GE Security

NX-590NE Internet Interface Installation Manual



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The European directive Waste Electrical and Electronic Equipment (WEEE) aims to minimize the impact of electrical and electronic equipment waste on the environment and human health. For proper treatment, recovery, and recycling, return the equipment marked with this symbol to your local supplier upon the purchase of equivalent new equipment, or dispose of it in designated collection points. For more information, visit www.recyclethis.com.

Regulatory



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Preface

This is the GE *NX-590NE Internet Interface 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;
- a basic knowledge of electrical wiring and low-voltage electrical connections; and
- a basic knowledge of computer system networking.

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* on page 28 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:

Strong	Menu items and buttons.			
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 italic	(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: Warnings identify conditions or practices that could result in equipment damage or serious personal injury.

Product overview

The NX-590NE is a dual microprocessor-controlled Internet/Intranet (TCP/IP) interface used to connect the control panel to the OH Network Receiver. This interface allows any or all events from the panel to be reported over the network.

The NX-590NE has a fixed address of 79.

Installation

To install the interface module, you will need to mount and wire the board, and enroll the module in the panel.

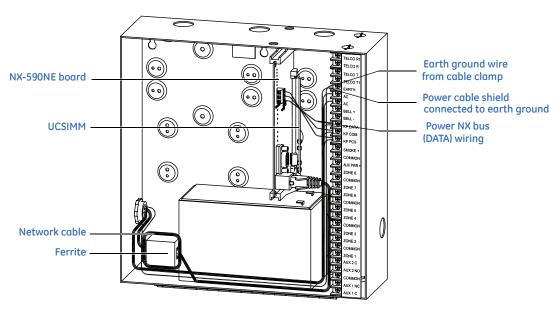
Mounting

We recommend that you mount the NX-590NE with UCSIMM PCB in the mounting position located closest to the NX panel PCB as shown in *Figure 1*. If another board is already mounted in the location closest to the NX panel PCB, mount the NX-590NE in the next available location.

To mount the board, 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 into both guides.

Figure 1. Mounting the board



Wiring



CAUTION:

Do not apply power to any component until the installation is complete. Damage to components may occur if power is incorrectly applied.

CE and FCC Part B compliance

As of January 1, 1996, all new European Union member installations must be CE compliant.

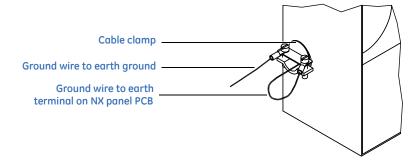
In addition, we recommend that you use the following wiring methods:

- Use 2-conductor, shielded security and alarm cable for the power cable.
- Connect the power cable shield to the earth terminal on the NX panel PCB (see *Figure 1* on page 2).

Note: The other end of the power cable shield should be cut off and not connected.

• Earth ground the NX panel. Connect the earth ground wire to the earth terminal on the NX panel PCB and connect the other end at the cable's entrance to the panel or cable clamp. In addition, connect the nearest earth ground to the panel or to the cable clamp as shown in *Figure 2*.

Figure 2. Earth ground terminals



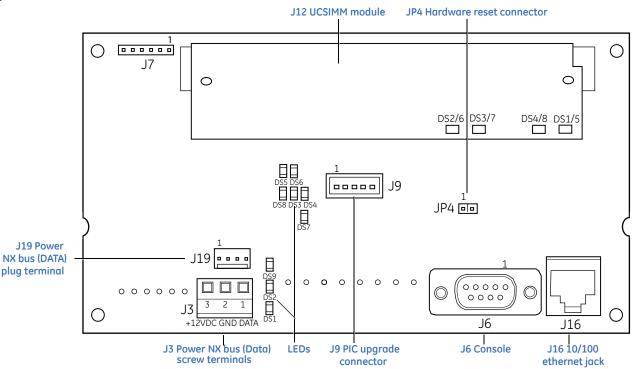
Ferrite installation

Prior to connecting the network cable to the NX-590NE PCB, install the ferrite provided onto the
network cable. Loop the cable two times through the ferrite. We recommend that you locate the ferrite
inside the NX panel at the entrance to the network cable (see *Figure 1* on page 2). An alternative
location is directly outside the enclosure at the entrance of the network cable.

Note: When routing wire inside the NX panel, do not place wiring on, or near, the NX-590NE UCSIMM PCB.

Figure 3 shows the NX-590NE board.

Figure 3. NX-590NE board



To wire the board, see *Figure 3* and do the following:

- 1. Use the J16 10/100 ethernet jack to connect to the ethernet cable.
- 2. Connect the J3 screw terminals or the J19 plug terminal to the control panel keypad databus.

J3 pins	J19 pins
Pin 1 - NX bus (Data)	Pin 1 - +12VDC
Pin 2 - Ground	Pin 2 - No connection
Pin 3 - +12 VDC	Pin 3 - Ground
	Pin 4 - NX bus (Data)

Note: The J6 console (DB-9 female) is used by the factory to troubleshoot and test the board. The J9 PIC upgrade connector is used for future upgrades to the PIC processor.

Table 1 shows the minimum wire gauge and maximum wire length allowed for the NX-590NE.

Table 1. Minimum wire gauge by length

Length in feet	250	500	1000	2000
Connected to NX panel	22	20	16	14
Connected to the NX-320E	22	18	16	12

LEDs

Table 2 describes the LEDs on the NX-590NE board.

Table 2. NX-590NE LED indicators

LED		Description
	DS1	Flashes each time the NX-590NE has an opportunity to access the NetworX bus. It should flash about two times per second.
DS5 DS6	DS2	Flashes when communicating with NX bus (Data).
DS8 DS4	DS3	Flashes when waiting for UCSIMM acknowledgment.
	DS4	Flashes when waiting for NX bus (Data) reply.
DS7	DS5	Flashes when message received from NX bus (Data).
	DS6	Flashes when message sent to NX bus (Data).
	DS7	On when U-Boot is running. Flashes when U-Boot is stopped, either an error has occurred or stopped via console. Off during application.
DS9	DS8	On when uClinux Kernel coming up, then shows an application heartbeat.
DS2	DS9	On when power is on.
DS1		

Table 3 describes the LEDs on the UCSIMM module.

Table 3. UCSIMM LED indicators

LED	Description
DS1/5 (green)	On = Link actively present; Off = No link actively present; Flashing = Network activity detected
DS2/6 (yellow)	On = 100 Mbps; Off = 10 Mbps
DS3/7 (red)	On = Full duplex; Off = Half duplex
DS4/8 (red)	On = Collision

Enrolling devices

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 data* on page 7). 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.

Reset

Briefly shorting the JP4 hardware reset connector pins (*Figure 3* on page 4) will force an NX-590NE complete hardware reset.

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**, **9**, #, the address of the NX-590NE. 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 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 the NX-590NE, you use numerical data, feature selection data, or character data.

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.

To enter an IP address (for example, 255.255.255.0), enter the number, pressing * between the segment entries (255 * 255 * 255 * 0 *).

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 can select numerous features from within one segment. For example, 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.

Character data. You will use character data to enter LCD text. For example, in Locations 13 to 16, the data takes the form of *user@yourdomain.com*. This information is programmed using the bottom line of the display as a text editor (refer to the keypad documentation). Once a character location is entered, the current data will show on the bottom line of the display. The top line will display the current location and segment number.

You can now use the five function keys, as well as the **Up** and **Down Arrow** keys, to edit the message prior to saving it back to the location storage. An underscore in the display indicates the current cursor location. To move the cursor to the right, press the * key. To move the cursor to the left, press the **Cancel** key. To change the character at the current cursor location, press the **Up** or **Down Arrow** key until the desired character displays. An alternative method is to enter the two-digit number in *Table 4* on page 8 that corresponds to the desired character. To accept this character, press the * key. The character will remain and the cursor will advance one space to the right. To insert spaces, press **Stay**. To delete characters, press **Chime**.

Using an LCD keypad

Use the same steps to program using an LCD keypad as outlined in *Using an LED keypad* on page 6. The only difference is that the LCD keypad will prompt you for the data required. When you are in programming mode and not in a location, 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 (-).

Table 4 shows the two-digit code for the LCD keypad characters.

Table 4. Code numbers for keys

Code	/ Key										
00		16	Р	32	5	48	I	64	u	80	<
01	Α	17	Q	33	6	49	m	65	#	81	=
02	В	18	R	34	7	50	n	66	\$	82	>
03	С	19	S	35	8	51	0	67	%	83	?
04	D	20	T	36	9	52	р	68	&	84	@
05	E	21	U	37	а	53	q	69	*	85	[
06	F	22	V	38	b	54	r	70	(86	1
07	G	23	W	39	С	55	S	71)	87]
08	Н	24	Х	40	d	56	t	72	()	88	^
09	ı	25	Y	41	е	57	u	73	+	89	_
10	J	26	Z	42	f	58	V	74	,	90	,
11	K	27	0	43	g	59	w	75	-	91	{
12	L	28	1	44	h	60	×	76		92	
13	М	29	2	45	i	61	у	77	/	93	}
14	N	30	3	46j	j	62	z	78	:	94	←
15	0	31	4	47	k	63	!	79	;	95	→

Programming locations

Use this section to program the locations for your module.

Location 0 - Operation mode

Location 0 has eight segments of feature selection data. Use this location to program the module mode (system characteristics for operation on the TCP/IP).

If Location 0, Segment 1, Option 1 is enabled and the NX-590NE is the primary reporting device and the control panel is backup, the following items apply:

- All event categories should be disabled in Location 4 of the control panel (device 0). Failure to turn off these segments will cause events to be reported by both the control panel and the NX-590NE (dual reporting).
- Test reports should be enabled (Location 4, Segment 1, Option 7 in control panel). Failure to leave test reports enabled will result in the control panel not backing up events that fail to communicate via the NX-590NE. When properly set, test reports will be reported by the control panel and the NX-590NE.
- The communicator format for the control panel and NX-590NE must match.

Note: The NX-4 and NX-6 (V1) control panels cannot act as backup to the NX-590NE module.

Segment 1

- 1. Use control dialer as backup to TCP/IP and E-mail. Clear this option if the control panel is primary/dual report.
- 2. Enable if SIA, disable if Contact ID (default).
- 3. Use receiver 2 as backup.
- 4. Reserved.
- 5. Automation protocol enabled. For use in Europe only.
- 6. Premise server application using automation port. For use in Europe only.
- 7 and 8. Reserved.

Segment 2 (Default: 1, 2)

- 1. Enable site initiated downloading (*98 from keypad).
- 2. Allow remote downloading to the system over the TCP/IP (via DL900 version 2.19 or higher).
- 3. Use DHCP (IP address is static if this segment is Off). If this option is enabled, we strongly recommend that you enable Polling in Option 8 also. If this option is disabled, you will need to program Locations 45, 52, and 54 with the appropriate IP addresses, or the NX-590NE will use the addresses assigned by the DHCP Server.
- 4. Use DNS Lookup Only. IP addresses are used if this options is Off. If this option is enabled, Locations 17 to 24 and 37 to 44 become enabled. If this option is enabled and Locations 17 to 24 and 37 to 44 are left blank, then Locations 45 to 53 IP addresses are used.
- 5 to 7. Reserved.
- 8. Enable polling to TCP/IP receivers (poll every period of less than five minutes).

Segment 3 Reserved

Segment 4

- 1. Enable SMTP e-mail authentication
- 2. Enable Telnet
- 3. Reserved
- 4. Enable browser

Segment 5 to 7 Reserved

Segment 8 - AUX COM Fail, for loss of polling only.

Location 1 – Partitions reporting via TCP/IP to receiver 1

Location 1 has 16 segments of feature selection data. Use this location to program the partitions that should be included when reporting over the Network. If you wish to exclude any partition from reporting, turn off the LED corresponding to that particular partition (1 = Partition 1, 2 = Partition 2, etc.) and no event from that partition will report via the network regardless of what is programmed elsewhere. *Table 5* describes the types of reports found in Segments 1 to 16.

Table 5. Partitions

Segment	Reports
1	Alarms and restores
2	Open/close
3	Bypass
4	Zone trouble
5	Power trouble (AC failure or low battery)
6	Siren and telephone fault
7	Test reports
8	Program, download, and log full

Segment	Reports	
9	Tampers	
10	Short circuit and ground fault	
11	Sensor lost	
12	Sensor low battery	
13	Expander trouble	
14	Failure to communicate	
15	Zone activity monitor	
16	Reserved	

Location 2 – Partitions reporting via TCP/IP to receiver 2

Location 2 has 16 segments of feature selection data. Use this location to program the partitions to include when reporting over the Network. If you want to exclude any partition from reporting, turn off the LED corresponding to that particular partition (1 = Partition 1, 2 = Partition 2, etc.) and no event from that partition will report via the network regardless of what is programmed elsewhere. *Table 5* describes the types of reports found in Segments 1 to 16.

Location 3 – Partitions reporting via e-mail to account 1

Location 3 has 16 segments of feature selection data. Use this location to program the partitions to include when reporting over the TCP/IP to e-mail account 1. If you wish to exclude any partition from reporting, turn off the LED corresponding to that particular partition (1 = Partition 1, 2 = Partition 2, etc.) and no event from that partition will report via the network regardless of what is programmed elsewhere. *Table 5* describes the types of reports found in Segments 1 to 16.

Location 4 – Partitions reporting via e-mail to account 2

Location 4 has 16 segments of feature selection data. Use this location to program the partitions to include when reporting over the TCP/IP to e-mail account 2. If you wish to exclude any partition from reporting, turn off the LED corresponding to that particular partition (1 = Partition 1, 2 = Partition 2, etc.) and no event from that partition will report via the network regardless of what is programmed elsewhere. *Table 5* on page 10 describes the types of reports found in Segments 1 to 16.

Locations 5 to 7 - SMTP e-mail authentication

Locations 5 to 7 have one segment of character data. Use these locations to program SMTP e-mail authentication user ID and password.

- Location 5 SMTP e-mail authentication user ID (characters 1 to 16). Default is GE.
- Location 6 SMTP e-mail authentication user ID (characters 17 to 32). Default is Security.
- Location 7 SMTP e-mail authentication password (16 characters). Default is GE.

Locations 8 to 12 - Reserved

Locations 13 to 16 - Return e-mail name

Locations 13 to 16 have one segment of character data. Use these locations to program the name of this module in the form of *user@yourdomain.com*. You must program this for e-mail, and the domain name must be one that your mail server accepts. Generally, looking like any other user on the domain that you are connecting to works. Many mail servers reject e-mails from domains other than their own to prevent spamming.

- Location 13 Return e-mail name (characters 1 to 16)
- Location 14 Return e-mail name (characters 17 to 32)
- Location 15 Return e-mail name (characters 33 to 48)
- Location 16 Return e-mail name (characters 49 to 64)

Locations 17 to 24 - TCP/IP receiver name

Locations 17 to 24 have one segment of character data. Use these locations to program the name of the TCP/IP accounts where you want to send data (only needed when using DNS). The name can take the form of an unqualified name (for example, *my_computer* with no dots) or a fully qualified name (for example, *www.ge.com* with at least one dot).

Note: If the DNS option is enabled (Location 0, Segment 2) and Locations 17 to 24 are left blank, then Locations 46 and 47 IP addresses are used.

- Location 17 TCP/IP receiver 1 name (characters 1 to 16)
- Location 18 TCP/IP receiver 1 name (characters 17 to 32)
- Location 19 TCP/IP receiver 1 name (characters 33 to 48)
- Location 20 TCP/IP receiver 1 name (characters 49 to 64)
- Location 21 TCP/IP receiver 2 name (characters 1 to 16)
- Location 22 TCP/IP receiver 2 name (characters 17 to 32)
- Location 23 TCP/IP receiver 2 name (characters 33 to 48)
- Location 24 TCP/IP receiver 2 name (characters 49 to 64)

Locations 25 to 28 - Reserved

Locations 29 to 36 - E-mail account name

Locations 29 to 36 have one segment of character data. Use these locations to program the name of e-mail accounts where you want to send data. The format is <code>user@yourdomain.com</code> and <code>otheruser@otherdomain.com</code>. They must be functional e-mail accounts that are known to work. A large variety of devices can be used including computers, cell phones, pages, and devices. For example, a dealer may want <code>Troubles</code> mailed to his cell phone, <code>Openings and Closings</code> e-mailed to his home computer, and <code>Alarms</code> sent to the central station.

Note: Make sure the account works before you program it. Keep good records since e-mail addresses change more often than most other items.

- Location 29 E-mail account 1 name (characters 1 to 16)
- Location 30 E-mail account 1 name (characters 17 to 32)
- Location 31 E-mail account 1 name (characters 33 to 48)
- Location 32 E-mail account 1 name (characters 49 to 64)
- Location 33 E-mail account 2 name (characters 1 to 16)
- Location 34 E-mail account 2 name (characters 17 to 32)
- Location 35 E-mail account 2 name (characters 33 to 48)
- Location 36 E-mail account 2 name (characters 49 to 64)

Locations 37 to 40 - E-mail server name

Locations 37 to 40 have one segment of character data. Use these locations to program the name of your e-mail server (only needed when using DNS). The name can take the form of an unqualified name (for example, *my_computer* with no dots) or a fully qualified name (for example, *www.ge.com* with at least one dot).

Note: If the DNS option is enabled (Location 0, Segment 2) and Locations 37 to 40 are left blank, then Location 51 IP addresses are used.

- Location 37 E-mail server name (characters 1 to 16)
- Location 38 E-mail server name (characters 17 to 32)
- Location 39 E-mail server name (characters 33 to 48)
- Location 40 E-mail server name (characters 49 to 64)

Locations 41 to 44 - Download computer name

Locations 41 to 44 have one segment of character data. Use these locations to program the name of your download computer (only needed when using DNS). The name can take the form of an unqualified name (for example, *my computer* with no dots) or a fully qualified name (for example, *www.ge.com* with at least one dot).

Note: If the DNS option is enabled (Location 0, Segment 2) and Locations 41 to 44 are left blank, then Location 53 IP addresses are used.

- Location 41 Download computer name (characters 1 to 16)
- Location 42 Download computer name (characters 17 to 32)
- Location 43 Download computer name (characters 33 to 48)
- Location 44 Download computer name (characters 49 to 64)

Locations 45 to 53 - IP addresses

Locations 45 to 53 have four segments of numerical data. If you turned on static IPs instead of dynamic DNS (Location 0, Segment 2, Option 3), you will need to program Locations 45, 52, and 54 with the appropriate IP addresses. Otherwise, the NX-590NE will use the addresses assigned by the DHCP Server.

The default is 0 0 0 0 for each location.

Note: If the DNS option is enabled (Location 0, Segment 2), Locations 46, 47, 51, and 53 are only used as a backup (not required).

- Location 45 IP address for this module
- Location 46 IP address for receiver 1
- Location 47 IP address for receiver 2
- Location 48 Reserved
- Location 49 IP address for DNS 1
- Location 50 IP address for DNS 2
- Location 51 IP address for mail server
- Location 52 IP address for gateway
- Location 53 IP address for download computer

Location 54 - Subnet mask

Location 54 has four segments of numerical data. This location contains the subnet mask (default 255.255.255.0). Contact your network administrator before programming this location. This location must be configured so that all IP addresses up to and including the local gateway are allowed. When using cable modem/DSL, this will generally be the same as the computer. To obtain your IP address, gateway, and subnet mask, do one of the following:

- For Windows 9X and Windows ME, at the DOS prompt, type winipcfg.
- For Windows 2000 and XP, at the COMMAND prompt, type *ipconfig*.

Note: Location 54 is not needed when using DHCP.

Location 55 - Receiver alarm port

Location 55 has four segments of numerical data. This location contains the IP alarm port used by the TCP/IP receiver (default 9 9 9 9). Do not change this data except as directed by your central station provider.

Location 56 - Download software port

Location 56 has four segments of numerical data. This location contains the port number used by the download software (default 9 9 9 9). This port is based on the DL900 and should not be changed.

Location 57 - SMTP e-mail port

Location 57 has four segments of numerical data. This location contains the IP ports used by the SMTP server (default 0 0 2 5). Do not should change this data except as directed by your e-mail server.

Locations 58 and 59 - Reserved

Location 60 - SIA or Contact ID account number

Location 60 has eight segments of numerical data. Use this location to program the SIA or Contact ID account number (default 0 0 0 0 1 0 0 0). Use location 60 if your system uses a single account number. Use location 64 if your system has multiple account numbers. Contact your usual account number and dial number source for installations.

Note: It is important to add leading zeroes to create an eight-digit number.

Location 61 - Phone line receiver number

Location 61 has four segments of numerical data. This location contains the phone line receiver number associated with this account (default 0 0 0 1). Contact your usual account number and dial number source for installations.

Location 62 - Line number

Location 62 has four segments of numerical data. This location contains the line number associated with this account (default 0 0 0 1). Contact your usual account number and dial number source for installations.

Location 63 - Timers and counters

Location 63 has six segments of numerical data. Use this location to program the number of attempts and the number of seconds to access the network. Normally you will not change the defaults. The unit will make the number of attempts in Segment 1 until the number of seconds in Segment 2 is exhausted. The length of each attempt is calculated as: Segment 2 divided by Segment 1 (overall time/number of attempts). The default is 30 seconds divided by 2 attempts for 15 seconds per attempt.

Segment 2 - Time in seconds for overall retries of failed network attempts (0 to 255 seconds). We recommend a minimum of 30 seconds. The default is 30.

Segment 3 - Polling time in seconds (time to wait between successful transmissions). The default is 10 (if set below 10, it will default to 10).

Segments 4 to 6 - Reserved

Locations 64 to 71 - Partition account number

Locations 64 to 71 have eight segments of numerical data. Use these locations to program the account number for the partitions being used. The default is 0 0 0 0 0 0 0 0 0. If these locations are programmed with anything other than 0 0 0 0 0 0 0, it will override Location 60 (SIA/CID).

- Location 64 Partition 1 account number
- Location 65 Partition 2 account number
- Location 66 Partition 3 account number
- Location 67 Partition 4 account number
- Location 68 Partition 5 account number
- Location 69 Partition 6 account number
- Location 70 Partition 7 account number
- Location 71 Partition 8 account number

Locations 72 to 82 - Reserved

Locations 83 to 86 - Premise server name (Europe only)

Locations 83 to 86 have one segment of character data. Use these locations to program the premise server name.

- Location 83 Premise server name (characters 1 to 16)
- Location 84 Premise server name (characters 17 to 32)
- Location 85 Premise server name (characters 33 to 48)
- Location 86 Premise server name (characters 49 to 64)

Location 87 - Automation (premise server) IP address

Location 87 has four segments of numerical data. Use this location to program the automation IP address.

Location 88 - Automation system port

Location 88 has four segments of numerical data. Use this location to program the specified port on the NX-590NE that accepts a connection on the home automation protocol (default 9 9 9 7).

Location 89 - Automation event transitions

Location 89 has two segments of feature selection data. You can program the NX-590NE to automatically send information to the home automation system when there has been a change in the information. This is referred to as "transition-based broadcasting". The application and the capabilities of the home automation system determine which information packets use "transition-based broadcasting". Use Location 89 to enable and disable the appropriate event transition broadcasts (refer to your home automation documentation). Contact your GE product manager for access to this protocol.

Segment 1	Segment 2
1. Reserved	1. System status message
2. Interface configuration message	2. X10 message received
3. Reserved	3. Log event message
4. Reserved	4. Keypad message received
5. One zone status message	5. Reserved
6. 16 zone snapshot message	6. Reserved
7. One partition message	7. Reserved
8. Eight partition snapshot message	8. Reserved

Location 90 - Automation requests/commands

Location 90 has four segments of feature selection data. The NX-590NE can do a variety of commands as requested by the home automation system. Use Location 90 to select which requests or commands, if any, you want. Refer to your home automation documentation and enable the appropriate commands for your application.

Note: It is important to understand the capabilities of the home automation system to avoid compromising the security of your system when you program this location.

Segment 1	Segment 2
1. Reserved	1. System status message
2. Interface configuration message	2. Send X10 message
3. Reserved	3. Log event request
4. Zone name request	4. Send keypad text command
5. One zone status message	5. Keypad terminal mode request
6. 16 zone snapshot message	6. Keypad tone broadcast
7. One partition message	7. Reserved
8. Eight partition snapshot message	8. Reserved
Segment 3	Segment 4
1. Program data request	1. RF transmission request
2. Program data command	2. Clock/calendar request
3. User information request with PIN	3. Store communication event request
4. User information request without PIN	4. Set clock/calendar command
5. Set user code command with PIN	5. Primary keypad function with PIN
6. Set user code command without PIN	6. Primary keypad function without PIN
7. Set user authorization command with PIN	7. Secondary keypad function
8. Set user authorization without PIN	8. Zone bypass toggle

Location 91 - Keypad address for automation text retrieval

Location 91 has one segment of numerical data. Use this location to program the address of the keypad used for automation text retrieval. The default is 192. *Table 6* shows the address options.

Table 6. Location 4 L:CD 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

Locations 92 to 125 - Reserved

Locations 126 to 133

Locations 126 to 133 are only available with Version 2.09 and higher (microprocessor code).

Location 126 - Premise server dealer ID. Location 126 has ten segments of numerical data (default 0 0 0 0 0 0 0 0 0 0). Contact your premise server administrator for IP information to program this location.

Location 127 - Premise server IP address. Location 127 has four segments of numerical data (default 0 0 0 0). Contact your premise server administrator for IP information to program this location.

Location 128 - Proxy server IP address. Location 128 has four segments of numerical data (default 0 0 0 0). Contact your premise server administrator for IP information to program this location.

Note: If the proxy server is present, it supersedes the value in Location 127.

Location 129 - Premise server router IP address. Location 129 has four segments of numerical data (default 0 0 0 0). Contact your premise server administrator for IP information to program this location.

Location 130 - Premise server proxy server port. Location 126 has four segments of numerical data (default 0 0 8 0). Contact your premise server administrator for IP information to program this location.

Location 131 - DHCP assigned IP address. Location 131 has four segments of numerical data (default 0 0 0 0). This location displays the DHCP assigned IP address. This is a read-only location.

Location 132 - UCSIMM software version. Location 132 has one segment of numerical data. This is a read-only location.

Location 133 - PIC software version. Location 133 has one segment of numerical data. This is a read-only location.

Program worksheets

When the defaults in the worksheet tables have more than one segment, the segments are shown separated by periods. For example, a default of 255.255.255.0, indicates there are four segments. To program the number, you would enter 255 and press *, enter 255 and press *, enter 255 and press *, enter 0 and press * (press * between each segment entry).

Use *Table 7* to record your programming options for Location 0.

Table 7. Location 0 programming worksheet

Loc	Description	Default	Data						
0	Location 0 – Operation mode on page 9								
	Segment 1								
	1. Use control dialer as backup to TCP/IP and e-mail								
	2. Backup format (Off = CID, On = SIA)								
	3. Use receiver 2 as backup								
	4. Send tag to onsite event recorder								
	5. Automation protocol enable (Europe only)								
	6. Premise server application using automation port (Europe only)								
	7 and 8. Reserved								
	Segment 2	1, 2							
	1. Enable site initiated downloading (*98 from keypad)								
	2. Enable remote initiated downloading								
	3. Use DHCP services (static IP of unit if Off). If enabled, we recommend option 8 also be enabled.								
	4. Use DNS services (IP address used if Off)								
	5 to 7. Reserved								
	8. Polling enable								
	Segment 3. Reserved								
	Segment 4								
	1. Enable SMTP e-mail authentication								
	Segment 5 to 7. Reserved								
	Segment 8. AUX COM Fail (for loss of polling only).								

Use *Table 8* to record your programming options for Locations 1 to 4.

Table 8. Locations 1 to 4 programming sheet

Loc	Description								
1	Location 1 – Partitions reporting via TCP/IP to receiver 1 on page 10								
	Partition	1	2	3	4	5	6	7	8
	Segment 1 - Alarm and restores								
	Segment 2 - Open / close								
	Segment 3 - Bypass								
	Segment 4 - Zone trouble								
	Segment 5 - Power trouble (AC failure or low battery)								
	Segment 6 - Siren and telephone fault								
	Segment 7 - Test reports								
	Segment 8 - Program, download and log full								
	Segment 9 - Tampers								
	Segment 10 - Short circuit and ground fault								
	Segment 11 - Sensor lost								
	Segment 12 - Sensor low battery								
	Segment 13 - Expander trouble								
	Segment 14 - Failure to communicate								
	Segment 15 - Zone activity monitor								
	Segment 16 - Reserved								
2	Location 2 – Partitions reporting via TCP/IP to receiver 2 on page 10								
	Partition	1	2	3	4	5	6	7	8
	Segment 1 - Alarm and restores								
	Segment 2 - Open / close								
	Segment 3 - Bypass								
	Segment 4 - Zone trouble								
	Segment 5 - Power trouble (AC failure or low battery)								
	Segment 6 - Siren and telephone fault								
	Segment 7 - Test reports								
	Segment 8 - Program, download and log full								
	Segment 9 - Tampers								
	Segment 10 - Short circuit and ground fault								
	Segment 11 - Sensor lost								
	Segment 12 - Sensor low battery		İ						
	Segment 13 - Expander trouble		İ						
	Segment 14 - Failure to communicate								
	Segment 15 - Zone activity monitor								
	Segment 16 - Reserved	-							

Table 8. Locations 1 to 4 programming sheet (continued)

Loc	Description									
3	Location 3 – Partitions reporting via e-mail to account 1 on page 10									
	Partition	1	2	3	4	5	6	7	8	
	Segment 1 - Alarm and restores									
	Segment 2 - Open / close									
	Segment 3 - Bypass									
	Segment 4 - Zone trouble									
	Segment 5 - Power trouble (AC failure or low battery)									
	Segment 6 - Siren and telephone fault									
	Segment 7 - Test reports									
	Segment 8 - Program, download and log full									
	Segment 9 - Tampers									
	Segment 10 - Short circuit and ground fault									
	Segment 11 - Sensor lost									
	Segment 12 - Sensor low battery									
	Segment 13 - Expander trouble									
	Segment 14 - Failure to communicate									
	Segment 15 - Zone activity monitor									
	Segment 16 - Reserved	1								
4	Location 4 – Partitions reporting via e-mail to account 2 on page 10									
	Partition	1	2	3	4	5	6	7	8	
	Segment 1 - Alarm and restores									
	Segment 2 - Open / close									
	Segment 3 - Bypass									
	Segment 4 - Zone trouble									
	Segment 5 - Power trouble (AC failure or low battery)									
	Segment 6 - Siren and telephone fault									
	Segment 7 - Test reports									
	Segment 8 - Program, download and log full									
	Segment 9 - Tampers									
	Segment 10 - Short circuit and ground fault									
	Segment 11 - Sensor lost									
	Segment 12 - Sensor low battery									
	Segment 12 - Sensor low buttery								_	
	Segment 13 - Expander trouble									
	Segment 13 - Expander trouble									

Use *Table 9* to record your programming options for Locations 5 to 91.

Table 9. Locations 5 to 91 programming worksheet

Loc	Description	Default	Data
5 to 7	Locations 5 to 7 - SMTP e-mail authentication on page 11		
	Location 5 - SMTP e-mail authentication user ID (characters 1 to 16)	GE	
	Location 6 - SMTP e-mail authentication user ID (characters 17 to 32)	Security	
	Location 7 - SMTP e-mail authentication password (16 characters)	GE	
13 to 16	Locations 13 to 16 - Return e-mail name on page 11		
	Location 13 - Return e-mail name (characters 1 to 16)		
	Location 14 - Return e-mail name (characters 17 to 32)		
	Location 15 - Return e-mail name (characters 33 to 48)		
	Location 16 - Return e-mail name (characters 49 to 64)		
17 to 24	Locations 17 to 24 - TCP/IP receiver name on page 11		
	Location 17 - TCP/IP receiver 1 (characters 1 to 16)		
	Location 18 - TCP/IP receiver 1 (characters 17 to 332		
	Location 19 - TCP/IP receiver 1 (characters 33 to 48)		
	Location 20 - TCP/IP receiver 1 (characters 49 to 64)		
	Location 21 - TCP/IP receiver 2 (characters 1 to 16)		
	Location 22 - TCP/IP receiver 2 (characters 17 to 32)		
	Location 23 - TCP/IP receiver 2 (characters 33 to 48)		
	Location 24 - TCP/IP receiver 2 (characters 49 to 64)		
29 to 36	Locations 29 to 36 - E-mail account name on page 12		
	Location 29 - E-mail account 1 (characters 1 to 16)		
	Location 30 - E-mail account 1 (characters 17 to 32)		
	Location 31 - E-mail account 1 (characters 33 to 48)		
	Location 32 - E-mail account 1 (characters 49 to 64)		
	Location 33 - E-mail account 2 (characters 1 to 16)		
	Location 34 - E-mail account 2 (characters 17 to 32)		
	Location 35 - E-mail account 2 (characters 33 to 48)		
	Location 36 - E-mail account 2 (characters 49 to 64)		
37 to 40	Locations 37 to 40 - E-mail server name on page 12		
	Location 37 - E-mail server (characters 1 to 16)		
	Location 38 - E-mail server (characters 17 to 32)		
	Location 39 - E-mail server (characters 33 to 48)		
	Location 40 - E-mail server (characters 49 to 64)		
41 to 44	Locations 41 to 44 - Download computer name on page 13		
	Location 41 - Download computer (characters 1 to 16)		
	Location 42 - Download computer (characters 17 to 32)		
	Location 43 - Download computer (characters 33 to 48)		
	Location 44 - Download computer (characters 49 to 64)		

Table 9. Locations 5 to 91 programming worksheet (continued)

Loc	Description	Default	Data
45 to 53	Locations 45 to 53 - IP addresses on page 13		
	Location 45 - IP address for this module	0.0.0.0	
	Location 46 - IP address for receiver 1	0.0.0.0	
	Location 47 - IP address for receiver 2	0.0.0.0	
	Location 48 - Reserved	0.0.0.0	
	Location 49 - IP address for DNS 1	0.0.0.0	
	Location 50 - IP address for DNS 2	0.0.0.0	
	Location 51 - IP address for mail server	0.0.0.0	
	Location 52 - IP address for gateway	0.0.0.0	
	Location 53 - IP address for download computer	0.0.0.0	
54	Location 54 - Subnet mask on page 13	255.255.255.0	
55	Location 55 - Receiver alarm port on page 14	9.9.9.9	
56	Location 56 - Download software port on page 14	9.9.9.9	
57	Location 57 - SMTP e-mail port on page 14	0.0.2.5	
60	Location 60 - SIA or Contact ID account number on page 14 (add leading zeroes)	0.0.0.0.1.0.0.0	
61	Location 61 - Phone line receiver number on page 14	0.0.0.1	
62	Location 62 - Line number on page 14	0.0.0.1	
63	Location 63 - Timers and counters on page 14		
	Segment 1 - Number of network attempts (0 to 255)	2	
	Segment 2 - Time in seconds for overall network attempt (0 to 255)	30	
	Segment 3 - Polling time in seconds (0 to 255)	10	
	Segment 4 to 6 Reserved		
64 to 71	Locations 64 to 71 - Partition account number on page 15 (add leading zeroes)		
	Location 64 - Partition 1 account number	0.0.0.0.0.0.0	
	Location 65 - Partition 2 account number	0.0.0.0.0.0.0	
	Location 66 - Partition 3 account number	0.0.0.0.0.0.0	
	Location 67 - Partition 4 account number	0.0.0.0.0.0.0	
	Location 68 - Partition 5 account number	0.0.0.0.0.0.0	
	Location 69 - Partition 6 account number	0.0.0.0.0.0.0	
	Location 70 - Partition 7 account number	0.0.0.0.0.0.0	
	Location 71 - Partition 8 account number	0.0.0.0.0.0.0	
83 to 86	Locations 83 to 86 - Premise server name (Europe only) on page 15		
	Location 83 - Premise server (characters 1 to 16)		
	Location 84 - Premise server (characters 17 to 32)		
	Location 85 - Premise server (characters 33 to 48)		
	Location 86 - Premise server (characters 49 to 64)		
87	Location 87 - Automation (premise server) IP address on page 15		
88	Location 88 - Automation system port on page 15	9.9.9.7	

Table 9. Locations 5 to 91 programming worksheet (continued)

Loc	Description	Default	Data						
89	Location 89 - Automation event transitions on page 16								
	Segment 1								
	1. Reserved								
	2. Interface configuration message								
	3. Reserved								
	4. Reserved								
	5. One zone status message								
	6. 16 zone snapshot message								
	7. One partition message								
	8. Eight partition snapshot message								
	Segment 2								
	1. System status message								
	2. X10 message received								
	3. Log event message								
	4. Keypad message received								
	5 to 8. Reserved								
90	Location 90 - Automation requests/commands on page 16								
	Segment 1								
	1. Reserved								
	2. Interface configuration message								
	3. Reserved								
	4. Zone name request								
	5. One zone status request								
	6. 16 zone snapshot request								
	7. One partition request								
	8. Eight partition snapshot request								
	Segment 2								
	1. System status request								
	2. Send X10 command								
	3. Log event request								
	4. Send keypad text command								
	5. Keypad terminal made request								
	6. Keypad tone broadcast								
	7 to 8. Reserved								

Table 9. Locations 5 to 91 programming worksheet (continued)

Loc	Description	Default	Data
	Segment 3		
	1. Program data request		
	2. Program data command		
	3. User info request with PIN		
	4. User Info 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. RF transmission request		
	2. Clock/calendar request		
	3. Store communication event		
	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		
91	Location 91 - Keypad address for automation text retrieval on page 17	192	

Use *Table 10* to program Locations 126 to 133. These locations are only available with Version 2.09 or higher (microprocessor code).

Table 10. Locations 126 to 133 programming worksheet

Loc	Description	Default	Data
126	Location 126 - Premise server dealer ID on page 17	0.0.0.0.0.0.0.0.0	
127	Location 127 - Premise server IP address on page 17	0.0.0.0	
128	Location 128 - Proxy server IP address on page 17	0.0.0.0	
129	Location 129 - Premise server router IP address on page 17	0.0.0.0	
130	Location 130 - Premise server proxy server port on page 17	0.8.0	
131	Location 131 - DHCP assigned IP address on page 17 (read only)	0.0.0.0	
132	Location 132 - UCSIMM software version on page 17 (read only)		
133	Location 133 - PIC software version on page 17 (read only)		

Programming tasks

This section describes some common programming tasks.

Set up an IP address for the NX-590NE

You must set up a static IP address or use DHCP to get a dynamic IP address. Failure to do so will result in the NX-590NE not functioning at all.

To assign a static IP to the NX-590NE, do the following:

- 1. Set Location 0, Segment 2, Option 3 to 0.
- 2. Set Location 45 to the assigned IP address (for example, 3.18.147.166).
- 3. Set Location 52 to the assigned gateway address (for example, 3.18.144.1).
- 4. Set Location 54 to the subnet mask (for example, 255.255.255.0).
- 5. You can now program IP addresses in the following locations:
 - Location 46 IP address for primary receiver
 - Location 47 IP address for secondary receiver
 - Location 51 IP address for mail server
 - Location 53 IP address for download computer
 - Location 87 automation (premise server) IP address

The IP address, gateway address, and subnet mask are parameters your system administrator should be able to provide for the location where the NX-590NE will be installed.

Set up a dynamic IP to the NX-590NE

To assign a dynamic IP to the NX-590NE using DHCP, set Location 0, Segment 2, Option 3 to 1. Locations 45, 52, and 54 are not used in this scenario.

Your system administrator should be able to tell you if the network supports dynamic IP addressing for your installation.

Send events as e-mail messages only

To set up the NX-590NE to send events as e-mail messages only, do the following:

- 1. Set Location 1, Segments 1 to 16, to disable reporting to receiver 1.
- 2. Set Location 2, Segments 1 to 16, to disable reporting to receiver 2.
- 3. Set Location 3, Segments 1 to 16, to enable needed segments in used partitions for e-mail, or set to disable reporting.
- 4. Set Location 4, Segments 1 to 16, to enable needed segments in used partitions for e-mail or set to disable reporting.
- 5. Program Locations 13 to 16 with a valid name for the *From* field in the e-mail message.
- 6. Program Locations 29 to 32 with a valid name for the *To* field in the e-mail message for e-mail 1.

- 7. Program Locations 33 to 36 with a valid name for the *To* field in the e-mail message for e-mail 2.
- 8. If using DNS, program Locations 37 to 40 with a valid name for the e-mail server.
- 9. If not using DNS, program Locations 37 to 40 with the e-mail server IP address.
- 10. Program Location 57 with the e-mail port (the default is 025).

Send events to receiver 1 only

To set up the NX-590NE to send events to receiver 1 only, do the following:

- 1. Set Location 1, Segments 1 to 16, to enable needed segments in used partitions.
- 2. Set Location 2, Segments 1 to 16, to disable reporting to receiver 2.
- 3. Set Location 3, Segments 1 to 16, to disable reporting to e-mail 1.
- 4. Set Location 4, Segments 1 to 16, to disable reporting to e-mail 2.
- 5. Program Location 46 with the IP address for receiver 1.
- 6. Program Location 55 with the receiver alarm port number.

Send events to receiver 2 only

To set up the NX-590NE to send events to receiver 2 only, do the following:

- 1. Set Location 1, Segments 1 to 16, to disable reporting to receiver 1.
- 2. Set Location 2, Segments 1 to 16, to enable reporting to receiver 2.
- 3. Set Location 3, Segments 1 to 16, to disable reporting to e-mail 1.
- 4. Set Location 4, Segments 1 to 16, to disable reporting to e-mail 2.
- 5. Program Location 47 with the IP address for receiver 2.
- 6. Program Location 55 with the receiver alarm port number.

Set up DNS

To set up DNS, do the following:

- 1. Set Location 0, Segment 2, Option 4, to use DNS services.
- 2. Set Location 49 to the IP of the primary DNS server.
- 3. Optionally, set Location 50 to the IP of the secondary DNS server.
- 4. You can now program names in the following locations:
 - Locations 17 to 20, TCP/IP receiver one.
 - Locations 21 to 24, TCP/IP receiver two.
 - Locations 37 to 40, e-mail server.
 - Locations 41 to 44, download computer.
 - Locations 83 to 86, automation name (premise server).

View version of NX-590NE and PIC

The version of the NX-590NE is at Location 132. The version of the PIC is at Location 133.

View DHCP assigned IP address

The DHCP assigned IP is at Location 131.

DL900 utility

The DL900 is a windows-based tool to view and edit all the locations in a control panel or expander, such as the NX-590NE. Refer to the DL900 help files for information.

Specifications

Compatible control panels	NX-4V2, NX-6V2, NX-8V2, NX-8, NX-8-CF, NX-8E, NX-8E-CF
Operating power	12 VDC supplied from the control panel
Current draw	120 mA during communication, 90 mA standby
Operating temperature	32 to 120°F (0 to 49°C)
Dimensions	6.0 x 3.25 x 1.0 in, (152 x 83 x 25 mm)
Shipping weight	1 lb. (454 g)
UL Listings	UL294 Access Control System Units
	UL1610 Grade B & C Central-Station Burglar-Alarm Units
	UL1635 Digital Alarm Communicator System Units
	UL609 Local Burglar Alarm Units and Systems
	UL3765 Police Station Connected Burglar Alarm Units and Systems

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).

Table 11. Technical support

North America T: 888 GE Security (888.437.3287) Toll-free in the US, Puerto Rico, and Canada. 503.885.5700 outside the toll-free area. F: 561.998.6232 (Boca Raton tech support) E: nstechsrv@ge.com gesecurity.customerservice@ge.com Australia, New Zealand E: techsupport@gesecurity.com.au

Latin America

T: 305.593.4301

F: 305.593.4300

E: InfraSec.TechnicalServicesLatinAmerica@ge.com InfraSecCustomerService.LatinAmerica@ge.com

Europe, Middle East, and Africa

W: At www.gesecurity.eu, select Customer Support.

China, India, Singapore, Taiwan, Southeast Asia

E: ges.asiatechservice@ge.com

Note: Be ready at the equipment before calling.

Online resources

Here are some useful links on our website www.gesecurity.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.¹

Training. To view any available online training for GE Security products, select the *Training* link. (Online training is not available for all products.)

Warranty and terms information. From the *Customer Support* menu, select *Return and Warranty Policy Statement* or *Terms and Conditions Policy Statement*.

Customer service and technical support. From the *Customer Support* menu, select *Customer Service* or *Technical & Application*. Select the appropriate product category for the contact information or use the menu to select a location outside the US.

Many GE documents are provided in English only as PDFs. To read these documents, you will need Adobe Reader, which you
can download free from Adobe's website at www.adobe.com.