Monitoring
For *Business-Critical Continuity™*

Liebert IntelliSlot® Web Cards

Firmware Upgrade Manual

Liebert IntelliSlot Web Card, Liebert IntelliSlot Web Card-LB, Liebert IntelliSlot Web Card-LBDS, Liebert IntelliSlot Web Card NXL™, Liebert IntelliSlot Web Card-L, Liebert IntelliSlot Web/485 Card-ADPT

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Network Power

TABLE OF CONTENTS

FIGURES

TABLES

1.0 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. Emerson maintains firmware upgrades on its Web site, **www.liebert.com/downloads**.

Emerson 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 **3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version**.

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

1.1 Overview

The firmware upgrade involves these steps:

Table 1 Overview of the upgrade process

Step	For details, see:
1. Decide which interface to use to connect to the Liebert IntelliSlot card	**2.0 - Connect to the Card - Terminal Emulation, Telnet or Web Interface**
2. Prepare for the upgrade	
• Make sure you have everything needed to perform the upgrade	**3.1 - Requirements to Update the Liebert IntelliSlot Card's Firmware**
• Check the type of card and firmware version currently installed	**3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version**
• Download the upgrade file from the Liebert Web site	**3.3 - Download the Firmware Upgrade File to the Computer**
• Decide which method to use for the upgrade	**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:	
• HTTP (Web) Method	**4.0 - Updating the Firmware - HTTP (Web) Method**
• TFTP (HyperTerminal, Telnet, Web) Method	**5.0 - Updating the Firmware - TFTP (HyperTerminal, Telnet, Web) Method**
• Xmodem (Serial) Method	**6.0 - Updating the Firmware - Xmodem (Serial) Method**

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 2** for estimated times for each method.

Table 2 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

2.0 CONNECT TO THE CARD - TERMINAL EMULATION, TELNET OR WEB INTERFACE

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

2.1 Open the Terminal Emulation Interface - Serial Connection

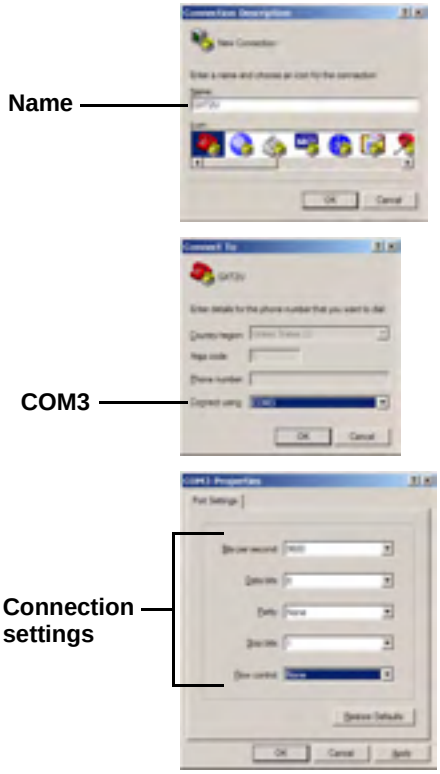
To connect to the card using terminal emulation software with a serial connection to the Web card:

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 3**.

Table 3 Communication settings

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

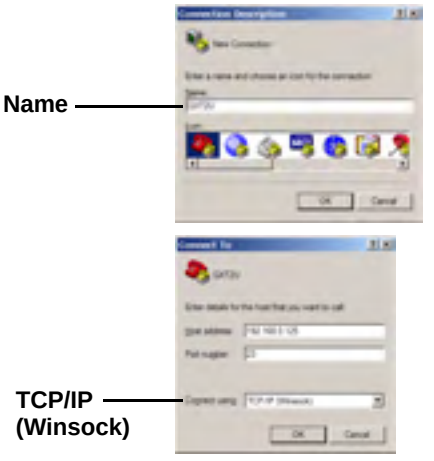
5. When the message at right appears in the HyperTerminal window, press the Enter key.



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
```

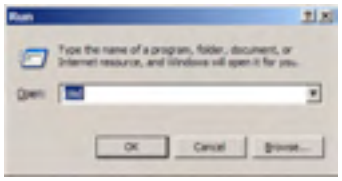
```
Login: Liebert
Password: ********
```

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



```
C:>telnet 192.168.0.125
```

2. When the message at right appears in the command prompt window, press the Enter key.

```
RTCS v2.96.00 Telnet server

Service Port Manager Active
<Esc> Ends Session
```

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

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

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.

3.0 PREPARING TO UPDATE LIEBERT INTELLISLOT FIRMWARE

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 the Liebert Web site (see **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

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

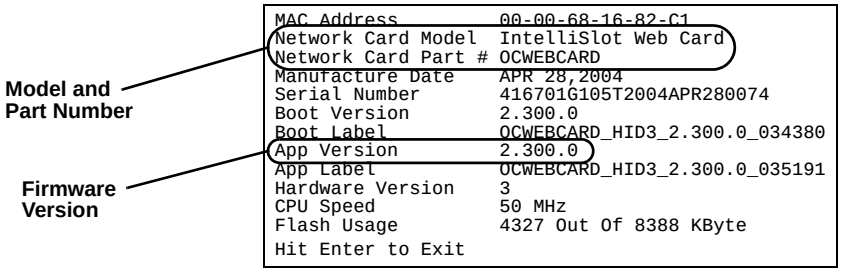
```
Factory Settings Menu
---------------------
1: Reset to Factory Defaults
2: Agent Card Information

<ESC>: Cancel menu level

Please select a key ?>
```

To view Web card information using terminal emulation or Telnet:

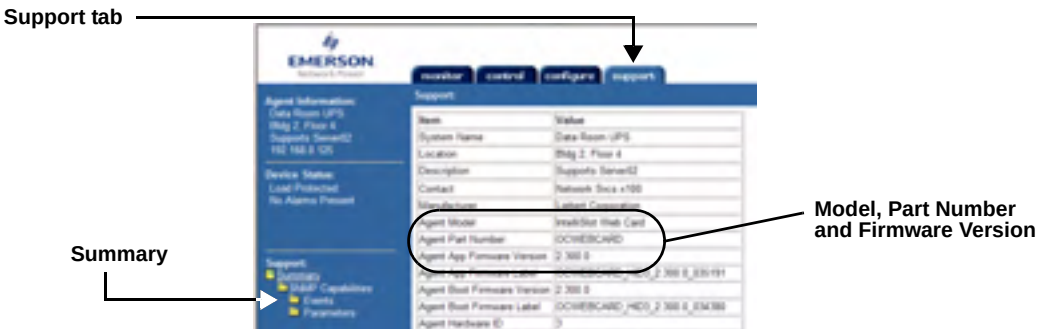
1. Open a connection to the Liebert IntelliSlot card (if needed, see instructions in **2.1 - Open the Terminal Emulation Interface - Serial Connection**, **2.2 - Open the Terminal Emulation Interface - TCP/IP Connection** or **2.3 - Open the Telnet Interface**).
2. Choose **Factory Settings** from the 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



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 **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.



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 the Liebert Web site, **www.liebert.com/downloads**.
3. Choose the firmware upgrade for your card from the selections on the Web page (see **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.

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 **4.0 - Updating the Firmware - HTTP (Web) Method**
- TFTP - see **5.0 - Updating the Firmware - TFTP (HyperTerminal, Telnet, Web) Method**
- Xmodem (Serial) - see **6.0 - Updating the Firmware - Xmodem (Serial) Method**

4.0 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.

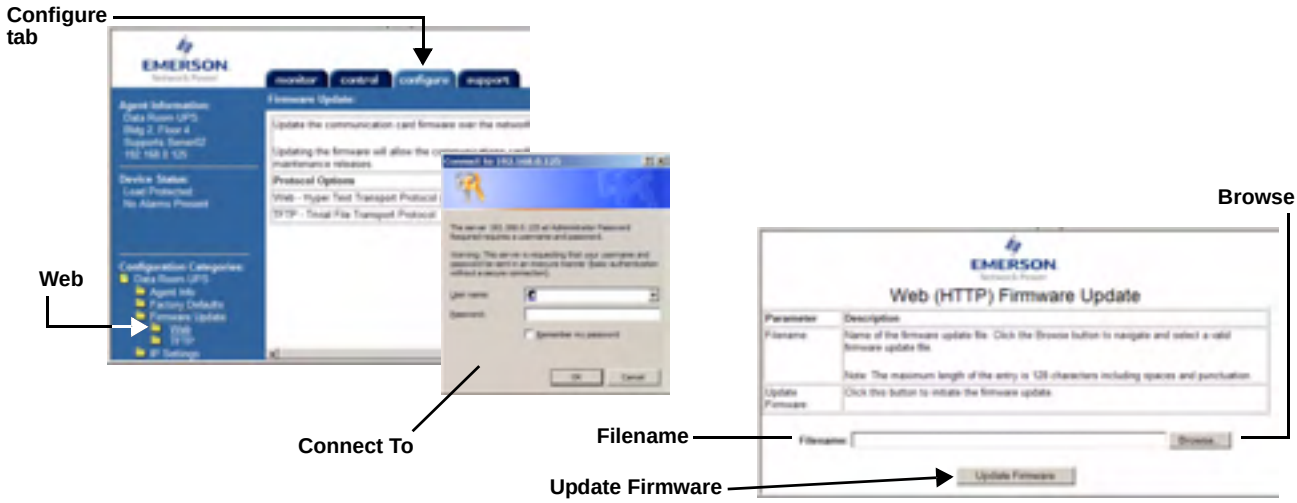
4.1 Install the Firmware Upgrade

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 **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 **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 **3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version**).

5.0 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 **3.3 - Download the Firmware Upgrade File to the Computer**. Read through this entire section before beginning the upgrade.*

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 **2.2 - Open the Terminal Emulation Interface - TCP/IP Connection** or **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 4 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 **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 **2.3 - Open the Telnet Interface** or **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 **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%)
```

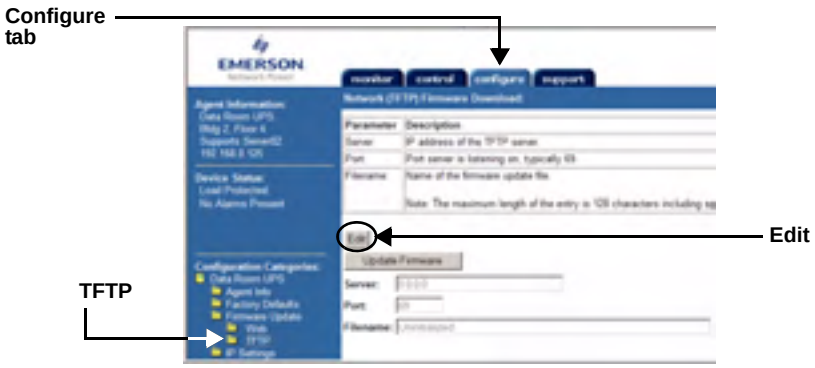
```
Main Menu
----------
1: System Information
2: IP Network Settings
3: Messaging
4: Factory Settings
5: Firmware Updates
q: Quit and abort changes
x: Exit and save
Please select a key ?>
```

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 **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*)

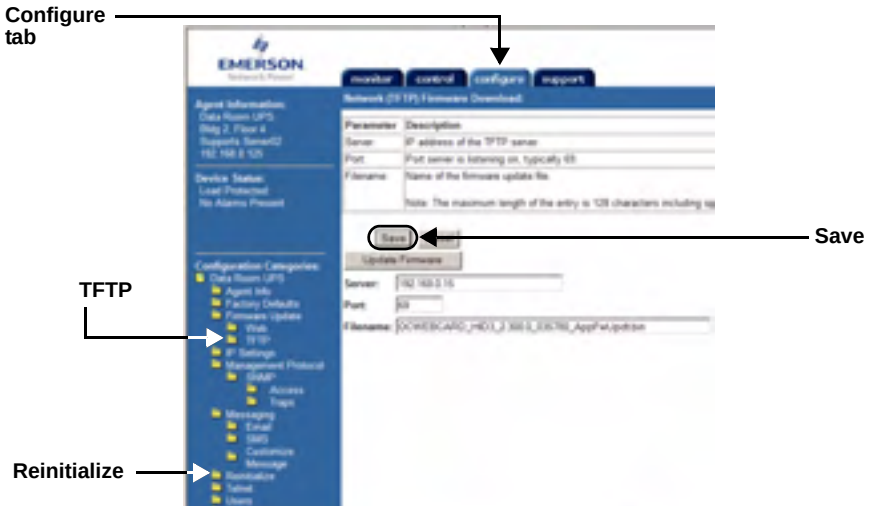
Specify TFTP Server and Upgrade Filename

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 5 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 **3.3 - Download the Firmware Upgrade File to the Computer**.

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

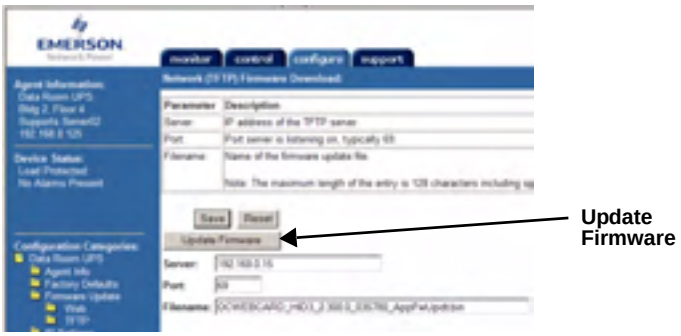


Reconnect to the Card

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.

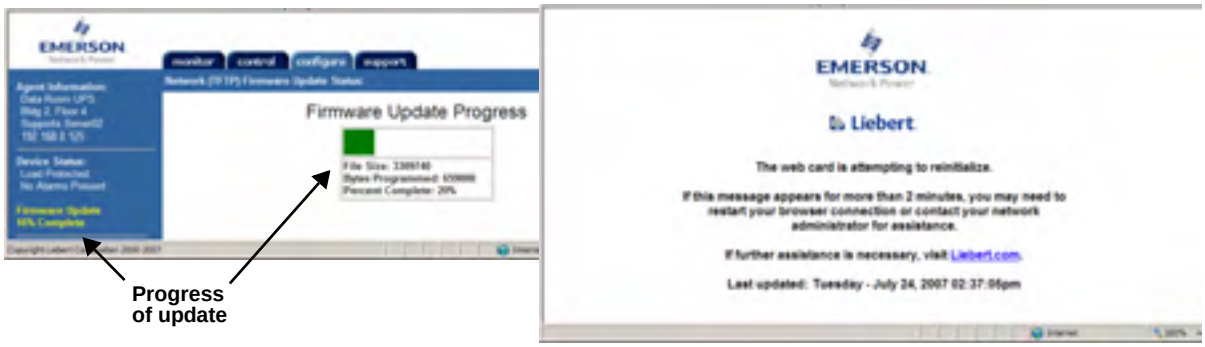


11. During the update, the window displays a progress bar, as shown below left.

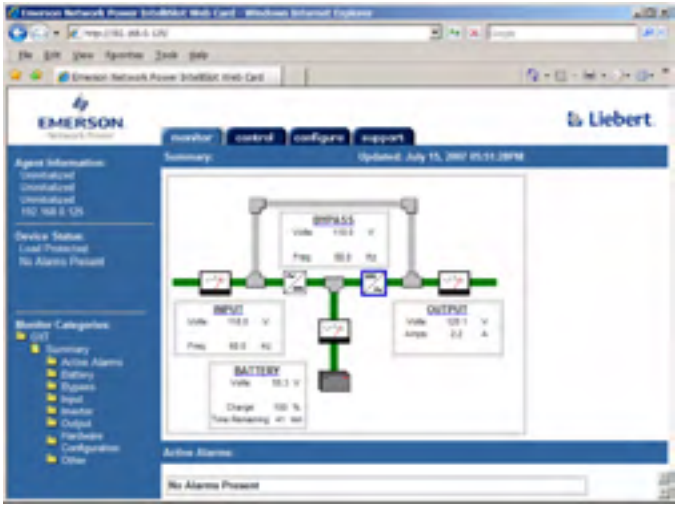
NOTE

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 **3.2 - Determine the Liebert IntelliSlot Card Type and Firmware Version**).

6.0 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 **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 1**. The configuration cable is available separately from Emerson (P/N LIEBNULL).

Figure 1 Null connection

Open a Terminal Emulation Connection

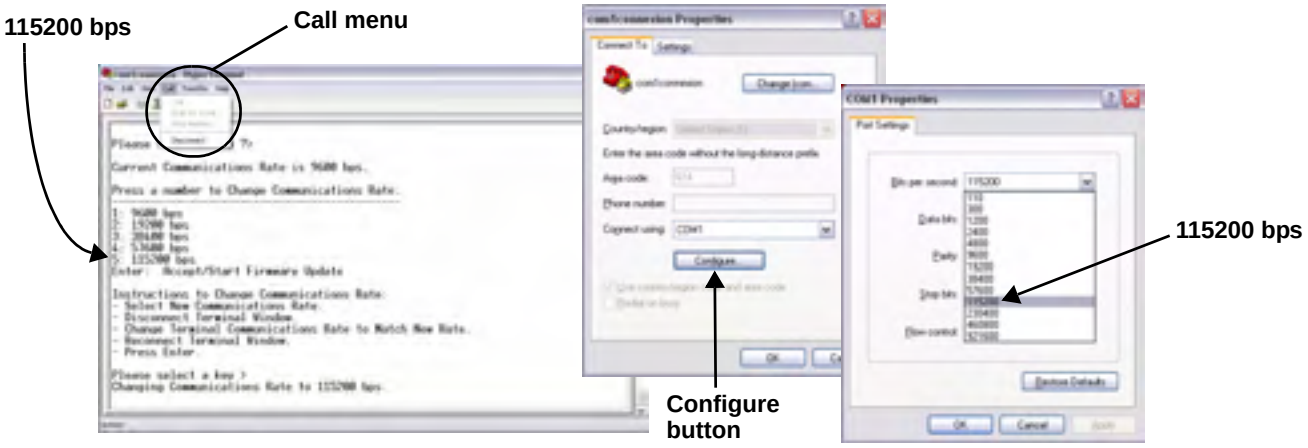
2. Open a connection to the Liebert IntelliSlot card (if needed, see instructions in **2.1 - Open the Terminal Emulation Interface - Serial Connection**).
3. Choose **Firmware Updates** from the Main Menu.
4. Choose **XMODEM Update** from the Firmware Updates menu, seen at right, and enter **y** (yes)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

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

```
Firmware Update (Step 1/3)
--------------------------
Select Firmware Update Protocol
-------------------------------
1: XmodemCrc
2: Xmodem1K
x: Exit/Cancel
Please select a key ?>
Current Communications Rate is 9600 bps.
```

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.

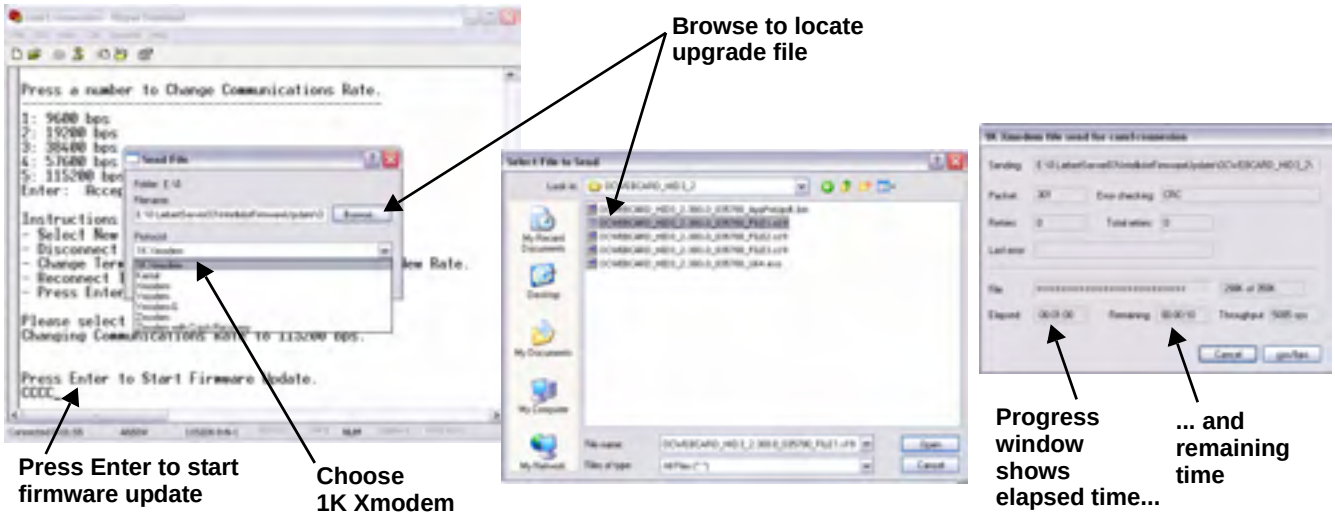
    After you press Enter, HyperTerminal displays **C**s as it counts down the time remaining to locate and begin transferring the upgrade files.

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

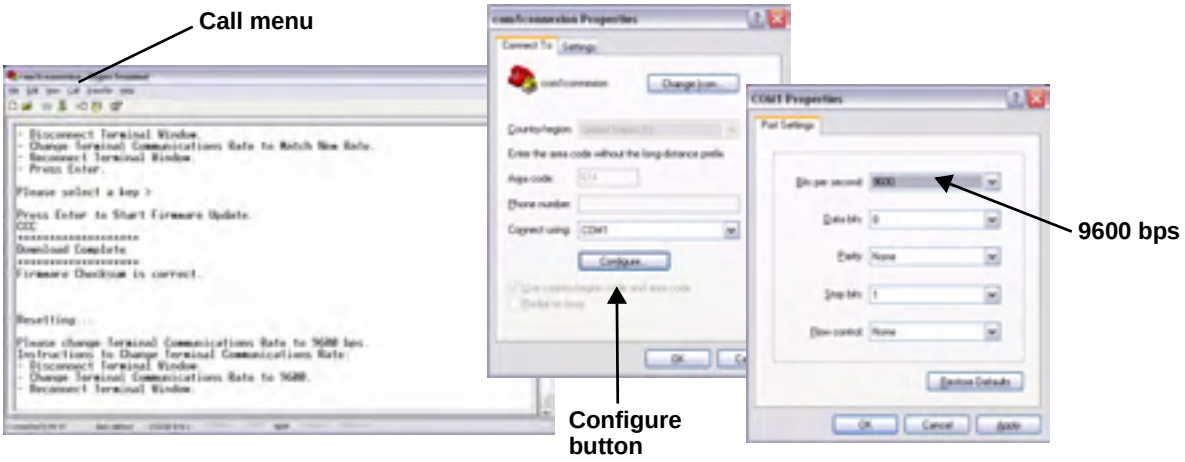
16. When the progress window closes, enter **y** (yes) in HyperTerminal to continue the upgrade.
17. Choose **Xmodem1K** in the Select Firmware Update Protocol menu.
18. The screen shows that the communication rate is 115200. This does not need to be changed.
19. Press Enter to continue.
20. Repeat **Steps 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.

```
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.

```
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
```

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

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Web Site
www.liebert.com
Monitoring
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Locations
United States
1050 Dearborn Drive
P.O. Box 29186
Columbus, OH 43229
Europe
Via Leonardo Da Vinci 8
Zona Industriale Tognana
35028 Piove Di Sacco (PD) Italy
+39 049 9719 111
Fax: +39 049 5841 257
Asia
29/F, The Orient Square Building
F. Ortigas Jr. Road, Ortigas Center
Pasig City 1605
Philippines
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