



Micro/PX-2000, Micro/PXN-2000, and M2000PXNplus Quick Installation Instructions

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In this document

<i>In this document</i>	1
<i>Introduction</i>	1
<i>Installation</i>	2
<i>Layout</i>	3
<i>Configuration</i>	3
<i>Micro/PXN-2000</i>	8
<i>M2000PXNplus</i>	11
<i>Integrated Configuration Tool</i>	15
<i>Regulatory information</i>	26
<i>Configuration checklist for the Integrated Configuration Tool</i>	27

Changes since the last publication of this document are marked by a change bar, which is a vertical line in the margin that visually identifies significant new or revised material.

Introduction

The Micro/PX-2000, Micro/PXN-2000, and M2000PXNplus microcontrollers (micros) are cost-effective, single-board micros enclosed in a steel cabinet. This document is intended to be used by experienced micro installers and includes an abbreviated list of the installation steps. Review the *Micro/PX-2000, Micro/PXN-2000, and M2000PXNplus Point-to-point Wiring Diagrams* before you begin. If additional information is required, you may download a copy of the *Micro/PX-2000, Micro/PXN-2000, and M2000PXNplus Installation Guide* from the GE Web site.

The following items are included with your micro:

- Micro
- Transformer
- 12-volt DC battery, 7 amp hour
- *Micro/PX-2000, Micro/PXN-2000, and M2000PXNplus Point-to-point Wiring Diagrams*
- This document

Refer to [Table 1](#) for badge and history capacities.

Table 1. Application capacities

	PXNplus CPU board	PXN CPU board	PX CPU board
Secure Perfect® 6.x			
Badge capacity	128,000	128,000	128,000
Offline badge history capacity	8,192*	8,192	8,192
Offline alarm history capacity	8,192*	8,192	8,192
Picture Perfect™ 2.x			
Badge capacity	200,000	125,000	125,000
Offline badge history capacity	5,000*	5,000	5,000
Offline alarm history capacity	2,000*	2,000	2,000
Picture Perfect 3.x			
Badge capacity	145,000	90,000	90,000
Offline badge history capacity	5,000*	5,000	5,000
Offline alarm history capacity	2,000*	2,000	2,000

*, This is a default allocation. The capacity can be re-allocated using the Integrated Configuration Tool.

Installation

1. Mount the micro on a vertical surface at a suitable location, adhering to all local electrical codes.
2. Install the transformer and connect the two AC wires.
3. Connect an earth-ground wire to the micro.
4. Apply power to the micro (power LED should come on).
5. Connect your PC or laptop to J8, the micro primary port.



CAUTION: The J16 IS NOT a standard RS-232 port. DO NOT USE the J16 connector for flashing application code. External equipment (such as your laptop) may be severely damaged. Use J16 only with the GE Modem Kit.

6. If you have a:
 - **M2000PXNplus** CPU board, run the Integrated Configuration Tool to set the connection type. Go to *step 7*.
 - **Micro/PX-2000 or Micro/PXN-2000** CPU board, run one of the GE micro firmware installation tools (refer to the FlashTool online help for additional information) and flash the Micro with application code (firmware is supplied on the enclosed diskettes).

Verify that micro dip switch SW5 settings are as follows, before flashing:

SW5-1	ON
SW5-2	ON
SW5-3	Baud rate - refer to <i>Table 4, Switch 5 settings</i> on page 8.
SW5-4	Baud rate - refer to <i>Table 4, Switch 5 settings</i> on page 8.
SW5-5	ON
SW5-6	ON
SW5-7	ON
SW5-8	ON (Not used.)

Refer to *Table 4, Switch 5 settings* on page 8 for a more detailed description of SW5 settings.



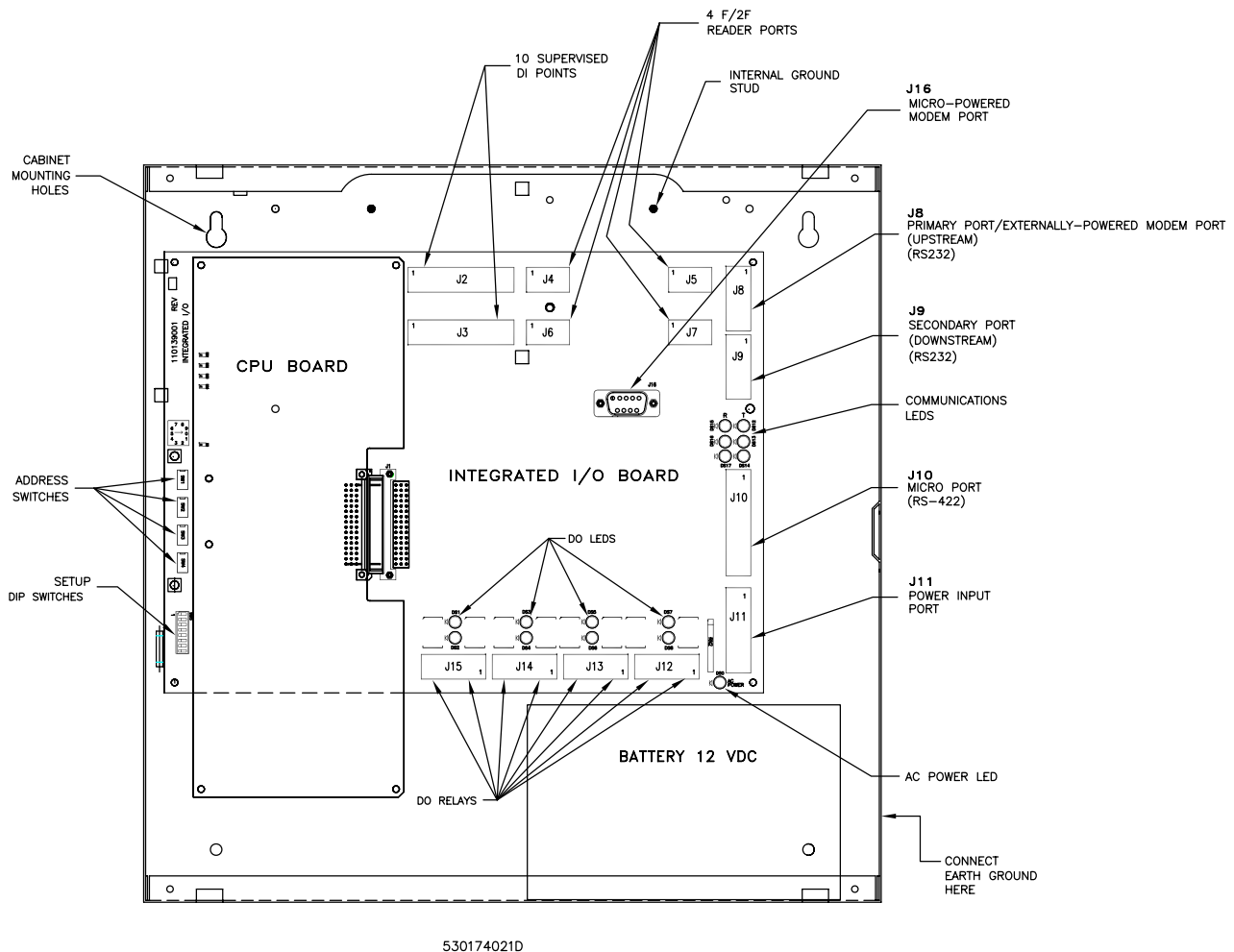
CAUTION: If this micro is a dialup, verify that the DB-9 connector is detached from the J16 modem port.

7. Power down the micro.
8. If this is a:
 - **Network micro:** Connect the network cable to the micro.
 - **Dial-up micro:** Install the modem.
 - **External modem:** Refer to the *Star Comm Modem Kit For the Micro/PX-2000: Setup Instructions* for modem installation.
 - **PXNplus on-board modem:** Refer to the *PXNplus Modem Board Installation Instructions*.
 - **Direct micro:** Connect the serial cable from the micro to the host.
9. **RESET** the dip switch settings and configure the micro. Refer to *Table 2, M2000PXNplus: Setting the micro address, telephone number, and initialization string* on page 4 or *Table 3, Micro/PX-2000 and Micro/PXN-2000: Setting the micro address, telephone number, and initialization string* on page 6.
10. Install Digital Input (DI), Digital Output (DO), and reader connections. Refer to the *Micro/PX-2000, Micro/PXN-2000, and M2000PXNplus Installation Guide* for wiring details when installing DI (alarm) points.

Note: As of 05/04, connector J2 and J3 alarm points no longer require termination by attaching a 1K ohm, 1/4-watt resistor, in order to prevent false alarms. Previous documentation stipulated this requirement.
11. Connect the battery leads to the battery terminals. Refer to Figure 13, "Wiring the power supply" in the document, *Micro/PX-2000, Micro/PXN-2000, and M2000PXNplus Point-to-Point Wiring Diagrams*. Place the battery in the lower, right corner of the cabinet.
12. Power up the micro and test the system.

Layout

Figure 1. Assembly drawing of the Micro/PX-2000, the Micro/PXN-2000 and the M2000PXNplus with components



Configuration

If using Secure Perfect 4.0 or later, you now have the option to map the DO relays to the Reader ports which provides Door DO relays. The mapping is a one-to-one relationship which means DO relay 1 maps to Reader port 1 and so on. The mapping is accomplished by prepending the micro address with a 9. For example, addresses 9001 through 9998 represent micro addresses 1 through 998 AND map the DO relays. Addresses 0001 through 8999 represent micro addresses 1 through 999 and DO NOT map the DO relays.

The configuration also depends on the CPU board you are using.

- **PXNplus CPU:** See Table 2, *M2000PXNplus: Setting the micro address, telephone number, and initialization string* on page 4.
- **PX or PXN CPU board:** See Table 3, *Micro/PX-2000 and Micro/PXN-2000: Setting the micro address, telephone number, and initialization string* on page 6.

M2000PXNplus

Table 2. M2000PXNplus: Setting the micro address, telephone number, and initialization string

M2000PXNplus				
Application	Procedure	Dip switch settings		
Secure Perfect Direct	Step 1: Set Micro Address	Set the 4 rotary dip switches to the desired address. If using relay output points for your door strikes, prepend the address with a 9. OR Set the 4 rotary dip switches to: <ul style="list-style-type: none">• 9999 if NOT using relays• 9000 if using relays Then, use the Integrated Configuration Tool to set the address in the parameter block. Refer to Integrated Configuration Tool on page 15.		
	Step 2: Set Direct	Set dip switch SW5-2 to OFF. Set dip switch SW5-5 to OFF. Jumper pins 1 and 2 on jumper J10 of the CPU board.		
	Step 3: Set Baud	Set dip switches SW5-3 and SW5-4 to desired baud rate. (See Table 4, Switch 5 settings on page 8.)		
	Step 4: Set Configuration	Set dip switch SW5-6 to OFF. Set dip switch SW5-7 to OFF.		
Secure Perfect Dialup	Step 1: Set Micro Address	Set the 4 rotary dip switches to the desired address. If using relay output points for your door strikes, prepend the address with a 9. OR Set the 4 rotary dip switches to: <ul style="list-style-type: none">• 9999 if NOT using relays• 9000 if using relays Then, use the Integrated Configuration Tool to set the address in the parameter block. Refer to Integrated Configuration Tool on page 15.		
	Step 2: Set Dialup	If using the on-board modem , refer to the <i>PXNplus Modem Board Installation Instructions</i> for installation instructions. Refer to the table below for jumper and switch settings:		

Table 2. M2000PXNplus: Setting the micro address, telephone number, and initialization string (continued)

M2000PXNplus				
Application	Procedure	Dip switch settings		
Secure Perfect Network	Step 1: Set Micro Address	Set the 4 rotary dip switches to the desired address. If using relay output points for your door strikes, prepend the address with a 9. OR Set the 4 rotary dip switches to: <ul style="list-style-type: none">• 9999 if NOT using relays• 9000 if using relays Then, use the Integrated Configuration Tool to set the address in the parameter block. Refer to Integrated Configuration Tool on page 15.		
	Step 2: Set IP Address	Use the Integrated Configuration Tool to set the address in the parameter block. Refer to Integrated Configuration Tool on page 15.		
	Step 3: Set Configuration	Set dip switch SW5-6 to OFF. Set dip switch SW5-7 to OFF.		
Note: Please refer to M2000PXNplus on page 11 for additional information.				
Picture Perfect Direct	Step 1: Set Micro Address	Leave at ANY address - the application does not use this setting.		
	Step 2: Set Direct	Set dip switch SW5-2 to OFF. Set dip switch SW5-5 to OFF. Jumper pins 1 and 2 on jumper J10 of the CPU board.		
	Step 3: Set Baud	Set dip switches SW5-3 and SW5-4 to desired baud rate. (See Table 4, Switch 5 settings on page 8.)		
	Step 4: Set Configuration	Set dip switch SW5-6 to OFF. Set dip switch SW5-7 to OFF.		
Picture Perfect Dialup	Step 1: Set Micro Address	Set the 4 rotary dip switches to the desired address. OR Set the 4 rotary dip switches to 9999; use the Integrated Configuration Tool to set the address in the parameter block. Refer to Integrated Configuration Tool on page 15.		
	Step 2: Set Dialup	If using the on-board modem , refer to the <i>PXNplus Modem Board Installation Instructions</i> for installation instructions. Refer to the table below for jumper and switch settings:		
	Step 3: Set Baud	Set dip switches SW5-3 and SW5-4 to desired baud rate. (See Table 4, Switch 5 settings on page 8.)		
	Step 4: Set Phone Number	Set phone number and modem initialization string (optional) using the Integrated Configuration Tool.		
	Step 5: Set Configuration	Set dip switch SW5-6 to OFF. Set dip switch SW5-7 to OFF.		
Picture Perfect Network	Step 1: Set Micro Address	Leave at ANY address - the application does not use this setting.		
	Step 2: Set IP Address	Use the Integrated Configuration Tool to set address in the parameter block.		
	Step 3: Set Configuration	Set dip switch SW5-6 to OFF. Set dip switch SW5-7 to OFF.		
Note: Please refer to M2000PXNplus on page 11 for additional information.				

Micro/PX-2000 and Micro/PXN-2000

Table 3. Micro/PX-2000 and Micro/PXN-2000: Setting the micro address, telephone number, and initialization string

Micro/PX-2000 and Micro/PXN-2000																												
Application	Procedure	Dip switch settings																										
Secure Perfect Direct	Step 1: Set Micro Address	Set the 4 rotary dip switches to the desired address. If using relay output points for your door strikes, prepend the address with a 9. OR Set the 4 rotary dip switches to: <ul style="list-style-type: none">9999 if NOT using relays9000 if using relays Then, use one of the GE micro installation tools (running on a PC or laptop) to set the address in the parameter block.																										
	Step 2: Set Direct	Set dip switch SW5-2 to OFF. Set dip switch SW5-5 to OFF.																										
	Step 3: Set Baud	Set dip switches SW5-3 and SW5-4 to desired baud rate. (See Table 4, Switch 5 settings on page 8.)																										
	Step 4: Set Configuration	Set dip switch SW5-6 to OFF. Set dip switch SW5-7 to OFF.																										
Secure Perfect Dialup	Step 1: Set Micro Address	Set the 4 rotary dip switches to the desired address. If using relay output points for your door strikes, prepend the address with a 9. OR Set the 4 rotary dip switches to: <ul style="list-style-type: none">9999 if NOT using relays9000 if using relays Then, use one of the GE micro installation tools (running on a PC or laptop) to set the address in the parameter block.																										
	Step 2: Set Dialup	Refer to the table below for jumper and switch settings:																										
		<table><tr><th rowspan="2">Configuration</th><th colspan="2">Integrated I/O board</th><th rowspan="2">NOTES</th></tr><tr><th>SW5-2</th><th>SW5-5</th></tr><tr><td colspan="4">PX CPU board using external modem</td></tr><tr><td>Externally-powered modem (Modem connected to J8 on I/O board)</td><td>ON</td><td>OFF</td><td></td></tr><tr><td>Micro-powered modem (Modem connected to J16 on I/O board)</td><td>ON</td><td>ON</td><td>Kit required from GE.</td></tr><tr><td colspan="4">PXN CPU board using the PCMCIA modem card</td></tr><tr><td>PCMCIA modem card</td><td>ON</td><td>N/A</td><td></td></tr></table>	Configuration	Integrated I/O board		NOTES	SW5-2	SW5-5	PX CPU board using external modem				Externally-powered modem (Modem connected to J8 on I/O board)	ON	OFF		Micro-powered modem (Modem connected to J16 on I/O board)	ON	ON	Kit required from GE.	PXN CPU board using the PCMCIA modem card				PCMCIA modem card	ON	N/A	
Configuration	Integrated I/O board			NOTES																								
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PXN CPU board using the PCMCIA modem card																												
PCMCIA modem card	ON	N/A																										
	Step 3: Set Baud	Set dip switches SW5-3 and SW5-4 to desired baud rate. (See Table 4, Switch 5 settings on page 8.)																										
	Step 4: Set Phone Number	Set phone number and modem initialization string (optional) using a GE micro installation tool.																										
	Step 5: Set Configuration	Set dip switch SW5-6 to OFF. Set dip switch SW5-7 to OFF.																										

Table 3. Micro/PX-2000 and Micro/PXN-2000: Setting the micro address, telephone number, and initialization string (continued)

Micro/PX-2000 and Micro/PXN-2000																													
Application	Procedure	Dip switch settings																											
Secure Perfect Network	Step 1: Set Micro Address	Set the 4 rotary dip switches to the desired address. If using relay output points for your door strikes, prepend the address with a 9. OR Set the 4 rotary dip switches to: <ul style="list-style-type: none">9999 if NOT using relays9000 if using relays Then, use one of the GE micro installation tools (running on a PC or laptop) to set the address in the parameter block.																											
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	Step 3: Set Configuration	Set dip switch SW5-6 to OFF. Set dip switch SW5-7 to OFF.																											
Note: Please refer to Micro/PXN-2000 on page 8 for additional information.																													
Picture Perfect Direct	Step 1: Set Micro Address	Leave at ANY address - the application does not use this setting.																											
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	Step 2: Set IP Address	Use one of the GE micro installation tools (running on a PC or laptop) to set address in the parameter block.																											
	Step 3: Set Configuration	Set dip switch SW5-6 to OFF. Set dip switch SW5-7 to OFF.																											
Note: Please refer to Micro/PXN-2000 on page 8 for additional information.																													

Table 4. Switch 5 settings

SW5	OFF	ON			
1	F/2F Readers	Supervised Readers			
2	Communication - Select	Refer to table at right	Communication Type	SW5-2	SW5-5
5	Communication - Select	Refer to table at right	Direct Short-Haul/ Leased-Line	OFF	OFF
			Dialup	ON	ON
3	Baud Rate - Select	Refer to table at right	Baud Rate	SW5-3	SW5-4
4	Baud Rate - Select	Refer to table at right	2400	ON	OFF
			4800	OFF	ON
			9600	ON	ON
			19200	OFF	OFF
			*For Picture Perfect direct only.		
6	Micro Mode - Select	Refer to table at right	Micro Mode	SW5-6	SW5-7
7	Micro Mode - Select	Refer to table at right	Application	OFF	OFF
			Maintenance	ON	ON
			N/A	OFF	ON
			N/A	ON	OFF
8	NOT USED				

Micro/PXN-2000

The Micro/PXN-2000 CPU board allows you to network your micros by utilizing PCMCIA card technology. Networking provides a faster method of communication and cuts down on wiring costs since it can utilize existing network wiring, such as Ethernet.

The following are some product highlights:

- Minimum micro firmware is Picture Perfect Version 1.5.9 and Secure Perfect 3.0.
- Supports up to seven Micro/PX-2000 or Micro/5-PX downstream from the network micro using RS-232 or RS-422 serial connection.
- There are no switches on this board. The IP address/micro address and/or phone number is set using one of the micro firmware installation tools. Refer to the FlashTool online help for additional information.
- This board is used with Picture Perfect Version 1.5.5 or later and Secure Perfect 3.0 or later.

LED indicators on the PXN CPU board

The tables that follow show the function of the LEDs on the micro CPU board. If you are looking at the LEDs on an installed micro CPU board, DS1 is the top LED.

Maintenance mode: The Micro/5-PXN is in maintenance mode before any application (personality) is downloaded to its flash EEPROM. The CPU will be in OS (Operating System) Maintenance Mode where DS2 and DS3 alternate On and Off for Picture Perfect and DS1/2 and DS3/4 alternate On and Off for Secure Perfect 3.0 as shown in [Table 5](#).

Table 5. LEDs on the Micro/PXN-2000 CPU board

LED number	State in boot maintenance mode	State in operating system maintenance mode	State when application is running
DS1	OFF	OFF	ON = Micro offline
DS2	OFF	Alternate ON and OFF	ON = Address received
DS3	ON		ON = Badge read OK
DS4	OFF	OFF	ON = CPU failure detected Flashing = Waiting for database
D3	OFF	OFF	OFF = Normal operation Flashes ON = Power on reset

Table 6. Picture Perfect/Secure Perfect 3.0 or later LED configuration

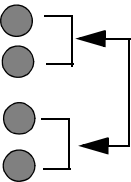
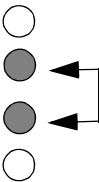
LED number	Secure Perfect 3.0 or later	Picture Perfect
DS1		
DS2		
DS3		
DS4		

Table 7. Diagnostic LEDs on the Micro/PXN-2000 CPU board

LED number	State	Description
DS5	ON	There is a PCMCIA card plugged into the top slot of the board and the card has power.
DS6	ON	There is a PCMCIA card plugged into the bottom slot of the board and the card has power.

Jumpers

There is one jumper on the Micro/PXN-2000 CPU Board. J2 is the boot code jumper. The settings are detailed in [Table 8](#).

Table 8. Boot code jumper

Jumper	Pins	Function
J2	2 and 3	Program Boot
	1 and 2	Run Application

Address switch settings for the Micro/PXN-2000 Integrated I/O Board

There are NO switch settings on the Micro/PXN-2000 CPU board. The addressing is configured within the Picture Perfect software. When Picture Perfect is started, the first micro in the chain of micros talks to the host who responds by giving that micro its address. Then, the second micro in the chain talks to the host and receives its address. This process continues until all the micros have received their address. With the dialup fallback option, the micro ID number and telephone number must be set in the micro parameter block, using one of the micro installation tools.

For Secure Perfect 3.0, you must set and address the micro before the micro is released from maintenance mode.

Application code (firmware)

Note: Minimum application flash code with a Micro/PXN-2000 is Picture Perfect Version 1.5.9 and Secure Perfect Version 3.0.

You need to download firmware when:

- A micro is in maintenance mode.
- Upgrading to a newer version of application code.

Note: When upgrading application code, you may also need to reflash the OS (Operating System) code.

The Micro/PXN-2000 CPU board ships in OS (Operating System) Maintenance Mode where DS2 and DS3 alternate On and Off. Refer to [Table 5, LEDs on the Micro/PXN-2000 CPU board](#) on page 9.

There are two ways to download the application (refer to the FlashTool online help for additional information):

- A serial connection using one of the micro firmware installation tools.
- A network connection using the flash program from Picture Perfect.

Before downloading application, the IP addresses for the micro **MUST** be set. Refer to the table below for the additional settings needed.

Note: The IP addresses can be set **ONLY** by using one of the micro firmware installation tools and a serial connection. Refer to the FlashTool online help for additional information.

Table 9. Settings needed

M/PXN-2000	Ethernet CPU
On the same LAN as the Host	<ul style="list-style-type: none">• Micro IP Address• Host IP Address (Picture Perfect only)• Network Mask
On a different LAN as the Host	Above parameters plus: <ul style="list-style-type: none">• Router/Gateway IP Address• Hop Count (if not known, use maximum Hop count on Network)

If you elect to erase a Micro/PXN-2000 application code, refer to the FlashTool online help.

Important information for firewall users

If your installation requires ANY micro and its corresponding host to communicate through a firewall, then the firewall must be configured to allow for connections through the following range of ports: 6767 to 7800.

Note: Communication through firewalls was not verified by UL.

Currently, the following ports have been designated for use:

Table 10. For firewall users

Port	Name	Description
6767	Application (Picture Perfect)	Normal operation data port between micro and host.
6700-6709	Application (Secure Perfect)	Normal operation data port between micro and host.
6768	Key	Port for exchanging DES key information.
6868	Reserved	Future use port.
7777	Reserved	Future use port.

The following is a list of products that use these ports: GE micro firmware installation tools, Picture Perfect, Secure Perfect, Micro/5-PXN, M5PXNplus, Micro/PXN-2000, M2000PXNplus, and M3000PXNplus.

M2000PXNplus

The PXNplus CPU board provides direct-connect, dial-up, and network capabilities in one board.

The following are some product highlights:

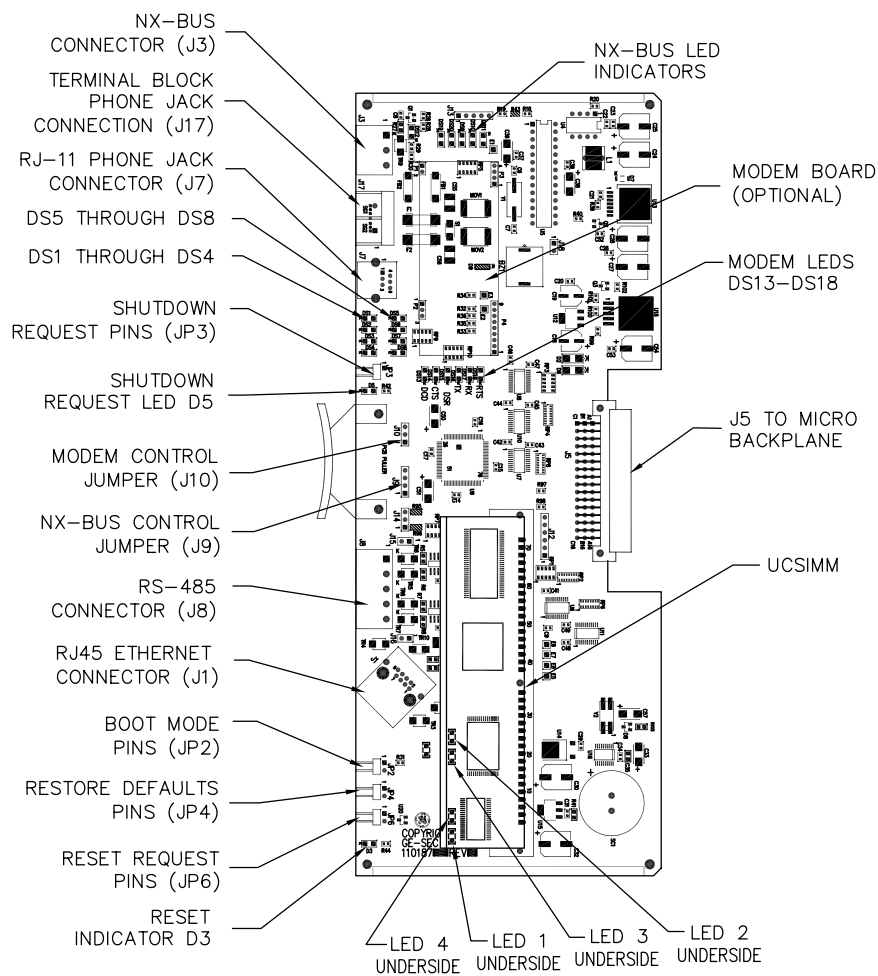
- Supports Ethernet networks.
- Supports the following network protocols: DHCP, TCP/IP, UDP, and DNS.
- Supports an optional, integrated modem board for dial-up connection or fallback dial-up.
- Provides nonvolatile storage which provides faster reset recovery and allows host-less operation.
- Utilizes a 32-bit platform which provides better response times and higher capacity.
- Allows for remote diagnostics.
- Supports up to seven downstream controllers using RS-232 or RS-422 serial connection and up to 64 readers.
- Provides a browser-based configuration tool. Refer to [Integrated Configuration Tool](#) on page 15.
- Works with either:
 - **Picture Perfect** Version 2.0 or later
 - **Secure Perfect** 6.1.1 or later.

Refer to the appropriate Administrator's Guide for configuration of this board within the software.

- Provides tunable offline history buffer.

Board layout

Figure 2. PXNplus CPU board layout



530575001D

Pins and jumpers

General purpose pins

Table 11. General purpose pins

Pins	Shorting these pins ...
JP2 Boot Mode	Returns the board to boot maintenance mode.
JP3 Shutdown Request	Stops the application and allows the board to be removed.
JP4 Restore Defaults	Returns the configuration to the factory defaults.
JP6 Hardware Reset	Reboots the CPU board.

Upstream configuration jumper - J10

Table 12. Upstream configuration jumper

J10	
Pins	Function
1 and 2 ¹	Upstream direct using connector J8 on the Integrated I/O board
	Externally-powered modem using connector J8 on the Integrated I/O board
	Micro-powered modem using connector J16 on the Integrated I/O board (Must use the GE modem kit!)
2 and 3	On-board modem on the PXNplus CPU board

1. This is the default setting. If the jumper is missing, the default setting is used.

Downstream configuration jumper - J9

Table 13. Downstream configuration jumper

J9	
Pins	Function
1 and 2 ¹	RS-232 using connector J9 on the Integrated I/O board
	RS-422 using connector J10 on the Integrated I/O board
2 and 3	Reserved - Do not use.
3 and 4	Reserved - Do not use.

1. This is the default setting. If the jumper is missing, the default setting is used.

LED indicators on the PXNplus CPU board

The LED state depends on the state of the micro. There are two micro states:


- **Maintenance mode:** The state of the micro before any application is running. There are two maintenance mode states:
 - **Boot maintenance mode** - Provides initial start-up of the PXNplus.
 - **OS (operating system) maintenance mode** - Is a uClinux operating system.
- **Normal operation state:** The state of the micro after the application is downloaded. Use the Integrated Configuration Tool to select the application.

Table 14 shows the LED state transitions.

Table 14. PXNplus CPU board LED normal state transitions

	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS8
During power up	ON	ON	ON	ON	ON	ON	ON	ON
Boot maintenance mode			ON					
OS (Operating system) maintenance mode		Alternates ON with DS3	Alternates ON with DS2				ON	
Normal operation state								
Micro offline	ON							
Address received		ON						
Badge read OK			ON					
Waiting for database				Flashing ¹				
Restore defaults requested				ON			ON	
Shutdown requested				ON				ON

1. For Picture Perfect systems: DS4 blinks once per second.
For Secure Perfect systems: DS4 blinks twice followed by a one-second delay before repeating.

 = OFF

Modem LED indicators on the PXNplus CPU board

Table 15. Modem LEDs on the PXNplus CPU board

LED number	Name	Description
DS13	DCD - Data Carrier Detect	Modems are connected.
DS14	CTS - Clear To Send	Modem is ready to send data.
DS15	DSR - Data Set Ready	When the modem is present, this LED is always On.
DS16	TX - Transmit	Modem is sending data.
DS17	RX - Receive	Modem is receiving data.
DS18	RTS - Request To Send	Micro is ready to send data.

UCSIMM board LED indicators on the PXNplus board

Table 16. LED indicators on the UCSIMM board

LED	LED2	LED3	LED4	LED1
Color	Yellow	Red	Red	Green
Purpose	100MB	Full Duplex	Collision	Link

Important information for firewall users

If your installation requires ANY micro and its corresponding host to communicate through a firewall, then the firewall must be configured to allow for connections through the following range of ports: 6767 to 7800. Currently, the following ports have been designated for use:

Table 17. For firewall users

Port	Name	Description
6767	Application (Picture Perfect)	Normal operation data port between micro and host.
6700-6709	Application (Secure Perfect)	Normal operation data port between micro and host.
6768	Key	Port for exchanging DES key information.
6868	Reserved	Future use port.
7777	Reserved	Future use port.

The following is a list of products that use these ports: GE micro firmware installation tools, Picture Perfect, Secure Perfect, Micro/5-PXN, M5PXNplus, Micro/PXN-2000, M2000PXNplus, and M3000PXNplus.

Integrated Configuration Tool

The Integrated Configuration Tool is a browser-based utility used to configure the PXNplus CPU board, update the firmware, and view the application log file. No need to track a separate program as this tool is located on the board and accessed through one of the browsers listed in the [Software requirements](#) section that follows.

Software requirements

One of the following:

- Microsoft Internet Explorer 6.0 or later
- Netscape 7.0 or later
- Mozilla 5.0 or later

Hardware requirements

One of the following:

- Cat5 cross-over cable for direct connection to a micro
- Standard Cat5 cable with hub

Default factory settings

The PXNplus board ships from the factory with the following default settings:

- **Primary Connection Type:** Ethernet
- **IP Address:** 192.168.6.6
- **Mask:** 255.255.255.0
- **Gateway:** 192.168.6.1

Before you continue

Answer these questions before continuing:

Is there a firewall on the computer you are using to access the Integrated Configuration Tool?

If yes, you will need to disable it in order to use the Integrated Configuration Tool.

Is your network using a proxy?

If yes, you will need to disable the proxy or bypass it.

Complete the [Configuration checklist for the Integrated Configuration Tool](#) on page 27 for each micro that you are setting up.

Initial configuration

1. By default, the micro IP address is 192 . 168 . 6 . 6. To have your laptop/computer communicate with the micro, you must set your laptop/computer IP address to 192 . 168 . 6 . 5, or similar valid IP address (192 . 168 . 6 . x where x is any number between 1 and 254 except 6).

For Windows 2000:

- a. Click **Start**, **Settings**, then **Network and Dial-up Connections**.
- b. Right-click on **Local Area Connection**. If the first option in the drop-down list box is:
 - Disable, then the connection is enabled. Go to *step c*.
 - Enable, then select it to enable the connection. Return to *step a*.
- c. Select **Properties** from the drop-down list box.
- d. In the section **Components checked are used in this connection**, select **Internet Protocol TCP/IP**.
- e. Click **Properties**.
- f. If this laptop/computer is set for:
 - DHCP, then the field **Obtain an IP address automatically** is already selected. Select **Use the following IP address**.
 - Static, write down the IP address and Subnet number. You need to reset your computer to these numbers once the micro configuration is complete.
- g. Enter the IP address 192 . 168 . 6 . 5, or a similar valid IP address (192 . 168 . 6 . x where x is any number between 1 and 254 except 6).
- h. Change the subnet mask to 255 . 255 . 255 . 0.
- i. You do not need to change the gateway.
- j. Click **Ok** until all open windows are closed.
- k. Go to *step 2*.

For Windows XP:

- a. Click **Start**, then **Control Panel**.
 - b. From the **Control Panel** window, select **Network Connections**.
 - c. Right-click on **Local Area Connection**. If the first option in the drop-down list box is:
 - Disable, then the connection is enabled. Go to *step c*.
 - Enable, then select it to enable the connection. Return to *step a*.
 - d. Select **Properties** from the drop-down list box.
 - e. In the section **This connection uses the following items:**, select **Internet Protocol TCP/IP**.
 - f. Select **Properties**.
 - g. If this laptop/computer is set for:
 - DHCP, then the field **Obtain an IP address automatically** is already selected. Select **Use the following IP address**.
 - Static, write down the IP address and Subnet number. You need to reset your computer to these numbers once the micro configuration is complete.
 - h. Enter the IP address 192 . 168 . 6 . 5, or a similar valid IP address (192 . 168 . 6 . x where x is any number between 1 and 254 except for 6).
 - i. Change the subnet mask to 255 . 255 . 255 . 0.
 - j. You do not need to change the gateway.
 - k. Click **Ok** until all open windows are closed.
2. Connect the Cat5 cross-over cable from the Ethernet port on your laptop or computer directly to the micro Ethernet port (no hub or switch).
 3. If your micro is not yet powered up, do so now.
 4. Open an Internet browser window on your laptop/computer.
 5. In the browser Address field, enter the default static IP address of the micro: 192 . 168 . 6 . 6
 6. The Integrated Configuration Tool starts. At the password screen, enter your username and password. The default is `install`, `install`. We recommend that you change this default.
 7. Continue with the appropriate configuration section that follows.

Network configuration

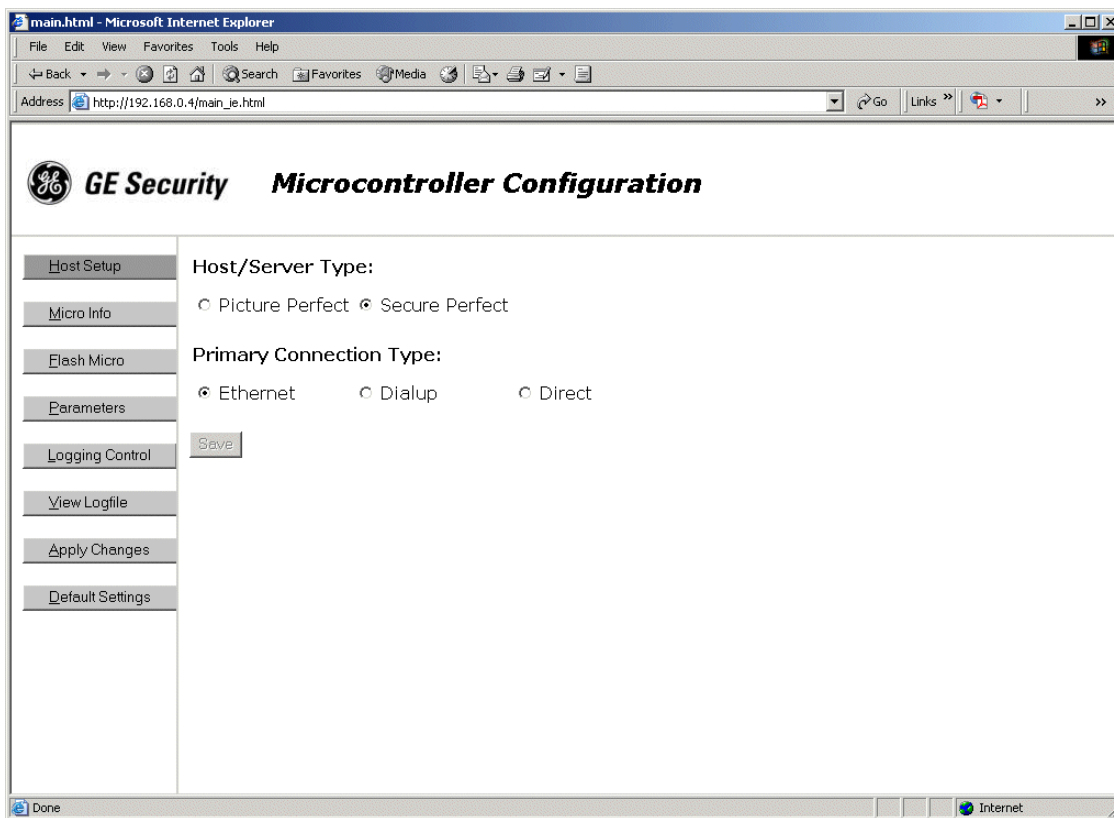
In order to configure the micro as networked, you must complete these screens (the steps are detailed in the sections that follow):

Note: If you start with the Host setup tab, the next recommended tab to configure displays in yellow.

- **Host setup:** Select the software package and network.
- **Parameters:** The setup depends on whether the IP address is static or dynamic.
- **Dialup:** If using the optional dial-up fallback feature, you must complete the Dialup tab also.
- **Micro address:** Set the micro address. (Required for Picture Perfect network micros using dial-up fallback and all Secure Perfect micros.)

Note: The **Save** button saves the information for each screen in a configuration file in your micro. These changes are not used unless you click the **Apply Changes** button! The **Apply Changes** button performs a soft boot of the micro. The micro then reads the configuration file and applies any new changes found in the file. To remind you to click the **Apply Changes** button after you make configuration changes, the button turns to pink.

Figure 3. Host setup window



1. From the **Host Setup** screen, select the software package you are using in the **Host/Server Type** field.
2. In the **Primary Connection Type** field, select **Ethernet**.
3. Click **Save**.
4. If this completes your micro configuration, click **Apply Changes** now.

Parameters

The network micro can be configured with a static or dynamic IP address.

Figure 4. Parameters/Network window

1. Click **Parameters** and the **Network** tab displays.
2. In the **Micro Information** area, set the micro name or address. Perform one of the following:
 - For a dynamic micro IP address, select **Use DHCP**.
To name the micro, perform one of the following:
 - Enter a unique name in the **Micro Name** field.
 - Select the checkbox **Use MAC** and the micro name is generated from the Micro MAC address. A MAC address (media access control address) is a unique identifier attached to most forms of networking equipment. The MAC address for your PXNplus board can be found in the **Micro MAC** field. This option disables the **Micro Name** field.

Note: Give this name or MAC address to your Network Administrator so that it can be added to the DNS database.
 - For a static micro IP address, enter the IP address of the micro given to you by your Network Administrator in the **Micro IP** field.
3. If using a gateway, you may accept the gateway IP generated based on the micro IP or you may enter a gateway IP address in the **Gateway** field.
4. If using a subnet mask, you may accept the subnet mask generated based on the micro IP or you may enter a subnet mask in the **Subnet** field.
5. If using Secure Perfect, skip to *step 7*. If using Picture Perfect, you must set the host name or address in the **Host Information** area. Perform one of the following:
 - For a dynamic host IP address, select the **Use DNS** checkbox and enter the host name in the **Host Name** field. This option disables both the **Host IP** and **Backup Host IP** fields.
If you set up a static IP address in the Micro Information section, you will also need to enter the domain for the host in the **Domain** field and the DNS IP address in the **DNS IP** field. If DHCP was selected, this is not necessary.
 - For a static host IP address, enter the IP address in the **Host IP** field.
6. To set the backup host name or address, perform one of the following:
 - If you selected the **Use DNS** checkbox in the previous step, enter the backup host name in the **Backup Host Name** field.
 - Enter the IP address in the **Backup Host IP** field.

7. Click **Save**.
8. If this completes your micro configuration, click **Apply Changes** now.

Once you click the **Apply Changes** button, the micro reboots and applies the new address changes. The Integrated Configuration Tool shuts down and you will need to log back in if you need to continue working with the Integrated Configuration Tool.

Dial-up fallback

Figure 5. Parameters/Dialup window

1. Click **Parameters**, then **Dialup**.
2. In the **Phone # 1** field, enter the phone number for the host computer. Use the format: aaa-nnn-nnnn (for example, 561-555-5555)
3. If there is an additional phone number to reach the host, enter in the field **Phone # 2**, otherwise, leave the field blank.
4. The fields **Modem Init String** and **Modem Deinit String** require values only if you are NOT using the optional modem board or the GE qualified StarComm modem.
5. Click **Save**.
6. If this completes your micro configuration, click **Apply Changes** now.

Micro address

Figure 6. Micro Info window

main.html - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://192.168.0.4/main_ie.html Go Links >>

GE Security Microcontroller Configuration

Host Setup Micro Info Flash Micro Parameters Logging Control View Logfile Apply Changes Default Settings

Micro Address:

Micro Type:

Micro Status:

BUILD:

PP Version:

SP Version:

COM1 Baud Rate:

Other Info:

Save

Done Internet

Note: If this is a Picture Perfect network micro only (dial-up fallback is NOT used), then you do not need to set the micro address.

1. Click **Micro Info**.
2. Enter the micro address in the **Micro Address** field.
3. Click **Save**.
4. If this completes your micro configuration, click **Apply Changes** now.

Dial-up configuration

In order to configure the micro as dial-up, you must complete these screens (the steps are detailed in the sections that follow):

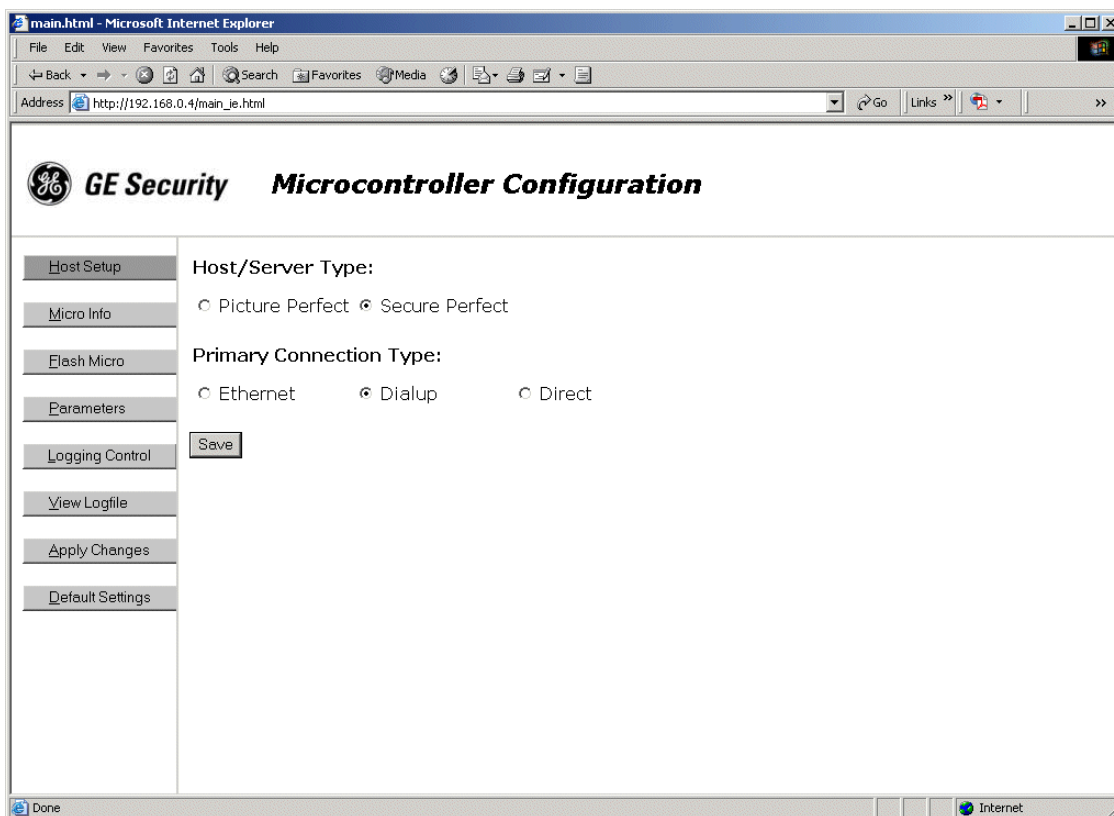
Note: If you start with the Host Setup tab, the next recommended tab to configure displays in yellow.

- **Host setup:** Select the software package and Dialup.
- **Micro address:** Set the micro address.
- **Parameters/Dialup:** Set the dial-up options.

Note: The **Save** button saves the information for each screen in a configuration file in your micro. These changes are not used unless you click the **Apply Changes** button! The **Apply Changes** button performs a soft boot of the micro. The micro then reads the configuration file and applies any new changes found in the file. To remind you to click the **Apply Changes** button after you make configuration changes, the button turns to pink.

Host setup

Figure 7. Host setup window



1. From the **Host Setup** screen, select the software package you are using in the **Host/Server Type** field.
2. In the **Primary Connection Type** field, select **Dialup**.
3. Click **Save**.
4. If this completes your micro configuration, click **Apply Changes** now.

Micro address

Figure 8. Micro Info window

main.html - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites Media Print Mail

Address http://192.168.0.4/main_ie.html Go Links

GE Security Microcontroller Configuration

Host Setup Micro Address: 1

Micro Info Micro Type: PXNplus

Micro Status: OFFLINE

Flash Micro BUILD: R000204

Parameters PP Version: 301.09

SP Version: 06.10

Logging Control COM1 Baud Rate: 19200

View Logfile

Apply Changes Other Info: None

Default Settings Save

Done Internet

1. Click **Micro Info**.
2. Enter the micro address in the **Micro Address** field.
3. Click **Save**.
4. If this completes your micro configuration, click **Apply Changes** now.

Dial-up parameters

Figure 9. Parameters/Dialup window

1. Click **Parameters**, then **Dialup**.
2. In the **Phone # 1** field, enter the phone number for the host computer.
Use the format: aaa-nnn-nnnn (for example, 561-555-5555).
3. If there is an additional phone number to reach the host, enter in the field **Phone # 2**, otherwise, leave the field blank.
4. The fields **Modem Init String** and **Modem Deinit String** require values only if you are NOT using the optional modem board or the GE qualified StarComm modem.
5. Click **Save**.
6. If this completes your micro configuration, click **Apply Changes** now.

Direct configuration

In order to configure the micro as direct, you must complete these screens (the steps are detailed in the sections that follow):

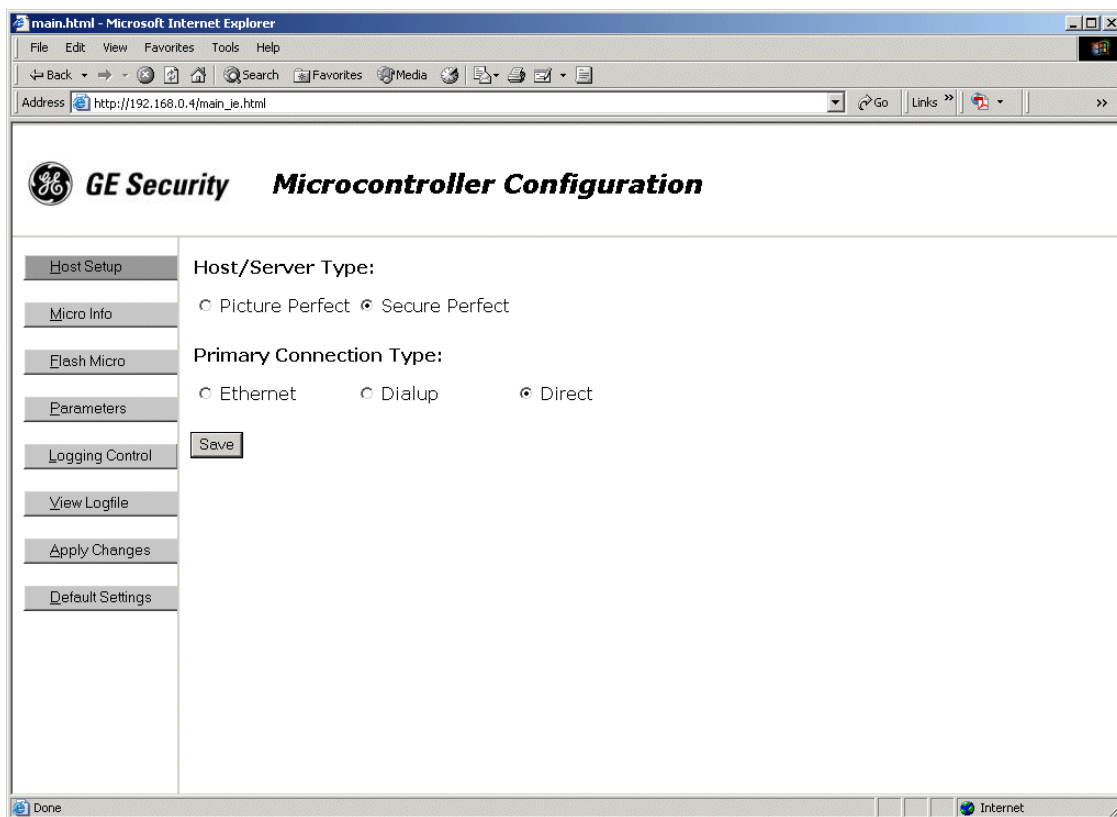
Note: If you start with the Host setup tab, the next recommended tab to configure displays in yellow.

- **Host setup:** Select the software package and Direct.
- **Micro address:** Set the micro address. (Secure Perfect only!)

Note: The **Save** button saves the information for each screen in a configuration file in your micro. These changes are not used unless you click the **Apply Changes** button! The **Apply Changes** button performs a soft boot of the micro. The micro then reads the configuration file and applies any new changes found in the file. To remind you to click the **Apply Changes** button after you make configuration changes, the button turns to pink.

Host setup

Figure 10. Host setup window



1. From the **Host Setup** screen, select the software package you are using in the **Host/Server Type** field.
2. In the **Primary Connection Type** field, select **Direct**.
3. Click **Save**.
4. If this completes your micro configuration, click **Apply Changes** now.

Micro address (Secure Perfect only)

Figure 11. Micro Info window

GE Security Microcontroller Configuration

Host Setup	Micro Address:	<input type="text" value="1"/>
Micro Info	Micro Type:	<input type="text" value="PXNplus"/>
Flash Micro	Micro Status:	<input type="text" value="OFFLINE"/>
Parameters	BUILD:	<input type="text" value="R000204"/>
Logging Control	PP Version:	<input type="text" value="301.09"/>
View Logfile	SP Version:	<input type="text" value="06.10"/>
Apply Changes	COM1 Baud Rate:	<input type="text" value="19200"/>
Default Settings	Other Info:	<input type="text" value="None"/>
		<input type="button" value="Save"/>

1. Click **Micro Info**.
2. Enter the micro address in the **Micro Address** field.
3. Click **Save**.
4. If this completes your micro configuration, click **Apply Changes** now.

Regulatory information

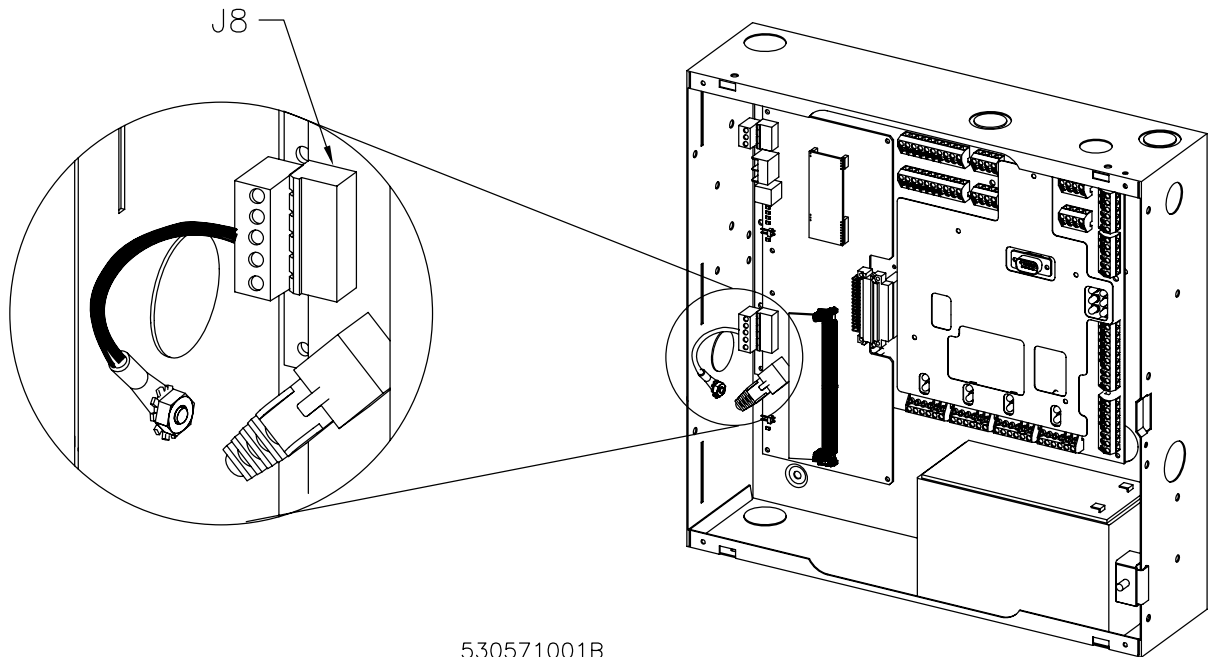
FCC compliance

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case, the user is required to correct the interference at his/her own expense.

CE compliance

The CPU board must be grounded with a factory-installed braided wire as shown in *Figure 12*.

Figure 12. Location and grounding of the CPU board



UL information

For the Micro/PXN-2000, only downstream RS-232 communication was verified by UL.

Configuration checklist for the Integrated Configuration Tool

In order to complete micro configuration using the Integrated Configuration Tool, you will need the following information:

Secure Perfect			
Communication type	Information needed	Write your answer here	
Direct	Micro address:		
Dial-up	Micro address:		
	Phone number to reach host:		
	Secondary phone number to reach host:		
Ethernet	Use DHCP: NO Use DNS: NO	Micro IP:	
		Gateway:	
		Subnet:	
		Host IP: (Optional)	
	Use DHCP: YES Use DNS: YES	Micro Name or Micro MAC which is provided for you:	
		Host Name: (Optional)	
	Use DHCP: NO Use DNS: YES	Micro IP:	
		Gateway:	
		Subnet:	
		Host Name: (Optional)	
		Domain: (Optional)	
		DNS IP: (Optional)	
	Use DHCP: YES Use DNS: NO	Micro Name or Micro MAC which is provided for you:	
		Host IP: (Optional)	

Picture Perfect			
Communication type	Information needed	Write your answer here	
Direct	No further configuration needed.		
Dial-up	Micro address:		
	Phone number to reach host:		
	Secondary phone number to reach host:		
Ethernet	Use DHCP: NO Use DNS: NO	Micro IP:	
		Gateway:	
		Subnet:	
		Host IP:	
		Backup Host IP (Redundant system):	
	Use DHCP: YES Use DNS: YES	Micro Name or Micro MAC which is provided for you:	
		Host Name:	
		Backup Host Name (Redundant system):	
	Use DHCP: NO Use DNS: YES	Micro IP:	
		Gateway:	
		Subnet:	
		Host Name:	
		Backup Host Name (Redundant system):	
		Domain	
		DNS IP	
	Use DHCP: YES Use DNS: NO	Micro Name or Micro MAC which is provided for you:	
		Host IP:	
		Backup Host IP (Redundant system):	

Technical support

Toll-free: 888.GESECURITY (888.437.3287 in the US, including Alaska and Hawaii; Puerto Rico; Canada).
Outside the toll-free area: Contact your local dealer.

www.gesecurity.com