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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.

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**

<table>
<thead>
<tr>
<th>Liebert IntelliSlot Card</th>
<th>Part Number</th>
<th>Communication Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liebert IntelliSlot Web Card</td>
<td>IS-WEBCARD</td>
<td>✓ ✓ ✓ — ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Liebert IntelliSlot Web Card-LB</td>
<td>IS-WEBLB</td>
<td>✓ ✓ ✓ — ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Liebert IntelliSlot Web Card-LBDS</td>
<td>IS-WEBLBDS</td>
<td>✓ ✓ — — — ✓ — ✓</td>
</tr>
<tr>
<td>Liebert IntelliSlot Web/485 Card-ADPT</td>
<td>IS-WEB485ADPT</td>
<td>✓ ✓ — ✓ — — ✓ ✓</td>
</tr>
</tbody>
</table>

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](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>
<thead>
<tr>
<th>Baud Rate: 9600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Bits: 8</td>
</tr>
<tr>
<td>Parity: None</td>
</tr>
<tr>
<td>Stop Bits: 1</td>
</tr>
<tr>
<td>Flow Control: None</td>
</tr>
</tbody>
</table>

- 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>
<thead>
<tr>
<th>Table 3 Communication settings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baud Rate:</strong> 9600</td>
</tr>
<tr>
<td><strong>Data Bits:</strong> 8</td>
</tr>
<tr>
<td><strong>Parity:</strong> None</td>
</tr>
<tr>
<td><strong>Stop Bits:</strong> 1</td>
</tr>
<tr>
<td><strong>Flow Control:</strong> None</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Interface</th>
<th>Icon</th>
<th>Description</th>
<th>Available Functions</th>
<th>Connection Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Emulation</td>
<td></td>
<td>Use terminal emulation software — for example, HyperTerminal.</td>
<td>Configuration</td>
<td>Serial Cable or TCP/IP</td>
</tr>
<tr>
<td>(Serial or TCP/IP)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telnet</td>
<td></td>
<td>Use a command prompt — enter &quot;telnet&quot; and the IP address or hostname.</td>
<td>Configuration</td>
<td>TCP/IP</td>
</tr>
<tr>
<td>Web</td>
<td></td>
<td>Use a Web browser — for example, Microsoft® Windows® Internet Explorer®.</td>
<td>Configuration, Monitoring, Control</td>
<td>TCP/IP</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Topic</th>
<th>Section</th>
<th>Page:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecting to an interface</td>
<td>3.2 - Open the Terminal Emulation Interface - Serial Connection</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>3.3 - Open the Terminal Emulation Interface - TCP/IP Connection</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>3.4 - Open the Telnet Interface</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>3.5 - Open the Web Interface</td>
<td>10</td>
</tr>
<tr>
<td>Saving configuration changes</td>
<td>3.6 - Saving Changes and Reinitializing the Web Card</td>
<td>10</td>
</tr>
<tr>
<td>Performing configuration functions</td>
<td>4.0 - System Information</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>5.0 - Network Settings</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>6.0 - Messaging</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>7.0 - Factory Settings</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Appendix A - - Firmware Updates</td>
<td>A1</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Table 6 Communication settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud Rate: 9600</td>
</tr>
<tr>
<td>Data Bits: 8</td>
</tr>
<tr>
<td>Parity: None</td>
</tr>
<tr>
<td>Stop Bits: 1</td>
</tr>
<tr>
<td>Flow Control: None</td>
</tr>
</tbody>
</table>

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).
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)

   **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).
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*)

   **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*).
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.

- 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.

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Maximum Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>A name for the Liebert unit</td>
<td>255 characters*</td>
</tr>
<tr>
<td>Contact</td>
<td>A contact person or department responsible for maintenance and operation of the Liebert unit</td>
<td>64 characters*</td>
</tr>
<tr>
<td>Location</td>
<td>The location of the Liebert unit</td>
<td>64 characters*</td>
</tr>
<tr>
<td>Description</td>
<td>Other useful information about the unit for quick reference</td>
<td>64 characters*</td>
</tr>
</tbody>
</table>

* 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.
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

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

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description &amp; Valid Settings*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed/ Duplex</td>
<td>Speed and duplex configuration of the Ethernet port.</td>
</tr>
<tr>
<td></td>
<td>• Auto (default—use this setting if unknown)</td>
</tr>
<tr>
<td></td>
<td>• 10Mbs/Half Duplex</td>
</tr>
<tr>
<td></td>
<td>• 100Mbs/Half Duplex</td>
</tr>
<tr>
<td></td>
<td>• 10Mbs/Full Duplex</td>
</tr>
<tr>
<td></td>
<td>• 100Mbs/Full Duplex</td>
</tr>
<tr>
<td>Boot Mode</td>
<td>Startup mode enabling the Web card to be a network-ready device.</td>
</tr>
<tr>
<td></td>
<td>• Static - Fixed network addresses and other parameters</td>
</tr>
<tr>
<td></td>
<td>• DHCP - Central management using dynamic network addresses</td>
</tr>
<tr>
<td></td>
<td>• BootP - Older mechanism for central management of network addresses</td>
</tr>
<tr>
<td>IP address</td>
<td>Network address for the Liebert unit. Four numbers (0-255) separated by periods (.)—for example, 10.0.0.5</td>
</tr>
<tr>
<td>Netmask</td>
<td>Network mask that divides your network into manageable segments. Four numbers (0-255) separated by periods (.)—e.g., 255.255.255.0</td>
</tr>
<tr>
<td>Default Gateway</td>
<td>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</td>
</tr>
<tr>
<td>DHCP/BootP Server</td>
<td>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</td>
</tr>
<tr>
<td>DNS Server</td>
<td>IP address of the Domain Name Server for the network. Four numbers (0-255) separated by periods (.)—e.g., 10.0.0.1</td>
</tr>
</tbody>
</table>

* 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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description &amp; Valid Settings*</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNS Mode</td>
<td>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.</td>
</tr>
<tr>
<td>Primary DNS</td>
<td>Primary IP address of the name server for network.* Four numbers (0-255) separated by periods (.)—e.g., 192.168.0.1</td>
</tr>
<tr>
<td>Secondary DNS</td>
<td>Secondary IP address of the name server for network.* Four numbers (0-255) separated by periods (.)—e.g., 192.168.0.1</td>
</tr>
<tr>
<td>DNS Resolve Interval</td>
<td>Interval to resolve DNS addresses from a network name to an IP address.</td>
</tr>
<tr>
<td>Domain Name Suffix</td>
<td>This suffix is used for assembling a fully qualified domain name when a host-only name is specified.</td>
</tr>
<tr>
<td>DNS Test</td>
<td>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.</td>
</tr>
</tbody>
</table>

* 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**.

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.

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

To change any parameter:

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

**Table 11 Management protocol ranges**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description &amp; Telnet Menus</th>
<th>SNMP Communications Menu</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SNMP Agent</strong></td>
<td>Enable or disable SNMP for remote management.</td>
<td>1: Authentication Traps 'no'</td>
</tr>
<tr>
<td></td>
<td>Set up access privileges, configure the Web card to send traps, described in the next section, <strong>SNMP Communications Menu</strong>.</td>
<td>2: RFC-1628 (UPS) MIB 'enabled'</td>
</tr>
<tr>
<td></td>
<td>For details on viewing support information, see 9.2 - Events and Parameters.</td>
<td>3: Traps 'enabled'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4: Liebert Global Products MIB 'enabled'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5: Condition Traps 'enabled'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6: System Notify Traps 'enabled'</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7: Heartbeat Trap Interval''</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8: Display/Modify Communities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9: Display/Modify Trap Communities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A: Support Information</td>
</tr>
<tr>
<td><strong>SNMP Communications</strong></td>
<td><strong>Enable SNMP Agent? [y/n] ?</strong></td>
<td>&lt;ESC&gt;: Cancel menu level</td>
</tr>
<tr>
<td></td>
<td>Obtain address automatically</td>
<td>Please select a key ?&gt; 1</td>
</tr>
<tr>
<td></td>
<td>Specify address Options for how long card retains resolved addresses</td>
<td></td>
</tr>
</tbody>
</table>
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**.

Click on **Edit** to enable any options

List sets frequency of Heartbeat Traps

Configure tab

Management Protocol
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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description &amp; Telnet Menus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentication Traps</td>
<td>Enables authentication traps to receive security alerts when the Web card detects a request with an invalid community string.</td>
</tr>
<tr>
<td>RFC-1628 (UPS) MIB</td>
<td>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.</td>
</tr>
<tr>
<td>Traps</td>
<td>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.</td>
</tr>
<tr>
<td>Liebert Global Products MIB</td>
<td>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.</td>
</tr>
<tr>
<td>Condition Traps</td>
<td>Enables event condition traps to be sent per the LGP MIB. The parent option must be enabled for this to also be enabled.</td>
</tr>
<tr>
<td>System Notify Trap Enabled</td>
<td>Enables system traps to be sent per the LGP MIB. The parent option must be also enabled for this to be enabled.</td>
</tr>
<tr>
<td>Heartbeat Trap Interval</td>
<td>Specifies how often a heartbeat trap will be sent to show that the device is online and functioning normally.</td>
</tr>
</tbody>
</table>

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  Community string
#   (read/write)   
<a>dd  <d>elete  <e>dit
Complex lines allowed. e.g. <a 198.1.1.1 write 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 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)
Network Settings

**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.

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):
- 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.

**Example**

```
a 10.0.0.5 162 public1
```

**Edit a device** (see example at right to enter all parameters in one line):
- 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.

**Example**

```
e 2 10.0.0.7 read public2
```

**Delete a device** (see example at right to enter parameters in one line):
- Enter **d**, then press Enter. No confirmation message will appear.
- Type the Entry Number, then press Enter.

**Example**

```
d 2
```

**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**
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.

5.4.1 Specify Web Server Settings

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description &amp; Valid Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Server Mode</td>
<td>Select the operation mode of the Web server.</td>
</tr>
<tr>
<td></td>
<td>- Disabled: Web server is disabled</td>
</tr>
<tr>
<td></td>
<td>- HTTP: Standard Web port, not encrypted</td>
</tr>
<tr>
<td></td>
<td>- HTTPS: Standard secure Web port, all communication is encrypted</td>
</tr>
<tr>
<td>HTTP Transport Port</td>
<td>Web Server listening port number.</td>
</tr>
<tr>
<td></td>
<td>- For HTTP mode (non-encrypted communications), the default port is 80.</td>
</tr>
<tr>
<td></td>
<td>- For HTTPS mode (encrypted communications), the default port is 443.</td>
</tr>
<tr>
<td></td>
<td>For HTTPS, you must also install a security certificate for Internet Explorer:</td>
</tr>
<tr>
<td></td>
<td>- 5.4.2 - Install Security Certificates - Internet Explorer 6 or earlier</td>
</tr>
<tr>
<td></td>
<td>- 5.4.3 - Install Security Certificates - Internet Explorer 7 or later</td>
</tr>
<tr>
<td>Password Protect Site</td>
<td>When enabled, the entire site is password-protected. (If disabled, all pages are accessible without a password except configure and control functions.)</td>
</tr>
<tr>
<td>Configuration/Control</td>
<td>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.</td>
</tr>
<tr>
<td>Refresh Interval</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.
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:

![Security Alert](image)

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

![Certificate Path tab](image)

- In the Certificate window, above left, click the Certificate Path tab.

![View Certificate](image)

- 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.

![Install Certificate](image)

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

![Automatically select...](image)

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

![Completing the Certificate Import Wizard](image)

• 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 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.

![Certificate window with Install Certificate button highlighted.]

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

![Certificate Import Wizard window.]

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

![Certificate Import Wizard window showing option for automatically selecting the certificate store.]

• 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**.

![Configure tab]

---

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**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description &amp; Telnet Menus</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNTP Time Sync Rate</td>
<td>This is how often the card will attempt to synchronize its internal clock with the specified time server.</td>
</tr>
<tr>
<td>Time Server</td>
<td>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.</td>
</tr>
<tr>
<td>Time Zone</td>
<td>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.</td>
</tr>
</tbody>
</table>

**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**.
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

<table>
<thead>
<tr>
<th>Type of User</th>
<th>Factory Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td>Username Liebert</td>
<td>Full access to configuration and control functions, as well as viewing privileges</td>
</tr>
<tr>
<td></td>
<td>Password Liebert</td>
<td></td>
</tr>
<tr>
<td>General User</td>
<td>Username User</td>
<td>Viewing privileges only—no access to configuration or control functions</td>
</tr>
<tr>
<td></td>
<td>Password User</td>
<td></td>
</tr>
</tbody>
</table>

Follow these guidelines to change the user name and password.

Table 16 Username and password guidelines

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

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

To change the Administrator or General user name or password:

1. Choose IP Network Settings from the Main Menu, then choose either:
   - Change Administrator Username/Password or
   - Change General Username/Password
2. Enter a user name—the current user name is shown in brackets.
3. Enter a password, then verify by typing the password again.

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.
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

<table>
<thead>
<tr>
<th>Type of User</th>
<th>Factory Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td>Username</td>
<td>Liebert</td>
</tr>
<tr>
<td></td>
<td>Password</td>
<td>Liebert</td>
</tr>
<tr>
<td>General User</td>
<td>Username</td>
<td>User</td>
</tr>
<tr>
<td></td>
<td>Password</td>
<td>User</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Viewing privileges only—no access to configuration or control functions</td>
</tr>
</tbody>
</table>

NOTE This feature is not available through the Web interface

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.
6.0 MESSAGEING

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.

Table 18 Messaging menu guide

<table>
<thead>
<tr>
<th>Menu item</th>
<th>Refer to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Mail Configuration</td>
<td>page 29</td>
</tr>
<tr>
<td>SMS Configuration</td>
<td>page 30</td>
</tr>
<tr>
<td>Customize Messages (E-Mail and SMS)</td>
<td>page 32</td>
</tr>
</tbody>
</table>

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**.

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.

Table 19 E-mail configuration guide

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email From</td>
<td>The e-mail address of the sender—for example, <a href="mailto:support@company.com">support@company.com</a>—typically, the address where replies should be sent.</td>
<td>64 characters</td>
</tr>
<tr>
<td>Email Message Recipients</td>
<td>The e-mail will be sent to this list of addresses. To add an e-mail address, use the format <a href="mailto:ajsmith@abc.com">ajsmith@abc.com</a>. Multiple addresses must be added individually. Changes may be made by entering d to delete an entry or e to edit an entry. <strong>NOTE:</strong> To specify multiple recipients of the e-mail message in the Web interface, use a semicolon (;) to separate addresses in the Email To box.</td>
<td>64 characters</td>
</tr>
<tr>
<td>Email Subject</td>
<td>The subject line of the e-mail. By default, this is the event description—e.g., AlarmOnBypass—but it may be customized.</td>
<td>120 characters</td>
</tr>
<tr>
<td>Email Customize Message</td>
<td>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.</td>
<td>—</td>
</tr>
<tr>
<td>SMTP Server</td>
<td>The IP address or domain name of the SMTP e-mail server that sends messages.</td>
<td>32 characters</td>
</tr>
<tr>
<td>Port</td>
<td>SMTP server port—typically the default port, 25.</td>
<td>—</td>
</tr>
<tr>
<td>Test Email</td>
<td>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.</td>
<td>—</td>
</tr>
<tr>
<td>View Test Email Log File</td>
<td>Choose this option to display a log showing the results of test e-mails.</td>
<td>—</td>
</tr>
</tbody>
</table>
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**.

6.2 SMS Configuration

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

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

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>
<thead>
<tr>
<th><strong>Table 20 SMS configuration guide</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parameter</strong></td>
</tr>
<tr>
<td>SMS From</td>
</tr>
<tr>
<td>SMS Message Recipients</td>
</tr>
<tr>
<td>SMS Subject</td>
</tr>
<tr>
<td>SMS Customize Message</td>
</tr>
<tr>
<td>SMTP Server</td>
</tr>
<tr>
<td>Port</td>
</tr>
<tr>
<td>Test SMS</td>
</tr>
<tr>
<td>View Test SMS Log File</td>
</tr>
</tbody>
</table>

**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**.
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:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description—if enabled, outgoing messages will include:</th>
<th>Defined in:</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP address or hostname</td>
<td>The IP Address or Hostname of the Web card</td>
<td>5.1 - Boot/IP Settings</td>
</tr>
<tr>
<td>Event</td>
<td>Description of the SNMP event</td>
<td>9.0 - Support Information</td>
</tr>
<tr>
<td>Event Date &amp; Time</td>
<td>The date &amp; time when the SNMP event occurred</td>
<td>—</td>
</tr>
<tr>
<td>Name</td>
<td>The name for the Liebert unit</td>
<td>4.0 - System Information</td>
</tr>
<tr>
<td>Contact</td>
<td>The contact person or department</td>
<td>4.0 - System Information</td>
</tr>
<tr>
<td>Location</td>
<td>The location of the Liebert unit</td>
<td>4.0 - System Information</td>
</tr>
<tr>
<td>Description</td>
<td>Other information about the Liebert unit</td>
<td>4.0 - System Information</td>
</tr>
<tr>
<td>Web Link &amp; Port</td>
<td>A clickable link to the Web card through the Web interface</td>
<td>5.1 - Boot/IP Settings</td>
</tr>
<tr>
<td></td>
<td>The port number of the SMTP server port</td>
<td>6.1 - E-Mail Configuration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.2 - SMS Configuration</td>
</tr>
<tr>
<td>Event Consolidation</td>
<td>Enable or disable consolidation of events for e-mail/SMS notification</td>
<td>6.1 - E-Mail Configuration</td>
</tr>
<tr>
<td>Consolidation Time Limit (seconds)</td>
<td>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.</td>
<td>Message Consolidation Time Limit on page 33</td>
</tr>
<tr>
<td>Consolidation Event Limit</td>
<td>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.</td>
<td>Message Consolidation Time Limit on page 33</td>
</tr>
</tbody>
</table>
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**.

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.
Factory Settings

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...
```

**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)
- 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.

**Table 22** Factory default MAC addresses

<table>
<thead>
<tr>
<th>Liebert IntelliSlot Card</th>
<th>Part Number</th>
<th>Factory Default MAC Address</th>
<th>Set Node 1 Address of Second Card to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liebert IntelliSlot Web Card-LBDS</td>
<td>IS-WEBLBDS</td>
<td>0x01</td>
<td>2</td>
</tr>
<tr>
<td>Liebert IntelliSlot 485 Card-LBDS</td>
<td>IS-485LBDS</td>
<td>0x02</td>
<td>1</td>
</tr>
</tbody>
</table>
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

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

- 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.
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®.
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.

<table>
<thead>
<tr>
<th>MAC Address</th>
<th>00-00-68-16-82-C1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Card Model</td>
<td>IntelliSlot web Card</td>
</tr>
<tr>
<td>Network Card Part #</td>
<td>OCWECARD</td>
</tr>
<tr>
<td>Manufacture Date</td>
<td>APR 28,2004</td>
</tr>
<tr>
<td>Serial Number</td>
<td>416701G10572004APR280074</td>
</tr>
<tr>
<td>Boot Version</td>
<td>2.300.0</td>
</tr>
<tr>
<td>Boot Label</td>
<td>OCWECARD_HID3_2.300.0_034380</td>
</tr>
<tr>
<td>App Version</td>
<td>2.300.0</td>
</tr>
<tr>
<td>App Label</td>
<td>OCWECARD_HID3_2.300.0_035191</td>
</tr>
<tr>
<td>Hardware Version</td>
<td>3</td>
</tr>
<tr>
<td>CPU Speed</td>
<td>50 MHz</td>
</tr>
<tr>
<td>Flash Usage</td>
<td>4327 Out Of 8388 KByte</td>
</tr>
</tbody>
</table>

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.
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.

**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.
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

<table>
<thead>
<tr>
<th>Step</th>
<th>For details, see:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Decide which interface to use to connect to the Liebert IntelliSlot card</td>
<td>A.2 - Connect to the Card - Terminal Emulation, Telnet or Web Interface</td>
</tr>
<tr>
<td>2. Prepare for the upgrade</td>
<td></td>
</tr>
<tr>
<td>• Make sure you have everything needed to perform the upgrade</td>
<td>A.3.1 - Requirements to Update the Liebert IntelliSlot Card’s Firmware</td>
</tr>
<tr>
<td>• Check the type of card and firmware version currently installed</td>
<td>A.3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version</td>
</tr>
<tr>
<td>• Download the upgrade file from Liebert’s Web site</td>
<td>A.3.3 - Download the Firmware Upgrade File to the Computer</td>
</tr>
<tr>
<td>• Decide which method to use for the upgrade</td>
<td>A.3.4 - Choose a Method to Install the Firmware Upgrade</td>
</tr>
<tr>
<td>3. Follow the step-by-step instructions to upgrade the firmware with the chosen method:</td>
<td></td>
</tr>
<tr>
<td>• HTTP (Web) Method</td>
<td>A.4 - Updating the Firmware - HTTP (Web) Method</td>
</tr>
<tr>
<td>• TFTP (HyperTerminal, Telnet, Web) Method</td>
<td>A.5 - Updating the Firmware - TFTP (HyperTerminal, Telnet, Web) Method</td>
</tr>
<tr>
<td>• Xmodem (Serial) Method</td>
<td>A.6 - Updating the Firmware - Xmodem (Serial) Method</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Upgrade Method</th>
<th>Expected Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTP (Web) Method (.bin file)</td>
<td>6-7 minutes (subject to network traffic)</td>
</tr>
<tr>
<td>TFTP (HyperTerminal, Telnet, Web) Method (.bin file)</td>
<td>5-6 minutes (subject to network traffic)</td>
</tr>
<tr>
<td>Xmodem (Serial) Method</td>
<td>1st file 2 minutes</td>
</tr>
<tr>
<td>Xmodem 1K 115,200 bps</td>
<td>2nd file 2 minutes</td>
</tr>
<tr>
<td></td>
<td>3rd file 3-5 minutes</td>
</tr>
</tbody>
</table>
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>
<thead>
<tr>
<th>Table A3 Communication settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud Rate: 9600</td>
</tr>
<tr>
<td>Data Bits: 8</td>
</tr>
<tr>
<td>Parity: None</td>
</tr>
<tr>
<td>Stop Bits: 1</td>
</tr>
<tr>
<td>Flow Control: None</td>
</tr>
</tbody>
</table>
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)
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)

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.

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](image)

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

   ![Model and Part Number](image)

   MAC Address         00-00-68-16-82-C1
   Network Card Model   Intelislot Web Card
   Network Card Part #  OCWEBCARD
   Manufacture Date    APR 26, 2004
   Serial Number       416701G10512004APR280074
   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

**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](image)

   ![Summary](image)

**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).
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.
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.

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.

Table A4 Firmware update settings - TFTP

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server</td>
<td>The IP address of the TFTP server—for example, 192.168.0.125.</td>
</tr>
<tr>
<td>Port</td>
<td>Port that the TFTP server is using, typically 69.</td>
</tr>
<tr>
<td>Filename</td>
<td>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.</td>
</tr>
</tbody>
</table>

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.
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**).

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

<table>
<thead>
<tr>
<th>Table A5</th>
<th>Firmware update settings - Web</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parameter</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>Server</td>
<td>The IP address of the TFTP server—for example, <strong>192.168.0.125</strong>.</td>
</tr>
<tr>
<td>Port</td>
<td>Port that the TFTP server is using, typically <strong>69</strong>.</td>
</tr>
<tr>
<td>Filename</td>
<td>Name of the firmware update file—128 characters maximum, including spaces and punctuation. This is the file with the extension &quot;.bin&quot; downloaded in <strong>A.3.3 - Download the Firmware Upgrade File to the Computer</strong>.</td>
</tr>
</tbody>
</table>

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

Reconnect to the Card
7. 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
8. 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.
9. Return to the Web interface.
10. 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.
Updating the Firmware - Xmodem (Serial) Method

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.

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.

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.
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**).
Notes
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