

7800FC
7800FC VistaLINK Frame Controller
User Manual



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IMPORTANT SAFETY INSTRUCTIONS

	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated “Dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the product.

- Read these instructions
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC – SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE

WARNING

DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS ARE PLACED ON THE EQUIPMENT

WARNING

TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE

WARNING

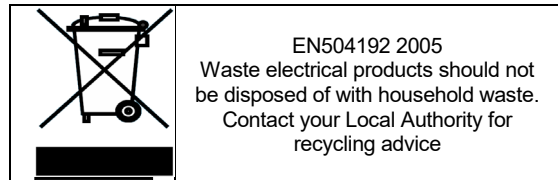
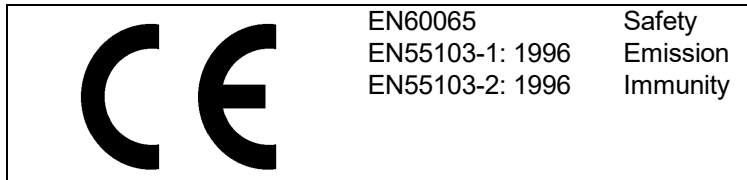
THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE

INFORMATION TO USERS IN EUROPE

NOTE

CISPR 22 CLASS A DIGITAL DEVICE OR PERIPHERAL

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



INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

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

WARNING

Changes or Modifications not expressly approved by Evertz Microsystems Ltd. could void the user's authority to operate the equipment.

Use of unshielded plugs or cables may cause radiation interference. Properly shielded interface cables with the shield connected to the chassis ground of the device must be used.

REVISION HISTORY

<u>REVISION</u>	<u>DESCRIPTION</u>	<u>DATE</u>
1.0	First Release	Feb 2014
1.1	Update to serial port in section 2.3 & 6.1	Sept 2020

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1. OVERVIEW

The 7800FC VistaLINK® Frame Controller card provides a single point of access to communicate with VistaLINK® -capable modules. The 7800FC VistaLINK® Frame Controller provides a 10BASE-T/100BASE-TX/1000BASE-TX Ethernet port and communication is facilitated using Simple Network Management Protocol (SNMP).

The 7800FC VistaLINK® Frame Controller handles all SNMP communications between the frame (7800FR) and the network manager (NMS), and serves as a gateway to individual cards in the frame. The 7800FC VistaLINK® Frame Controller also provides an RS-232 serial port interface for customer configurations.

Features:

- Complies with IEEE 802.3 10BASE-T, 100BASE-TX and 1000BASE-TX Ethernet standards
- 1000Mb/s Gigabit Ethernet, 100Mb/s Fast Ethernet or 10Mb/s Ethernet data transfer, selected by auto negotiation
- Full-duplex or half-duplex operation, selected by auto-negotiation
- RJ-45 connector for network cable connection
- RS-232 serial control port for configuration
- Card edge LEDs indicate module fault, microprocessor state, activity and link status
- Rear panel LEDs indicate Ethernet link, activity and speed
- Supports “ftp” upgrades for frame-wide firmware upgrades (product specific)
- Includes VistaLINK® PRO (VLPRO-C) module software configuration tool
- Provides frame/chassis status information through VistaLINK® including power supply status, frame status, card insertion/removal counters, 7800FC software version number and LED control
- Provides an onboard web interface to directly control modules that support WebEASY®

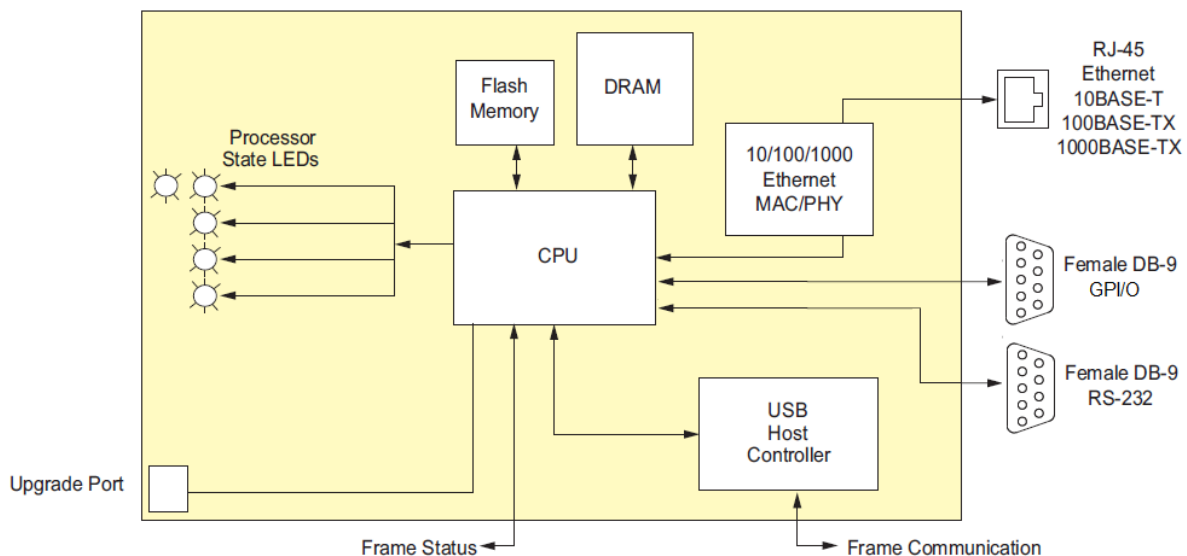


Figure 1-1: 7800FC Block Diagram

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2. INSTALLATION

The 7800FC Frame Controller module can only be installed into 7700FR-C, 7800FR and 7800FR-QT frames that have been fitted with the proper module interconnect circuit board. These frames have an 'L' shaped cover plate installed, adjacent to the IEC power inlet connector as shown in Figure 2-1. If your frame does not have this L shaped cover plate then the 7800FC Frame controller card cannot be installed in this frame.

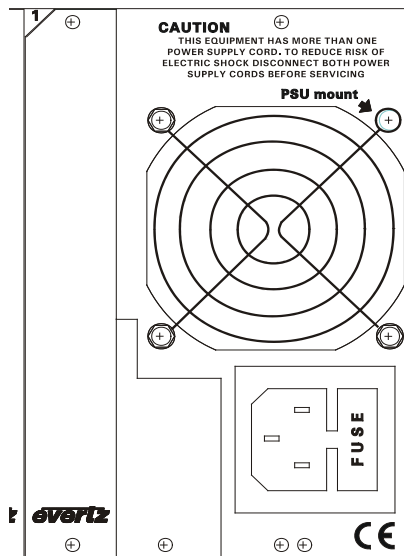
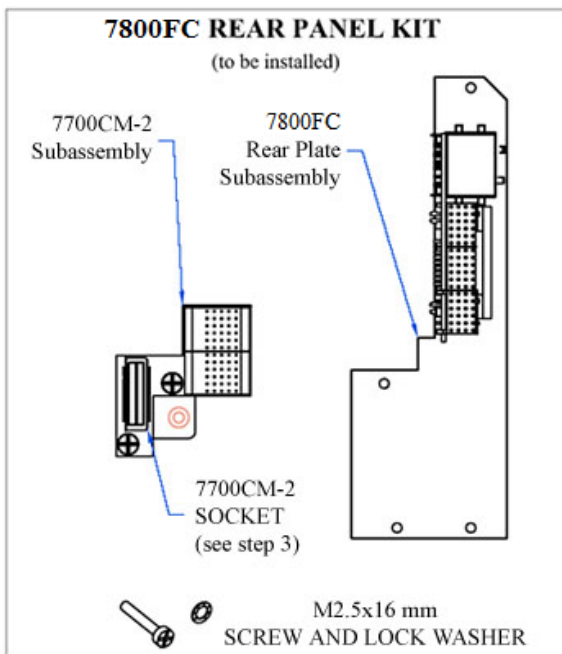


Figure 2-1: 7800FR Rear Panel with Cover Plate Installed

2.1. INSTALLING THE MODULE REAR PLATE



The 7800FC rear panel kit consists of a screw and lock washer, and two sub-assemblies, the 7700CM-2 connector module and the 7800FC rear panel plate which houses the appropriate connectors for the module. To install the 7800FC rear panel kit, locate slot 1 at the right side of the frame's rear panel. Remove the filler plates from the slot as shown in step 1 of Figure 2-2.

Install the 7700CM-2 subassembly first. Remove the screw PART 1 as shown in Step 2. Carefully align the 7700CM-2 socket with the frame header and press firmly into place as shown in step 3. Secure the 7700CM-2 sub-assembly with the M2.5x16 mm screw and M2.5 lock washer as shown in Step 4.

Orient the 7800FC plate so that the labeling is visible when the plate is installed (see Step 5). Loosely fasten the plate to the extrusions using the mounting screws you removed in Step 1. You will tighten the screws after the main module is installed.

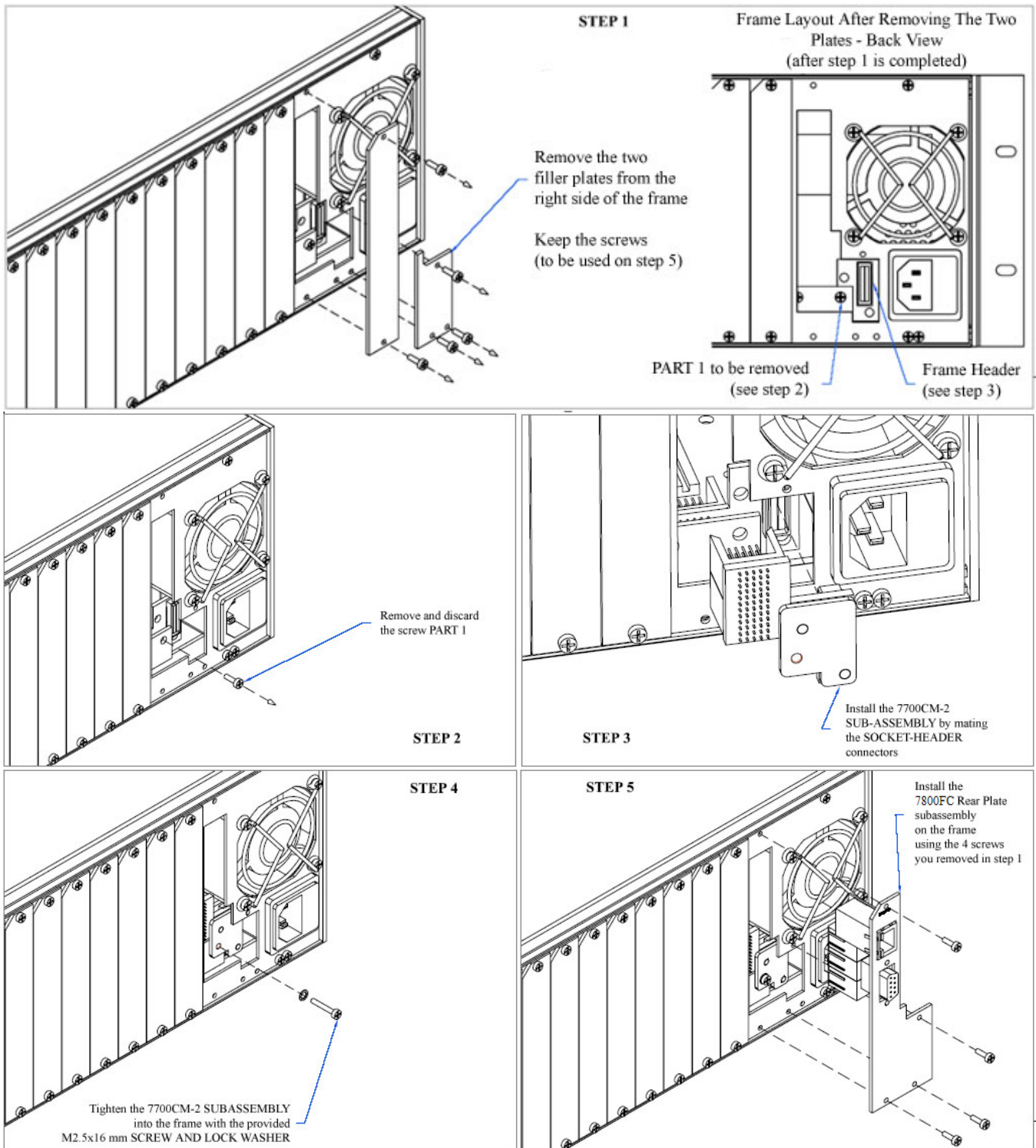


Figure 2-2: 7800FR Rear Panel Kit Installation

2.2. INSTALLING AND REMOVING THE MODULE

In order to insert or remove modules you will have to open the front panel. Turn the two captive screws located on the front panel counter clockwise several turns until they release completely from the front extrusions. Carefully lower the front panel door so that the front edge of the door is lower than the rear of the door.

To install the frame controller module, orient the module vertically such that the white card ejector is on the bottom. Align the card with the card guide corresponding to the slot number where you installed the rear panel plate. Carefully slide the module into the frame and press it completely into the rear panel connectors. Make sure that the connectors are fully seated in the rear panel. When this is done, close the front panel and then tighten the screws that hold the rear panel in place.

To remove the frame controller module, press the card ejector down to release the module from the back panel connectors. Grasp the card using the card ejector and pull the module out from the frame. As the card ejector goes past the front extrusion, you will have to pull it with slightly more force. Carefully place the module in a safe place, free from static discharge.

2.3. REAR PANEL CONNECTIONS

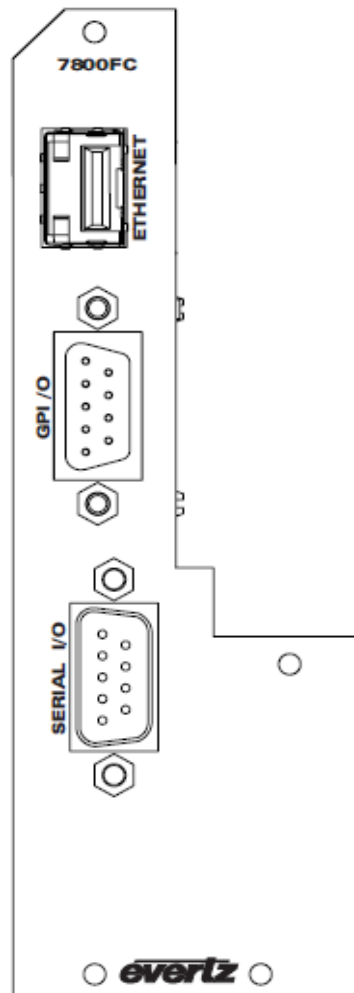


Figure 2-3: 7800FC Rear Panel

2.3.1. Ethernet Connection

The 7800FC is designed to be used with either 10Base-T (10 Mbps), 100Base-TX (100 Mbps) also known as *Fast Ethernet*, or 1000Base-TX (1000 Mbps) twisted pair Ethernet cabling systems. When connecting for 10Base-T systems, category 3, 4, or 5 UTP cable as well as EIA/TIA – 568 100Ω STP cable may be used. When connecting for 100Base-TX systems, category 5 UTP cable is required. When connecting for 1000Base-T system, category 5, 5e, 6, or 7 UTP cable is required. The cable must be “straight-through” with a RJ-45 connector at each end (See Table 2-1). Make the network connection by plugging one end of the cable into the RJ-45 receptacle of the 7800FC and the other end into a port of the supporting hub. When connecting a 7800FC directly to the Ethernet port on a computer you will have to use a “crossover” cable as shown in Figure 2-4.

The straight-through RJ-45 cable can be purchased or can be constructed using the pinout information in Table 2-1. A colour code wiring table is provided in Table 2-1 for the current RJ-45 standards (AT&T 258A or EIA/TIA 258B colour coding shown). Also refer to the notes following the table for additional wiring guide information.

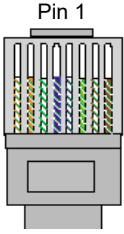
	Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT
	1	Transmit +	White/Green	White/Orange	X
2	Transmit –	Green/White or White	Orange/White or Orange	X	
3	Receive +	White/Orange	White/Green	X	
4	N/A	Blue/White or Blue	Blue/White or Blue	Not used (required)	
5	N/A	White/Blue	White/Blue	Not used (required)	
6	Receive –	Orange/White or Orange	Green/White or Green	X	
7	N/A	White/Brown	White/Brown	Not used (required)	
8	N/A	Brown/White or Brown	Brown/White or Brown	Not used (required)	

Table 2-1: Standard RJ45 Wiring Colour Codes for “Straight Through” Cables

Note the following cabling information for this wiring guide:

- Only two pairs of wires are used in the 8-pin RJ-45 connector to carry Ethernet signals
- Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable
- 10Base-T, 100Base-TX and 1000Base-TX use the same pins, a crossover cable made for one will also work with the other
- Pairs may be solid colours and not have a stripe
- Category 5 cable must use Category 5 rated connectors

The maximum cable run between the 7800FC and the supporting hub is 300 ft (**100 m**). The maximum combined cable run between any two end points (i.e. 7800FC and PC/laptop via network hub) is 675 feet (205 m).

Devices on the Ethernet network continually monitor the receive data path for activity as a means of checking that the link is working correctly. When the network is idle, the devices also send a link test signal to one another to verify link integrity. The 7800FC rear panel is fitted with two LEDs to monitor the Ethernet connection.

10/100/1000: This LED is ON and amber when a 1000Base-TX link is last detected. This LED is ON and green when a 100Base-TX link is last detected. The LED is OFF when a 10Base-T link is last detected (the LINK LED is ON). Upon power-up the LED is OFF as the last detected rate is not known and therefore defaults to the 10Base-T state until rate detection is completed.

LN/ACT: This dual purpose Green LED indicates that the 7800FC has established a valid linkage to its hub, whether the 7800FC is sending or receiving data. This LED will be ON when the 7800FC has established a good link to its supporting hub. This gives you a good indication that the segment is wired correctly. The LED will BLINK when the 7800FC is sending or receiving data. The LED will be OFF if there is no valid connection.

If you are building a “crossover” cable you must wire it according to Figure 2-4:

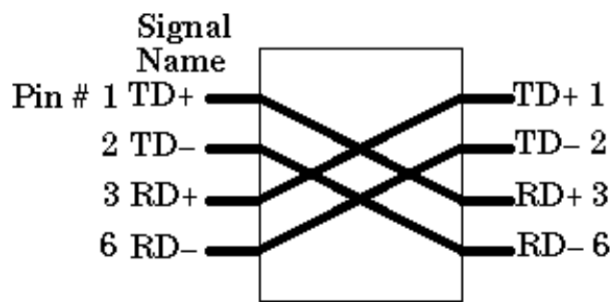


Figure 2-4: Crossover Cable Wiring Diagram

2.3.2. GPI/O Connections

GP I/O: A 9 pin female ‘D’ connector for connection to external devices.

2.3.3. Serial I/O Connections

SERIAL I/O: A 9 pin female 'D' connector for connection to a computer.

Pin #	Name	Description
1	GND	Chassis ground
2	Tx	RS-232 Transmit Output
3	Rx	RS-232 Receive Input
4		
5	Sig Gnd	RS-232 Signal Ground
6		
7	RTS	RS-232 RTS Input
8	CTS	RS-232 CTS Output
9		

Table 2-2: Serial I/O Connector Pin Definitions

2.4. REPLACING THE BATTERY

The Frame Controller is fitted with a 3V Lithium battery type CR2032. This battery is used to power non-volatile memory of some of the frame controller's parameters while power is removed from the frame. Before attempting to change the battery remove power from the 7800FC card.



CAUTION

**Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.**



CAUTION

**Danger of explosion if battery is exposed to excessive heat such as direct
sunlight, fire, etc.**

2.4.1. Safety Guidelines and Precautions Concerning the Use of 3V Lithium Batteries

Please observe the following warnings strictly. If misused, the batteries may explode or leak, causing injury or damage to the equipment.

- The batteries must be inserted into the equipment with the correct polarity (+ and -)
- Do not attempt to revive used batteries by heating, charging or other means
- Do not dispose of batteries in fire. Do not dismantle batteries
- Do not short circuit batteries
- Do not expose batteries to high temperatures, moisture or direct sunlight
- Do not place batteries on a conductive surface (anti-static work mat, packaging bag or form trays) as it can cause the battery to short

3. SPECIFICATIONS

3.1. ETHERNET

Network Type: IEEE 802.3 (10BASE-T)
IEEE 802.3u (100BASE-TX)
IEEE 802.3ab (1000BASE-TX)
Connector: RJ-45

3.2. SERIAL I/O

Standard: RS-232
Connector: Female DB-9
Baud Rate: 115,200
Format: 8 bits, no parity, 2 stop bits, no flow control

3.3. ELECTRICAL

Voltage: + 12VDC
Power: 8 Watts
EMI/RFI: Complies with FCC Part 15
Class A and EU EMC directive

3.4. PHYSICAL (NUMBER OF SLOTS)

350FR: 1
7700FR-C: 1
7800FR: 1

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4. STATUS INDICATORS

The 7800FC has 5 LED Status indicators on the front card edge to show operational status of the card at a glance. Figure 4-1 shows the location of the LEDs and card edge controls.

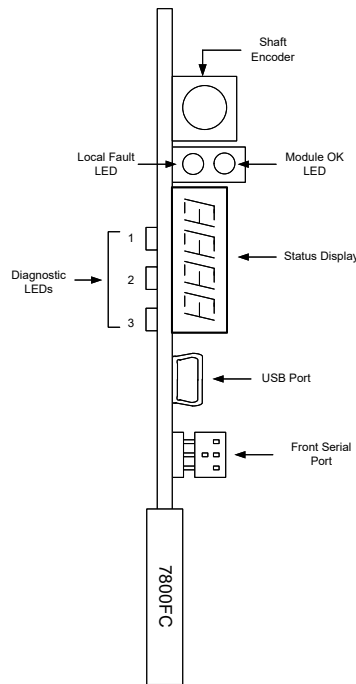


Figure 4-1: 7800FC Status LED Location

4.1. MODULE STATUS LEDS

Two large LEDS on the front of the main board indicate the general health of the module:

LOCAL FAULT: This Red LED indicates poor module health or if a local input power fault exists (i.e.: a blown fuse). The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

MODULE OK: This Green LED indicates good module health. It will be ON when the board power is good.

The remaining LEDs have no functionality at this time.

4.2. DOT-MATRIX DISPLAY

Additional signal status monitoring of the card's parameters is provided via the 4-character alphanumeric status display located on the card edge.

When the card is initially inserted, it will display the message *BOOT* and then the message *EXEC*. This indicates that the 7800FC is running through its bootup sequence and executing the application code. Once the application code is completely loaded and ready to use, it will display the message *FC*.

If the shaft encoder is pressed in, the display will cycle through the firmware version and the IP address of the 7800FC.

5. JUMPERS

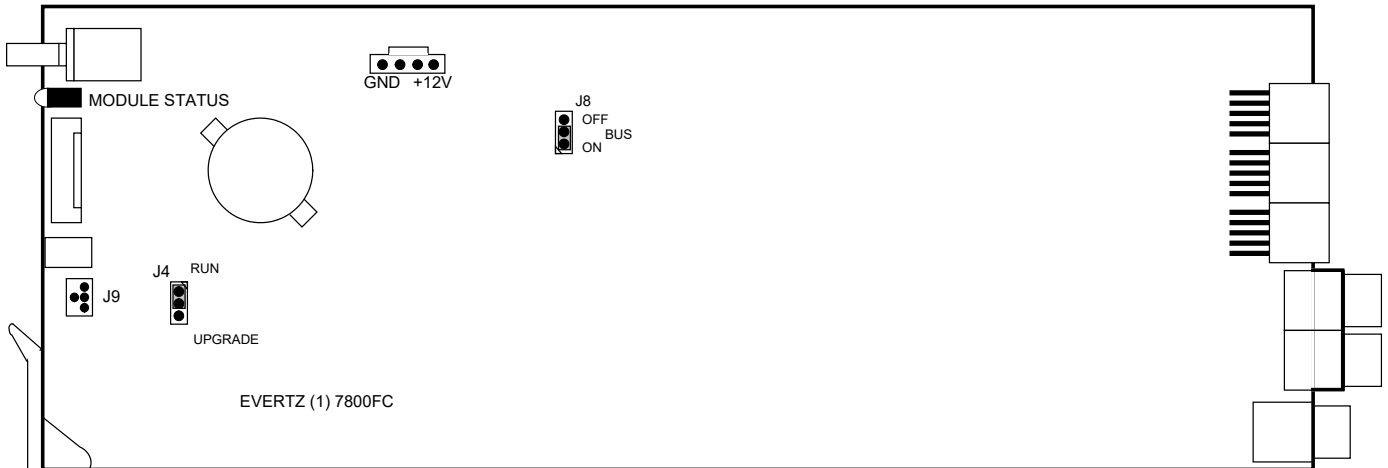


Figure 5-1: Location of Jumpers

5.1. SELECTING WHETHER LOCAL FAULTS WILL BE MONITORED BY THE GLOBAL FRAME STATUS

BUS: The BUS jumper J8 located near the top middle of the module determines whether local faults (as shown by the Local Fault indicator) will be connected to the 7700FR-C, 7800FR or 7800FR-QT frame's global status bus.

To monitor faults on this module with the frame status indicators (on the Power Supply FRAME STATUS LEDs and on the Frame's Fault Tally output) install this jumper in the On position. (Default)

When this jumper is installed in the Off position, local faults on this module will not be monitored.

5.2. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE: The UPGRADE jumper J4 located behind the serial port header J9 is used when firmware upgrades are being done to the module. For normal operation it should be installed in the *RUN* position. See the *Upgrading Firmware* section 7 for more information.

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6. CONFIGURING THE FRAME CONTROLLER

The 7800FC Frame Controller is configured by connecting its serial port to a computer running a readily available terminal program such as HyperTerminal. The following procedure will guide you through each step of the configuration process.

You will need the following equipment in order to configure the 7800FC Frame Controller:

- PC with available communications port. The communication speed is 115200 baud
- “Straight-thru” serial extension cable (DB9 female to DB9 male) or (DB25 female to DB9 male)
- Terminal program such as HyperTerminal
- Special upgrade cable supplied with the 7700FR-C, 7800FR or 7800FR-QT frame. This cable is normally in the vinyl pouch at the front of this manual. (Evertz part #WA S76).

6.1. ESTABLISHING COMMUNICATION WITH THE FRAME CONTROLLER

6.1.1. Connecting the Computer to the Serial Port

Connect the supplied serial upgrade cable to the rear panel serial port shown in Figure 2-3.

6.1.2. Terminal Program Setup

1. Start the terminal program and configure the port settings of the terminal program as follows:

Baud	115200
Data bits	8
Parity	no
Stop bits	2
Flow Control	no

Table 6-1: Port Settings of the Terminal Program

2. Install the 7800FC card into the frame. After the card powers up and the boot-up messages are finished, a “login” prompt will appear in the terminal window. (For future reference 7800FC software version information is displayed prior to the “login” prompt and should be quoted to Service staff when required.)

For example:

```
Kernel Build Date   : Jan 28, 2013
Software           : v1.2 Build 2
Tag                : 7801FC_r1-2-2
Software Build Date : Jan 30, 2013
Wed Jan 30 11:05:46 GMT 2013

NetBSD/evbppc (780xfc) (console)
login:
```

3. If the prompt does not appear, the following is a list of possible reasons for failed communications:
 - Defective Serial Upgrade cable.
 - Wrong communications port selected in the terminal program.
 - Improper port settings in the terminal program. (Refer to step 1 for settings).
4. At the “login” prompt, enter:
 - “**customer**” for user name <Enter>
 - “**customer**” for password <Enter>



NOTE - Neither username nor password can be modified at the time of this manual revision release.

5. A menu for Network, SNMP and FC Upgrade Setup Configuration appears and is detailed in the next section.

6.2. CONFIGURING THE NETWORK SETTINGS

From main menu, three selections are available - *Network Setup*, *SNMP Setup*.

- *Network Setup* is used to set network IP addresses as well as broadcasting and routing instructions
- *SNMP Setup* is used to identify up to ten trap destination IP addresses.

```
**** Main Menu ****
<1> Network Setup
<2> SNMP Setup

<X> Exit
<W> Exit without saving to flash
>
```

To choose one of the menu choices, enter the letter or number shown on the left and then press <Enter>. If you choose menu item 1 or 2 or 3 you will be presented with an additional menu. Choose menu items on these sub menus in the same way or press X to return to the main menu.

6.2.1. Network Setup

The *Network Setup* menu has six network parameters that need to be configured. If the network is using a **DHCP** server, set the **DHCP** parameter to *yes* before proceeding to change the other parameters. When the **DHCP** setting is set to *yes*, the *IP Address*, *Netmask*, *Gateway*, and *Broadcast* addresses are automatically assigned and their corresponding menu items are disabled.

If the network is not using a DHCP server, set the **DHCP** parameter to *No* before proceeding to change the *IP Address*, *Netmask*, *Gateway*, and *Broadcast* addresses.

The following screen displays the network settings on the 7800FC frame controller.

```
**** Network Setup ****

(1) Use DHCP [N]
(2) Hostname [fc-default]
(3) IP Address [192.168.1.187]
(4) Netmask [255.255.255.0]
(5) Gateway [192.168.1.1]
(6) Broadcast [192.168.1.255]
(7) Use Telnet [N]

(X) Exit
>
```



The DHCP mode should be disabled before proceeding with the 7800FC Frame Controller upgrade, which is outlined in section 7.3.7. In order to successfully upgrade the device, select No [N] when prompted for DHCP mode, as shown in the above network setup screen. If the DHCP is enabled you will be unable to proceed further with the upgrade. See section 7.3.7 for instructions on upgrading the 7800FC Frame Controller.

The chart below gives a brief description of each menu item and what the parameter does. To choose one of the menu choices, enter the letter or number shown on the left and then press <Enter>. You will be prompted to enter the required parameter value. When you are done configuring the *Network Setup* menu items press X to return to the main menu. If you are unclear about how to configure your network, consult your network administrator.

Use DHCP	This setting allows the Frame Controller to be automatically assigned an IP address for the parameters below from a DHCP server during boot-up. If you are not running a DHCP server, set this parameter to “No” first before making any changes to other parameters.
Hostname	A user-configurable 7800FC identifier. This menu item can be used to name the specific frame, service or location of the 7800FC.
IP Address	This control sets the unique IP address of the 7800FC within the network. 192.168.1.XXX is an example of an IP address in a private (internal) network. If connecting multiple frames (each with its own frame controller), take care not to use the same IP address for each.
Netmask	This menu item defines the “subnet mask” of the network. Specifically, this parameter outlines all the IP addresses that can communicate with the 7800FC. This parameter can be set to 255.255.255.0 for a private network.
Gateway	This item identifies the IP address of the “gateway” (in previous versions of the software, “gateway” is referred to as “route”). In its simplest sense the gateway is a device that routes packets to different networks. If configured, the IP address of the gateway must reside in the frame controller local subnet that was defined by the subnet mask. In a private network, this gateway could be identified as 192.168.1.1. Power cycle required after gateway change.
Broadcast	This menu item sets the “broadcast” IP address. For example, in a private network with a subnet mask configured as 255.255.255.0. This parameter can be set to 192.168.1.255
Use Telnet	This setting allows the Frame Controller to be accessed through a telnet interface for configuration changes instead of just the serial interface.



To communicate beyond the private (internal) network and into the internet, all messages must be relayed via the gateway (firewall). As a result, the firewall must be configured separately by the end-user to facilitate communication. Consult your network administrator if establishing a communication link beyond the private network.

For convenience and future reference, a chart is provided below to record IP **configuration** for this SNMP network. (Additional blank charts have also been added at the end of this manual.)

Frame Controller Parameters	IP Address
Hostname	
IP Address	
Netmask	
Gateway	
Broadcast	

Once the *Network Setup* parameters have been configured, exit the *Network Setup* by pressing x then <Enter>. Proceed to the *SNMP Setup* menu option by entering 2 then <Enter> at the Main Menu prompt.

6.2.2. SNMP Setup

In the *SNMP Setup* menu, there are three submenus to choose from:

<i>SNMP V1 Setup</i>	This menu item contains setup information for SNMP version 1 related configurations.
<i>SNMP V3 Setup</i>	This menu item contains setup information for SNMP version 3 related configurations.
<i>SNMP Version Setup</i>	This menu item identifies which of the two version of SNMP will be used to communicate to the 7800FC.

6.2.2.1. SNMP V1 Setup

In the *SNMP V1 Setup* menu, three parameters are configured:

<i>Read Community String</i>	Factory default “public” (No changes required. However, if these settings are changed, the manager must have the identical settings. Otherwise no communication will occur between the 7800FC and the manager.)
<i>Read/Write Community String</i>	Factory default “private” (No changes required. However, if these settings are changed, the manager must have the identical settings. Otherwise no communication will occur between the 7800FC and the manager.)
<i>Trap Setup</i>	This menu item identifies the destination IP addresses (SNMP Trap Handlers) to which TRAPS are sent via SNMP. A maximum of ten IP addresses may be entered.

Once the *SNMP V1 Setup* parameters have been configured, exit *SNMP V1 Setup* by pressing **x** then **<Enter>**.

6.2.2.2. Community Strings

Community Strings are considered as “passwords” within SNMP, controlling the ability to read (“GET”) and/or read/write (“SET”) values to a specific destination. “GET” and “SET” messages include the community strings within their **PDU (protocol data units)**. By factory default, community strings are set to “public” and “private”, respectively. If these settings are changed, the SNMP manager’s community string must agree with the “SET” string. Otherwise no communication will occur between the 7800FC and manager.

For example:

```
**** SNMP Setup ****
<1> Read Community String      [public]
<2> Read/Write Community String [private]
<3> Trap Setup

<X> Exit
>
```

6.2.2.3. Trap Setup

“Trap Setup” allows the user to **define IP addresses of the trap listeners for when the asynchronous fault messages are sent**. A maximum of ten IP addresses can be stored in the Frame Controller. After selecting “Add...” or “Remove...” IP addresses are entered one at a time.

<i>Add Trap Destinations</i>	Add a SNMP trap server IP address to the TRAP distribution list.
<i>Remove Trap Destinations</i>	Remove a SNMP trap server IP address from the TRAP distribution list. For example, selecting this option reveals the list of IP addresses with the prompt to remove one from the list: Trap #1: 192.168.1.76 Trap #2: 192.168.8.140 Remove trap # > 2
<i>Show All Trap Destinations</i>	Displays a list of all entered SNMP trap server IP addresses. For example: Trap #1: 192.168.1.76 Trap #2: 192.168.8.140 Trap #3: 192.168.8.112

Once the *SNMP V1 Setup* parameters have been configured, exit the *SNMP Setup* by pressing **x** then **<Enter>**.

6.2.2.4. SNMP V3 Setup

In *SNMP V3 Setup* menu, there are two submenus to choose from:

<i>SNMP V3 User Setup</i>	This menu item is used to set User configuration parameters including Add, Edit, Remove and Show users
<i>SNMP V3 Trap Setup</i>	This menu item is used to set Trap configuration parameters including Add, Remove, and Show traps

Once the *SNMP V3 Setup* parameters have been configured, exit *SNMP V3 Setup* by pressing **x** then **<Enter>**.

6.2.2.4.1. SNMP V3 User Setup

The *SNMP V3 User Setup* menu defines basic access rules for the SNMP V3 protocol, controlling the ability to read (“GET”) or read/write (“SET”) parameters. It also provides the password key for authentication as well as AES or DES encryption. A maximum of ten different users can be entered.

<p><i>Add New User</i></p>	<p><i>Add New User</i> and <i>Edit User</i> will provide the same interface.</p>
<p><i>Edit User</i></p>	<p>User Name This is mandatory.</p> <p>User Type Default is READONLY, Options are READONLY, READWRITE This defines the access mode for the specific user.</p> <p>Authentication Default is NONE. Options are NONE, MD5, or SHA-1. Authentication to check integrity of the incoming messages.</p> <p>Authentication Password If Authentication is not set to NONE then this field is mandatory, otherwise, Authentication will be automatically set back to NONE. The password must be at least 8 characters long.</p> <p>Use Privacy Default is NONE, Options are NONE, AES, or DES. Use Privacy will encrypt incoming and outgoing messages.</p> <p>Encryption Password If Use Privacy is not set to NONE then this field is mandatory, otherwise, Use Privacy will be automatically set back to NONE. The password must be at least 8 characters long.</p> <p>Included OID 1 These options are optional. They define the OID tree that the user is restricted to access. The user can not access any other OID that is not listed or included in the OID tree specified.</p> <p>Included OID 2</p> <p>Included OID 3</p>
<p><i>Remove User</i></p>	<p>Removes previously entered users. This will affect the SNMP V3 Trap setup as well. Please refer to next section for details.</p>
<p><i>Show All SnmpV3 User</i></p>	<p>Lists all entered users. It will show username, access type, authentication type and password, privacy type and password as well as included OIDs.</p>

Once the *SNMP V3 User Setup* parameters have been configured, exit *SNMP V3 User Setup* by pressing X then <Enter>.

6.2.2.4.2. SNMP V3 Trap Setup

The *SNMP V3 Trap Setup* menu allows the user to **define IP addresses of the trap listeners for when the asynchronous fault messages are sent**. A maximum of ten IP addresses can be stored in the Frame Controller. The different between SNMP V1 Trap and SNMP v3 Trap is that SNMP V3 requires a matching User, which is created in the previous section.

<p><i>Add New V3 Trap Destination</i></p>	<p>Add Trap destination such that Frame Controller will send fault messages to specified address.</p> <p>Enter Trap Destination Address Enter IP address all at once</p> <p>Enter Trap Destination User Enter User Name only. Input is required to match one of Users created in previous section</p> <p>Note: If user is deleted after trap information is created, this trap information is not valid and Frame Controller will not send fault message to that IP address.</p>
<p><i>Remove V3 Trap Destination</i></p>	<p>Removes previously entered trap information.</p>
<p><i>Show All SnmpV3 Trap Destinations</i></p>	<p>Lists all entered trap information. It will show destination IP address and trap User.</p>

Once the *SNMP V3 Trap Setup* parameters have been configured, exit *SNMP V3 Trap Setup* by pressing X then <Enter>.

6.2.3. Exiting the Setup Menu

From the *Main Menu*, press X to save the configuration to memory. After 30 seconds, a successful save of the configuration is acknowledged with a “Commit successful” statement, and the user is returned to the “login” prompt.

For example: (after pressing X<enter>)

```

**** Main Menu ****
<1> Network Setup
<2> SNMP Setup

<X> Exit
<W> Exit without saving to flash
X
Please wait 30 seconds to save settings to flash...
Commit successful.

NetBSD/evertz <fc-default>
login:
    
```

Press W if you made an error during configuration and want to exit the setup menu without saving the new settings. In either case you will return to the “login:” prompt.


```
**** Main Menu ****
<1> Network Setup
<2> SNMP Setup

<X> Exit
<W> Exit without saving to flash
W

NetBSD/evbppc (780xfc) (console)
login:
```

At this point, the serial connector can be removed from the Frame Controller and the terminal program closed. An SNMP manager using the previously specified IP can now be initiated.

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7. UPGRADING THE FRAME CONTROLLER IMAGE VISTALINK[®]

7.1. PROCEDURES FOR UPGRADING THE FRAME CONTROLLER IMAGE VISTALINK[®]

The 7800FC Frame Controller facilitates communication between the SNMP-enabled (VistaLINK[®]) cards, residing in a frame and the SNMP Manager (VistaLINK[®] PRO). From time to time, the 7800FC will need to be upgraded with the latest information (“image”) to maintain the most up-to-date monitoring and control capabilities.

The 7800FC Frame Controller image can be upgraded by two different procedures, which are outlined in sections 7.2 and 7.3.

7.2. REMOTE UPGRADE PROCEDURE USING VistaLINK[®]

To perform the remote upgrade for the 7800FC VistaLINK[®] Frame Controller you will need the following setup:

- A working install of a VistaLINK[®] Pro client or VLPRO-C that’s version 10.0.7 or greater.
- A downloaded and unzipped FC image file (.bin file) from <http://www.evertz.com>



The DHCP mode should be disabled before proceeding with the 7800FC Frame Controller upgrade. To disable your DHCP refer to section 6.2.1.

7.2.1. Downloading the 7800FC Frame Controller Image

1. Download the image file “7800FC Image File” from the Evertz web site (www.evertz.com – Downloads > Firmware Downloads link > Type “7800FC” in the Model search and press “Go”). Save the file to the hard drive.
2. Unzip the downloaded file and store the .bin file in a selected sub-directory. Record the location of the stored file.

7.2.2. Upgrading the Frame Controller Image using VistaLINK®

1. Start a VistaLINK® PRO client and login using the Administrator user account (VLPRO-C does not use login accounts).
2. Expose the 7800FC in the hardware tree using 'Add/Update Frame' and collapsing the nodes in the tree appropriately.
3. Use the right-click mouse button on the '7800FC' in the tree and select 'View Configuration...' option.
4. Select the 'Control' tab in the configuration view.
5. Click the 'Browse' button to select the unzipped 7800FC Image .bin file, which was downloaded in section 7.2.1.

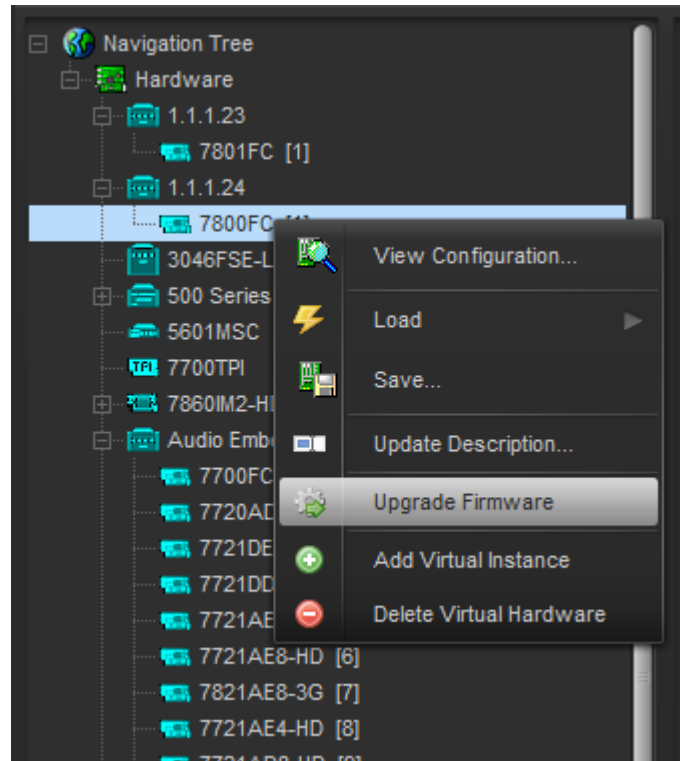



Figure 7-1: FC shown in the Hardware Tree

 **When upgrading the FC Image file, ensure that you select the extracted .bin file and NOT the entire .zip file,**

6. Click the Upgrade button and wait for the upload to complete. This will take approximately 5 to 10 minutes depending on network traffic.
7. Upon completion, the 7800FC module will reboot automatically and return online in normal "run" mode.

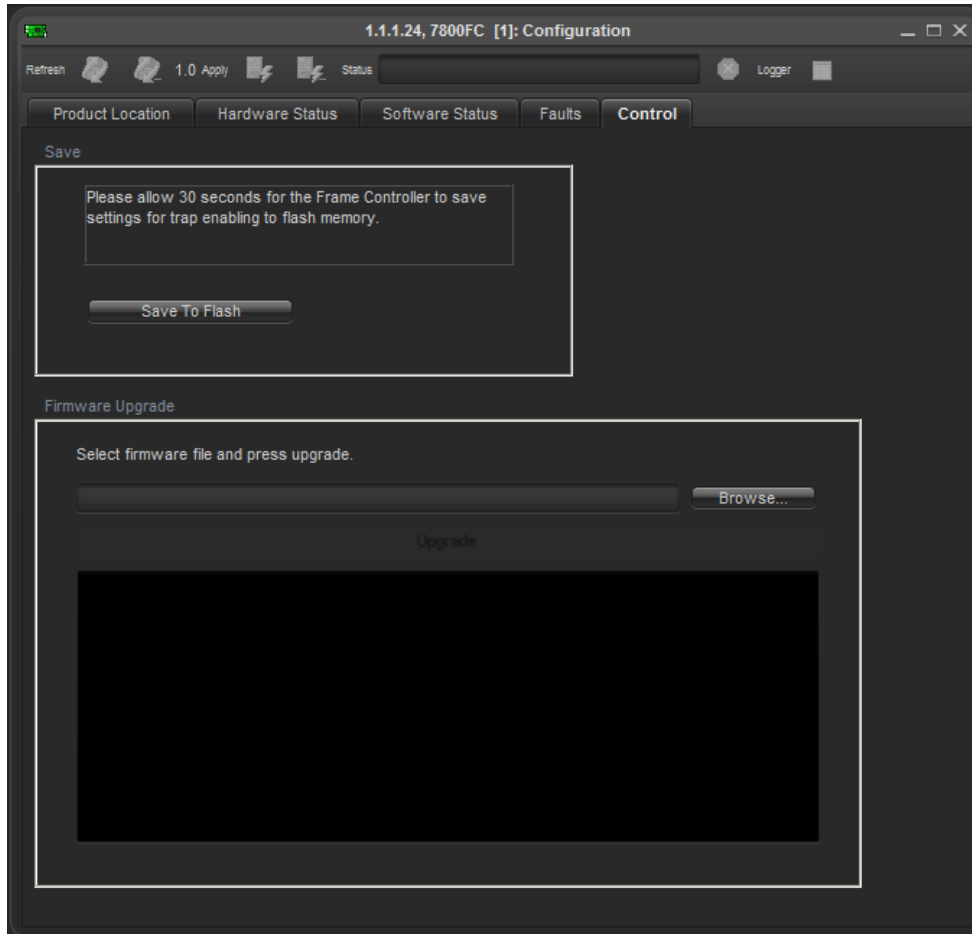


Figure 7-2: Control Tab for the FC Configuration View



If for any reason the upload is interrupted, you must execute the procedures outlined in sections 7.3.4, 7.3.5 and 7.3.7, as you will be unable to complete the procedure outlined in section 7.2.

7.3. SERIAL PORT UPGRADE PROCEDURE

The 7800FC Frame Controller image is upgraded by following the procedure outlined in this section.



Throughout the upgrade instructions, when you are prompted to type commands using HyperTerminal, the following conventions apply.

Do not type the quotation marks “”
<space> means to press the space bar
<Enter> means to press the “Enter” key
<Ctrl-x> means to press and hold the “Ctrl” key and press the “x” key

7.3.1. Downloading Upgrade Files

1. Download the boot loader “7800FC Boot Loader”, upgrade program “7800FC Upgrade” and the image file “7800FC Image File” from the web site (www.evertz.com – Downloads > Firmware Downloads link > Type “7800FC” in the Model search and press “Go”). Save the files to the hard drive.
2. Unzip the downloaded files and store them in a selected sub-directory. Record the location of the stored files.

7.3.2. Linking the Frame Controller to the Network Adapter

Connect a “straight-thru” Cat5 Ethernet cable with RJ-45 connectors, between the PC’s network Ethernet card and a network hub; and a second “straight-thru” Cat5 Ethernet cable between the hub and the rear plate of the 7800FC VistaLINK® Frame Controller. A “cross-over” cable directly connecting the PC’s Ethernet adapter to the 7800FC Frame Controller’s rear plate can be substituted for the two straight-thru Ethernet cables and hub. (See section 2.3.1)

7.3.3. Connecting the Computer to the Serial Port

Refer to section 2.3.3 for instructions on connecting the computer to the card edge serial port and configuring the terminal software.

7.3.4. Setting the 7800FC Frame Controller to Upgrade Mode

The *UPGRADE* jumper J9 located at the front of the module is used when “image” upgrades are being done to the 7800FC Frame Controller module. For normal operation the jumper is set in the *RUN* position. To upgrade the firmware in the module unit pull it out of the frame. Move Jumper J4 into the *UPGRADE* position. See **Error! Reference source not found.** for jumper locations on the 7800FC Frame Controller card.

7.3.5. Viewing Startup Information

- Once HyperTerminal is connected, insert the 7800FC VistaLINK® Frame Controller into its slot.
- 7800FC booting information will then be sent to the HyperTerminal window. After the card powers up the “upload” message is displayed.

For example:

```
Evertz NAND PPCBoot et.816

Evertz PPCBoot 2.3 et.816
8313e rev. 2.2, e300c3 rev. 1.0, 167 MHz bus, 333 MHz core
link up, 1000 Mbit/s, duplex
COULD NOT OPEN FILE
COMMAND upgrade FAILED -1
PPCBOOT>
```



If you do not see the boot up messages check to make sure you have the correct COM Port specified in HyperTerminal, and the status bar at the bottom of the HyperTerminal screen shows that it is connected.

7.3.6. Upgrading the 7800FC Boot Loader

1. At the “Upload Main Program” prompt, send the boot loader program (fcboot_2v0_012.bin) that was downloaded in section 7.3.1 to the 7800FC using Xmodem protocol. This is done by selecting “Send file...” from the “Transfer” drop-down menu in the HyperTerminal window. Upon selecting this option, the following screen is displayed:

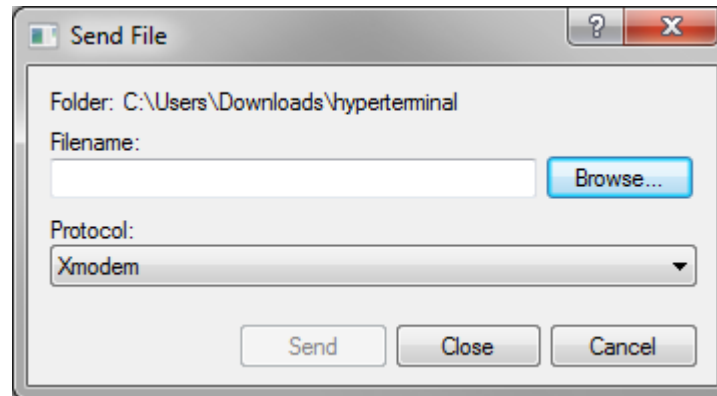


Figure 7-3: Send File Window

The “Folder” header describes the folder location of the previously downloaded Upgrade Program. To change the location/name of the file, use the “Browse...” button to locate and select the correct file. Make sure the Protocol is set to “Xmodem” and press the “Send” button to send the file.

Upon completion the card will continue to reboot. After the card reboots you can scroll to the top of the HyperTerminal buffer and the following information will be displayed:

```
EVERTZ 7800FC BOOT MONITOR.  
MON8240 1.1 BUILD 4.  
COPYRIGHT 2000 EVERTZ MICROSYSTEMS LTD. ALL RIGHTS RESERVED.  
UPGRADE JUMPER PRESENT  
UPLOAD MAIN PROGRAM  
■■■■B0■■■B0■  
UPLOAD OKAY  
RUNNING 6C0000  
  
>> NetBSD/evertz 7800FC Boot, Revision 2.0 Build 12  
>> (rjalali@brain, Fri Nov 5 10:33:15 EST 2004) >
```

7.3.7. Upgrading the 7800FC Frame Controller

1. Pull the card out of the slot and then reinsert it back into the frame. After the card powers up and the “Upload Main Program” message is displayed, press <Ctrl-x> five (5) times. This action temporarily postpones the “upgrade” procedure. The following information is displayed on the screen:

```
Evertz PPCBoot 2.3 et.816  
8313e rev. 2.2, e300c3 rev. 1.0, 167 MHz bus, 333 MHz core  
link up, 1000 Mbit/s, duplex  
user requested abort  
PPCBOOT>
```

2. At the prompt ">", type "upgrade<space>-u<Enter>" The following is displayed on the screen:

```
Evertz PPCBoot 2.3 et.816
8313e rev. 2.2, e300c3 rev. 1.0, 167 MHz bus, 333 MHz core
link up, 1000 Mbit/s, duplex
user requested abort
PPCBOOT> upgrade
upload product firmware now
```

3. Using the procedure outlined in section 7.3.6 send the upgrade program that was downloaded in section 7.3.1 to the 7800FC. Upon completion of this step, the following information will be displayed on the screen:

```
Evertz PPCBoot 2.3 et.816
8313e rev. 2.2, e300c3 rev. 1.0, 167 MHz bus, 333 MHz core
link up, 1000 Mbit/s, duplex
user requested abort
PPCBOOT> upgrade
upload product firmware now
upload okay
PPCBOOT>
```

4. At the prompt, type "boot<Enter>". The following information is displayed on the screen:

```
Evertz PPCBoot 2.3 et.816
8313e rev. 2.2, e300c3 rev. 1.0, 167 MHz bus, 333 MHz core
link up, 1000 Mbit/s, duplex
user requested abort
PPCBOOT> upgrade
upload product firmware now
upload okay
PPCBOOT> boot
LOADING PROGRAM SECTIONS
LOAD COMPLETE
780XFC hardware test code
RCWHR = 84546c00 RCWLR = 65040000
total memory = 268435456 bytes
available memory = 261668864 bytes
init_main
serial init
[ftpd]ftpd proc has started
CLI>
```

The IP address, netmask and gateway information is extracted from the 7800FC configuration information as entered in the previous section. This IP address should be recorded as it is used for 7800FC Frame Controller image upgrading, as per the next instruction.



If the IP address, netmask and gateway are set to 0.0.0.0, this indicates that the 7800FC card is operating in DHCP mode. You will have to turn off DHCP mode and enter a static IP address and netmask using the procedure shown in section 6.2.1.

5. Using the “Run...” command in the “Start” menu, or opening a Command Prompt (MS-DOS) window, type “ftp 192.168.1.187<Enter>” (or similar IP address from the previous instruction, as displayed). This will open an MS-DOS FTP window. Note that the PC, used for entering commands and storing the downloaded image file, and 7800FC must be configured to operate on the same LAN. For example the IP address of the PC and Frame Controller should be on 192.168.1.x with “x” being a unique address identifier for the PC and the 7800FC Frame Controller

- Do not enter a name for “User” when prompted (leave the field blank). Press <Enter>.
- Do not enter a name for “Password” when prompted (leave the field blank). Press <Enter>.

6. At the “ftp>” prompt, type:

```
put<space>“[dir]\XvY_Z_7800FC.bin”<space>image<Enter>
```

Add the full path name (directory location) of the downloaded 7800FC Image file in place of [dir] in the above entry. If there are spaces in the path name they must be surrounded by quotations. Note that “X”, “Y” and “Z” are FC image release version numbers as identified in the downloaded file name. The file will take approximately 5 to 10 minutes to upload.

- Upon successful command entry, the MS-DOS window will display “200 PORT command successful” and “150 Opening data connection” messages.
- After several minutes of “image” upload, the MS-DOS window will display “226 Transfer complete” and “ftp:... (adding statistics about the ftp procedure)”

7. Upon completion of the upload, the MS-DOS window/program should be terminated by closing the window. Remove the 7800FC from the frame, remove the upgrade cable and reposition the UPGRADE jumper to RUN mode. The 7800FC has been upgraded with the latest image and can now be reinserted into the frame to resume normal operation.

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8. WEBEASY® WEB INTERFACE

The 7800FC provides a built-in web interface that allows a user to interact with the 7800FC as well as WebEASY® supported products using a standard Internet web browser. The 7800FC web interface can be accessed by entering the IP address of the 7800FC into the address bar of an Internet web browser. When first visiting the 7800FC web interface, the user will be asked to enter a Login and Password. Both the Login and Password have a default value of “customer”.

The home page of the 7800FC provides a list of all products currently under the control of the 7800FC along with a menu that allows insight into specific *Product Location*, *Hardware* version, *Software* version, *SNMP V1 Community* strings, *SNMP V1 Trap* destinations and local *TRAP Management Faults* for the 7800FC. The home page of the 7800FC web interface is shown in Figure 8-1.

The FC Menu will provide a list of all products currently in the frame occupied by the 7800FC. It will also provide the firmware version of each card in the frame. Cards that appear in white text do not support the WebEASY® interface and are therefore not configurable through the web interface. These cards must be configured using VistaLINK®. Cards that support the WebEASY® interface will appear in yellow. Clicking on the yellow product name will link to the controls available for that card.

Cards can be configured using the *Refresh*, *Apply*, and *Dynamic Apply* buttons on top of the page. These function in the same manner as the buttons of the same name in VistaLINK®.

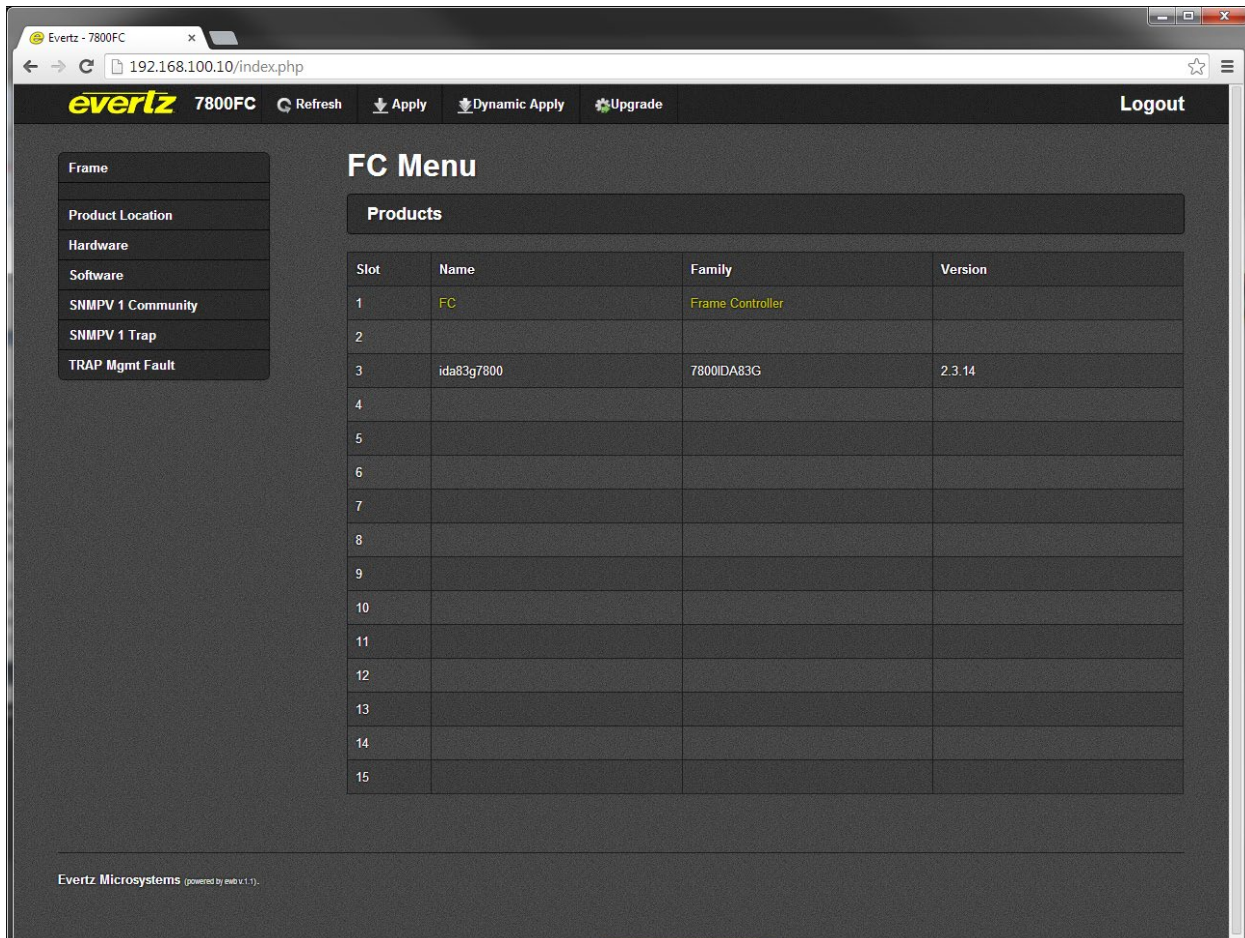


Figure 8-1: WebEASY® Home Page

8.1. UPGRADING CARDS USING WEBEASY®

The 7800FC web interface provides a simple way to upgrade both the firmware on the 7800FC as well as the firmware of cards that support WebEASY®. Clicking on the *Upgrade* button at the top of the home screen will bring the user to the Firmware Upgrade page as shown in Figure 8-2.

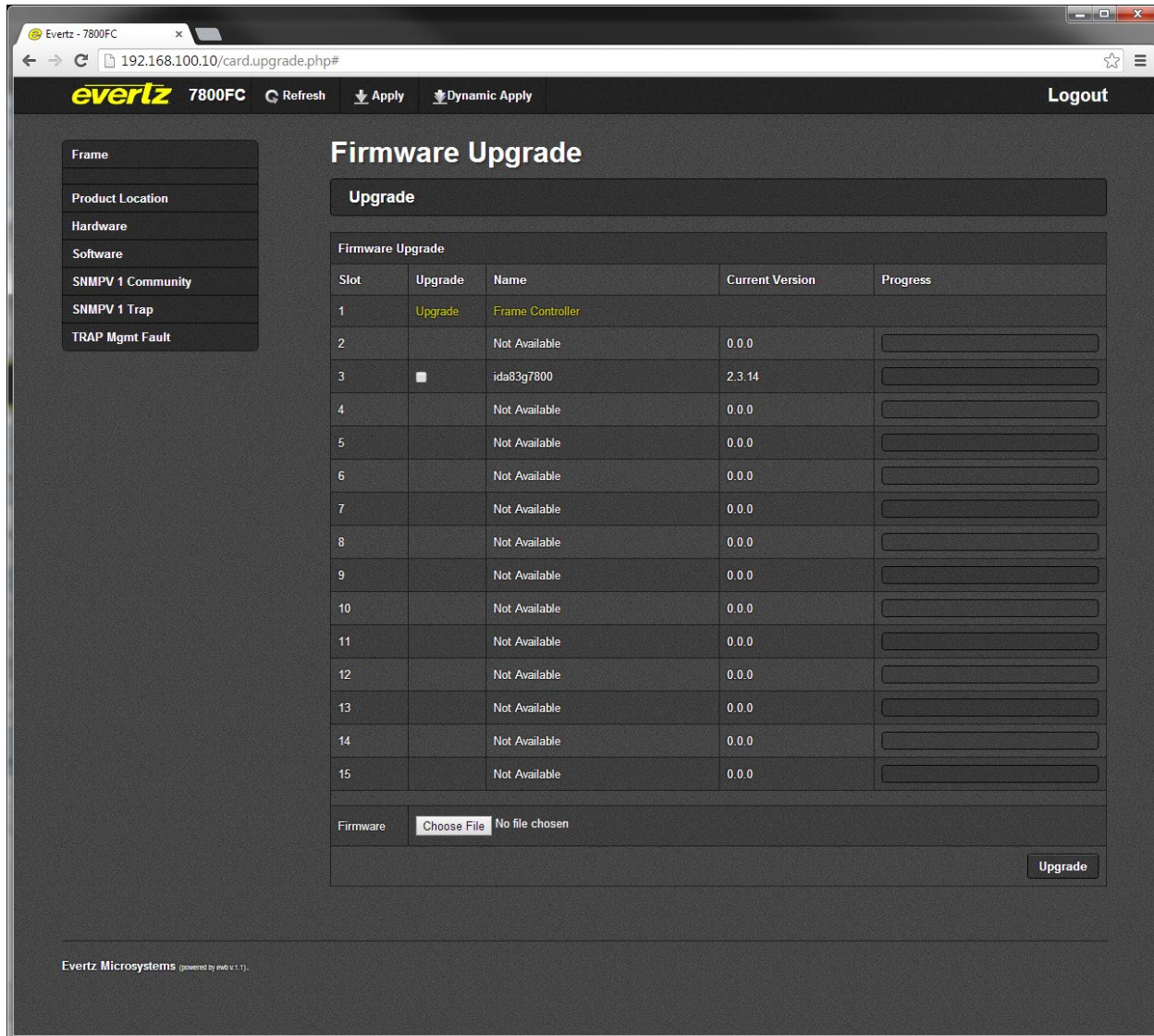


Figure 8-2: WebEASY® Firmware Upgrade Page

8.1.1. Upgrading Modules Using WebEASY®

The firmware for individual modules in a frame with a 7800FC can be upgraded using the web interface. Beside each compatible product will be a checkbox. Select the checkbox of the card to be upgraded and then click on the *Choose File* button to select the desired firmware from a local drive. Clicking on the *Upgrade* button will start the process. The progress bar to the right of the card slot will provide feedback on the status of the upgrade.

8.1.2. Upgrading 7800FC Using WebEASY®

The firmware for the 7800FC can be upgraded by clicking on the *Upgrade* link beside the frame controller in slot 1. Clicking on the link will bring the user to the 7800FC Firmware Upgrade page shown in Figure 8-3. Once on this page, click on the *Choose File* button to select the desired firmware from a local drive, then click on the *Upgrade* button to start the process. The progress bar to the right of the card slot will provide feedback on the status of the upgrade.

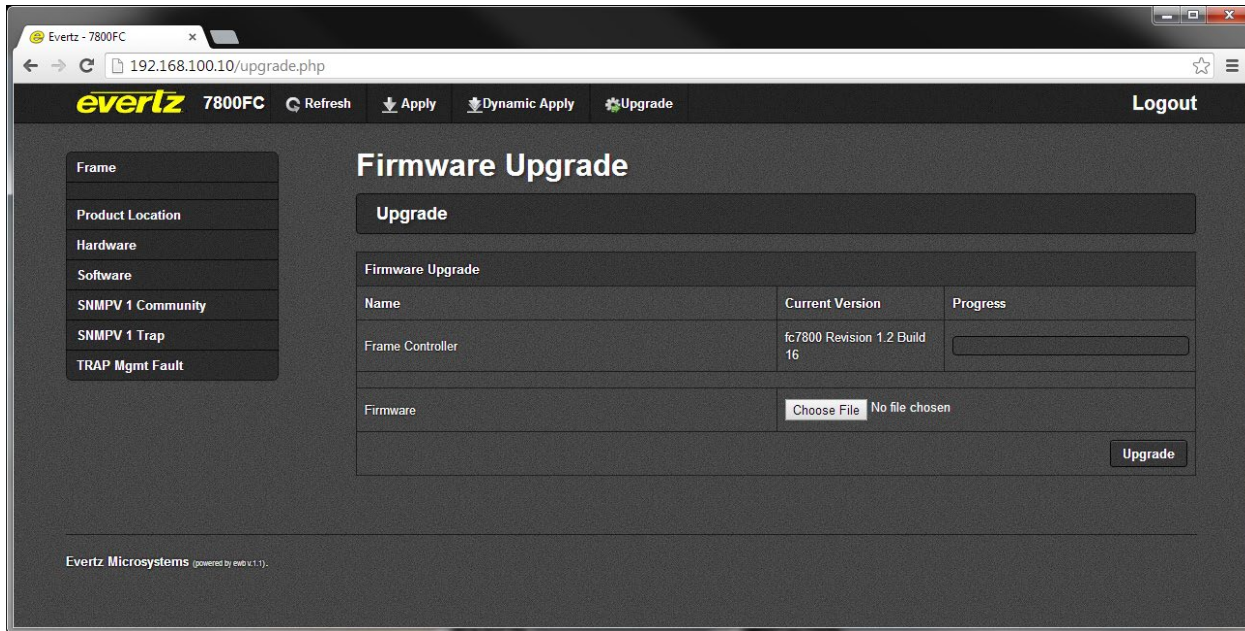


Figure 8-3: WebEASY® Firmware Upgrade Page for 7800FC

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