7880IPG8-10GE2
Hybrid Baseband/Ethernet Infrastructure
– Media Gateway
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.

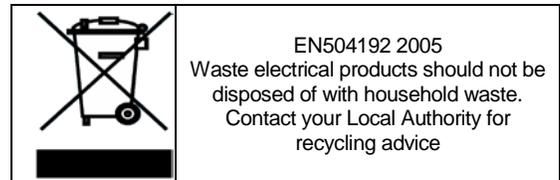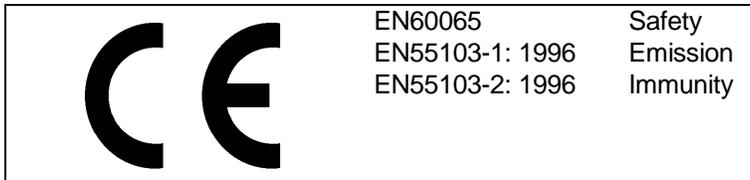| |
|---|
| **WARNING**
TO REDUCE THE RISK OF FIRE OR ELECTRIC – SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE |
| **WARNING**
DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS ARE PLACED ON THE EQUIPMENT |
| **WARNING**
TO COMPLETELY DISCONNECT 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.

$\mathsf{C}\mathsf{\epsilon}$	EN60065 EN55103-1: 1996 EN55103-2: 1996	Safety Emission 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.

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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	Feb 2015

Information contained in this manual is believed to be accurate and reliable. However, Evertz assumes no responsibility for the use thereof nor for the rights of third parties, which may be affected in any way by the use thereof. Any representations in this document concerning performance of Evertz products are for informational use only and are not warranties of future performance, either expressed or implied. The only warranty offered by Evertz in relation to this product is the Evertz standard limited warranty, stated in the sales contract or order confirmation form.

Although every attempt has been made to accurately describe the features, installation and operation of this product in this manual, no warranty is granted nor liability assumed in relation to any errors or omissions unless specifically undertaken in the Evertz sales contract or order confirmation. Information contained in this manual is periodically updated and changes will be incorporated into subsequent editions. If you encounter an error, please notify Evertz Customer Service department. Evertz reserves the right, without notice or liability, to make changes in equipment design or specifications.

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1. OVERVIEW

The 7880IPG8-10GE2 is the optimal Media Gateway SDI interface access points for next generation Hybrid Baseband/IP broadcast infrastructures. With direct conversion of up to 6 signals to direct mezzanine compression via JPEG2000, the 7880IPG8 series delivers unparalleled processing densities. With support for up to 2 dedicated signal paths which can carry either A-Link, TDM or P-Link© data.

The 7880IPG8-10GE2 also supports HD/SDI, SD/SDI, and ASI encapsulation over 10G and user configurable 1G. This product features Evertz 3rd generation ultra low latency, high density JPEG2000 codec technology over 10GE and user configurable 1G Ethernet. The 7880IPG8-10GE2 also provides per input AVM monitoring, auto-timing, time stamped Ethernet outputs and multi-resolution JPEG2000 streaming outputs.

The 7880IPG8 series incorporates a multi-path, multiflow packet merge based network bit error resilience for 100% QoS. A HOT Redundant (HTR) is also available providing 100% uptime under all electronic circuitry faults. 7880IPG8-10GE2 can be managed via an Integrated HTTP web interface as well as through Evertz's VistaLink Professional© SNMP management system via a Frame Controller.

Features & Benefits

- 6 x 3G/HD/SD JPEG2000 Encoder/Decoder Standards Supported: 1080p/59.94, 1080p/50, 1080i/59.94, 1080i/50, 720p/59.94, 720p/50, 525i/59.94, 625i/50
- 2x A-Link / TDM / PLink™ data paths
- 3G/HD/SD/ASI Encapsulation over 10Gig
- SD/ASI Encapsulation over 1Gig

Mezzanine Encode Processing and encapsulation over IP:

- Video JPEG2000 encoded to native resolution
- 4 groups of audio encapsulated
- Full VANC encapsulation without delay

Mezzanine Decode Processing:

- Video JPEG2000 decoded from native resolution
- 4 groups of audio de-encapsulated
- Full VANC de-encapsulation and embedding on SDI outputs
- Integrated Cross Connect for regeneration of SDI outputs

Control and Baseband Processing

- Modules support control over frame Ethernet
- Modules have on board AVM on all base band signals
- SNMP control from Vistalink
- 7880IPG8-10GE2+CK6+J2KD features re-direction of received J2K signal for Network Operations Center (NOC) Monitoring
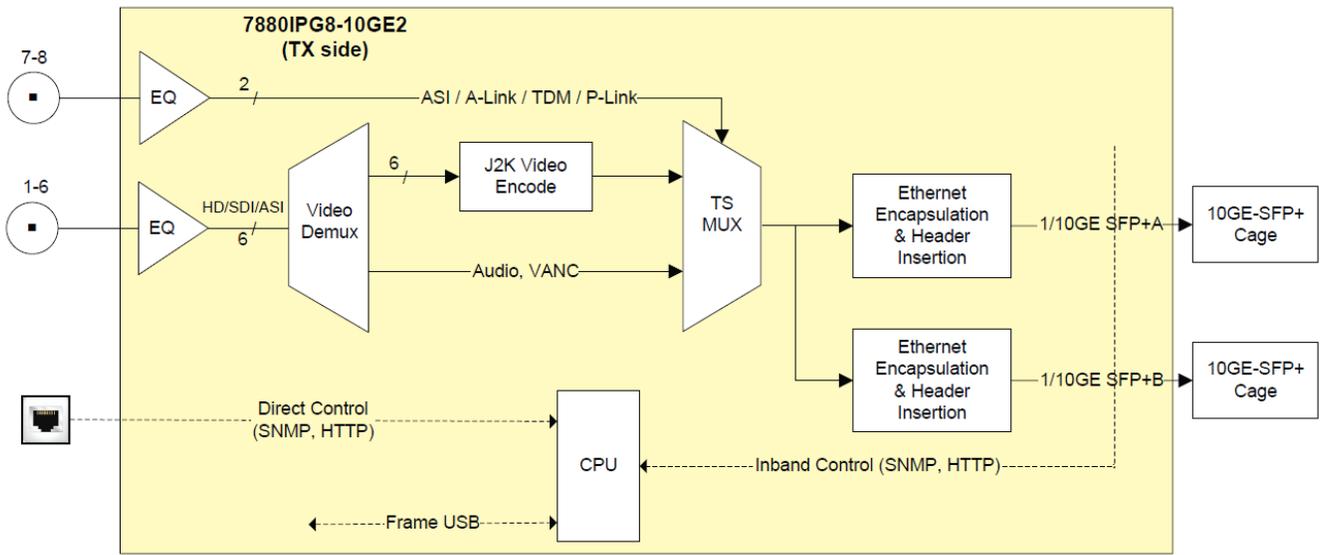
Figure 1-1: 7880IPG8-10GE2 Encoder Block Diagram
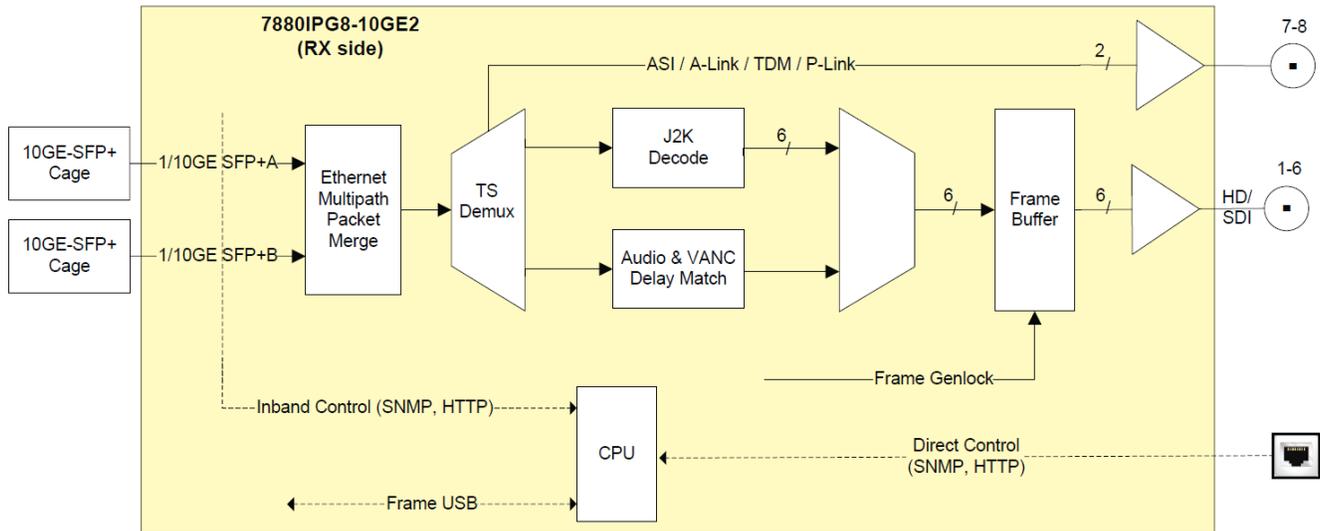
Figure 1-2: 7880IPG8-10GE2 Decoder Block Diagram

2. GETTING STARTED

2.1. REAR PLATE DESCRIPTION
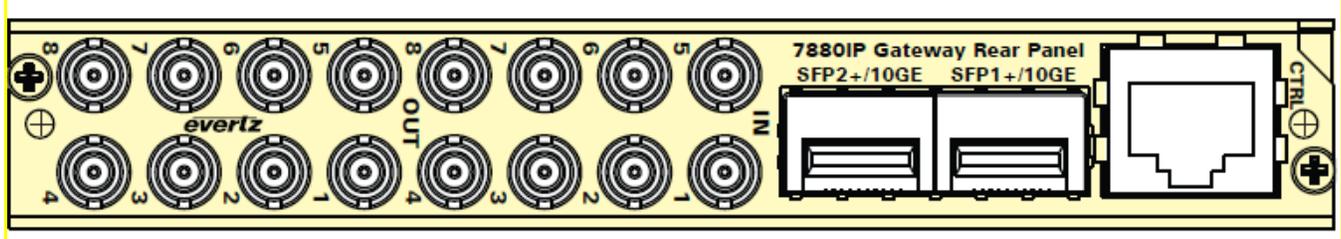
Figure 2-1: 7880IPG8-10GE2 Rear Panel Diagram

Mini-Din IN: Mini-Din connectors on the input 1-8 all support encapsulation and Mini-Din 1-6 for encoding only. **Output Mini-Dins are not used for encapsulators / encoder.**

Mini-Din Out: Mini-Din connectors on the output 1-8 all support de-encapsulation and Mini-Din 1-6 for decoding only. **Input Mini-Dins are not used for de-encapsulators / decoder.**

SFP: Dual 10GE or user configurable 1Gig SFP+ connectors (SFP modules are to be ordered separately) supporting MPEG2 TS over IP and Multicast IGMP V2/V3 (SSM Support). 1Gig Module part number is SFPTR-RJ45-SGM-AV and optical 10Gig SFP part number is SFP10G-TR13.

2.2.   INSTALLATION OF THE 7880IPG8-10GE2 INTO 7800 FRAME

The 7880IPG8-10GE2 can be controlled by the Ethernet direct control port or frame controller.

The following materials are required to successfully install the 7880IPG8-10GE2:

2.2.1.   When connecting with a frame controller

1. 7800FC configured (refer to 7800FC manual) on a 7800 frame
2. Latest jar FC build file for the 7880IPG8-10GE2

> ✍ **Please contact Evertz for FC jar file if it's not available on Evertz web site**.

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 a 7800 chassis two adjacent vacant slots. Unpack the 7880IPG8-10GE2 and separate the rear plate from the main card. Locate on the rear of the rack the two slots and remove the blanking panels. Insert the rear plate into the back of the chassis and secure using the screws provided.

Insert the 7880IPG8-10GE2 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 is has been firmly pushed into a seated position. This can be confirmed when the connectivity lights for the Ethernet port are illuminated.
Skip to section 3.7 Connecting To VLPRO.

2.2.2.   When connecting without a frame controller

1. Unused IP address on the network or a DHCP server
2. 7800 frame
3. VLPro Server IP address to connect to
4. Latest jar file for the 7880IPG8-10GE2
5. Evertz serial cable

> ✍ **Please contact Evertz for 7880IPG8-10GE2 jar build file if it's not available on Evertz web site**.

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 a 7800 chassis two adjacent vacant slots. Unpack the 7880IPG8-10GE2 and separate the rear plate from the main card. Locate on the rear of the rack the two slots and remove the blanking panels. Insert the rear plate into the back of the chassis and secure using the screws provided.

Before inserting the front card, connect the serial cable to the board using the rainbow coloured serial cable provided. Insert the 7880IPG8-10GE2 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 is 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 (failure to do this could cause unwanted network issues) until the initial configuration has been completed.

Connect the 9-pin d-type end of the serial cable to the serial port of your computer. Open a Terminal session and configure the port for the following configuration:

Bits per second	**115200**
Data Bits	**8**
Parity	**None**
Stop Bits	**2**
Flow Control	**None**

2.3. HARDWARE INSTALLATION WITHOUT FRAME CONTROLLER

To successfully install the 7880IPG8-10GE2 you will require the following:

1. Unused IP address on the network or a DHCP server.
2. VistaLINK$_{®}$ PRO Server IP address.
3. Latest jar file for the 7880IPG8-10GE2
4. 7800 or 7801 Series Frame

Before handling this device it is important to minimize the potential effects of static electricity. It is therefore recommended that an ESD strap be worn.

Ensure that the device is powered up and the green LED is on. Connect the device via the COM port.

Open TeraTerm (if using Windows XP or older open Hyper Terminal) to make the required changes to the IP address on the card. Use the login *customer* and password *customer*.

```
-------------------------------
        **** Main Menu ****

(1)    Network Setup
(2)    SNMP Setup
(3)    Engineering Debug Tool
(4)    Build In System Test

(X)    Save and Exit
(W)    Exit without Saving


-------------------------------
```

Figure 3-2: Tera Term Main Menu

2.4.   CONFIGURING BASIC NETWORK SETTINGS WITHOUT FRAME CONTROLLER

To make changes to the IP address select **Network Setup**. Set the IP address to the desired subnet as well as set the **Gateway**. Make the same changes for the IP address and Gateway of Port 2 as required. When done **Exit (X)** the Network Setup and **Save and Exit (X)** from the Main Menu to ensure all changes are saved.

```
************************************************************
* WARNING:                                                *
* Improper changes to IP addresses may affect             *
* network configuration. Incorrect IP addresses           *
* could potentially affect other devices on the           *
* network. It is good practice to confirm                 *
* validity of all IP addresses with your IT/IS            *
* departments prior to configuration.                     *
************************************************************
------------------------------
     **** Network Setup ****

(1)    IP Address [192.168.78.22]
(2)    Netmask    [255.255.255.0]
(3)    Gateway    [192.168.78.1]
(4)    Broadcast  [192.168.78.255]

(X)    Exit
```

Figure 3-3: Tera Term Network Setup

Power Cycle the 7880IPG8-10GE2 to ensure all changes are applied and saved to the card. Verify the network connectivity by opening the command window and try to ping the 7880IPG8-10GE2 using the IP address that was set.

2.5.   CONNECTING TO VLPRO

2.5.1. Connecting to VLPRO through the frame controller

This chapter assumes that the VistaLINK® PRO server and client are already configured for your network and you have basic knowledge of the VistaLINK® PRO interface. It also assumes that the user or network administrator has already added the appropriate 7880IPG8-10GE2 FC jar file to the server, and both the client and server applications have been restarted. Please refer to the VistaLINK® PRO manual for instructions on how to load a jar file.

> **Note: Separate Jar files for using the 7880IPG8-10GE2 with or without Frame Controller.**
>
> **Please contact Evertz for 7880IPG8-10GE2 FC jar file if it's not available on Evertz web site**.

Open VistaLINK® PRO and click on the refresh tree icon. Expand the hardware tree by clicking on the "**+**" button. Your card should appear as a newly listed device under the 7800FC.

Please consult your network administrator if you continue to have problems connecting the card with VistaLINK® PRO, alternatively contact Evertz Microsystems Ltd. or your authorized reseller for technical support.

2.5.2. Connecting to VLPRO without the frame controller

This chapter assumes that the VistaLINK® PRO server and client are already configured for your network and you have basic knowledge of the VistaLINK® PRO interface. It also assumes that the user or network administrator has already added the appropriate jar file to the server, and both the client and server applications have been restarted. Please refer to the VistaLINK® PRO manual for instructions on how to load a jar file.

The 7880IPG will be communicating with VLPRO through the control port of the module. The module must be added to Vistalink. The user must follow these steps to connect.

Right click on Hardware and click to add a new agent.
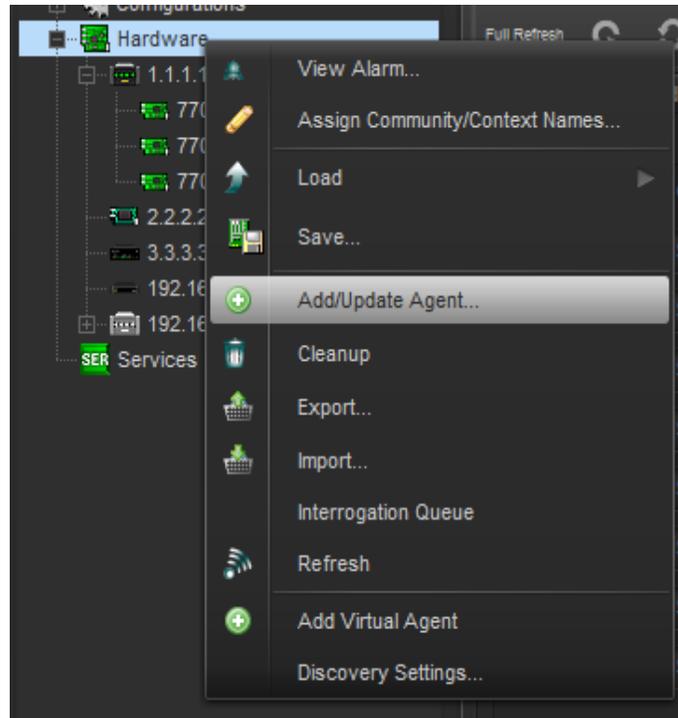
Figure 3-4: VistaLINK® PRO Adding New Agent

User must give and IP address assigned in the previous section.
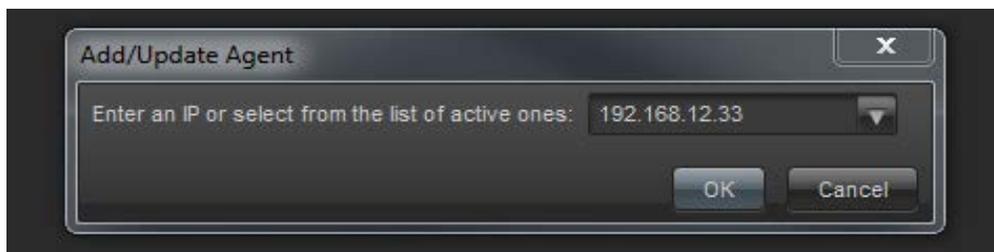
Figure 3-5: VistaLINK® PRO Adding New Agent IP Address

For multiple modules, the user can also use the discovery option. Please refer to VistaLINK® PRO user manual for more information.

Please consult your network administrator if you continue to have problems connecting the card with VistaLINK® PRO, alternatively contact Evertz Microsystems Ltd. or your authorized reseller for technical support.

> **Note: Separate Jar files for using the 7880IPG8-10GE2 with or without Frame Controller.**
>
> **Please contact Evertz for 7880IPG8-10GE2 jar file if it's not available on Evertz web site**.

3. TECHNICAL SPECIFICATIONS

3.1. SERIAL DIGITAL VIDEO

Standards: SMPTE 424M(3Gb/s), SMPTE 292M(1.5Gb/s), SMPTE 259M(270Mb/s), DVB-ASI

3.1.1. Serial Video Input on the Encoder:

Number of Inputs: 6
Connector: DIN
Input Equalization: Automatic to 100m @ 3Gb/s, 150m @ 1.5Gb/s & 350m @ 270Mb/s >15dB up to .5GHz, >10dB up to 3 GHz

3.1.2. Serial Video Output on the Decoder:

Number of Outputs: 6
Connector: DIN
Rise and Fall Time: Per SMPTE spec

3.1.3. A-Link / TDM / PLink™ data:

Number of Inputs: 2 on the encoder
Connector: DIN

Number of Outputs: 2 on the decoder
Connector: DIN

Ethernet Interface: Dual 10GE or 1GE from SFP10G-TR13, SFPTR-RJ45-SGM-AV
Encapsulation: MPEG2 TS over IP
Ethernet/IP Signalling: Multicast IGMP V2/V3 (SSM Support)

3.1.4. Embedding of HANC & VANC

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

3.2. ELECTRICAL

Power: 40W
Voltage: 12VDC
EMI/RFI: Complies with FCC Part 15, Class AEU EMC directive

3.3. ENCLOSURES

7800FR: 3RU chassis
7801FR: 1RU chassis

Physical number of slots: 2

3.4. CONTROL

Standard CAT5 cable (not included)

4. ENCODER - VISTALINK® PRO INTERFACE

4.1. SYSTEM CONFIGURATION

4.1.1. System
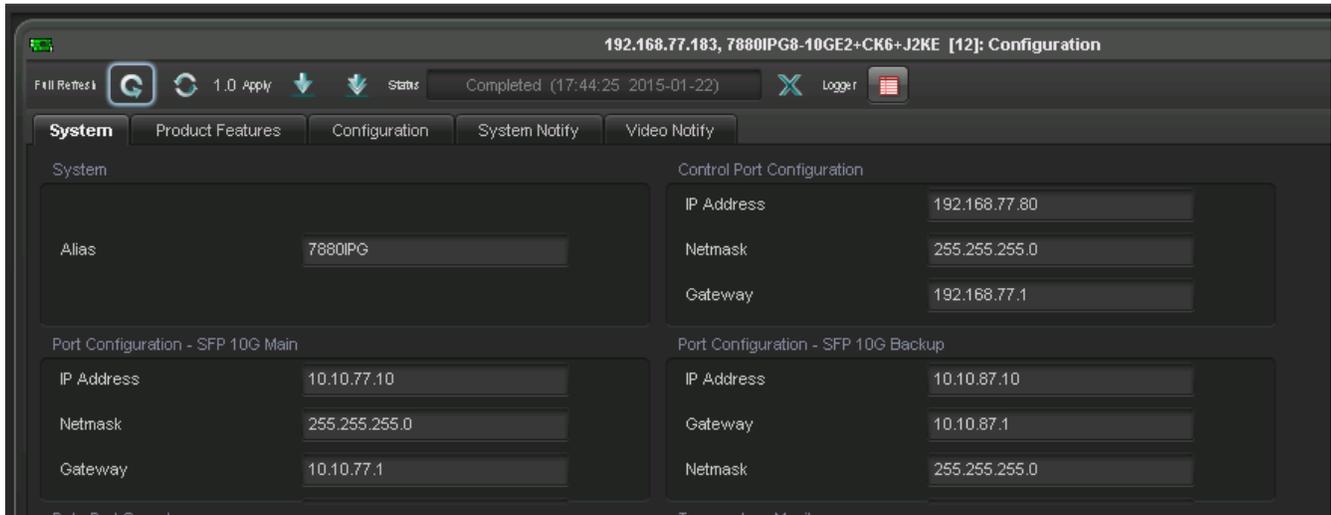
Figure 4-1: VistaLINK® PRO System Configuration

System
  Alias: This control allows the user to input alias name for the card.

Control Port Configuration
  IP Address: This setting will allow the user to set an IP address for the control port on the device. This is the for direct control of the unit via VLPRO or web interface.

  Netmask: This control allows the user to define the Netmask/Subnet the device will be joined to.

  Gateway: This control allows the user to define the Gateway/Router address, which will allow the card to communicate with devices on other networks.

Port Configuration
These options are for both the SFP1G-10G Main and SFP1G-10G Backup.

  IP Address: This setting will allow the user to set an IP address for the data port on the device.

  Netmask: This control allows the user to define the Netmask/Subnet the device will be joined to.

  Gateway: This control allows the user to define the Gateway/Router address, which will allow the card to communicate with devices on other networks.
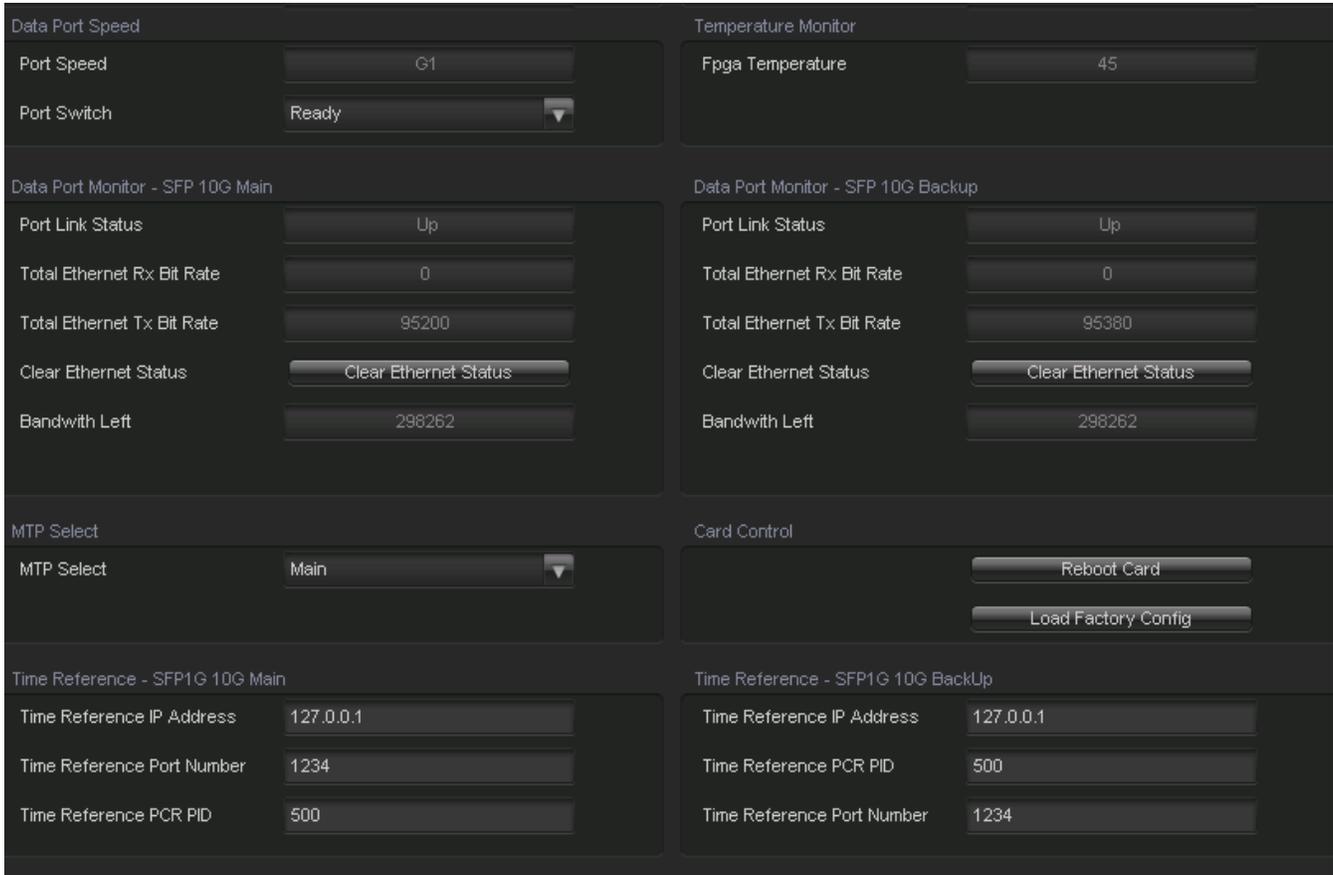
Figure 4-2: VistaLINK® PRO System Configuration continued

Data Port Speed
  Port Speed: This will display the data port speed.

  Port Switch: Speed Switch will configure the link to be either 1G or 10Gig. The card will automatically reboot after the link speed is configured.

Temperature Monitor
  FPGA Temperature: This control will display the FPGA temperature in degrees Celsius.

Data Port Monitor
This monitor display will reflect the port status of the Main and Backup Port

  Port Link Status: This field displays the current state for the Main and Backup data ports as either '**Up**' or '**Down**'.

  Total Ethernet Rx Bit Rate: This field displays the current bit rate being received on the Main and Backup Ethernet ports. This value is displayed in kilobits per second (kbps) and can range from 0 to 1000000 kbps.

  Total Ethernet Tx Bit Rate: This field displays the current bit rate being transmitted on the Main and Backup Ethernet ports. This value is displayed in kilobits per second (kbps) and can range from 0 to 1000000 kbps.

Clear Ethernet Status: This control allows the user to reset the Ethernet monitoring status.

Bandwidth Left: This parameter returns the amount of bandwidth left. It provides the user with an indication of how much bandwidth is remaining on the configured link. This gives the user better manageability of the link.

MTP Selection
MTP Select: This control allows the user to select either the Main or Backup MTP connection which will be configured for time referencing.

Time Reference on Main and Backup
Time Reference IP Address: This control allows the user to set the IP Address for the time reference on the Main and Backup MTP.

Time Reference PCR PID: This control allows the user to set the program clock reference packet identifier (PCR PID) for the Main and Backup MTP time reference. Range for this value can be set from 16 to 80190.

Time Reference Port Number: This control allows the user to set the UDP Port Number for the Main and Backup MTP time reference. Range for this value can be set from 1 to 65535.

Card Control
Reboot Card: This control is used to reboot the module.

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

4.1.2. Product Features
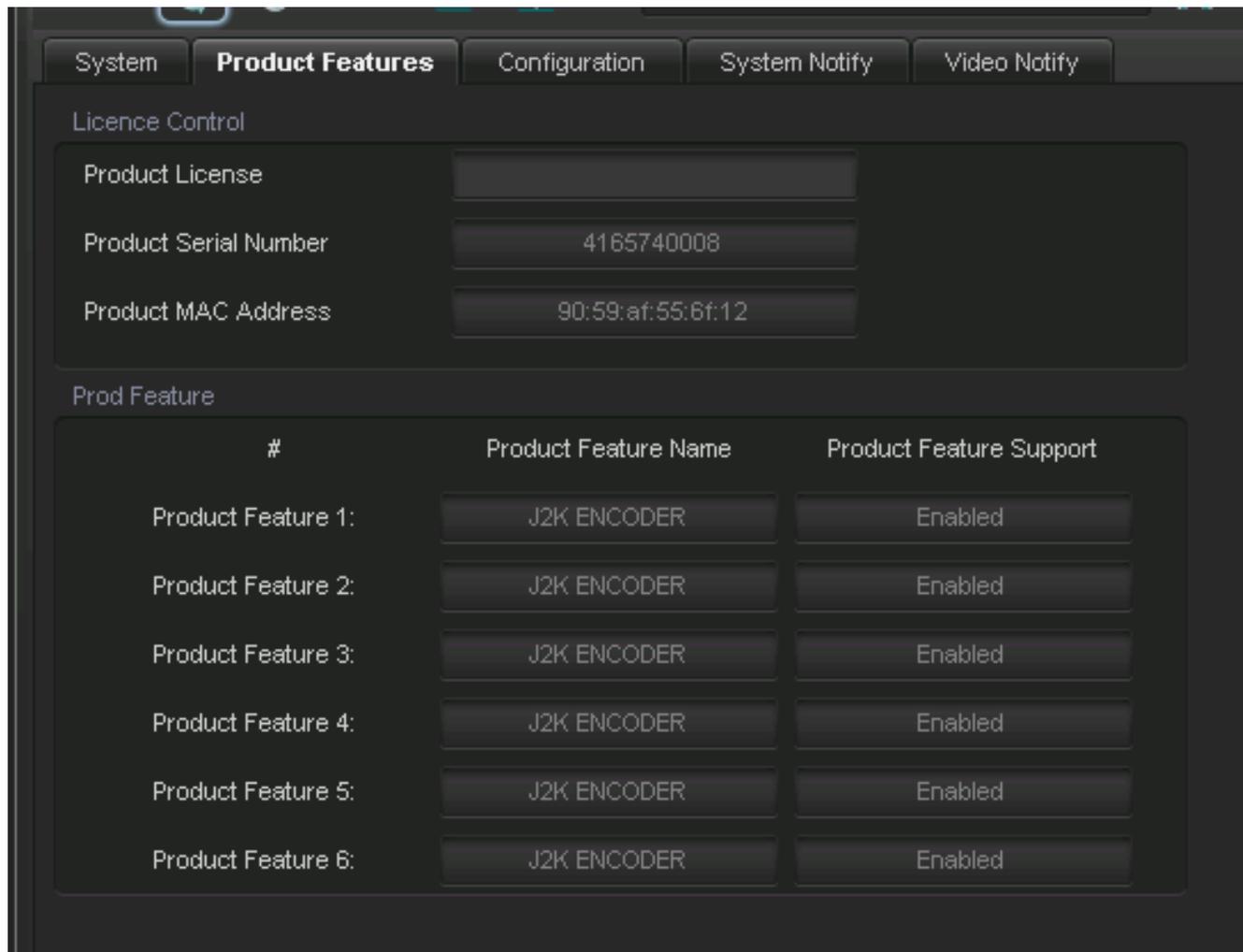
Figure 4-3: VistaLINK® PRO Product Features

License Control
Product License: This control specifies the product license key file. A product license channel key can be provided to enable J2K encode/decode functionality. It is applied using this control and unlocks feature functionality.

Product Serial Number: Displays the card serial number.

Product Mac Address: Displays the card MAC address.

Product Features Supported
Product Feature Name <1-6>: This parameter displays product features supported by this card.

Product Feature Supported <1-6>: This parameter displays the product support status as either enabled or disabled. This will highlight the license keys available. Features would be referencing J2K encode channel keys. For example each J2K encode key will enable 1 j2K encode channel.

4.1.3. Configuration
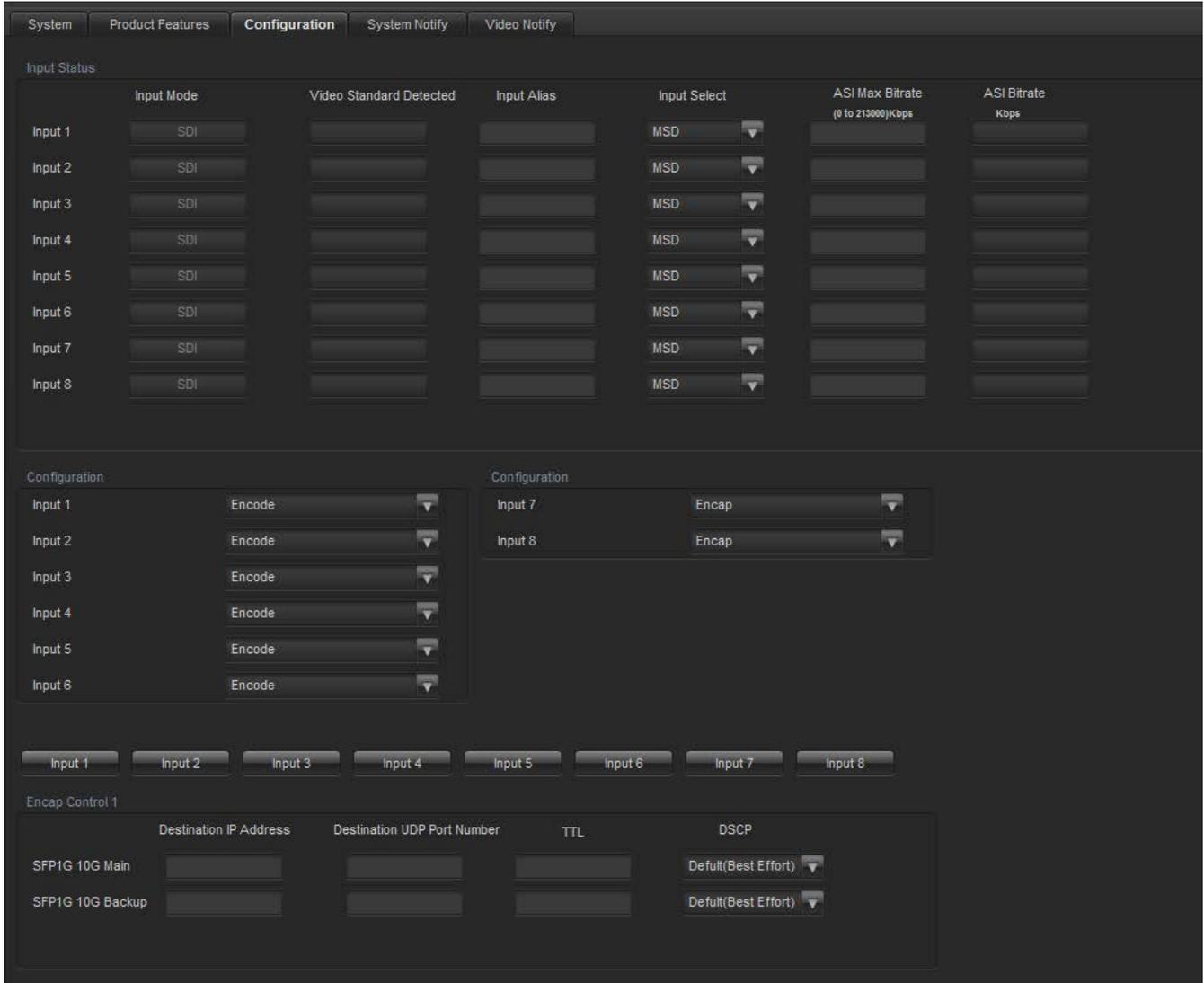
Figure 4-4: VistaLINK® PRO Configuration

Input Status

Input Mode: This monitor will display the input mode as either SDI or ASI. This reflects whether the input connected is ASI or SDI "3G/HD/SD –SDI".

Video Standard Detected: This control gets the detected video standard of SDI Input; not applicable if ASI is on the input.

Input Alias: This control allows the user to input alias name on each input.

Input Select: This parameter configures the Max Link Rate for the specified channel path. It is used only when the channel paths are set for Encapsulation. The user can select the following modes SDI-SD, SDI-HD, 3G-SDI or ASI. When configured to SD the max encapsulation on the link can handle up to 270Mbps. If a HD input is provided, the signal will be clipped. If the Input select is configured to HD, the max encapsulation on the link can handle up to 1.5Gbps. If a 3G input is provided the signal will be clipped. When the input select is configured to 3G, the max encapsulation on the link can handle up to 3Gbps.

ASI Max Bitrate: This parameter allows the user to set the max bitrate for ASI input. This is the maximum threshold for ASI encapsulation bitrate. If the incoming ASI bitrate exceeds the threshold, the signal will be clipped and no output ASI signal will be encapsulated.

ASI Bitrate: This parameter reflects ASI bitrate on the input.

Configuration
Input 1 to 6: This control allows the user to define the processing mode on the inputs. Options are Encode, Encapsulate or Disable. HD-SDI, SD-SDI and 3G-SDI can be encoded and encapsulated. ASI input can only be encapsulation

Configuration
Input 7 to 8: This control allows the user to define processing mode on the inputs, options are Encapsulate or Disable.

Encap Control
Destination IP Address <1-8>: This parameter allows user to select output IP address / multicast address.

Destination UDP Port Number <1-8>: This parameter allows user to select the output UDP port number.

TTL <1-8>: This parameter allows the user to set TTL (Time To Live) field of the IP packets that are sent out.

DSCP <1-8>: This parameter allows the user to set DSCP (Differentiated Services Code Point) values field of the IP packets that are sent out.

4.1.4. System Notify
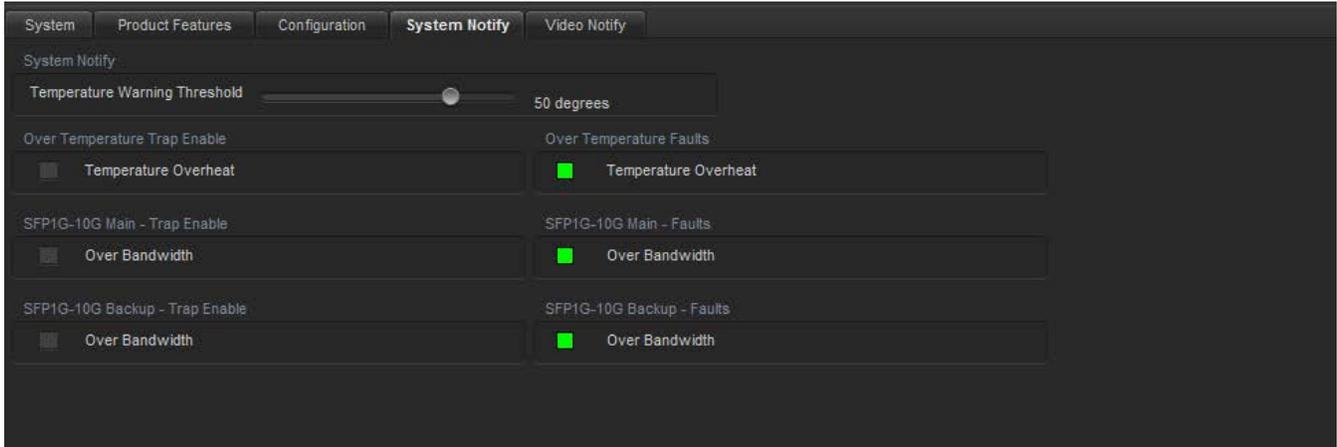
Figure 4-5: VistaLINK® PRO System Notiy

System Notify
Temperature Warning Threshold: This control is to set the threshold for the temperature overheat.

Over Temperature Trap Enable
Temperature Overheat: This control is used to enable/disable traps on a temperature overheat condition. When enabled, a fault will be generated on the right if temperature exceeds threshold limit.

SFP1G-10G Main and Backup – Trap Enable
Over Bandwidth: This control is used to enable/disable traps on Over Bandwidth conditions for the Main and Backup SFP1G-10G. When enabled, a fault will be generated on the right for over bandwidth conditions.

4.1.5. Video Notify
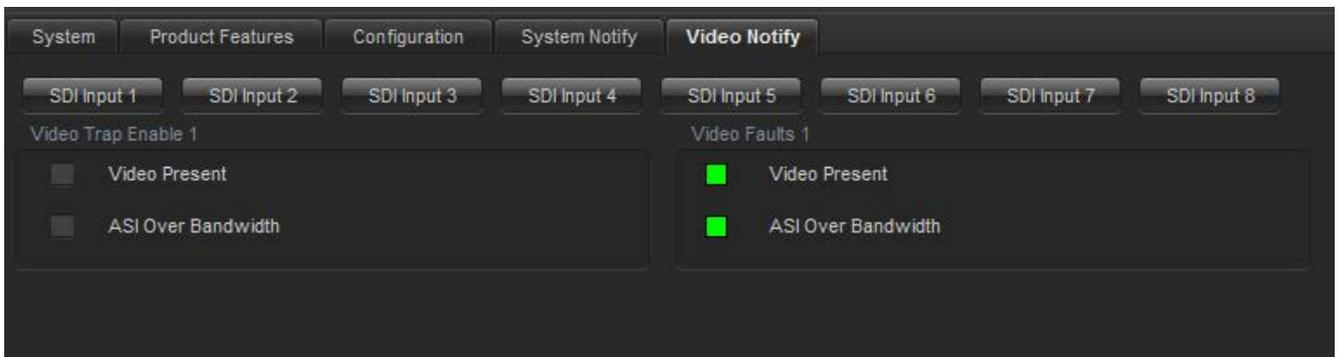
Figure 4-6: Video Notify

Video Trap Enable and Video Faults
SDI Input 1-8
Video Present: This control allows the user to enable or disable faults on video present.
When enabled, a fault will be generated on the right for no video signal on the input.

ASI Over Bandwidth: This control allows the user to enable or disable faults on exceeding the bandwidth on the ASI input set by the user under the configuration tab. When enabled, a fault will be generated on the right for the ASI input exceeding the bandwidth.

4.1.6. Encoder Control

In the Hardware Tree under the 7880IPG8 the user can view each available encoder by opening the sub-tree.
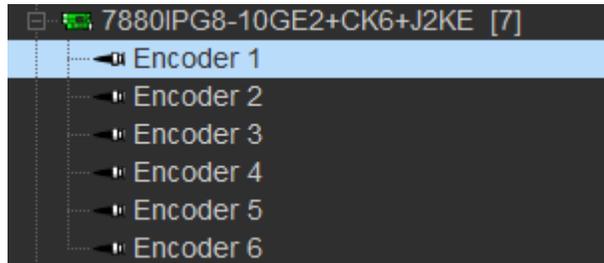
Figure 4-7: VistaLINK® PRO Encoder Individual Controls

Right-clicking on the desired Encoder and selecting *View Configuration* will open the Configuration window below that is associated to the desired Encoder.
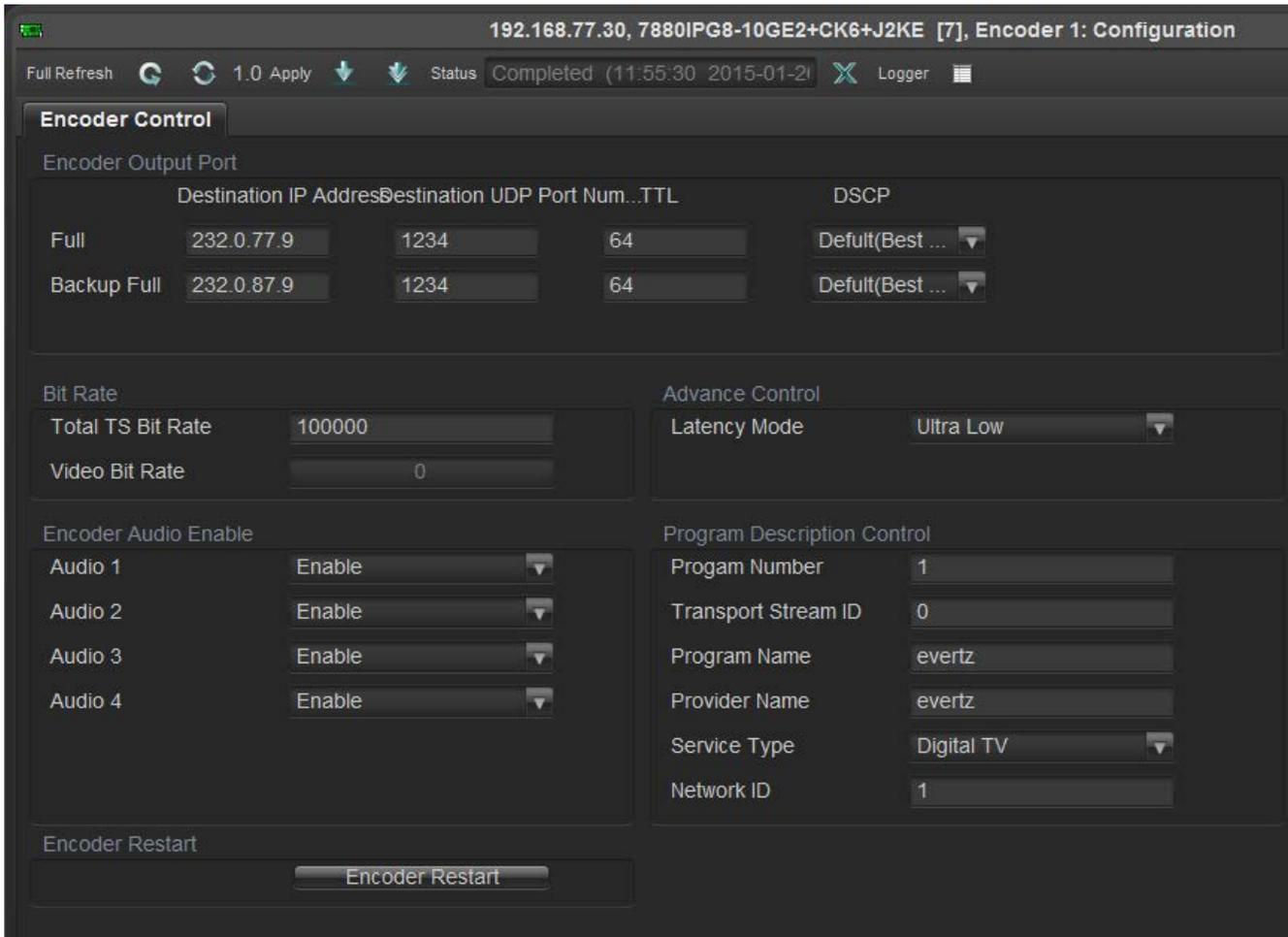
Figure 4-8: VistaLINK® PRO Encoder Control

Encoder Output Port (Full and Backup Full)
　Destination IP Address: This parameter allows user to select output destination IP address.

　Destination UDP Port Number: This parameter allows user to select the output UDP port number.

　TTL: This parameter allows the user to set TTL (Time To Live) field of the IP packets that are sent out.

　DSCP: This parameter allows the user to set DSCP (Differentiated Services Code Point) values field of the IP packets that are sent out.

Bit Rate
　Total TS Bit Rate: This parameter allows the user to select the output transport stream bitrate in kbps. NOTE: Card will adjust the bitrate for video & other PIDs based on this settings.

　**Video Bit Rate:** This parameter allows the user to read back the video transport stream bitrate in kbps.

Advance Control
　Latency Mode: The 7880IPG8-10GE2 has two in-built encoding latency modes i.e. ultra low and standard. The user can select any of these modes as needed.

Encoder Audio Enable
　Audio 1-4: This control allows the user to enable or disable audio encoding. Each audio PID supports 4 channels of audio encoding.

Program Description Control
　Program Number: This parameter sets the Program Number. The default value is 1.

　Transport Stream ID: This parameter allows user to set the Transport Stream ID number.

　Program Name: This parameter allows the user to enter the program name.

　Provider Name: This parameter allows the user to enter the title of the provider name.

　Service Type: This parameter sets the service type. Options are Digital TV, Digital Radio, Teletext, Nvod Reference, Nvod Timeshifted, Mosaic, Pal Signal, Secam Signal, D Mac, Fm Radio, NTSC Signal and Data Broadcast.

　Network ID: This parameter sets the network ID of origin.

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5. ENCODER - WEB EASY® INTERFACE

5.1. SYSTEM CONFIGURATION

5.1.1. System

Figure 5-1: Web Easy System Configuration

System
  Card Alias: This control will return the card type.

Control Port Configuration
  IP Address: This setting will allow the user to set an IP address for the control port on the device.

  Netmask: This control allows the user to define the Netmask/Subnet the device will be joined to.

  Gateway: This control allows the user to define the Gateway/Router address, which will allow the card to communicate with devices on other networks.

Figure 5-2: Web Easy System Configuration continued

Data Port Configuration
These options are for both the SFP1G-10G Main and SFP1G-10G Backup.

IP Address: This setting will allow the user to set an IP address for the data port on the device.

Netmask: This control allows the user to define the Netmask/Subnet the device will be joined to.

Gateway: This control allows the user to define the Gateway/Router address, which will allow the card to communicate with devices on other networks.

Mac Address: Displays the card MAC address.

Data Port Speed
Speed Status: This will display the data port speed.

Speed Switch: Speed Switch will configure the link to be either 1G or 10Gig. The card will automatically reboot after the link speed is switched.
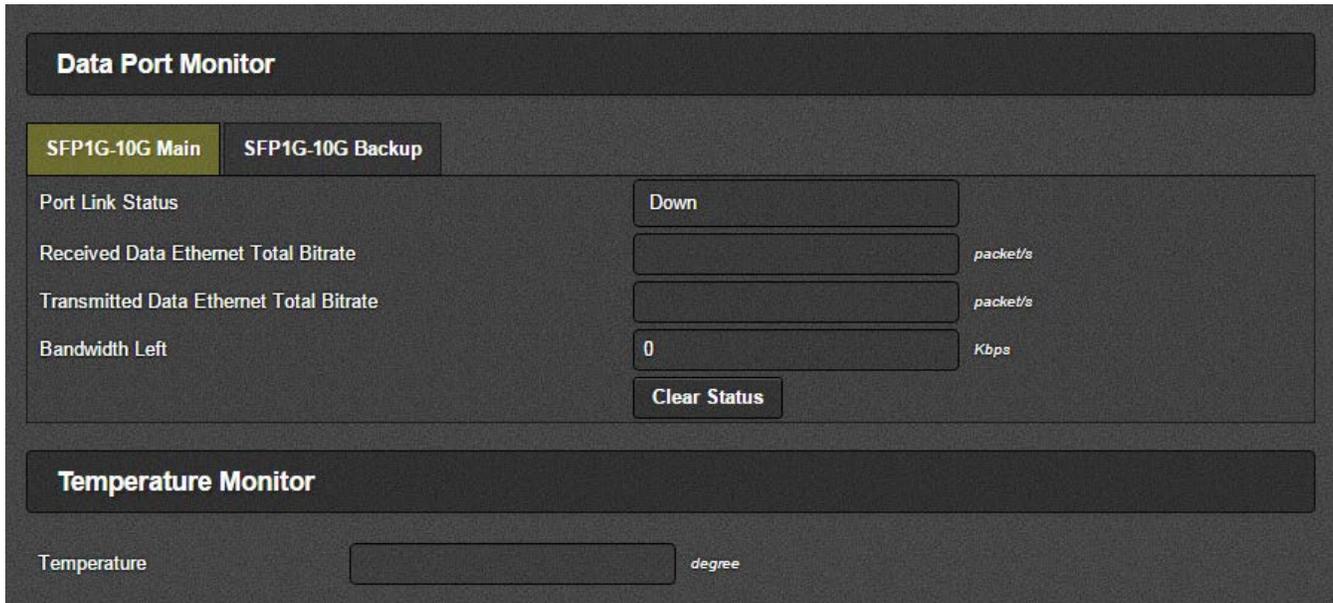
Figure 5-3: Web Easy System Configuration continued

Data Port Monitor
These options are for both the SFP1G-10G Main and SFP1G-10G Backup.

Port Link Status: This parameter returns the link status for the data port.

Received Data Ethernet Total Bitrate: This field displays the current bit rate being received on the Main and Backup Ethernet ports. This value is displayed in kilobits per second (kbps) and can range from 0 to 1000000 kbps.

Transmitted Data Ethernet Total Bitrate: This field displays the current bit rate being transmitted on the Main and Backup Ethernet ports. This value is displayed in kilobits per second (kbps) and can range from 0 to 1000000 kbps.

Bandwidth Left: This parameter returns the amount of bandwidth left.

Temperature Monitor
   Temperature: This monitor gets the FPGA temperature and displays it in degrees Celsius.

Figure 5-4: Web Easy System Configuration continued

Card Control
   Load Factory Config: This control is to load factory configuration to each encoder.

   Reboot Card: This control is used to reboot the module.

MTP Select
   Time Reference Data Port Select: This control is used to select MTP for time reference on either the main or backup.

Time Reference
These options are for both the SFP1G-10G Main and SFP1G-10G Backup.

   Time Reference IP Address: This control allows the user to set the IP Address for the time reference on the Main and Backup MTP.

   Time Reference Port Number: This control allows the user to set the UDP Port Number for the Main and Backup MTP time reference. Range for this value can be set from 1 to 65535.

   Time Reference PCR PID: This control allows the user to set the program clock reference packet identifier (PCR PID) for the Main and Backup MTP time reference. Range for this value can be set from 16 to 80190.

5.1.2. Product Features
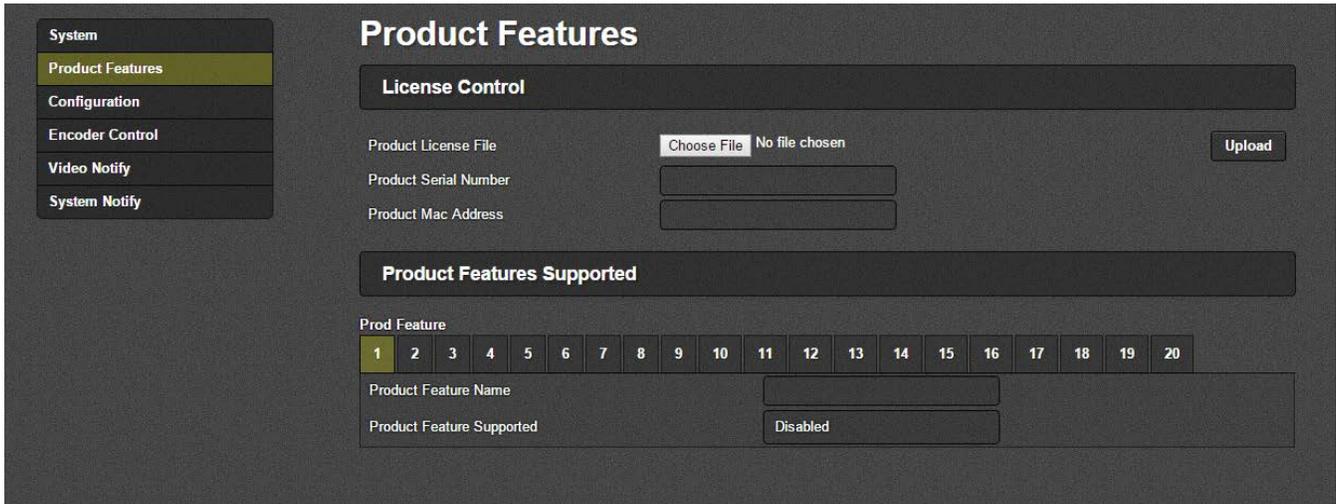
Figure 5-5: Web Easy Product Features

License Control

Product License File: This control specifies the product license key file and allows the user to upload a new license key.

Product Serial Number: Displays the card serial number.

Product Mac Address: Displays the card MAC address.

Product Features Supported

Product Feature Name <1-20>: This parameter displays product features supported by this card.

Product Feature Supported <1-20>: This parameter displays the product support status as either enabled or disabled. This will highlight the license keys available. Features would be referencing J2K encode channel keys. For example each J2K encode key will enable 1 j2K encode channel.

5.1.3. Configuration
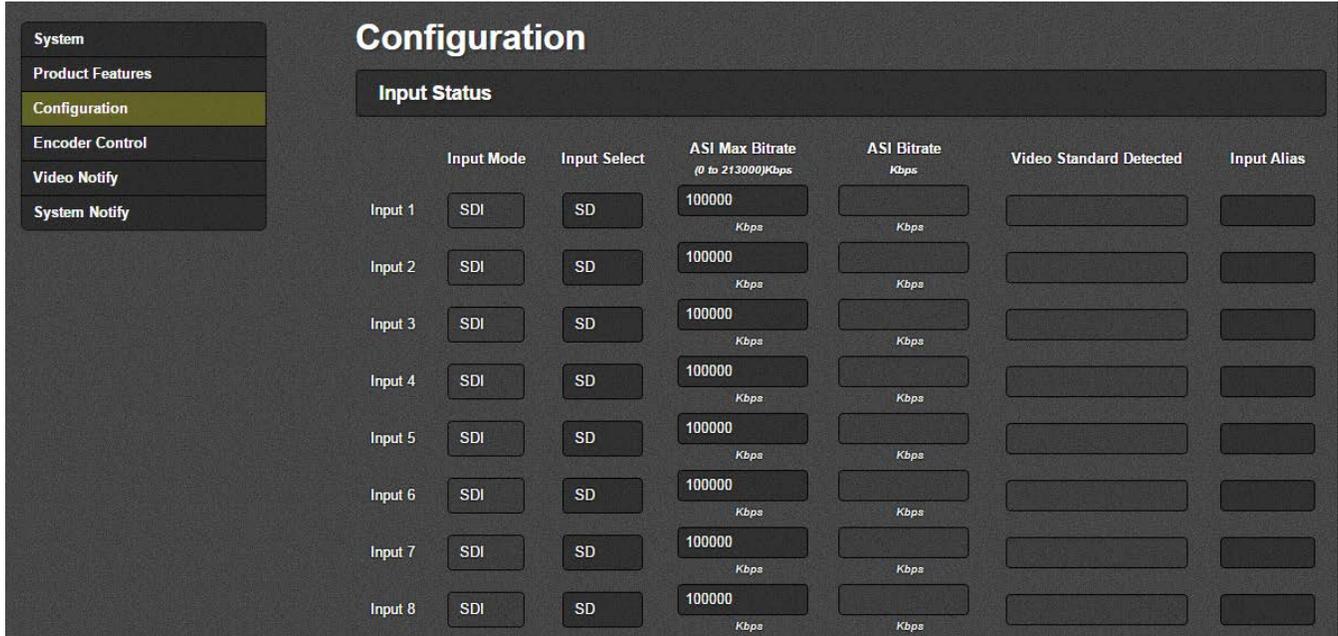
Figure 5-6: Web Easy Configuration

Input Status

Input mode: This monitor will display the input mode as either SDI or ASI.

Input Select: This parameter configures the Max Link Rate for the specified channel path. It is used only when the channel paths are set for Encapsulation. The user can select the following modes SDI-SD, SDI-HD, 3G-SDI or ASI. When configured to SD the max encapsulation on the link can handle up to 270Mbps. If a HD input is provided, the signal will be clipped. If the Input select is configured to HD, the max encapsulation on the link can handle up to 1.5Gbps. If a 3G input is provided the signal will be clipped. When the input select is configured to 3G, the max encapsulation on the link can handle up to 3Gbps.

ASI Max Bitrate: This parameter allows the user to set the max bitrate for ASI input. This is the maximum threshold for ASI encapsulation bitrate. If the incoming ASI bitrate exceeds the threshold, the signal will be clipped and no output ASI signal will be encapsulated

ASI Bitrate: This parameter reflects ASI bitrate on the input.

Video Standard Detected: This control gets the detected video standard of SDI Input; not applicable if ASI is on the input.

Input Alias: This control allows the user to input alias name on each input.
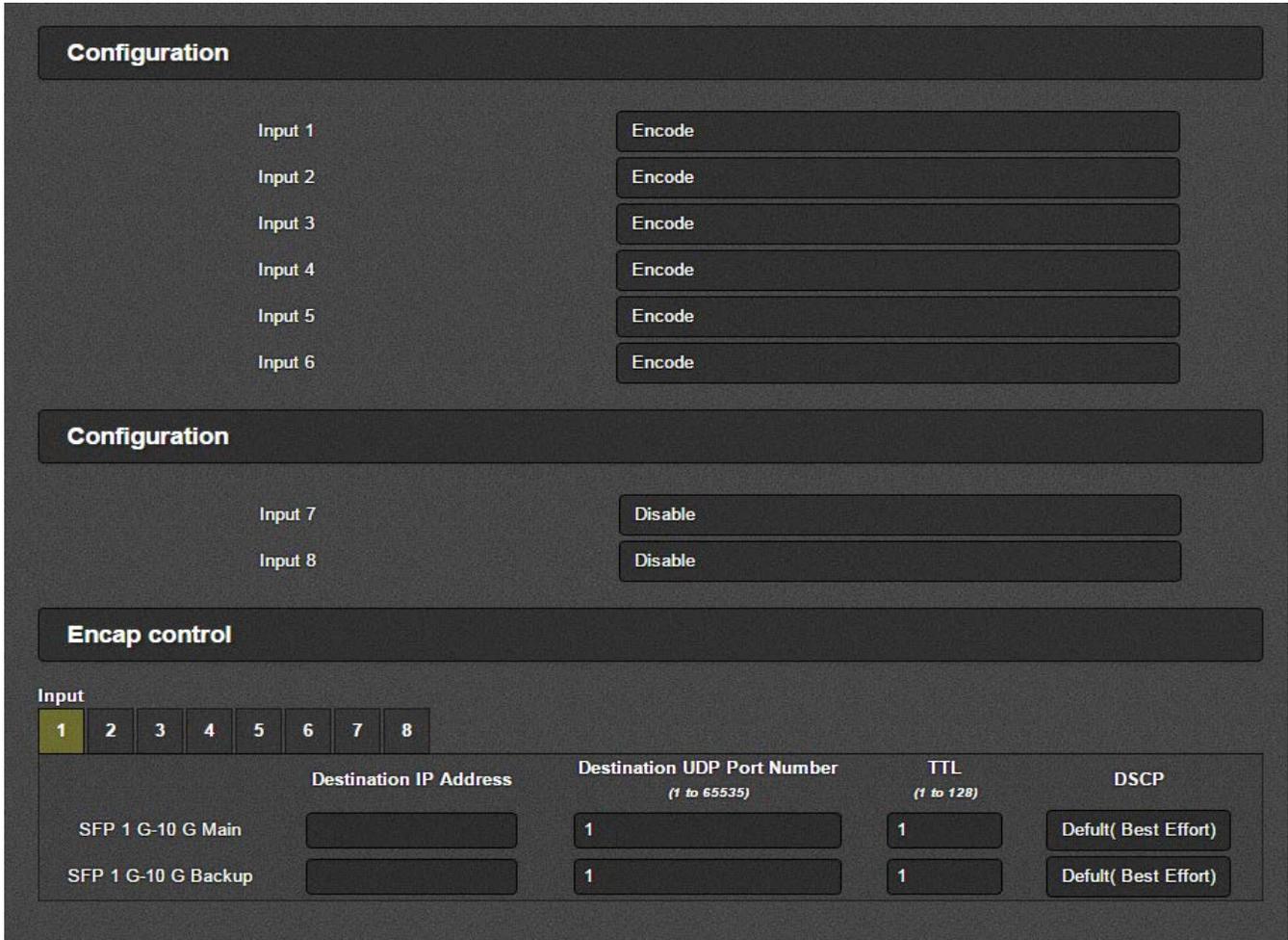
Figure 5-7: Configuration continued

Configuration
   Input 1 to 6: This control allows the user to define the processing mode on the inputs. Options are Encode, Encapsulate or Disable.

Configuration
   Input 7 to 8: This control allows the user to define processing mode on the inputs. Options are Encapsulate or Disable.

Encap Control
   Destination IP Address <1-8>: This parameter allows user to select output IP address / multicast address.

   Destination UDP Port Number <1-8>: This parameter allows user to select the output UDP port number.

   TTL <1-8>: This parameter allows the user to set TTL (Time to Live) field of the IP packets that are sent out.

   DSCP <1-8>: This parameter allows the user to set DSCP (Differentiated Services Code Point) values field of the IP packets that are sent out.

5.1.4. Encoder Control

Figure 5-8: Web Easy Encoder Control

Encoder Output Port
These options are configurable for encoder 1 to 6.

Destination IP Address: This parameter allows user to select output IP address / multicast address.

Destination UDP Port Number: This parameter allows user to select the output UDP port number.

TTL: This parameter allows the user to set TTL (Time To Live) field of the IP packets that are sent out.

DSCP: This parameter allows the user to set DSCP (Differentiated Services Code Point) values field of the IP packets that are sent out.

Encoder Output Port
These options are configurable for encoder 1 to 6.

Total TS Bit Rate: This parameter allows the user to select the output transport stream bitrate in kbps. NOTE: Card will adjust the bitrate for video & other PIDs based on these settings.

Video Bit Rate: This parameter allows the user to read back the video transport stream bitrate in kbps.

Encoder Output Port
These options are configurable for encoder 1 to 6.

   Audio 1-4: This parameter enables/disables the audio.
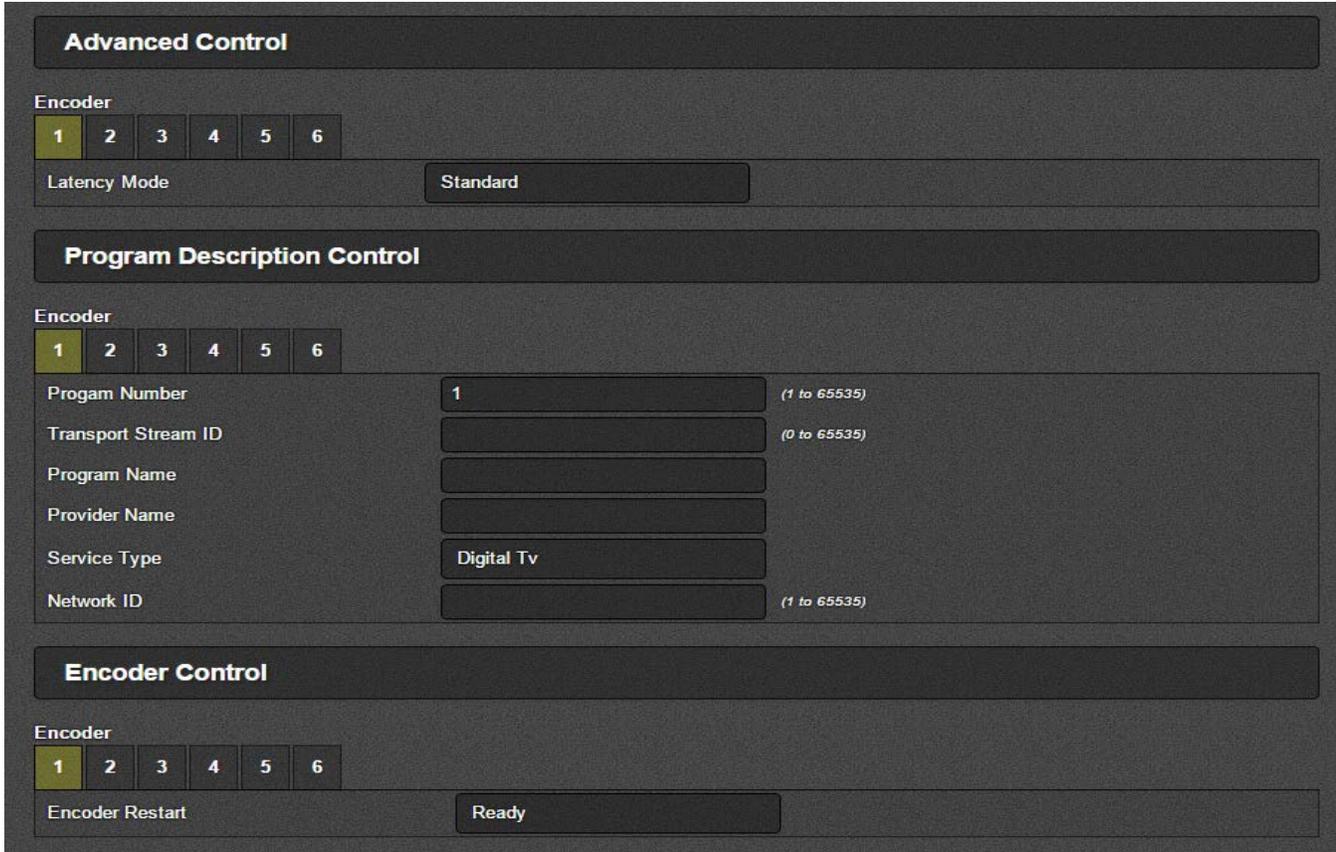
Figure 5-9: Web Easy Encoder Control continued

Advanced Control
These options are configurable for encoder 1 to 6.

   Latency Mode: This control allows the user to set the latency on the outputs to either Standard or Ultra Low.

Program Description Control
These options are configurable for encoder 1 to 6.

   Program Number: This parameter sets the Program Number. The default value is 1.

   Transport Stream ID: This parameter allows user to set the Transport Stream ID number.

   Program Name: This parameter allows the user to enter the title of the program

   Provider Name: This parameter allows the user to enter the title of the provider.

Service Type: This parameter sets the service type. Options are Digital TV, Digital Radio, Teletext, Nvod Reference, Nvod Timeshifted, Mosaic, Pal Signal, Secam Signal, D Mac, Fm Radio, NTSC Signal and Data Broadcast.

Network ID: This parameter sets the network ID of origin.

Encoder Control
These options are configurable for encoder 1 to 6.

Encoder Restart: This control is to restart the individual encoder selected.

5.1.5. Video Notify
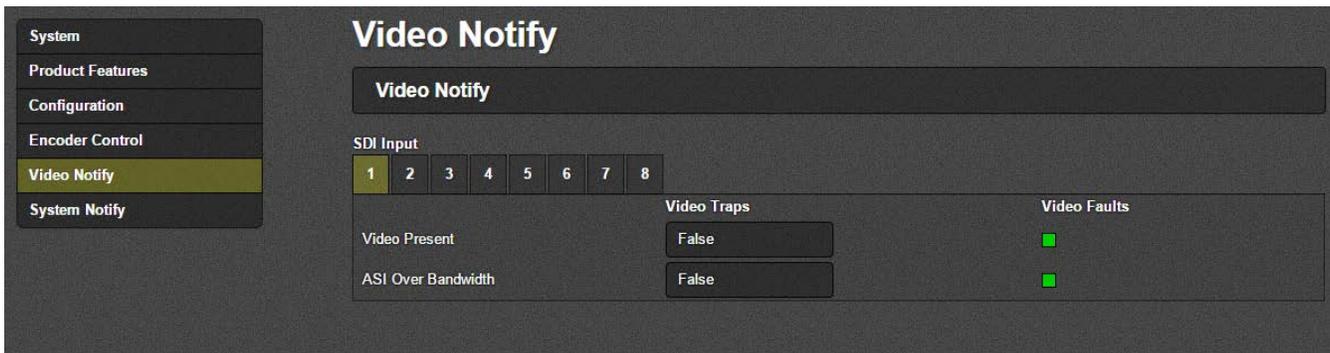
Figure 5-10: Web Easy Video Notify

Video Notify
These options are configurable for SDI Input 1 to 8.

Video Present: This control is used to turn traps on and off for video signal present. When enabled, a fault will be generated to the right if there is no video present.

ASI Over Bandwidth: This control is used to enable trap indication when input ASI bitrate has exceeded the configured threshold. Status indication will be generated on the right if bandwidth limit has exceeded.

5.1.6. System Notify
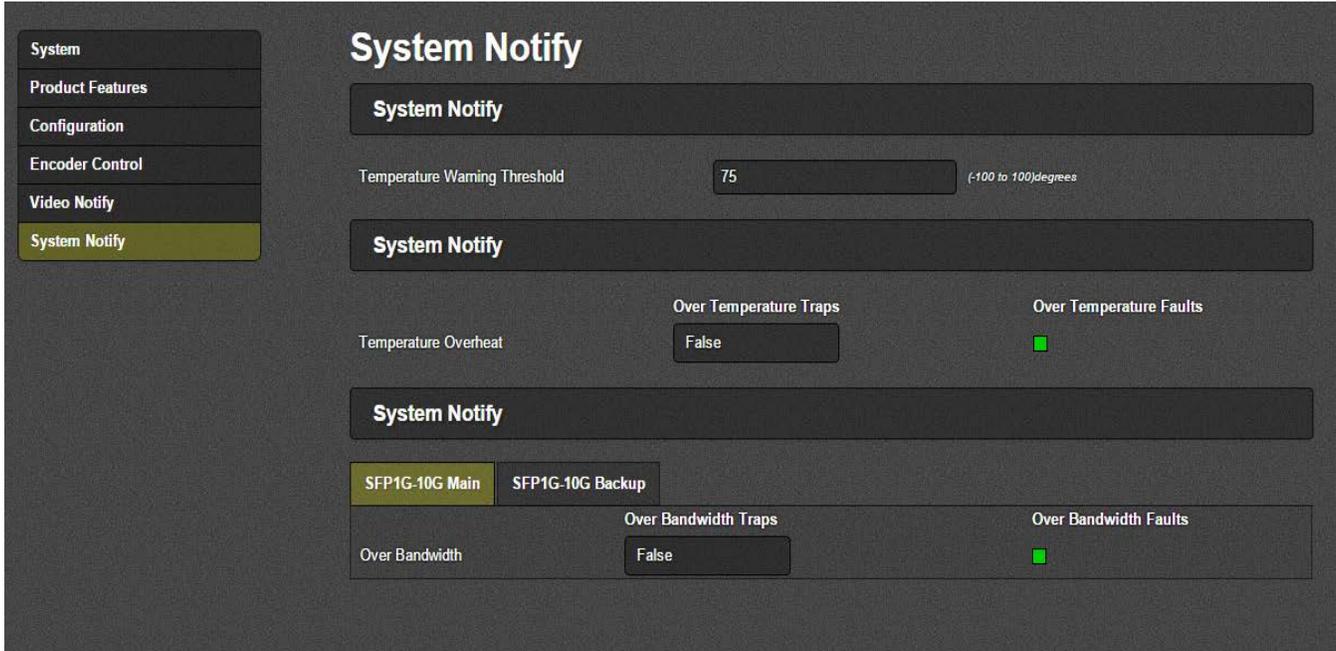
Figure 5-11: Web Easy System Notify

System Notify
   Temperature Warning Threshold: This control is to set the threshold for the temperature overheat.

System Notify
   Temperature Overheat: This control is used to enable/disable traps on a temperature overheat condition. When enabled, a fault will be generated on the right if temperature exceeds threshold limit.

System Notify
   Over Bandwidth: This control is used to enable/disable traps on Over Bandwidth conditions for the Main and Backup SFP1G-10G. When enabled, a fault will be generated on the right for over bandwidth conditions.

6. DECODER - VISTALINK® PRO INTERFACE

6.1. SYSTEM CONFIGURATION

6.1.1. System
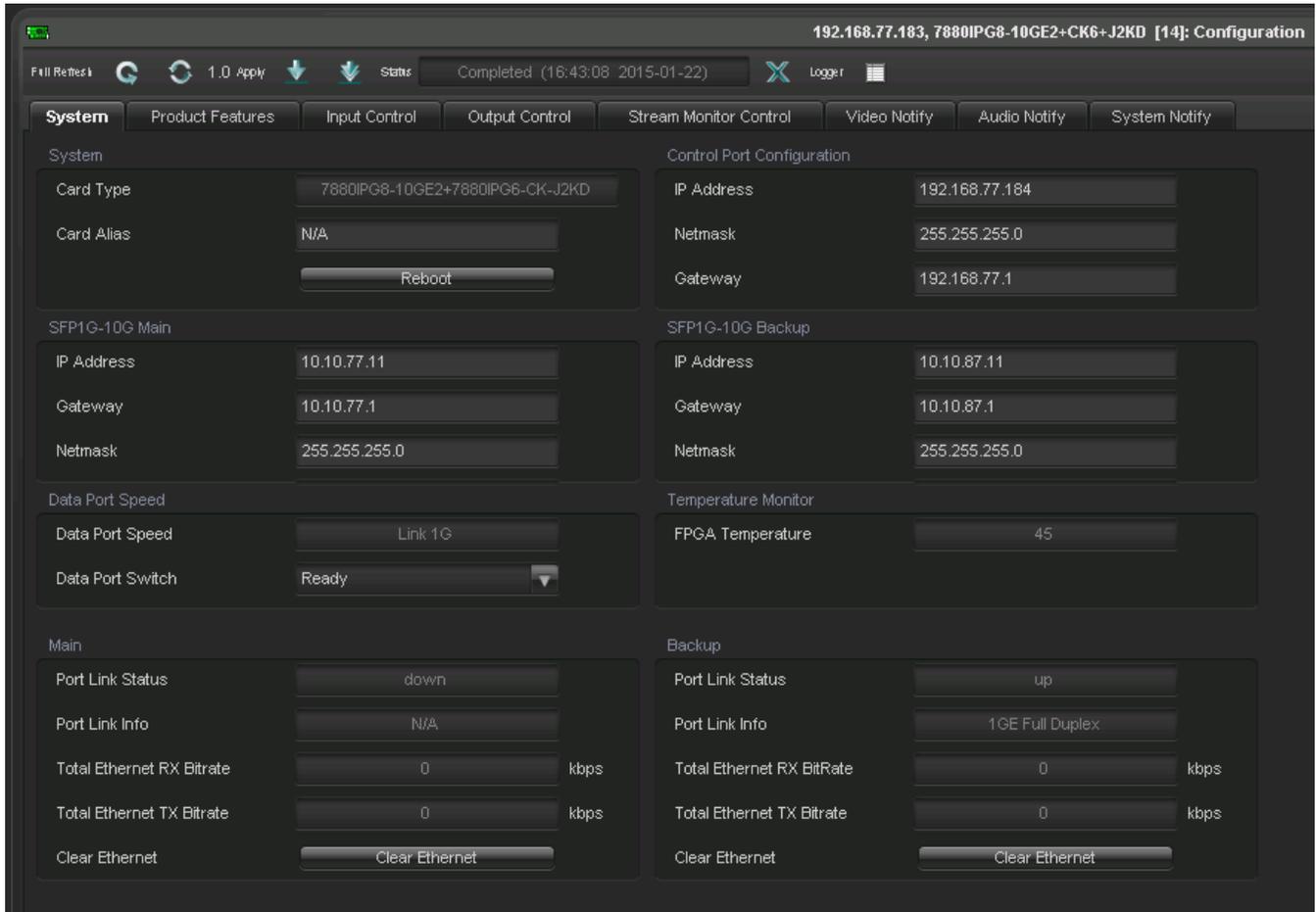
Figure 6-1: VistaLINK® PRO System Configuration

System
  Card Type: This control returns the card type.

  Card Alias: This control allows the user to input alias name for the card.

  Reboot: This control allows the user to reboot the card.

Control Port Configuration
  IP Address: This setting will allow the user to set an IP address for the control port on the device. This is for direct control of the unit via VLPRO or web interface.

  Netmask: This control allows the user to define the Netmask/Subnet the device will be joined to.

  Gateway: This control allows the user to define the Gateway/Router address, which will allow the card to communicate with devices on other networks.

SFP1G-10G Main and SFP1G-10G Backup

IP Address: This setting will allow the user to set an IP address for the data port on the device.

Gateway: This control allows the user to define the Gateway/Router address, which will allow the card to communicate with devices on other networks.

Netmask: This control allows the user to define the Netmask/Subnet the device will be joined to.

Data Port Speed

Data Port Speed: This parameter allows user to read back speed for the data port.

Data Port Switch: This control will allow the user to switch the data port speed.

Temperature Monitor

FPGA Temperature: This control will display the FPGA temperature in degrees Celsius.

Main and Backup

Port Link Status: This parameter returns the link status for the data port. It will provide an indication if the LINK is UP or Down.

Port Link Info: This parameter returns link status for data port that indicates the link speed, whether the link is 1Gig or 10Gig.

Total Ethernet RX Bitrate: This monitoring parameter returns the received input Bitrate on the link. It provides the user with a clear indication of how much input traffic is received on the link.

Total Ethernet TX Bitrate: This monitoring parameter reflects the transmitted bitrate on the link.

Clear Ethernet: Reset the Ethernet monitor statistics.
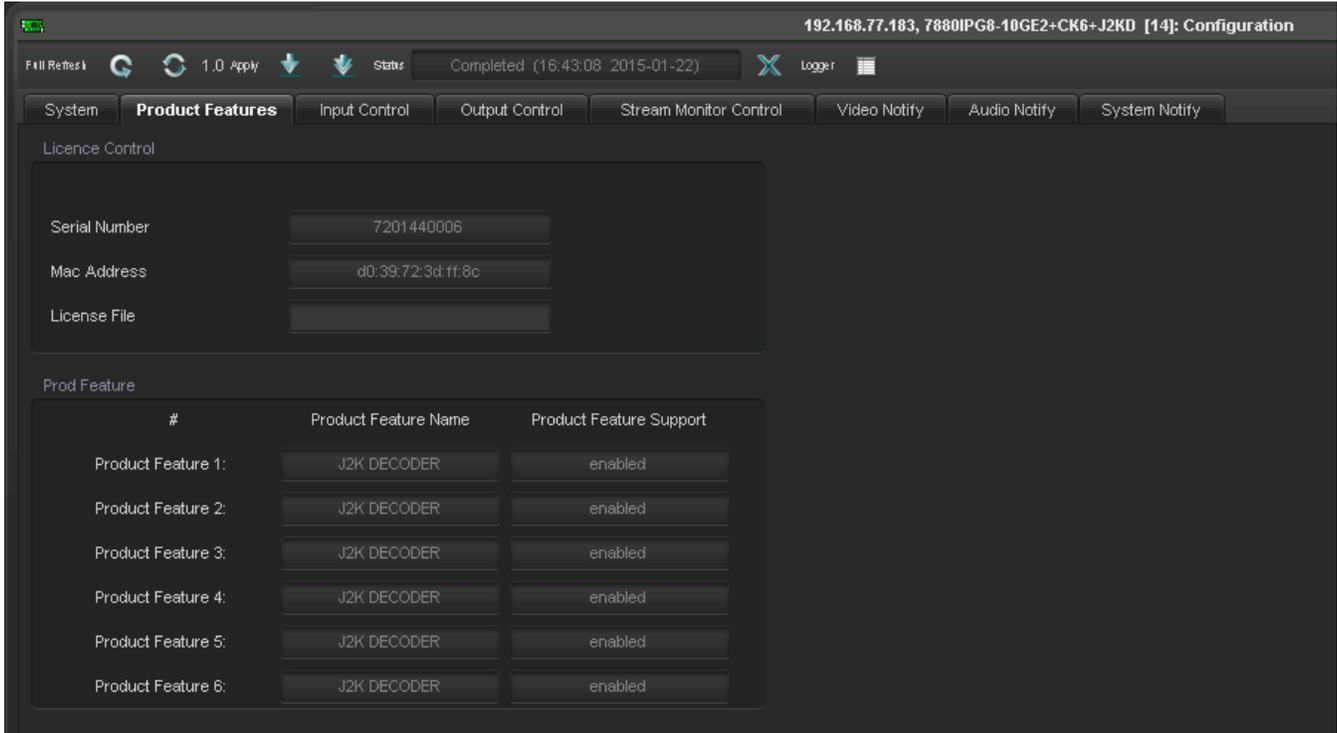
6.1.2. Product Features

Figure 6-2: VistaLINK® PRO Product Features

License Control
   Serial Number: Displays the card serial number

   Mac Address: Displays the card MAC address.

   License File: This control specifies the product license key file. A product license channel key can be provided to enable J2K encode/decode functionality. It is applied using this control and unlocks feature functionality.

Prod Feature (1-6)
   Product Feature Name: This parameter returns the product features supported on this card.

   Product Feature Supported: This parameter displays the product support status as either enabled or disabled. This will highlight the license keys available. Features would be referencing J2K decode channel keys. For example each J2K decode key will enable 1 j2K decode channel.
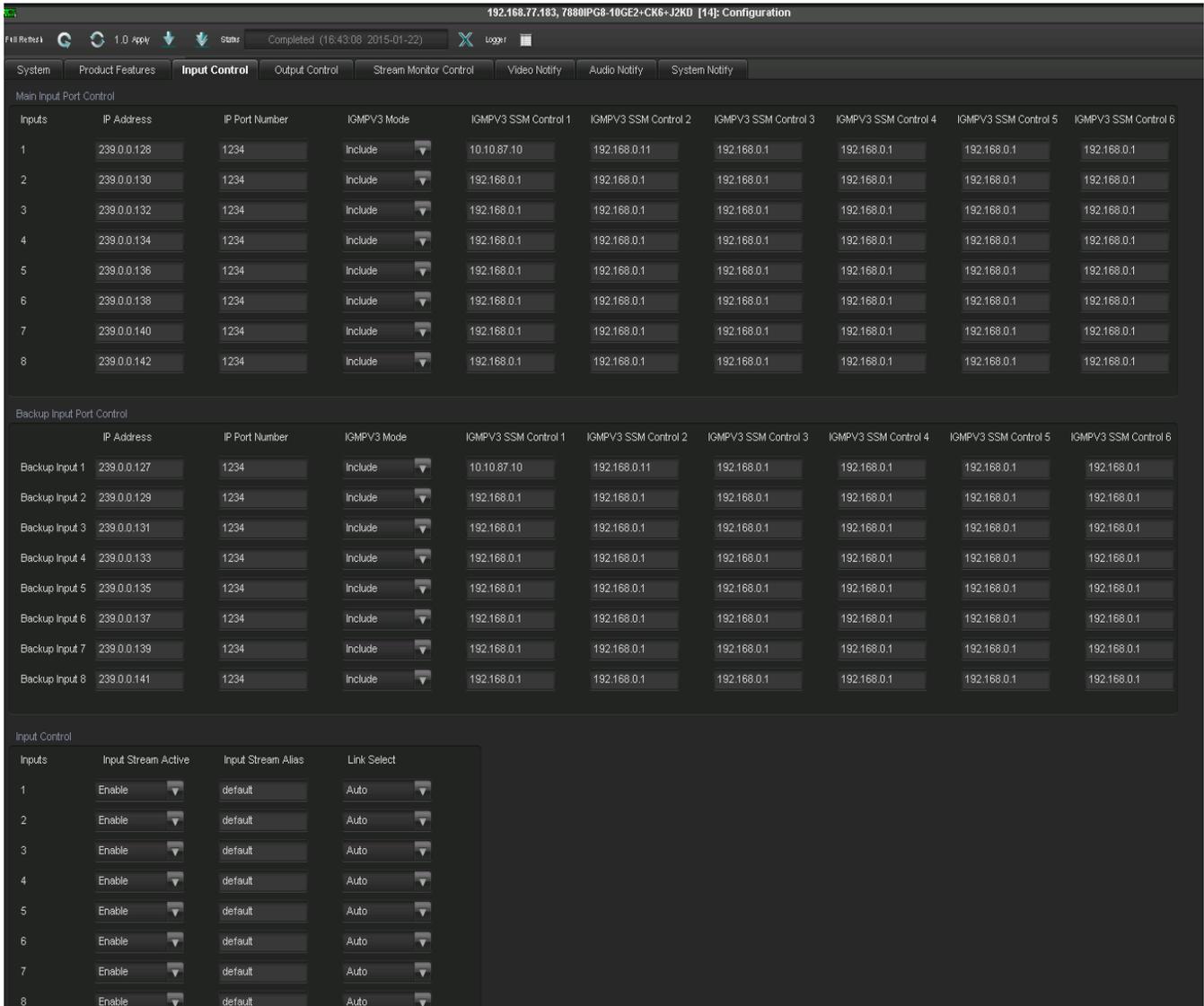
6.1.3. Input Control

Figure 6-3: VistaLINK® PRO Input Control

Main Input Port Control and Backup Input Port Control
These options are configurable for SDI Input 1 to 8.

IP Address: This parameter allows user to select input IP address / multicast address that should be received.

IP Port Number: This parameter allows user to select the input UDP port number.

IGMPV3 mode: This parameter is used in conjunction with the IGMPV3 SSM controls. It allows the user to include the specified SSM sources or to exclude them.

IGMPV3 SSM Control (1-6): This control allows user to set IP addresses which is to be used while forming the source filter for IGMPV3 communications.
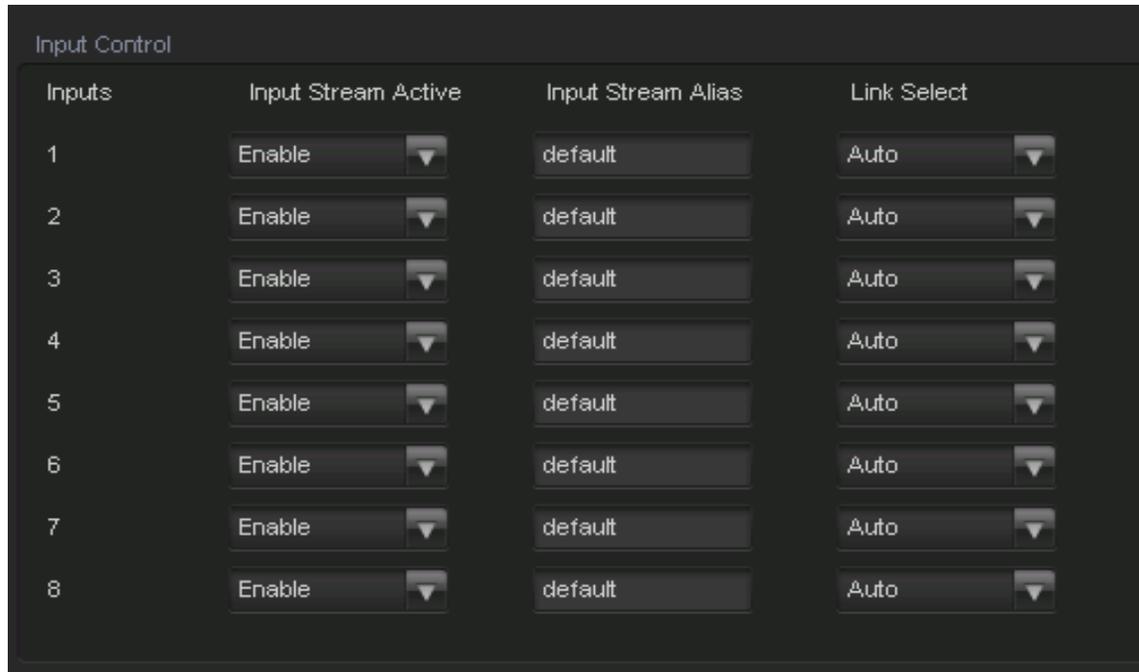
Figure 6-4: VistaLINK® PRO Input Control continued

Input Control
These options are configurable for Inputs 1 to 8.

Input Stream Active: This control allows the use to activate or deactivate receiving the input stream. The user needs to confirm that these are enabled in order to have decoded or de-encapsulated output.

Input Stream Alias: This control allows the user to input an alias name on the stream.

Link Select: This parameter allows user to select which physical port to receive data from. Options are Auto, Main or Backup SFP10G. In Auto mode, it takes input from both the main and backup. The network path with bad packets are disregarded. If both paths are good it will disregard the extra good path packet. This provides network resilience

Decoder Input Port Control
Backup Same As Main: This parameter allows user to default the backup port setting to the same settings as the main port.
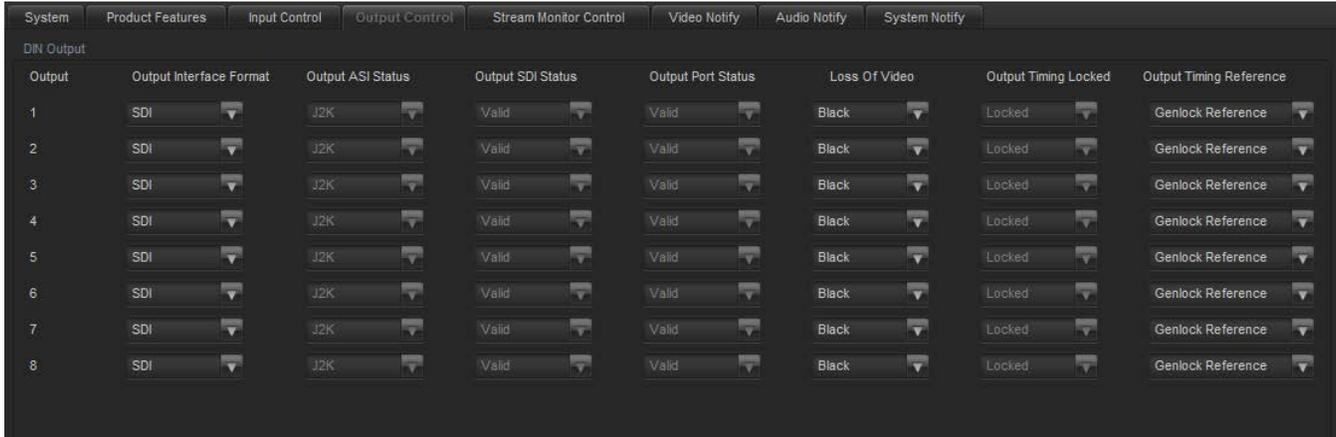
6.1.4. Output Control

Figure 6-5: VistaLINK® PRO Output Control

Din Output
These options are configurable for Outputs 1 to 8.

Output Interface Format: This control allows user to select SDI or ASI on the output. When decoding, this control needs to be configured to SDI. When de-encapsulating an SDI source, this control needs to be configured to SDI. When de-encapsulating an ASI source, this control needs to be configured to ASI.

Output ASI Status: This will tell the user if the input ASI is J2K or if it is an unknown ASI "H264 or MPEG 2" or a SDI encapsulation.

Output SDI Status: This control lets the user know if there is a valid SDI signal on output.

Output Port Status: This control returns the port status as valid or invalid.

Loss of Video: This control allows the user to select between black and freeze for when there is no input detected on the configured path. It will output Black video or will default to frozen image of the last valid frame received.

Output Timing Locked: This control lets the user know if the output PCR is locked.

Output Timing Reference: This control sets the output timing reference either on the genlock or input video.
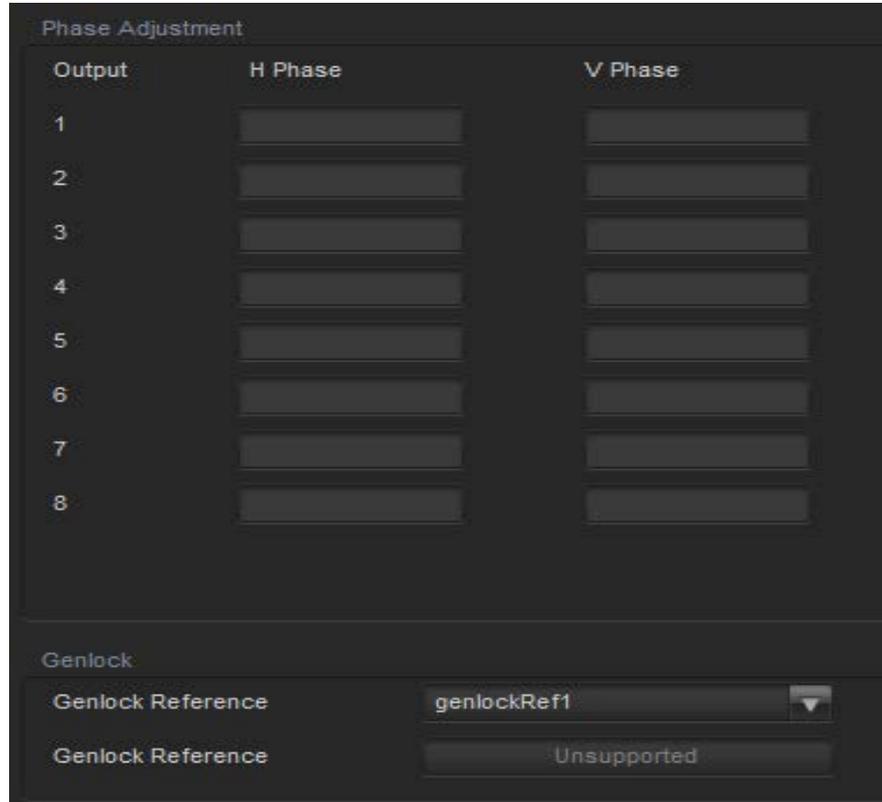
Figure 6-6: VistaLINK® PRO Output Control continued

Phase Adjustment
These options are configurable for Inputs 1 to 8.

   H Phase: This control allows the user to set the horizontal phase, default is 0.

   V Phase: This control allows the user to set the vertical phase, default is 1.

Genlock
   Genlock Reference: This control allows the user to select lock to genlock reference 1 or 2. The genlock source for the 7880IPG8-10GE2 is the frame reference inputs. The user can specify which source is required Reference 1 or Reference 2.

   Genlock Reference: This will display the detected genlock reference. If no reference is found, this parameter will reflect unsupported.

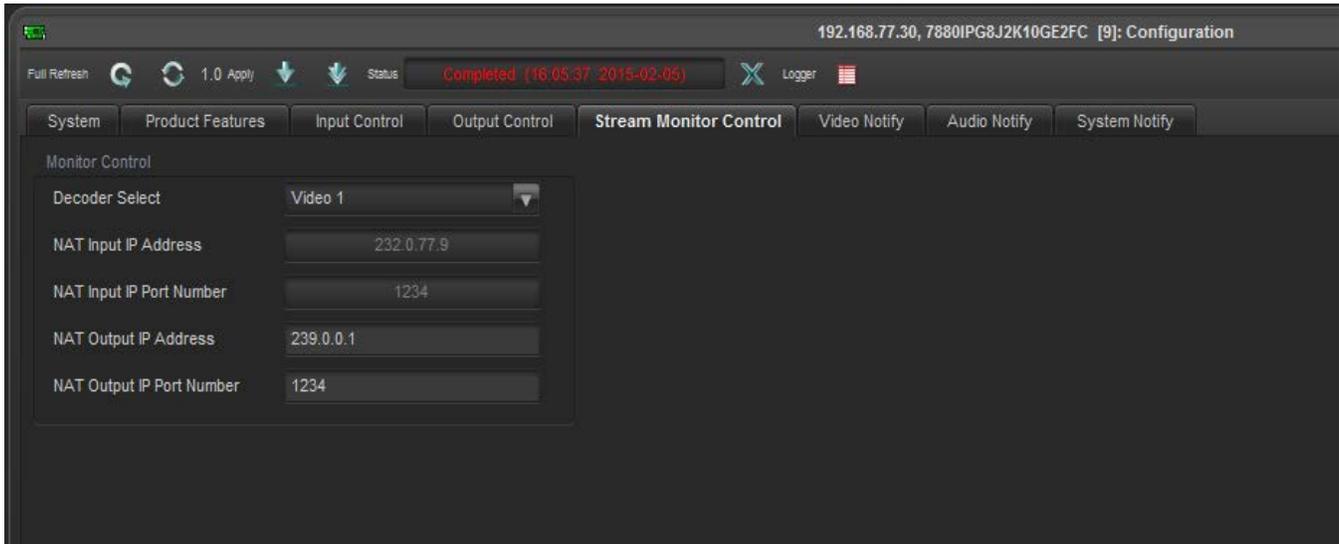### 6.1.5. Stream Monitor Control *(for future implementation)*

Figure 6-7: VistaLINK® PRO Stream Monitor Control (for future implementation)
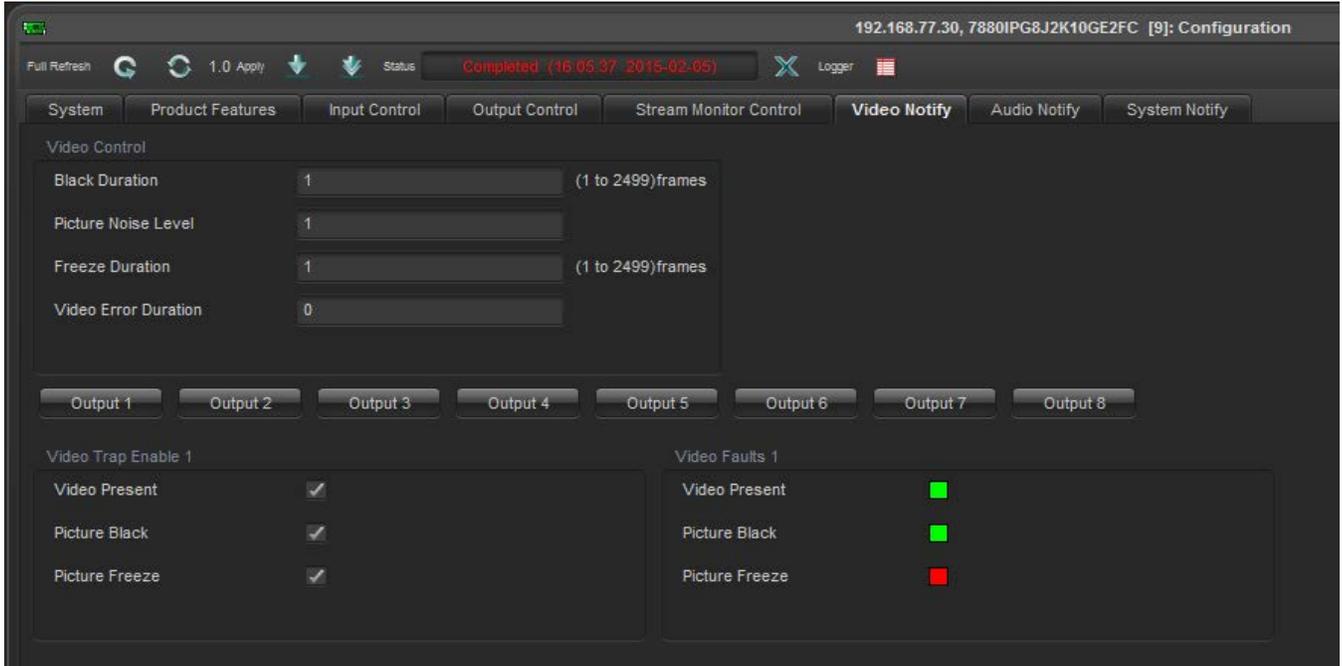
6.1.6. Video Notify

Figure 6-8: VistaLINK® PRO Video Notify

Video Control

Black Duration: This control allows the user to set the duration, in frames of active picture content below 7 IRE that is considered a black video.

Picture Noise Level: This control allows the user to set Noise tolerance. This control works in conjunction to the Freeze duration. The lower the sensitivity video noise will be interpreted as motion, higher sensitivity will provide better resilience to picture noise.

Freeze Duration: This control allows the user to set the duration, in frames of video after which the signal will be considered frozen.

Video Error Duration: For future implementation.

Output (Tabs 1-8)

Video Trap Enable and Video Faults

Video Present: This control allows the user to enable or disable faults on video present.
When enabled, a fault will be generated when no video signal is present on the output.

Picture Black: This control allows the user to enable or disable fault on picture black.
When enabled, a fault will be generated for exceeding the allowable picture black duration set by the user.

Picture Freeze: This control allows the user to enable or disable fault on picture freeze. When enabled, a fault will be generated for exceeding the allowable picture freeze duration set by the user.
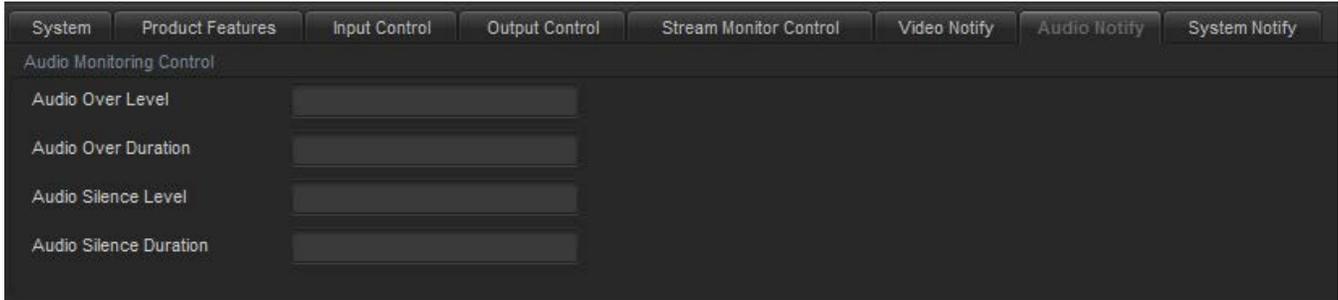
6.1.7. Audio Notify

Figure 6-9: VistaLINK® PRO Audio Notify

Audio Monitoring Control

Audio Over Level: This control sets the audio level over in dB full scale (dBFS) which is considered to be over level. This fault is triggered when consecutive audio samples are over the configured threshold level.

Audio Over Duration: This control sets the duration, in number of consecutive samples that are at or above the Over level before a fault condition exists.

Audio Silence Level: This control sets the audio level under which it is considered to be silent. This value is expressed in dB full scale (FS).

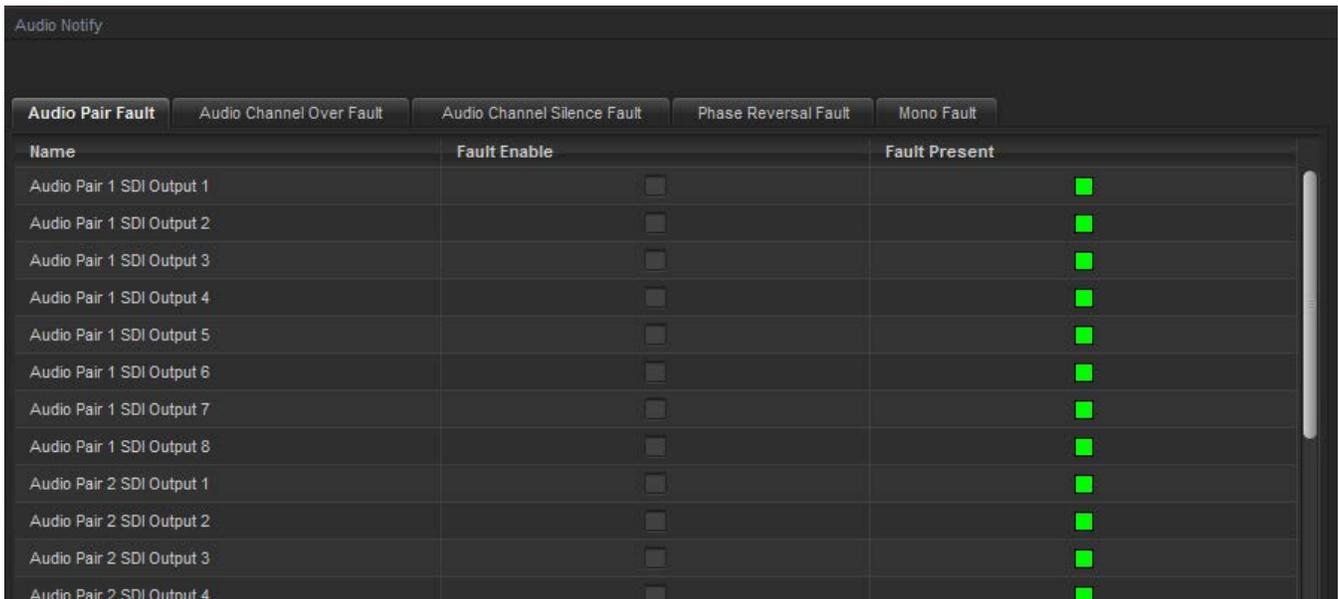**Audio Silence Duration:** This control sets the amount of time the audio is silent in seconds before a fault occurs.

Figure 6-10: VistaLINK® PRO Audio Notify continued

Audio Notify
  Audio Pair Fault
  Name: This lists all the audio pairs on all the SDI outputs for controlling.

Fault Enable: This control allows the user to enable or disable faults on the audio pairs for the SDI outputs.

Fault Present: This monitor will display faults on the selected audio groups on the SDI output for the conditions that are set under *Audio Monitoring Control*.

Figure 6-11: VistaLINK® PRO Audio Notify continued

Audio Channel Over Fault
  Name: This lists all the audio channels on all the SDI outputs for controlling.

Fault Enable: This control allows the user to enable or disable faults on the audio channel over for the SDI outputs.

Fault Present: This monitor will display faults on the selected audio groups on the SDI output for the conditions that are set under *Audio Monitoring Control*.

Figure 6-12: VistaLINK® PRO Audio Notify continued

Audio Channel Silence Fault
  Name: This lists all the audio channel silences on all the SDI outputs for controlling.

Fault Enable: This control allows the user to enable or disable faults on the audio channel silence for the SDI outputs.

Fault Present: This monitor will display faults on the selected audio groups on the SDI output for the conditions that are set under *Audio Monitoring Control*.

Figure 6-13: VistaLINK® PRO Audio Notify continued

Phase Reversal Fault

Name: This lists all the audio groups phase reversal on all the SDI outputs for controlling.

Fault Enable: This control allows the user to enable or disable faults on the audio groups phase reversal for the SDI outputs.

Fault Present: This monitor will display faults on the selected audio groups on the SDI output for the conditions that are set under *Audio Monitoring Control*.

Figure 6-14: VistaLINK® PRO Audio Notify continued

Mono Fault

Name: This lists all the mono audio on all the SDI outputs for controlling.

Fault Enable: This control allows the user to enable or disable faults on the group's mono for the SDI outputs.

Fault Present: This monitor will display faults on the selected audio groups on the SDI output for the conditions that are set under *Audio Monitoring Control*.

6.1.8. System Notify
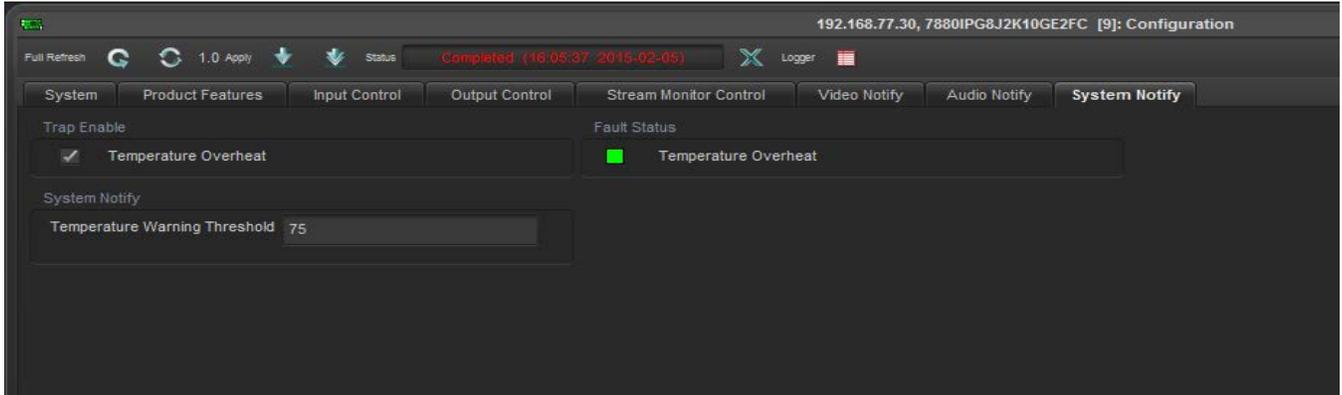
Figure 6-15: VistaLINK® PRO System Notify

Trap Enable
Temperature Overheat: This control allows the user to enable or disable faults on an overheat condition.

Fault Status
Temperature Overheat: This monitor will display a fault when the temperature has the exceeded the temperature threshold.

System Notify
Temperature Warning Threshold: This control allows the user to set the temperature warning threshold.

6.1.9. Decoder Control

In the Hardware Tree under the 7880IPG8 the user can view each available decoder by opening the sub-tree.
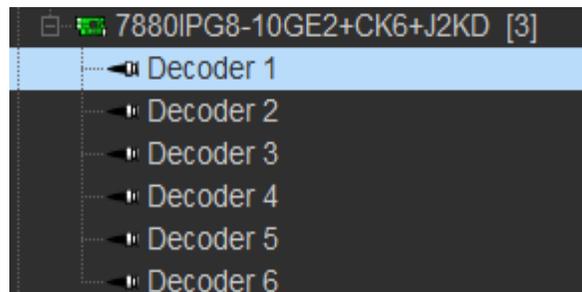
Figure 6-16: VistaLINK® PRO Individual Decoder Selection

Right clicking on the desired Decoder and selecting View Configuration will open the Configuration window below that is associated to the desired Decoder.

6.1.10. Decoder Input Program Control

| 192.168.77.30, 7880IPG8J2K10GE2FC [9], Decoder 1: Configuration |

Full Refresh ⟳ ⟳ 1.0 Apply ⬇ ⬇ Status Completed (16:09:15 2015-02-05) ✕ Logger ▤

| **Decoder Input Control** | Decoder Input Monitor | Decoder Program Monitor | PID Montior | Decoder Input Notify |

Decoder Input Program Control

Program Tuning Mode	Automatic PID Selection ▼
Auto Program Sel Mode	First Program In PAT ▼
Program Number Select	1

Main Input Port Control

Video PID Select	40
Audio PID Select 1	20
Audio PID Select 2	20
Audio PID Select 3	20
Audio PID Select 4	20
VANC PID Select	40

Figure 6-17: VistaLINK® PRO Decoder Input Control

Decoder Input Program Control

Program Tuning Mode: This parameter allows user to select the program tuning mode of the decoder. *Auto PID Select* automatically tunes to the incoming transport stream. When *Manual PID Select is configured, the user has to manually enter the required video and audio PIDs to tune to.* The recommended setting is Auto PID select with Auto Program Sel Mode configured to First Program in PAT.

Auto Program Sel Mode: This control allows the user to set how the decoder will select a program for decoding when *Program Tuning Mode* is set to auto.

- o In *First Program In PAT* mode, audio PIDs will be chosen from the first program.
- o In *Lowest Program Num,* audio PIDs will be selected from lowest program.
- o In *Specific Program Select* mode, audio PIDs will be selected from specific program, specified by *Program Number Select* control, for decoding.

Program Number Select: This control allows to the user to select the program which the decoder will decode. This control is only applicable when the *Program Tuning Mode* is set to Auto PID Select

Manual PID Control
NOTE: 0,1 and 8191 are reserved PID in MPEG so these are not included.

Video PID Select: This control allows user to select the Video PID which decoder will decode. This control is only applicable when the *programTuningMode* is set to *manualPidSelect*.

Audio PID Select (1-4): This control allows user to select the required Audio PIDs which the decoder will embed into the output video. This control is only applicable when the *programTuningMode* is set to *manualpidSelect* .

VANC PID Select: This control allows user to select the ANC PID which decoder will decode. This control is only applicable when the *programTuningMode* is set to *manualPidSelect*.

6.1.11. Decoder Input Monitor
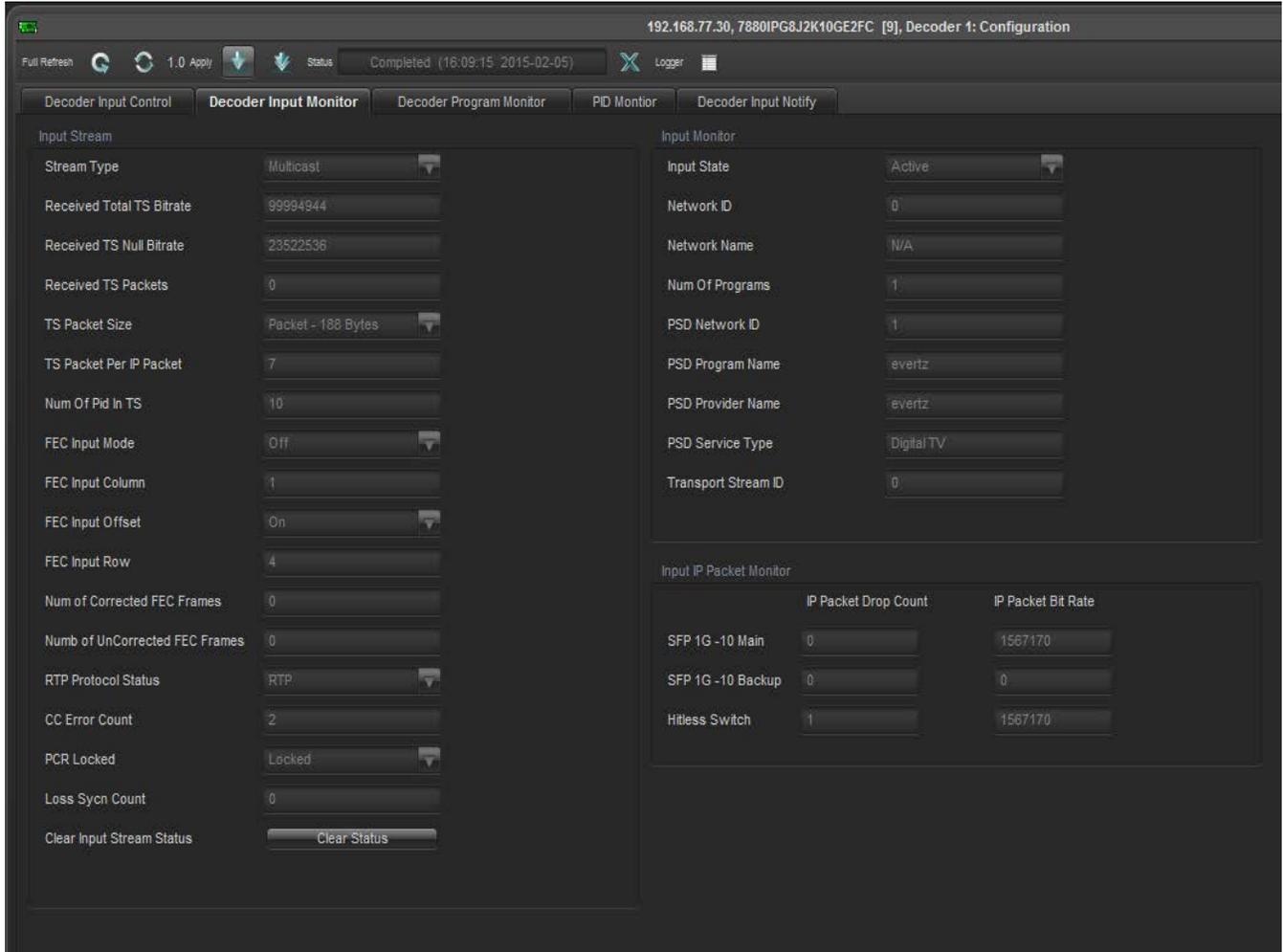
Figure 6-18: VistaLINK® PRO Decoder Input Monitor

Input Stream

Stream Type: This monitor displays the type of input stream.

Received Total TS Bitrate: This monitor displays the total bit rate received on this Ethernet port, unit is kbps.

Received NULL Packet Bitrate: This monitor shows total NULL packet bitrate for multicast stream specified.

TS Packet Size: This monitor will display the TS packet size. TS packet can have two different sizes either 188 bytes per packet or 204 bytes per packet.

TS Packet Per IP Packet: How many TS packets per IP packet (Ethernet frame).

Number of PID in TS: This monitor shows the total number of PIDs in the TS stream specified.

FEC Input Mode: This monitoring parameter input FEC status i.e. whether the incoming IP contains FEC.

FEC Input Column: This parameter displays the number of packets per column to be associated with an FEC packet.

FEC input Row: This parameter displays the number of packets per row to be associated with an FEC packet

Num of Corrected FEC: This parameter displays the current value of the corrected packet counters.

Num of Uncorrected FEC: This parameter displays the current value of uncorrected packets.

RTP protocol Status: This monitor shows if the incoming stream is RTP or UDP.

CC Error Count: This monitor shows the total count of continuity counter (CC) error.

PCR Locked: This monitor shows if the input is locked on the program clock reference (PCR).

Loss Sync Count: This monitor shows the total count of sync loss.

Clear Input Stream Status: This control allows the user to reset the Ethernet monitoring status.

Input Monitor
Input State: This parameter returns the status of the input i.e. if the input stream is present or missing.

Network ID: This parameter returns the network ID number of the input.

Network Name: This parameter returns the Network Name of the Input.

Num of Programs: This parameter displays the number of programs associated with the input.

PSD Network ID: This monitor returns the network id read from the Evertz private service descriptor (79) from the PMT.

PSD Program Name: This monitor returns the program name read from the Evertz private service descriptor (79) from the PMT.

PSD Provider Name: This monitor returns the provider name read from the Evertz private service descriptor (79) from the PMT.

PSD Service Type: This monitor returns the service type read from the Evertz private service descriptor (79) from the PMT. It provides an enumerated string as follows:

1. Digital Tv
2. Digital Radio
3. Teletext
4. NOVD Reference
5. NVOD Timeshifted
6. Mosaic

7. PAL Signal
8. SECAM Signal
9. DMAC
10. FM Radio
11. NTSC Signal
12. Data Broadcast –
13. **N/A** - meaning that a valid service type was not found, or there is no private descriptor.

Transport Stream ID: This parameter returns the transport stream ID associated with input.

Input IP Packet Monitor (Main and Backup)
IP Packet Drop Count: This parameter displays the number of IP packets dropped.

IP Packet Bit Rate: This parameter displays the IP Packet Bit Rate on the input.

Hitless Switch: This parameter displays the IP Packet Bit Rate on the hitless switch core.

The 7880IPG8 series incorporates a multi-path, multiflow packet merge "MPPM" based network bit error resilience for 100% QoS. A HOT Redundant (HTR) is also available providing 100% uptime under all electronic circuitry faults.

6.1.12. Decoder Program Monitor: (*for future implementation*)

The *Decoder Program Monitor* tab is designed for future development and has not currently been implemented.
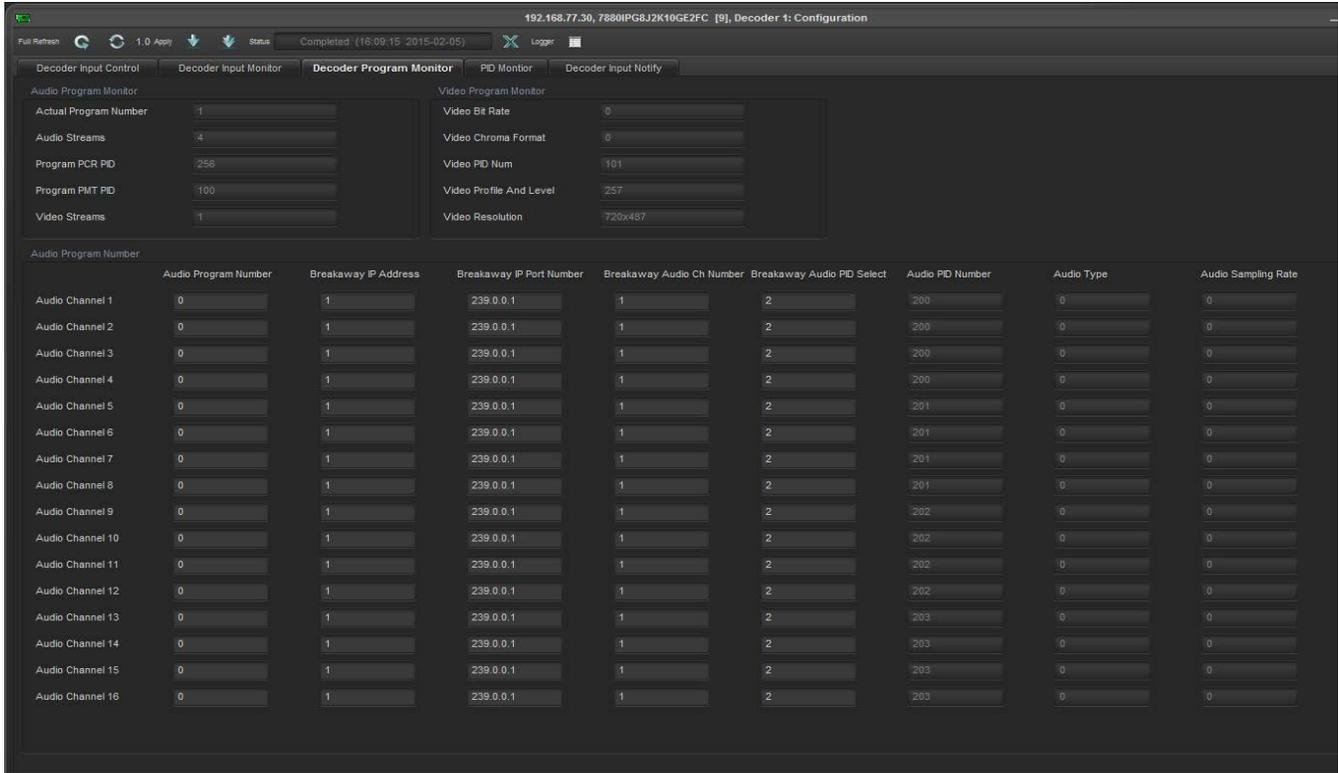
Figure 6-19: VistaLINK® PRO Decoder Program Monitor (*for future implementation)*

6.1.13. PID Monitor (*for future implementation*)

The *PID Monitor* tab is designed for future development and has not currently been implemented.
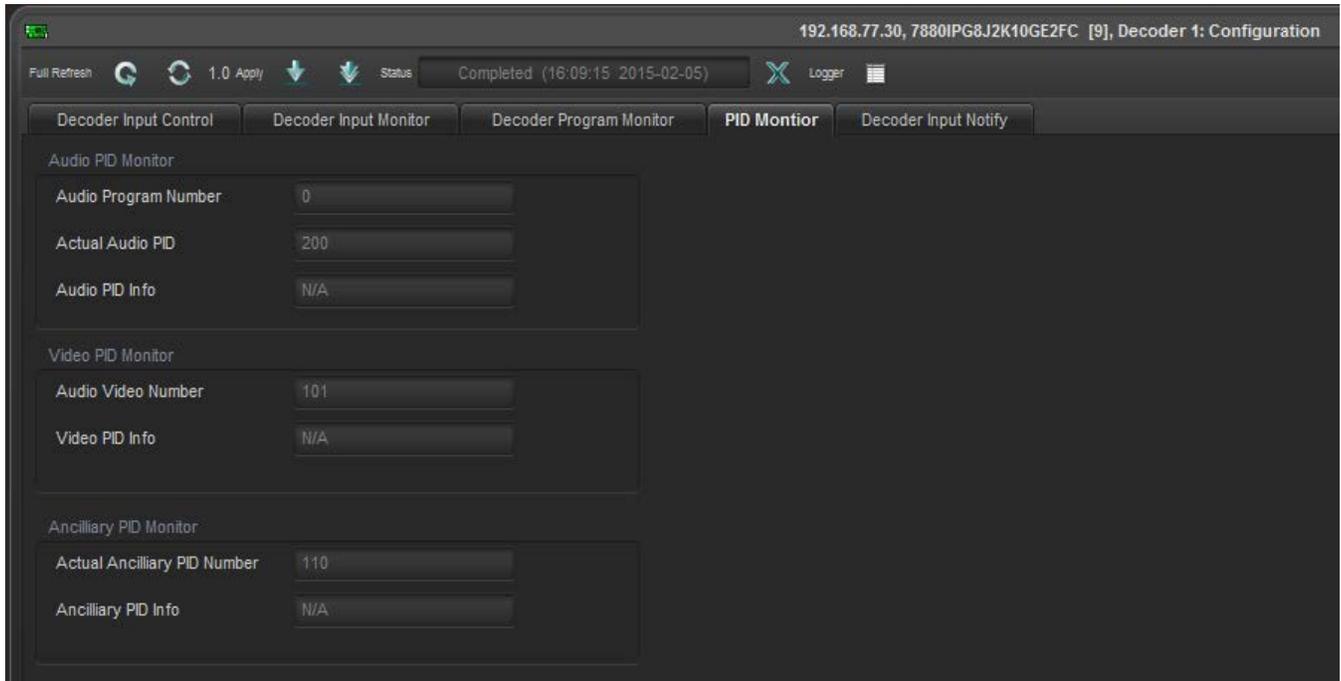
Figure 6-20: VistaLINK® PRO PID Monitor

6.1.14. Decoder Input Notify
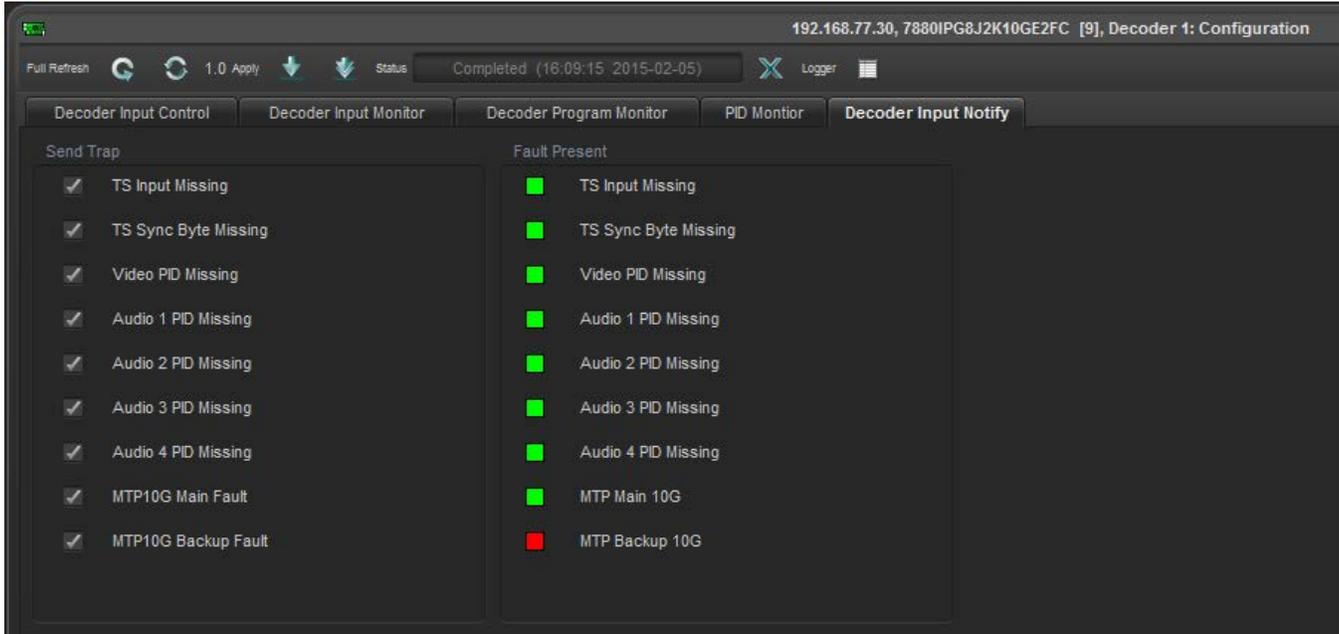
Figure 6-21: VistaLINK® PRO Decoder Input Notify

TS Input Missing: Transport Stream input signal detection. The alarm is triggered when enabled and the input stream is missing.

TS Sync Byte Missing: Transport Stream Sync Byte 0x47 detection. The alarm is triggered when enabled and the TS Sync Byte 0x47 is missing.

Video PID Missing: Video Packet ID detection. The alarm is triggered when enabled and the video PID is missing.

Audio 1-4 PID Missing: Audio Packet ID detection. The alarm is triggered when enabled and the audio PID is missing.

MTP10G Main Fault: This alarm is triggered when the main data port is down. The status is green when the data port is up.

MTP10G Backup Fault: This alarm is triggered when the backup data port is down. The status is green when the data port is up.

7. DECODER - WEB EASY® INTERFACE

7.1. SYSTEM CONFIGURATION

7.1.1. System

Figure 7-1: Web Easy System

System
  Card Alias: This control will return the card type.

Control Port Configuration
  IP Address: This setting will allow the user to set an IP address for the control port on the device.

  Netmask: This control allows the user to define the Netmask/Subnet the device will be joined to.

  Gateway: This control allows the user to define the Gateway/Router address, which will allow the card to communicate with devices on other networks.

Figure 7-2: Web Easy System continued

Data Port Configuration
These options are for both the Main and Backup.

   IP Address: This setting will allow the user to set an IP address for the data port on the device.

   Netmask: This control allows the user to define the Netmask/Subnet the device will be joined to.

   Gateway: This control allows the user to define the Gateway/Router address, which will allow the card to communicate with devices on other networks.

   Mac Address: Displays the card MAC address.

Data Port Speed
   Speed Status: This will display the data port speed.

   Speed Switch: Speed Switch will configure the link to be either 1G or 10Gig. The card will automatically reboot after the link speed is configured.
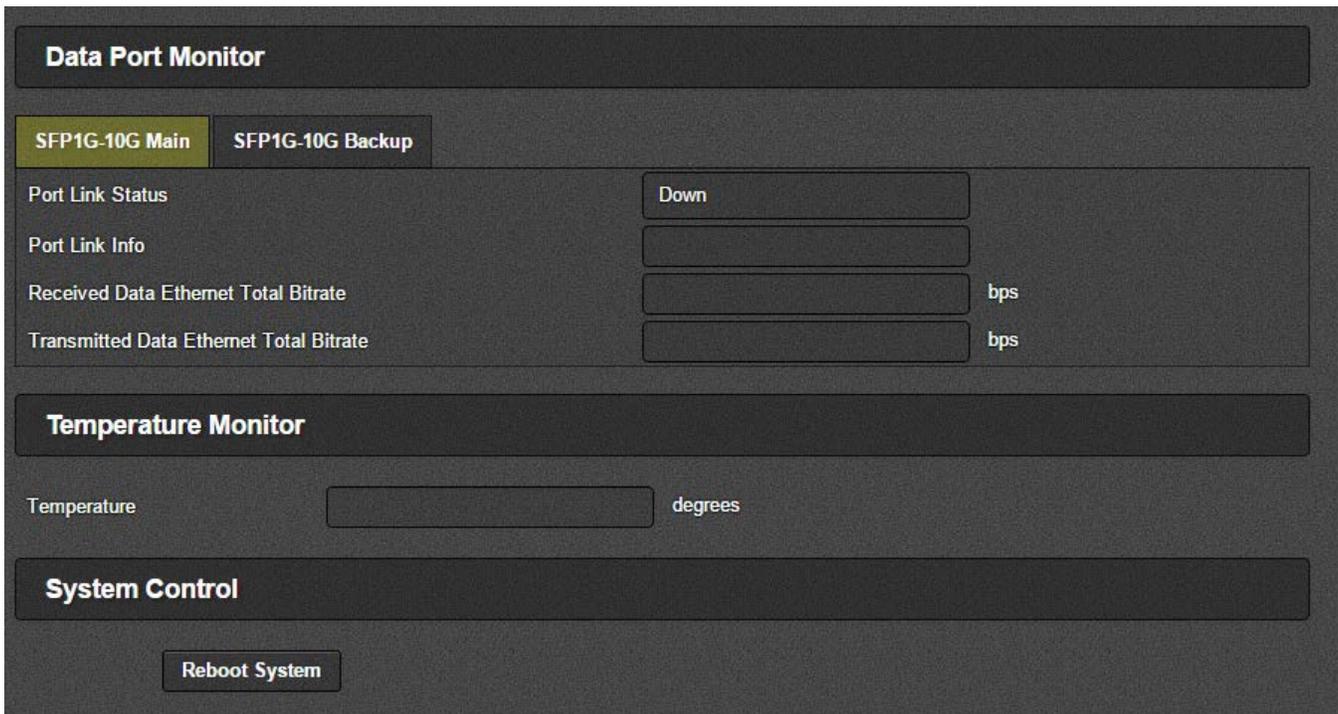
Figure 7-3: Web Easy System continued

Data Port Monitor
These fields display the following data for both SFP1G-10G Main and SFP1G-10G Backup.

   Port Link Status: This parameter returns the link status for the data port.

   Port Link Info: This parameter returns link status for data port.

   Received Data Ethernet Total Bitrate: This parameter will display the bit rate received on this Ethernet port in packets per second.

Transmitted Data Ethernet Total Bitrate: This parameter will display the bit rate transmitted on this output Ethernet port in packets per second.

Temperature Monitor
  Temperature: This control gets the fpga temperature and displays it in degrees.

System Control
  Reboot System: This control is to reboot the whole card.

7.1.2. Product Features
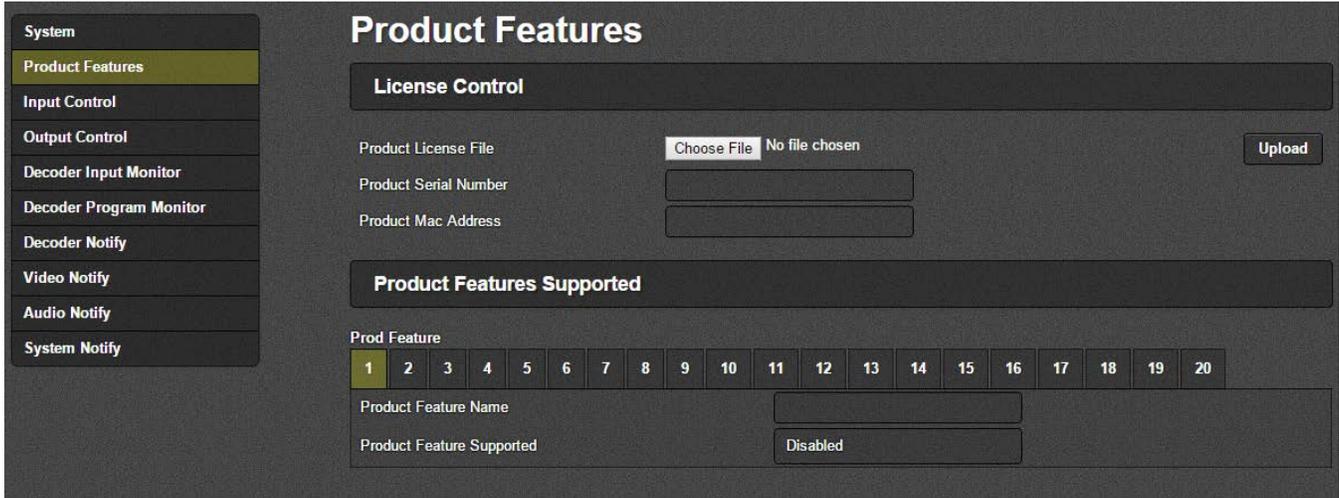
Figure 7-4: Web Easy Product Features

License Control

Product License File: This control specifies the product license key file. A product license channel key can be provided to enable J2K encode/decode functionality. It is applied using this control and unlocks feature functionality.

Product Serial Number: Displays the card serial number.

Product Mac Address: Displays the card MAC address.

Product Features Supported
Prod Feature (1 to 6)

Product Feature Name: This parameter displays product features supported by this card.

Product Feature Supported: This parameter displays the product support status as either enabled or disabled. This will highlight the license keys available. Features would be referencing J2K encode channel keys. For example each J2K encode key will enable 1 j2K encode channel.

7.1.3. Input Control
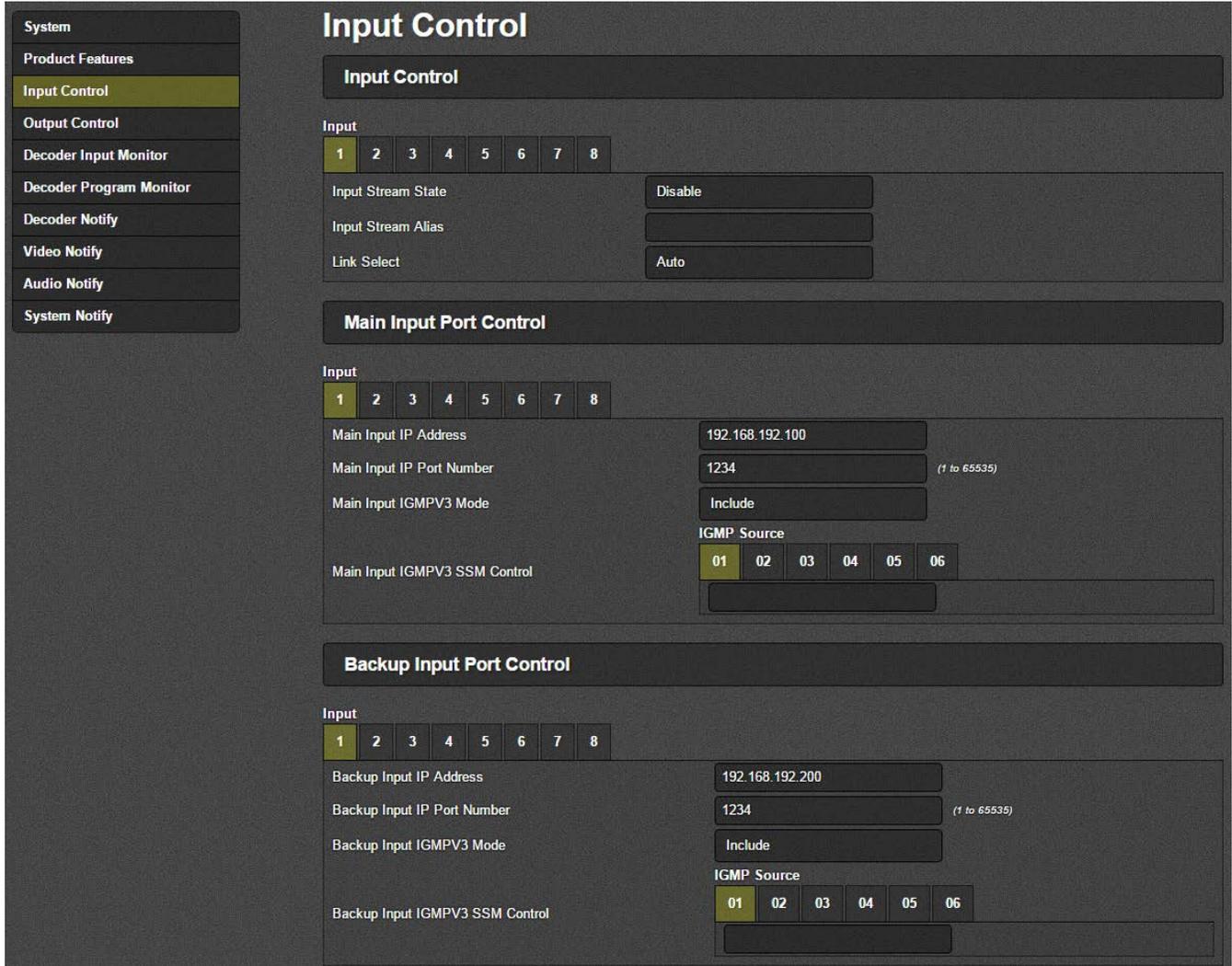
Figure 7-5: Web Easy Input Control

Input Control
These controls are configurable for Input 1 to 8.

Input Stream State: This control allows the user to enable or disable this stream. By default, all streams are inactive. Only after the stream is activated, traffic can run through it.

Input Stream Alias: This control allows the user to input an alias name on the stream.

Link Select: This parameter allows user to select which physical port to receive data from. Options are Auto, Main or Backup SFP10G. In Auto mode, it takes input from both the main and back. If one path is bad it will decode from the good path. If both paths are good it will disregard the extra good path packet. This provides network resilience.

Main and Backup Input Port Control
These controls are configurable for Input 1 to 8.

Main Input IP Address: This parameter allows user to select input IP address / multicast address that should be received.

Main Input IP Port Number: This parameter allows user to select the input UDP port number.

Main Input IGMPV3 Mode: This parameter is used in conjunction with the IGMPV3 SSM controls. It allows the user to include the specified SSM sources or to exclude them.

Main Input IGMPV3 SSM Control (1-6): This control allows user to set IP addresses which is to be used while forming the source filter for IGMPV3 communications.
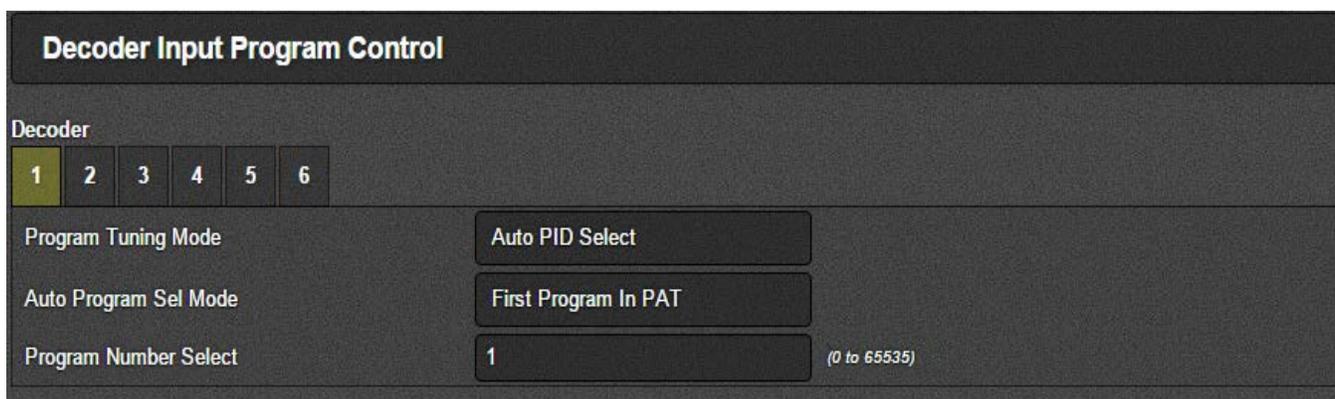
Figure 7-6: Web Easy Input Control continued

Decoder Input Program Control
Program Tuning Mode: This parameter allows user to select the program tuning mode of the decoder. *Auto PID Select* automatically tunes to the incoming transport stream. When *Manual PID Select is configured, the user has to manually enter the required video and audio PIDs to tune to.* The recommended setting is Auto PID select with Auto Program Sel Mode configured to First Program in PAT.

Auto Program Sel Mode: This control allows the user to set how the decoder will select a program for decoding when **Program Tuning Mode** is set to auto.

  o In *First Program In PAT* mode, audio PIDs will be chosen from the first program.
  o In *Lowest Program Num,* audio PIDs will be selected from lowest program.
  o In *Specific Program Select* mode, audio PIDs will be selected from specific program, specified by *Program Number Select* control, for decoding.

Program Number Select: This control allows the user to select the program which the decoder will decode. This control is only applicable when the *Program Tuning Mode* is set to Auto PID Select

Figure 7-7: Web Easy Input Control continued

Manual PID Control
NOTE: 0,1 and 8191 are reserved PID in MPEG so these are not included.

Video PID Select: This control allows user to select the Video PID which decoder will decode. This control is only applicable when the ***programTuningMode*** is set to ***manualPidSelect***.

Audio PID Select (1-4): This control allows user to select the required Audio PIDs which the decoder will embed into the output video. This control is only applicable when the ***programTuningMode*** is set to ***manualpidSelect*** .

PCR PID Select: This control allows user to select the 3rd Audio pad which decoder will embedded into output video. This control is only applicable when the ***programTuningMode*** is set to ***manualpidSelect***.

VANC PID Select: This control allows user to select the ANC pad which decoder will decode. This control is only applicable when the ***programTuningMode*** is set to ***manualPidSelect***.

Decoder Control
These controls are configurable for Decoder 1 to 6.

Decoder Up time: This control returns a string representation of the time from last restarting the decoder. It is represented similar to '*xxxx* days *yy* hrs *zz* min *aa* sec'. Internally, it is a 31 bit unsigned integer, reflecting seconds which will provide for up to 3100 days of operation before it wraps around.

7.1.4. Output Control
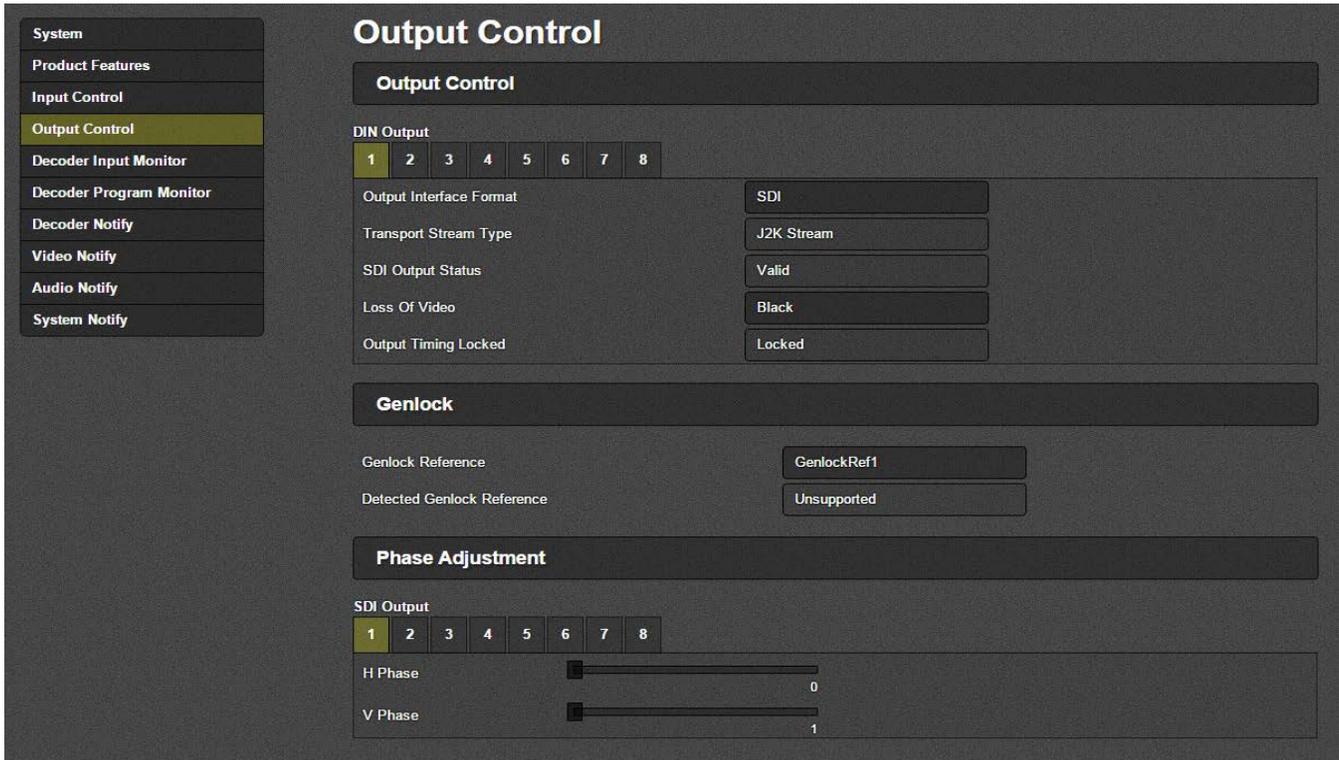
Figure 7-8: Web Easy Output Control

Output Control
These controls are configurable for Output 1 to 8.

Output Interface Format: This control allows user to select SDI or ASI output.

Transport Stream Type: This will tell the user if the input ASI is J2K or if it is an unknown ASI or a SDI encapsulation.

SDI Output Status: This control lets the user know if there is a valid SDI signal on output.

Loss of Video: This control allows the user to select between black and freeze for when there is a loss of video on the output.

Output Timing Locked: This monitor shows if the output timing is locked.

Genlock
Genlock Reference: This control lets the user know if the output is locked.

Detected Genlock Reference: This control lets the user know if the output reference is supported.

Phase Adjustment
These controls are configurable for Output 1 to 8.

H Phase: This control set the horizontal phase, default is 0.

V Phase: This control set the vertical phase, default is 1.

7.1.5. Decoder Input Monitor
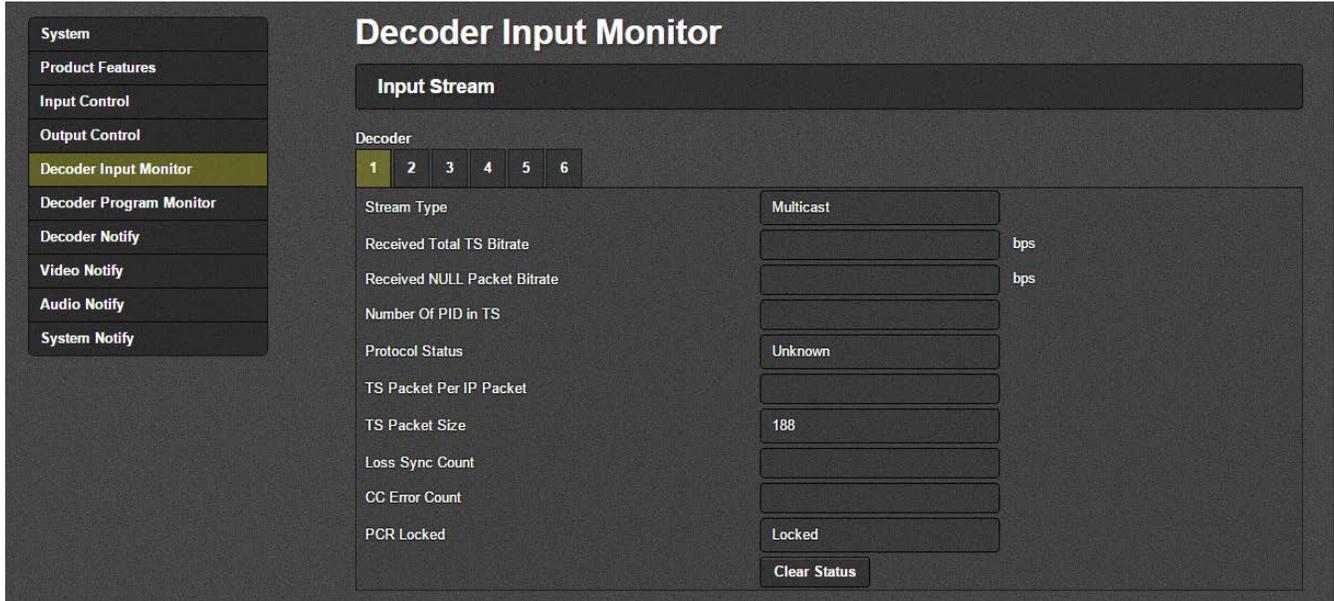

Figure 7-9: Web Easy Decoder Input Monitor

Input Stream
These controls are configurable for Decoder 1 to 6.

Stream Type: This monitor displays the type of input stream. Options are multicast or unicast.

Received Total TS Bitrate: This monitor displays the total bit rate received on this Ethernet port, unit is kbps.

Received NULL Packet Bitrate: This monitor shows total NULL packet bitrate for multicast stream specified.

Number of PID in TS: This monitor shows the total number of PIDs in the TS stream specified.

Protocol Status: It monitor shows if this stream is running on RTP or not.

TS Packet Per IP Packet: How many TS packets per IP packet (Ethernet frame).

TS Packet Size: This monitor will display the TS packet size. TS packet can have two different sizes either 188 bytes per packet or 204 bytes per packet.

Loss Sync Count: This monitor shows the total count of sync loss.

CC Error Count: This monitor shows the total count of continuity counter (CC) error.

PCR Locked: This monitor shows if the input is locked on the program clock reference (PCR).
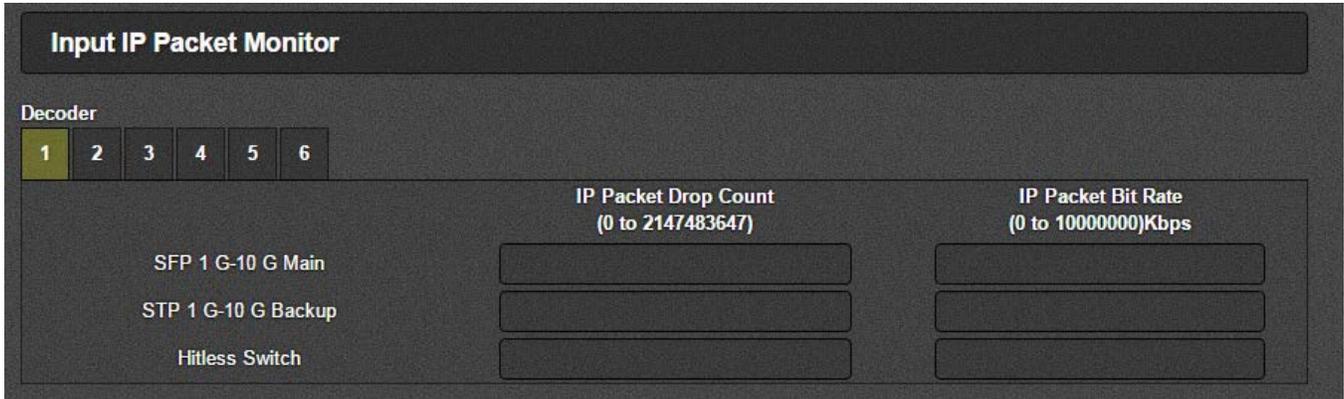
Figure 7-10: Web Easy Decoder Input Monitor continued

Input IP Packet Monitor
These controls are configurable for Decoder 1 to 6.
    SFP 1 G-10 G Main: This monitor reflects the packets dropped from the main data port.

    SFP 1 G-10 G Backup: This monitor reflects the packets dropped from the backup data port

    Hitless Switch: monitor reflects the packets dropped on the hitless core to maintain MPPM Multi Path Packet Merge.
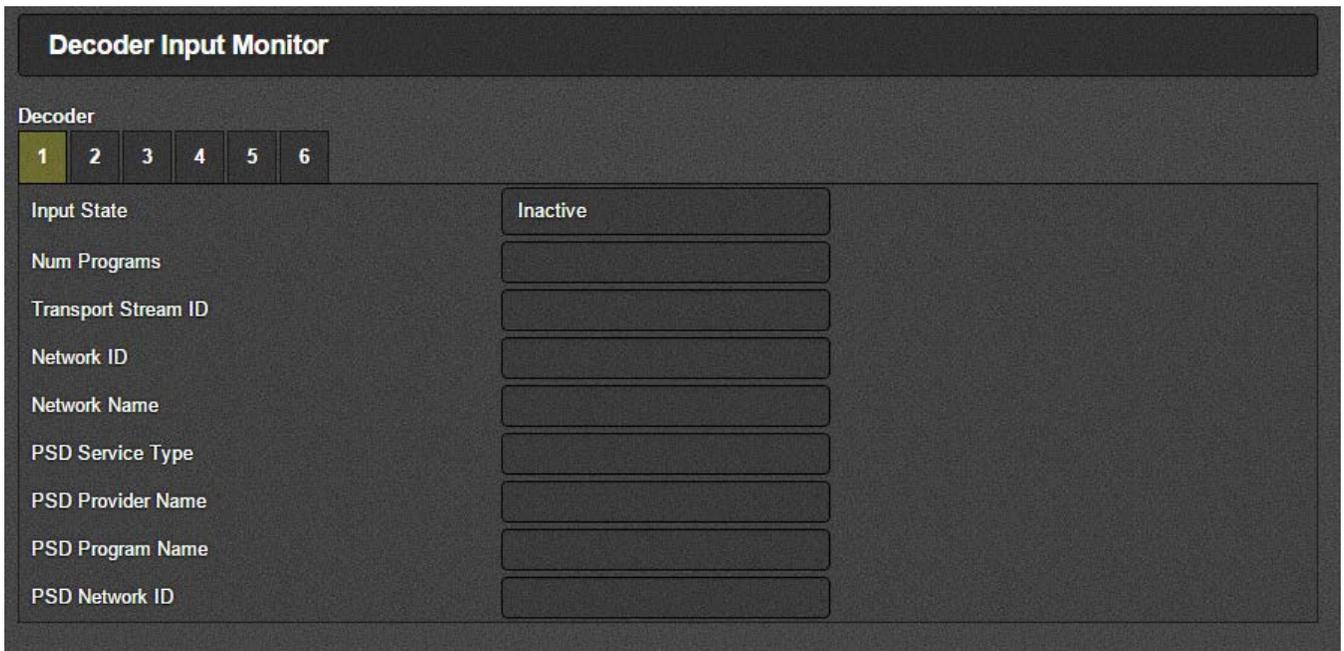

Figure 7-11: Web Easy Decoder Input Monitor

Decoder Input Monitor:
These controls are configurable for Decoder 1 to 6.

    Input State: This monitor returns whether the card is receiving anything on the input or not

    Num Programs: This monitor returns the number of programs detected in the input stream

Transport Stream ID: This monitor returns the transport stream ID that is being read from the PAT Table

Network ID: This monitor returns the value of network ID read from the transport stream.

Network Name: This monitor returns the network name read from the transport stream.
PSD Service Type: This monitor returns the service type read from the Evertz private service descriptor (79) from the PMT. It provides an enumerated string as follows:

- **1 -** Digital Tv
- **2 -** Digital Radio
- **3 -** Teletext
- **4 -** NOVD Reference
- **5 -** NVOD Timeshifted
- **6 -** Mosaic
- **7 -** PAL Signal
- **8 -** SECAM Signal
- **9 -** DMAC
- **10 -** FM Radio
- **11 -** NTSC Signal
- **12 -** Data Broadcast –
- **N/A** - meaning that a valid service type was not found, or there is no private descriptor.

PSD Provider Name: This monitor returns the provider name read from the Evertz private service descriptor (79) from the PMT.

PSD Program Name: This monitor returns the program name read from the Evertz private service descriptor (79) from the PMT.

PSD Network ID: This monitor returns the network id read from the Evertz private service descriptor (79) from the PMT.
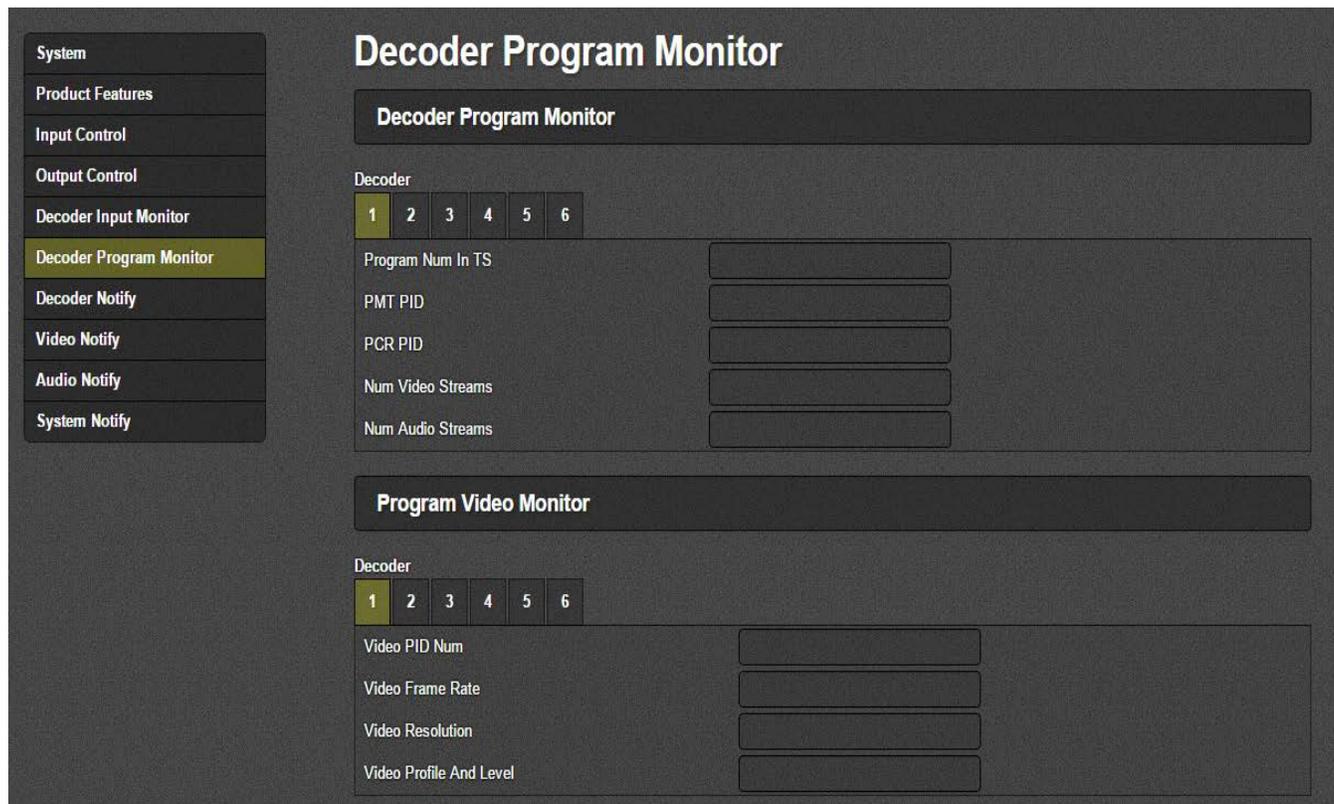
7.1.6. Decoder Program Monitor

Figure 7-12: Web Easy Decoder Program Monitor

Decoder Program Monitor
These controls are configurable for Decoder 1 to 6.

Program Num In TS: This monitor returns the actual program number that is being read from the stream.

PMT PID: This monitors the PID for the PMT, which has information for this program.

PCR PID: This monitor returns the PID which has the PCR information in it for this program.

Num Video Streams: This monitor returns number of video streams in this program.

Num Audio Streams: This monitor returns the number of audio streams in this program.

Program Video Monitor
These controls are configurable for Decoder 1 to 6.

Video PID Num: This monitor returns the PID which carries the PES for Video.

Video Frame Rate: This monitor returns the incoming video frame rate

Video Resolution: This control returns the Resolution of the video

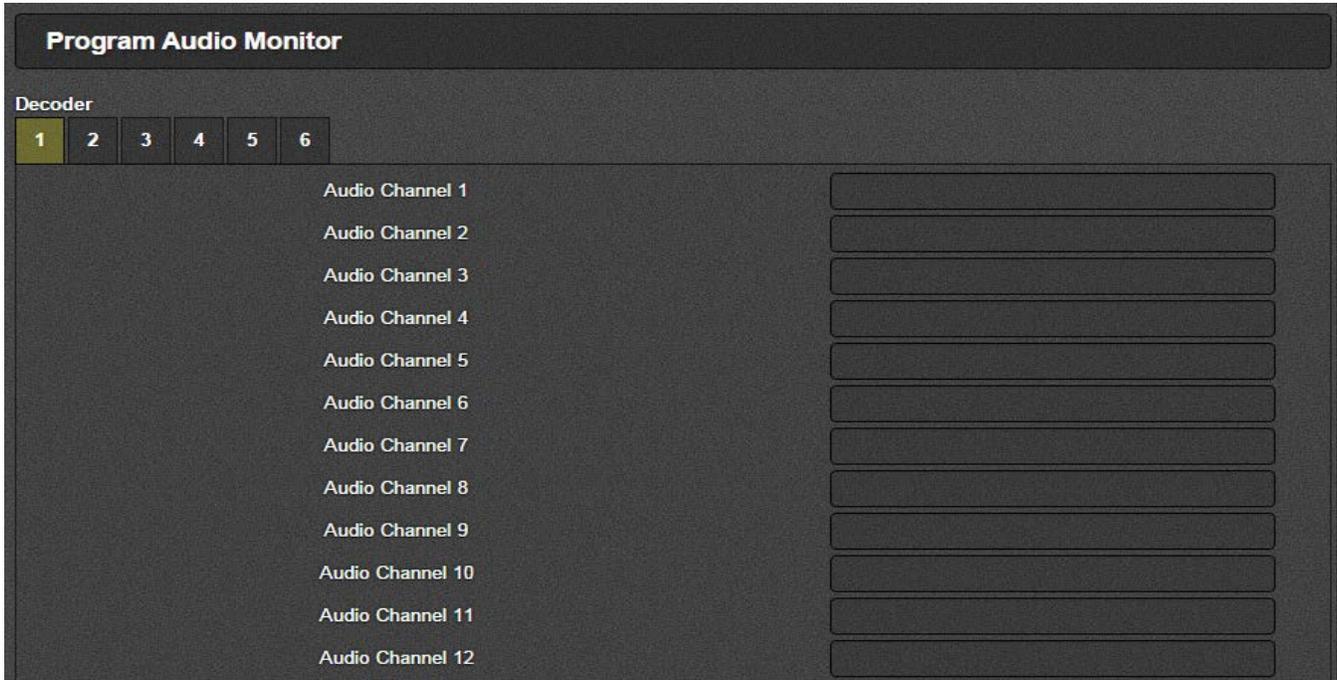**Video Profile And Level:** This monitor returns the profile and level of the video read from video PES.

Figure 7-13: Web Easy Decoder Input Monitor continued

Program Audio Monitor (*reserved for future use*)
This panel is designed for futre develpement and has not yet been implemented.
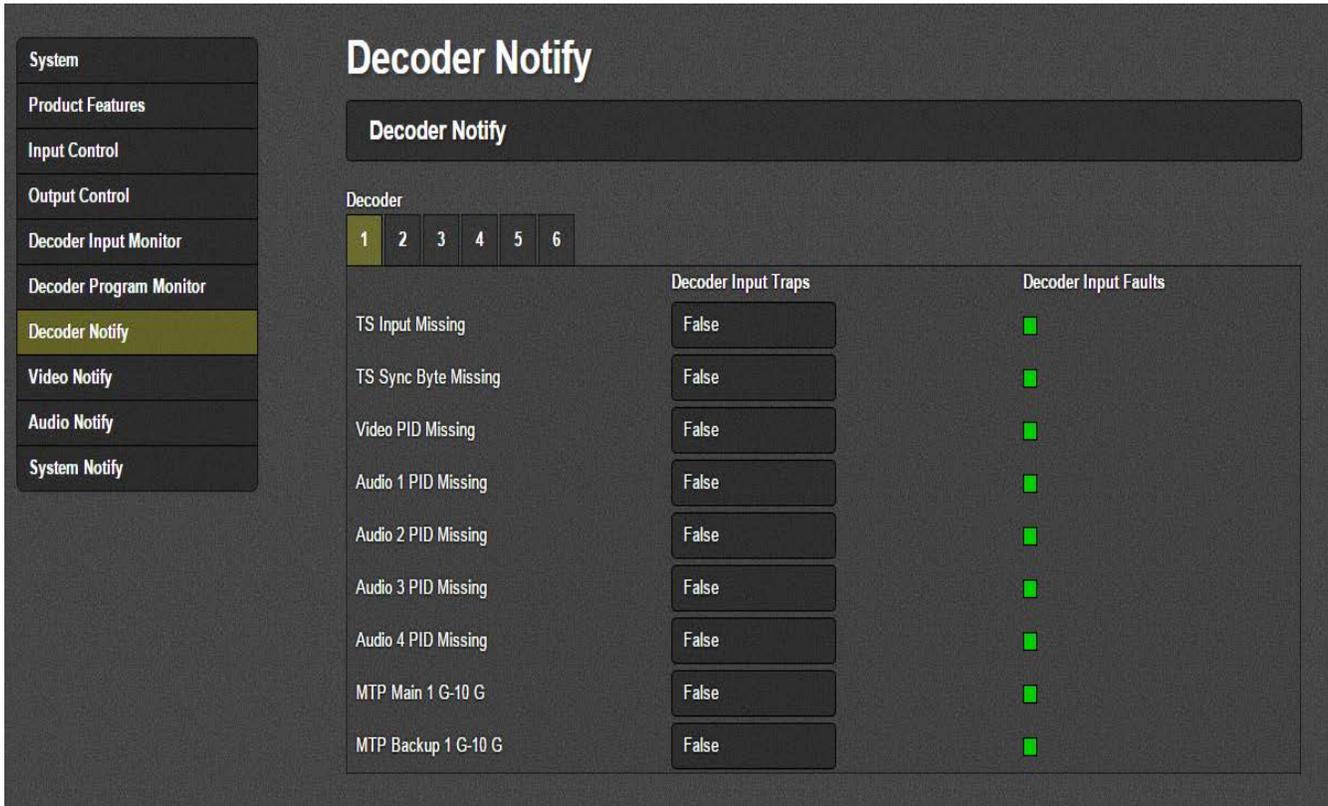
7.1.7. Decoder Notify

Figure 7-14: Web Easy Decoder Notify

Decoder notify
These controls are configurable for Decoder 1 to 6.

TS Input Missing: This will enable an alarm if transport stream is not detected on incoming multicast.

TS Sync Byte Missing: This will enable a fault on the transport stream on a missing sync byte.

Video PID Missing: This will enable a fault on the transport stream on a missing video PID.

Audio (1-4) PID Missing: This will enable a fault on missing audio (1-4) PID.

MTP Main 1 G-10 G: This will enable fault that highlights the Link status of the Main port. Will be inactive when present and will be active when the port is down.

MTP Backup 1 G-10 G: This will enable fault that highlights the Link status of the Backup port. Will be inactive when present and will be active when the port is down.
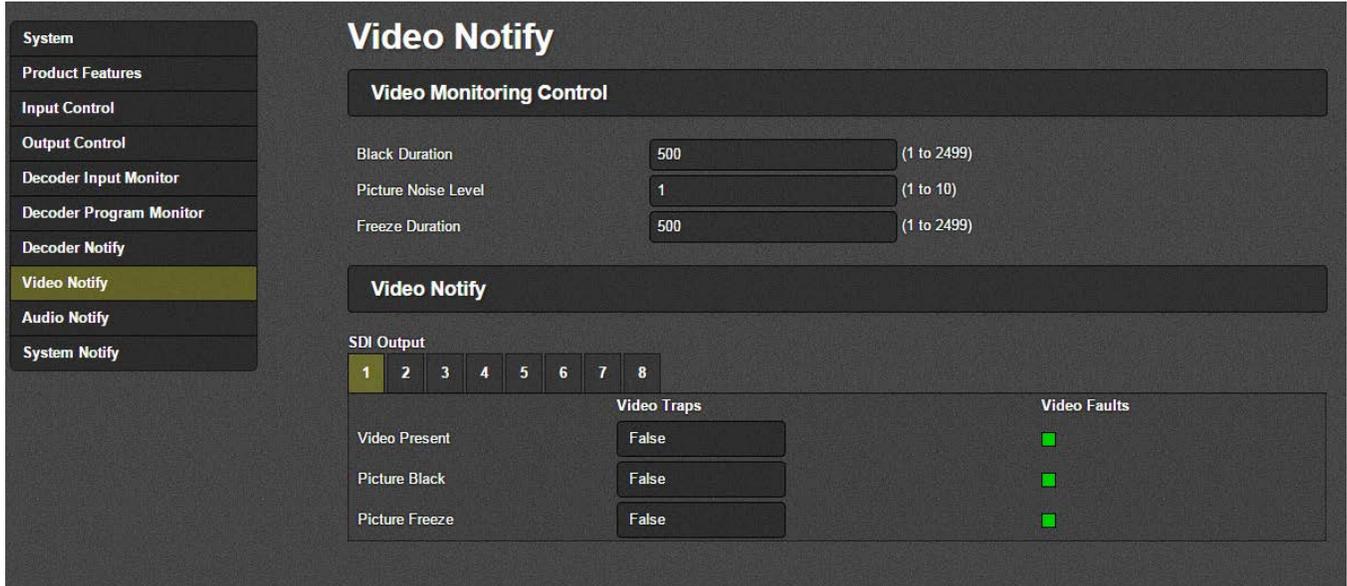
7.1.8. Video Notify

Figure 7-15: Web Easy Video Notify

Video Monitoring Control

Black Duration: This control allows the user to set the duration, in frames of active picture content below 7 IRE that is considered a fault i.e. that is considered black video.

Picture Noise Level: This control allows the user to set approximate level of noise expected in video signal feed. It is used by the freeze detect feature to distinguish motion from background noise on top of a video feed.

Freeze Duration: This control allows the user to set the duration, in frames of video activity under the Picture Noise Level that is considered a fault.

Video Notify

These controls are configurable for Output 1 to 8.

Video Present: This control allows the user to enable or disable faults on video present.
When enabled, a fault will be generated on the right for no video signal on the output.

Picture Black: This control allows the user to enable or disable fault on picture black.
When enabled, a fault will be generated on the right for exceeding the allowable picture black duration set by the user.

Picture Freeze: This control allows the user to enable or disable fault on picture freeze. When enabled, a fault will be generated on the right for exceeding the allowable picture freeze duration set by the user.
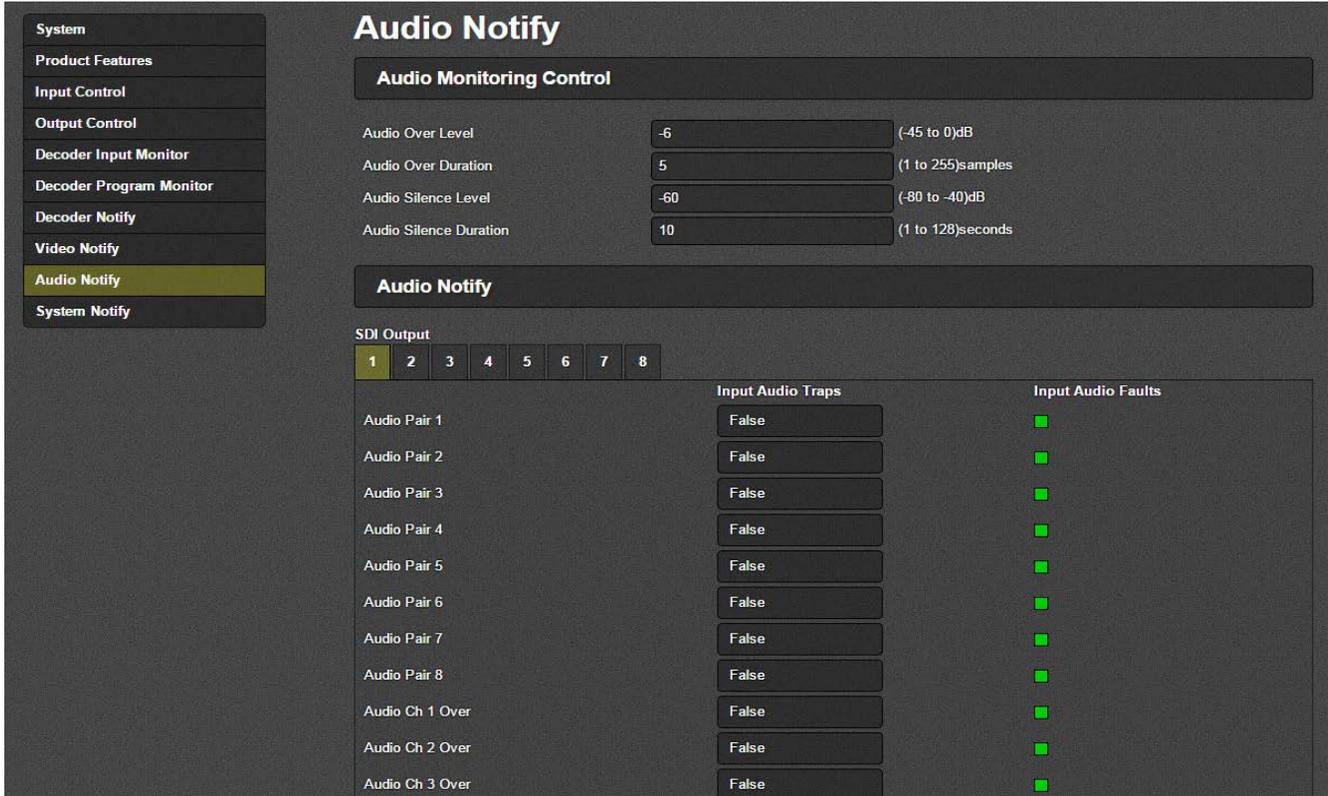
7.1.9. Audio Notify

Figure 7-16: Web Easy Audio Notify

Audio Monitoring Control

Audio Over Level: This control sets the audio level over which there is considered to be over level. NOTE: This control is in 0.25dbFS increments, so actual range is -30dbFS to 0dbFS.

Audio Over Duration: This control sets the duration, in number of consecutive samples that are at or above the Over level before a fault condition exists.

Audio Silence Level: This control sets the audio level under which it is considered to be silent. This value is expressed in dB full scale (FS)
NOTE: This control is in 0.25db increments, so actual range is -96db to -20db.

Audio Silence duration: This control sets the amount of time the audio is silent in seconds before a fault occurs. NOTE: This control is in 0.5 sec increments, so actual range is 0.5 to 127 secs.

Audio Notify
These controls are configurable for Output 1 to 8.

Audio Pair (1-8):
Name: This lists all the audio pairs on all the SDI outputs for controlling.

Input Audio Traps: This control allows the user to enable or disable faults on the audio pairs for the SDI outputs.

Input Audio Faults: This monitor will display faults on the selected audio groups on the SDI output for the conditions that are set under *Audio Monitoring Control*.

Audio Ch. Over (1-16):
Name: This lists all the audio channels on all the SDI outputs for controlling.

Input Audio Traps: This control allows the user to enable or disable faults on the audio channel over for the SDI outputs.

Input Audio Faults: This monitor will display faults on the selected audio groups on the SDI output for the conditions that are set under *Audio Monitoring Control*.

Audio Ch Silence (1-16):
Name: This lists all the audio channel silences on all the SDI outputs for controlling.

Input Audio Traps: This control allows the user to enable or disable faults on the audio channel silence for the SDI outputs.

Input Audio Faults: This monitor will display faults on the selected audio groups on the SDI output for the conditions that are set under *Audio Monitoring Control*.

Sel Grp (1-4) Phase Reversal (12,34):
Name: This lists all the audio groups phase reversal on all the SDI outputs for controlling.

Input Audio Traps: This control allows the user to enable or disable faults on the audio groups phase reversal for the SDI outputs.

Input Audio Faults: This monitor will display faults on the selected audio groups on the SDI output for the conditions that are set under *Audio Monitoring Control*.

Sel Grp (1-4) Audio Mono (12,34):
Name: This lists all the audio on all the SDI outputs for controlling.

Input Audio Traps: This control allows the user to enable or disable faults on the group's mono for the SDI outputs.

Input Audio Faults: This monitor will display faults on the selected audio groups on the SDI output for the conditions that are set under *Audio Monitoring Control*.
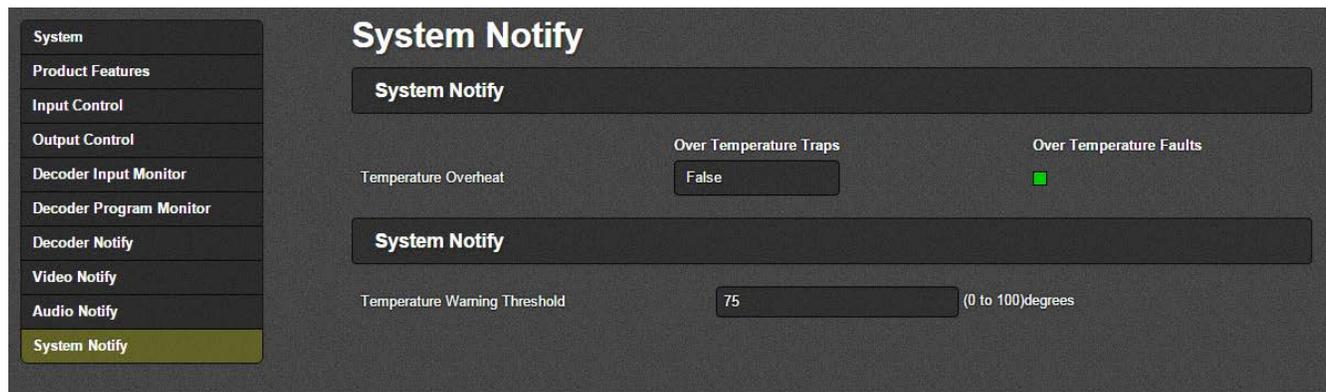
7.1.10. System Notify

Figure 7-17: Web Easy System Notify

System Notify
  Overheat Temperature: This control allows the user to enable or disable faults on an overheat condition.

Over Temperature Faults
  Temperature Overheat: This monitor will display a fault when the temperature has exceeded the *Temperature Warning Threshold*.

System Notify
  Temperature Warning Threshold: This control allows the user to set the temperature warning threshold.

8. UPGRADING THE FIRMWARE 7880IPG8-10GE2

8.1. CHECKING FIRMWARE VERSION ON THE 7880IPG8-10GE2

8.1.1. 7880IPG8-10GE2 Connected to the Frame Controller

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 7880IPG8-10GE2 will need to be upgraded with the latest information ("firmware") to maintain the most up-to-date monitoring and control capabilities.

Ensure that the 7880IPG8-10GE2 is running the latest firmware, to check this simply right click on the cards address in VLPro Client and select *Version Information*.

Figure 8-1: Version Information

8.1.2. 7880IPG8-10GE2 Connected to the Control Port

The 7880IPG8-10GE2 facilitates communication with the SNMP Manager (VistaLINK® PRO) through the control port. From time to time, the 7880IPG8-10GE2 will need to be upgraded with the latest information ("firmware") to maintain the most up-to-date monitoring and control capabilities.

Ensure that the 7880IPG8-10GE2 is running the latest firmware, to check this simply right click on the cards address in VLPro Client and select *Version Information (similar to previous section)*.

8.1.3. Downloading the 7880IPG8-10GE2 Image

1. To retrieve the firmware contact your Evertz sales representative and save the files to the hard drive.

> ✎ **Note: There is different firmware for the Encoder and Decoder on the 7880IPG8-10GE2.**
>
> **Please contact Evertz for image file if it not available on Evertz web site**.

2. Store the .ciu file in a selected sub-directory. Record the location of the stored file.

The 7880IPG8-10GE2 image can be upgraded by a couple different procedures, which are outlined in sections 8.2 and 8.3. Preferred method would be using VistaLINK®

8.2. REMOTE UPGRADE PROCEDURE USING VistaLINK®

8.2.1. Upgrading 7880IPG8-10GE2 through Frame Controller or Control Port

To perform the remote upgrade for the 7880IPG8-10GE2 you will need the following setup:

- A working install of a VistaLINK® Pro client or VLPRO-C that's version 11.2.0B3365 patch 120 or greater.

> ✍ **The DHCP mode should be disabled before proceeding with the 7800FC Frame Controller or 7880IPG8-10GE2 control port to upgrade.**

- Use the right-click mouse button on the '7880IPG8-10GE2' in the tree and select **Version Information** …' option.

- Open hardware tree and select card to be upgraded (multiple cards can be selected).

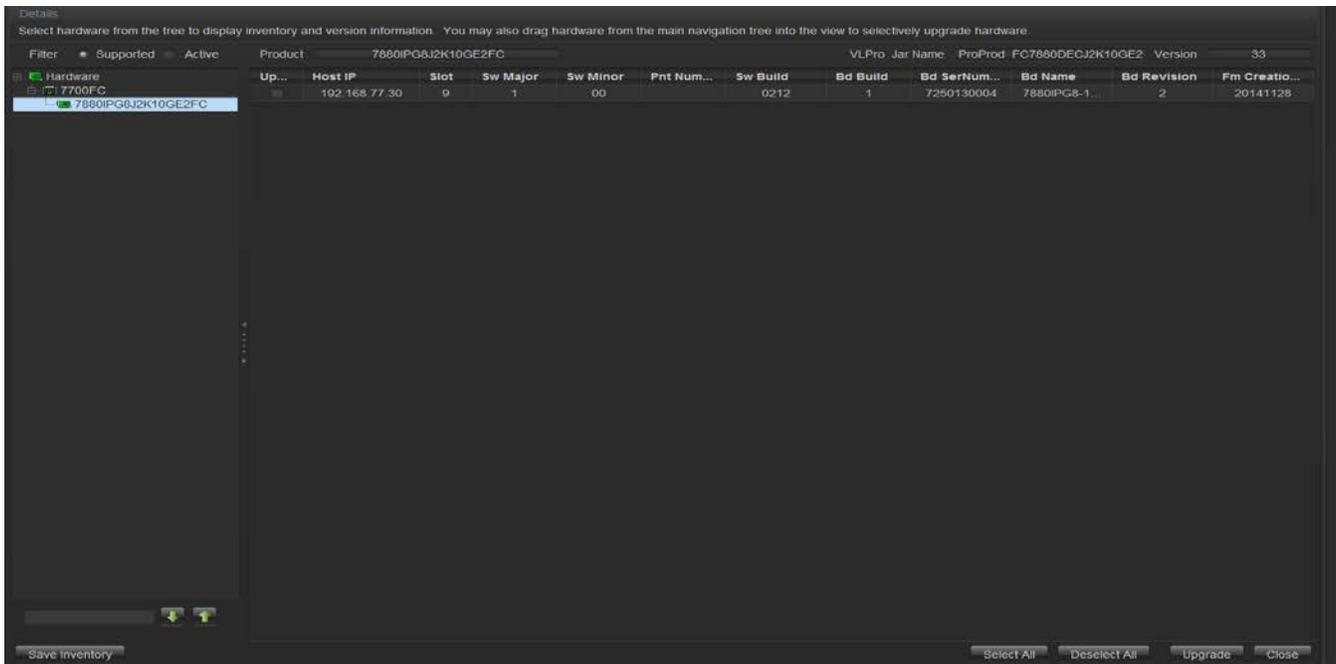- Check mark card or cards to be upgraded.

Figure 8-2: Selected Cards for Upgrade

- Click the 'Upgrade' button on bottom right corner

- Click the 'Browse' button to select the 7880IPG8-10GE2 .ciu file, which was downloaded in section 8.1.3.

- Click the 'Upgrade' button and wait for the upload to complete. This will take approximately 5 to 10 minutes depending on network traffic. . The progress bar to the right will provide feedback on the status of the upgrade.
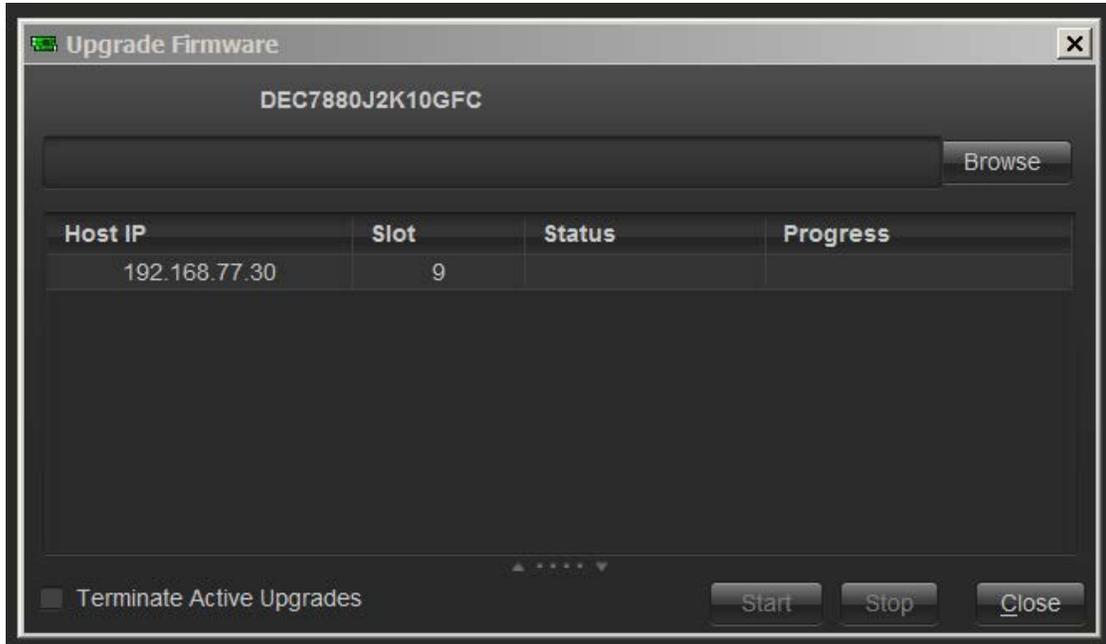
Figure 8-3: Selecting File for Firmware Upgrade

- Upon completion, the 7880IPG8-10GE2 module will reboot automatically and return online in normal "run" mode.

8.2.2. Upgrading 7880IPG8 using the Control Port

The 7880IPG8-10GE2 web interface provides a simple way to upgrade the firmware on the 7880IPG8-10GE2. Clicking on the *Upgrade* button at the top of the home screen as shown in Figure 8-7 will bring the user to the Firmware Upgrade page as shown in Figure 8-8.
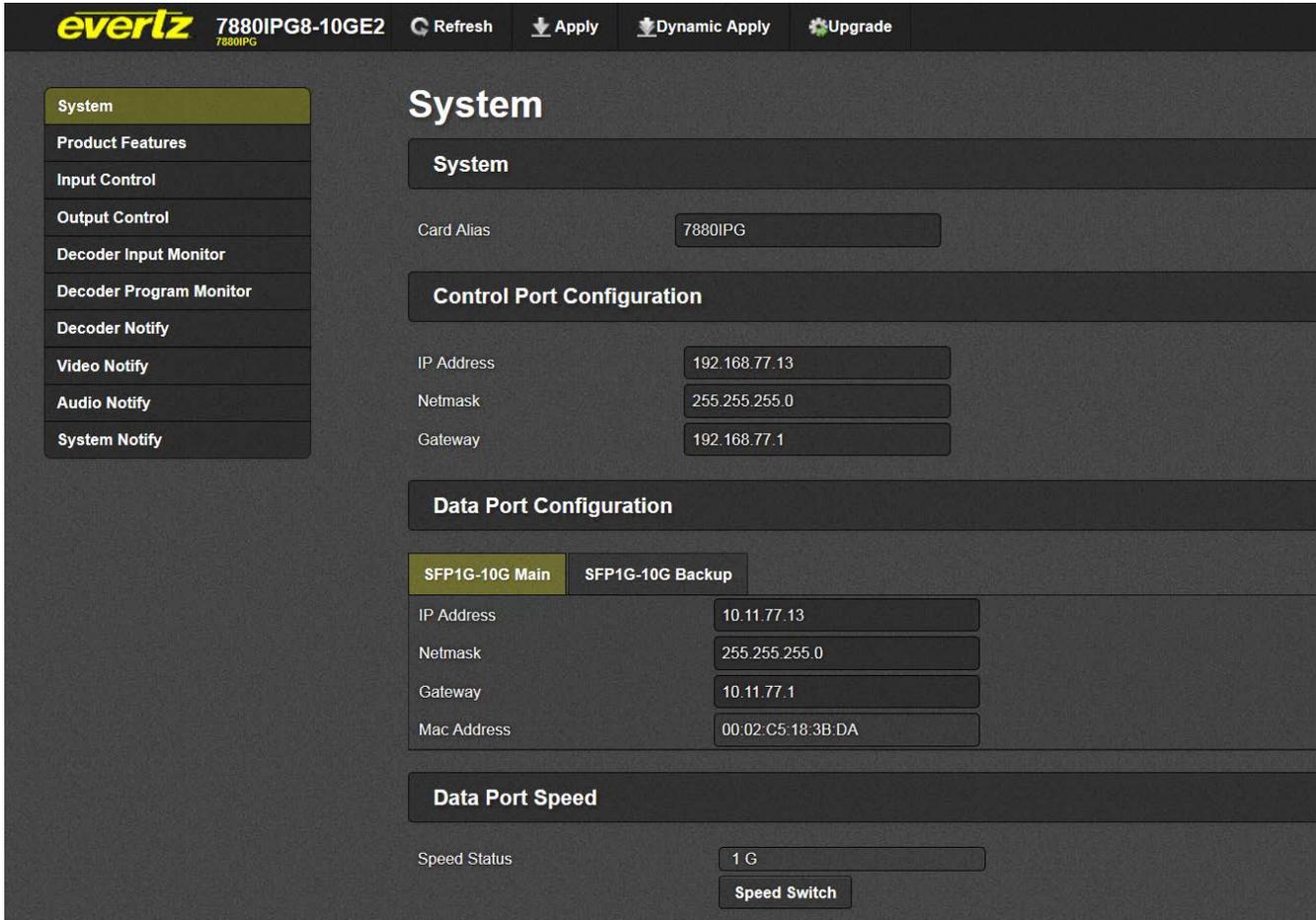
Figure 8-4: Firmware Upgrade Tab

- Browse and select the .ciu File in section 8.1.3. Once selected, click on the Upgrade button. Upon completion, the 7880IPG8-10GE2 module will reboot automatically and return online in normal "run" mode.
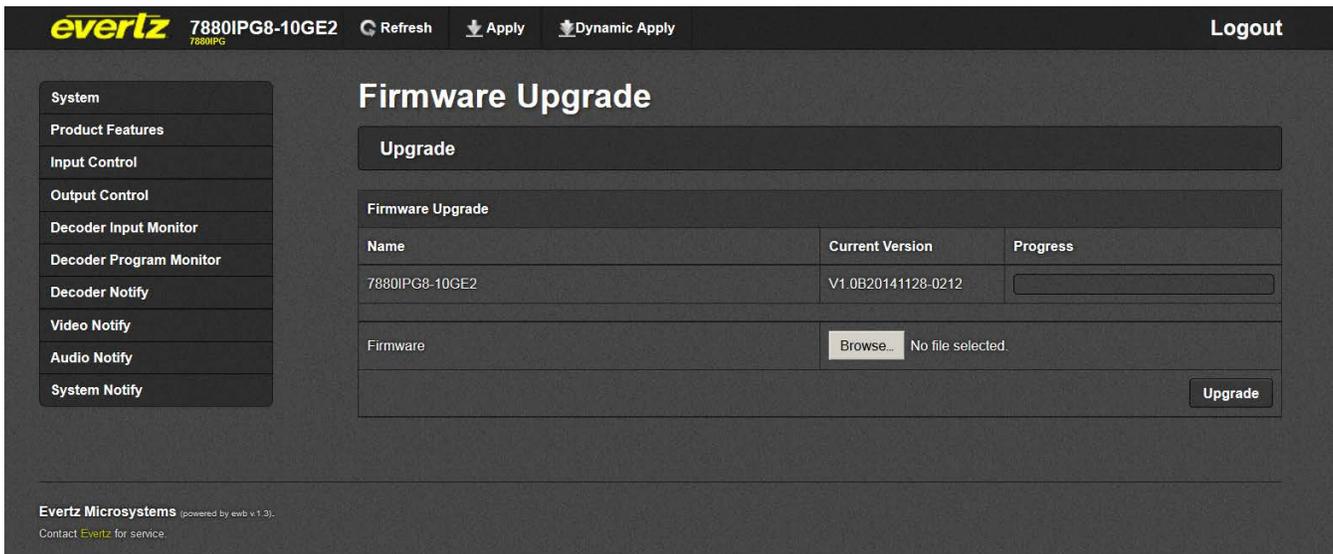

Figure 8-5: Firmware Upgrade Page for 7880IPG8-10GE2