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NX-584E Home Automation Module Installation Manual

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Content

Preface

This is the NX-584E Home Automation Module Installation Manual. This document includes an overview of the product and detailed instructions explaining:

- how to install the module; and
- how to program the module.

There is also information describing how to contact technical support if you have questions or concerns.

To use this document effectively, you should have the following minimum qualifications:

- a basic knowledge of NetworX systems; and
- a basic knowledge of electrical wiring and low-voltage electrical connections.

Read these instructions and all other documentation entirely before installing or operating this product. The most current versions of this and related documentation may be found on our website. Refer to Online resources at the end of this document for instructions on accessing our online publication library.

Note: A qualified service person, complying with all applicable codes, should perform all required hardware installation.

Conventions used in this document

The following conventions are used in this document:

Bold	**Menu items** and button.
Italic	**Emphasis** of an instruction or point; special terms.
	File names, path names, windows, panes, tabs, fields, variables, and other GUI elements.
	Titles of books and various documents.
Blue	(Electronic version.) Hyperlinks to cross-references, related topics, and URL addresses.
Monospace	**Text that displays on the computer screen.**
	Programming or coding sequences.

Safety terms and symbols

These terms may appear in this manual:

Caution: Cautions identify conditions or practices that may result in damage to the equipment or other property.

WARNING: Warning identify conditions or practices that could result in equipment damage or serious personal injury.

Product overview

The NetworX NX-584E is a low-cost add-on module that fits neatly into any NetworX family system enclosure so it can become part of your home automation host system. To integrate this card into your system, all you need is a three-wire connection and a standard RS-232 bidirectional DB-9 connector.

Since the NX-584E has programmable levels of security, you can use as much or as little security system information as you require for the host system. You can also limit commands that the host system will accept, in order to prevent unauthorized attempts to override the security system status.

When you configure your unit, you can have it communicate in ASCII or binary protocol. You can set the baud rate from 600 to 76,800 baud with hardware RTS and CTS handshaking. The ASCII implementation is easy to use and debug with standard programming tools, while the binary version is more efficient for transferring information between the two systems. The module's system integrator can select any number of events or conditions to cause the NX-584E to send the relevant information to the host without polling, which allows for a faster response than if you were to poll alone.

System information

You can enable the system to send security system information on demand, which is useful at system initialization and at periodic intervals to keep the two systems in sync so you do not miss transitional events. This information is organized by the following:

System

Includes phone status, phone line condition, module troubles, and other system-wide conditions.

Partition

Includes readiness of all zones assigned, armed state, entry/exit delays, last user number, alarm condition and many other conditions within a specific partition.

Zones

Includes faults, alarm memory, bypasses, troubles, tampers, low batteries, partition assignments, and missing partition assignments.

Outputs

Commands that can be passed to or from devices in X-10 compatible format.

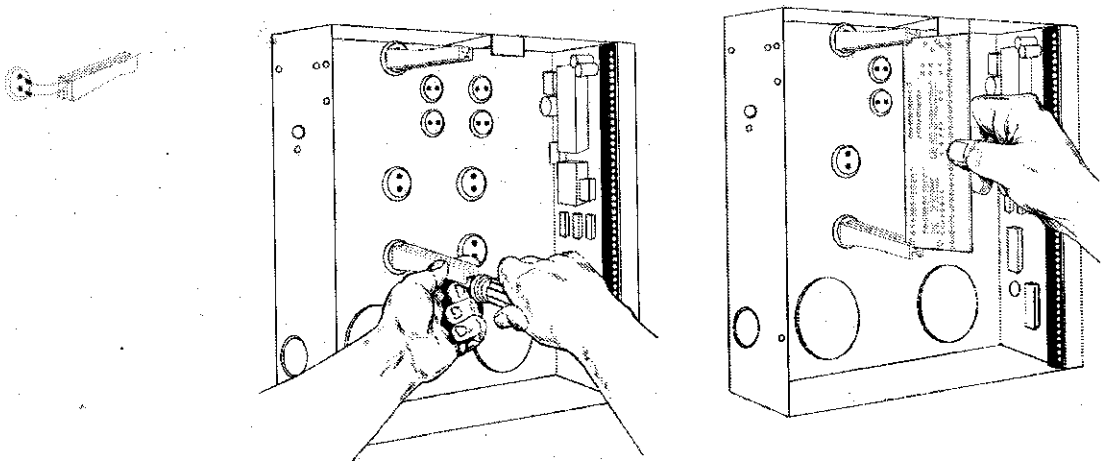
Installation

Inside the enclosure there are several two-holed insertion points, which allow for either vertical or horizontal installation. The insertion points have a larger hole and a smaller hole. The black plastic PCB guides are grooved on one edge where you will seat the PC board. The end with the half-moon protrusion fits into the larger hole. The smaller hole is for the screw.

To mount the board, see Figure 1 and do the following:

1. Place the first black plastic PCB guide in the top insertion point, grooved edge downward. The half-moon protrusion will be in the large hole. It does not require force.
2. Insert one of the provided screws into the smaller hole (from the inside of the enclosure) to secure it in place. Position a screwdriver through the notch that runs the length of the guide, to tighten the screw.
3. Position the second PCB guide opposite the first (grooved edge up) and place it in the lower insertion point, using the same procedure. Once you mount the guide, screw it in securely.
4. Slide the board in both guides.

Figure 1. Mounting the board



Wiring

To connect the terminals, do the following:

1. Connect the keypad POS terminal to the NetworX POS terminal.
2. Connect the keypad COM terminal to the NetworX COM terminal.

3. Connect the keypad DATA terminal to the NetworX DATA terminal.

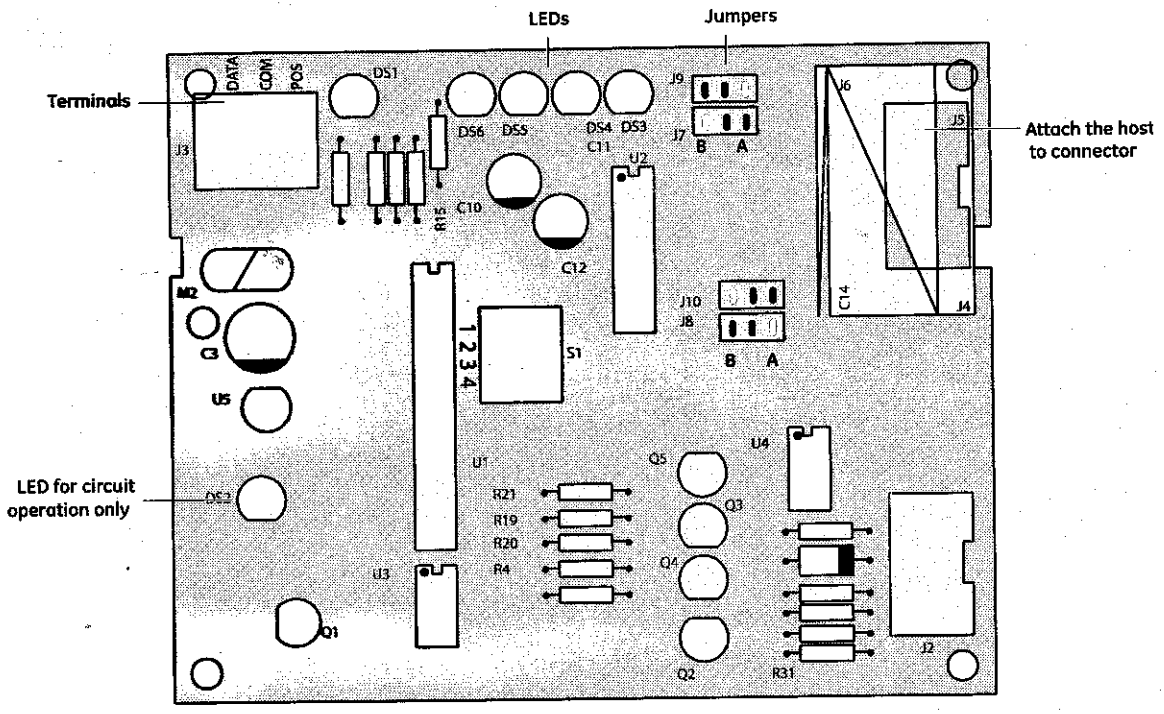
To set the pinouts refer to Table 1 and see Figure 2.

Table 1. DB-9 pinouts

Signal name	Direction	Jumper	A position PIN number	B position PIN number
CTS[1]	NX to PC	J7	8 (default)	7
TXD	NX to PC	J8	2	3 (default)
RTS[1]	PC to NX	J9	8	7 (default)
RXD	PC to NX	J10	2 (default)	3
Ground	NX to PC and PC to NX	n/a	5	
Unused	**n/a**	n/a	1, 4, 6, 9	

1> RTS and CTS signals are not currently supported.

Figure 2. Wiring diagram



Enrolling

The NetworX control panels can locate, store, and supervise keypads, zone expanders, wireless receivers, output modules, and any other device on the keypad bus. To enroll the devices, enter program mode (see Programming).

When you exit program mode, the control panel will enroll the devices. During the enrollment, which takes about 12 seconds, the ***Service*** LED will illuminate and the system will not accept user codes. Once you enroll a module, if it is not detected, the ***Service*** LED will illuminate.

LED indicators

Table 2 describes what each LED indicates.

Table 2. LED indicators

LED	Indication
DS1	Flashes for NetworX bus.
DS3	Flashes for each valid packet received from host.
DS4	Flashes for each packet transmitted to host.
DS5	On when waiting for NetworX function to be completed.
DS6	On when waiting for acknowledgement from host.

Programming

You can use an LED keypad or LCD keypad to program the module.

Using an LED keypad

To program the module with an LED keypad, do the following:

1. Enter *, 8. All of the function key LEDs will begin to flash.
2. Enter the *Go To Program* code (default is 9713). If the code is valid, the Service LED will flash, and the function LEDs will illuminate steadily, indicating you should enter the device to program.
3. Enter 7, 2, #, the address of the NX-584E. The Armed LED will illuminate until you enter a programming location.
4. Enter the programming location followed by the # key. The Armed LED will begin to flash. If this is a valid location, the Armed LED will extinguish, the Ready LED will illuminate, and the binary data for the first segment of this location will appear on the Zone LED.
5. To change the data, enter the data followed by the * key. The location will automatically increment to the next segment. The data for that segment will display. Repeat the procedure until the system reaches the last segment.
6. To exit this location without changing the data, press the # key.
7. To review the data, press the * key but do not enter the data. Each time you press *, the next segment displays. After you program the last segment for a location, press * to exit that location. The system will turn the Ready LED off and the Armed LED on. As before, you are now ready to enter another programming location.

   Note: If you attempt to program an invalid entry for a particular segment, the keypad sounder will emit a triple-beep and remain in that segment until there is a valid entry.
8. To enter another location, do one of the following:
   - Enter the location number followed by the # key.
   - Press Police for the next location.
   - Press Fire for the previous location.
   - Press Auxiliary for the same location.
9. Press Exit to exit this module. Press Exit again, to completely exit program mode.

Programming data

When you program data, you set numerical data, which are values from 0 to 15 or 0 to 255, depending on the segment size or feature selection.

Numerical data

Use the numeric keys of the system keypad with a number from 0 to 255. The system uses a binary process, so to view the data, look at the LEDs for zones 1 through 8 and see which ones are illuminated. When you add the illuminated LEDs together, you get the programming location. The numeric equivalents of these LEDs include the following

Zone 1 LED = 1	Zone 5 LED = 16
Zone 2 LED = 2	Zone 6 LED = 32
Zone 3 LED = 4	Zone 7 LED = 64
Zone 4 LED = 8	Zone 8 LED = 128

For example, if you want to program ***66*** in a location, press 6, 6 on the keypad. The LEDs for Zone 2 and Zone 7 will illuminate, which indicates 66 is in that location (2 + 64 = 66). Once you program the data, press the * key to enter the data and advance to the next segment for that location. After the last segment of a location is programmed, you can press the * key to exit that location and turn the Ready LED off and the Armed LED on. You can now enter another programming location. If you attempt to program a number that is too large, the keypad sounder will emit a triple-beep and will await a valid entry.

Feature selection data

Feature selection data will display the current condition (on or off) related to the eight features associated with the programming location and segment you selected. Press a button on the touchpad (1 to 8) that corresponds to the *feature number* within a segment you require. That feature number will illuminate (feature on). Press the number again, and the LED will extinguish (feature off). You will see that you can select numerous features from within one segment. For instance, if you require all eight segments, press 1, 2, 3, 4, 5, 6, 7, 8. LEDs 1 through 8 will illuminate as you press the keys, to indicate that those features are enabled.

Using an LCD keypad

The steps to programming using an LCD keypad are identical to *Using an LED keypad*. The only difference is that the LCD keypad will prompt you for the data required. In programming mode, the number in parentheses is the location you previously changed. For example, if the display reads `Enter location, then # (2)`, the system is telling you that Location 2 was the last location you programmed. In feature selection data, the numbers of the enabled features are displayed. The features not enabled will include a hyphen (-).

Programming locations

Use this section to program the locations for your module.

Location 0 – option flags

Location 0 has one segment of feature selection data. The NX-584E protocol can operate in binary or ASCII mode. Consult the home automation application information to determine the proper mode for your application and program it in Location 0.

Option 1

LED off = binary; LED on = ASCII.

Option 2 to 8

Reserved.

Location 1 – baud rate

Location 1 has one segment of numerical data. You can set a number of different baud rates for your NX-584E. Consult your home automation application information to determine the best baud rate for your application and program it in Location 1 (Table 3).

Table 3. Location 1 baud rates

Data	Baud rate	Data	Baud rate
0	600 baud	4	9600 baud
1	1200 baud	5	19200 baud
2	2400 baud	6	38400 baud
3	4800 baud	7	76800 baud

Location 2 – enabling the transitions

Location 2 has two segments of feature selection data. You can program the NX-584E to send information to the home automation system whenever there has been a change in the transition information, or you can use *transition-based broadcasting*, where information packets are dependent on the application and the capabilities of the home automation system. Location 2 enables and disables the appropriate transition-based broadcasts. Consult the home automation application information and enable the appropriate transition-based broadcasts in Location 2 (Table 4).

Table 4. Location 2

Data	Segment 1 enables transition	Segment 2 support request/command
1	Reserved.	System status request.
2	Interface configuration at power-up / end of download / program mode.	Send X-10 message.
3	Reserved.	Log event request.
4	Reserved.	Keypad message received.
5	Zone status message.	Reserved.
6	Zone snapshot message.	Reserved.
7	Partition status message.	Reserved.
8	Partition snapshot message.	Reserved.

Location 3 – programming the command/request enables

Location 3 includes four segments of feature selection data. The NX-584E can perform a variety of commands requested by the home automation system. For example, you can arm and disarm the security system, program the security system, or bypass zones from the home automation system. Location 3 is used to select which commands, if any, you want the home automation system to have access to. Table 5 shows segment options.

Caution: Be careful not to compromise the security of your system when you program a location.

Table 5. Location 3 segment options

	Support request or command			
Data	**Segment 1**	**Segment 2**	**Segment 3**	**Segment 4**
1	Reserved.	System status request.	Program data request.	Reserved.
2	Interface configuration request	Send X-10 message.	Program data command.	Reserved.
3	Reserved.	Log event request.	User information request with PIN.	Store communication event command.
4	Zone name request.	Send keypad text message.	User information request with PIN.	Set clock/calendar command.
5	Zone status request.	Keypad terminal mode request.	Set user code command with PIN.	Primary keypad function with PIN.

6	Zone snapshot request.	Reserved.	Set user code command without PIN.	Primary keypad function without PIN.
7	Partition status request.	Reserved.	Set user authorization command with PIN.	Secondary keypad function.
8	Partition snapshot request.	Reserved.	Set user authorization command without PIN.	Zone bypass toggle.

Location 4 - LCD keypad address

Certain commands in the NX-584E in a given location require at least one LCD keypad (if one exists). If your system has an LCD keypad, we recommend you place it in Partition 1 on Keypad 1, so Location 4 can be left at the factory default. If the LCD keypad is selected as something other than Partition 1 for Keypad 1, program the appropriate address in Location 4. Select the address from Table 6.

Table 6. Location 4 LCD keypad addresses

Keypad	Part 1	Part 2	Part 3	Part 4	Part 5	Part 6	Part 7	Part 8
1	192 (default)	193	194	195	196	197	198	199
2	200	201	202	203	204	205	206	207
3	208	209	210	211	212	213	214	215
4	216	217	218	219	220	221	222	223
5	224	225	226	227	228	229	230	231
6	232	233	234	235	236	237	238	239
7	240	241	242	243	244	245	246	247
8	248	249	250	251	252	253	254	255

Program worksheet

Use Table 7 to record your programming options.

Table 7. Locations 0 to 4 programming worksheet

Loc	Description	Default	Data
0	Location 0 – option flags		
	Segment 1:	Off	
	Option 1. Off = Binary, On = ASCII		
	Option 2 to 8. Reserved		
1	Location 1 – baud rate		
	Segment 1:	4	
	0 = 600 baud		
	1 = 1200 baud		
	2 = 2400 baud		
	3 = 4800 baud		
	4 = 9600 baud		
	5 = 19200 baud		
	6 = 38400 baud		
	7 = 76800 baud		
	8 = On to send a request to exit (RTE) and activate the onboard open collector output.		
2	**Error! Reference source not found.**		
	Segment 1:	2, 7	
	1 = Reserved		
	2 = Interface configuration		
	3 and 4 = Reserved		
	5 = Zone status message		
	6 = Zones snapshot message		
	7 = Partition status message		
	8 = Partitions snapshot message		

	Segment 2: 1 = System status message 2 = X-10 message received 3 = Log event message 4 = Keypad message received 5 to 8 = Reserved 6 = On to send the auxiliary function 2 to the control panel. 7 = On to broadcast an X-10 function. 8 = On to send a request to exit (RTE) and activate the onboard open collector output.	1, 2
3	**Error! Reference source not found.**	
	Segment 1: 1 = Reserved 2 = Interface configuration request 3 = Reserved 4 = Zone name request 5 = Zone status request 6 = Zones snapshot request 7 = Partition status request 8 = Partitions snapshot request	2, 4, 5, 6, 7, 8
	Segment 2: 1 = System status request 2 = X-10 message 3 = Log event request 4 = Send keypad text message 5 = Keypad terminal mode request 6 to 8 = Reserved	1, 2, 3, 4, 5
	Segment 3: 1 = Program data request 2 = Program data command 3 = User information request with PIN 4 = User information request without PIN 5 = Set user code command with PIN 6 = Set user code command without PIN 7 = Set user authorization command with PIN 8 = Set user authorization command without PIN	

	Segment 4: 1 and 2 = Reserved 3 = Store communication event command 4 = Set clock/calendar command 5 = Primary keypad function with PIN 6 = Primary keypad function without PIN 7 = Secondary keypad function 8 = Zone bypass toggle	4, 7
4	Location 4 - LCD keypad address	Keypad 1 Partition 1 192

Contacting us

For help installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, contact us during business hours (Monday through Friday, excluding holidays, between 5 a.m. and 5 p.m. Pacific Time).

Online resources

Here are some useful links on our website www.utcfireandsecurity.com:

Online library

From the Customer Support menu, select the Resource Library link. After you register and log on, you may search for the documentation you need.

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