1=B	5=F	9=J	13=N
2=C	6=G	10=K	14=O
3=D	7=H	11=L	15=P

Segment 3   Single Scan Function
Program the X-10 function that is performed when a card is scanned once. This location only needs to be programmed if Location 0, Segment 1, Option 7 is set. Use the following table. (Default is **2**)

Function #	Function performed	Function #	Function performed
0	All units off	4	Dim
1	All lights on	5	Bright
2	**On**	6	All lights off
3	Off	All others	Reserved

Segment 4   Double Scan Function
Program the X-10 function that is performed when a card is scanned twice within the 2 Scan Hold Time (Location 244, Segment 1). The descriptions of the function codes are the same as for Single Scan Function. This location only needs to be programmed if Location 0, Segment 2, Option 7 is set. Use the above table. (Default is **3**)

Segment 5   Single Scan Hold Function
Program the X-10 function that is performed when a card is scanned and held at the reader for the duration of the 2 Scan Hold Time (Location 244, Segment 1). The descriptions of the function codes are the same as for Single Scan Function. This location only needs to be programmed if Location 0, Segment 3, Option 7 is set. Use the above table. (Default is **2**)

LOCATION 242   PROGRAMMING THE OPTIONS AND READER PARTITION

(4 segments of binary data)

Segment 1   System Options:
- LED1 - "On" if reader is enabled for User Card Programming.
- LED2 - ***"On" if optical tamper is enabled. (Default is "On")***
- LED3 - "On" if reader buzzer is to follow typical keypad buzzing.
- LED4 - "On" if ding-dong chime enabled (dependent on option 3 and chime being enabled).
- LED5 - "On" if relay driver function is to be logged as Code Entry.
- LED6 - Reserved.
- LED7 - Reserved.
- LED8 - Reserved.

Segment 2   LED1 (Green) Options:
- LED1 - ***"On" to follow Ready status of system. (Default is "On")***
- LED2 - ***"On" to toggle with the Relay Driver activation. (Default is "On")***
- LED3 - "On" if inverted.
- LED4 - Reserved.
- LED5 - Reserved.
- LED6 - Reserved.
- LED7 - Reserved.
- LED8 - Reserved.

Segment 3   LED2 (Red) Options:
- LED1 - ***"On" to follow Armed status of system. (Default is "On")***
- LED2 - "On" to toggle with the Relay Driver activation.
- LED3 - "On" if inverted.
- LED4 - Reserved.
- LED5 - Reserved.
- LED6 - Reserved.
- LED7 - Reserved.
- LED8 - Reserved.

Segment 4   Reader Partition:
- LED1 - ***"On" if reader is in Partition 1. (Default is "On")***
- LED2 - ***"On" if reader is in Partition 2. (Default is "On")***
- LED3 - ***"On" if reader is in Partition 3. (Default is "On")***
- LED4 - ***"On" if reader is in Partition 4. (Default is "On")***
- LED5 - ***"On" if reader is in Partition 5. (Default is "On")***
- LED6 - ***"On" if reader is in Partition 6. (Default is "On")***
- LED7 - ***"On" if reader is in Partition 7. (Default is "On")***
- LED8 - ***"On" if reader is in Partition 8. (Default is "On")***

LOCATION 243   PROGRAMMING THE DOOR PROP ZONE

(1 segment of numerical data)

Enter the zone number that will be monitored for sounding the Door Prop Alarm. Program a 0 (default) to disable this function. See Location 244, Segment 3 for the length of time the zone is monitored before sounding the alarm. This location must be programmed with a valid zone in order for a Door Control Module, if installed, to work properly. (Default is **0**)

LOCATION 244   PROGRAMMING THE VARIOUS READER TIMERS

(3 segment of numerical data)

Segment 1   2 Scan Hold Time
Enter the amount of time allowed for a double scan to be detected and the amount of time required to hold a card to activate the functions programmed in Location 0, Segments 2 and 3. This timer is timed in 1/100 second increments from 0 to 2.55 seconds. (Default is **75** = ¾ second).

Segment 2   Relay Active Time
Enter the amount of time the Relay Driver is energized once activated. This timer is timed in 1/10 second increments from 0 to 25.5 seconds. (Default is **50** = 5 seconds).

Segment 3   Door Prop Time
Enter the amount of time a monitored zone (see Location 243) must be faulted before sounding an alarm (local buzzer). This timer is timed in 1-second increments from 0 to 255 seconds. (Default is **10** = 10 seconds).

LOCATION 245   RESETTING THE READER ADDRESS

(1 segment of numerical data) If it is necessary to reset the address of the reader, enter a 0 in this location.

This will cause the reader to cease functioning. If a card is scanned with the system in Program Mode, the reader will again find an available address and set itself, beeping back to the user the address that was found as per the table on page 6. If the system is not in Program Mode and a card is scanned at a reader with a reset address, then it will sound an error beep.

IX. PROGRAMMING WORKSHEETS

LOC	PG	DESCRIPTION	DEFAULT	DATA
0	9	SINGLE SCAN FUNCTION		
		Seg		
		1 Single Scan Function	*1*	
		2 Double Scan Function	*1*	
		3 Single Scan Hold Function	*1*	
1 - 240	10	Card Serial Numbers *Do not edit these locations!*		
241	10	X-10 ADDRESS		
		Seg		
		1 Module Number	*0*	
		2 House Code	*0*	
		3 Single Scan Function	*2*	
		4 Double Scan Function	*3*	
		5 Single Scan Hold Function	*2*	
242	11	OPTIONS AND READER PARTITION		
		Segment 1 – System Options 1= "On" if enabled for User Card Programming 2= ***"On" if optical tamper enabled*** 3= "On" if buzzer follows keypad buzzing 4= "On" if ding-dong chime enabled (Opt 3 & chime must be enabled) 5= "On" if relay driver function logs as Code Entry 6= Reserved 7= Reserved 8= Reserved	*2*	
		Segment 2 – LED1 (Green) Options 1= ***"On" follows system Ready status*** 2= ***"On" to toggle with the Relay Driver*** 3= "On" if inverted 4= Reserved 5= Reserved 6= Reserved 7= Reserved 8= Reserved	*1,2*	
		Segment 3 – LED2 (Red) Options 1= ***"On" follows system Armed status*** 2= "On" to toggle with the Relay Driver 3= "On" if inverted 4= Reserved 5= Reserved 6= Reserved 7= Reserved 8= Reserved	*1*	

X-10 ADDRESS CODES (House Code)

0=A	4=E	8=I	12=M
1=B	5=F	9=J	13=N
2=C	6=G	10=K	14=O
3=D	7=H	11=L	15=P

Single Scan Function (Seg 3 of LOC 241)

0=All units off	4=Dim
1=All lights on	5=Bright
2=On	6=All lights off
3=Off	Other=Reserved

LOC	PG	DESCRIPTION	DEFAULT	DATA
		Segment 4 – Reader Partition 1= **"On" if reader is in Partition 1** 2= **"On" if reader is in Partition 2** 3= **"On" if reader is in Partition 3** 4= **"On" if reader is in Partition 4** 5= **"On" if reader is in Partition 5** 6= **"On" if reader is in Partition 6** 7= **"On" if reader is in Partition 7** 8= **"On" if reader is in Partition 8**	*1,2,3,4,5,6,7,8*	
243	11	DOOR PROP ZONE	*0 = Disabled*	
244	12	Seg		
		1 2 Scan Hold Time (1/100 seconds) 2 Relay Active Time (1/10 seconds) 3 Door Prop Time (seconds)	*75 = 3/4 second* *50 = 5 seconds* *10 = 10 seconds*	
245	12	RESET THE READER ADDRESS ⚠ Entering a "0" will reset and cause the reader to cease functioning.		

X. ORDERING INFORMATION

PART #	DESCRIPTION	PART #	DESCRIPTION
NX-1700E	Card Reader Module	NX-108E	8 Zone LED Keypad
NX-8E	8 – 192 Zone Control Only	NX-116E	16 Zone LED Keypad
NX-8E-KIT	NX-8E Control, NX-108E LED Keypad, 40VA Transformer	NX-124E	24 Zone LED Keypad
NX-8	8 – 48 Zone Control Only	NX-148E	Alphanumeric LCD Keypad
NX-8-KIT	NX-8 Control, NX-108E LED Keypad, 40VA Transformer	NX-1192E	192 Zone LCD Keypad
NX-6	6 – 12 Zone Control Only	NX-1208E	8 Zone LED Keypad
NX-6-KIT	NX-6 Control, NX-108E LED Keypad, 40VA Transformer	NX-1248E	48 Zone LCD Keypad
NX-4	4 Zone Control Only	NX-1308E	8 Zone LED Door Design Keypad
NX-4-KIT	NX-4 Control, NX-108E LED Keypad, 40VA Transformer	NX-1316E	16 Zone LED Door Design Keypad
NX-216E	16 Zone Expander Module	NX-1324E	24 Zone LED Door Design Keypad
NX-320E	Smart Power Supply and Buss Extender	NX-1448E	48 Zone Fixed Language Icon Keypad
NX-408E	8 Zone Wireless Expansion Module	NX507E	Seven Relay Module
NX-416E	16 Zone Wireless Expansion Module	NX-508E	Eight Output Module
NX-448E	48 Zone Wireless Expansion Module	NX-534E	Two-Way Listen In Module
		NX-540	"Operator II" Telephone Interface
		NX-591E	Cellemetry Interface

XI.   FCC INFORMATION

This device complies with Part 15 of the FCC rules. Operation is subject to the following three conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

3. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC ID: CGGNX-1700E

NOTES

XII. SPECIFICATIONS

DIMENSIONS   Approx. 1.5"W x 4.5"L x 1"D with 6' cable

OPERATING POWER   12 VDC, Supplied by NX-4, NX-6, NX-8, NX-8E, or NX-320E

CURRENT DRAW   40mA   Standby with Green LED
                            110mA   Maximum

OPERATING TEMPERATURE 32 to 120 degrees F

SHIPPING WEIGHT   < 1 lb.

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