

Liebert® IntelliSlot® Web Cards

Installation Manual — Liebert IntelliSlot Web Card, Liebert IntelliSlot Web Card-LB,
Liebert IntelliSlot Web Card-LBDS, Liebert IntelliSlot Web/485 Card-ADPT

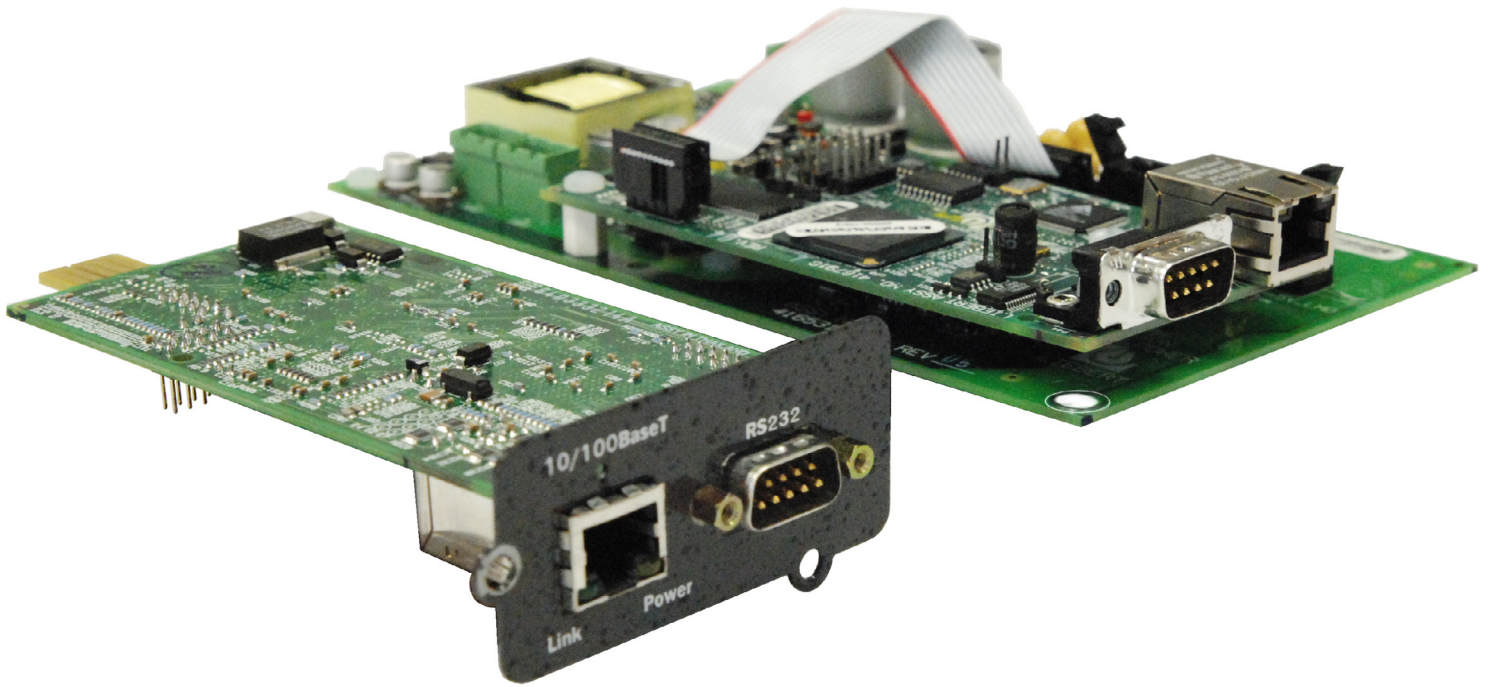


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IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS



WARNING

Only a qualified service professional should install these products. Liebert recommends having an Emerson Network Power Liebert Services representative perform the installation in large UPSs. Contact Liebert Services at 1-800-LIEBERT (1-800-543-2378).



WARNING

Risk of electric shock. Can cause equipment damage, injury or death.

Service and maintenance work must be performed only by properly trained and qualified personnel and in accordance with applicable regulations and manufacturers' specifications.

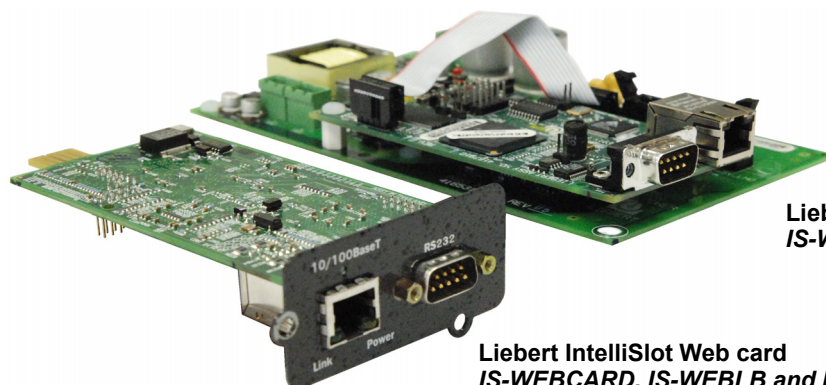
Opening or removing the covers to any equipment may expose personnel to lethal voltages within the unit even when it is apparently not operating and the input wiring is disconnected from the electrical source.

Check the circuits with a voltmeter before beginning installation.

1.0 INTRODUCTION

The Liebert® IntelliSlot® Web Card family delivers enhanced communications and control to Liebert AC Power and Precision Cooling systems.

Liebert IntelliSlot Web cards bring SNMP, Telnet and Web-management capability to many models of Liebert power and cooling equipment. The cards employ an Ethernet network to monitor and manage a wide range of operating parameters, alarms and notifications.



**Liebert IntelliSlot Web/485 Card With Adapter
IS-WEB485ADPT**

**Liebert IntelliSlot Web card
IS-WEBCARD, IS-WEBLB and IS-WEBLBDS**

1.1 Compatibility With Liebert Equipment

The Liebert IntelliSlot Web Card family, formerly the OpenComms line, includes:

- **Liebert IntelliSlot Web Card**
Compatible with these Liebert UPS models: Liebert PowerSure PSI™, Liebert GXT™, Liebert GXT™ 6kVA & Liebert GXT™ 10kVA, Liebert GXT2U™ and Liebert Nfinity®
- **Liebert IntelliSlot Web Card-LB**
Compatible with the Liebert NX™ and Liebert Hinet™ UPS models
- **Liebert IntelliSlot Web Card-LBDS**
Compatible with the Liebert DS™ Precision Cooling unit and the Liebert XDF™
- **Liebert IntelliSlot Web/485 Card-ADPT**
Compatible with Liebert AC Power and Precision Cooling systems not equipped with a Liebert IntelliSlot port

Table 1 Liebert IntelliSlot card communication protocols

Liebert IntelliSlot Card	Part Number	Communication Protocol						
		SNMP	HTTP	HTTPS	Modbus	E-mail	SMS	Telnet
Liebert IntelliSlot Web Card	IS-WEBCARD	✓	✓	✓	—	✓	✓	✓
Liebert IntelliSlot Web Card-LB	IS-WEBLB	✓	✓	✓	—	✓	✓	✓
Liebert IntelliSlot Web Card-LBDS	IS-WEBLBDS	✓	✓	—	—	—	—	✓
Liebert IntelliSlot Web/485 Card With Adapter	IS-WEB485ADPT	✓	✓	—	✓	—	—	✓

Liebert IntelliSlot Web cards support both 10Mbit and 100Mbit communication speeds and either half or full duplex.



NOTE

See online demonstrations of Web cards installed in Liebert equipment at:

<http://demos.liebert.com>

1.2 Web Support

The Liebert IntelliSlot Web card delivers Web management and control to Liebert equipment. All authorized users on your network will be able to view status information.

1.3 Password Protection

Control and configuration capabilities are protected by a username and password combination. Optionally, status information can be password-protected. The default username is “Liebert” and the default password is also “Liebert.”

You can change the password using the terminal emulation, Telnet or Web interface. See **5.7 - Change Username / Password** for details.



NOTE

Change the username and password today to prevent unauthorized access.

1.4 SNMP Support

The Liebert IntelliSlot Web card enables SNMP management of Liebert equipment. To integrate the card into your SNMP implementation, compile the Liebert Global Products MIB on your network management station (NMS).

The Liebert Global Products MIB is included in this package on CD-ROM and supports both Windows and Unix file formats.

1.5 Liebert Nform™ Support

Utilizing the SNMP and Web technologies built into each of the Liebert IntelliSlot Web cards, Liebert Nform will centrally manage alarm notifications to provide you with an easy interface to access critical system information.

A downloadable edition is available online at:

nform.liebert.com

1.6 Liebert MultiLink™ Support

The Liebert IntelliSlot Web card integrates with Liebert’s MultiLink software to provide unattended, graceful operating system shutdown of PCs, servers and workstations. The card can be monitored by MultiLink over the network, eliminating the need for serial cables.

For more information on MultiLink and a downloadable version of MultiLink software, visit the MultiLink page at:

multilink.liebert.com

1.7 Liebert SiteScan® Web With Modbus Support - IS-WEB485ADPT only

The Liebert IntelliSlot Web/485 Card With Adapter integrates with Liebert’s SiteScan Web software using Modbus to monitor trends for analysis and maintenance to ensure high-availability operation of critical facilities.

For more information on SiteScan Web and Modbus integration, visit the SiteScan Web page at:

sitescan.liebert.com

2.0 INSTALLATION



WARNING

Only a qualified service professional should install these products. Liebert recommends having a Liebert Services representative perform the installation in large UPSs. Contact Liebert Services at 1-800-LIEBERT (1-800-543-2378).

2.1 Install a Liebert IntelliSlot Web Card—Non-Adapter Version

Follow these steps to install a Liebert IntelliSlot Web card (non-adapter version—P/N IS-WEBCARD, IS-WEBLB and IS-WEBLBDS).

1. Locate the Liebert IntelliSlot option bay on your Liebert equipment—You might need to remove a plastic cover.
2. Insert the Liebert IntelliSlot Web Card into the Liebert IntelliSlot bay.
3. Secure the card with the supplied screws.
4. Connect an Ethernet cable.

DHCP: The card ships with DHCP service enabled. The MAC address is on a sticker on the top of the card.

OR

Static IP: To assign a static IP address or hostname, use terminal emulation software to configure the card, as described in **Sections 2.1.1** and **2.1.2**.

2.1.1 Connect the Cable

1. Locate the blue serial configuration cable (null modem) that shipped with the card.
2. Connect the configuration cable to the DB-9 port on the card and to a COM port on your PC.



2.1.2 Prepare the Card for Configuration

- Use terminal emulation software, such as Microsoft® HyperTerminal, to open a connection to the card with the settings in **Table 2**.

Table 2 Communication settings

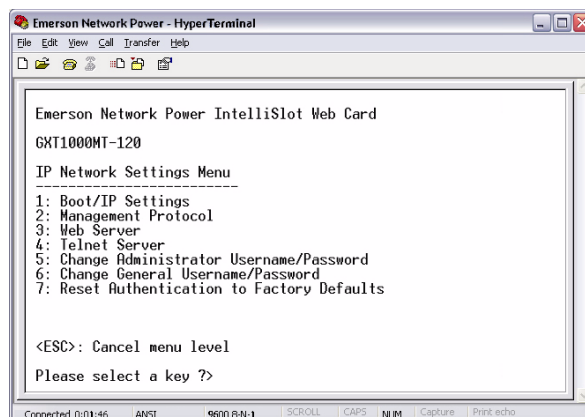
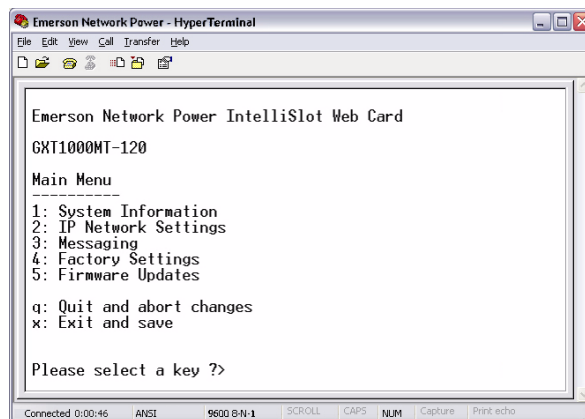
Baud Rate:	9600
Data Bits:	8
Parity:	None
Stop Bits:	1
Flow Control:	None

- Press the Enter key for the Main Menu, above right.
- Select **IP Network Settings**, then **Boot/IP Settings** and follow the instructions to enter an IP ADDRESS, NETMASK and GATEWAY.
- Press Esc to return to the Main Menu.
- Choose **Exit and Save** to save your changes and reboot the card.



NOTE

When installing the card in a Liebert NX™, configure the communication port of NX to 2400 baud. See the NX user manual for details.



2.2 Install a Liebert IntelliSlot Web/485 Card With Adapter

WARNING

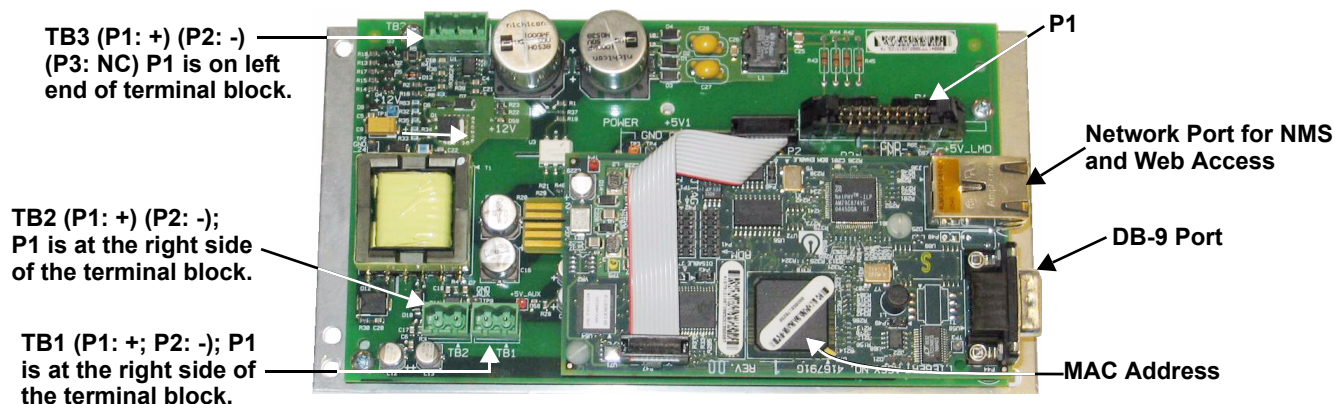
Risk of electric shock. Can cause equipment damage, injury or death.

Service and maintenance work must be performed only by properly trained and qualified personnel and in accordance with applicable regulations and manufacturers' specifications. Opening or removing the covers to any equipment may expose personnel to lethal voltages within the unit even when it is apparently not operating and the input wiring is disconnected from the electrical source.

Check the circuits with a voltmeter before beginning installation.

Follow these steps to install a Liebert IntelliSlot Web/485 Card With Adapter (P/N IS-WEB485ADPT).

- Locate the adapter mounting location in your Liebert equipment.
- Secure the Liebert IntelliSlot Web/485 Card With Adapter with the supplied screws.
- Connect the equipment's communication cable to the TB1 terminal block or P1 on the card (see the user manual for the Liebert power or cooling unit for details).
- Connect a Modbus (RS-485) cable to the TB2 terminal block.
- Connect an input power supply cable to Pins 1 & 2 on the TB3 terminal block; Pin 1 is at the far left, and Pin 2 is the middle pin.



2.2.1 Connect the Cable

1. Locate the blue serial configuration cable (null modem) that shipped with the card.
2. Connect the configuration cable to the DB-9 port on the card and to a COM port on your PC.

2.2.2 Prepare the Card for Configuration

1. Use terminal emulation software, such as HyperTerminal, to open a direct connection to the card with the settings in **Table 3**.
2. Press the Enter key for the Main Menu.
3. Select **485 Network Settings** to access the communications settings.
4. Select **Enabled Application**.
5. Select **Modbus Server** to enable the Modbus application.
6. At the next screen, select **Server ID** (the default Server ID is 1, but may be any number up to 255).
7. Press Esc to return to the Main Menu.
8. Select **IP Network Settings**, then **Boot/IP Settings** and follow the instructions to enter an IP ADDRESS, NETMASK and GATEWAY.
9. Press Esc to return to the Main Menu.
10. Choose **Exit and Save** to save your changes and reboot the card.

Table 3 Communication settings

Baud Rate:	9600
Data Bits:	8
Parity:	None
Stop Bits:	1
Flow Control:	None






NOTE

When installing the card in a Liebert NX™, configure the communication port of NX to 2400 baud. See the NX user manual for details.

3.0 CONFIGURATION OVERVIEW

You may use any of the following interfaces to configure the Web card:

Table 4 Configuration interfaces

Interface	Icon	Description	Available Functions	Connection Methods
Terminal Emulation (Serial or TCP/IP)		Use terminal emulation software—for example, HyperTerminal.	Configuration	Serial Cable or TCP/IP
Telnet		Use a command prompt—enter “telnet” and the IP address or hostname.	Configuration	TCP/IP
Web		Use a Web browser—for example, Microsoft® Windows® Internet Explorer®.	Configuration, Monitoring, Control	TCP/IP

Each configuration section provides instructions using the **Terminal Emulation (Serial or TCP/IP Connection) / Telnet Interface**, along with a brief description of how to access the same function through the **Web Interface**.



NOTE

The Terminal Emulation and Telnet interfaces present the same menus and choices.

3.1 Guide to Configuration

Refer to the following guide for details on configuration functions. **Sections 3.4 to 3.5** describe how to get started with each interface.

Table 5 Guide to configuration details

Topic	Section	Page:
Connecting to an interface	3.2 - Open the Terminal Emulation Interface - Serial Connection	7
	3.3 - Open the Terminal Emulation Interface - TCP/IP Connection	8
	3.4 - Open the Telnet Interface	9
	3.5 - Open the Web Interface	10
Saving configuration changes	3.6 - Saving Changes and Reinitializing the Web Card	10
Performing configuration functions	4.0 - System Information	11
	5.0 - Network Settings	12
	6.0 - Messaging	28
	7.0 - Factory Settings	34
	Appendix A - - Firmware Updates	A1

3.2 Open the Terminal Emulation Interface - Serial Connection

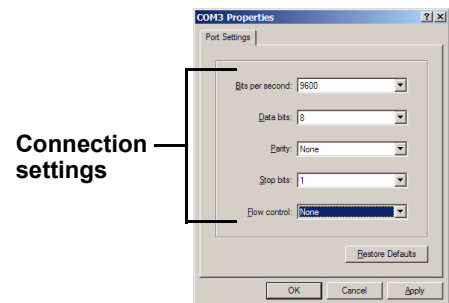
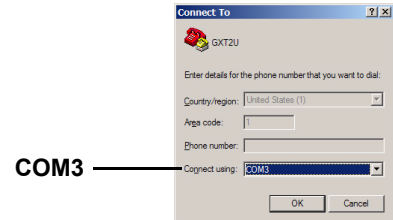
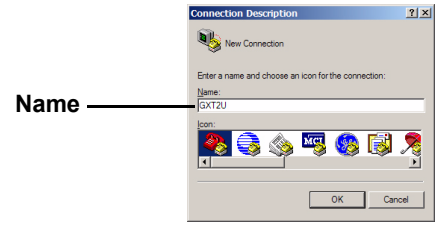
To access configuration using terminal emulation software with a serial connection to the Web card:

1. Open a terminal emulation application, such as HyperTerminal.
 - To do this:
 - Click the **Start** button, then **Programs, Accessories, Communications** and finally **HyperTerminal**.
2. In the Connection Description window, enter a name for the connection—for example, **GXT2U**—then click **OK**.
3. In the Connect To window:
 - Choose **COM3** from the Connect Using drop-down list.
 - Click **OK**.
4. In the COM3 Properties window, enter the communication settings shown in **Table 6**.

Table 6 Communication settings

Baud Rate:	9600
Data Bits:	8
Parity:	None
Stop Bits:	1
Flow Control:	None

5. When the message at right appears in the HyperTerminal window, press the Enter key.
6. In the Main Menu, enter the number that corresponds to your choice. Refer to **3.1 - Guide to Configuration** for details on each function.
7. After making changes, return to the Main Menu and choose **Exit and Save** to reboot the Web card and put your changes into effect (see **3.6 - Saving Changes and Reinitializing the Web Card**).



```
RTCS v2.96.00 Telnet server
Service Port Manager Active
<Esc> Ends Session
```

```
Main Menu
-----
1: System Information
2: IP Network Settings
3: Messaging
4: Factory Settings
5: Firmware Updates

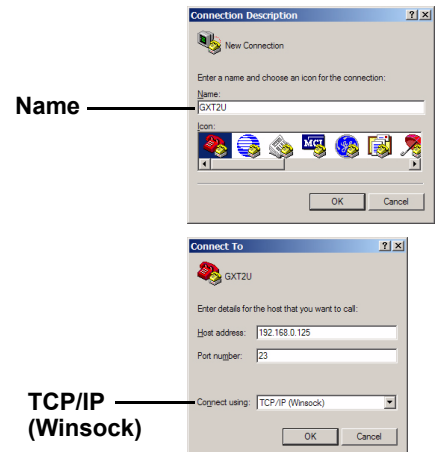
q: Quit and abort changes
x: Exit and save

Please select a key ?>
```

3.3 Open the Terminal Emulation Interface - TCP/IP Connection

To access configuration using terminal emulation software with an Ethernet connection to the Web card:

1. Open a terminal emulation application, such as HyperTerminal.
To do this:
 - Click the **Start** button, then **Programs, Accessories, Communications** and finally **HyperTerminal**.
2. In the Connection Description window, enter a name for the connection—for example, **GXT2U**—then click **OK**.
3. In the Connect To window:
 - Choose **TCP/IP (Winsock)** from the Connect Using drop-down list.
 - Enter the IP address or hostname of the Web card—for example, **192.168.0.125**—in the Host Address box, then click **OK**.



4. When the message at right appears in the HyperTerminal window, press the Enter key.
5. Enter the Administrator username and password (both are case-sensitive):
 - a. **Login** (username—default is *Liebert*)
 - b. **Password** (default is *Liebert*)

```
RTCS v2.96.00 Telnet server
Service Port Manager Active
<ESC> Ends Session
```

```
Login: Liebert
Password: *****
```

 **NOTE**
For security, change the default username and password (see 5.7 - *Change Username / Password*).

6. In the Main Menu, enter the number that corresponds to your choice. Refer to 3.1 - **Guide to Configuration** for details on each function.
7. After making changes, return to the Main Menu and choose **Exit and Save** to reboot the Web card and put your changes into effect (see 3.6 - **Saving Changes and Reinitializing the Web Card**).

```
Main Menu
-----
1: System Information
2: IP Network Settings
3: Messaging
4: Factory Settings
5: Firmware Updates

q: Quit and abort changes
x: Exit and save

Please select a key ?>
```

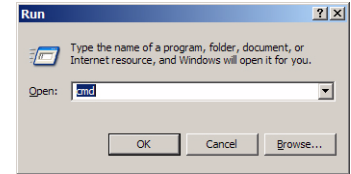
3.4 Open the Telnet Interface

To access configuration using Telnet:

1. Open a Telnet connection on a computer with an Ethernet connection to the Liebert unit.

To do this:

- Open a command prompt window—click the **Start** button, then **Run**.
- Enter **cmd** and click **OK**.
- In the command prompt window that opens, enter **telnet** followed by a space and the IP address or hostname of the Web card—for example:



telnet 192.168.0.125

2. When the message at right appears in the command prompt window, press the Enter key.
3. Enter the Administrator username and password (both are case-sensitive):
 - a. **Login** (username—default is *Liebert*)
 - b. **Password** (default is *Liebert*)

```
C:>telnet 192.168.0.125
```

```
RTCS v2.96.00 Telnet server
Service Port Manager Active
<ESC> Ends Session
```

```
Login: Liebert
Password: *****
```



NOTE

*For security, change the default username and password (see 5.7 - **Change Username / Password**).*

4. In the Main Menu, enter the number that corresponds to your choice. Refer to **3.1 - Guide to Configuration** for details on each function.
5. After making changes, return to the Main Menu and choose **Exit and Save** to reboot the Web card and put your changes into effect (see **3.6 - Saving Changes and Reinitializing the Web Card**).

```
Main Menu
-----
1: System Information
2: IP Network Settings
3: Messaging
4: Factory Settings
5: Firmware Updates

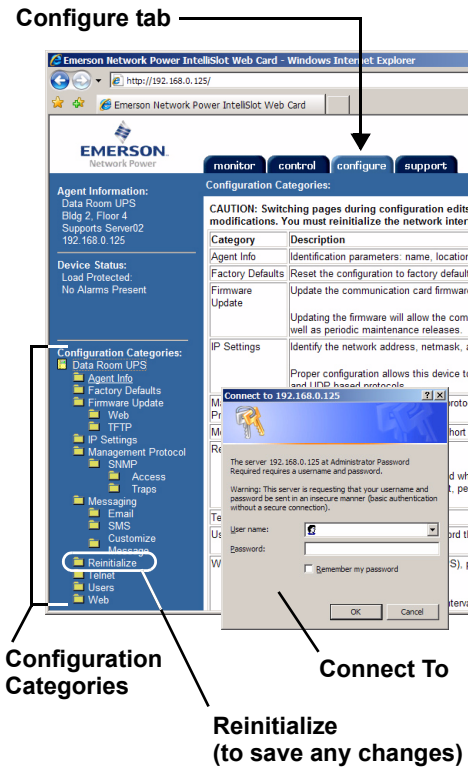
q: Quit and abort changes
x: Exit and save

Please select a key ?>
```

3.5 Open the Web Interface

To access configuration using the Web interface:

1. Open a Web browser such as Internet Explorer, then enter the IP address or hostname of the Web card in the address bar—e.g., **http://192.168.0.125**.
 2. Click on the **Configure** tab, shown at right. Configuration Categories appear in the left panel, organized with folder icons.
 3. Click on any configuration category, and the Connect To box opens.
 4. Enter the Administrator username and password (both case-sensitive):
 - a. **User Name** (default is *Liebert*)
 - b. **Password** (default is *Liebert*)
- NOTE**
For security, change the default username and password (see 5.7 - *Change Username / Password*).
5. Click **OK**.
 6. Refer to **3.1 - Guide to Configuration** for details on each function.
 7. After making changes, click the **Save** button, then click on **Reinitialize** to reboot the Web card and put your changes into effect (see 3.6 - *Saving Changes and Reinitializing the Web Card*).

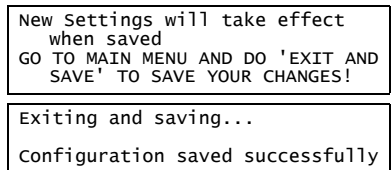


3.6 Saving Changes and Reinitializing the Web Card

Follow the applicable steps for your interface to save configuration changes and reinitialize the Web card. Changes will not take effect until these steps are completed.

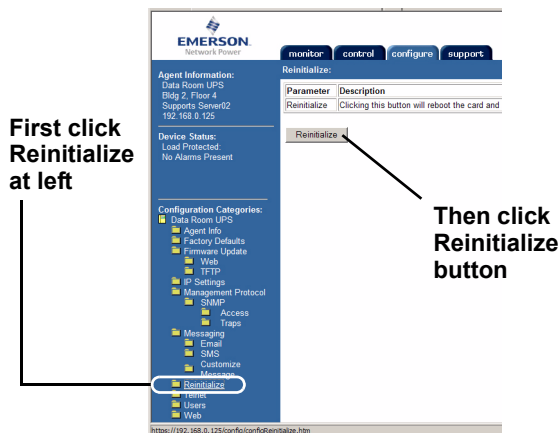
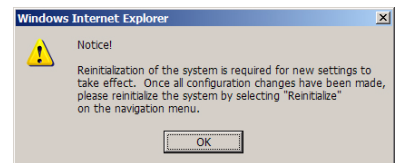
Terminal Emulation (Serial or TCP/IP Connection) / Telnet

- After each change is made, a reminder appears (shown at right).
- Return to the Main Menu, then choose **Exit and Save**. A message appears and remains until the card is reinitialized, followed by a message that the process was successful.

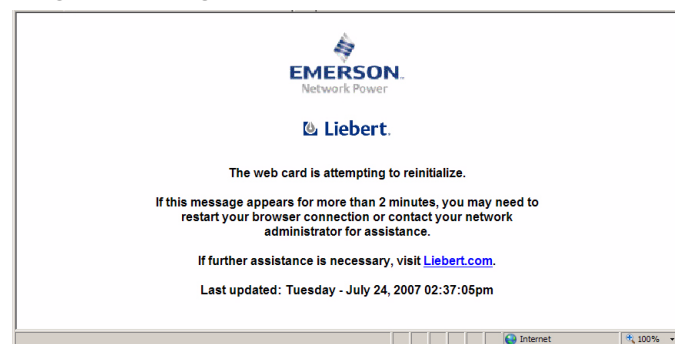


Web Interface

- After making each change, click the **Save** button. A reminder appears each time you make a change (shown at right).
- Without leaving the Configure tab window (below left), click **Reinitialize** in the left panel, then click the **Reinitialize** button at right to reboot the Web card and put your changes into effect.



Progress message window



- A message window appears, shown above right, and remains until the card is reinitialized.

4.0 SYSTEM INFORMATION

System Information is optional and identifies the Liebert unit, its location, a contact person and other information about the unit. The default value of each field is “Uninitialized.”



NOTE

This information also configures the SNMP parameters `sysName`, `sysContact`, `sysDescr`, and `sysLocation` available using RFC-1213 MIB II.

```

System Information Menu
-----
1: Name           Uninitialized
2: Contact        Uninitialized
3: Location       Uninitialized
4: Description    Uninitialized

<ESC>: Cancel menu level
Please select a key ?>
  
```



Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To edit any field in this category:

1. From the Main Menu, choose **System Information**.
2. Enter the number that corresponds to your choice, then enter the identifying information, using the following as a guide.

Table 7 System information identifiers

Item	Description	Maximum Length
Name	A name for the Liebert unit	255 characters*
Contact	A contact person or department responsible for maintenance and operation of the Liebert unit	64 characters*
Location	The location of the Liebert unit	64 characters*
Description	Other useful information about the unit for quick reference	64 characters*

* Valid characters include spaces and other printable characters except double quotes (").



Web Interface

To access System Information through the Web interface:

- Click on the **Configure** tab, then **Agent Info** in the left panel and finally **Edit** in the right panel. After making changes, click **Save**.

Configure tab

Agent Info

Edit

EMERSON Network & Power

monitor control **configure** support

Agent Information:
Data Room UPS
Bldg 2, Floor 4
Supports Server02
192.168.0.125

Device Status:
Load Protected.
No Alarms Present

Configuration Categories:
Uninitialized
Agent Info
Factory Defaults
Firmware Update
Web
TFTP
IP Settings
Management Protocol
SNMP
Access
Traps
Messaging
Email
SMS
Customize
Message
Reinitialize
Telnet
Users
Web

Agent Information:

Parameter	Description
Name:	Name to refer to the agent/device. Your system administrator may use a convention. Note: The maximum length of the entry is 255 characters including spaces
Contact:	Person responsible for maintenance and operation of the agent/device, who facility administrator or the vendor from whom you purchased the device. Note: The maximum length of the entry is 64 characters including spaces
Location:	Description of the location of the agent/device. Note: The maximum length of the entry is 64 characters including spaces
Description:	Other information useful for record keeping or quick reference. Note: The maximum length of the entry is 64 characters including spaces maybe longer depending on the device. Note: The values described above can be composed of printable character double quote.

Name: Data Room UPS
Contact: Network Svcs x100
Location: Bldg 2, Floor 4
Description: Supports Server02

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5.0 NETWORK SETTINGS

The IP Network Settings Menu is used to enable network communications with the Web card.

Refer to the following sections for detailed step-by-step instructions on each item from this menu:

Table 8 Network Settings menu guide

Menu item	Refer to:
5.1 - Boot/IP Settings	page 13
5.2 - Domain Name Server (DNS) Settings	page 14
5.3 - Management Protocol	page 15
5.4 - Web Server	page 19
5.5 - Telnet Server	page 24
5.6 - Time (SNTP) Menu	page 24
5.7 - Change Username / Password	page 26
5.8 - Reset Authentication to Factory Defaults	page 27

```

IP Network Settings Menu
-----
1: Boot/IP Settings
2: Domain Name Server (DNS) Settings
3: Management Protocol
4: Web Server
5: Telnet Server
6: Time (SNTP)
7: Change Administrator Username/Password
8: Change General Username/Password
9: Reset Authentication to Factory
   Defaults
<ESC>: Cancel menu level
Please select a key ?>

```


5.1 Boot/IP Settings

The Boot/IP Settings Menu is used to set parameters for network access to the Web card. Consult your network administrator for these settings.

```

Boot/IP Settings Menu
-----
1: Speed/Duplex      Auto
2: Boot mode        Static
3: IP Address        192.168.0.125
4: Netmask           255.255.255.0
5: Default Gateway   192.168.0.1
6: DNS Server        0.0.0.0

<ESC>: Cancel menu level
Please select a key ?>
    
```

Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To change any parameter:

1. Choose **IP Network Settings** from the Main Menu, then **Boot/IP Settings**.
2. Select an option to change—for example, **Speed/Duplex**, then enter settings according to the following guide.

Table 9 Boot/IP settings range

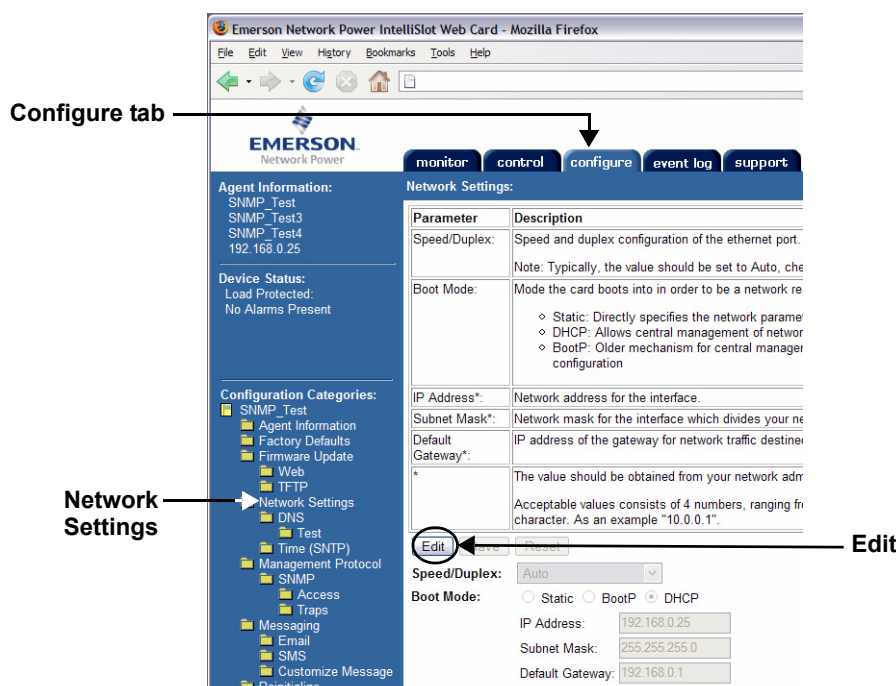
Parameter	Description & Valid Settings*
Speed/ Duplex	Speed and duplex configuration of the Ethernet port. • Auto (<i>default—use this setting if unknown</i>) • 10Mbs/Half Duplex • 100Mbs/Half Duplex • 10Mbs/Full Duplex • 100Mbs/Full Duplex
Boot Mode	Startup mode enabling the Web card to be a network-ready device. • Static - Fixed network addresses and other parameters • DHCP - Central management using dynamic network addresses • BootP - Older mechanism for central management of network addresses
IP address	Network address for the Liebert unit. Four numbers (0-255) separated by periods (.)—for example, 10.0.0.5
Netmask	Network mask that divides your network into manageable segments. Four numbers (0-255) separated by periods (.)—e.g., 255.255.255.0
Default Gateway	IP address of the gateway for network traffic to other networks or subnets. Four numbers (0-255) separated by periods (.)—e.g., 10.0.0.1
DHCP/BootP Server	Device on a network that assigns IP addresses that are not static. Four numbers (0-255) separated by periods (.)—for example, 192.168.0.5
DNS Server	IP address of the Domain Name Server for the network. Four numbers (0-255) separated by periods (.)—e.g., 10.0.0.1

* Consult your network administrator for proper settings.

Web Interface

To access Boot/IP Settings through the Web interface:

- Click on the **Configure** tab, then **Network Settings** in the left panel and finally **Edit** beneath the table of parameters and descriptions. After making changes, click **Save**.



5.2 Domain Name Server (DNS) Settings

The Domain Name Server settings menu configures the servers the Web card will use for hostname resolution. When configured, host addresses for SNMP, Network Time and Email/SMS can be specified in either full Domain Name format or in host-only format, provided that the appropriate Domain Name Suffix is used.

The DNS menu is used to set parameters for network access to the Web card. Consult your network administrator for these settings.



Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To change any parameter:

1. Choose **IP Network Settings** from the Main Menu, then **Domain Name Server (DNS) Settings**.
2. Select an option to change—for example, **DNS Mode**, then enter settings according to the following guide.

Table 10 Domain Name Server settings

Parameter	Description & Valid Settings*
DNS Mode	Obtain DNS server addresses automatically or use specified addresses. Note: Automatic assignment option is available only if a DHCP server is used to assign IP information to the Web Card.
Primary DNS	Primary IP address of the name server for network.* Four numbers (0-255) separated by periods (.)—e.g., 192.168.0.1
Secondary DNS	Secondary IP address of the name server for network.* Four numbers (0-255) separated by periods (.)—e.g., 192.168.0.1
DNS Resolve Interval	Interval to resolve DNS addresses from a network name to an IP address.
Domain Name Suffix	This suffix is used for assembling a fully qualified domain name when a host-only name is specified.
DNS Test	Checks whether the Web card will resolve a hostname to an IP address. Provide a host-only name, a fully qualified domain name or an IP address, click on Query for the card to attempt a lookup with the provided information.

* Consult your network administrator for proper settings.

Web Interface

To access the DNS menu through the Web interface:

- Click on the **Configure** tab, then **Network Settings** in the left panel and finally **Edit** beneath the table of parameters and descriptions. After making changes, click **Save**.

Configure tab

Network Settings

Click Edit to change settings

Obtain address automatically

Specify address

Options for how long card retains resolved addresses

5.3 Management Protocol

The Management Protocol Menu allows you to enable or disable SNMP and configure management protocols. Consult your network administrator for these settings.

```
Management Protocol Menu
-----
1: SNMP Agent          enabled
2: SNMP Communications

<ESC>: Cancel menu level
Please select a key ?>
```

Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To change any parameter:

- Choose **IP Network Settings** from the Main Menu, then **Management Protocol**.
- Select an option to change, then use the following guide to make changes.

Table 11 Management protocol ranges

Parameter	Description & Telnet Menus
SNMP Agent	Enable or disable SNMP for remote management. <code>Enable SNMP Agent? [y/n] ?></code>
SNMP Communications	<p>Set up access privileges, configure the Web card to send traps, described in the next section, SNMP Communications Menu.</p> <p>For details on viewing support information, see 9.2 - Events and Parameters.</p> <pre>SNMP Communications Menu ----- 1: Authentication Traps 'no' 2: RFC-1628 (UPS) MIB 'enabled' 3: - Traps 'enabled' 4: Liebert Global Products MIB 'enabled' 5: - Condition Traps 'enabled' 6: - System Notify Tra 'enabled' 7: Heartbeat Trap Interval'' p 8: Display/Modify Communities 9: Display/Modify Trap Communities A: Support Information <ESC>: Cancel menu level Please select a key ?> 1</pre>

 **Web Interface**

To access Management Protocol settings through the Web interface:

- Click on the **Configure** tab, then **Management Protocol** in the left panel and finally **Edit** in the right panel. After making changes, click **Save**.



Configure tab

Management Protocol

Click on Edit to enable any options

List sets frequency of Heartbeat Traps

Category	Description
Access	Configure SNMP access parameters.
Traps	Configure SNMP trap targets.
Parameter	Description
Authentication Trap	If enabled, a SNMP Authentication Trap will be sent to all trap targets. Note: Typically this feature is enabled as a security measure to alert a management station that unintended/unauthorized requests are being received.
Heartbeat Trap Interval	A periodic "Heartbeat" trap will be sent at the selected interval to the trap targets that have been configured to receive heart beat traps. To select targets to receive heartbeat traps click here . Note: Receipt of a heartbeat trap indicates the source device is operating properly and has the expected connectivity.
RFC-1628 MIB	Enable or disable support for the retrieval of data from the RFC-1628 MIB objects. RFC-1628 is an IETF proposed standard for UPS information. Note: For proper operation of Multi-Link and Nform this feature must be enabled.
RFC-1628 MIB Traps	Enable or disable support for the sending of RFC-1628 MIB traps. RFC-1628 is an IETF proposed standard for UPS information. Note: For proper operation of Multi-Link and Nform this feature must be enabled.
Liebert Global Products (LGP) MIB	Enable or disable support for retrieval of data using the Liebert Global Products (LGP) MIB objects.
Liebert Global Products (LGP) MIB Traps	Enable or disable support for the Liebert Global Products (LGP) MIB Traps. Note that if a heart beat trap is enabled for a trap target and this (LGP) feature is disabled the heart beat trap will still be sent.
Liebert Global Products (LGP) System Notify Trap	Enable or disable support for the LGP System Notification Trap. This is a single trap that is sent each time a condition (alarm/warning) is added or removed from the conditions table. A varbind in this trap will contain a text description of the condition.

Authentication Traps: enabled
 Heartbeat Trap Interval: 24 hours
 RFC-1628 MIB: enabled
 Traps: enabled
 Liebert Global Products (LGP) MIB: enabled
 Traps: enabled
 System Notify Trap: enabled

SNMP Communications Menu

Use the SNMP Communications Menu to enable authentication traps and view or change communities and trap communities, events and parameters. For details on viewing support information, see [9.2 - Events and Parameters](#).

Table 12 SNMP communications menu

Parameter	Description & Telnet Menus
Authentication Traps	Enables authentication traps to receive security alerts when the Web card detects a request with an invalid community string.
RFC-1628 (UPS) MIB	Enables the RFC-1628 (UPS specific information) MIB on the Web card for querying of information in that MIB. This can be enabled or disabled independently of the Liebert Global Products MIB.
Traps	This option enables the RFC-1628 traps to be sent when an alarm event occurs on the device. The parent option must be enabled for this to also be enabled.
Liebert Global Products MIB	Enables the Liebert Global Products MIB (Enterprise Specific) for querying of information in that MIB. This option can be enabled or disabled independently of the RFC-1628 MIB.
Condition Traps	Enables event condition traps to be sent per the LGP MIB. The parent option must be enabled for this to also be enabled.
System Notify Trap Enabled	Enables system traps to be sent per the LGP MIB. The parent option must be also enabled for this to be enabled.
Heartbeat Trap Interval	Specifies how often a heartbeat trap will be sent to show that the device is online and functioning normally.

Display/Modify Communities

View devices that have permission to access the Web card, identified by IP address or hostname, read/write permission and community string. Up to 20 devices may be configured for access.

Communities - Example			
1:	10.0.0.5	write	public1
2:	10.0.0.6	write	public1
Entry #	IP address	Access (read/write)	Community string
Codes for editing → <code><a>dd <d>elete <e>dit</code> Complex lines allowed. e.g. <code><a 198.1.1.1 write public1 ?></code>			

Each device is identified by:

- **Entry Number** - use the entry number (1-20) to edit or delete an entry
- **IP address or Hostname** - the address of the device with access (MultiLink server, Nform server, Network Management System)
- **Access (read/write)** - **read** allows users to view but not change data; **write** allows full permission for configuration, control and viewing
- **Community string** - the community string used by the IP host for this Entry Number (case-sensitive, up to 32 characters)

To make changes:

Add a device (see example at right to enter all parameters in one line):

- Enter **a** to add an entry, then press Enter.
- Enter the IP address or hostname of the device to be added, then press Enter.
- Enter **1** for read or **2** for write access for this device, then press Enter.
- Enter the community string, then press Enter.

Example

`a 10.0.0.5 write public1`
(then press Enter)

Edit a device (see example at right to enter all parameters in one line):	Example <i>e 2 10.0.0.7 read public2</i> (then press Enter)
<ul style="list-style-type: none"> • Enter e to edit an entry, then press Enter. • Type the Entry Number, then press Enter. • Enter the new IP address or hostname, then press Enter. • Enter 1 for read or 2 for write access for this device, then press Enter. • Enter the new community string, then press Enter. 	

Delete a device (see example at right to enter parameters in one line):	Example <i>d 2</i> (then press Enter)
<ul style="list-style-type: none"> • Enter d, then press Enter. No confirmation message will appear. • Type the Entry Number, then press Enter. 	

**NOTE**

Avoid the following setting—it permits access by any host and may pose a security risk:

- IP address = 0.0.0.0
- Access = write
- Community = public

Display/Modify Trap Communities

View devices that are configured to receive notifications from the Web card, identified by IP address or hostname, trap listen port and community string. Up to 20 devices may be configured to receive traps.

Trap Communities - Example			
Entry #	IP address	Port to receive traps	Community string
1:	10.0.0.5	162	public1
2:	10.0.0.6	162	public1

Codes for editing → `<a>dd <d>elete <e>dit`
Complex lines allowed. e.g. `<a 198.1.1.1 162 public> ?>`

Each device is identified by:

- **Entry Number** - use the entry number (1-20) to edit or delete an entry
- **IP address or hostname** - the address or name of the device to receive traps (MultiLink server, Nform server, Network Management System)
- **Port** - the Trap Listen Port where traps will be sent; use **162** if the host computer uses standard ports (161/162)
- **Community string** - the community string used by the IP host for this Entry Number (case-sensitive, up to 32 characters)

To make changes:

Add a device (see example at right to enter all parameters in one line):	Example <i>a 10.0.0.5 162 public1</i> (then press Enter)
<ul style="list-style-type: none"> • Enter a to add an entry, then press Enter. • Enter the IP address or hostname of the device to be added, then press Enter. • Enter the port number (default is 162), then press Enter. • Enter the community string, then press Enter. 	

Edit a device (see example at right to enter all parameters in one line):	Example <i>e 2 10.0.0.7 162 public2</i> (then press Enter)
<ul style="list-style-type: none"> • Enter e to edit an entry, then press Enter. • Type the Entry Number, then press Enter. • Enter the new IP address or hostname, then press Enter. • Enter the port number (default is 162), then press Enter. • Enter the new community string, then press Enter. 	

Delete a device (see example at right to enter parameters in one line):	Example <i>d 2</i> (then press Enter)
<ul style="list-style-type: none"> • Enter d, then press Enter. No confirmation message will appear. • Type the Entry Number, then press Enter. 	

5.4 Web Server

Use the Web Server Menu to configure access to the card through the Web interface. Consult your network administrator if needed.

```

Web Server Menu
-----
1: Web Server Mode           HTTP (Not Secure)
2: HTTP Transport Port      80
3: Password Protect Site    'disabled'
4: Configuration/Control    'enabled'
5: Refresh Rate             30 seconds
<ESC>: Cancel menu level
Please select a key ?>
    
```

5.4.1 Specify Web Server Settings

Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To change any parameters:

1. Choose **IP Network Settings** from the Main Menu, then **Web Server**.
2. Select an option to change, then use the following guide to make changes.

Table 13 Web server settings

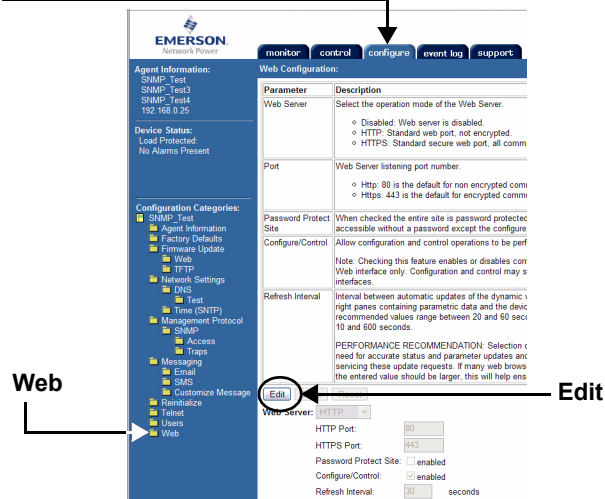
Parameter	Description & Valid Settings
Web Server Mode	Select the operation mode of the Web server. <ul style="list-style-type: none"> • Disabled - Web server is disabled • HTTP - Standard Web port, not encrypted • HTTPS - Standard secure Web port, all communication is encrypted
HTTP Transport Port	Web Server listening port number. <ul style="list-style-type: none"> • For HTTP mode (non-encrypted communications), the default port is 80. • For HTTPS mode (encrypted communications), the default port is 443. For HTTPS, you must also install a security certificate for Internet Explorer. Refer to the appropriate section for your version of Internet Explorer: <ul style="list-style-type: none"> • 5.4.2 - Install Security Certificates - Internet Explorer 6 or earlier • 5.4.3 - Install Security Certificates - Internet Explorer 7 or later
Password Protect Site	When enabled, the entire site is password-protected. (If disabled, all pages are accessible without a password except configure and control functions.)
Configuration/Control	Enable or disable the use of a Web browser to perform configuration and control operations. Note: This feature affects configuration and control operations from the Web interface only. If disabled, these functions may still be available using other system interfaces.
Refresh Interval	The interval in seconds (10 to 600 seconds) between automatic updates of dynamic Web pages—parametric data and device status in the right panel. RECOMMENDATION: Consider whether frequent updates will slow down the system. If many users will access the device simultaneously, select a larger value to best serve all users. Recommended values range from 20 to 60 seconds.

Web Interface

To access Web Server settings through the Web interface:

- Click on the **Configure** tab, then **Web** in the left panel and finally **Edit** in the right panel. After making changes, click **Save**.

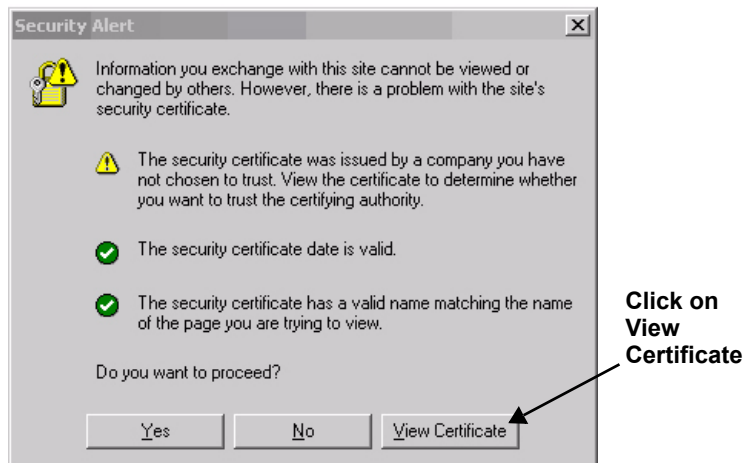
Configure tab



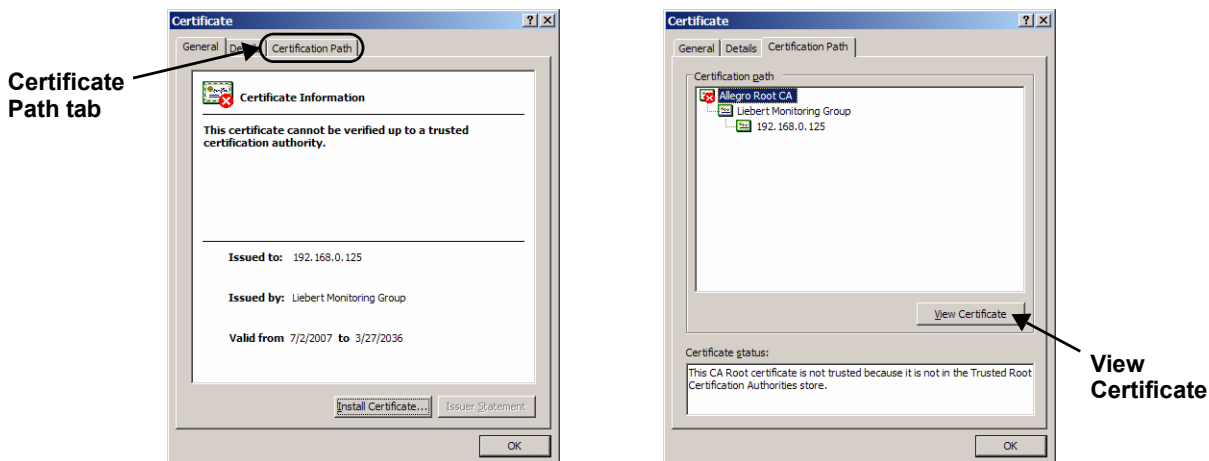
5.4.2 Install Security Certificates - Internet Explorer 6 or earlier

If you use Internet Explorer 6 or an earlier version and select **HTTPS** as the operation mode of the Web server (see 5.4.1 - **Specify Web Server Settings**), follow these instructions to install a security certificate.

- Open Internet Explorer and enter **https://** followed by the IP address or hostname of the Web card—for example, **https://192.168.0.125**—in the address bar. The following message appears.

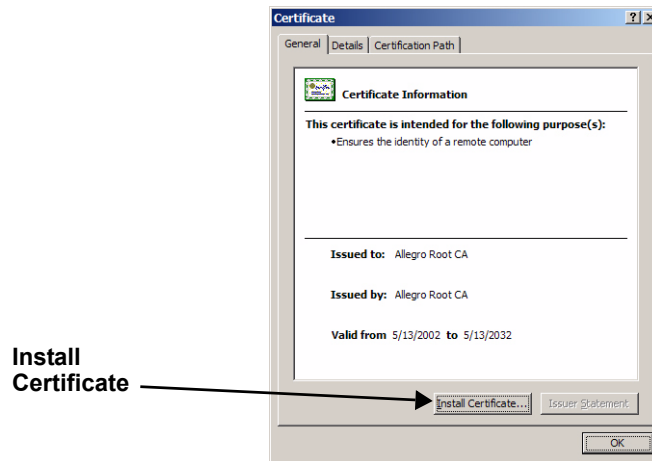


- Click the **View Certificate** button. This opens the Certificate window.

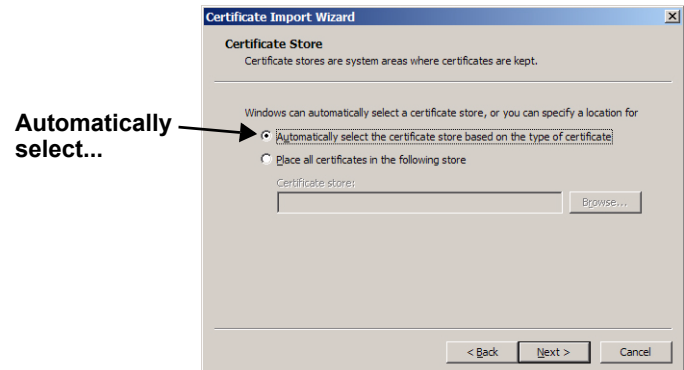


- In the Certificate window, above left, click the **Certificate Path** tab.
- In the Certificate Path tab, above right, click on **Allegro Root CA**, then on **View Certificate**.

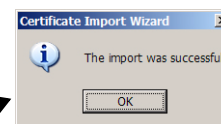
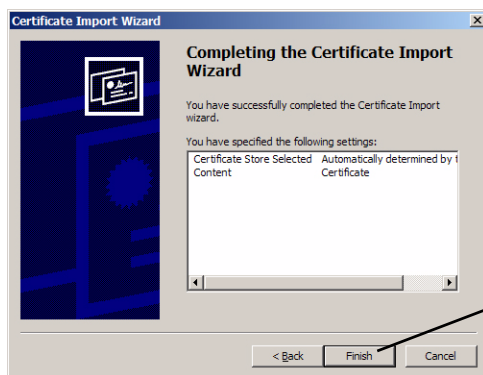
- In the Certificate window, click the **Install Certificate** button, as shown below.



- The Certificate Import Wizard opens. Click **Next**.



- Click on **Automatically select the certificate store based on the type of certificate**, then click **Next**.



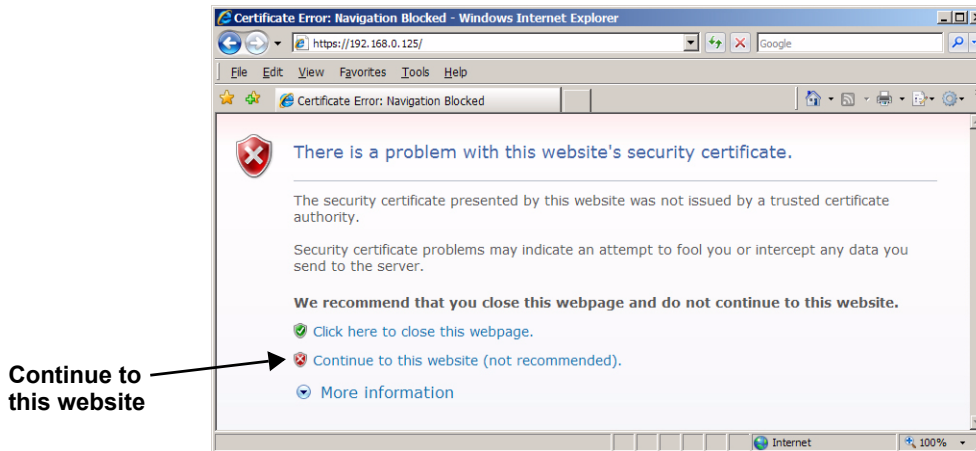
- The final Wizard window appears with a message that the process is complete. Click **Finish**.
- A confirmation box appears with a message that the import was successful. Click **OK**.

5.4.3 Install Security Certificates - Internet Explorer 7 or later

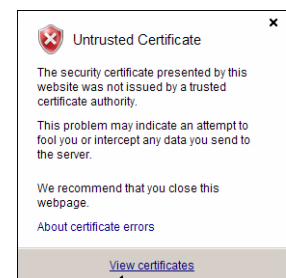
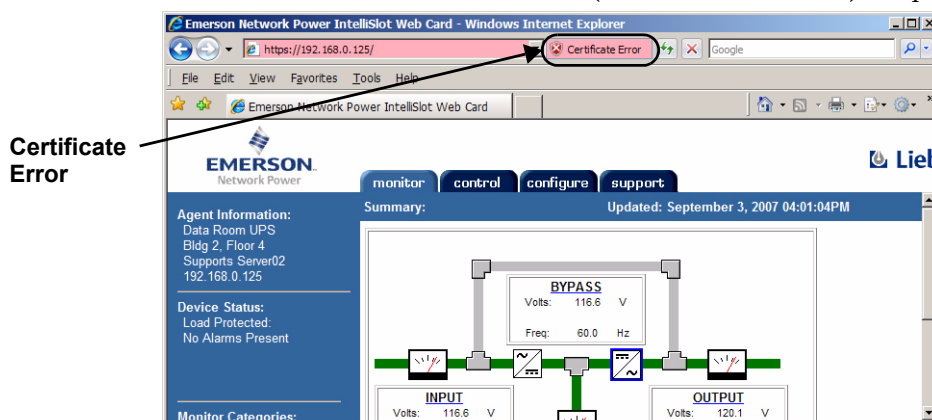
If you use Internet Explorer 7 or later and select **HTTPS** as the operation mode of the Web server (see 5.4.1 - **Specify Web Server Settings**), follow these instructions to install a security certificate.

To do this:

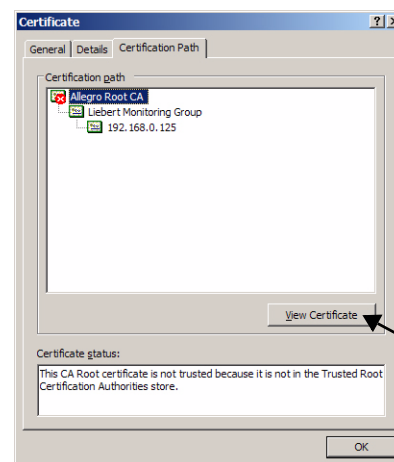
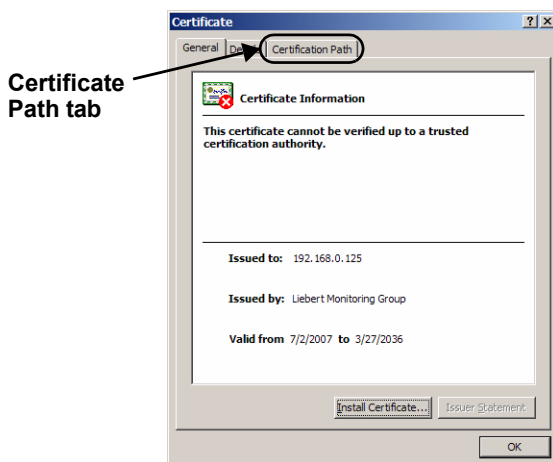
- Open Internet Explorer and enter **https://** followed by the IP address or hostname of the Web card—for example, **https://192.168.0.125**—in the address bar. The following message appears.



- Click on **Continue to this website (not recommended)** to open a connection to the Web card.

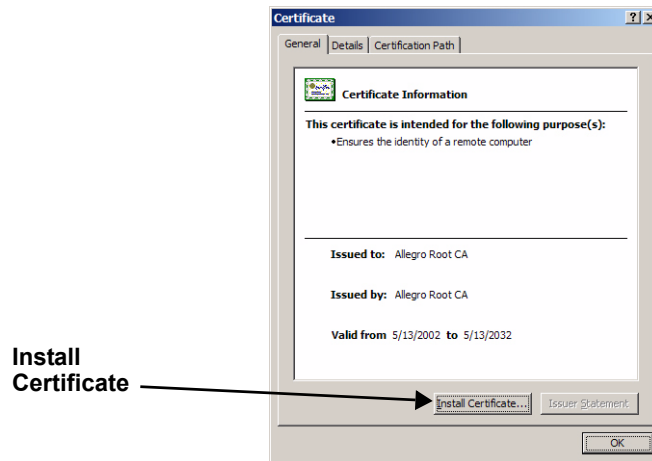


- Click the **Certificate Error** box next to the address bar, shown above left.
- In the window that pops up, shown next above right, click the **View Certificates** link. This opens the Certificate window.

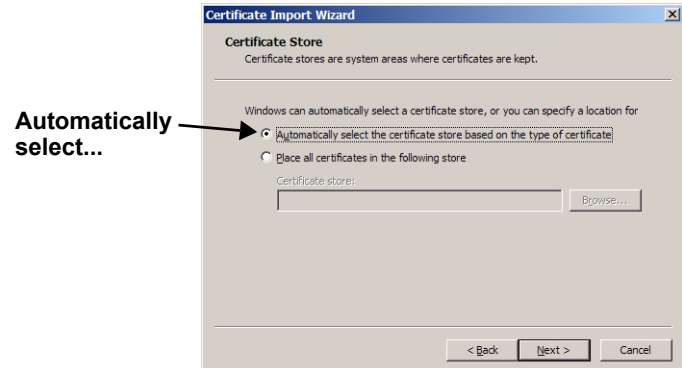


- In the Certificate window, above left, click the **Certificate Path** tab.
- In the Certificate Path tab, above right, click on **Allegro Root CA**, then on **View Certificate**.

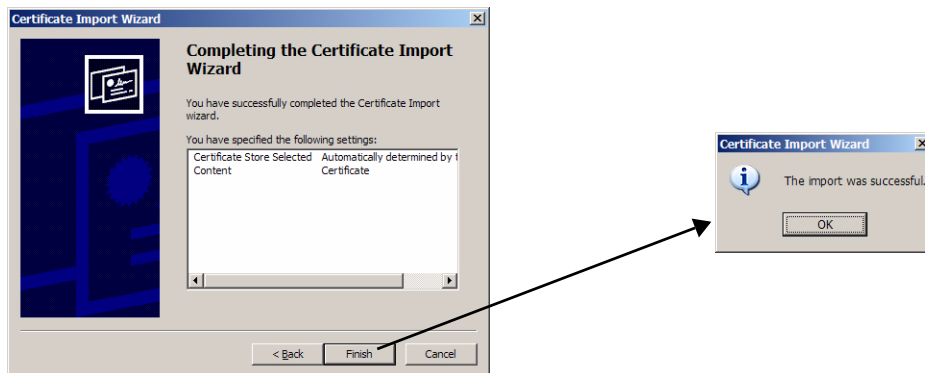
- In the Certificate window, click the **Install Certificate** button, as shown below.



- The Certificate Import Wizard opens. Click **Next**.



- Click on **Automatically select the certificate store based on the type of certificate**, then click **Next**.



- The final Wizard window appears with a message that the process is complete. Click **Finish**.
- A confirmation box appears with a message that the import was successful. Click **OK**.

5.5 Telnet Server

Use the Telnet Server Menu to enable or disable access to the Web card through a Telnet interface.

```
Telnet Server Menu
-----
1: Telnet Server      'enabled'
<ESC>: Cancel menu level
Please select a key ?>
```

Terminal Emulation (Serial or TCP/IP Connection) / Telnet

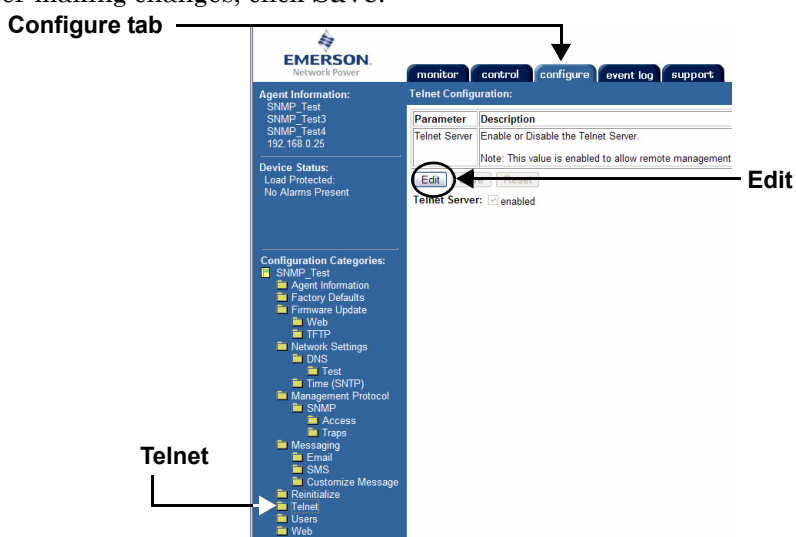
To change this setting:

1. Choose **IP Network Settings** from the Main Menu, then **Telnet Server**.
2. Choose Telnet Server, then specify:
 - **Enabled** to permit Telnet access
 - **Disabled** to block access via Telnet

Web Interface

To access Telnet settings through the Web interface:

- Click on the **Configure** tab, then **Telnet** in the left panel and finally **Edit** in the right panel. After making changes, click **Save**.



5.6 Time (SNTP) Menu

This permits setting time options—how often the Web card synchronizes with the Time Server, which Time Server to use for synchronization and which the Time Zone the Web card is operating in.

```
Time Server Menu
-----
1: SNTP Time Sync Rate  Hourly
2: Time Server          time.nist.gov
3: Time Zone            (GMT) UTC
<ESC>: Cancel menu level
Please select a key ?>
```

Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To change this setting:

1. Choose **IP Network Settings** from the Main Menu, then **Time (SNTP)**.
2. Choose SNTP Time Synch Rate, then specify:
 - Hourly
 - Daily
3. Choose Time Server, then specify the new time server, if desired.
4. Choose Time Zone, select a region from the list and then select a time zone.

Table 14 Time Server parameters

Parameter	Description & Telnet Menus
SNTP Time Sync Rate	This is how often the card will attempt to synchronize its internal clock with the specified time server.
Time Server	This is the server that will be used for synchronization. This can be either an IP address or a hostname, provided that the DNS options are configured.
Time Zone	This is the local Time Zone that will be used to correctly adjust the time provided by the server for the locale where the Web Card is being used.

Web Interface

To access Time (SNTP) settings through the Web interface:

Click on the **Configure** tab, then **Network Settings** in the left panel and finally **Edit** in the right panel. After making changes, click **Save**.

Configure tab

EMERSON Network Power

monitor control **configure** event log support

Agent Information:
SNMP_Test
SNMP_Test3
SNMP_Test4
192.168.0.25

Device Status:
Load Protected:
No Alarms Present

Configuration Categories:
 ■ SNMP_Test
 ■ Agent Information
 ■ Factory Defaults
 ■ Firmware Update
 ■ Web
 ■ TFTP
 ■ Network Settings
 ■ DNS
 ■ Test
 ■ Time (SNTP)
 ■ Management Protocol
 ■ SNMP
 ■ Access
 ■ Traps
 ■ Messaging
 ■ Email
 ■ SMS
 ■ Customize Message
 ■ Reinitialize
 ■ Telnet
 ■ Users
 ■ Web

Network Settings >> Time (SNTP):

Parameter	Description
Time Server:	Simple Network Time Servers (SNTP) IP address or network name, for <ul style="list-style-type: none"> • tick.usno.navy.mil • tock.usno.navy.mil • time.nist.gov • time-a.nist.gov • time-b.nist.gov
Synchronize Rate:	Rate at which time will be synchronized with the time server.
Device Time Zone:	Time zone where the device is located.

Time Server list

Click on Edit to choose options

Edit Save Reset

Time Server: time.nist.gov

Synchronize Rate: Hourly Daily

Time Zone

Time Servers must be entered manually

Time zones available from list

(GMT) UTC
 (GMT-12:00) International Date Line West
 (GMT-11:00) Midway Island, Samoa
 (GMT-10:00) Hawaii-Aleutian Time
 (GMT-09:00) Alaskan Time
 (GMT-08:00) Pacific Time (US and Canada): Tijuana
 (GMT-07:00) Arizona
 (GMT-07:00) Mountain Time (US and Canada)
 (GMT-07:00) Chihuahua, La Paz, Mazatlan
 (GMT-06:00) Central America Time
 (GMT-06:00) Central Time (US and Canada)
 (GMT-06:00) Guadalajara, Mexico City, Monterrey
 (GMT-06:00) Saskatchewan
 (GMT-05:00) Bogota, Lima, Quito
 (GMT-05:00) Eastern Time (US and Canada)
 (GMT-05:00) Indiana (East)
 (GMT-04:00) Atlantic Time (Canada)
 (GMT-04:00) Caracas, La Paz
 (GMT-04:00) Santiago
 (GMT-03:30) Newfoundland

5.7 Change Username / Password

The Web card is designed for two types of access, each with a default user name and password. For security, be sure to change the default password.

Table 15 Factory default passwords

Type of User	Factory Default		Description
Administrator	Username	Liebert	Full access to configuration and control functions, as well as viewing privileges
	Password	Liebert	
General User	Username	User	Viewing privileges only—no access to configuration or control functions
	Password	User	

Follow these guidelines to change the user name and password.

Table 16 Username and password guidelines

Maximum length	32 characters (6 or more characters recommended)
Valid characters	Any printable character EXCEPT colon, tab, double quote, question mark
Upper/lowercase	Case-sensitive—letters must be uppercase or lowercase as entered
Tips	Avoid common names, words and phrases as passwords



Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To change the Administrator or General user name or password:

- Choose **IP Network Settings** from the Main Menu, then choose either:
 - **Change Administrator Username/Password** or
 - **Change General Username/Password**
- Enter a user name—the current user name is shown in brackets.

```
Enter Administrator Username, press enter for [Liebert]: (Max 32 chars) ?>
```

- Enter a password, then verify by typing the password again.

```
Enter New Password: (Max 32 chars) ?> *****
Verify Password: ?> *****
```



Web Interface

To access usernames and passwords through the Web interface:

- Click on the **Configure** tab, then **Users** in the left panel and finally **Edit** in the right panel. After making changes, click **Save**.

The screenshot shows the Emerson Network Power web interface. The top navigation bar includes 'monitor', 'control', 'configure', and 'support'. The 'configure' tab is active. On the left, a navigation tree shows 'Users' selected. The main content area is titled 'User Configuration' and contains a table with 'Parameter' and 'Description' columns. Below the table, there are input fields for 'Administrator' and 'General User' usernames and passwords. The 'Administrator' fields are pre-filled with 'Liebert' and '*****'. The 'General User' fields are pre-filled with 'User' and '****'. An 'Edit' button is circled in the right panel, and arrows point from the 'Configure' tab and 'Users' menu item to their respective locations in the interface.

5.8 Reset Authentication to Factory Defaults

You may reset the Administrator and General User usernames and passwords to the factory defaults.

If you forget your username or password, you may reset them using a serial configuration cable connection (see Section 2.1.1 or 2.2.1 - **Connect the Cable**), which provides direct access to the card without a username or password. To enter a new username and password, see 5.7 - **Change Username / Password**.

Table 17 Factory default passwords

Type of User	Factory Default		Description
Administrator	Username	Liebert	Full access to configuration and control functions, as well as viewing privileges
	Password	Liebert	
General User	Username	User	Viewing privileges only—no access to configuration or control functions
	Password	User	



Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To reset the usernames and passwords to the factory defaults:

1. Choose **IP Network Settings** from the Main Menu, then **Reset Authentication to Factory Defaults**.

```
Reset authentication to factory Defaults? [y/n] ?>
```

2. Enter **y** to reset the Administrator and General User usernames and passwords to the default settings.



NOTE

This feature is not available through the Web interface

6.0 MESSAGING

The Messaging menu is used to set up e-mail and text message notifications from the Web card.



Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To access these options:

1. Choose **Messaging** from the Main Menu.
2. Select an option, then use the following guide to make changes.

```

Messaging Menu
-----
1: Email  'disabled'
2: SMS   'disabled'
3: Email Configuration
4: SMS Configuration

<ESC>: Cancel menu level
Please select a key ?>
    
```

Table 18 Messaging menu guide

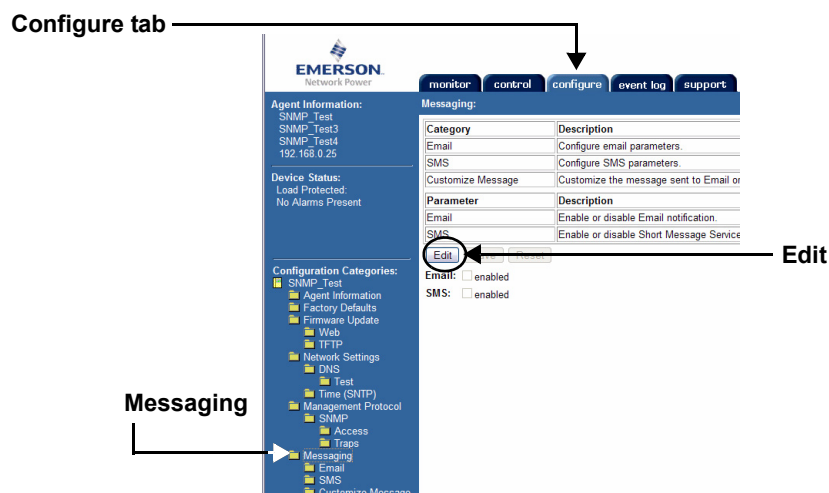
Menu item	Refer to:
E-Mail Configuration	page 29
SMS Configuration	page 30
Customize Messages (E-Mail and SMS)	page 32



Web Interface

To access Messaging settings through the Web interface:

- Click on the **Configure** tab, then **Messaging** in the left panel and finally **Edit** in the right panel. After making changes, click **Save**.



6.1 E-Mail Configuration

Setting up event notifications to be sent via e-mail involves two steps: enabling the function, then specifying the parameters.



Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To activate and set up e-mail messages:

1. Choose **Messaging** from the Main Menu, then **Email**.

```
Enable Email? [y/n] ?>
```

2. To enable the e-mail feature, enter **y** (yes) at the prompt.
3. Choose **Email Configuration** from the Messaging Menu, then select an option and use the following guide to make changes.

```

Email Configuration Menu
-----
1: Email From 'Uninitialized'
2: Email Message Recipients
3: Email Subject
4: Email Customize Message
5: SMTP Server 'Uninitialized'
6: Port 25
7: Test Email
8: View Test Email Log File

<ESC>: Cancel menu level
Please select a key ?>
    
```

Table 19 E-mail configuration guide

Parameter	Description	Maximum
Email From	The e-mail address of the sender—for example, <i>support@company.com</i> —typically, the address where replies should be sent.	64 characters
Email Message Recipients	The e-mail will be sent to this list of addresses. To add an e-mail address, use the format a jsmith@abc.com . Multiple addresses must be added individually. Changes may be made by entering d to delete an entry or e to edit an entry. NOTE: To specify multiple recipients of the e-mail message in the Web interface, use a semicolon (;) to separate addresses in the Email To box.	64 characters
Email Subject	The subject line of the e-mail. By default, this is the event description—e.g., <i>AlarmOnBypass</i> —but it may be customized.	120 characters
Email Customize Message	The text of the message sent to e-mail recipients. Choose from a list of items to include in the message. For details, see 6.3 - Customize Messages .	—
SMTP Server	The IP address or domain name of the SMTP e-mail server that sends messages.	32 characters
Port	SMTP server port—typically the default port, 25.	—
Test Email	After saving changes to e-mail parameters, send a test e-mail message to verify the settings are correct. The message status will be displayed.	—
View Test Email Log File	Choose this option to display a log showing the results of test e-mails.	—

Web Interface

To access E-Mail Configuration through the Web interface:

- Click on the **Configure** tab, then **Email** in the left panel and finally **Edit** in the right panel. After making changes, click **Save**.

Configure tab

The screenshot shows the EMERSON Liebert web interface. At the top, there are tabs for 'monitor', 'control', 'configure', 'event log', and 'support'. The 'configure' tab is active. On the left, there is a navigation tree with 'Email' selected. The main area displays the 'Email' configuration page with a table of parameters and their descriptions. The 'Edit' button is circled, and an arrow points to it from the label 'Edit'. Another arrow points from the label 'Email' to the 'Email' item in the navigation tree.

Parameter	Description
Email From	Sender's email address. In most cases this will be the email address of the person to whom replies should be sent. For example Support@company.com.
Email To	Email address of the recipient. Multiple email addresses should be separated by a semicolon (";"). Note: The maximum length for an email address entry is 64 characters.
Subject	Subject of the email. This value will default to the event description. The subject line is customizable.
SMTP Server	Fully qualified domain name or IP address of the server used for relaying email messages. Note 1: The maximum length for this entry is 32 characters. Note 2: If using a server name you must configure a DNS server under IP Settings
Port	SMTP server port. Note: Typically the default of 25 should be used.
Test	Clicking on this button will send a Test Email after new configuration changes have taken effect. Status of the email message will be displayed.

6.2 SMS Configuration

Setting up event notifications for SMS text messages involves two steps: enabling the function, then specifying the parameters.

```

SMS Configuration Menu
-----
1: SMS From      'Uninitialized'
2: SMS Message Recipients
3: SMS Subject
4: SMS Customize Message
5: SMTP Server  'Uninitialized'
6: Port         25
7: Test SMS
8: View Test SMS Log File

<ESC>: Cancel menu level
Please select a key ?>
    
```

 **Terminal Emulation (Serial or TCP/IP Connection) / Telnet**

To activate and set up SMS messages:

1. Choose **Messaging** from the Main Menu, then **SMS**.

Enable SMS [y/n] ?>
2. To enable the SMS feature, enter **y** (yes) at the prompt.
3. Choose **SMS Configuration** from the Messaging Menu, then select an option and use the following guide to make changes.

Table 20 SMS configuration guide

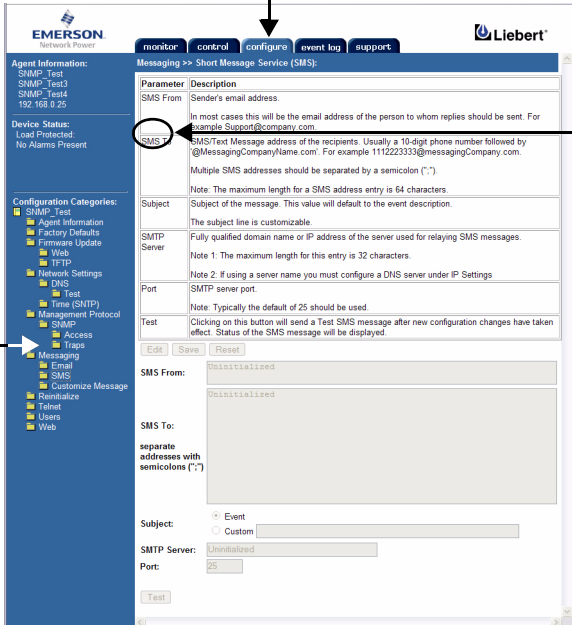
Parameter	Description	Maximum
SMS From	The e-mail address of the sender—for example, <i>support@company.com</i> —typically, the address where replies should be sent.	64 characters
SMS Message Recipients	The message will be sent to this list of addresses. The SMS/Text Message address is usually a 10-digit phone number followed by @____.com (where ____ might be a company name). To add an SMS address, use the format a 1112223333@abc.com . Multiple addresses must be added individually. Changes may be made by entering d to delete an entry or e to edit an entry. NOTE: To specify multiple recipients of the SMS message in the Web interface, use a semicolon (;) to separate addresses in the SMS To box.	64 characters
SMS Subject	The subject line of the message. By default, this is the event description—e.g., <i>AlarmOnBypass</i> —but it may be customized.	120 characters
SMS Customize Message	The text of the message sent to e-mail recipients. Choose from a list of items to include in the message. For details, see 6.3 - Customize Messages .	—
SMTP Server	The IP address or domain name of the SMTP e-mail server that sends messages.	32 characters
Port	SMTP server port—typically the default port, 25.	—
Test SMS	After saving changes to SMS parameters, send a test SMS message to verify the settings are correct. The message status will be displayed.	—
View Test SMS Log File	Choose this option to display a log showing the results of test messages.	—

 **Web Interface**

To access SMS Configuration through the Web interface:

- Click on the **Configure** tab, then **SMS** in the left panel and finally **Edit** in the right panel. After making changes, click **Save**.

Configure tab →



SMS →

Edit

6.3 Customize Messages

Both e-mail and SMS text messages may be customized to include items such as the IP address or hostname, event name and a link to the Web card in the body of the message.

Terminal Emulation (Serial or TCP/IP Connection) / telnet

1. Choose **Messaging** from the Main Menu, then **Email Configuration** (or **SMS Configuration**).
2. Choose **Email** (or **SMS**) **Customize Message** from the Configuration menu.
3. Choose an option from the Email (or SMS) Customize Message Menu, then enter **y** (yes) at the prompt to confirm your choice. Repeat for each item to be included in messages. Refer to the following guidelines to make changes:

```

Email/SMS Customize Message Menu
-----
1: IP Address                'enabled'
2: Event                    'enabled'
3: Event Date & Time        'disabled'
4: Name                     'enabled'
5: Contact                  'enabled'
6: Location                 'enabled'
7: Description              'enabled'
8: Web link & Port          'disabled'
9: Event Consolidation      'enabled'
A: Consolidation Time Limit (seconds) 60
B: Consolidation Event Limit    30

<ESC>: Cancel menu level
Please select a key ?>
    
```

Table 21 E-mail and SMS message guidelines

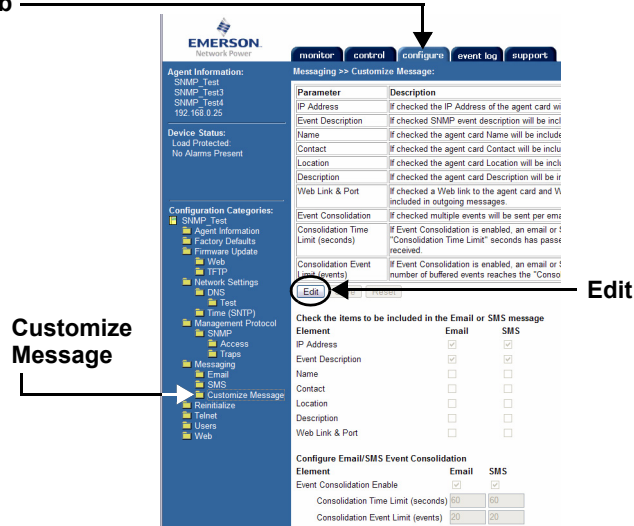
Parameter	Description—if enabled, outgoing messages will include:	Defined in:
IP address or hostname	The IP Address or Hostname of the Web card	5.1 - Boot/IP Settings
Event	Description of the SNMP event	9.0 - Support Information
Event Date & Time	The date & time when the SNMP event occurred	—
Name	The name for the Liebert unit	4.0 - System Information
Contact	The contact person or department	4.0 - System Information
Location	The location of the Liebert unit	4.0 - System Information
Description	Other information about the Liebert unit	4.0 - System Information
Web Link & Port	A clickable link to the Web card through the Web interface	5.1 - Boot/IP Settings
	The port number of the SMTP server port	6.1 - E-Mail Configuration 6.2 - SMS Configuration
Event Consolidation	Enable or disable consolidation of events for e-mail/SMS notification	6.1 - E-Mail Configuration 6.2 - SMS Configuration
Consolidation Time Limit (seconds)	Duration (in seconds) to consolidate events before sending a notification. Notification will be sent when this threshold is reached, regardless of event limit. Range: 10 to 120.	Message Consolidation Time Limit on page 33
Consolidation Event Limit	Number of events to consolidate before sending a notification. Notification will be sent when this threshold is reached, regardless of time limit. Range: 1 to 50.	Message Consolidation Time Limit on page 33

 **Web Interface**

To access Customize Message settings through the Web interface:

- Click on the **Configure** tab, then **Customize Messages** in the left panel and finally **Edit** in the right panel. Choose the items to include in each type of message in the Email and SMS columns.
- After making changes, click **Save**.

Configure tab



The screenshot shows the Emerson web interface for configuring messages. The left sidebar contains a tree view of configuration categories, with 'Customize Message' selected. The main content area is titled 'Messaging >> Customize Message:' and has tabs for 'monitor', 'control', 'configure', 'event log', and 'support'. The 'configure' tab is active. Below the tabs is a table of parameters to include in messages, with columns for 'Parameter' and 'Description'. The 'Edit' button is circled in the top right of the main area.

Parameter	Description
IP Address	If checked the IP Address of the agent card will be included in outgoing messages.
Event Description	If checked the SNMP event description will be included in outgoing messages.
Name	If checked the agent card Name will be included in outgoing messages.
Contact	If checked the agent card Contact will be included in outgoing messages.
Location	If checked the agent card Location will be included in outgoing messages.
Description	If checked the agent card Description will be included in outgoing messages.
Web Link & Port	If checked a Web link to the agent card and port will be included in outgoing messages.
Event Consolidation	If checked multiple events will be sent per email or SMS.
Consolidation Time Limit (seconds)	If Event Consolidation is enabled, an email or SMS will be sent if the "Consolidation Time Limit" seconds has passed since the last event.
Consolidation Event Limit (events)	If Event Consolidation is enabled, an email or SMS will be sent if the number of buffered events reaches the "Consolidation Event Limit".

Check the items to be included in the Email or SMS message		
Element	Email	SMS
IP Address	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Event Description	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Name	<input type="checkbox"/>	<input type="checkbox"/>
Contact	<input type="checkbox"/>	<input type="checkbox"/>
Location	<input type="checkbox"/>	<input type="checkbox"/>
Description	<input type="checkbox"/>	<input type="checkbox"/>
Web Link & Port	<input type="checkbox"/>	<input type="checkbox"/>

Configure Email/SMS Event Consolidation		
Element	Email	SMS
Event Consolidation Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Consolidation Time Limit (seconds)	60	60
Consolidation Event Limit (events)	20	20

Message Consolidation Time Limit

Message Consolidation Time Limit allows adjusting the duration the card will wait for additional events before sending a notification E-mail. Consolidation event limit allows adjusting the number of events each E-mail will contain.

7.0 FACTORY SETTINGS

Factory default values may be restored for all configuration settings. This step:

- Replaces all user-defined settings described in this manual (see **3.0 - Configuration Overview** through **6.0 - Messaging**)
- Restores DHCP service, the factory default, replacing a static IP address or hostname, if configured during installation (see **2.0 - Installation**)

7.1 Reset to Factory Defaults

Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To restore the factory default settings:

1. Choose **Factory Settings** from the Main Menu, then choose **Reset to Factory Defaults**.

```
Reset to factory defaults? [y/n] ?>
```

2. Enter **y** (yes) at the prompt to confirm your choice. To cancel, enter **n** (no).
3. A message appears until the process is complete.

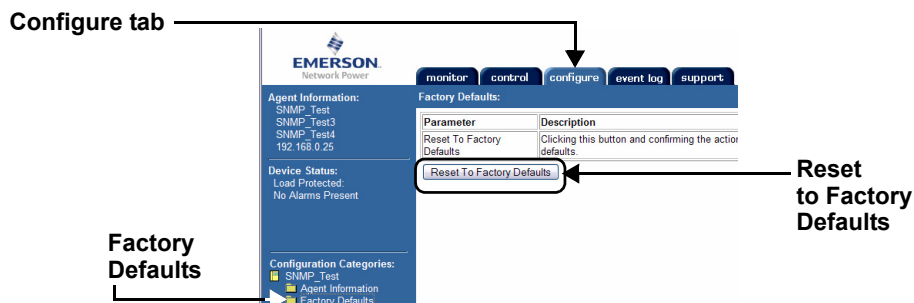
```
Resetting card to factory defaults...
```

```
Factory Settings Menu
-----
1: Reset to Factory Defaults
2: Agent Card Information
<ESC>: Cancel menu level
Please select a key ?>
```

Web Interface

To restore the factory default settings through the Web interface:

- Click on the **Configure** tab, then **Factory Defaults** in the left panel and finally **Reset to Factory Defaults** in the right panel.



7.2 Liebert DS - Local Node Settings for Multiple Cards

If you use two cards of the same type with the Liebert DS, you will need to change the local node setting of one card. These steps apply only when both cards are the same type, either:

- Two Liebert IntelliSlot Web cards (P/N IS-WEBLBDS)
or
- Two Liebert IntelliSlot 485 cards (P/N IS-485LBDS)



Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To access local node settings:

1. Choose **Factory Settings** from the Main Menu.
2. Choose **Advanced Communication Settings** from the Factory Settings Menu.
3. Choose **Local Node Settings** from the Advanced Communication Settings Menu.
4. Choose **Node 1** from the Local Node Settings Menu, then use the following guide to make changes.

If there are two Liebert IntelliSlot Web cards or two Liebert IntelliSlot 485 cards, you must change the address of one card (see **Table 22**):

- For the Liebert IntelliSlot Web card, the default address is **1**.
For two Web cards, set the address of the second card to **2**.
- For the Liebert IntelliSlot 485 card, the default address is **2**.
For two 485 cards, set the address of the second card to **1**.

```
Liebert DS
Factory Settings Menu
-----
1: Advanced Communication
   Settings
2: Reset to Factory Defaults
<ESC>: Cancel menu level
Please select a key ?>
```

```
Liebert DS
Advanced Communication Settings
Menu
-----
1: Local Node Settings
2: Managed Device Settings
2: Reset to Default
<ESC>: Cancel menu level
Please select a key ?>
```

```
Liebert DS
Local Node Settings Menu
-----
1: Node ID: 1
2: Communication Rate: 38400
3: Maximum Master Address: 3
4: Maximum Retry Count: 5
5: Retry Interval(sec): 5
<ESC>: Cancel menu level
Please select a key ?>
```

Table 22 Factory default MAC addresses

Liebert IntelliSlot Card	Part Number	Factory Default MAC Address	Set Node 1 Address of Second Card to:
Liebert IntelliSlot Web Card-LBDS	IS-WEBLBDS	0x01	2
Liebert IntelliSlot 485 Card-LBDS	IS-485LBDS	0x02	1

8.0 MONITOR AND CONTROL FUNCTIONS - WEB ONLY

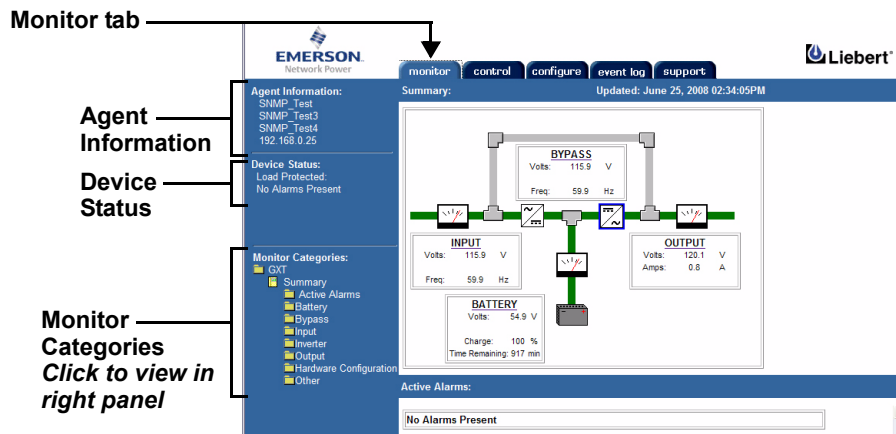
Web Interface Only

The Web interface allows you to monitor and control the Liebert equipment where the Web card is installed, in addition to configuration capabilities presented in previous sections.

8.1 Monitoring Liebert Equipment

To view monitoring data through the Web interface:

- Open the Web interface (if needed, see [3.5 - Open the Web Interface](#)).
- Click on the **Monitor** tab if needed. This is always the opening view after connecting to the Web interface, as shown in the following example.



- The top portion of the left panel displays information that appears on all pages:
 - **Agent Information** - name, contact, location and description of the Liebert unit (as defined in [4.0 - System Information](#))
 - **Device Status** - current status of the Liebert unit and whether any alarms are active (if so, the most recent alarm is listed)
- **Monitor Categories** appear at bottom left, organized with folder icons and showing the available Monitoring functions.
- Click on a category to view parametric data in the right panel. The example above shows a graphic representation of the current state of a Liebert UPS. Other categories show data in table format. The information will vary according to the type of Liebert unit.



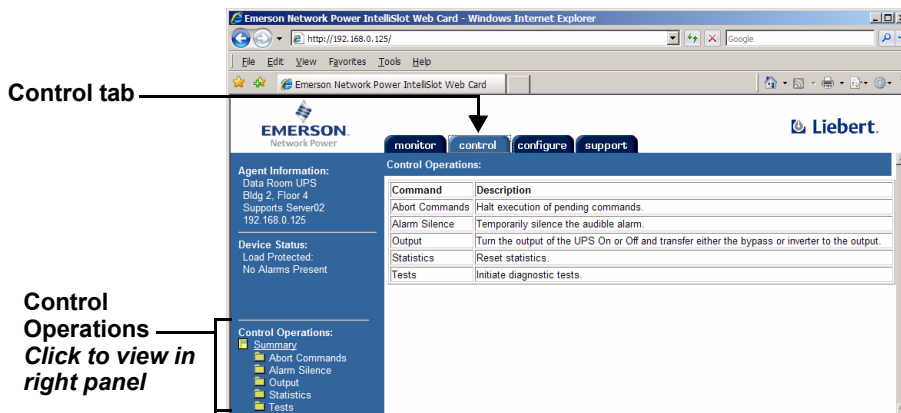
NOTE

*If any alarms are currently active, they are listed below the graphic in the opening window. Click on the **Active Alarms** category to view more details about any alarms that are active.*

8.2 Controlling Liebert Equipment

To perform Control operations through the Web interface:

- Open the Web interface (if needed, see 3.5 - Open the Web Interface).
- Click on the **Control** tab, as shown in the following example.



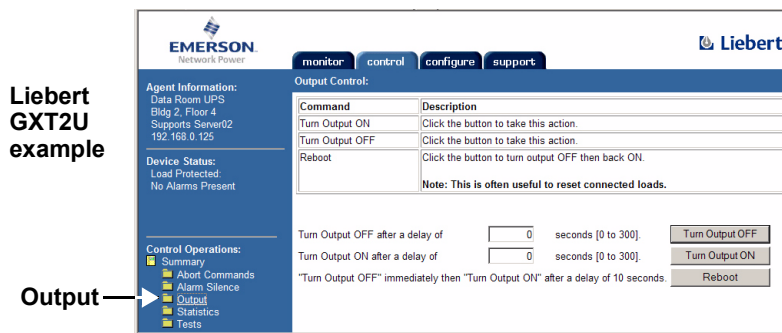
- **Control Operations** categories appear at bottom left, organized with folder icons and showing the available Control functions. Clicking on a category changes the view in the right panel. The example above shows the summary page.

The following guide is a partial list of Control operations—these vary by the type of Liebert unit.

Table 23 Control operations parameters—functions vary by Liebert unit

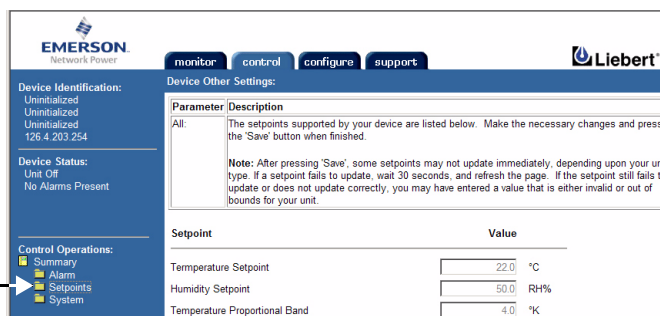
Command	Description
Abort Commands	Prevent any pending commands from being completed.
Alarm Silence / Alarms	Temporarily silence an audible alarm that is active. Reset or acknowledge alarms
Output / System	Turn the Liebert unit On or Off; reboot the unit.
Statistics	Reset statistics—for example, battery or power statistics
Tests	Initiate diagnostic tests on the Liebert unit.
Setpoints	Change setpoints for the Liebert unit.

- To perform an operation, click on a Control Operations category at left, then click on the appropriate button in the right panel. The example below shows control operations for two Liebert units.



Liebert DS example

Setpoints



8.3 Event Log

The Event Log tab allows viewing events stored in the Web card's history. This history is gathered only when the Web card is installed and communicating properly with the device. The history is stored in descending chronological order; Page 1 Item 1 contains the most recent event.

The list of events includes:

1. The time and date of the event—This is either the local time and date (if the network time synchronization is working properly) or the time-delta from when the card was first powered on (if no network time synchronization has taken place).
2. The event ID—This is the index number given to events since the start of the history.
3. The event text—Text stating the type of event and how the card reacted.

Event Log Controls

<<-: Scroll immediately to Page 1 of the history

< -: Scroll left one page in the history

->: Scroll right one page in the history

->>: Scroll immediately to the last page of the history

Links

Agent Event Log at the top of the page includes two links, (.txt) and (.csv). The Txt link will download the entire event history in unformatted text. The CSV link will download the entire event history in comma-separated format, which can then be imported into an application such as Microsoft Excel®.

The screenshot shows the Liebert web interface. At the top, there are navigation tabs: monitor, control, configure, event log, and support. The 'event log' tab is selected. Below the tabs, there is a header for 'Agent Event Log (.txt) (.csv):' with a 'Refresh' button. The header also shows 'Updated: June 24, 2008 09:55:13AM'. Below the header is a table with columns 'Time', 'ID', and 'Event'. The table contains two rows of event data. On the left side of the interface, there is a sidebar with 'Agent Information' and 'Device Status'. Annotations with arrows point to the navigation controls and the 'event log' tab.

Time	ID	Event
0:00:34 (SysUpTime)	2	Sent SNMP Trap IgpSysEventNotifications:Message:System Return to Normal to Trap Recipient List
0:00:34 (SysUpTime)	1	Sent SNMP Trap IgpSysEventNotifications:IgpSysNormal to Trap Recipient List

9.0 SUPPORT INFORMATION

Support data includes identifying information for the Web card, as well as events and parameters available for the Liebert equipment.

9.1 View Web Card Information

Identifying information for the Web card may be viewed through any interface and includes the MAC address, model and part number, serial number and firmware version.



Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To view Web card information:

1. Choose **Factory Settings** from the Main Menu, then choose **Agent Card Information**.
2. The Web card information appears, as shown in the following example. Press the Enter key to return to the previous menu.

```

MAC Address          00-00-68-16-82-C1
Network Card Model   IntelliSlot web Card
Network Card Part #  OCWEBCARD
Manufacture Date     APR 28, 2004
Serial Number        416701G105T2004APR280074
Boot Version         2.300.0
Boot Label           OCWEBCARD_HID3_2.300.0_034380
App Version          2.300.0
App Label            OCWEBCARD_HID3_2.300.0_035191
Hardware Version     3
CPU Speed            50 MHZ
Flash Usage          4327 Out Of 8388 KByte

Hit Enter to Exit
  
```

```

Factory Settings Menu
-----
1: Reset to Factory Defaults
2: Agent Card Information

<ESC>: Cancel menu level

Please select a key ?>
  
```



Web Interface

To view Web card information through the Web interface:

- Click on the **Support** tab, then **Summary** in the left panel. The Web card information appears in the right panel.

The screenshot shows the Emerson Network Power web interface. At the top, there are tabs for 'monitor', 'control', 'configure', and 'support'. The 'support' tab is selected. On the left side, there is a navigation menu with 'Support' expanded to show 'Summary', 'Capabilities', 'Events', and 'Parameters'. The 'Summary' option is selected. The main content area displays a table of system information.

Support tab (indicated by an arrow pointing to the 'support' tab)

Listing in right panel (indicated by an arrow pointing to the table)

Summary (indicated by an arrow pointing to the 'Summary' menu item)

Item	Value
System Name	Data Room UPS
Location	Bldg 2, Floor 4
Description	Supports Server02
Contact	Network Svcs x100
Manufacturer	Liebert Corporation
Agent Model	IntelliSlot Web Card
Agent Part Number	OCWEBCARD
Agent App Firmware Version	2.300.0
Agent App Firmware Label	OCWEBCARD_HID3_2.300.0_035191
Agent Boot Firmware Version	2.300.0
Agent Boot Firmware Label	OCWEBCARD_HID3_2.300.0_034380
Agent Hardware ID	3
Agent Serial Number	416701G105T2004APR280074
Agent Manufacture Date	APR 28 2004
Agent Ethernet MAC Address	00-00-68-16-82-C1
Device Model	GXT2-700RT120
Device Firmware Version	GXT2MR10
Device Serial Number	0031300060AF011
Device Manufacture Date	08NOV00
Manufacturer support	Liebert.com

9.2 Events and Parameters

You may view a list of all supported events and parameters for the Liebert equipment through any interface. Depending on the Liebert IntelliSlot Web card, the list might include SNMP and Modbus.

Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To view this data:

- Choose **IP Network Settings** from the Main Menu.
- Choose **Management Protocol**, then **SNMP Communications**.
- Choose **Support Information** from the SNMP Communications Menu to display the menu at right.

The menu displays:

- the number of events
 - the number of parameters
 - the total number of objects (sum of events and parameters)
- Choose **Display Events** to view a list of supported events for the Liebert unit, as shown in the example at right.

These events may vary according to the Liebert unit where the card is installed.

- Choose **Display Parameters** to view a list of supported parameters for the Liebert unit, as in the example at right.

These parameters vary according to the Liebert unit where the card is installed.

```
SNMP Communications Menu
-----
1: Authentication Traps 'no'
2: Display/Modify Communities
3: Display/Modify Trap
   Communities
4: Support Information
<ESC>: Cancel menu level
Please select a key ?>
```

```
Support Information Menu
-----
1: Display Events
2: Display Parameters
   Total Events:    40
   Total Parameters: 141
   Total Objects:  181
<ESC>: Cancel menu level
Please select a key ?>
```

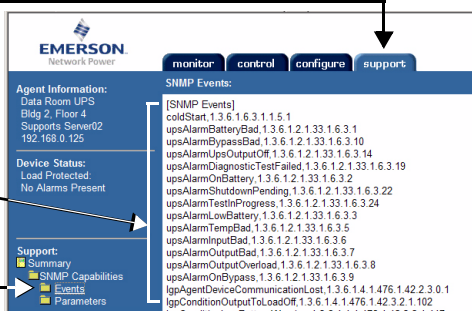
```
Display Events      (Example)
-----
AlarmOnBypass,1.3.6.1.2.1.33.
1.6.3.9
IgpAgentDeviceCommunicationLost,
1.3.6.1.4.1.476.1.42.2.3.0.1
Hit any key to continue...
```

```
Display Parameters (Example)
-----
sysDescr,1.3.6.1.2.1.1.0
sysObjectID,1.3.6.1.2.1.1.2.0
Hit any key to continue...
```

Web Interface

To view events and parameters through the Web interface:

- Click on the **Support** tab, then **Events** (or **Parameters**) in the left panel. The events or parameters are listed in the right panel. The example below shows a list of Events.



The screenshot shows the Emerson Network Power web interface. At the top, there are tabs for 'monitor', 'control', 'configure', and 'support'. The 'support' tab is selected. On the left side, there is a navigation menu with sections: 'Agent Information', 'Device Status', and 'Support'. Under 'Support', there are sub-items: 'Summary', 'SNMP Capabilities', 'Events', and 'Parameters'. The 'Events' sub-item is selected. The main content area displays a list of SNMP Events, including: coldStart, upsAlarmBatteryBad, upsAlarmBypassBad, upsAlarmUpsOutputOff, upsAlarmDiagnosticTestFailed, upsAlarmOnBattery, upsAlarmShutdownPending, upsAlarmTestInProgress, upsAlarmLowBattery, upsAlarmTempBad, upsAlarmInputBad, upsAlarmOutputBad, upsAlarmOutputOverload, upsAlarmOnBypass, and IgpAgentDeviceCommunicationLost. Annotations with arrows point to the 'Support' tab and the 'Events' sub-item in the left panel, with the text 'Listing in right panel' and 'Events (or Parameters)'.

APPENDIX A - FIRMWARE UPDATES

A.1 INTRODUCTION

Liebert's IntelliSlot[®] cards may be updated to take advantage of the latest release of the firmware with enhanced features, compatibility with new units or service patches. Upgraded firmware may be downloaded with a browser, such as Internet Explorer. Liebert maintains firmware upgrades on its Web site, www.liebert.com/downloads.

Liebert manufactures various types of network cards for Liebert products. Before beginning any upgrade, determine the type of Liebert IntelliSlot card to be upgraded.

This identifying information—the type of card and firmware version currently installed—may be found in the documentation shipped with the card or by reading the card's support information through a terminal emulation, Telnet or Web interface, as described in **A.3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version**.



NOTE

Liebert recommends that users read all the instructions prior to attempting a firmware upgrade.

A.1.1 Overview

The firmware upgrade involves these steps:

Table A1 Overview of the upgrade process

Step	For details, see:
1. Decide which interface to use to connect to the Liebert IntelliSlot card	A.2 - Connect to the Card - Terminal Emulation, Telnet or Web Interface
2. Prepare for the upgrade	
<ul style="list-style-type: none"> • Make sure you have everything needed to perform the upgrade 	A.3.1 - Requirements to Update the Liebert IntelliSlot Card's Firmware
<ul style="list-style-type: none"> • Check the type of card and firmware version currently installed 	A.3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version
<ul style="list-style-type: none"> • Download the upgrade file from Liebert's Web site 	A.3.3 - Download the Firmware Upgrade File to the Computer
<ul style="list-style-type: none"> • Decide which method to use for the upgrade 	A.3.4 - Choose a Method to Install the Firmware Upgrade
3. Follow the step-by-step instructions to upgrade the firmware with the chosen method:	
<ul style="list-style-type: none"> • HTTP (Web) Method 	A.4 - Updating the Firmware - HTTP (Web) Method
<ul style="list-style-type: none"> • TFTP (HyperTerminal, Telnet, Web) Method 	A.5 - Updating the Firmware - TFTP (HyperTerminal, Telnet, Web) Method
<ul style="list-style-type: none"> • Xmodem (Serial) Method 	A.6 - Updating the Firmware - Xmodem (Serial) Method

A.1.2 Estimated Time to Download the Firmware Upgrade File

The amount of time required to download the firmware upgrade file depends on the upgrade method used. Refer to **Table A2** for estimated times for each method.

Table A2 Estimated Time for downloads

Upgrade Method	Expected Speed
HTTP (Web) Method (.bin file)	6-7 minutes (subject to network traffic)
TFTP (HyperTerminal, Telnet, Web) Method (.bin file)	5-6 minutes (subject to network traffic)
Xmodem (Serial) Method Xmodem 1K 115,200 bps	1st file 2 minutes
	2nd file 2 minutes
	3rd file 3-5 minutes

A.2 CONNECT TO THE CARD - TERMINAL EMULATION, TELNET OR WEB INTERFACE

Upgrading the firmware requires connecting to the card with one of these interfaces.

A.2.1 Open the Terminal Emulation Interface - Serial Connection

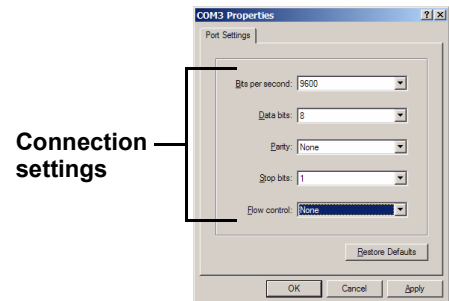
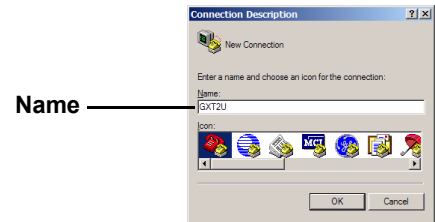
To connect to the card using terminal emulation software with a serial connection to the Web card:

1. Open a terminal emulation application, such as HyperTerminal.
To do this:
 - Click the **Start** button, then **Programs, Accessories, Communications** and finally **HyperTerminal**.
2. In the Connection Description window, enter a name for the connection—for example, **GXT2U**—then click **OK**.
3. In the Connect To window:
 - Choose **COM3** from the Connect Using drop-down list.
 - Click **OK**.
4. In the COM3 Properties window, enter the communication settings shown in **Table A3**.

Table A3 Communication settings

Baud Rate:	9600
Data Bits:	8
Parity:	None
Stop Bits:	1
Flow Control:	None

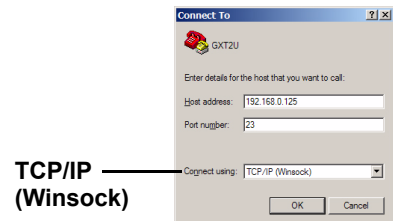
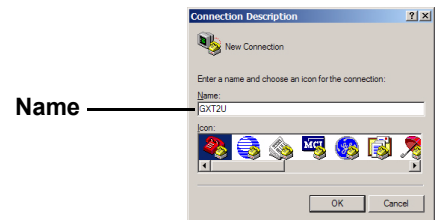
5. When the message at right appears in the HyperTerminal window, press the Enter key.



A.2.2 Open the Terminal Emulation Interface - TCP/IP Connection

To connect to the card using terminal emulation software with an Ethernet connection to the Web card:

1. Open a terminal emulation application, such as HyperTerminal.
To do this:
 - Click the **Start** button, then **Programs, Accessories, Communications** and finally **HyperTerminal**.
2. In the Connection Description window, enter a name for the connection—for example, **GXT2U**—then click **OK**.
3. In the Connect To window:
 - Choose **TCP/IP (Winsock)** from the Connect Using drop-down list.
 - Enter the IP address of the Web card—for example, **192.168.0.125**—in the Host Address box, then click **OK**.
4. When the message at right appears in the HyperTerminal window, press the Enter key.
5. Enter the Administrator username and password (both are case-sensitive):
 - a. **Login** (username—default is *Liebert*)
 - b. **Password** (default is *Liebert*)



```
RTCS v2.96.00 Telnet server
Service Port Manager Active
<Esc> Ends Session
```

```
Login: Liebert
Password: *****
```

A.2.3 Open the Telnet Interface

To connect to the card using Telnet:

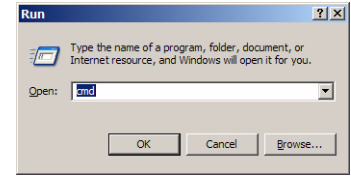
1. Open a Telnet connection on a computer with an Ethernet connection to the Liebert unit.

To do this:

- Open a command prompt window—click the **Start** button, then **Run**.
- Enter **cmd** and click **OK**.
- In the command prompt window that opens, enter **telnet** followed by a space and the IP address of the Web card—for example:

telnet 192.168.0.125

2. When the message at right appears in the command prompt window, press the Enter key.
3. Enter the Administrator username and password (both are case-sensitive):
 - a. **Login** (username—default is *Liebert*)
 - b. **Password** (default is *Liebert*)



```
C:>telnet 192.168.0.125
RTCS v2.96.00 Telnet server
Service Port Manager Active
<ESC> Ends Session
```

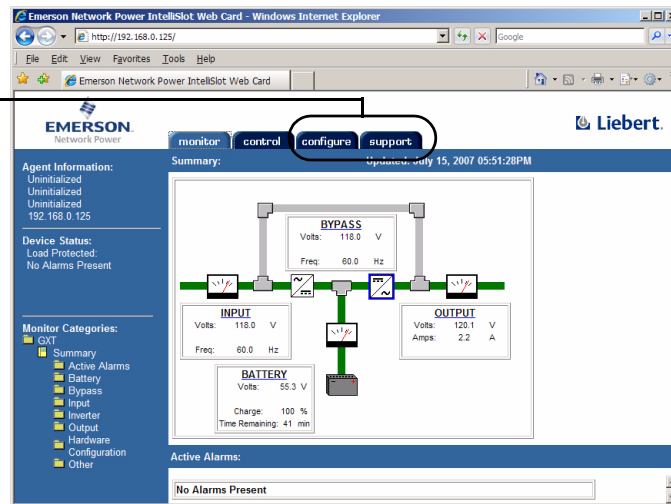
```
Login: Liebert
Password: *****
```

A.2.4 Open the Web Interface

To connect to the card using the Web interface:

1. Open a Web browser such as Internet Explorer.
2. Enter the IP address of the Web card in the address bar—e.g., **192.168.0.125**.
3. Click on a tab at the top of the window.

Configure and Support Tabs



A.3 PREPARING TO UPDATE LIEBERT INTELLISLOT FIRMWARE

A.3.1 Requirements to Update the Liebert IntelliSlot Card's Firmware

Make sure you have the following before starting the update:

- Firmware upgrade downloaded from Liebert's Web site (see **A.3.3 - Download the Firmware Upgrade File to the Computer**)
- A computer running Internet Explorer 5.5 or newer
- A Liebert IntelliSlot card
- A connection to the Liebert IntelliSlot card
 - Null modem cable—serial upgrade method
 - Ethernet connection—TFTP or HTTP upgrade method
- An Internet connection

A.3.2 Determine the Liebert IntelliSlot Card Type and Firmware Version

Each type of Liebert IntelliSlot card uses different firmware. Attempting to upgrade a card with the firmware for another type of card will fail and may damage the card.

To determine the type of card in your Liebert equipment:



Terminal Emulation (Serial or TCP/IP Connection) / Telnet

To view Web card information using terminal emulation or Telnet:

1. Open a connection to the Liebert IntelliSlot card (if needed, see instructions in **A.2.1 - Open the Terminal Emulation Interface - Serial Connection**, **A.2.2 - Open the Terminal Emulation Interface - TCP/IP Connection** or **A.2.3 - Open the Telnet Interface**).
2. Choose **Factory Settings** from the Main Menu, then choose **Agent Card Information**.
3. The Liebert IntelliSlot card model, part number and firmware version appear in the following example. Press the Enter key to return to the previous menu

```
Factory Settings Menu
-----
1: Reset to Factory Defaults
2: Agent Card Information
<ESC>: Cancel menu level
Please select a key ?>
```

MAC Address	00-00-68-16-82-C1
Network Card Model	IntelliSlot Web Card
Network Card Part #	OCWBCARD
Manufacture Date	APR 28,2004
Serial Number	416701G105T2004APR280074
Boot Version	2.300.0
Boot Label	OCWBCARD_HID3_2.300.0_034380
App Version	2.300.0
App Label	OCWBCARD_HID3_2.300.0_035191
Hardware Version	3
CPU Speed	50 MHz
Flash Usage	4327 Out of 8388 KByte
Hit Enter to Exit	

Model and Part Number (points to Network Card Model and Network Card Part #)

Firmware Version (points to App Version)

Web Interface

To view Web card information using a Web browser:

1. Open a connection to the Liebert IntelliSlot card (if needed, see instructions in **A.2.4 - Open the Web Interface**).
2. Click on the **Support** tab, then **Summary** in the left panel. The Liebert IntelliSlot card model, part number and firmware version appear in the right panel.

Support tab (points to support tab in the interface)

Summary (points to Summary link in the left panel)

Item	Value
System Name	Data Room UPS
Location	Bldg 2, Floor 4
Description	Supports Server02
Contact	Network Svcs x100
Manufacturer	Liebert Corporation
Agent Model	IntelliSlot Web Card
Agent Part Number	OCWBCARD
Agent App Firmware Version	2.300.0
Agent App Firmware Label	OCWBCARD_HID3_2.300.0_035191
Agent Boot Firmware Version	2.300.0
Agent Boot Firmware Label	OCWBCARD_HID3_2.300.0_034380
Agent Hardware ID	3

Model, Part Number and Firmware Version (points to Agent Model, Agent Part Number, and Agent App Firmware Version)

A.3.3 Download the Firmware Upgrade File to the Computer



NOTE

Turn off the power management on your PC or laptop before beginning the update to ensure that communication will not be disrupted during the process.

To download the upgrade file:

1. Open a Web browser, such as Internet Explorer (5.5 or newer).
2. Navigate to Liebert’s Web site, www.liebert.com/downloads.
3. Choose the firmware upgrade for your card from the selections on the Web page (see **A.3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version**).
4. Click on the link to download the file.
5. Save the file to your computer’s hard drive.

Be sure to make a note of the location where the file is saved.

A.3.4 Choose a Method to Install the Firmware Upgrade

To install the firmware upgrade, choose one of these three methods and refer to the associated step-by-step directions:

- HTTP (Web) - see **A.4 - Updating the Firmware - HTTP (Web) Method**
- TFTP - see **A.5 - Updating the Firmware - TFTP (HyperTerminal, Telnet, Web) Method**
- Xmodem (Serial) - see **A.6 - Updating the Firmware - Xmodem (Serial) Method**

A.4 UPDATING THE FIRMWARE - HTTP (WEB) METHOD

Follow these steps to install the firmware upgrade using the HTTP (Web) method. This method is available through the Web interface only and requires an Ethernet connection to the Web card.

A.4.1 Install the Firmware Upgrade



NOTE

Turn off the power management on your PC or laptop before beginning the update to ensure that communication will not be disrupted during the process.

To update the Liebert IntelliSlot card firmware using the HTTP (Web) method:

1. Open a connection to the Liebert IntelliSlot card (if needed, see instructions in **A.2.4 - Open the Web Interface**).
2. Click on the **Configure** tab, then click on **Web** (under Firmware Update) in the left panel. The Connect To box opens for you to enter the username and password.
3. Enter the Administrator username and password (both case-sensitive):
 - a. **User Name** (default is *Liebert*)
 - b. **Password** (default is *Liebert*)
4. Click **OK**. The Web (HTTP) Firmware Update window opens, as shown at right below.

The screenshot shows the Emerson Network Power web interface. On the left, the 'Configure' tab is active, and the 'Web' option under 'Firmware Update' is selected. A 'Connect To' dialog box is open, prompting for 'User name' and 'Password'. The 'Web (HTTP) Firmware Update' window is also visible, showing a 'Filename' field and an 'Update Firmware' button. Arrows point from the text labels 'Connect To', 'Filename', and 'Update Firmware' to their respective elements in the interface.

5. Click on the **Browse** button to locate the upgrade file. This is the file with the extension “.bin” downloaded in **A.3.3 - Download the Firmware Upgrade File to the Computer**. Then click **Open** to return to the update screen.
6. When ready to begin the update, click the **Update Firmware** button.
A screen will appear, showing the firmware update progress.



NOTE

Do not refresh your browser or open another browser window. Wait until the firmware update has been completed before opening other applications or using the computer for other tasks.

7. A message appears indicating whether the update was successful.

After the firmware update is completed, the card will reinitialize and you may return to the Liebert IntelliSlot card’s Web interface.

Check the new firmware version if you wish (see **A.3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version**).

A.5 UPDATING THE FIRMWARE - TFTP (HYPERTERMINAL, TELNET, WEB) METHOD

Follow these steps to update the firmware using the TFTP method. This method is available through the terminal emulation, Telnet and Web interfaces with an Ethernet connection to the Web card.



NOTE

This method includes a time-sensitive operation requiring expeditious location of the upgrade files downloaded in A.3.3 - Download the Firmware Upgrade File to the Computer.

Read through this entire section before beginning the upgrade.

A.5.1 TFTP Method - Terminal Emulation / Telnet Interface

To update the Liebert IntelliSlot card firmware using the TFTP method with a terminal emulation or Telnet interface:

Open a Connection to the Card

1. Open a terminal emulation or Telnet connection to the Liebert IntelliSlot card (if needed, see instructions in A.2.2 - Open the Terminal Emulation Interface - TCP/IP Connection or A.2.3 - Open the Telnet Interface).
2. Choose **Firmware Updates** from the Main Menu.
3. Choose **TFTP Update** from the Firmware Updates menu, shown at right.

```
Firmware Updates Menu
-----
1: TFTP Update
```

Specify TFTP Server and Upgrade Filename

4. The TFTP Update Menu, shown at right, displays the TFTP server's IP address and listening port, along with the name of the firmware update file.
5. Select options as needed and refer to the following guide to change any settings.

```
TFTP Update Menu
-----
1: IP Address  0.0.0.0
2: Port       69
3: Filename   Uninitialized
4: Initiate TFTP Firmware Update

<ESC>: Cancel menu level
Please select a key ?>
```

Table A4 Firmware update settings - TFTP

Parameter	Description
Server	The IP address of the TFTP server—for example, 192.168.0.125 .
Port	Port that the TFTP server is using, typically 69 .
Filename	Name of the firmware update file—128 characters maximum, including spaces and punctuation. This is the file with the extension “.bin” downloaded in A.3.3 - Download the Firmware Upgrade File to the Computer .

6. After making changes, press the Escape key twice to return to the Main Menu.
7. Choose **Exit and Save** to save your changes and reboot the card.

Reconnect to the Card

8. Connect to the Liebert IntelliSlot card again (if needed, see A.2.3 - Open the Telnet Interface or A.2.1 - Open the Terminal Emulation Interface - Serial Connection).
9. Choose **Firmware Updates** from the Main Menu.
10. Choose **TFTP Update** from the Firmware Updates menu, shown at right.

```
Firmware Updates Menu
-----
1: TFTP Update
```

Begin the Upgrade Process

11. When ready to begin the update, choose **Initiate TFTP Firmware Update**.
12. Open the TFTP application and start TFTP. Ensure that all settings are ready to transfer the file, including the location of the upgrade file. Refer to your TFTP user manual for more details.
13. Return to the terminal emulation/Telnet screen. At the confirmation message prompt, enter **y** (yes) to confirm your choice. (To cancel, enter **n** for no.)
14. A message appears, as shown at right, showing the progress by percent complete.
15. When the progress screen shows 100% complete, the card will be rebooted. Press Enter when this is finished.
16. Press the Escape key to return to the Main Menu, then choose **Exit and Save**.

The upgrade is now complete.

Check the new firmware version if you wish (see **A.3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version**).

```
TFTP Update Menu
-----
1: IP Address 192.168.0.125
2: Port      69
3: Filename  OCWEBCARD_HID3_2.300.0_035780_AppFwUpdt.bin
4: Initiate TFTP Firmware Update

<ESC>: Cancel menu level

Please select a key ?>
```

```
All Code In Flash Will Be Rewritten, Confirm? [y/n]
```

```
TFTP Update initiated

The firmware on this card is currently being updated.
This operation may take 6 or more minutes depending
on network traffic and other factors. The card will be
rebooted upon successful completion of the process OR
control will be returned to this terminal session upon
failure so another firmware update attempt can be made.

Firmware update in process... Percent Complete(0%)
```

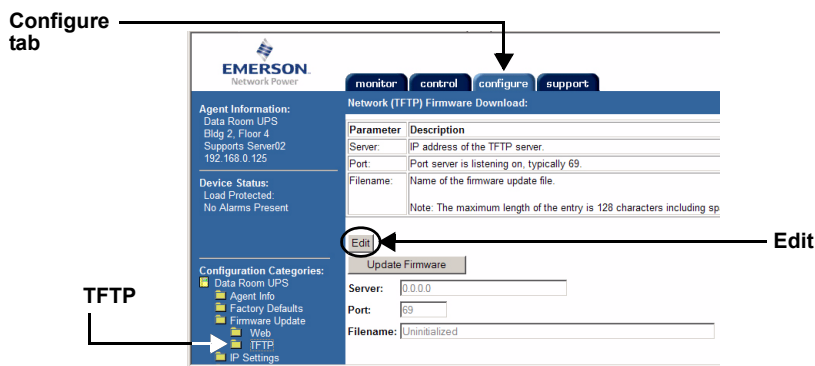
```
Main Menu
-----
1: System Information
2: IP Network Settings
3: Messaging
4: Factory Settings
5: Firmware Updates
q: Quit and abort changes
x: Exit and save
Please select a key ?>
```

A.5.2 TFTP Method - Web Interface

To update the Liebert IntelliSlot card firmware using the TFTP method with a Web interface:

Open a Connection to the Card

1. Open a connection to the Liebert IntelliSlot card (if needed, see instructions in **A.2.4 - Open the Web Interface**).
2. Click on the **Configure** tab, then **TFTP** in the left panel.



3. Enter the Administrator username and password (both are case-sensitive):
 - a. **Login** (username—default is *Liebert*)
 - b. **Password** (default is *Liebert*)

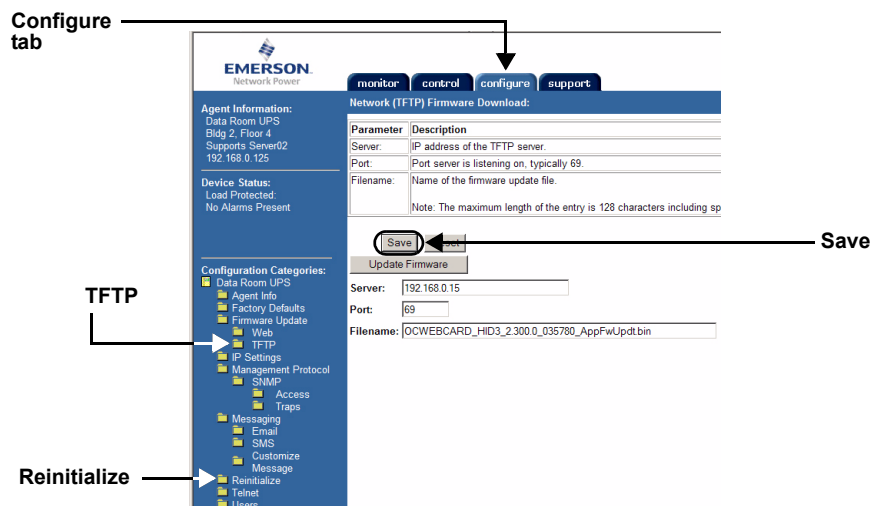
Specify TFTP Server and Upgrade Filename

- Click the **Edit** button in the right panel.
- Select options as needed and refer to the following guide to change any settings.

Table A5 Firmware update settings - Web

Parameter	Description
Server	The IP address of the TFTP server—for example, 192.168.0.125 .
Port	Port that the TFTP server is using, typically 69 .
Filename	Name of the firmware update file—128 characters maximum, including spaces and punctuation. This is the file with the extension “.bin” downloaded in A.3.3 - Download the Firmware Upgrade File to the Computer .

- After making changes, click **Save**, then click **Reinitialize** in the left panel to reboot the card.

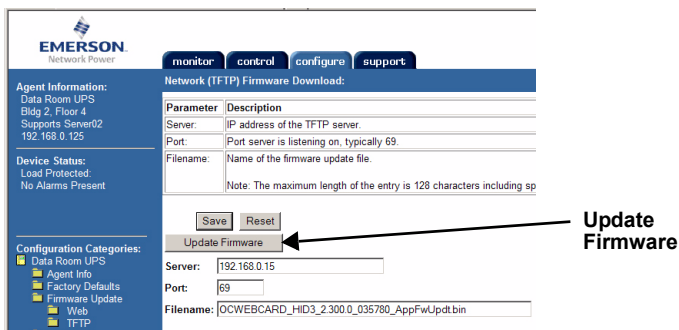


Reconnect to the Card

- Click the **Configure** tab, then **TFTP** and enter the username and password (**Steps 2 and 3**) to return to the TFTP screen as shown above.

Begin the Upgrade Process

- Open the TFTP application and start TFTP. Ensure that all settings are ready to transfer the file, including the location of the upgrade file. Refer to your TFTP user manual for more details.
- Return to the Web interface.
- When ready to begin the download, click the **Update Firmware** button.



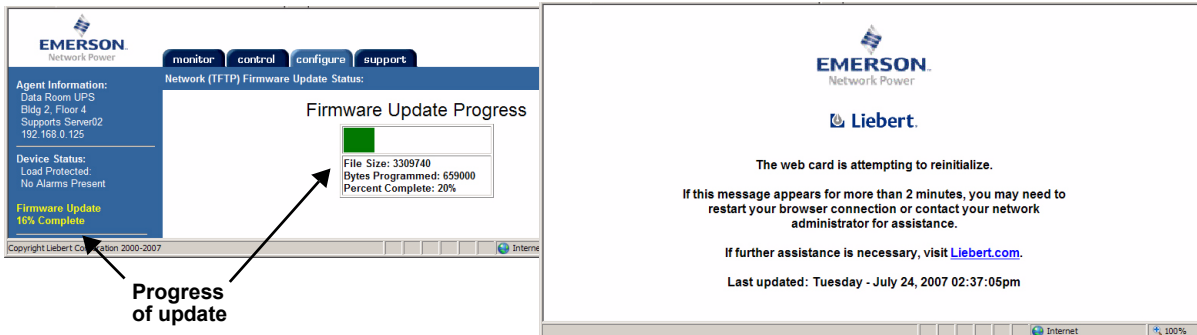
11. During the update, the window displays a progress bar, as shown below left.



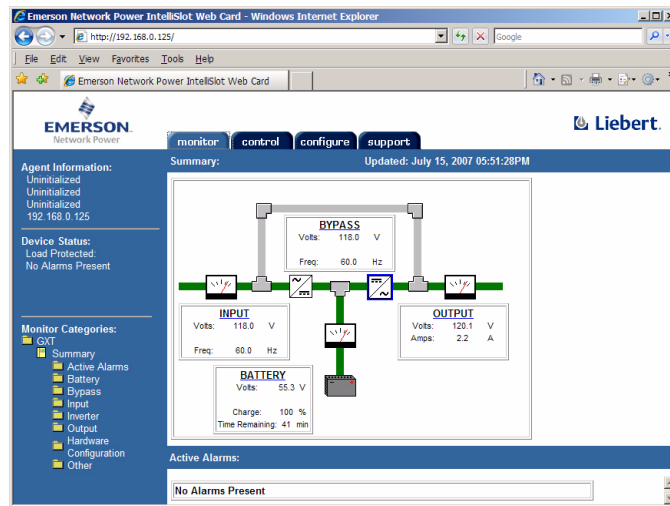
NOTE

Do not close the Web browser during this process or the update will abort.

After the firmware update is completed, the card will reinitialize automatically. A reboot message, as shown below right, remains until the rebooting is finished.



When the rebooting is complete, the Web browser window returns to the default opening view. The upgrade is now complete.



Check the new firmware version if you wish (see A.3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version).

A.6 UPDATING THE FIRMWARE - XMODEM (SERIAL) METHOD

Follow these steps to update the firmware using the Xmodem (serial) method. This method works through the Web card's serial port, employing terminal emulation software, such as HyperTerminal.



NOTE

This method includes a time-sensitive operation requiring expeditious location of the upgrade files downloaded in A.3.3 - Download the Firmware Upgrade File to the Computer. Read through this entire section before beginning the upgrade.

Connect a Cable to the Serial Ports

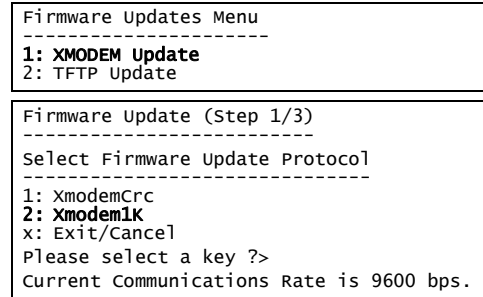
1. Connect one end of a DB-9 null modem or file transfer cable to the Web card's serial port and the other to the computer's serial port. The correct cable will have at a minimum, Pins 2 and 3 crossed at the ends, as shown in **Figure A1**.

Figure A1 Null connection



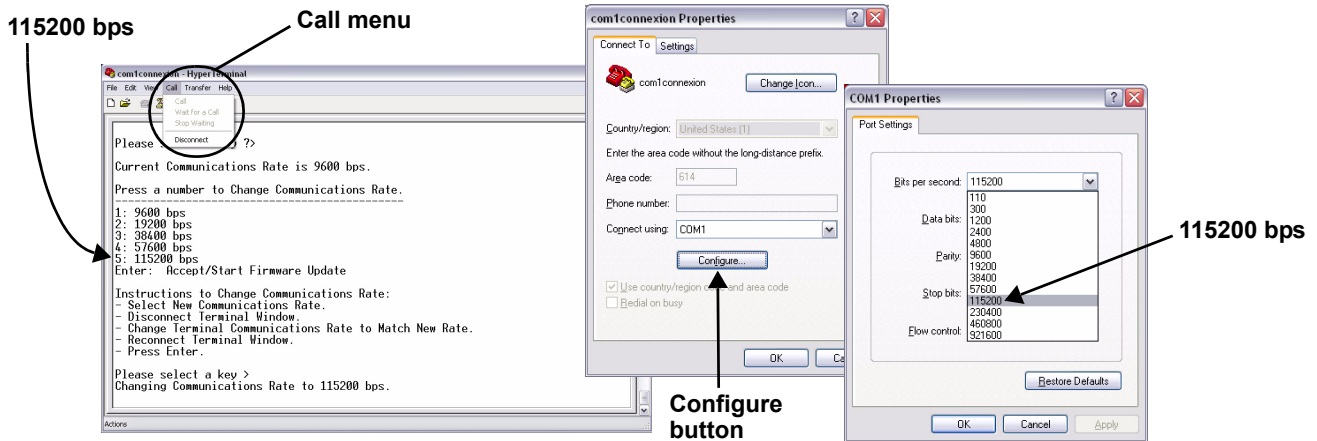
Open a Terminal Emulation Connection

2. Open a connection to the Liebert IntelliSlot card (if needed, see instructions in **A.2.1 - Open the Terminal Emulation Interface - Serial Connection**).
3. Choose **Firmware Updates** from the Main Menu.
4. Choose **XMODEM Update** from the Firmware Updates menu, seen at right, and enter y (yes) to confirm your choice.
5. Choose **Xmodem1K** from the Select Firmware Update Protocol, as shown at right.



Change the Baud Rate to 115200

6. Choose **115200 bps** from the menu, shown below left.
7. From the HyperTerminal menu, click on **Call**, then choose **Disconnect** (this will not close the HyperTerminal connection to the card).
8. In the HyperTerminal menu bar, click on **File**, then choose **Properties**.
9. Click on the Connect To tab and click the **Configure** button. This opens Port Settings tab in the COM1 Properties window, as shown below right.
10. Choose **115200** from the Bits Per Second drop-down list and click **OK**, then click **OK** to close the Properties window.
11. In the HyperTerminal menu bar, click on **Call**, then choose **Call** from the drop-down menu and press the Enter key.



Download the First Firmware Update File

12. After changing the communication rate to 115200 bps, press Enter to resume the firmware update.

After you press Enter, HyperTerminal displays Cs as it counts down the time remaining to locate and begin transferring the upgrade files.



NOTE

After you begin the initialization process in **Step 12**, you must complete **Steps 13 through 15** within 60 seconds. Before beginning, check to ensure that you know the location of the firmware files and read through the following steps to understand what needs to be done.

This 60-second limit also applies to downloading the second and third upgrade files.

13. In the HyperTerminal menu, click on **Transfer**, then **Send File**.

The image shows three overlapping windows from a HyperTerminal session. The background window is the HyperTerminal interface with a menu open showing 'Transfer' > 'Send File'. A 'Send File' dialog box is open, showing a file selection process. A 'Select File to Send' dialog box is also open, showing a list of files in a folder named 'DCWEBCARD_HID3_2'. A '1K Xmodem file send for com1connection' progress window is in the foreground, showing 'Elapsed' time and 'Remaining' time. Arrows point from text labels to specific elements in the windows: 'Browse to locate upgrade file' points to the 'Browse...' button in the 'Send File' dialog; 'Choose 1K Xmodem' points to the '1K Xmodem' protocol selection; 'Press Enter to start firmware update' points to the 'Enter' key press in the HyperTerminal window; 'Progress window shows elapsed time...' points to the 'Elapsed' field; and '... and remaining time' points to the 'Remaining' field.

14. Click the **Browse** button to locate an upgrade file. Select the files in order—the filename ending in FILE1 for the first download, then FILE2, and finally FILE3—then click **Open**.

15. In the Send File window, choose **1K Xmodem** from the Protocol drop-down list and click **Send**.

A progress window opens, showing the elapsed time and amount of time remaining for the first file to be downloaded to the Liebert IntelliSlot card. The window closes after the first file is downloaded.



NOTE

Do not press any keys while the progress window remains open or the download will abort.

Download the Second and Third Firmware Update Files

16. When the progress window closes, enter **y** (yes) in HyperTerminal to continue the upgrade.

17. Choose **Xmodem1K** in the Select Firmware Update Protocol menu.

18. The screen shows that the communication rate is 115200. This does not need to be changed.

19. Press Enter to continue.

20. Repeat **Steps 12 through 15** within the 60-second limit to browse to the second upgrade file and download it to the Liebert IntelliSlot card.

21. Wait for the Progress window to close after the second file is downloaded.

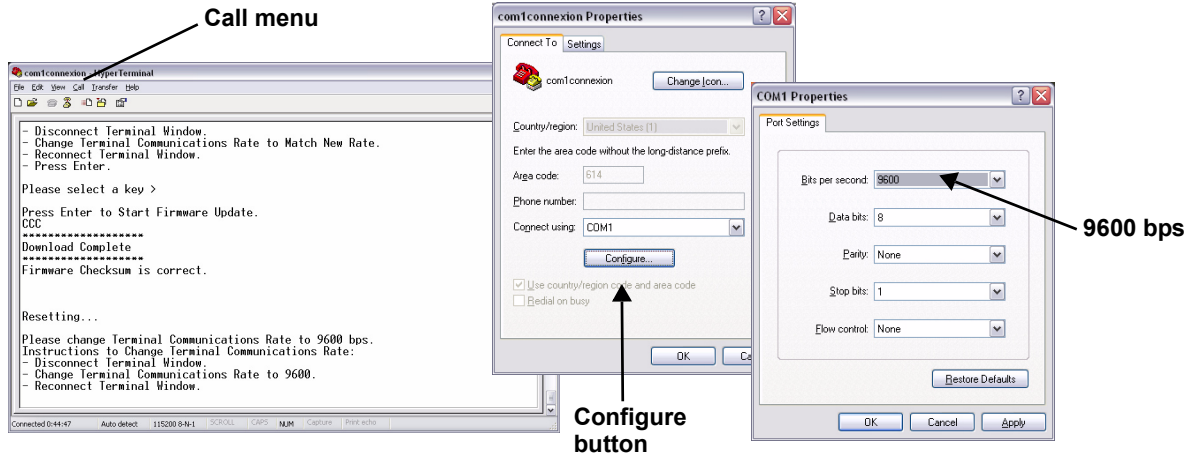
Then repeat **Steps 16 through 20** to download the third upgrade file. This file is the largest and may take 30 minutes or longer to download.

```

Would You Like to Continue (Y or N)?
Firmware Update (Step 2/3)
-----
Select Firmware Update Protocol
-----
1: XmodemCrc
2: Xmodem1K
X: Exit/Cancel
Please select a key ?>
Current Communications Rate is 115200 bps.
Press a number to Change Communications Rate.
-----
1: 9600 bps
2: 19200 bps
3: 38400 bps
4: 57600 bps
5: 115200 bps
Enter: Accept/Start Firmware Update
Please select a key >
Press Enter to Start Firmware Update.
    
```

Complete the Upgrade and Restore Communication Rate

22. Choose **9600 bps** from the menu, shown below left.
23. From the HyperTerminal menu, click on **Call**, then choose **Disconnect** (this will not close the HyperTerminal connection to the card).
24. In the HyperTerminal menu bar, click on **File**, then choose **Properties**.
25. Click on the Connect To tab and click the **Configure** button. This opens Port Settings tab in the COM1 Properties window, as shown below right.
26. Choose **9600** from the Bits Per Second drop-down list and click **OK**, then click **OK** to close the Properties window.
27. In the HyperTerminal menu bar, click on **Call**, then choose **Call** from the drop-down menu.
28. Press the Enter key.



29. Choose **Exit and Save** from the Main Menu to reboot the card. When rebooting is complete, the upgrade is finished.

Check the new firmware version if you wish (see **A.3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version**).

```

Main Menu
-----
1: System Information
2: IP Network Settings
3: Messaging
4: Factory Settings
5: Firmware Updates

q: Quit and abort changes
x: Exit and save

Please select a key ?> 5
    
```


Notes

Ensuring The High Availability Of Mission-Critical Data And Applications.

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SL-52615_REV02_08-08

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