7780MD Series
DVB-S/S2/S2X L-Band and IF Satellite Modulators

User Manual

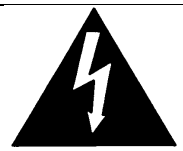
EVERTZ MICROSYSTEMS LTD.
5292 John Lucas Drive,
Burlington, Ontario,
Canada L7L 5Z9

Phone:	+1 905-335-3700	
Sales:	sales@evertz.com	Fax: +1 905-335-3573
Tech Support:	service@evertz.com	Fax: +1 905-335-7571
Web Page:	http://www.evertz.com	

Version 1.0, July 2019

This page left intentionally blank

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.

CE

EN60065	Safety
EN55103-1: 1996	Emission
EN55103-2: 1996	Immunity

EN504192 2005
Waste electrical products should not be disposed of with household waste.
Contact your Local Authority for recycling advice

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.

TABLE OF CONTENTS

FIGURES

TABLES

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	July 2019

This page left intentionally blank

1. OVERVIEW

The 7780MD series is a complete hardware based professional DVB-S/S2 DVB-S2X (Broadcast and DSNG profiles) standard. Satellite modulator solution, able to process data rates up to 200 Mbps with high-order modulation schemes up to 64APSK. This module works conjointly with Evertz encoders and various other 7800 series modular products, all integrated in the same chassis in infinitely flexible combinations. The 7780MD modulator series rounds out a best-in-class and highly flexible encoder to uplink solution.

Monitoring parameters such as input bit rate, occupied bandwidth, output level and transmit status provide extensive information on modulator status and signal quality. These parameters as well as full control of the modulator are relayed over SNMP, for intuitive remote access using Evertz's own VistaLINK PRO SNMP monitoring and control package.

1.1. FEATURES AND BENEFITS

- Full DVB-S/S2 and DVB-S2X compliant with modulation schemes available up to 32ASPK
- Wideband output frequency range, adjustable from 950MHz to 2150MHz for –LB option and 50MHz to 180MHz for –IF option
- Symbol rates range from 1 to 68 MSps
- Monitoring port provided for local monitoring of signal integrity
- Dual, selectable ASI and IP inputs for flexibility in system configuration and selection of various accompanying encoder modules
- 10MHz internal reference available on the L-Band RF output signal
- Interoperable with Evertz and 3rd party industry standard professional satellite IRDs
- Fully hot-swappable from front of frame for low MTTR
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK
- Multistream per carrier support according to EN 302 307 standard
- Dualcast support based on MPE
- All DVB modes are supported such as Constant Coding and Modulation, Variable Coding and Modulation, Adaptive Coding and Modulation
- Optional BISS Encryption is supported
- Ability for auto equalization or pre-equalization to pre-distort signal before feeding to Up convertor
- Support of Carrier ID (DVB-CID) following ETSI 103 129 Standards
- Ability to insert opportunistic data

1.2. ORDERING INFORMATION

- **7780MD-IF** DVB-S/S2 modulator IF output
- **7780MD-LB** DVB-S/S2 modulator L-Band output

1.3. ORDERING OPTIONS

- **+DBISS** License for BISS 1/E Encryption
- **+DVB-S2X** License to enable DVB-S2X (Broadcast and DSNG profiles) modulation standards
- **+S50** 50Ω SMA connectors

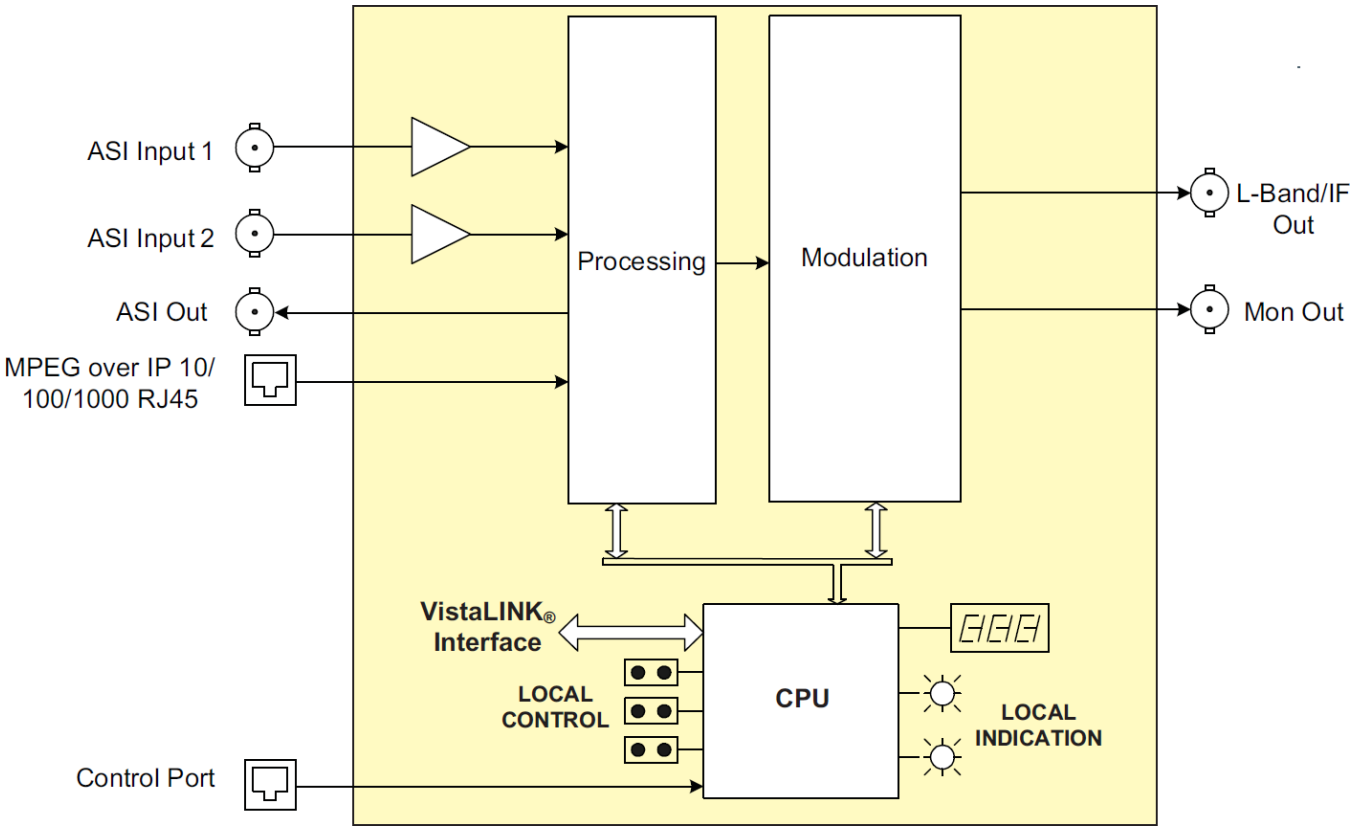


Figure 1-1 : 7780MD Series Block Diagram

2. INSTALLATION

2.1. REAR PLATE DESCRIPTION

Figure 2-1 provides an illustration of the 7780MD series rear plate.

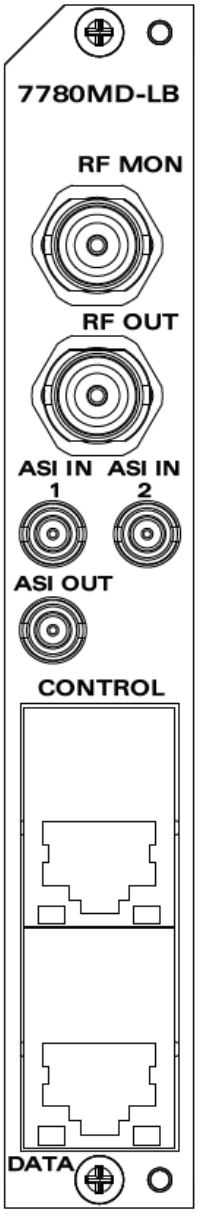


Figure 2-1 : 7780MD Series Rear Plate

2.1.1. Connectors

RF MON: Output BNC 50 Ohm connector for monitoring L-band output.

RF OUT: Output BNC 50 Ohm connector for L-band output.

ASI IN <1-2>: Input DIN connectors.

ASI OUT: Output DIN connector.

IP CONTROL: Control port (not in use).

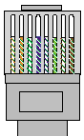
IP DATA: Data input connector.

2.1.2. Ethernet Connection

The 7780MD Series uses 10Base-T (10 Mbps), 100Base-TX (100 Mbps) or Gigabit (1 Gbps) 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. The cable must be "straight-through" with an RJ-45 connector at each end. Establish the network connection by plugging one end of the cable into the RJ-45 receptacle of the card and the other end into a port of the supporting hub.

The straight-through RJ-45 cable can be purchased or can be constructed using the pin-out information in Table 2-1. A colour coded 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 1



Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT	1000BaseT
1	Transmit +	White/Green	White/Orange	Used	Used
2	Transmit –	Green/White or White	Orange/White or Orange	Used	Used
3	Receive +	White/Orange	White/Green	Used	Used
4	Bi-dir +	Blue/White or Blue	Blue/White or Blue	--	Used
5	Bi-dir -	White/Blue	White/Blue	--	Used
6	Receive –	Orange/White or Orange	Green/White or Green	Used	Used
7	Bi-dir +	White/Brown	White/Brown	--	Used
8	Bi-dir -	Brown/White or Brown	Brown/White or Brown	--	Used

Table 2-1 : Standard RJ-45 Wiring Colour Codes

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 for 10/100BaseT. Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable.
- 10BaseT and 100BaseT use the same pins (a crossover cable made for one will also work with the other).
- 1000BASE-T requires at least Category 5 cable.
- 1000BASE-T requires all four pairs to be properly connected.
- Pairs may be solid colors and not have a stripe.
- Category 5 cable must use Category 5 rated connectors.

The maximum cable run between the router and the supporting hub is 300 ft (90 m). The maximum combined cable run between any two end points (i.e. router and PC/laptop via network hub) is 675 ft (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 rear panel is fitting with two LEDs to monitor the Ethernet connection.

LINK-UP (AMBER): This LED is ON when the module has established a good link to its supporting hub. This provides a good indication whether the segment is wired correctly or not. The LED is OFF if there is no valid connection.

ACTIVITY (GREEN): This LED provides information on link traffic activity. It blinks when the module is transmitting or receiving packets. The blinking speed is relative to link activity. The more traffic there is no the link, the faster the LED blinks. The LED is be OFF if there is no valid connection or no link activity.

To successfully install any of the 7780MD series modules, user will need:

1. Unused IP address on the network or a DHCP server.
2. Evertz serial cable.
3. VLPRO Server IP address.

The 7780MD Series module is controlled via a 780x Frame controller and cannot be controlled directly through its own control port.

2.2. HARDWARE INSTALLATION

Before handling the card it is important to minimize the potential effects of static electricity. It is therefore recommended that an ESD strap be worn. Locate on the 7800 chassis two adjacent vacant slots. Unpack the 7780MD and separate the rear panel from the main card. Locate on the rear of the rack an empty slot and remove the blanking panels. Insert the rear panel into the back of the chassis and secure using the screws provided.

Before inserting the front card, connect the serial cable provided to the board. Now insert the 7780MD Series card into the corresponding front slots ensuring the card lines up with the slot runners on the bottom and the top of the chassis. Push the card into the slot ensuring that when it mates with the rear card that it has been firmly pushed into a seated position. This can be confirmed when the connectivity lights for the Ethernet port are illuminated. Do not connect any cables to the rear card until the initial configuration has been completed (failure to do this could cause unwanted network issues).

2.3. CONFIGURATION OF MANAGEMENT IP CONNECTION

The first step is to configure the management IP connection so that the customer can create management access to the unit via the user's Local Area Network. The user can change the management IP address from the serial port of the frame controller by following the steps below.

1. Remove the panel by unscrewing both knobs on the side.
2. Connect the serial upgrade cable (ribbon cable) provided by Evertz to the 2x3 header at the front edge of the 7801FC/7800FC.
3. Open a terminal program such as HyperTerminal. Setup the terminal program as shown in Figure 2-2.

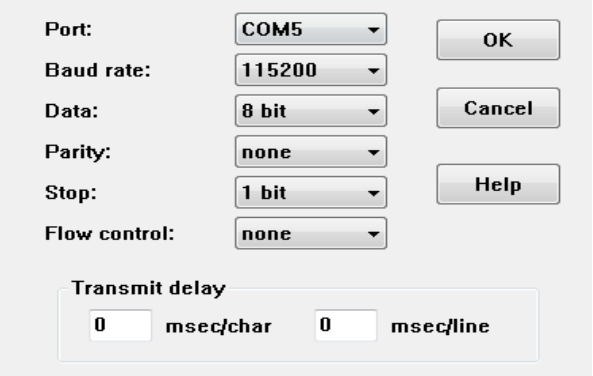


Figure 2-2 : COM Port Settings

4. Power on the unit and allow unit to boot up.
5. After boot up, press **ENTER** and the **Login** screen will appear. Enter login: ***customer*** and password: ***customer***.
6. After logging in the **Main Menu** will appear in the terminal window as shown in Figure 2-3.

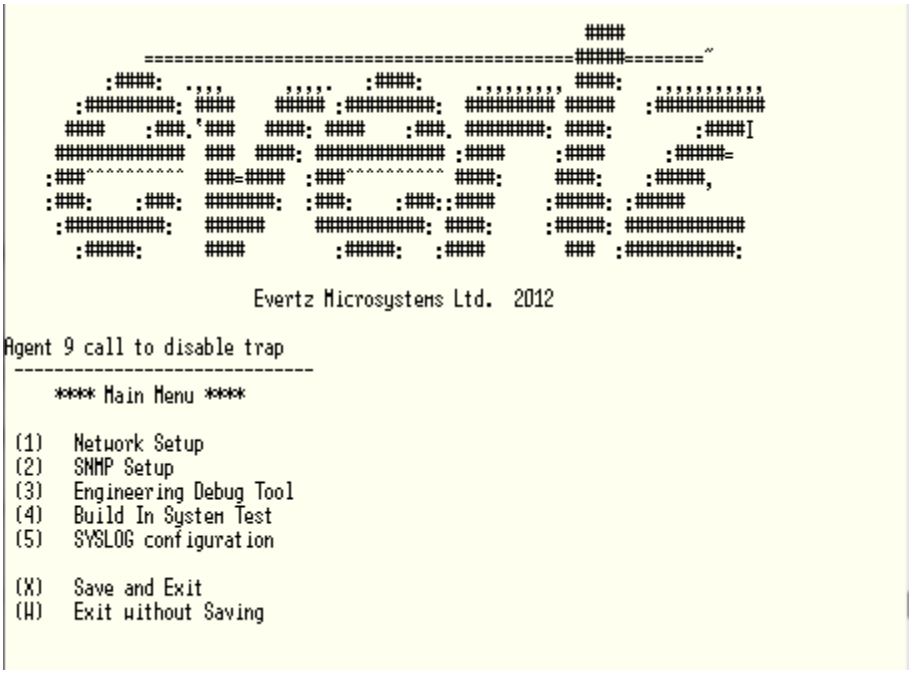


Figure 2-3 : Main Menu Prompt

7. Select option 1 in the main menu to view the IP, Netmask, Gateway, and Broadcast addresses. Changes to the addresses may be made by selecting the desired option on the **Network Setup** screen shown in Figure 2-4 and pressing **ENTER**.

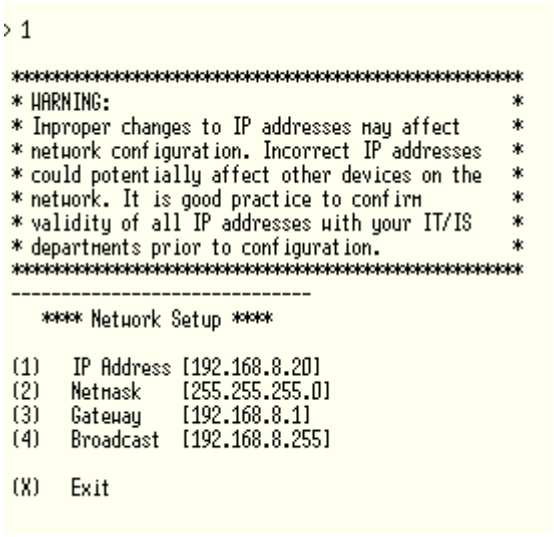


Figure 2-4 : Network Setup Screen

8. After making the changes, choose **X** and press **ENTER** to exit.
9. Again, choose **X** and press **ENTER** to exit and save or choose **W** to exit without saving.
10. The frame controller can now be used with the new IP address.

2.4. HTTP BROWSER CONTROL

The user can control the 7780MD using an HTTP browser by following these steps:

1. Connect a network cable (RJ-45) between the management connector labelled **ETHERNET** on the chassis and the LAN connector of the local PC or switch.
2. Open Firefox or Chrome browser (latest version recommended) and type in the control port IP address from Section 2.3.

Note: The PC used for management and administrative purposes must be in the same subnet to establish proper connection to the chassis. User may need to change the user's PC IP settings for DHCP to static during the management IP connection.

3. Log in as: **root**, password: **evertz**

Note: The default username and password is "root" and "evertz" respectively. This is for read/write privileges.

For read only privileges, the customer needs to access with username and password "customer" and "customer" respectively.

4. The user will be directed to the FC Menu as shown in Figure 2-5. To access the 7780MD (slot 4 in this example) web controls, click on the link under the **Name** column of the **Products** section.

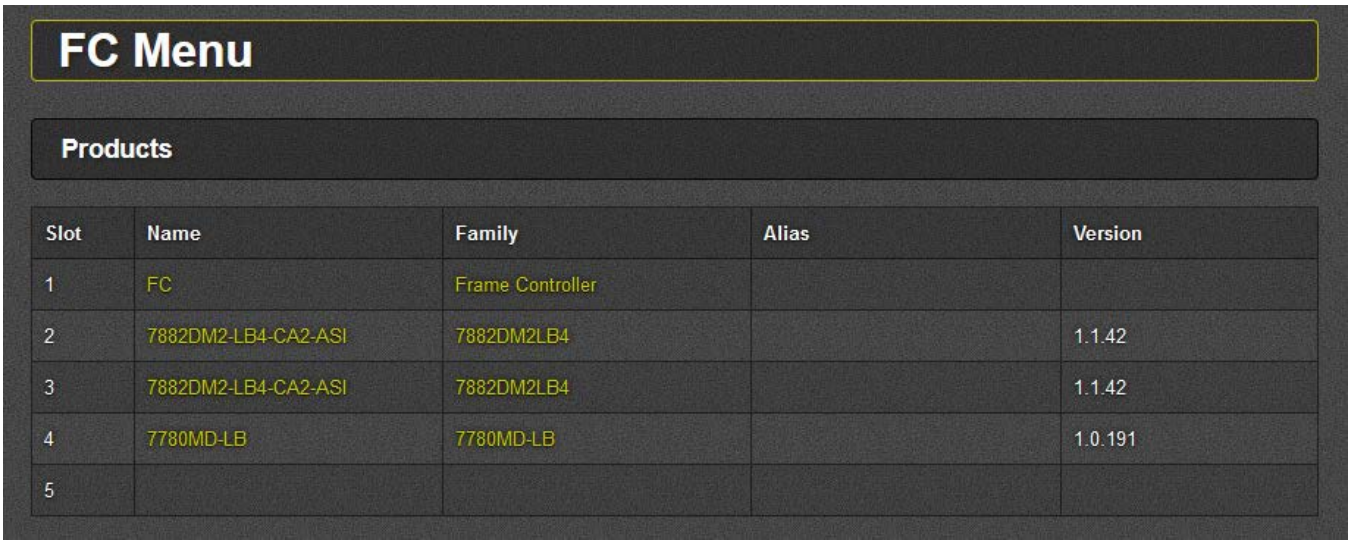


Figure 2-5 : FC Menu – WEBEASY Interface

2.5. SETTING UP USER LOGIN CREDENTIALS AND CHANGES PRIVILEGES

The user can change the roles of the user by following the steps below:

- Go to the FC webpage
- Click on any of the tabs on the left side, e.g. Hardware tab
- Login using login: **admin** password: **admin**
- Click the **Users** button on the lower right side
- Under the **Users** tab, click the **Modify** button for customer and change its role to **RW**
- Logout of the FC and login as **customer**/**customer**
- Re-login to the FC

The user needs to follow the same steps for the **DEMODULATOR:**

- User needs to login to the card directly with:
  http://<IP address>/slot/<Slot#>/htdocs/login.php
- Login using login: **admin** password: **admin**
- Click the **Users** button on lower right side
- Click the **Login** tab under the **Users** tab
- Click **Modify** button for customer and change its role to be RW
- Logout and login as **customer**/**customer**

3. SPECIFICATIONS

ASI INPUTS

Number	2, selectable
Standard	DVB-ASI
Connectors	BNC per IEC 61169-8 Annex A
Impedance	75Ω
Return Loss	>15dB
Byte Stuffing Modes	Byte and single packet burst mode

ASI OUTPUT

Number	1
Standard	DVB-ASI
Connectors	BNC per IEC 61169-8 Annex A
Impedance	75Ω
Return Loss	>15dB

IP INPUT

Number	1
Connector	RJ45 10/100/1000 GigE for MPEG over IP
Max Bit Rate	200Mbps

CONTROL

SNMP over Ethernet via FC
Web browser via FC

7780MD-IF OUTPUT

IF Out	1
Connector	BNC per IEC 61169-8 Annex A
Impedance	75Ω
Return Loss	>12dB
P1dB	+18dBm
Output Level	-35dBm to +5dBm
Frequency Range	50 to 180MHz
Frequency Stability of Internal 10MHz clock with respect to Temperature	<±2.5ppm over 0° to 50°
Level Step Size	0.2dB
Spurious Output	≤55dBc/4KHz @ 0dBm or ≤-60dBm
Phase Noise	IESS-308 compliant
CW Mode	Selectable between BISS-1, BISS-E or OFF
Noise Floor (No/C)	<-120dBc/Hz

7780MD-LB OUTPUT

L-Band Out	1
Connector	BNC
Impedance	50Ω
Return Loss	>12dB
P1dB	+20dBm
Output Level	-45dBm to 0dBm
Frequency Range	950 to 2150MHz

MONITORING PORT

L-Band Out	1
Connector	BNC
Impedance	50Ω
Return Loss	>12dB
P1dB	+20dBm
Output Level	-29dBm to +4dBm

MODULATION

Symbol Rate	1 to 68 MSps
Roll-off Factor	0.05, 0.10, 0.20, 0.25, 0.35
Multiplex Adaptation and Energy Dispersal	ETSI EN 300 421 (DVB-S) Compliant & EN 302 307 (DVB-S2)

DVB-S

Operation Mode	
QPSK	1/2, 2/3, 3/4, 5/6, 7/8
8PSK	2/3, 5/6, 8/9
16QAM	3/4, 7/8
Interleaving Depth	12
FEC	Reed-Solomon (204, 188, T=8), Viterbi

DVB-S2

Operation Mode	
QPSK	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
8PSK	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
16APSK	2/3, 3/4, 4/5, 5/6, 8/9, 9/10
32APSK	3/4, 4/5, 5/6, 8/9, 9/10
FEC	BCH, LDPC
PL Scrambling Codes	0, 264143
DVB-S2 Short	16 200
Normal	64 800

DVB-S2X BROADCAST & DSNG PROFILES (OPTIONAL)

Operation Mode

QPSK	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
8PSK	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
16APSK	2/3, 3/4, 4/5, 5/6, 8/9, 9/10
32APSK	3/4, 4/5, 5/6, 8/9, 9/10
FEC	BCH, LDPC
PL Scrambling Codes	0, 264143
DVB-S2 Short	16 200
Normal	64 800
DSNG Profile	64APSK

All new linear MODCOD for QPSK/8PSK/16A/32/64APSK

ELECTRICAL

Voltage	+12V DC
Power	27 W

PHYSICAL (NUMBER OF SLOTS)

3700FR	2
7800FR	2

This page left intentionally blank

4. WEB INTERFACE

After the card has been installed in a 780x frame, it can be completely configured using the web interface. To do this, open up the webpage of FC in a web browser using the specified IP address. From the FC menu, navigate to the slot where 7780MD card is installed.

4.1. GENERAL

This section allows the user to configure Control and Data Port Settings.

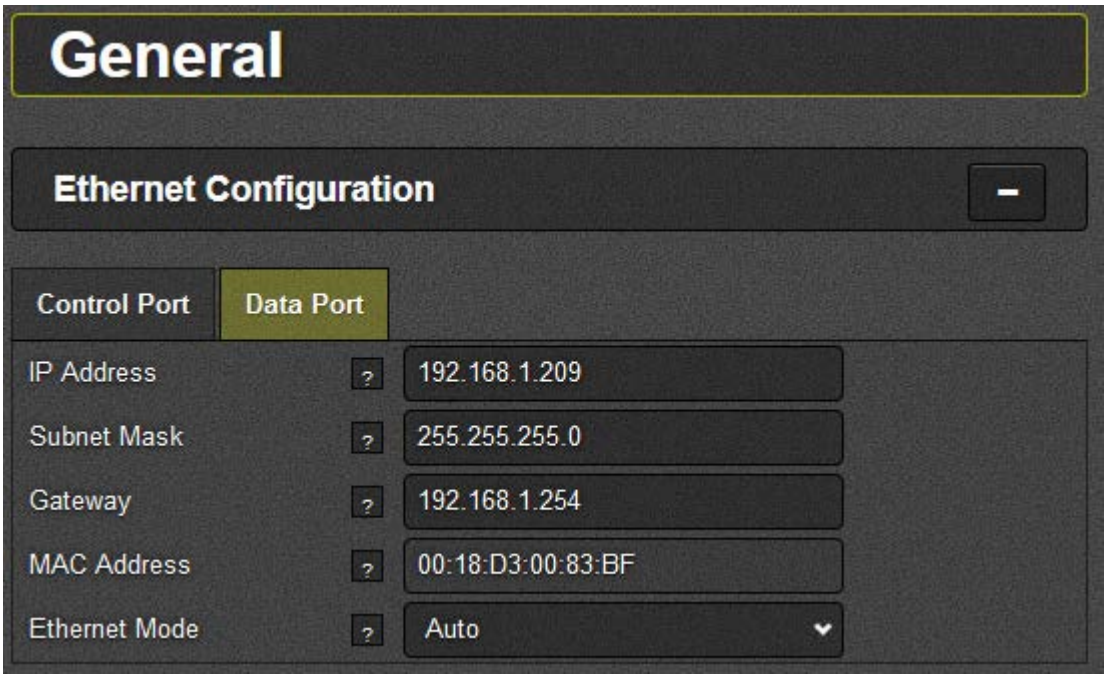


Figure 4-1 : General Tab

IP Address: This parameter allows the user to define the IP address for the Ethernet port.

Subnet Mask: This parameter allows the user to define the netmask address for the Ethernet port.

Gateway: This parameter allows the user to define the gateway address for the Ethernet port.

MAC Address: This parameter allows the user to define the MAC address for the Ethernet port.

Ethernet Mode: This parameter allows the user to define the Ethernet mode. Options include:

- **Auto**
- **10 Base T-Full Duplex**
- **10 Base T-Half Duplex**
- **100 Base T-Full Duplex**

- **100 Base T-Half Duplex**
- **1000 Base T-Full Duplex**
- **1000 Base T-Half Duplex**

4.2. CONFIGURATION

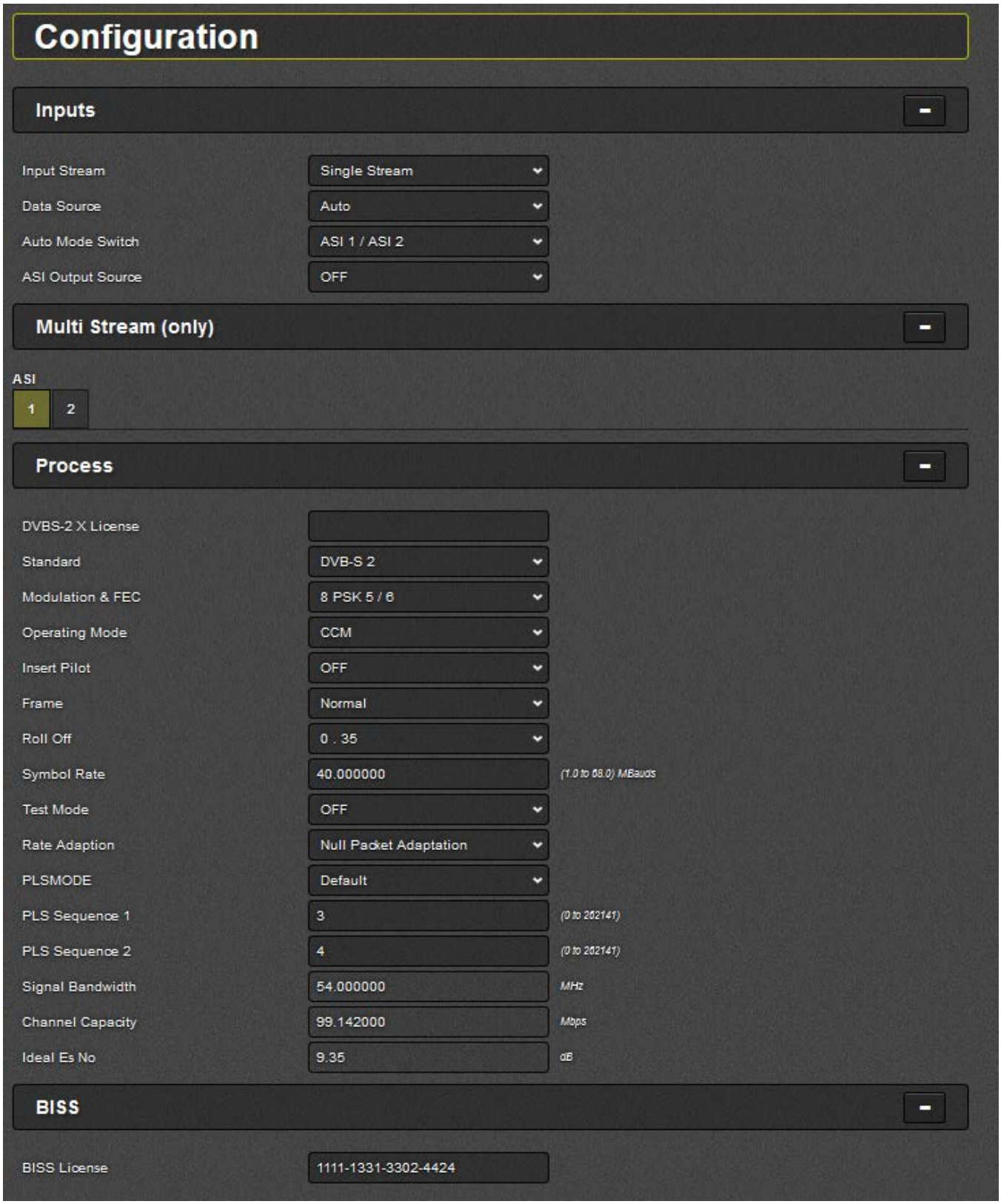


Figure 4-2 : Configuration Tab

Inputs

Input Stream: This parameter allows the user to control the input stream mode when the control standard is not set to DVBS. Options are **Multi Stream** or **Single Stream**.

Data Source: This parameter allows the user to control the input stream mode when the input stream is set to single stream

Auto Mode Switch: This parameter allows the user to control the Auto Mode Switch. Options are **ASI 1 / ASI 2** and **ASI 1 / IP**.

ASI Output Source: This parameter allows the user to set the ASI Output Source. Options are **OFF**, **ASI 1**, **ASI 2**, **IP** and **Active Stream**.

Process

DVBS-2 X License: This parameter displays the DVBS-2 X license number.

Standard: This parameter controls the modulation type.

Modulation & FEC: This parameter controls the modcod when the standard is DVBS.

Operating Mode: This parameter controls the operating mode when the standard is DVBS2.

Insert Pilot: This parameter controls the pilot insertion when the standard is DVBS2 and the input stream is set to single stream.

Frame: This parameter controls the frame type when the standard is DVBS2 and the input stream is set to single stream.

Roll Off: This parameter controls the roll off factor when the standard is DVBS.

Symbol Rate: This parameter controls the symbol rate. Units are in Mbauds.

Test Mode: This parameter monitors the test mode.

Rate Adaptation: This parameter monitors the rate adaptation.

PLS Mode: This parameter monitors the PLS mode.

PLS Sequence 1: This parameter controls the PLS Sequence 1.

PLS Sequence 2: This parameter controls the PLS Sequence 2.

Signal Bandwidth: This parameter displays the calculated signal bandwidth.

Channel Capacity: This parameter displays the calculated modulation bit rate.

Ideal Es No: This parameter monitors the ideal Es/No quality.

BISS

BISS License: This parameter displays the BISS license number (if purchased)

4.3. RF OUTPUT

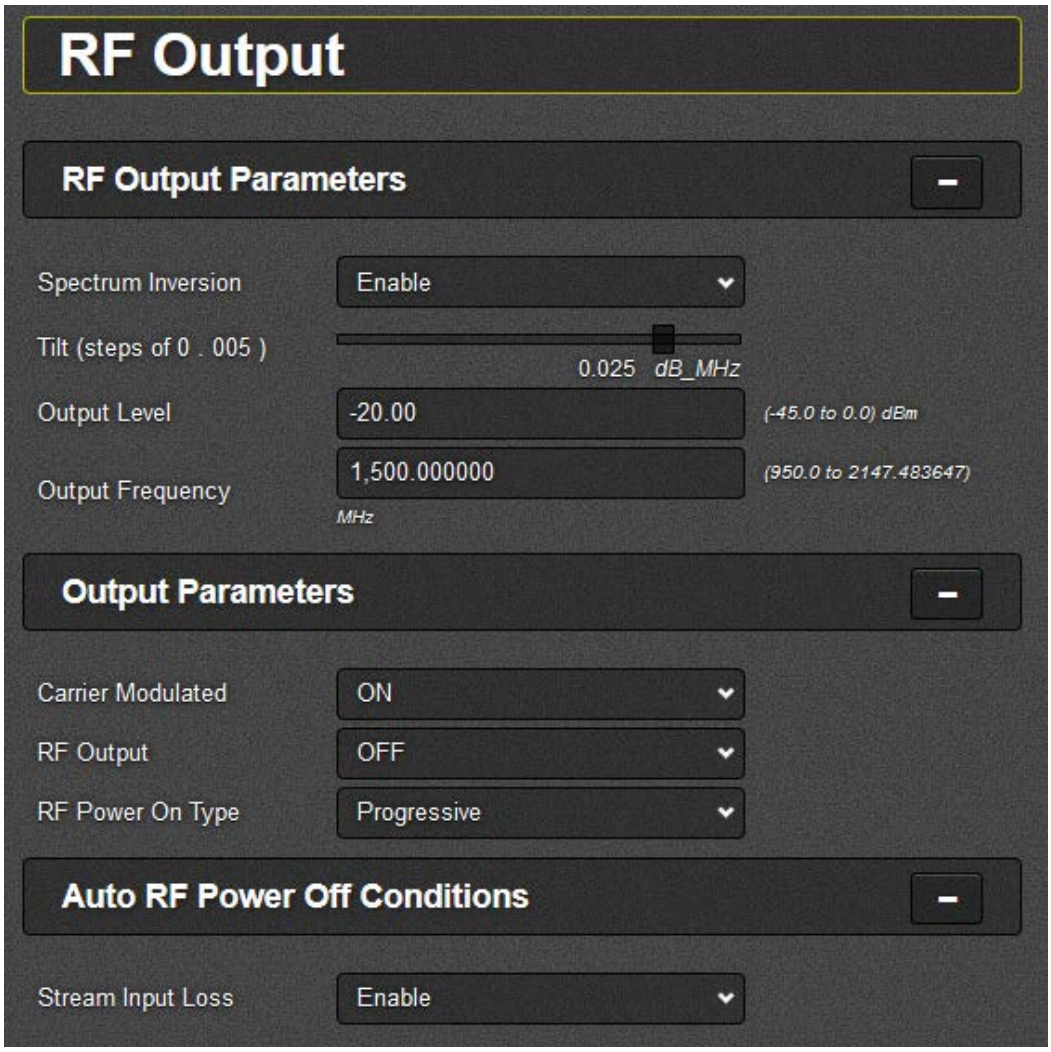


Figure 4-3 : RF Output Tab

RF Output Parameters

Spectrum Inversion: This parameter controls spectral inversion.

Tilt: This parameter controls tilt correction. Units are dB/MHz.

Output Level: This parameter controls the RF output power level.

Output Frequency: This parameter sets the RF frequency.

Output Parameters

Carrier Modulated: This parameter controls carrier modulated. It sets sinus mode or carrier is modulated.

RF Output: This control is used to mute the RF board in case of error.

RF Power On Type: This parameter sets the un-mute type.

Auto RF Power Off Conditions

Stream Input Loss: This parameter sets auto mute on ASI error.

4.4. IP INPUT

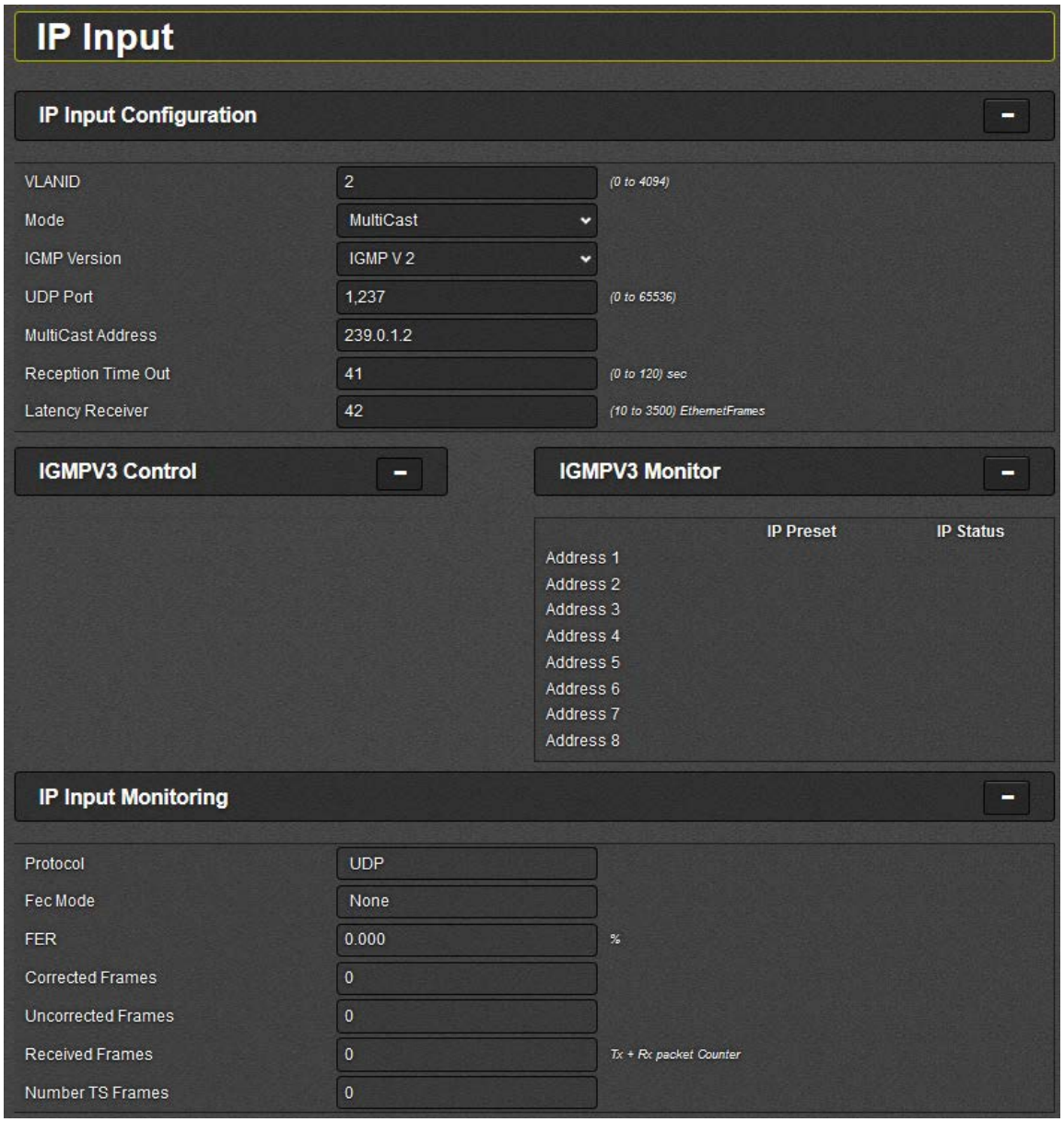


Figure 4-4 : IP Input Tab

IP Input Configuration

VLANID: This parameter sets the VLAN identifier. 0 means VLAN is disabled.

Mode: This parameter controls the reception mode.

IGMP Version: This parameter controls the IGMP version.

UDP Port: This parameter sets the UDP port (default = 1234). It shall be an even number as required by RTP standard.

Multicast Address: This parameter sets multicast group address (default = 224.1.2.2). It is only used in multicast reception mode.

Reception Time Out: This parameter sets the UDP reception timeout in seconds from 0 to 120.

Latency Receiver: This parameter sets the latency of the receiver in number of Ethernet frames from 10 to 3500. Default = 150.

IGMPV3 Monitor

IP Preset: This is the IP address set and stored as preset in firmware.

IP Status: This is the IP address read from the module.

IP Input Monitoring

Protocol: This parameter displays the protocol detected.

FEC Mode: This parameter displays the FEC mode.

FER: This parameter displays the estimated Packet Error Rate (PER) before applying FEC.

Corrected Frames: This parameter is a corrected packet counter. It is always null in none FEC mode.

Uncorrected Frames: This parameter is an uncorrected packet counter. If not null, some MPEG TS packets will be missing in the output stream.

Received Frames: This parameter displays the number of received frames.

Number TS Frames: This parameter displays the number of MPEG TS packets per IP packet.

4.5. CARRIER ID

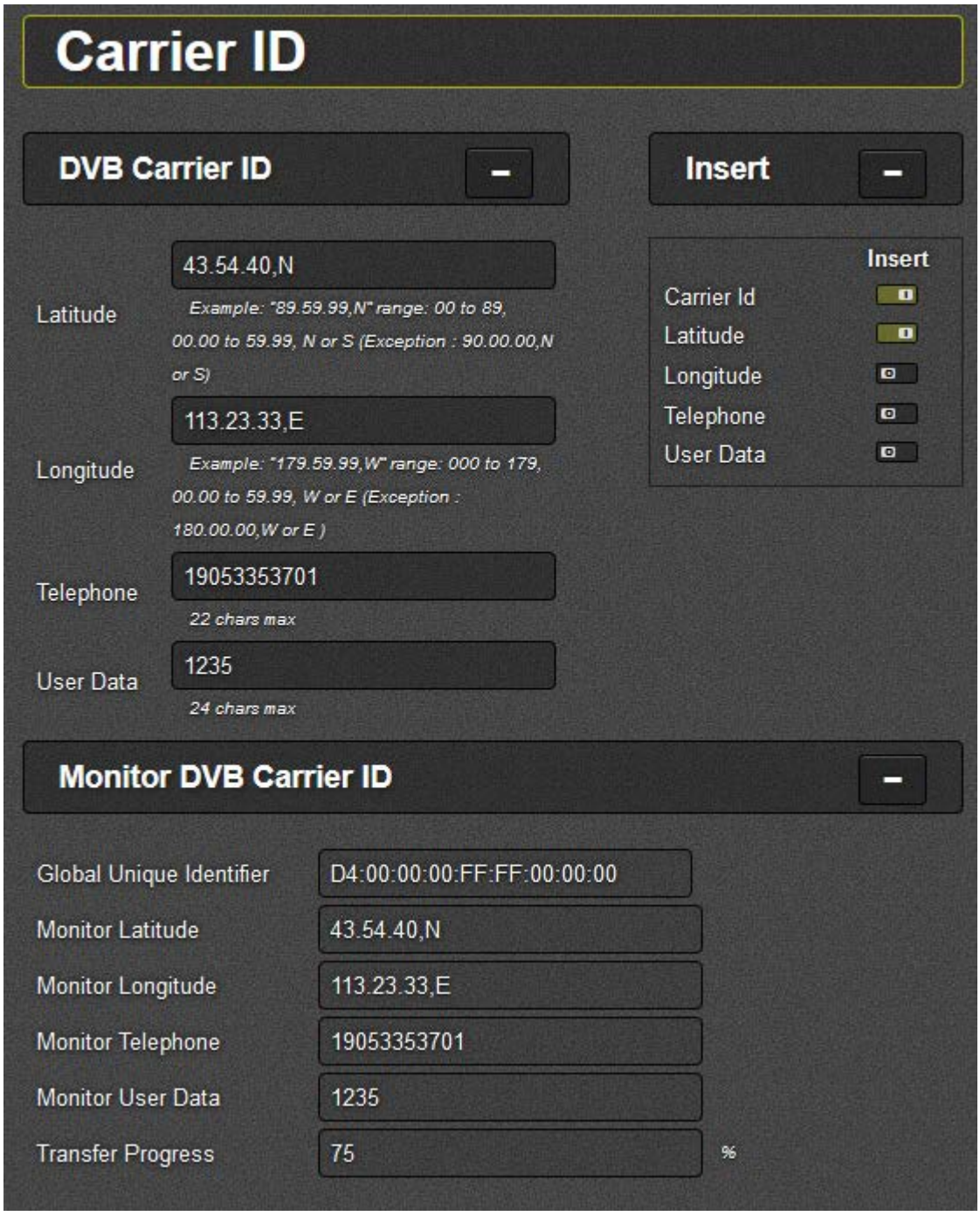


Figure 4-5 : Carrier ID Tab

4.6. MONITOR

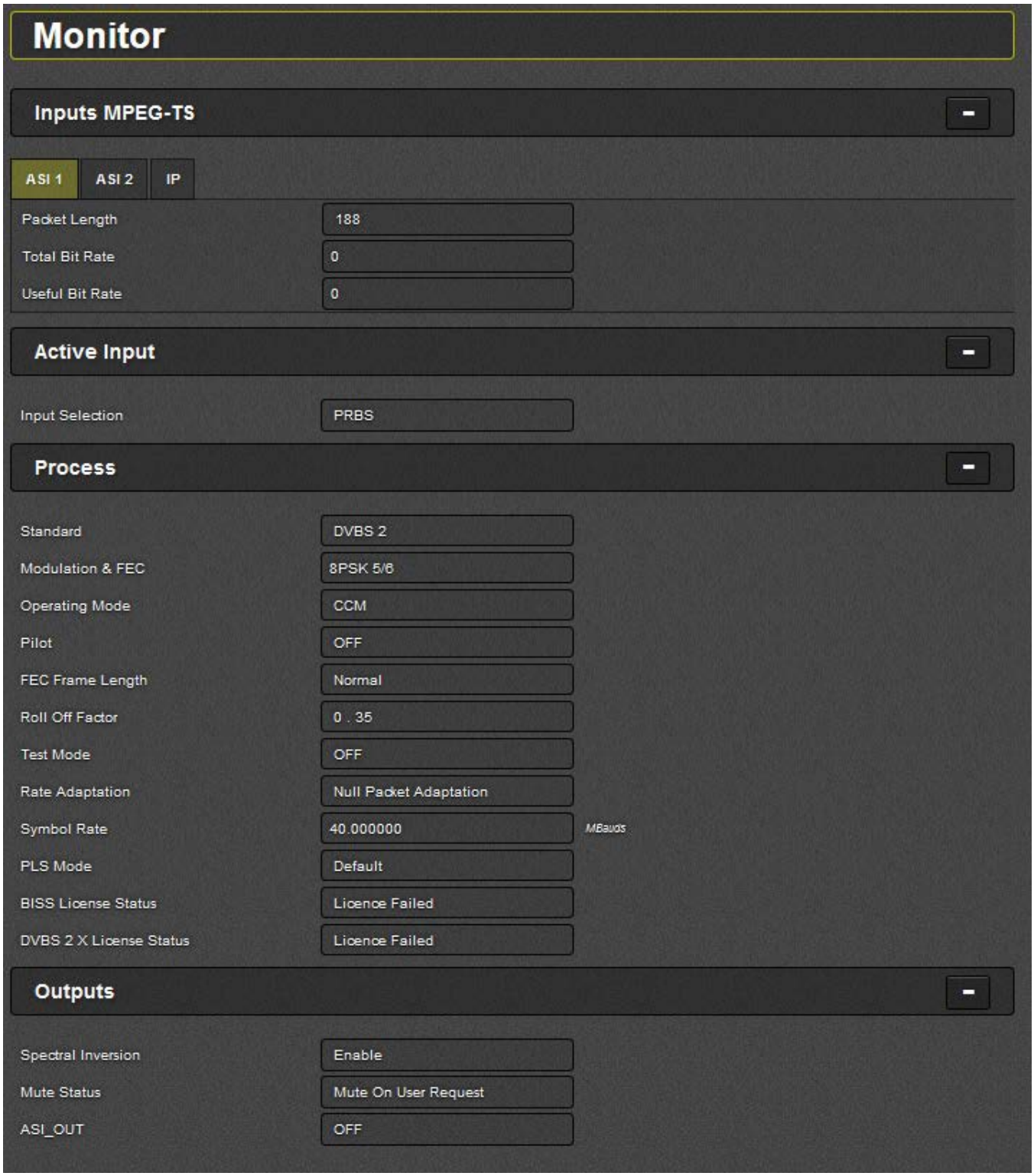


Figure 4-6 : Monitor Tab

Inputs MPEG-TS

Packet Length: This parameter monitors packet length (for ASI 1 input, ASI 2 input and IP input).

Total Bit Rate: This parameter monitors the average total bit rate (for ASI 1 input, ASI 2 input and IP input).

Useful Bit Rate: This parameter monitors the average useful bit rate (for ASI 1 input, ASI 2 input and IP input).

Active Input

Input Selection: This parameter monitors the modulator status' input selection.

Process

Standard: This parameter monitors the modulation type.

Modulation & FEC: This parameter monitors the modulation and FEC.

Operating Mode: This parameter monitors the operating mode.

Pilot: This parameter monitors the pilots insertion.

FEC Frame Length: This parameter monitors the frame type.

Roll Off Factor: This parameter monitors the roll off factor.

Test Mode: This parameter monitors the test mode.

Rate Adaptation: This parameter monitors the rate adaptation.

Symbol Rate: This parameter monitors the symbol rate.

PLS Mode: This parameter monitors the PLS mode.

BISS License Status: This parameter monitors the BISS license status.

DVBS 2 X License Status: This parameter monitors the DVBS-2X license status.

Outputs

Spectral Inversion: This parameter monitors the spectral inversion status.

Mute Status: This parameter is used to monitor the mute source.

ASI OUT: This parameter monitors the ASI output interface.

4.7. PRESETS

The **Preset** section allows the user to save profiles and recall them when needed.

Saving a Preset:

a. The user can select which preset to set by clicking on one of the numbered tabs. A maximum of 5 presets can be set.
b. Enter the name in the **Name** field, and click **Apply**.
c. Click on the **Store** button to create the saved preset.
d. A dialog box will appear saying 'Are you sure you want to store presets for this user?' Click **OK** to store.
e. Follow the above steps to create up to 5 presets.

Recalling a Preset:

1. The user can select which preset to recall by clicking on one of the numbered tabs.
2. Click on the **Recall** button.
3. A dialog box will appear saying 'Are you sure you want to restore presets for this user?' Click **OK** to recall.

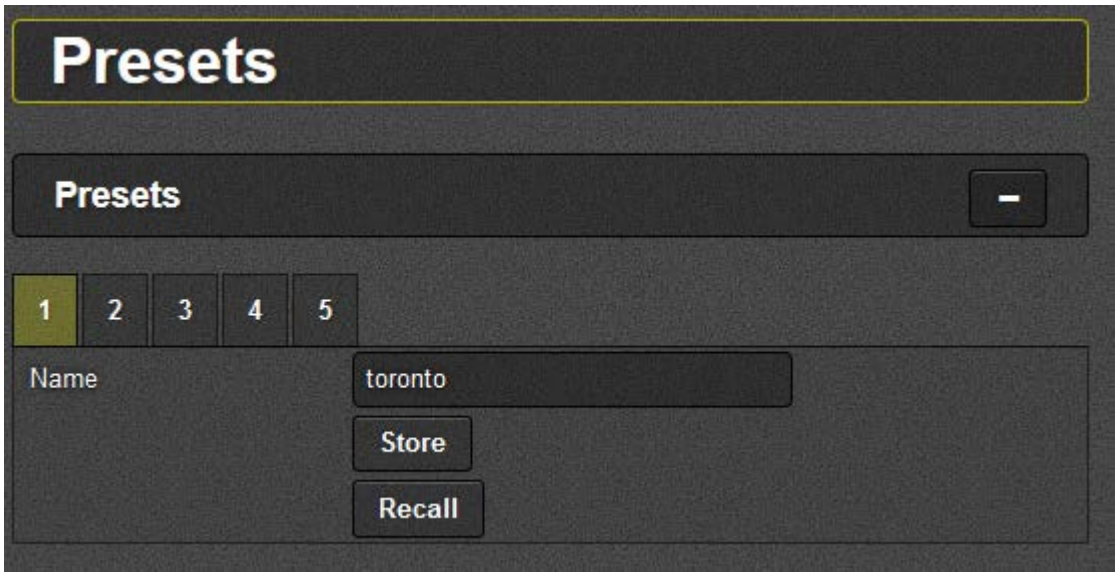


Figure 4-7 : Presets Tab

4.8. ALARMS

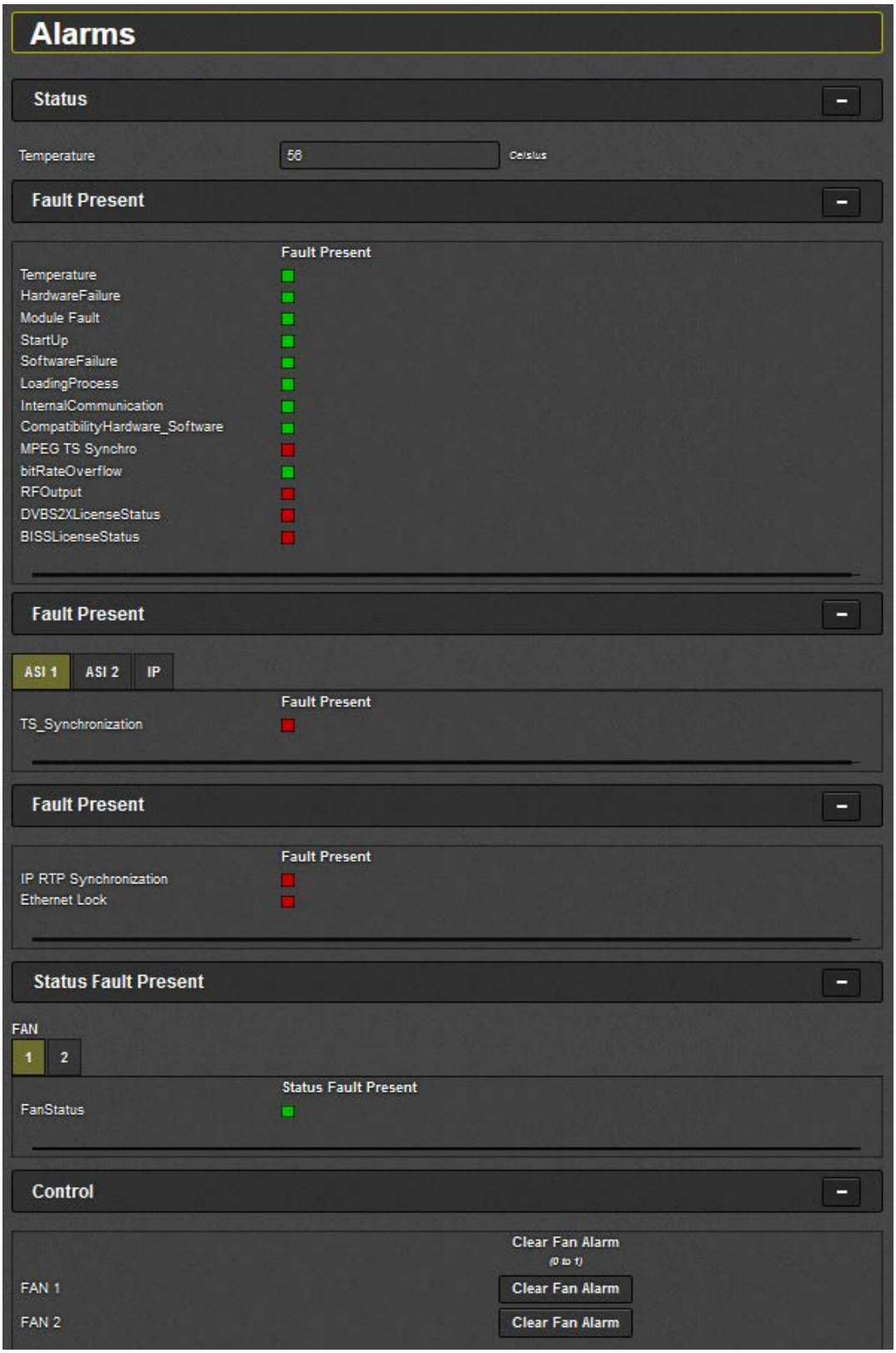


Figure 4-8 : Alarms Tab

This section allows the user to monitor the status of the product and get notified if a fault has occurred. Figure 4-8 shows all the parameters that are monitored under Alarms section.

The GREEN indicator at the front of each alarm shows the GOOD status and it turns RED whenever a faulty situation is detected.

5. UPGRADE PROCEDURES

To add a upgrade the 7780MD using the Web Interface, follow the steps below:

1. Click on the Upgrade button, shown in red in Figure 5-1.

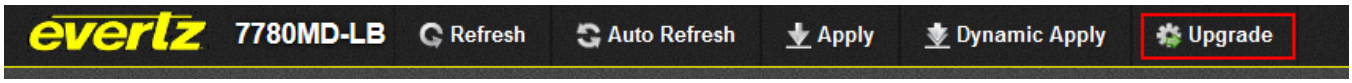


Figure 5-1 : Upgrade Button

2. Mark the check box beside the 7780MD.
3. Click **Browse** to find the image needed for the upgrade. The suffix should be in this format: **"*****.tar.gz"**.
4. Click **Upgrade**.

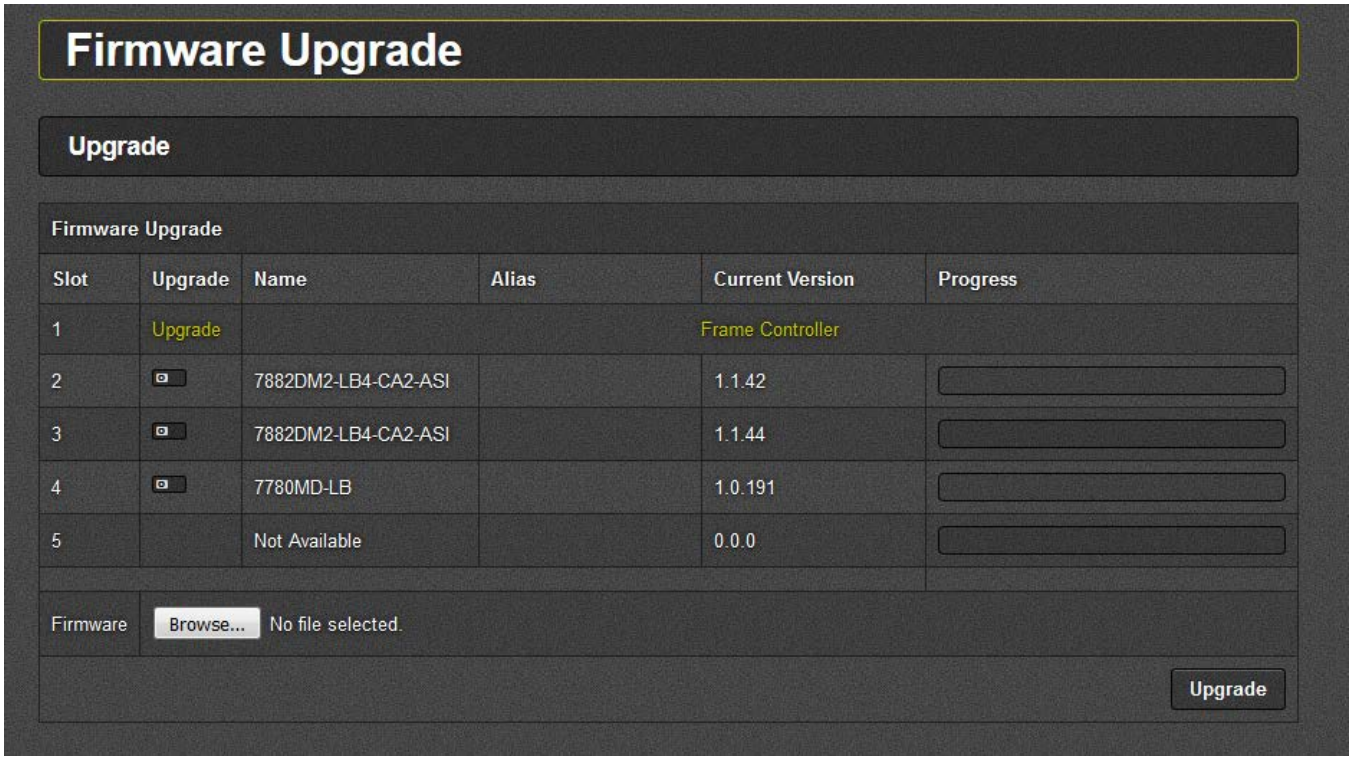


Figure 5-2 : Selecting the 7780MD

5. The unit will reboot itself once the upgrade is finished.

Note: Wait for the unit to reboot and show up in the tree. Hitting Refresh will display the latest status.

6. To verify the update and ensure the versions are applied, the user can check the Frame page.

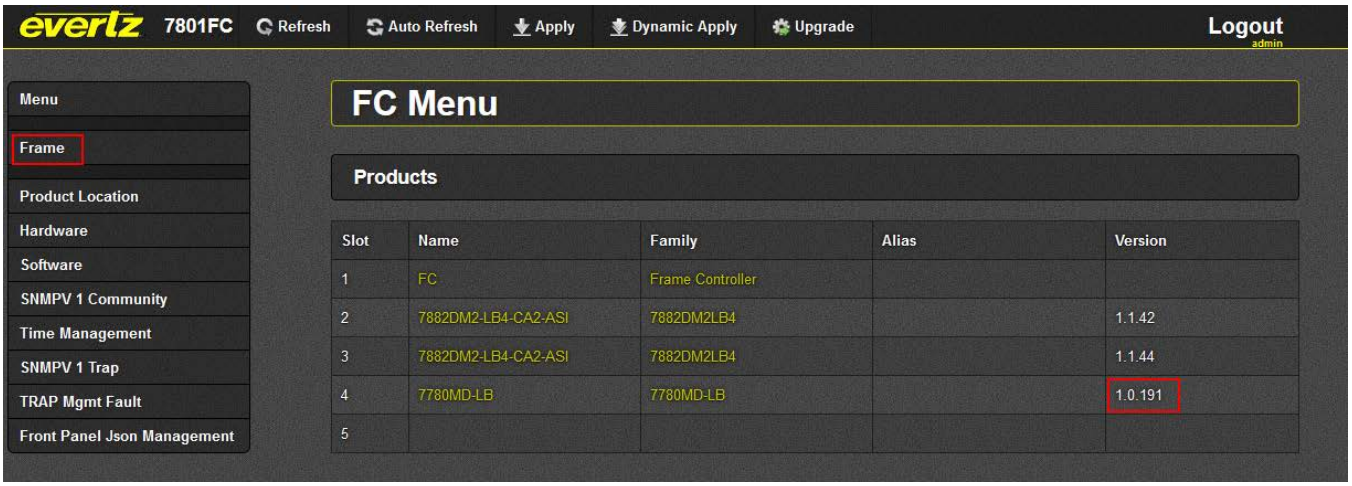


Figure 5-3 : Verifying Firmware Upgrade