570REM-TX8-10GE

8x J2K Encoders and SMPTE ST2110 Encapsulation paths driven by 2x UHD or 8x 3G SDI Inputs, 6x 10GbE SFP Cages

User Manual

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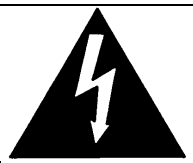
IMPORTANT SAFETY INSTRUCTIONS

	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 this information
- 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

This equipment with the CE marking complies with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European standards:

- EN60065 Product Safety
- EN55103-1 Electromagnetic Interference Class A (Emission)
- EN55103-2 Electromagnetic Susceptibility (Immunity)

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

REVISION	DESCRIPTION	DATE
1.0	First Release	Dec 2018

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1. OVERVIEW

The 570REM-TX8-10GE is a high performance multi-channel encoding platform. The exceptional density of the 570REM-TX8-10GE supports up to 8x channels of 3G, HD/SDI, SD/SDI or up to 2x channels of UHD “QUAD Square or 2SI” JPEG2000 encoding.

Providing further flexibility, the 570REM-TX8-10GE provides 2x MOSAIC JPEG2000 encoded outputs. The 570REM-TX8-10GE also provides loop SDI outputs.

The 570REM-TX8-10GE will provide auto-timing, time-stamped Ethernet outputs, multi-resolution JPEG2000 streaming outputs.

The 570REM-TX8-10GE can be managed via integrated HTTP web interface as well as SNMP management via Frame controller.

Features & Benefits

- 8x 3G/HD/SD or 2x UHD JPEG2000 and 2x Mosaic JPEG2000 encodes
- 8x 3G/HD/SD SDI loop outputs
- Standards supported: 3840x2160p/59.94/50 (Quad Division or 2SI), 1080p/59.94/50 Level A, 1080i/59.94/50, 720p/59.94/50, 625i/50 and 525i/59.94
- Support VSF TR-01 v2
- Mezzanine Encode Processing and Encapsulation over IP: Video JPEG2000 encoded to native resolution, SMPTE ST 2110 encapsulation
- 4x groups of audio de-capsulated and pass-through
- Full VANC encapsulation and pass-through
- Modules support control over frame controller or direct Ethernet interface. SNMP control from VISTALINK PRO or MAGNUM Unified Control

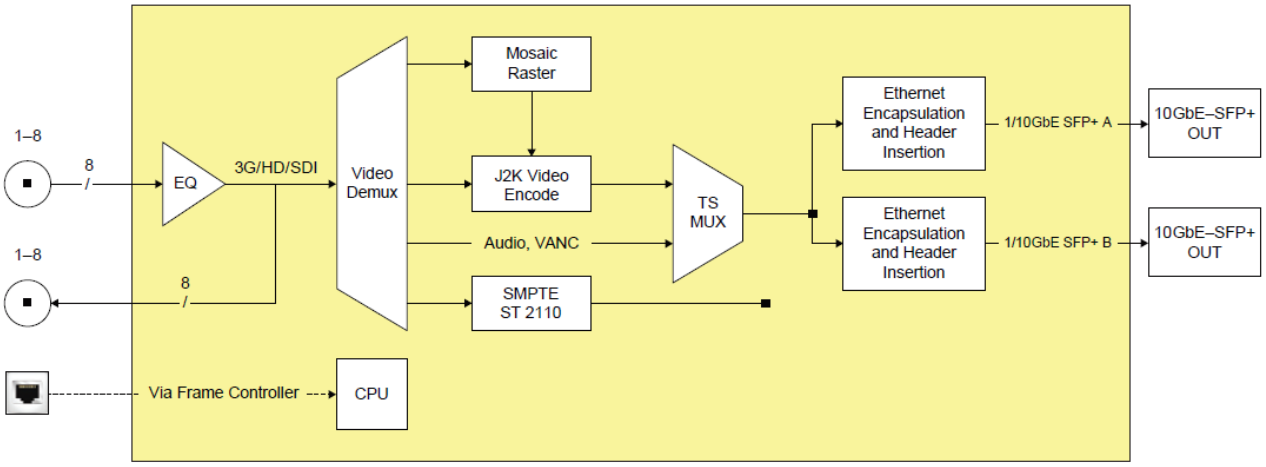

Figure 1-1 : 570REM-TX8-10GE Block Diagram

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2. GETTING STARTED

The 570REM-TX8-10GE modules come with a companion rear plate and occupy two slots in 570FR.

2.1. REAR AND FRONT PLATE

The rear plate of 570REM-TX8-10GE is equipped with 20 Mini-Din connectors.

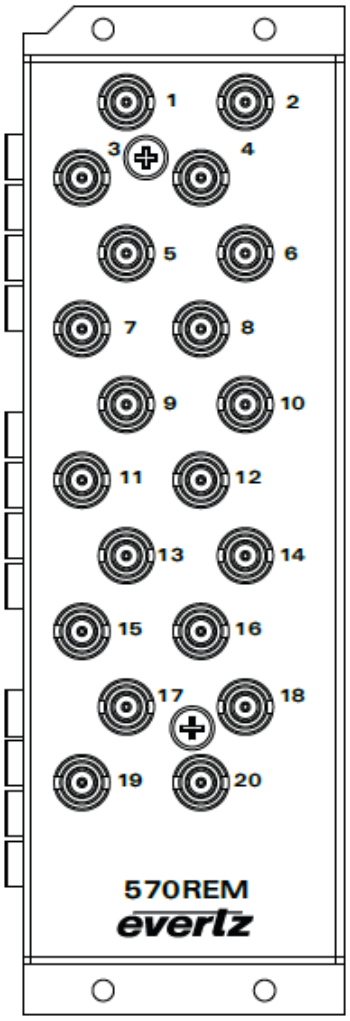

Figure 2-1 : 570REM Rear Plate

The front plate of 570REM-TX8-10GE has 12 available SFP slots. These SFP slots can be populated with SFP10G-TR13-A.

2.2. CONNECTING VIA FC PROXY

The control of the 570REM-TX8-10GE can be done through FC proxy. To configure a FC proxy address for the 570REM-TX8-10GE, log into the 570FC webpage using root and Evertz for username and password respectively. Navigate to the slot that houses the 570REM-TX8-10GE and enable the Proxy Mode Address and configure Address, Netmask and gateway for the required Control Connection.

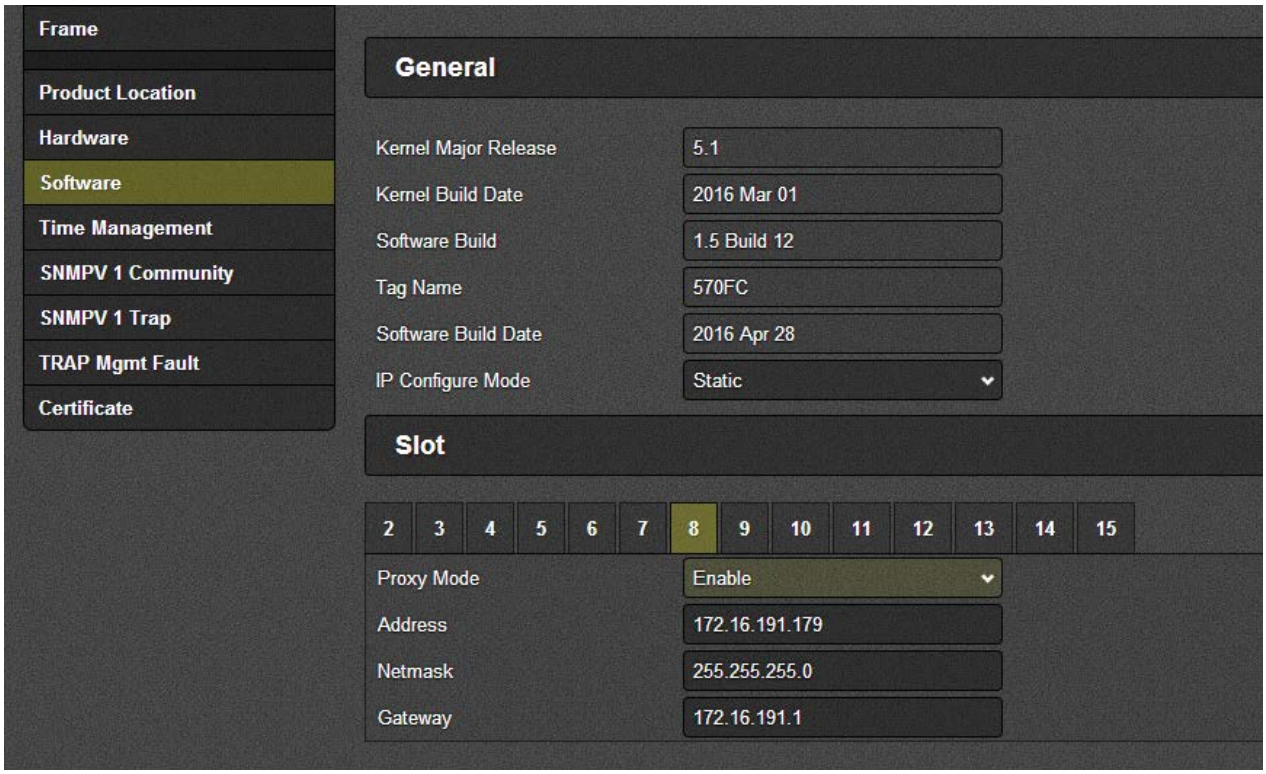

Figure 2-2 : 570FC Proxy Address

2.3. CARE AND HANDELING OF OPTICAL FIBER

The transmission characteristics of the fiber are dependent on the shape of the optical core and therefore care must be taken to prevent fiber damage due to heavy objects or abrupt fiber bending. Evertz recommends that the user maintains a minimum bending radius of 5 cm to avoid fiber-bending loss that will decrease the maximum attainable distance of the fiber cable. The Evertz fiber optic modules come with cable lockout devices, to prevent the user from damaging the fiber by installing a module into a slot in the frame that does not have a suitable I/O module.

NOTE: Never touch the end face of an optical fiber. Always keep dust caps on optical fiber connectors when not connected and always remember to properly clean the optical end face of a connector before making a connection.

2.4. HARDWARE INSTALLATION

To successfully install the 570REM-TX8-10GE, the following is required:

1. 570 Series Frame
2. 570 Frame Controller
3. WebEASY® using the 570FC frame controller with 570REM-TX8-10GE installed in frame.

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 chassis 2 adjacent vacant slots. Unpack the 570REM-TX8-10GE and separate the rear panel from the main card. Locate on the rear of the rack the two slots and remove the blanking panels. Insert the rear panel into the back of the chassis and secure using the four screws provided.

Now insert the 570REM-TX8-10GE 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 **firmly** into the slot ensuring that when it mates with the rear card it has been firmly pushed into a seated position. Do not connect any cables to the rear card (failure to do this could cause unwanted network issues) until the initial configuration has been completed.

This procedure can be completed to all the other modules and is hot swappable allowing for the frame to be powered on while installing.

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3. SPECIFICATIONS

3.1. SERIAL DIGITAL VIDEO

Standards:

- SMPTE 424M (3Gb/s)
- SMPTE 292M (1.5Gb/s)
- SMPTE 259M (270Mb/s)

3.2. SERIAL VIEDO INPUT

Number of Inputs	8x SDI
Connector	DIN
Input Equalization	Automatic to 100m @ 3 Gb/s, 150m @ 1.5 Gb/s and 350 @ 270Mb/s
Return Loss	>15dB up to .5 GHz >10dB up to 3 GHz

3.3. SERIAL VIDEO OUTPUT

Number of Outputs	8
Connector	DIN

3.4. IP INPUT

Ethernet Interface	6 x 10GE SFP/SFP+
Encapsulation	MPEG-2 TS over IP
Uncompressed	SMPTE ST 2110
Ethernet/IP Signaling	Multicast

3.5. EMBEDDING OF HANC & VANC

- 4x Groups Audio Pass-through per encoder
- All type of VANC data pass-through

3.6. ELECTRICAL

Power	90W
Voltage	12VDC
EMI/RFI	Complies with FCC Part 15, Class A, EU EMC directive

3.7. PHYSICAL (NUMBER OF SLOTS)

570FR	2
S570FR	2

3.8. ENCLOSURES

570FR	3RU Chassis 1RU Chassis

Ordering Information

570REM-TX8-10GE: 8x J2K Encoders and SMPTE ST 2110 Encapsulation Paths driven by 2x UHD or 8x 3G SDI Inputs, 6x 10GbE SFP Cages

SFP Modules:

- **SFP10G-TR13-A** 10GbE Optical SFP+
- **SFP10G-TR85-A** SFP+ Optical Transceiver, 10Gbs, 850nm, MMF

4. WEB INTERFACE

The 570REM-TX8-10GE series of products are controlled using Web Interface. WebEasy operates using Ethernet and SNMP control protocols.

Login

After the card has been installed and configured with the required network addresses, it can be completely configured using the web interface. For doing this, simply type the IP address of the control port of the 570REM-TX8-10GE module in the web browser.

Note: Computer must be on the same Subnet in order to have communication with the module.

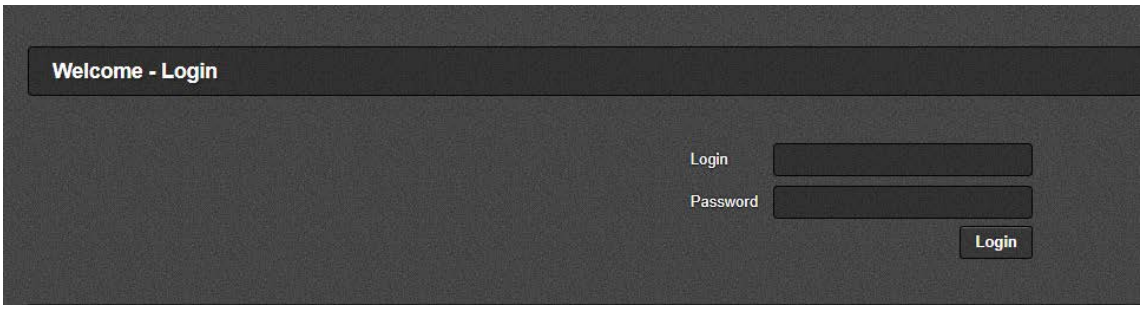

Figure 4-1 : WebEASY® - Login Menu

Login and password is “root” and “evertz” respectively.

On the web interface there are several different types of menus highlighted in Figure 4-2.

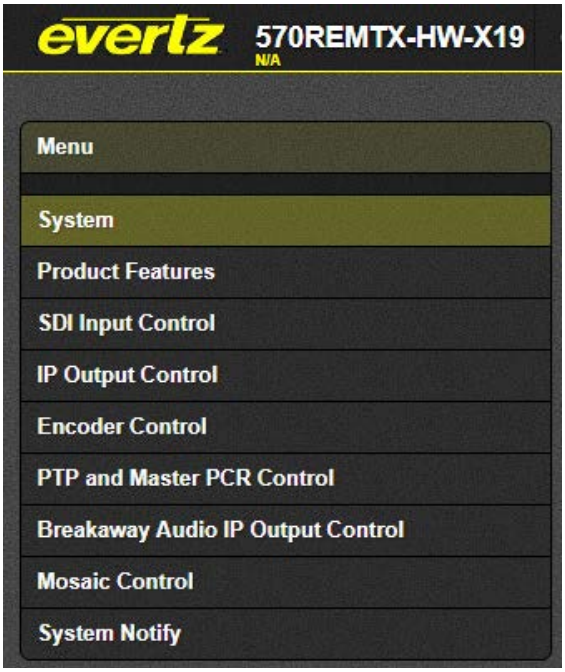

Figure 4-2 : WebEASY® - 570REM-TX8-10GE Main Menu

4.1. SYSTEM

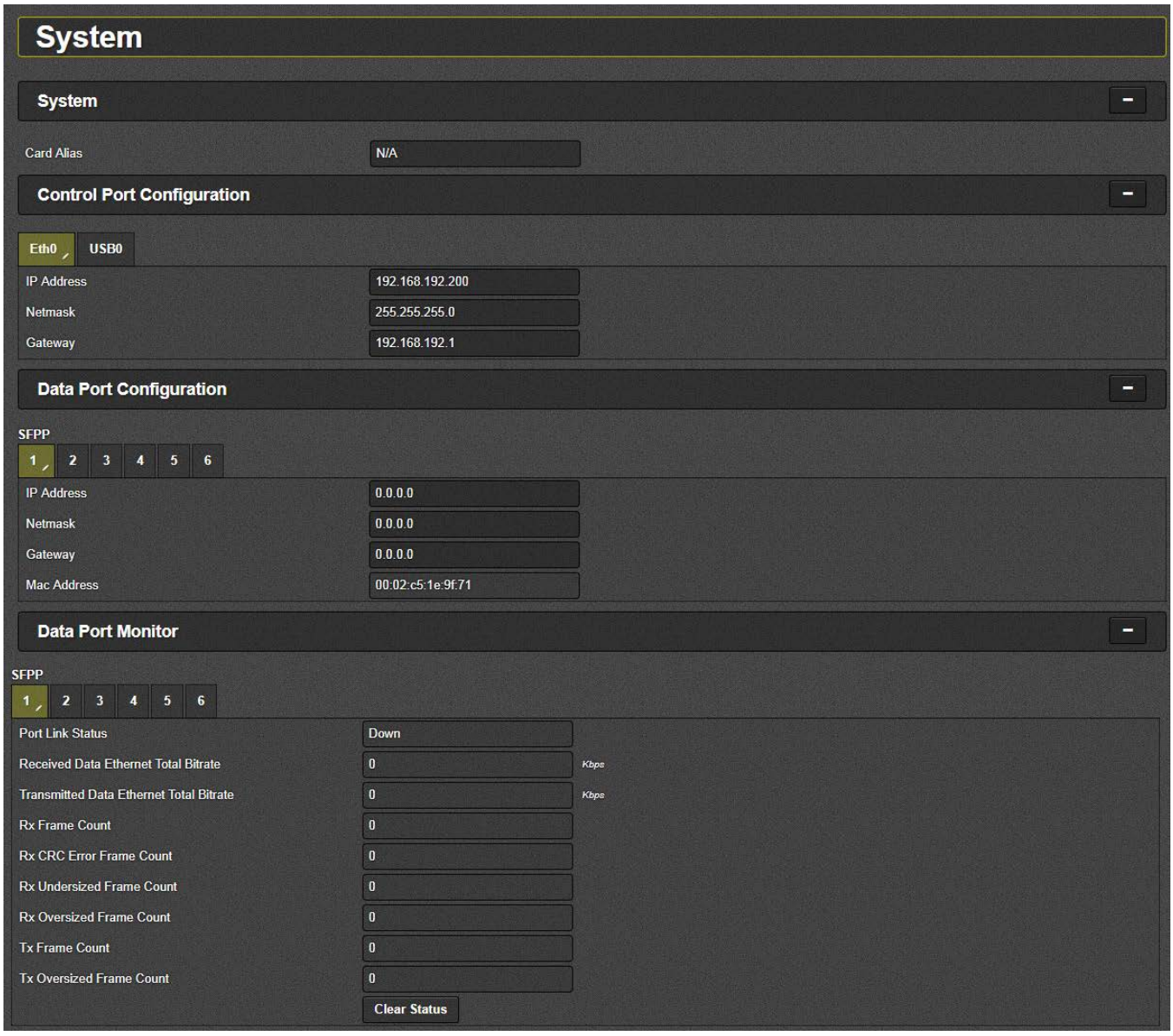

Figure 4-3 : WebEASY® - System (Part 1)

Card Alias: This parameter indicates the card alias string.

4.1.1. Control Port Configuration

IP Address: This parameter allows the user to set IP address for control port.

Netmask: This parameter allows the user to set Netmask for control port.

Gateway: This parameter allows the user to set Gateway for control port.

4.1.2. Data Port Configuration

For SFPP 1-6:

IP Address: This parameter allows the user to set the IP address for Data port.

Netmask: This parameter allows the user to set the Netmask for Data Port.

Gateway: This parameter allows the user to set the Gateway for Data Port.

Mac Address: This parameter reflects the Mac address for Data Port.

4.1.3. Data Port Monitor

Port Link Status: This parameter indicates the link status for Data port.

Received Data Ethernet Total Bitrate: This parameter indicates bitrate received on this output Ethernet port, unit is kbps.

Transmitted Data Ethernet Total Bitrate: This field indicates bitrate transmitted on this output Ethernet port, unit is kbps.

Rx Frame Count: This parameter indicates received Rx frames on this Ethernet port.

Rx CRC Error Frame Count: This field indicates received Rx frames with CRC errors on this Ethernet port.

Rx Undersized Frame Count: This field indicates received Rx undersized frames on this Ethernet port.

Tx Frame Count: This parameter indicates received Tx frames on this Ethernet port.

Tx Oversized Frame Count: This field indicates received Tx oversized frames on this Ethernet port.

Clear Status: This button allows the user to clear all the status of Data Port monitor.

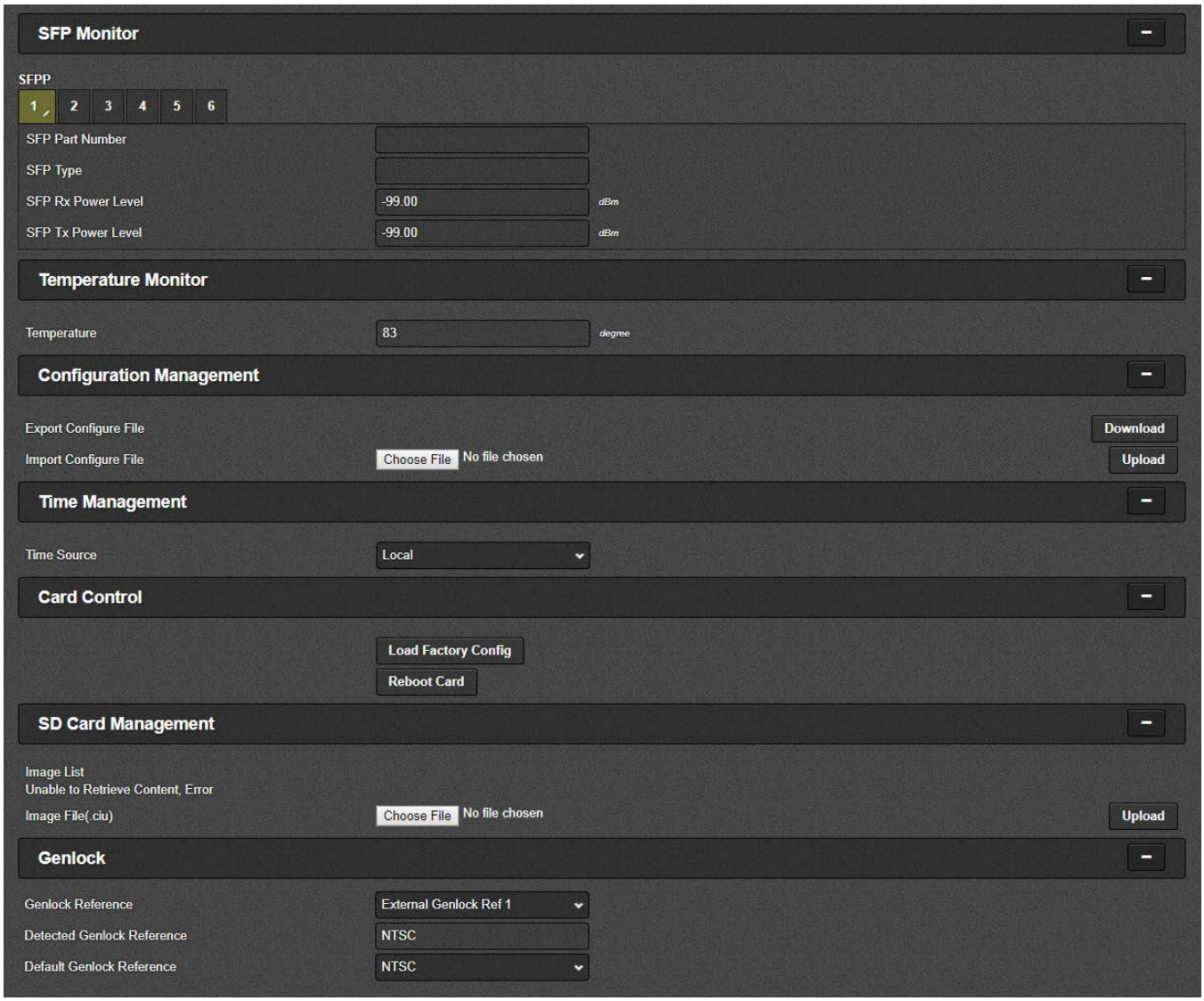

Figure 4-4 : WebEASY® - System (Part 2)

4.1.4. SFP Monitor

SFP Part Number: This parameter indicates the part number of SFP.

SFP Type: This field indicates the type of SFP.

SFP Rx Power Level: This field indicates the received power level of SFP.

SFP Tx Power Level: This field indicates the transmitted power level of SFP.

4.1.5. Temperature Monitor

Temperature: This field shows the FPGA temperature.

4.1.6. Configuration Management

Export Configure File: The download button allows the user to download a configuration file and export it.

Import Configure File: The Choose file section allows the user to select and upload a configuration file.

4.1.7. Time Management

Time Source: This dropdown allows the user to select the system time source which can be NTP or Local time.

If NTP:

Timezone Offset: This control allows the user to define timezone offset.

Day Light Savings: This dropdown allows the user to select whether to apply Day Light savings or not.

External NTP Server: This control allows the user to define an external NTP server.

4.1.8. Card Control

Load Factory Config: This control is used to load factory configuration.

Reboot Card: This button allows the user to perform a soft reboot on the card.

4.1.9. Genlock

Genlock Reference: This dropdown allows the user to select lock to Genlock reference 1 or 2.

Detected Genlock Reference: This parameter indicates the detected Genlock reference.

Default Genlock Reference: This dropdown allows the user to select the default Genlock reference which can be NTSC or PAL.

4.2. PRODUCT FEATURES

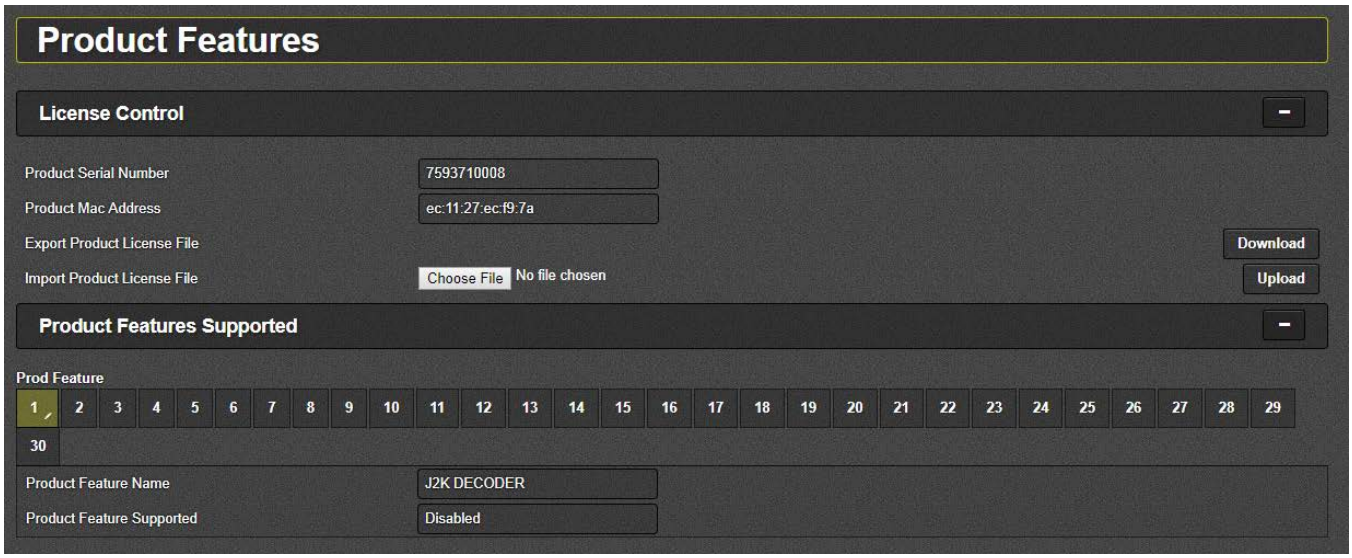

Figure 4-5 : WebEASY® - Product Features

4.2.1. License Control

Product Serial Number: This parameter displays the card serial number same as the card MIB control. This is needed for the webpage.

Product Mac Address: This parameter displays the card MAC address.

Export Product License File: The download button allows the user to download and export a product license file.

Import Product License File: By clicking Choose File button, a product license file can be uploaded to the module.

4.2.2. Product Features Supported

Product feature Name: This parameter indicates the product features supported on this card.

Product feature Supported: This parameter indicates the product support enabled/disabled status.

4.3. SDI INPUT CONTROL

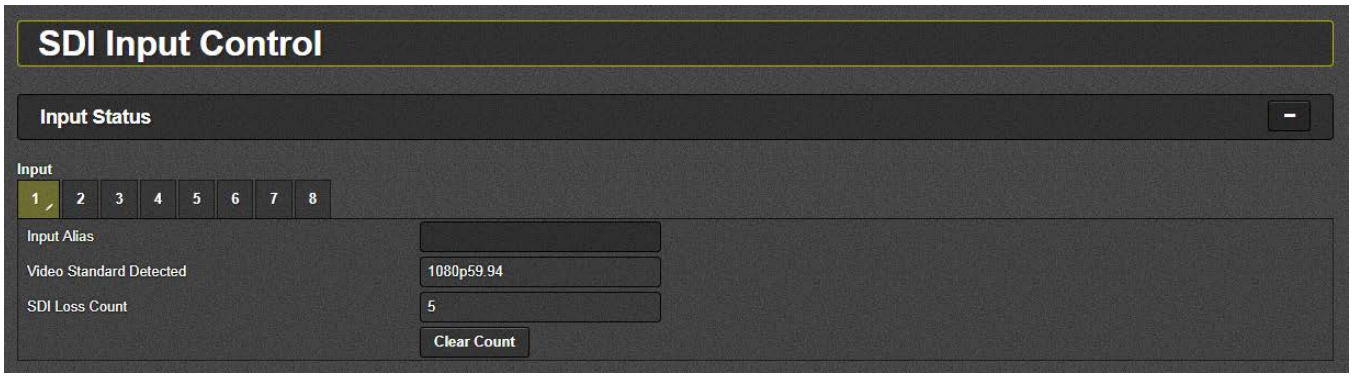

Figure 4-6 : WebEASY® - SDI Input Control

4.3.1. Input Status

Input Alias: This control allows the user to set an alias name for input.

Video Standard Detected: This parameter displays the detected video standard of SDI input. It's not available if input is ASI.

SDI Loss Count: This parameter indicates the number of SDI loss.

Clear Count: This button allows the user to clear all input status.

4.4. IP OUTPUT CONTROL

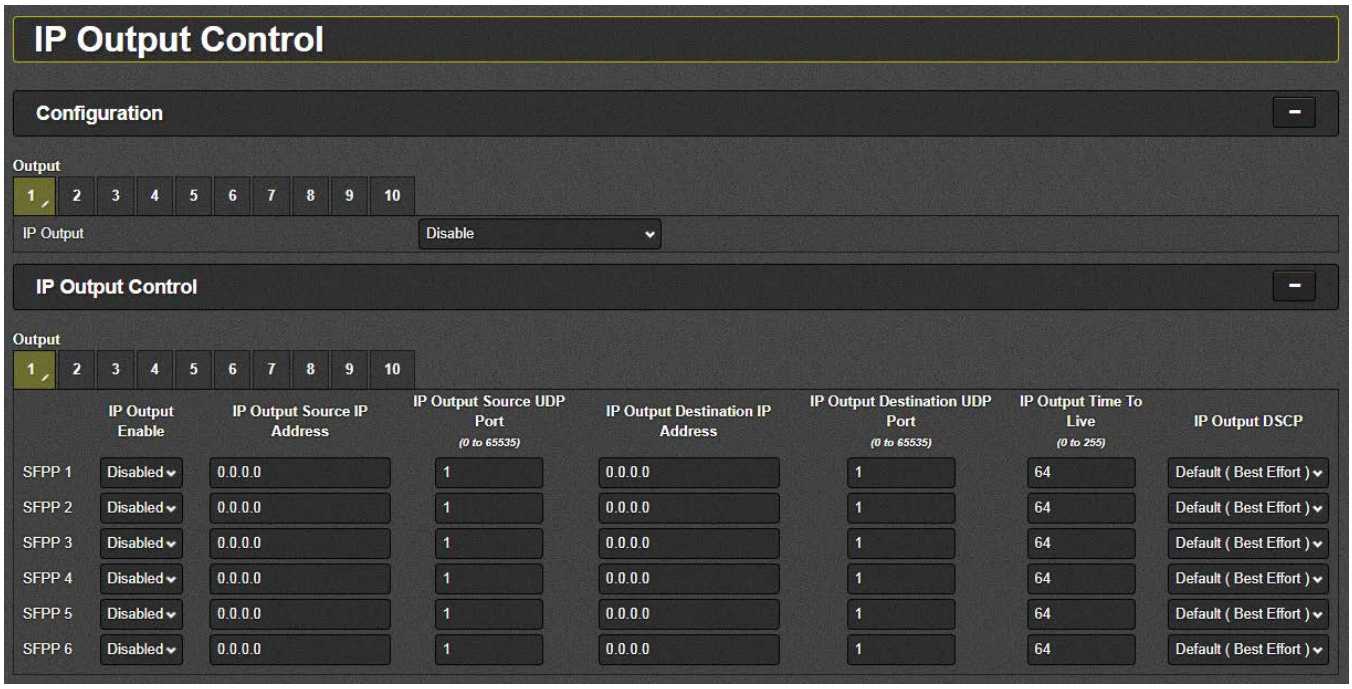

Figure 4-7 : WebEASY® - IP Output Control

4.4.1. Configuration

IP Output: This dropdown allows the user to configure how to process the incoming streams into the outgoing streams.

4.4.2. IP Output Control

For SFPP 1 to 6:

IP Output Enable: This is for enable/disable output.

IP Output Source IP Address: This parameter allows the user to define source IP address.

IP Output Source UDP Port: This parameter allows the user to define source UDP port number.

IP Output Destination IP Address: This parameter allows the user to define destination IP address.

IP Output Destination UDP Port: This parameter allows the user to define destination UDP port.

IP Output Time To Live: This parameter allows the user to define time to lie.

IP Output DSCP: This parameter allows the user to define DSCP.

4.5. ENCODER CONTROL

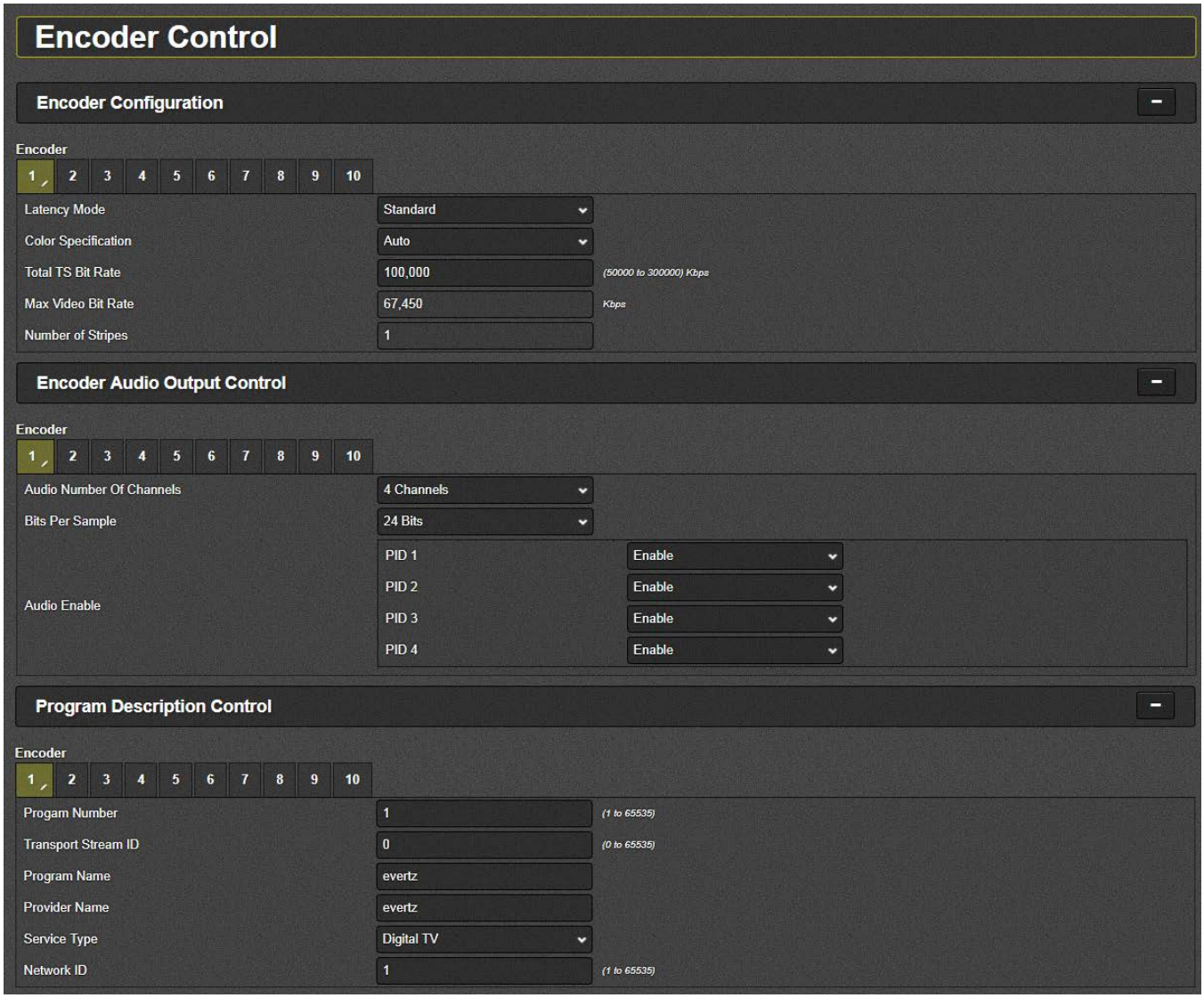

Figure 4-8 : WebEASY® - Encoder Control (Part 1)

4.5.1. Encoder Configuration

Latency Mode: This control allows the user to set the latency of the encoding process. It should be displayed if any product feature support J2k Encoder is enabled and the number of index to be displayed depends on the number of J2K enabled. User configurable latency settings are Standard, Medium, low and Ultra low.

Color Specification: This control allows the user to set the color specification of the encoding process, it should be displayed if any product feature support J2K encoder is enabled and the number of index to be displayed depends on the number of J2K encoder enabled.

Total TS Bit Rate: This parameter allows the user to select the output TS Bit rate. **Note:** Card will adjust the bitrate for video and other pids based on these settings. Unit is kbps.

Max Video Bit Rate: This parameter displays video TS bitrate. **Note:** Card will adjust the bitrate for video and other pids based on these settings. Unit is kbps.

Number of Stripes: This parameter displays the number of stripes.

4.5.2. Encoder Audio Output Control

Audio Number Of Channels: This dropdown allows the user to set the number of channels for this audio pid. Available options are 2 or 4 channels.

Bits Per Sample: This dropdown allows the user to set the bits per sample for this audio pid.

Audio Enable: This field allows the user to enable/disable the audio to save the bandwidth. It should be displayed if any product feature which support J2k encoder is enabled. The number of index to be displayed depends on the number of J2k encoder enabled.

4.5.3. Program Description Control

Program Number: This parameter allows the user to set the program number. The default value is 1. It should be displayed if any product feature which support J2k encoder is enabled. The number of index to be displayed depends on the number of J2k encoder enabled.

Transport Stream ID: This parameter allows the user to set the transport stream ID of the stream. It should be displayed if any product feature which support J2k encoder is enabled. The number of index to be displayed depends on the number of J2k encoder enabled.

Program Name: This parameter allows the user to set the title of the program. It should be displayed if any product feature which support J2k encoder is enabled. The number of index to be displayed depends on the number of J2k encoder enabled.

Provider Name: This parameter allows the user to set the title of the provider. It should be displayed if any product feature which support J2k encoder is enabled. The number of index to be displayed depends on the number of J2k encoder enabled.

Service Type: This parameter allows the user to set the service type. It should be displayed if any product feature which support J2k encoder is enabled. The number of index to be displayed depends on the number of J2k encoder enabled.

Network ID: This parameter allows the user to set the network ID of origin. It should be displayed if any product feature which support J2k encoder is enabled. The number of index to be displayed depends on the number of J2k encoder enabled.

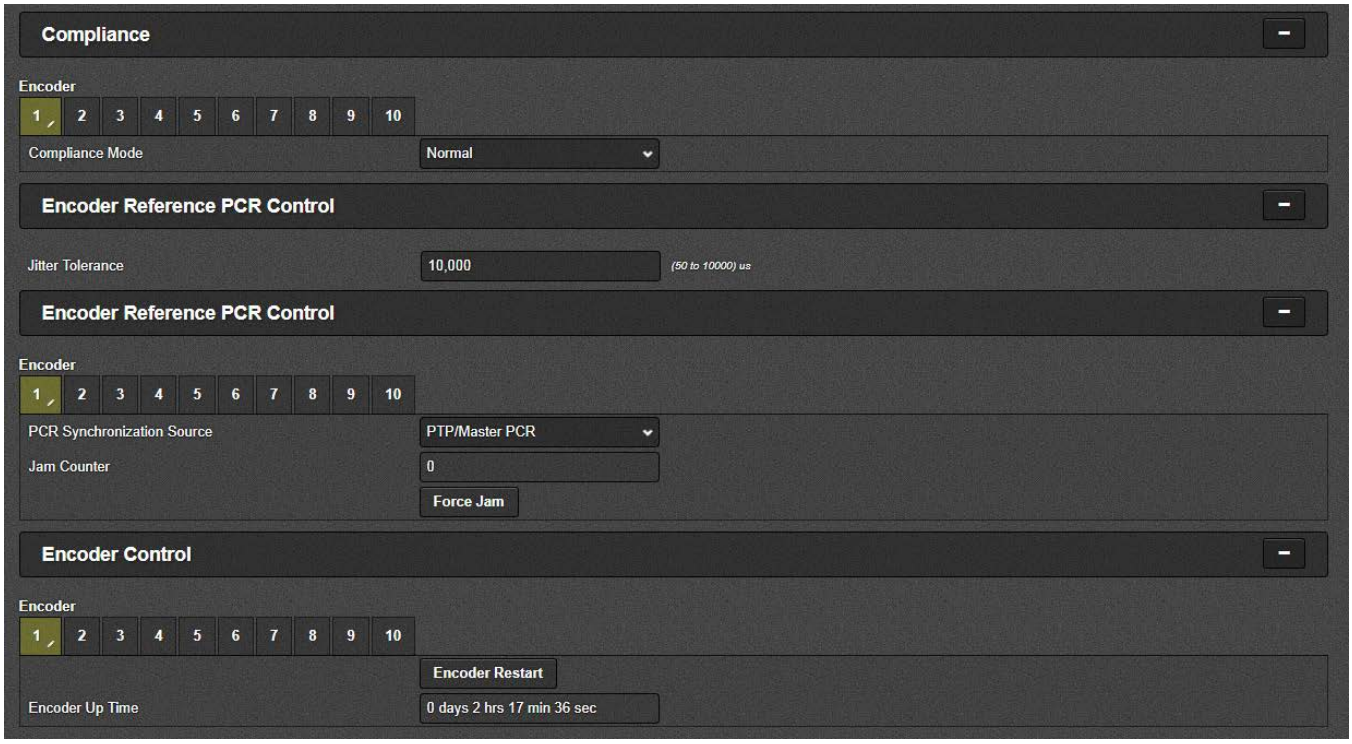

Figure 4-9 : WebEASY® - Encoder Control (Part 2)

4.5.4. Compliance

Compliance Mode: This dropdown allows the user to set the standard that the encoders are running based on them. Applicable options include Normal, TR01 and Evertz legacy.

4.5.5. Encoder Reference PCR Control

Jitter Tolerance: This dropdown allows the user to set the jitter tolerance for the master PCR time reference.

4.5.6. Encoder Reference PCR Control

For encoder 1-10

PCR Synchronization Source: This dropdown allows the user to select a source from which to synchronize PCR.

Jam Counter: This parameter is a counter for the amount of times that the threshold has been exceeded forcing a jam.

Force Jam: This button allows the user to force a jam.

4.5.7. Encoder Control

Encoder Restart: This click button allows the user to restart each individual encoder.

Encoder Up Time: This parameter displays the time that each encoder is up.

4.6. PTP AND MASTER PCR CONTROL

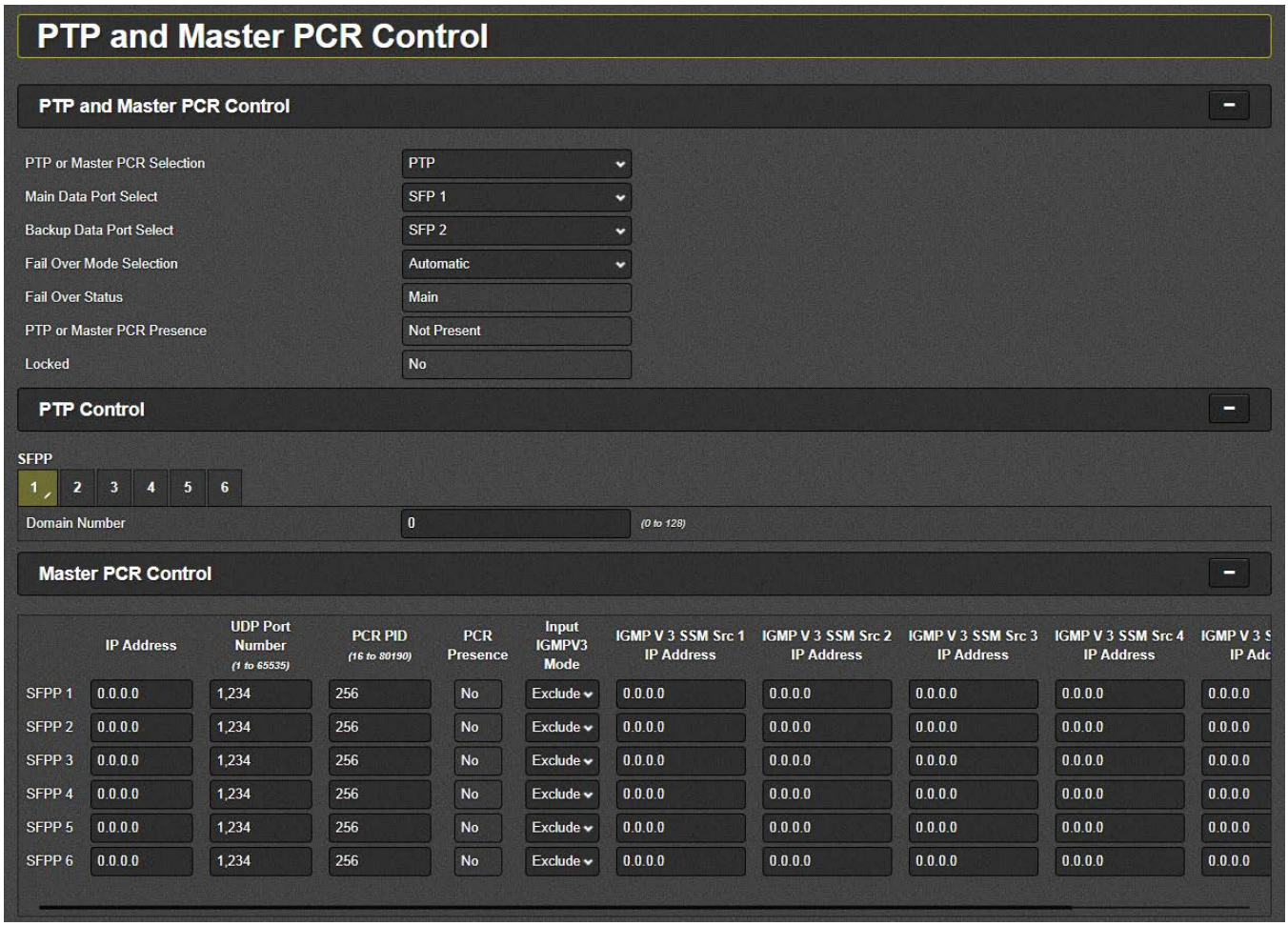

Figure 4-10 : WebEASY® - RTP and Master PCR Control

4.6.1. PTP and Master PCR Control

PTP or Master PCR Selection: This parameter allows the user to select the reference as either PTP or Master PCR.

Main Data Port Select: This dropdown allows the user to select the main data port.

Backup Data Port Select: This dropdown allows the user to select the backup data port.

Fail Over Mode Selection: This dropdown allows the user to select the failover mode for the received master PCR stream.

Fail Over Status: This parameter displays the current status of the master PCR fail over.

PTP or Master PCR Presence: This parameter indicates whether a valid Master PCR is present or a valid PTP stream is present.

Locked: This parameter indicates whether the card is locked to Master PCR or PTP.

4.6.2. PTP Control

Domain Number: This control allows the user to set the domain number.

4.6.3. Master PCR Control

IP Address: This field allows the user to set the IP address from which to obtain the Master PCR time reference.

UDP Port Number: This field allows the user to set the UDP port number from which to obtain the Master PCR time reference.

PCR PID: This parameter allows the user to set the expected PCR PID.

PCR Presence: This field indicates whether PCR presence is detected on this data port or not.

Input IGMPv3 Mode: This field allows the user to select the Master PCR IGMP V3 mode.

IGMPv3 SSM Src 1-6 IP Address: This parameter allows the user to set Master PCR IP addresses which are used when forming the source filter for IGMPv3 communications.

4.7. BREAKWAY AUDIO IP OUTPUT CONTROL

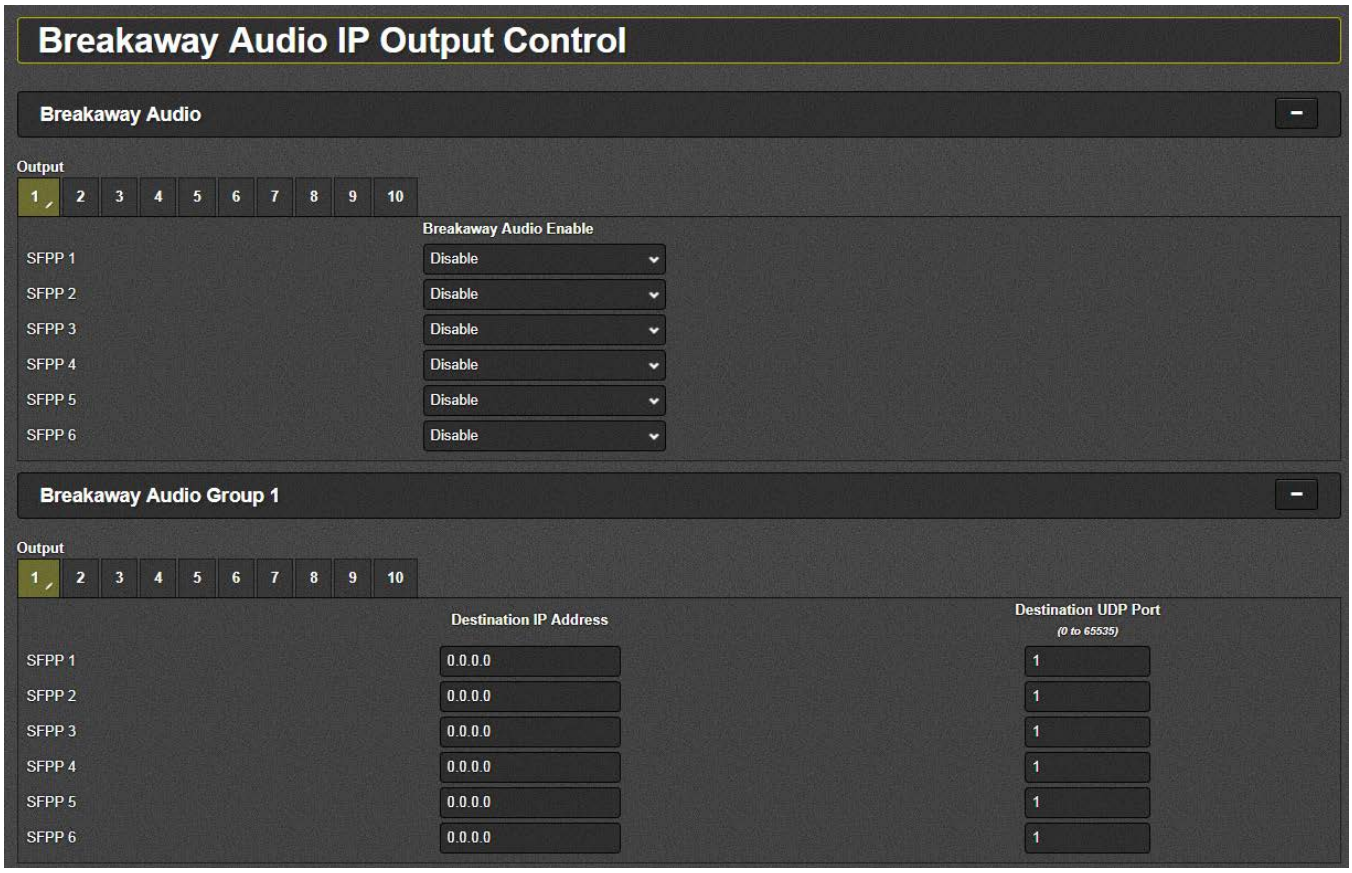

Figure 4-11 : WebEASY® - Breakaway Audio Input Control

4.7.1. Breakaway Audio

Breakaway Audio Enable: This field allows the user to enable/disable sending audio groups to separate IP and port destinations.

4.7.2. Breakaway Audio Group

For Audio Group 1-4

Destination IP Address: This parameter allows the user to set the destination IP address for breakaway audio group.

Destination UDP Port: This parameter allows the user to set the destination UDP port address for breakaway audio group.

4.8. MOSAIC CONTROL

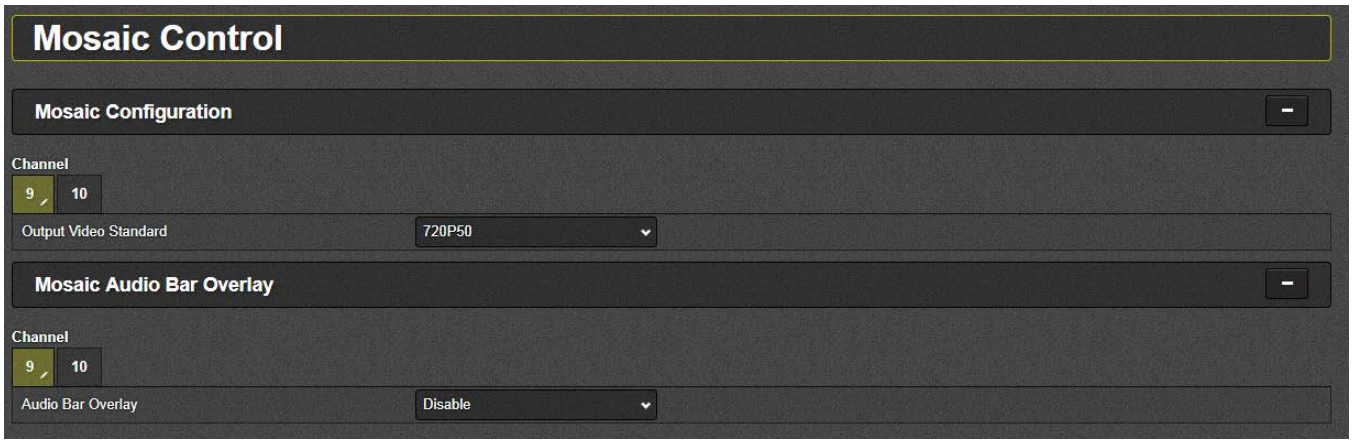

Figure 4-12 : WebEASY® - Mosaic Control

4.8.1. Mosaic Configuration

Output Video Standard: This dropdown allows the user to set the output video standard.

4.8.2. Mosaic Audio Bar Overly

Audio Bar Overly: This parameter allows the user to enable/disable the Audio Bar Overlay.

4.9. SYSTEM NOTIFY

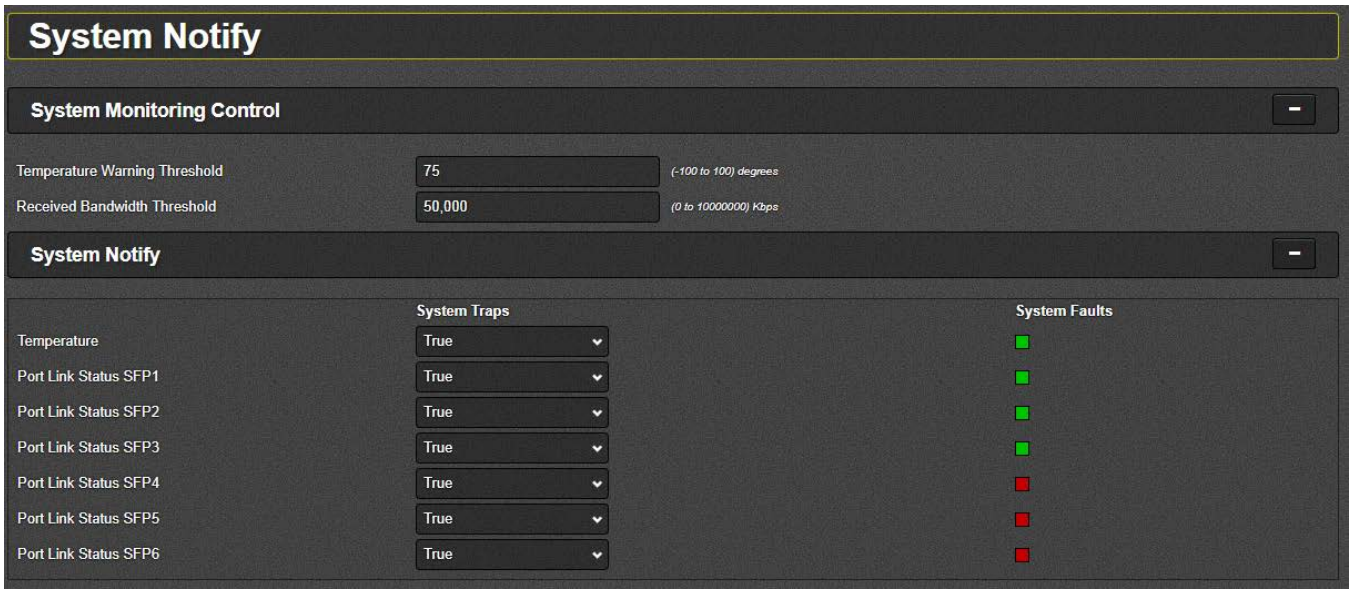

Figure 4-13 : WebEASY® - System Notify

4.9.1. System Monitoring Control

Temperature Warning Threshold: This parameter allows the user to set the threshold for the temperature overheat.

Received Bandwidth Threshold: This parameter allows the user to set the received bandwidth threshold.

4.9.2. System Notify

System Traps: This dropdown is used to turn traps on and off.

System Faults: This control checks whether a fault is currently present or not.

5. FIRMWARE UPGRADE

Using WebEASY® on a web interface is the recommended way to load the firmware onto the 570REM-TX8-10GE modules.

On the top of the web page for the 570REM-TX8-10GE modules, there is a button labeled Upgrade. The Upgrade tab is used to check current firmware version and upload the latest firmware (Figure 5-1).

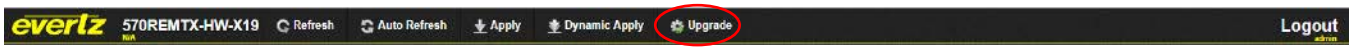

Figure 5-1 : WebEASY® - Upgrade Button on Top Menu Bar

Selecting the Upgrade tab will take the user to Figure 5-2 where the current firmware version is shown. The user needs to download the firmware image file if the firmware version is outdated.

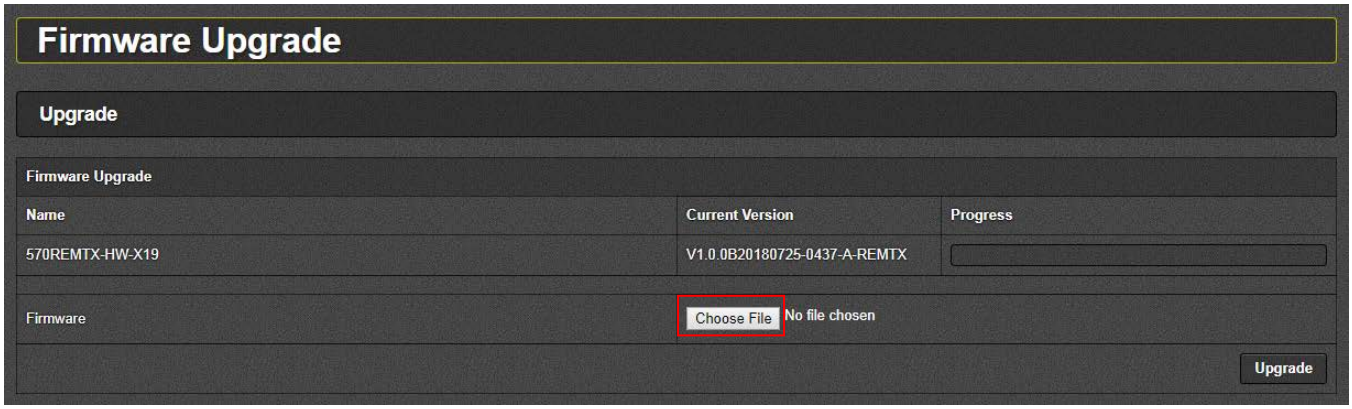

Figure 5-2 : WebEASY® - Firmware Upgrade Menu

Click choose file and browse to locate image file (Figure 5-3).

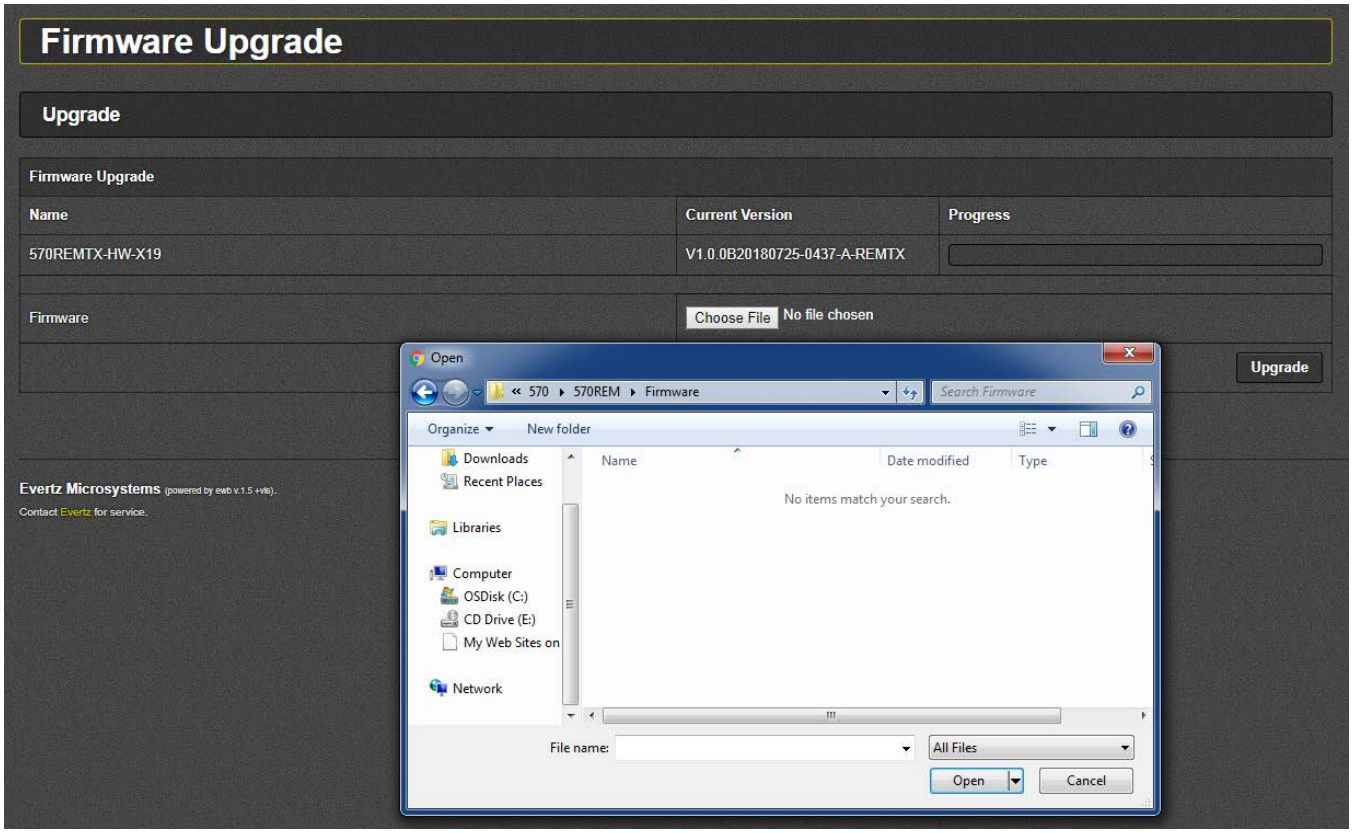

Figure 5-3 : WebEASY® - Firmware Upgrade Menu\Selecting Firmware File

Once selected, click open to advance to next step. Click upgrade and watch progress bar for status. Once completed, the device will automatically restart.

The End