7881TSM-IP
User Manual

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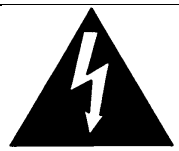
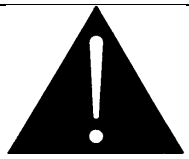
IMPORTANT SAFETY INSTRUCTIONS

	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

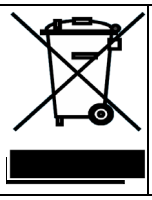
NOTE

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.

CE

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



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

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

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

WARNING

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

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

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	Jan 2021

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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 7881TSM–IP remote probe is a complete solution for compressed network monitoring. By monitoring the MPEG Transport Stream at strategic points within the distribution network, and in conjunction with the industry–leading VistaLINK® PRO NMS (Network Management System), the 7881TSM–IP offers service providers the tools to continuously and effectively monitor their IP signals within any IPTV, satellite, terrestrial or cable network, ensuring reliable signal delivery.

The 7881TSM–IP can monitor up to 32x transport streams. It can monitor MPEG–2 or H.264 content and rapidly detect and separate encoder errors from network delivery errors, allowing the operator to act quickly and minimize downtime. Evertz' industry–leading VistaLINK® PRO NMS offers a new dimension to TS monitoring by enabling a graphical depiction of any measurement performed and a quick assessment of the different probe points in the system. The 7881TSM–IP probe system is an invaluable asset in any operational environment.

The 7881TSM-IP has an integrated 4-port switch, providing layer 2 MAC address learning and switching. It allows the user to pass or add VLAN tagging to the incoming/outgoing data. The incoming Data (MPEG_TSoIP) from all the 4-ports is internally fed to the TSM application for monitoring (user does not need to configure this part)

Therefore, this product can be divided into two parts:

- **7881TSM-IP (for TS monitoring):** Control & monitor through VistaLINK only
- **7881TSM-IP (Switch with VLAN support):** Control & monitor through VistaLINK and WebGUI both

Features & Benefits

- 4x 1GbE inputs (3xRJ-45 and 1xSFP)
- VLANs, VLAN tagging (passing or adding) for all 5xDATA ports
- IGMP v1, v2, v3 subscription and IP layer monitoring including MDI
- Real–time T–STD buffer analysis
- Transport Stream analysis:
    - Presence, bit rate analysis, table rate analysis
    - TR101290 level 1, level 2*, and partial level 3
- Complete TS and PID bitrate measurement from 100kb/s to 200MB/s with configurable limits
- Display of Transport Stream tree (PID tree view)
- Program properties (name, program ID, etc.)
- Video/audio/data component properties (PID, type, codec, bit rate, resolution, sampling rate, etc.)
- Matching of PID assignment with pre–defined PID list and TSID verification
- Fully integrated with Evertz' industry–leading VistaLINK® PRO NMS
- SNMP–enabled (control and alarms for monitoring)
- Complete customization of status view and error report in VistaLINK® PRO
- Record TS based on configurable triggers

** Only PCR accuracy and PCR repetition rate supported at this time. No jitter measurement.*

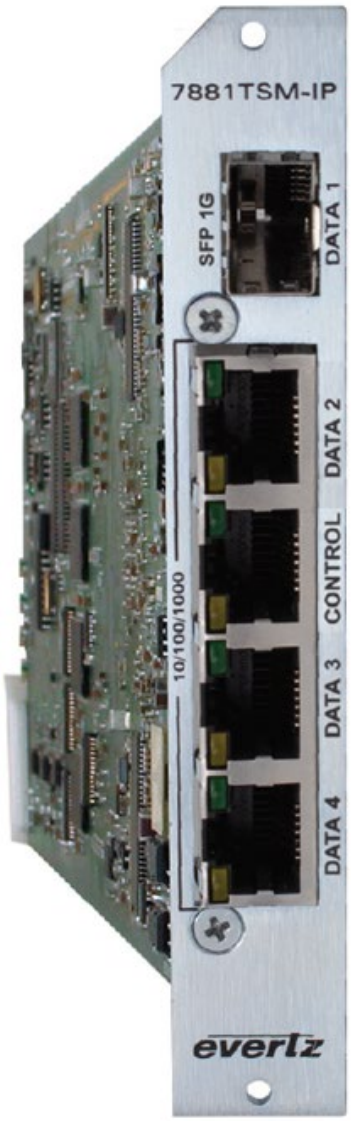

Figure 1-1: 7881TSM-IP Card

2. SPECIFICATIONS

2.1. INPUTS & OUTPUTS

3x RJ–45	10/100/1000Mbps I/O for MPEG-TS over IP
1x 1GbE SFP	Optical or copper SFP for MPEG-TS over IP
1x RJ–45	Control Port

2.2. NETWORK MANAGEMENT

Control:	SNMP

2.3. ELECTRICAL

Voltage:	+12V DC
Power:	23W
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

2.4. PHYSICAL

Number of slots:	2

2.5. TRANSPORT STREAM ANALYSIS

TR101290 P1:

- TS Sync Loss
- Sync Byte Error
- Pat Error
- Continuity Count Error
- PMT Error

TR101290 P2:

- Transport Error
- CRC Error
- PCR Error
- PCR Accuracy Error
- PTS Error
- CAT Error

TR101290 P3 (DVB):

- NIT Repetition
- NIT Error
- Unreferrenced PID
- SDT Repetition
- SDT Error
- EIT Repetition
- EIT Error
- RST Repetition
- RST Error
- TDT Repetition
- TDT Error

TR101290 P3 (ATSC)

- MGT Repetition
- TVCT Repetition
- CVCT Repetition
- EIT Repetition
- RRT Repetition
- STT Repetition

2.6. ORDERING INFORMATION

7881TSM-IP	Modular IP Transport Stream Monitor
+3RU	3RU rear plate for use with 350FR, 7800FR or 7801FR Multiframes

2.6.1. Enclosures

350FR	Portable Multiframe which holds 7 single slot modules
7800FR	3RU Multiframe which holds 15 single slot modules
7801FR	1RU Multiframe which holds 4 single slot modules

2.6.2. SFP Interface Options

SFPTR-RJ45-SGM-AV	SFP module for 10/100/1000 interface ports
SFP1G-TR13	SFP optical transceiver, 1.25Gbs, 1310nm, SMF, 20km
SFP1G-TR15S	SFP optical transceiver, 1.25Gbs, 1550nm, SMF, 40km
SFP1G-TR15H	SFP optical transceiver, 1.25Gbs, 1550nm, SMF, 80km

3. VLAN SWITCH CONFIGURATION

The switch should be configured in the Evertz Web GUI, WebEASY or using Evertz own VistaLINK PRO NMS. To access the web interface, user needs to access the 7800FC (frame controller) and configure the proxy IP address for the slot where 7881TSM-IP is installed. Afterwards, 7881TSM-IP webGUI can be opened directly using the assigned proxy IP address, without going through 7800FC webpage.

3.1. 7881TSM-IP WEBGUI (FOR SWITCH ONLY)

1. Open the 7800FC (frame controller) webpage using the IP address assigned. The default login and password here is *customer/customer*

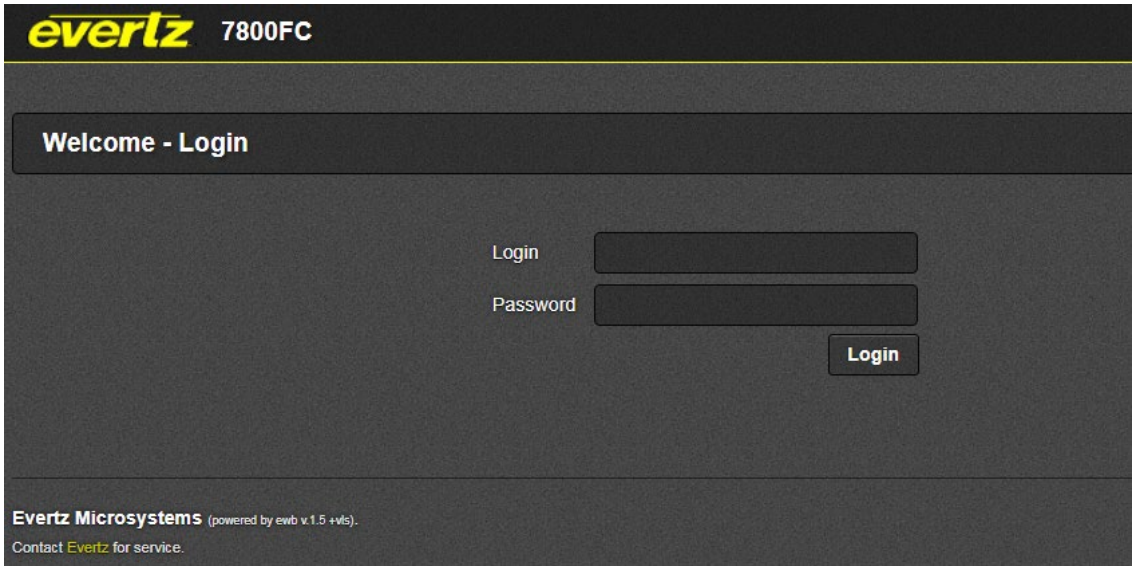

Figure 3-1: WebEASY® - Login Menu

2. Navigate to the slot # where 7881TSM-IP card is installed and click on Name. The proxy IP of the card is displayed under Alias column. In Figure 3-2, it is set to ***172.16.185.201***

Note: If you cannot see the 7881TSM-IP in any of the slots, the proxy IP may not be configured. Refer to the **Appendix** on how to setup the proxy IP address for the respective slot.

Figure 3-2 : WebEASY® - Frame Menu

3. You will need to login again when entering the 7881TSM-IP web page. The default login and password here is *admin/admin*

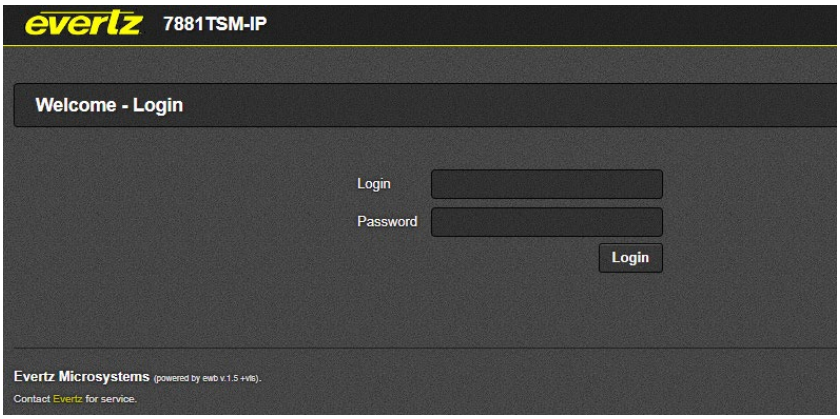

Figure 3-3: WebEASY® - Login Menu

Figure 3-4: WebEASY® - Top Navigation Bar

Top Navigation Bar

- Product Name: Displays the product Name
- Refresh: Manually refreshes the user's configuration
- Auto Refresh: Automatically refreshes the user's configuration
- Apply: Manually saves the user's configuration
- Dynamic Apply: Automatically saves the user's configuration
- Upgrade: Upgrade the Firmware's version of the product
- Logout: Logs the user out of the User Interface

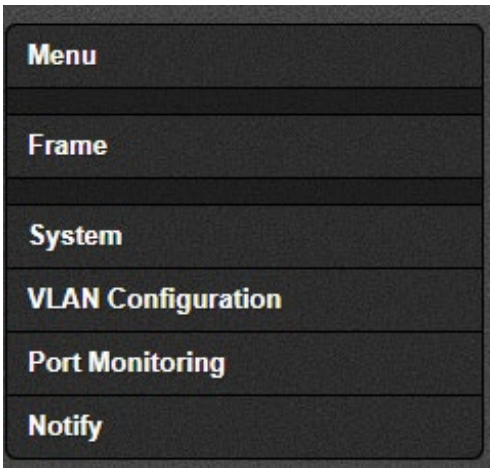

Figure 3-5 : WebEASY® - Side Menu

- **Side Menu:** Displays a menu of all tabs the user is able to monitor/configure.
- **Main Tab:** Middle section of the interface, displays all the fields for the item selected from the side menu. These menu tabs and fields will be fully described in the following sections.

Note: Due to the size of the certain menu tabs, screen tab images will be broken into multiple images.

3.2. SYSTEM

The system tab displays general information of the 7881TSM-IP. Here the user may find information on product name, firmware version and SN of the card. General operations like rebooting or factory resetting the unit can also be made here.

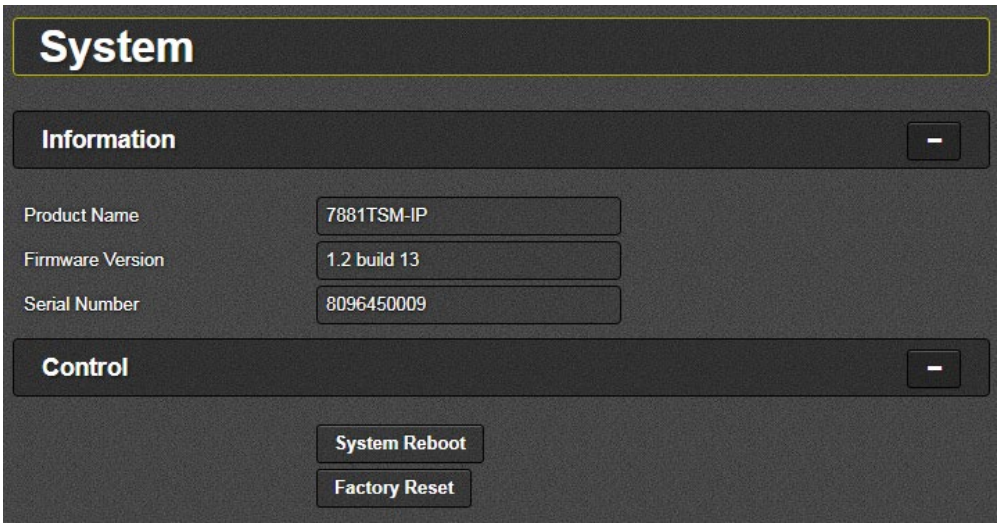

Figure 3-6: WebEASY® - System

3.2.1. Information

Product Name: This field shows the product name.

Firmware Version: This field shows the firmware version currently running on the card.

Serial Number: This field shows the card's serial number (SN)

3.2.2. Control

System Reboot: This button allows the user to reboot the 7881TSM-IP card

Factory Reset: This button allows the user to reset the whole 7881TSM-IP back to factory settings

Note: Whenever a parameter is changed, make sure you hit "Apply" button located in Top navigation bar and click "Refresh" to ensure the changes take effect.

3.3. VLAN CONFIGURATION

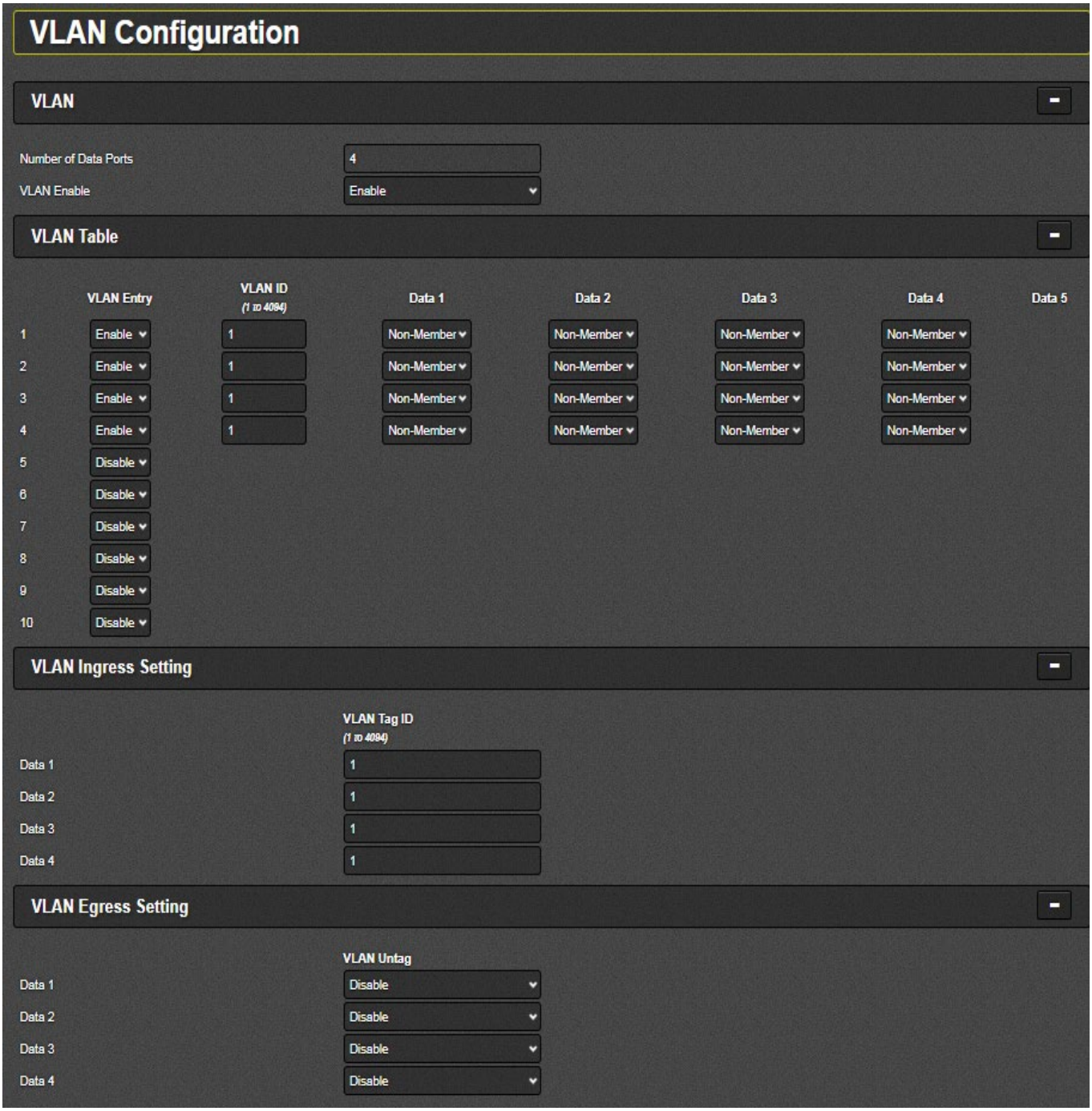

Figure 3-7: WebEASY® - VLAN Configuration

3.3.1. VLAN

Number of Data Ports: This field shows the number of available ports on the switch, should be 4

VLAN Enable: This field allows the user to enable/disable the VLAN tagging

3.3.2. VLAN Table

VLAN Entry: This field allows the user to enable/disable a specific VLAN ID

VLAN ID: This field allows the user to enter the VLAN ID they wish to create. When they create a VLAN ID, they can assign or modify parameters associated with that VLAN. Allowed range for VLAN ID's is 1 to 4094

Data 1 to 4: This field allows the user to choose which port is a member of which VLAN

Note: The user needs to select a specific data port from the list to change the next following settings.

3.3.3. VLAN Ingress Setting

VLAN Tag ID: This section allows the user to set VLAN tags for each of the 4 ports. Each port can only tag to one of the VLANs that the port has membership of (the membership is defined as per previous 3.3.2)

3.3.4. VLAN Egress Setting

VLAN Untag: This section allows the user to enable/disable the VLAN tag strip for the corresponding port

Enable: This will strip/remove VLAN tags from the outgoing traffic on the corresponding port

Disable: This will keep/pass the VLAN tags for the outgoing traffic on the corresponding port

3.4. PORT MONITORING

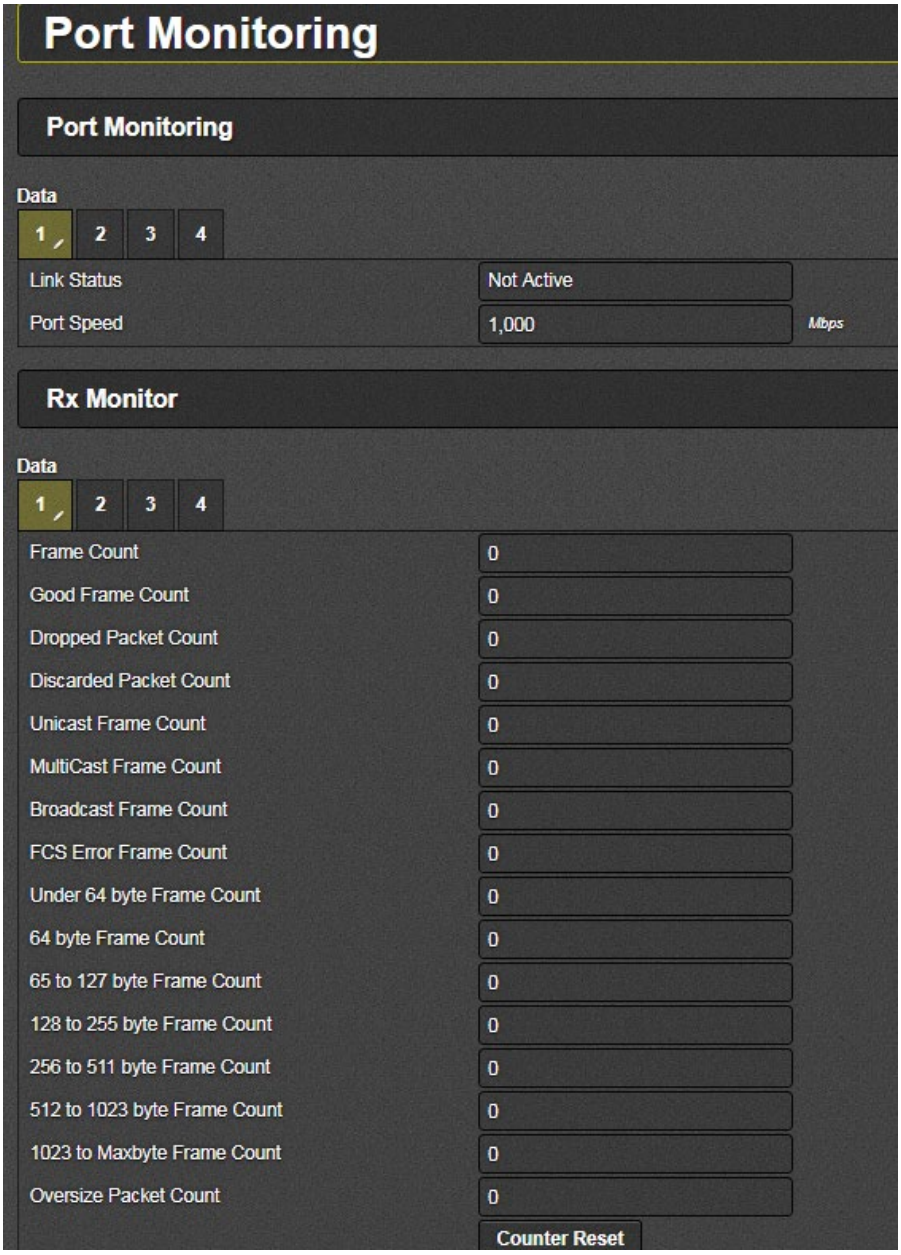

Figure 3-8: WebEASY® - Port Monitoring

This page allows the user to monitor the incoming and outgoing traffic details on each of the 5 ports. User needs to switch between tabs 1 to 4 in order to view details of a particular port.

3.4.1. Port Monitoring

Link Status: This field displays if the link is currently active (i.e. if the traffic is flowing through the port)

Port Speed (Mbps): This field displays the data rate the port is currently operating at

3.4.2. Rx Monitor

The fields in this panel display the received frame counts

Frame Count: This field displays the number of recieved frames

Good Frame Count: This field displays the number of recieved good frames

Dropped Packet Count: This field displays the number of recieved dropped packets

Unicast Frame Count: This field displays the number of recieved unicast frames

MultiCast Frame Count: This field displays the number of recieved multicast frames

Broadcast Frame Count: This field displays the number of recieved broadcast frames

FCS Error Frame Count: This field displays the number of recieved FCS error frames

Under 64 byte Frame Count: This field displays the number of recieved frames under 64 bytes

65 to 127 byte Frame Count: This field displays the number of recieved frames between 65 to 127 bytes

128 to 255 byte Frame Count: This field displays the number of recieved frames between 128 to 255 bytes

256 to 511 byte Frame Count: This field displays the number of recieved frames between 256 to 511 bytes

512 to 1023 byte Frame Count: This field displays the number of recieved frames between 512 to 1023 bytes

1023 to Maxbyte Frame Count: This field displays the number of recieved frames over 1023 bytes

Oversize Packet Count: This field displays the number of recieved oversize packet

Counter Reset: This control allows the user to reset all count values

3.4.3. Tx Monitor

The fields in this panel display the transmitted frame counts.

Good Frame Count: This field displays the number of transmitted good frames.

Dropped Packet Count: This field displays the number of dropped packets.

Collided Non-tansmitted Packet Count: This field displays the number of collided non-transmitted packets.

Discarded Packet Count: This field displays the number of discarded packets.

Unicast Frame Count: This field displays the number of transmitted unicast frames.

MultiCast Frame Count: This field displays the number of transmitted multicast frames.

Broadcast Frame Count: This field displays the number of transmitted broadcast frames.

Counter Reset: This control allows the user to reset all count values.

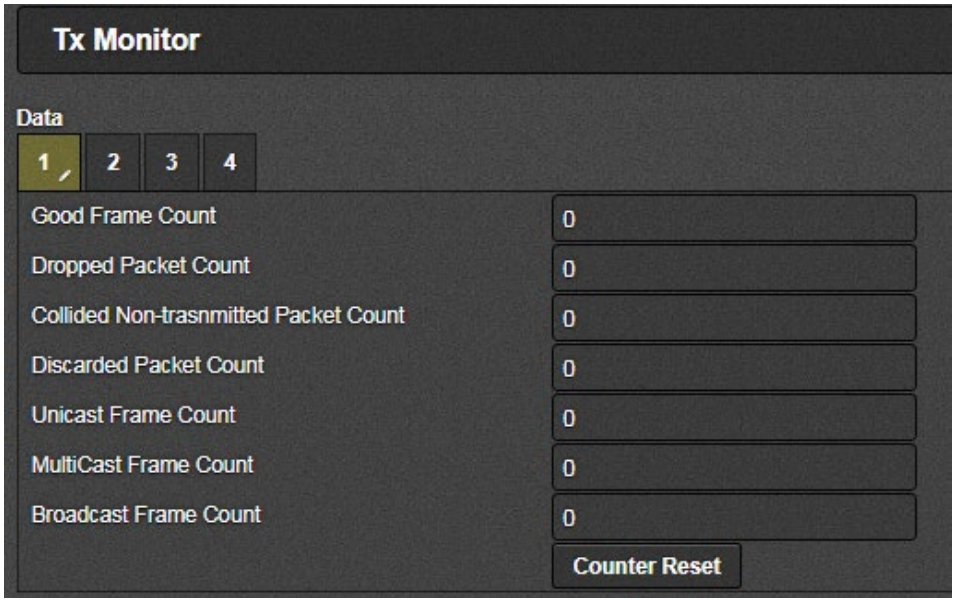

Figure 3-9: WebEASY® - Port Monitoring Continued

3.5. NOTIFY

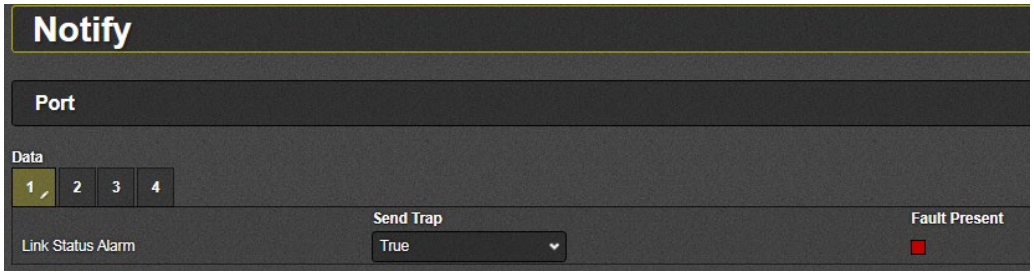

Figure 3-10: WebEASY® - Notify

Note: The user needs to select a specific data port from the tabs 1 to 4 to view the following setting.

Link Status Alarm: This parameter displays the link up or down status for each of the ports.

Send Trap: When set to TRUE, this control allows the user to send an SNMP trap whenever a link goes down

Fault Present: This indicator shows GREEN if the link is up and shows RED if the link is down.

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4. 7881TSM-IP ON VISTALINK PRO (FOR SWITCH)

With the proxy IP configured from the web interface and the appropriate jar file installed, the 7881TSM-IP can be completely configured on VistaLINK PRO. To do this, begin by launching VistaLINK PRO.

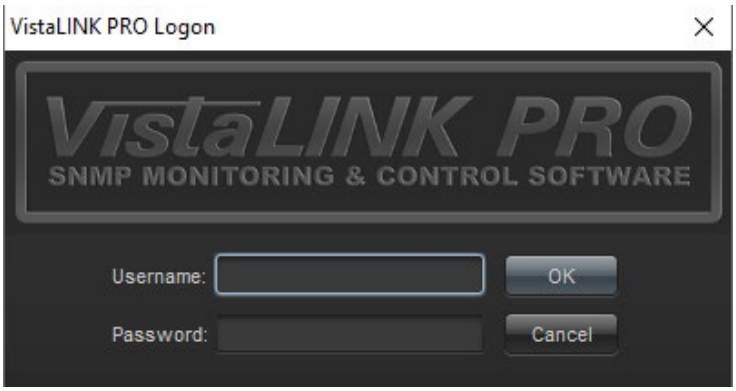

Figure 4-1: VistaLINK PRO – Login Screen

For login and password, type in "***customer***".

Upon entering the correct credentials, the user will need to enter the proxy IP address of the 7881TSM-IP. To do this, right-click the "Hardware tab" in the navigation tree and select "Add/Change Agent".

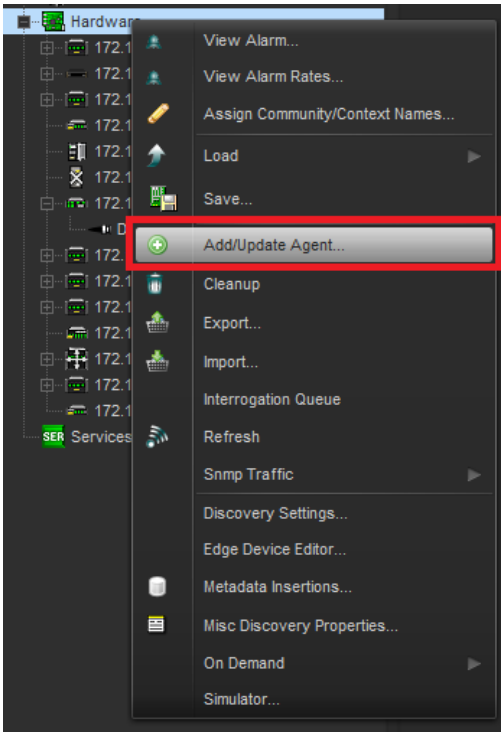

Figure 4-2: VistaLINK PRO – Hardware Contextual Menu

Expand the "Hardware" tab if not done so already. Double-click on the proxy IP of the 7881TSM-IP-GE or by right-clicking and selecting "Vew Configuration". All settings of the 7881TSM-IP will then appear on the right (Image below).

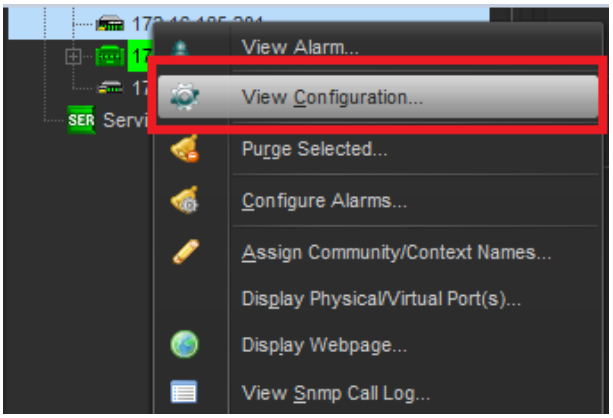

Figure 4-3: VistaLINK PRO – 7881TSM-IP Contextual Menu

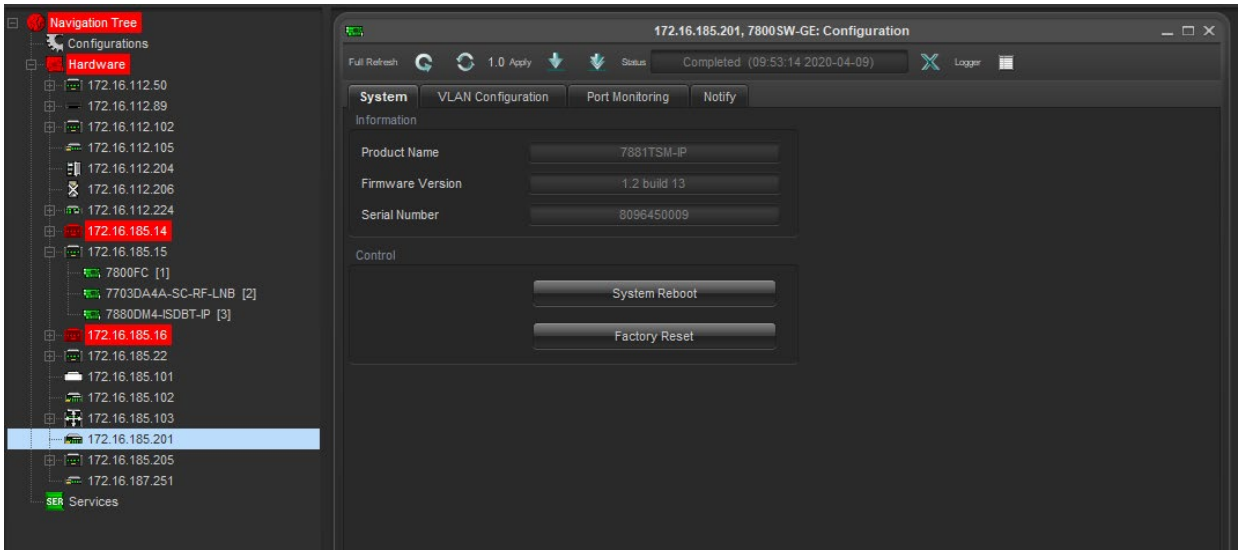

Figure 4-4: VistaLINK PRO – 7881TSM-IP Configuration Window

Note: For details on every parameter available refer to the Web Interface in the previous section.

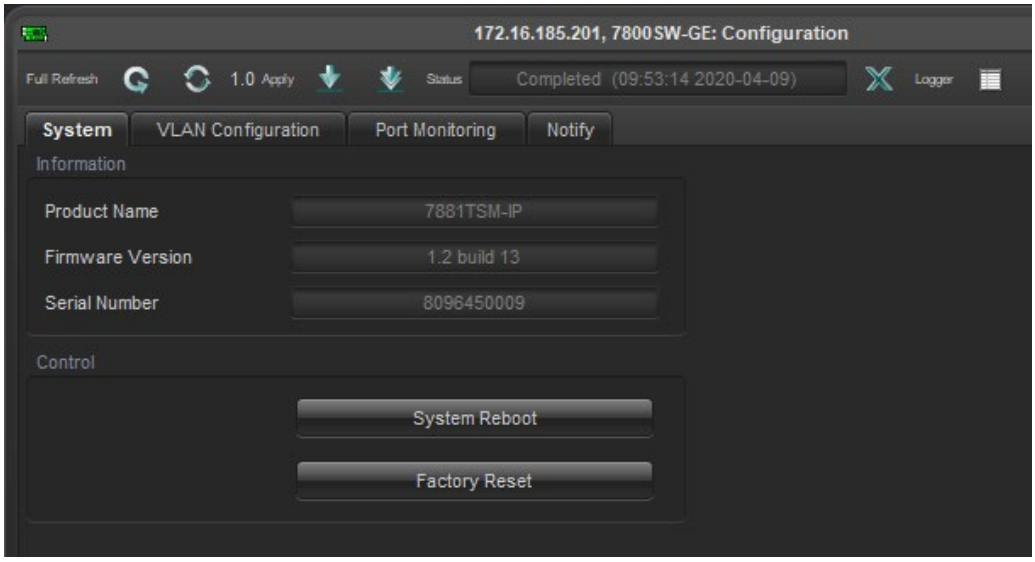

Figure 4-5: VistaLINK PRO – System

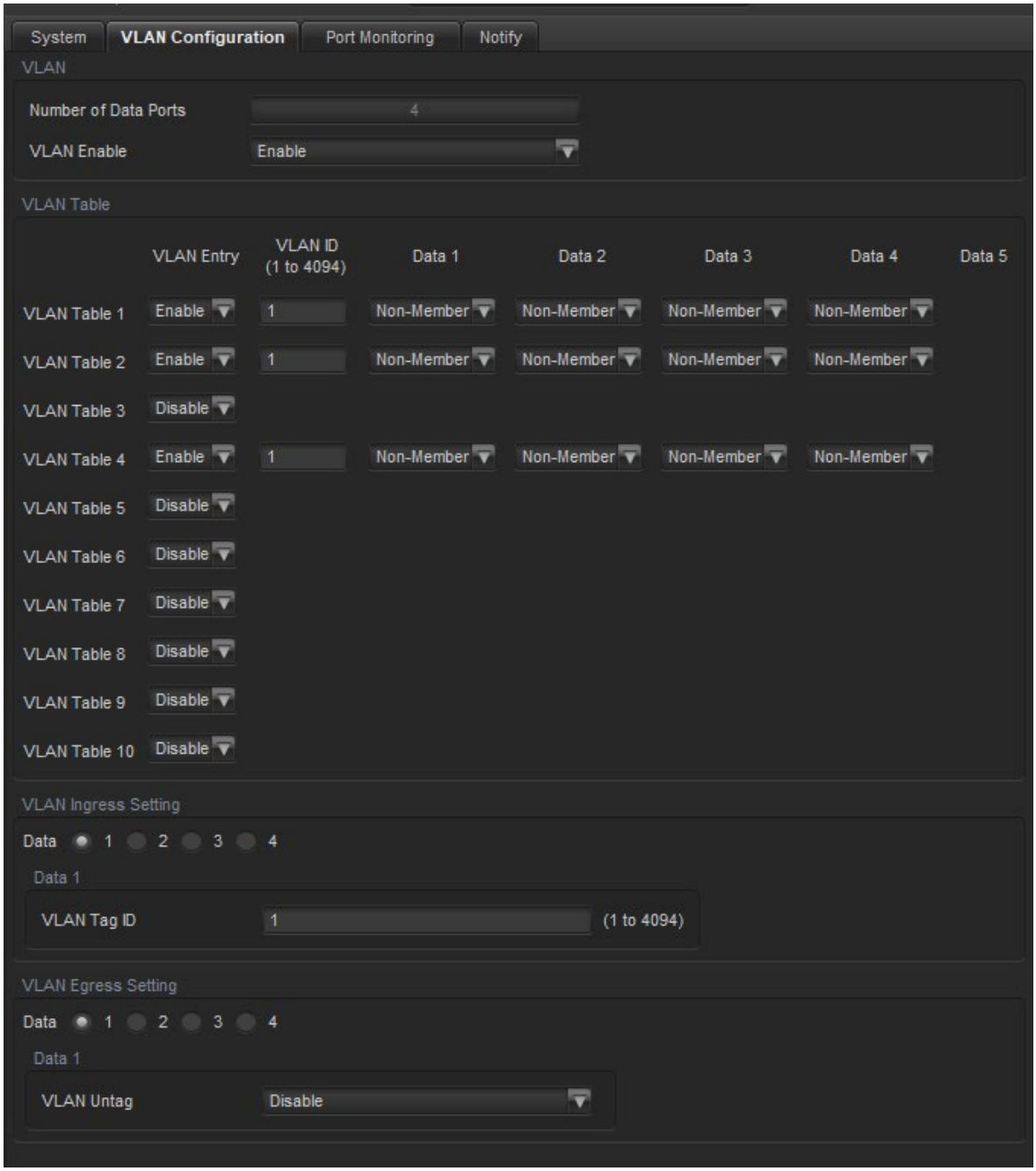

Figure 4-6: VistaLINK PRO – VLAN Configuration

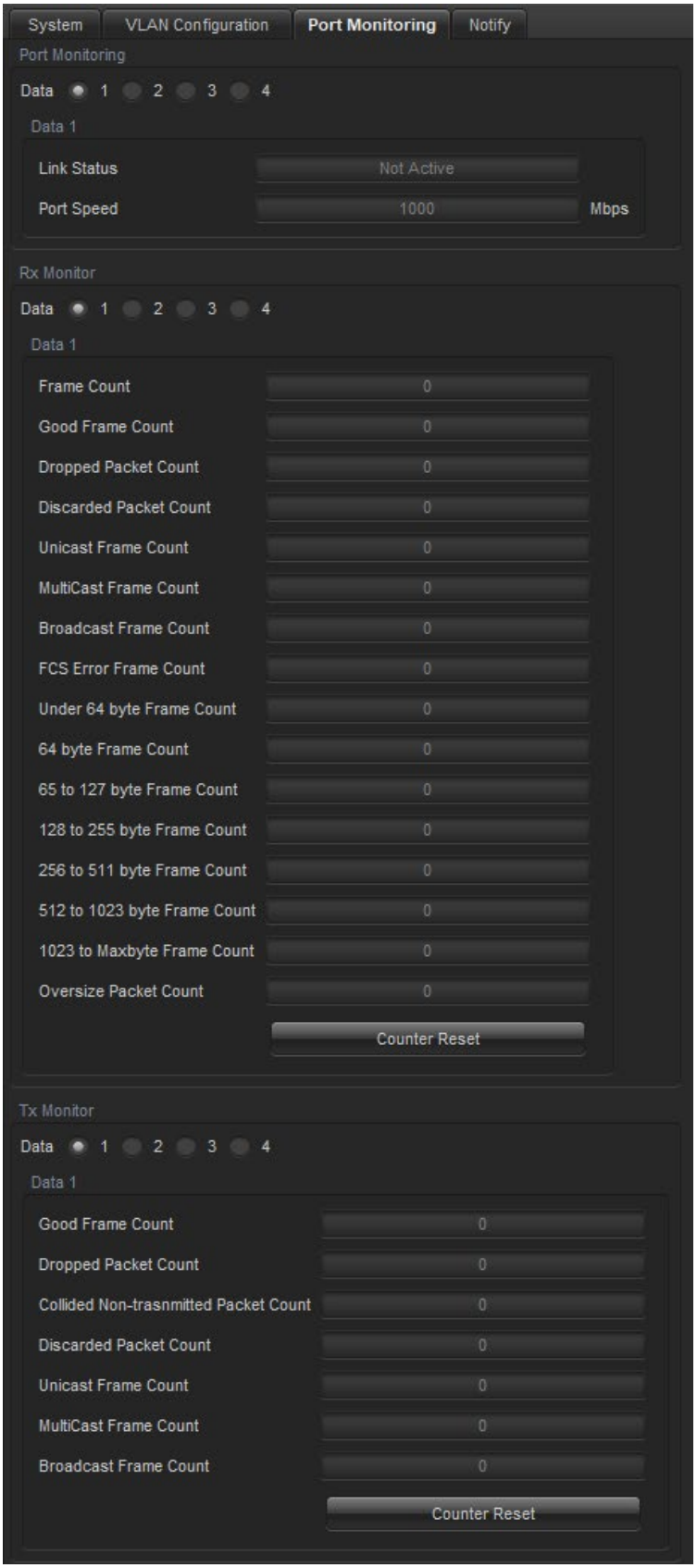

Figure 4-7: VistaLINK PRO Port Monitoring

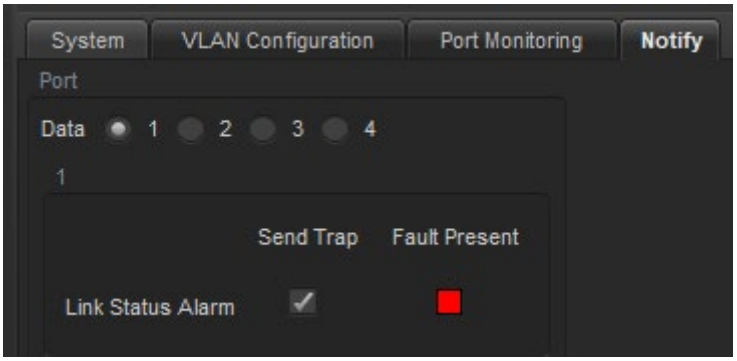

Figure 4-8: VistaLINK PRO - Notify

5. 7881TSM-IP CONFIGURATION ON VISTALINK PRO (TS MONITORING)

In this section, card configurations can be accessed by expanding the hardware tab in the navigation tree. Right-click the appropriate IP address and select “View Configuration” or by double-clicking. Finally, select the desired tab from the pop-up window that will appear on the right.

When making any changes to the parameters/settings, the apply key must be pressed for them to take effect. Also, the refresh key (or auto-refresh) may also need to be pressed to see the changes. If the changes are still not applied, please look at the parameters/settings again or the unit may need power cycle.

5.1. STATUS

The unit can be confirmed here if the correct board has been selected by seeing all the statuses of the card. In the case of the 7881TSM-IP, only TSMIP will be available.

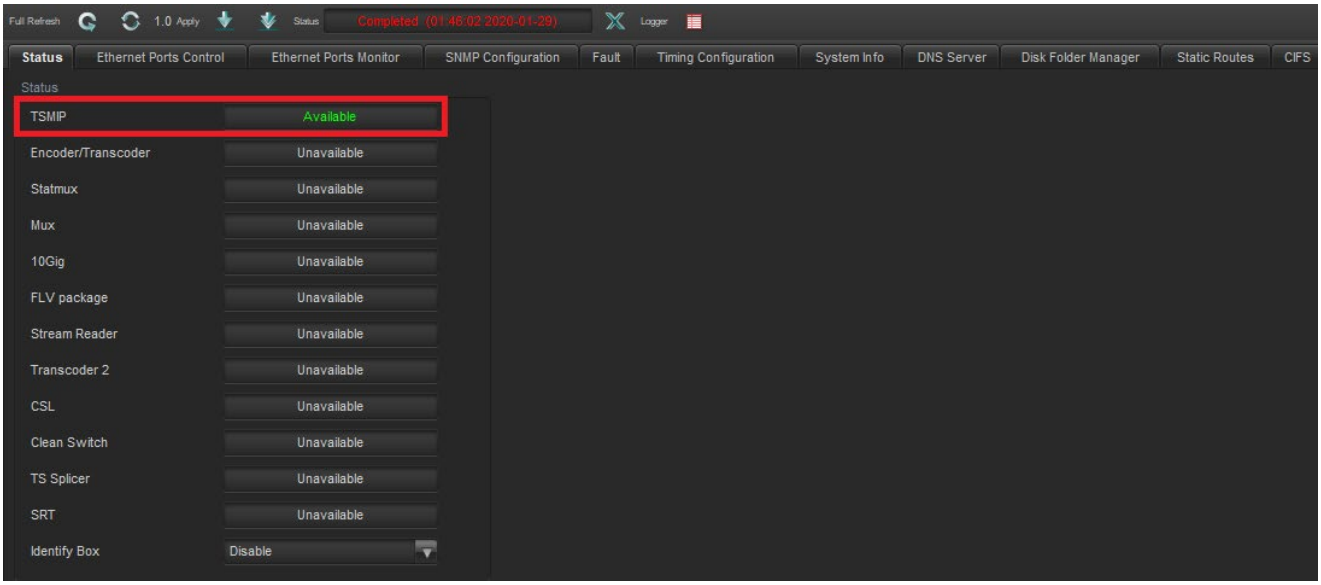

Figure 5-1: VistaLINK PRO Status Tab

5.2. ETHERNET PORTS CONTROL

The configurations for the network parameters can be made here. It is important to note that only Data 1 and Data 2 ports will be used. This is because all data ports are connected together as one instead of individually. Data 2 port is the only control port. Figure 5-2 shows where these ports must be configured in VistaLINK.

5.2.1. Port Details

- **Data 1**: Where all data is received from.
- **Data 2**: The control port of the unit.
- **Data 3 & 4**: Not used.
- **Control 1 & 2**: Not used.

NOTE: The ports shown on VistaLINK do not refer to the ports shown on Rear plate. The DATA 1 port highlighted below on VistaLINK is internally receiving/sending traffic from all 4xDATA ports labelled as DATA 1, DATA 2, DATA 3, DATA 4 on the rear panel (shown in Figure 1-1)

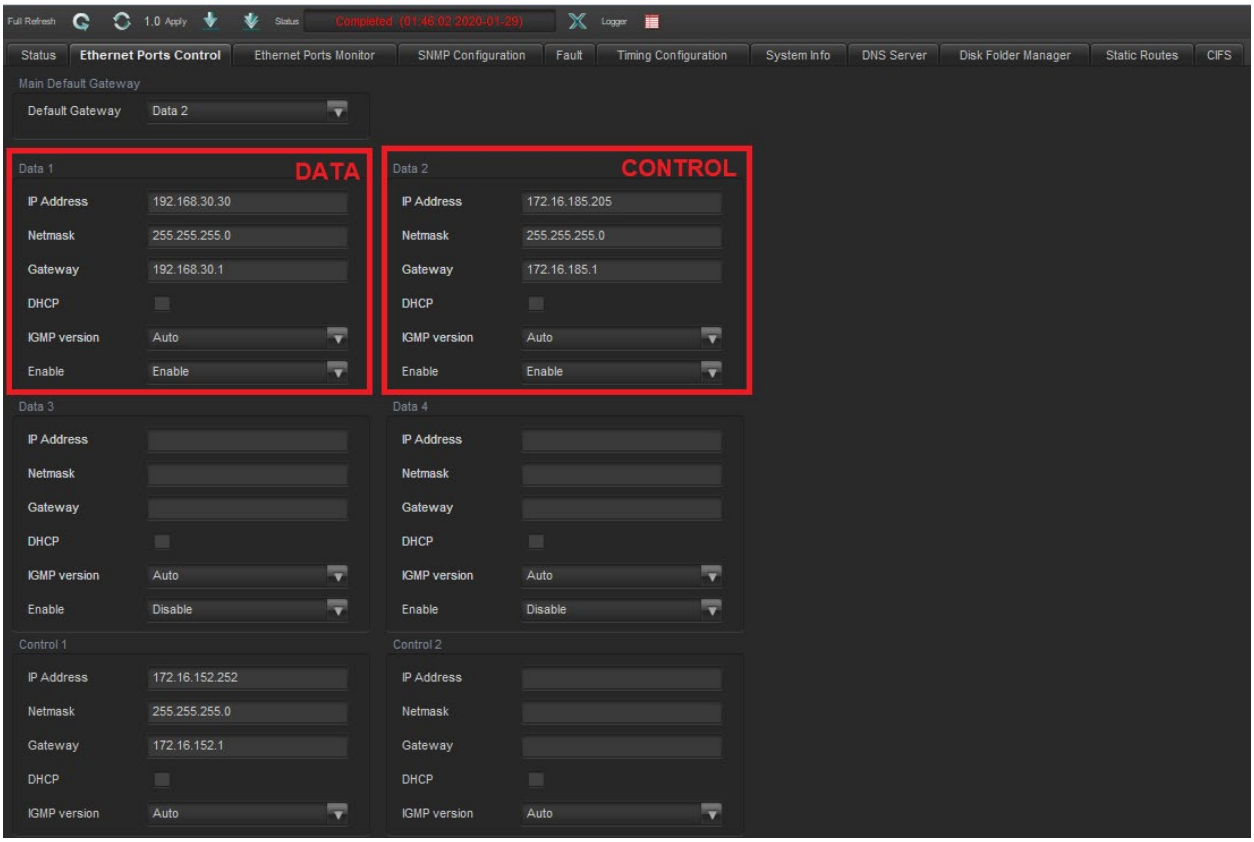

Figure 5-2 - VistaLINK PRO Ethernet Ports Control Tab

5.3. ETHERNET PORTS MONITOR

The network statistics will be display here for all data and management ports. The ports availability is indicated by the colour of the border. In this case only Data 1 and 2 ports are available (Refer to 5.2 for more details).

Network Statistic Details:

- **Adapter Speed**: The capable speed the port can handle.
- **Adapter Duplex**: Type of communication.
- **Received Rate**: Speed of receiving information in MB.
- **Transmitted Rate**: Speed of transmitting information in MB.

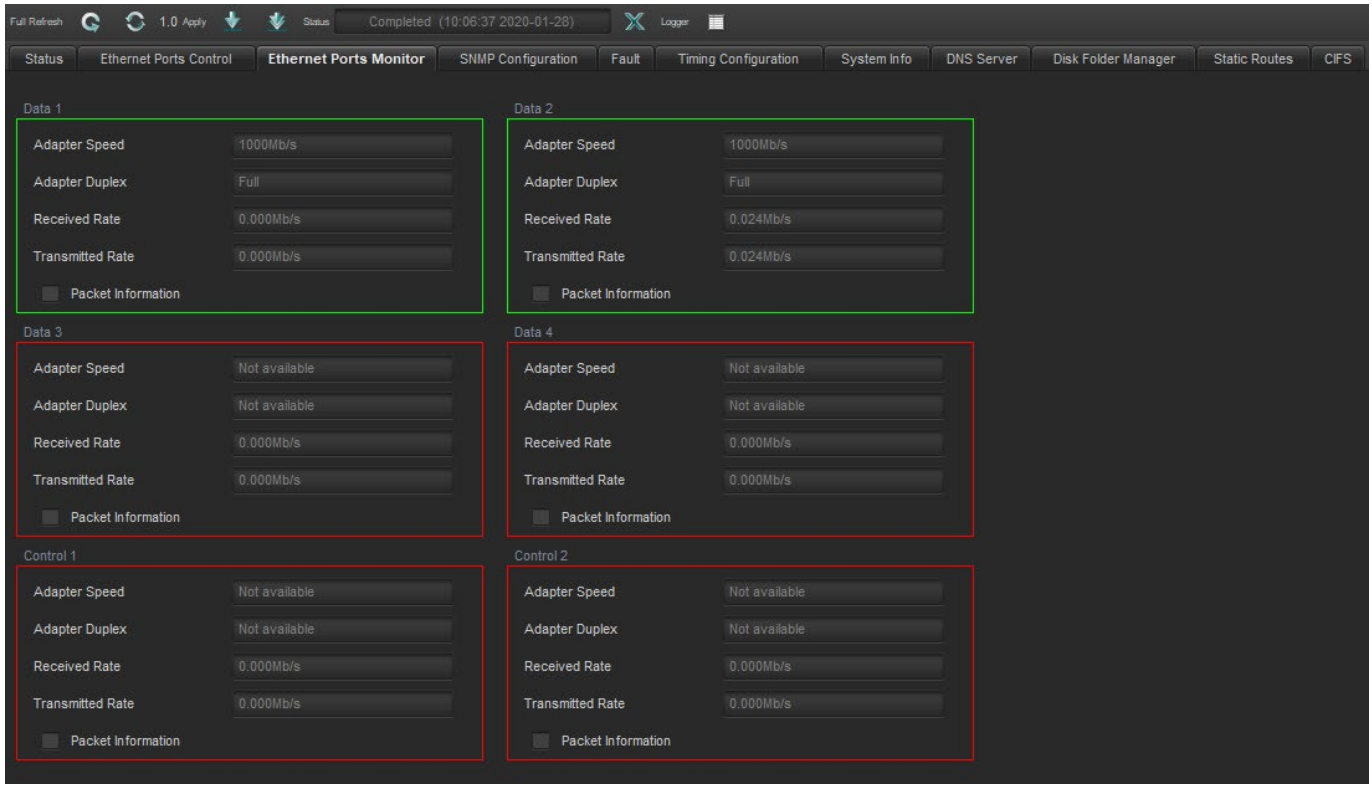

Figure 5-3 - VistaLink PRO Ethernet Ports Monitor Tab

5.4. SNMP CONFIGURATION

The configurations to setup trap destinations can be made here. By typing specific IP addresses, the warnings/alerts will be available for that device.

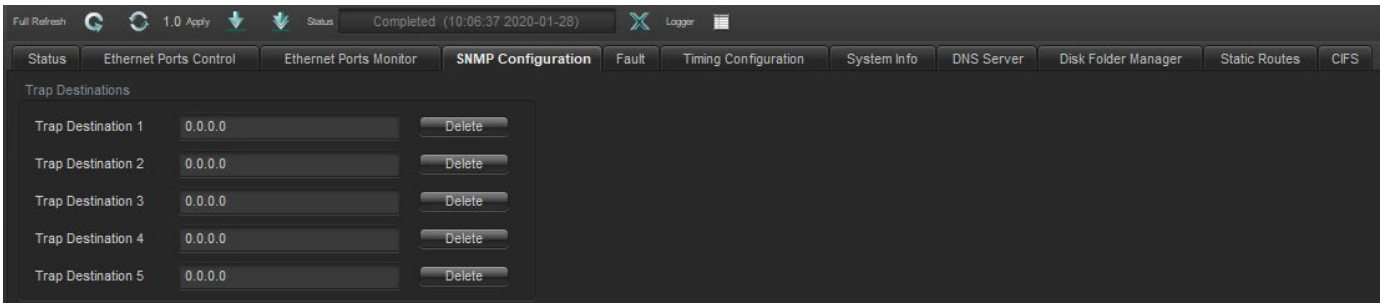

Figure 5-4 - VistaLINK PRO SNMP Configuration Tab

5.5. FAULT

The fault tab allows for which warning/alerts the user would like to send to a device. To specify which faults to send, simply check or uncheck each desired box. The current faults will also be indicated in the “Fault Present” column by colour. Only Data 1 and 2 will have faults because all other ports are not used (Refer to Section 5.2). PSU 1 and 2 are also no available as the device is powered by the frame and not by the card itself.

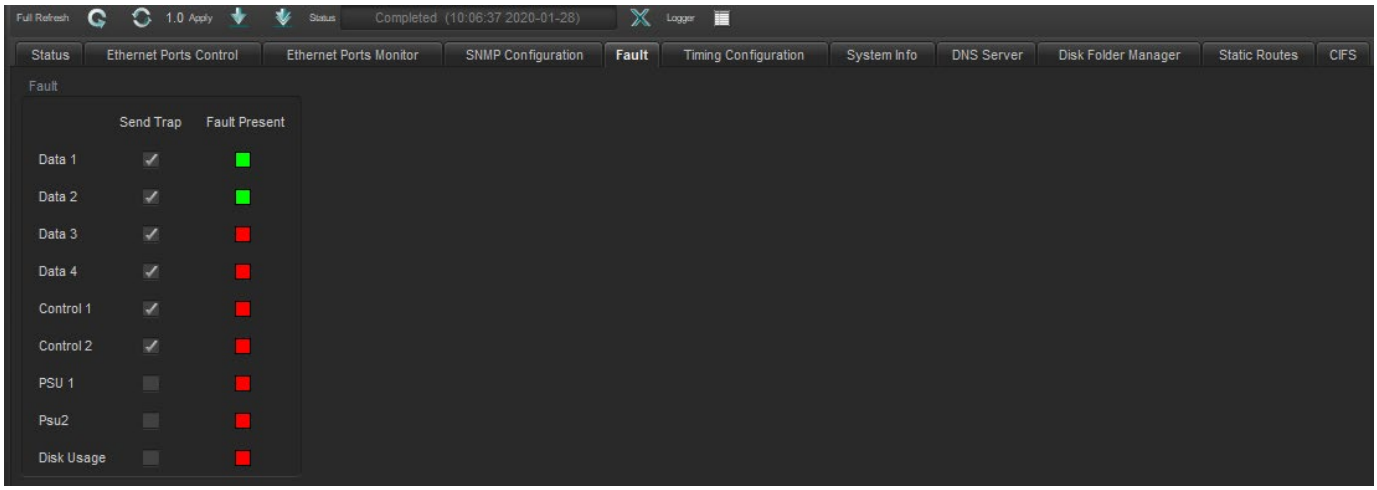

Figure 5-5 - VistaLINK PRO Fault Tab

5.6. TIMING CONFIGURATION

The configurations for the local or NTP (Network Timing Protocol) time can be made here.
Timing Configuration Details:

- **Device Time**: Shows current time on the unit.
- **Time Zone**: Selection of different Earth times.
- **Time Settings/ Set Device Time Button**: Allows user to set a specific date and time.
- **Time Source**: Whether the user want Local or NTP (see Figure 5-7 for NTP menu)
- **Server IP 1 – 3 (NTP only)**: IP address of the NTP server.
- **Add Server IP 1 – 3 (NTP only)**: Whether to enable or disable NTP server timing.
- **NTP Status Server IP 1 (NTP only)**: Indicating if signal is locked or not.

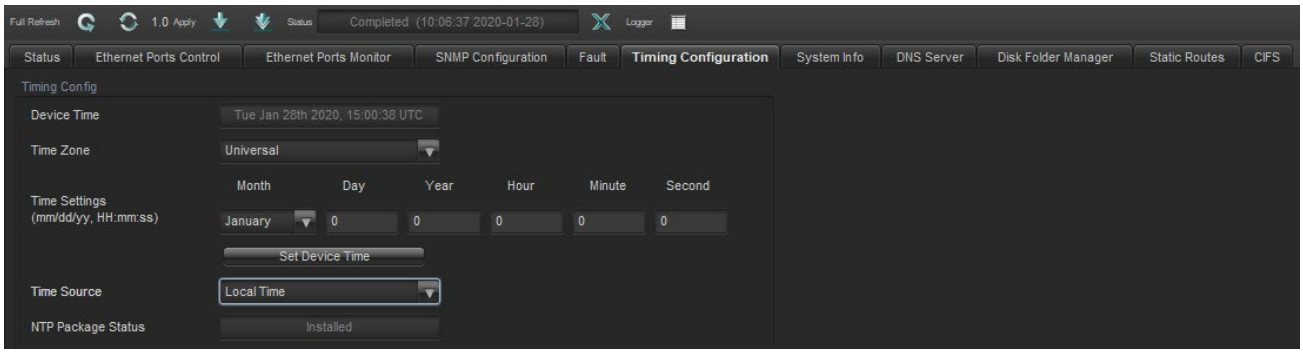

Figure 5-6 - VistaLINK PRO Timing Configuration Tab

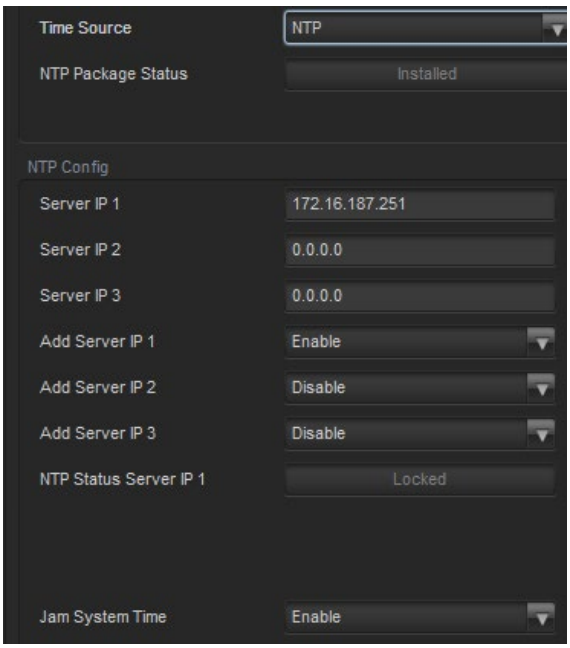

Figure 5-7 - VistaLINK PRO NTP Settings

5.7. SYSTEM INFO

The details on how disk space is managed can be seen here. Performance details are also indicated below, showing the current memory in MB and CPU percentage used.

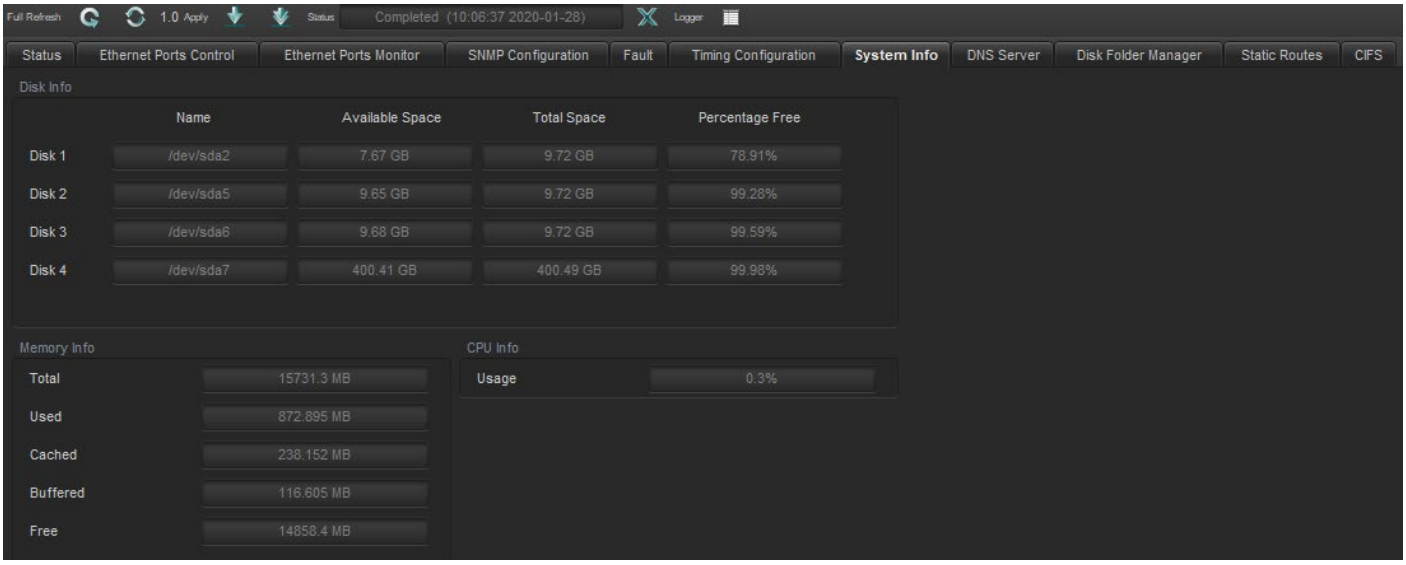

Figure 5-8 – VistaLINK PRO System Info Tab

5.8. DISK FOLDER MANAGER

Right-click the IP address, select “View Configuration” then “Disk Folder Manager” tab shows current details of the disk folder and how the user would like to manage it.
The columns are as followed:

- **Name**: Displays name of folder.
- **Location**: Where the folder is stored.
- **Used Space**: Amount of space currently occupied.
- **Auto Clean Up**: Toggle setting allowing folder clean up.
- **Lower and Upper Limit Disk Usage**: Thresholds for said folder.
- **Size**: Size in MB on how much to delete if threshold is met.
- **Time and Unit**: Time on when to delete files based on digit entered and specified unit (Seconds, Minutes, Hours, Month, Year).

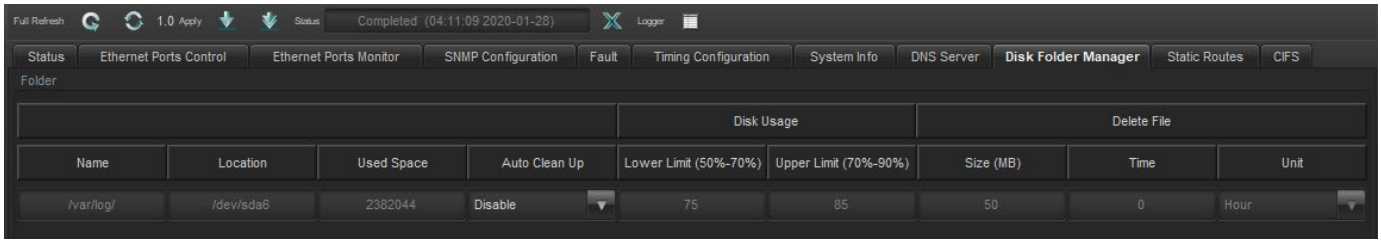

Figure 5-9 - VistaLINK PRO Disk Folder Manager Tab

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6. TSM GENERAL CONFIGURATIONS

In this section, TSM general configurations can be accessed by expanding the hardware tab in the navigation tree. Afterwards, the appropriate IP address needs to be expanded as well. Right-click the “TSM General” and select “View Configuration” or by double-clicking. Finally, select the desired tab from the pop-up window that will appear on the right.

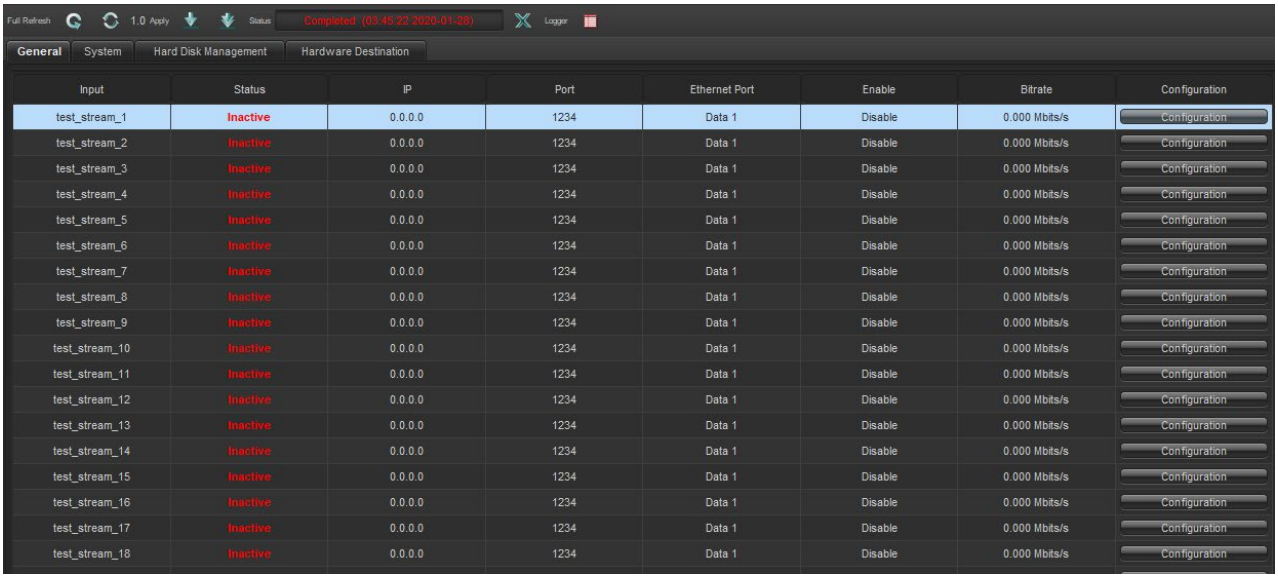
When making any changes to the parameters/settings, the apply key must be pressed for them to take effect. Also, the refresh key (or auto-refresh) may also need to be pressed to see the changes. If the changes are still not applied, please look at the parameters/settings again or the unit may need power cycle.

6.1. GENERAL

The Configurations for all each transport stream can be made here. To add a transport stream, simply enter the required information. The Ethernet port must remain on Data 1 (Refer to section 5.2 for more details). The Status will become green (“ACTIVE”) if the stream is connected.

The columns are as followed:

- **Input**: Displays the index number of each IP port.
- **Status**: Shows if the connected stream is active.
- **IP**: Control to set the source IP address of each IP input
- **Port**: Control o set the transport protocol port of each IP
- **Ethernet Port**: Control to select the DATA for each IP input.
- **Enable**: To turn the port on/off.
- **Bitrate**: Displays the bitrate value (Mbit/s) of the monitored transport stream.
- **Configuration**: Opens the full settings of each IP input.



Input	Status	IP	Port	Ethernet Port	Enable	Bitrate	Configuration
test_stream_1	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_2	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_3	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_4	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_5	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_6	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_7	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_8	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_9	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_10	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_11	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_12	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_13	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_14	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_15	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_16	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_17	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration
test_stream_18	Inactive	0.0.0.0	1234	Data 1	Disable	0.000 Mbits/s	Configuration

Figure 6-1 - VistaLINK PRO General Tab

6.2. SYSTEM

This tab will display the device type and have the ability to restart the card. The device type in this case should be 7881TSM-IP.

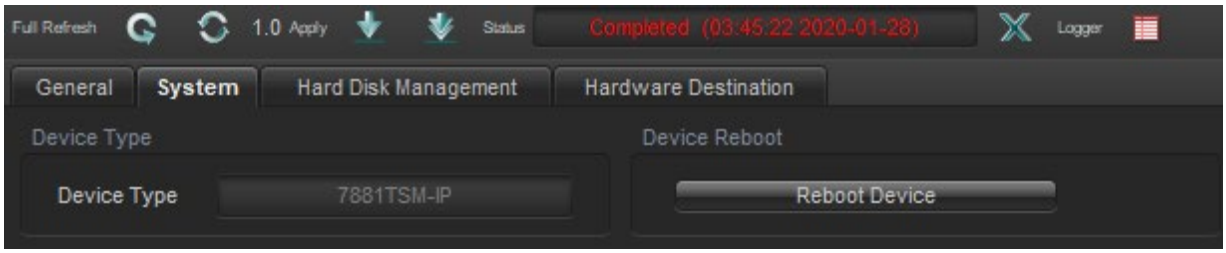


Figure 6-2 - VistaLINK PRO System Tab

6.3. HARD DISK MANAGEMENT

The configurations to how the user wants to maintain the transport stream can be made here. The user can download or remove content from the hard disk with their corresponding buttons.

Hard Disk Management Configurations:

- **Mode Selection**: Whether the user wants the unit to operate on their own or not.
- **TS File Reserve Days**: How long transport stream files will be kept for.
- **Disk Usage Threshold**: How much space the hard disk is allow to use.
- **Disk Usage Percentage**: How much space the hard disk has currently used.
- **Disk Free Space**: How much room in GB the hard disk has.
- **Download Button**: Allows content to be save at a directory of their choice.
- **Remove Button**: Deletes files.

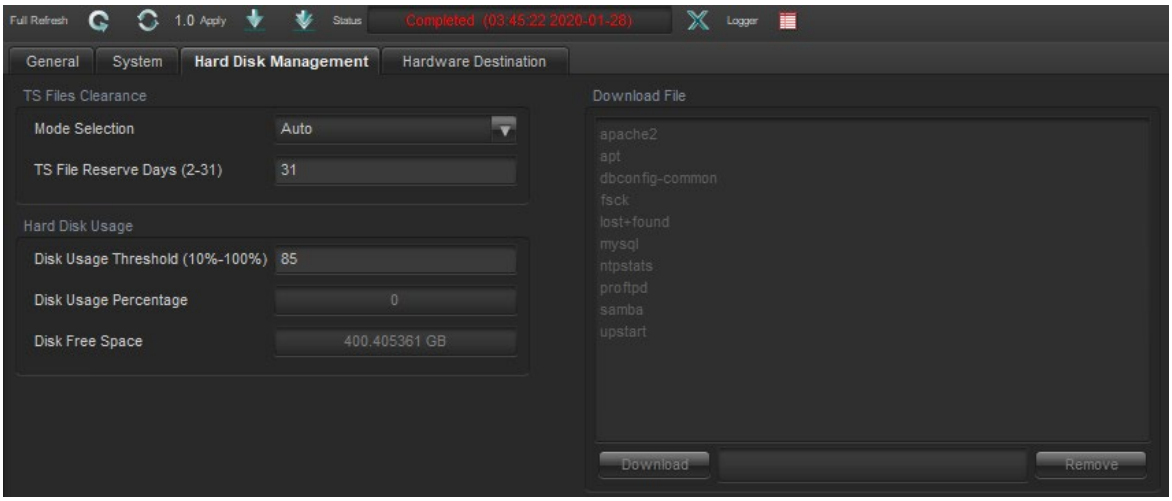


Figure 6-3 - VistaLINK PRO Hard Disk Management tab

7. TSM INPUT CONFIGURATIONS

7.1. INPUT CONFIGURATION

The “Input Configuration” tab is used to select the stream type which is being monitored input basic configuration information for the stream and so forth. The additional information is used to further enhance the transport stream diagnostics and alarming capabilities of the 7881TSM-IP.

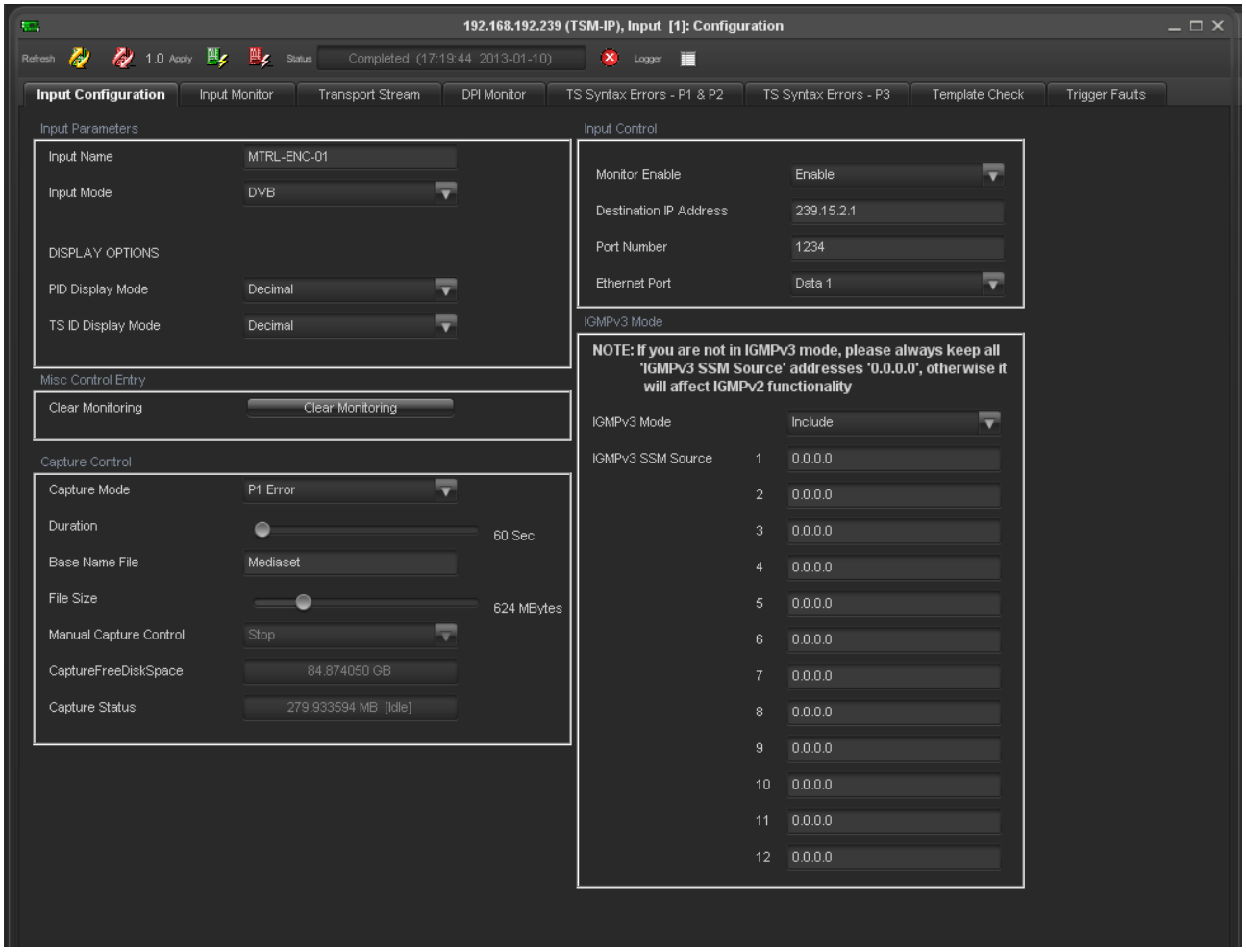


Figure 7-1 - VistaLINK PRO Input Confiuration Tab

7.1.1. INPUT PARAMETERS

- **Input Name:** Control to give to the stream an easily identifiable and user configurable name.
- **Input Mode:** Options available are ATSC, DVB and MPEG.
    - It is important to select the standard to which the stream is being coded as this affects the context of the alarms for ETSI TR 101 290 priority 3.
- **PID Display Mode:** Options available are decimal or hex.
- **TS ID Display Mode:** Options available are decimal or hex.

Note: It is not possible to enter the TS ID as a Hex value.

7.1.2. MISC CONTROL ENTRY

- **Clear Monitoring:** Control to clear the recorded statistics for the Max and Min bitrates as well as reset the error counts for all Priority 1, 2 and 3 Syntax Errors.

7.1.3. CAPTURE CONTROL

- **Capture Mode:** The 7881TSM-IP features the function to record the TS which is monitored based upon configurable triggers. Use this drop down menu to select the trigger mode.
- **Duration:** Control to set the capture duration for recording a stream. The final recorded file size will be limited by the setting of the **file size** or duration (whichever comes first). The unit of duration is in seconds. The maximum is 1 hour-length.
- **Base Name File:** Control to set to set the file base name for a stream. The maximum length of the octet string is 256 characters. The real name of the captured stream will be basenamefile Plus timestamp.
- **File Size:** Control to set to set the maximum size of file when recording a stream into a file. The final recorded file size will be limited by the setting of the **file size** or duration (whichever comes first). Maximum size is 1G byte and the unit is measured in Megabytes.
- **Manual Capture Control:** Control to manually record the stream. If the user does not stop the recording, the recording will stop when file size reaches maximum.
- **Capture Free Disk Space:** Displays the storage size available for additional capture. The unit is in Kilo bytes.
- **Capture Status:** Display the capturing process progression. The unit is Megabytes.

7.1.4. INPUT CONTROL

- **Monitor Enable:** Using this drop-down box it is possible to enable or disable individual inputs to stop alarm generation. This stops all alarms from the 7881TSM being sent to the VLPro Server.
- **Destination IP address:** Enter here the destination IP address (Unicast/Multicast) you want the TSM to monitor.
- **Port Number:** Enter here the destination port number for the IP address entered above.
- **Ethernet Port:** Use this drop down box to select the GigE port to be used to receive the stream to be monitored.

7.2. INPUT MONITOR

The Input Monitor Tab provides the user with an overview of the input status.

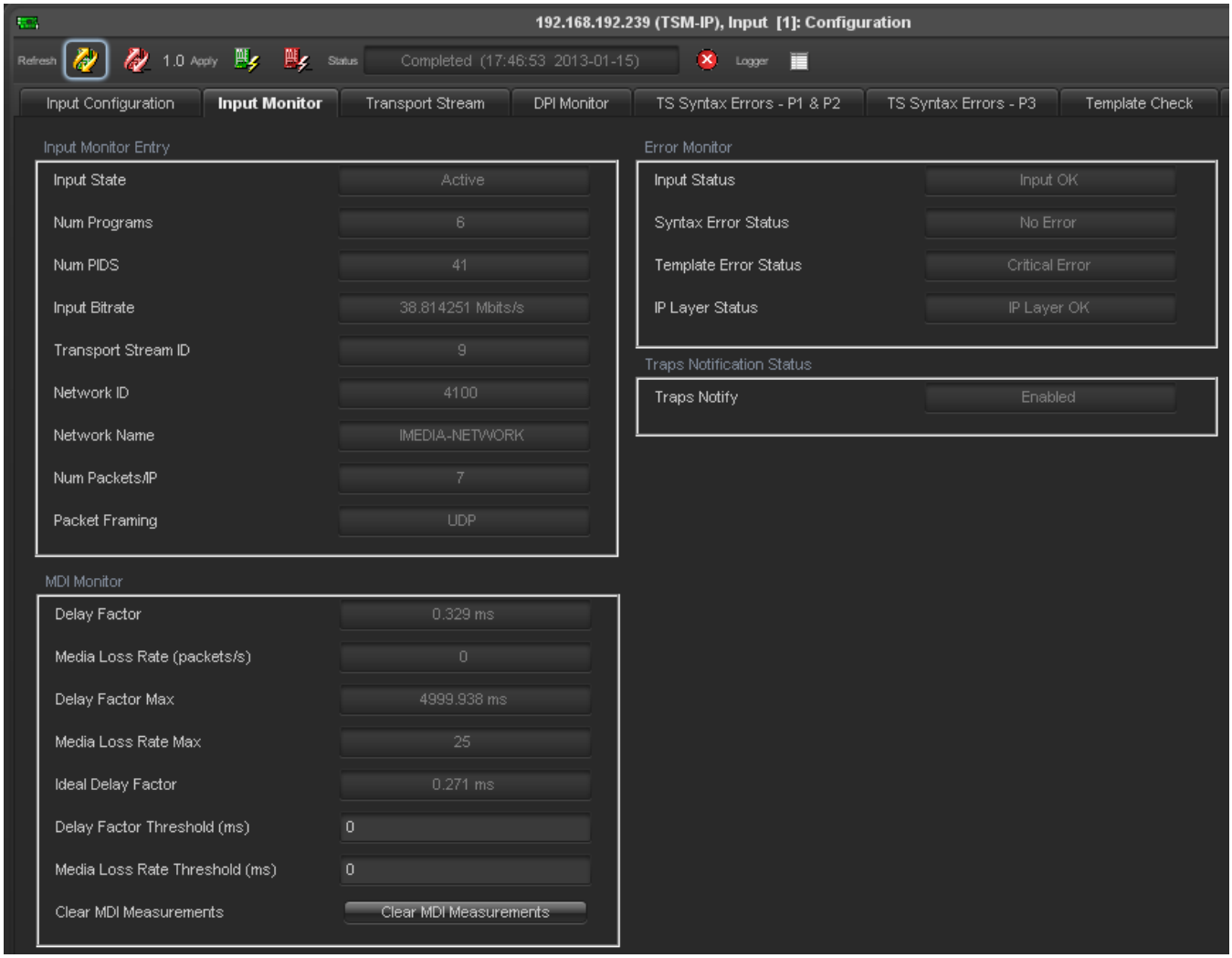


Figure 7-2 - VistaLINK PRO Input Monitor Tab

7.2.1. INPUT MONITOR ENTRY

- **Input State:** Either active or inactive.
- **Num Programs:** This is the number of programs found in the input stream.
- **Num PIDS:** This is the total number of individual PIDs found in the stream.
    - Includes all ghost PIDs and Null packets.
- **Input Bit rate:** This is the current bit rate of the input ASI stream.
- **Transport Stream ID:** The decimal value for the input stream.
    - For example: Corresponds to one satellite transponder.
- **Network ID:** The decimal value for Transport Stream Network ID.
    - For example: Corresponds to one entire satellite of transponders.
- **Network Name:** If available the network name will be displayed.
- **Num Packets/IP:** Displays the number of MPEG packets per IP packet.
- **Packet Framing:** Displays the type of framing being used, either UDP or TCP.

7.2.2. MDI MONITOR

- **Delay Factor:** The Delay Factor is the maximum difference measured between the arrivals of each packet over a one second period. The value shown is measured in milliseconds and represents the delay factor in the last second.
- **Media Loss Rate (packets/s):** Displays the media loss rate. This is defined as the number of lost or out-of-order media packets per second. This is measured using the continuity count in the MPEG header.
- **Delay Factor Max:** Displays the Max delay factor since the last reset. The delay factor that is acceptable for any particular network varies greatly because of the wide range of buffer sizes used in STBs.
- **Media Loss Rate Max:** Displays the max Media Loss Rate since the last reset. Loss of media can cause distorted video and audio. Each lost IP packets can mean as many as seven MPEG packets being lost. Loss of consecutive IP packets will affect the media more severely.
- **Ideal Delay Factor:** Displays, in milliseconds, a calculated value representing the ideal delay factor, which depends on the stream bitrate and the available bandwidth of the network (Up to 200Mb/s for the TSM).
- **Delay Factor Threshold (ms):** A user definable value in milliseconds. When this value is exceeded an SNMP trap will be sent to VLPro providing notification that the stream has exceeded the preset Delay Factor Threshold value.
- **Media Loss Rate Threshold:** A user definable value in milliseconds. When this value is exceeded an SNMP trap will be sent to VLPro providing notification that the stream has exceeded the preset Media Loss Rate Threshold value.
- **Clear MDI measurements:** Click on the button to reset all the MDI measurements recorded.

7.2.3. ERROR MONITOR

- **Input Status:** A system message to notify the user if the input is valid IP.
- **Syntax Error Status:** A system message to notify the user if any of the ETSI TR 101 290 P1/P2/P3 monitoring tests are currently in an alarm condition. The tests which have been checked (Fault Monitor) are displayed here. The determination of the severity can be selected on the syntax tabs.
- **Template Error Status:** A system message to notify the user if the TS input does not comply with the template parameters entered in the Input Configuration Window TS.
- **IP Layer Status:** A system message that displays the current status of the IP Layer. If the IP address and port number has been correctly entered and the stream is available this will display IP Layer OK.

7.3. TRANSPORT STREAM

The standard Transport Stream parameters are displayed using trees for which the branches can be expanded or collapsed by pressing respectively the “+” or “-” sign.
Selecting the “+” beside the tree root (i.e. “PID Tree”) will drill down to the PSI/SI Tables (i.e “Tables & Others”) and programs sub-tree. Selecting the “+” beside “Tables & Others” will drill down to tables (PAT, PMT, SDT…) submenu. Each table submenu will drill down to the table descriptors.
Selecting the “+” beside each program will drill down to the Elementary Streams (ES) submenu. Each will drill down to the ES descriptors.

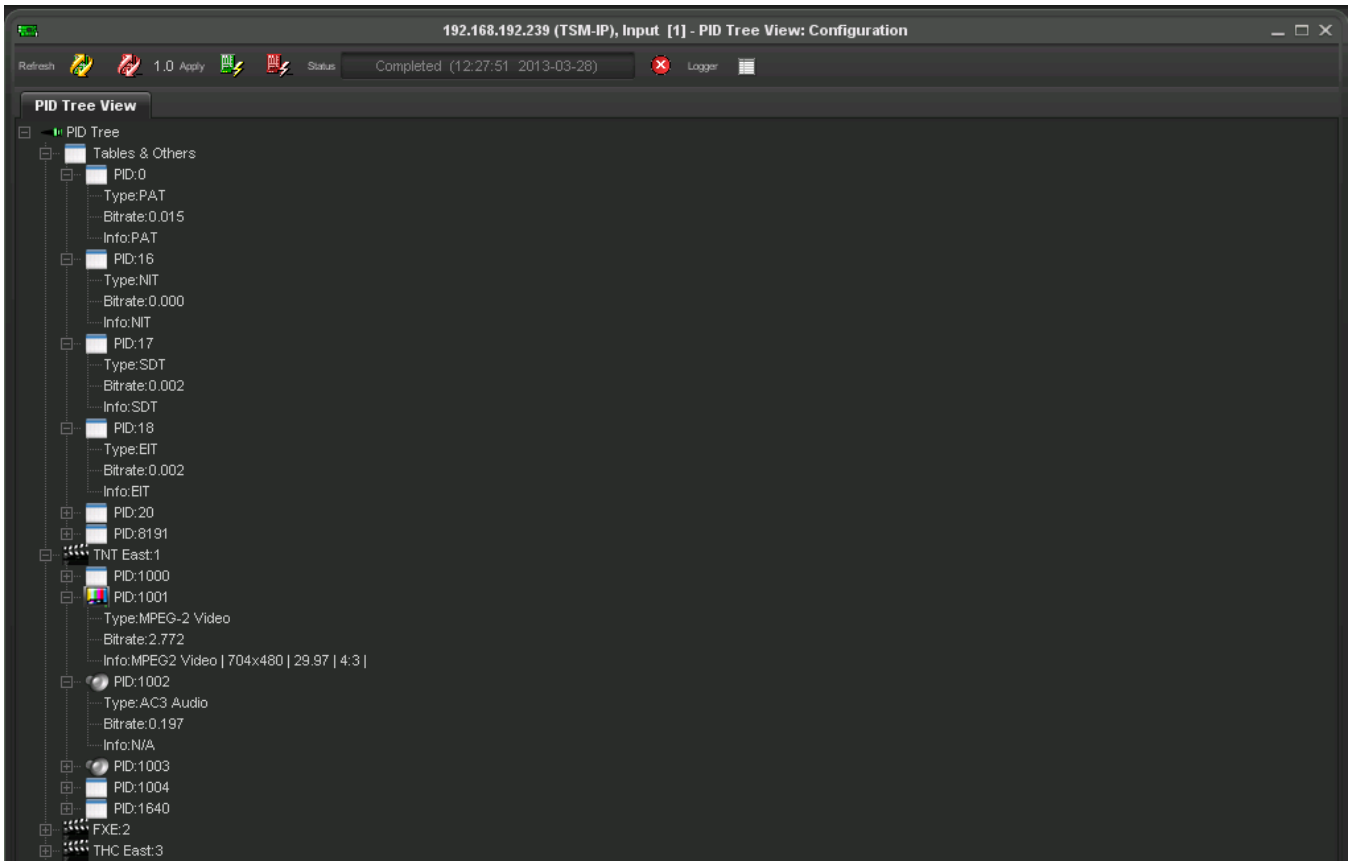


Figure 7-3 - VistaLINK PRO Transport Stream Tab

7.4. DPI MONITOR

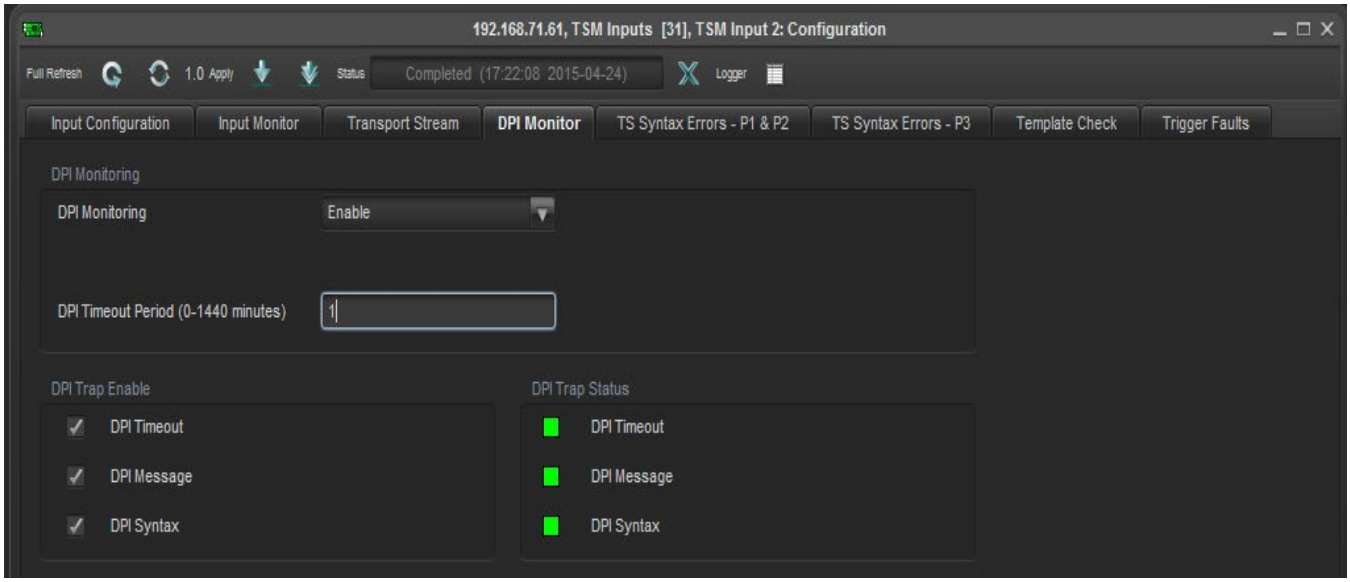


Figure 7-4 - VistaLINK PRO DPI Monitor Tab

7.4.1. DPI MONITORING

DPI Monitor Enabling: This parameter allows the user to enable/disable all DPI monitoring. It is a global enable/disable for all DPI traps.

DPI Inactivity Timeout: This parameter sets the duration of the DPI inactivity timeout in minutes. If the period set on the slider is exceeded between DPI pid arrivals a DPI timeout trap is triggered.

7.4.2. DPI TRAP ENABLE

DPI Timeout: This control enables/disables the DPI Timeout SNMP trap.

DPI Message: This control enables/disables the DPI Message SNMP trap.

DPI Syntax: This control enables/disables the DPI Syntax SNMP trap.

7.4.3. DPI TRAP STATUS

DPI Timeout: Indicates whether the specified timer runs out before the program receives a new DPI message since the last DPI message was received. If the DPI Inactivity Timeout setting is met before the next DPI packet arrives a trap will be sent. This is only the status this parameter wouldn't send any trap.

DPI Message: Indicates whether the stream has received a DPI PID. This parameter will send a trap every time a DPI message is received on the input. This is only the status this parameter wouldn't send any trap.

DPI Syntax: Indicates whether the received DPI message has a syntax error. A trap will be sent if there is any issue with the structure of a DPI packet in the stream. This is only the status; this parameter wouldn't send any trap.

7.5. TS SYNTAX ERRORS FOR P1 AND P2

This tab displays a general health check of the most important elements of the TS. The tests are not exhaustive and are outlined in detail in the document Digital Video Broadcasting (DVB); Measurement guidelines for DVB systems ETSI TR 101 290. It should be noted that the P3 errors are context sensitive to the type of input stream selected (under Input Configuration).

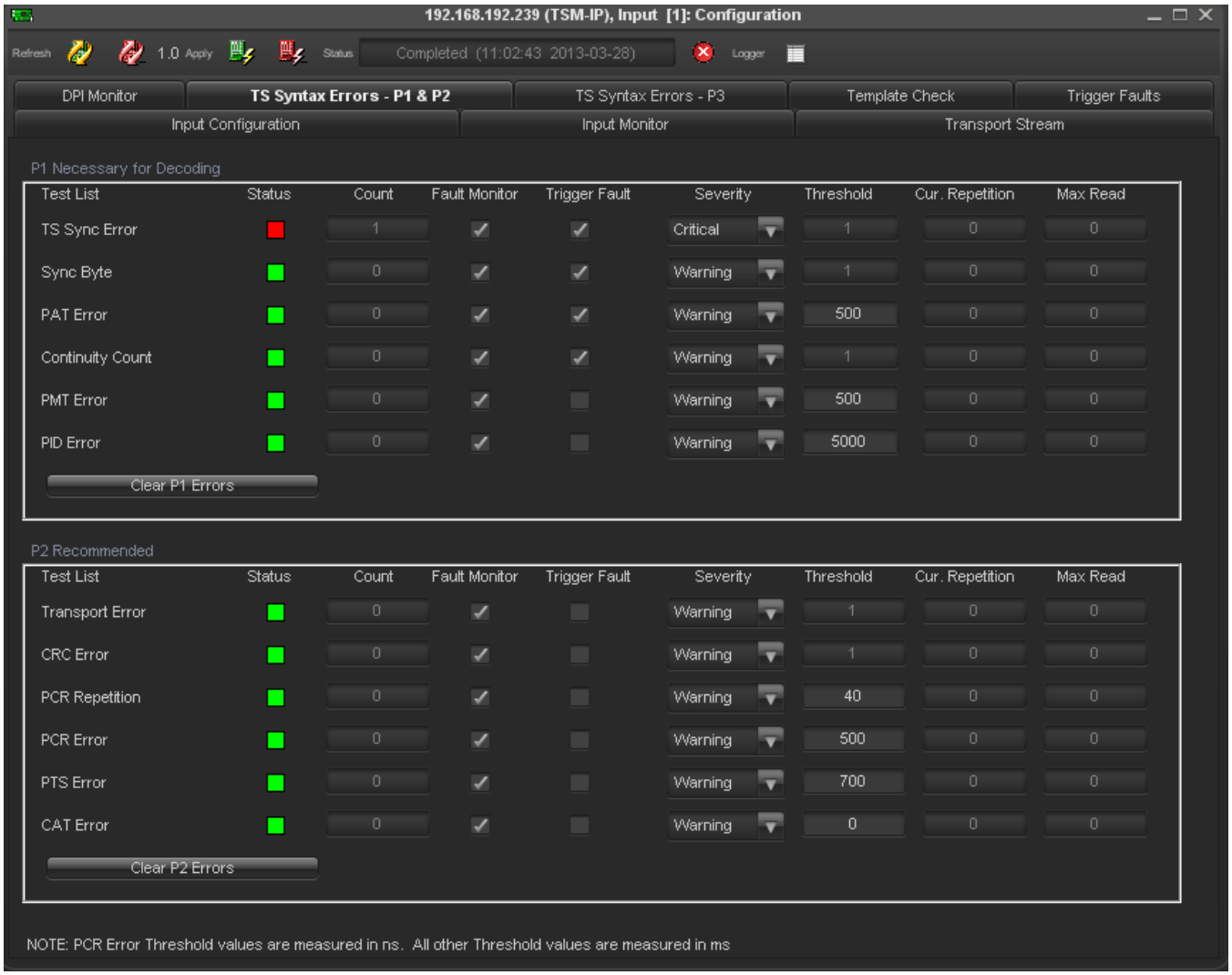


Figure 7-5 - VIstaLINK PRO TS Syntax errors - P1 & P2 Tab

For each test there is a Fault Monitor check box (1) and a Trigger fault (2). Selecting the check box 1 will update the Input Configuration Tab Syntax Error status. The highest alarm severity will prevail. When selecting the checkbox 1, be sure to select, from the drop down box, the severity that is associated with this alarm. Selecting the check box 2 will enable the relevant SNMP trap to be triggered and send to VLPro.

7.5.1. P1 NECESSARY FOR DECODING

- **TS_sync_loss:** The most important function for the evaluation of data from the MPEG-2 TS is the sync acquisition. The actual synchronization of the TS depends on the number of correct sync bytes necessary for the device to synchronize; two or more consecutive corrupted sync bytes indicate sync loss. After synchronization has been achieved the evaluation of the other parameters is carried out.
- **Sync_byte_error:** The indicator "Sync_byte_error" is set as soon as the correct sync byte (0x47) does not appear after 188 or 204 bytes. This is fundamental because this structure is used throughout the channel encoder and decoder chains for synchronization. It is also important that every sync byte is checked for correctness since encoders do not necessarily check the sync byte.
- **PAT_error:** The Program Association Table (PAT), which only appears in PID 0x0000 packets, tells the decoder what programs are in the TS and points to the Program Map Tables (PMT) which in turn point to the component video, audio and data streams that make up the program. If the PAT is missing then the decoder can do nothing, no program is decodable. Nothing other than a PAT should be contained in a PID 0x0000.
- **Continuity_count_error:** For this indicator three checks are combined. The preconditions "Incorrect packet order" and "Lost packet" could cause problems for receivers that are not equipped with additional buffer storage and intelligence. It is not necessary for the test equipment to distinguish between these two preconditions as they are logically OR-ed, together with the third precondition, "a packet occurs more than twice" into one indicator.
- **PMT_error:** The Program Association Table (PAT) tells the decoder how many programs there are in the stream and points to the PMTs that contain the information where the elementary streams for any given event program can be found. Elementary streams in this context are the video stream (normally one) and the audio streams and the data stream (e.g. Teletext). Without a PMT the corresponding program is not decodable.
- **PID_error:** It is checked whether there exists a data stream for each PID that occur. This error often occurs where TS are multiplexed, or demultiplexed and again remultiplexed.

7.5.2. P2 RECOMMENDED

- **Transport_error:** The primary Transport_error indicator is Boolean which counts the erroneous TS packets. This counter is intended for statistical evaluation of the errors. If an error occurs, no further error indication should be derived from the erroneous packet.
- **CRC_error:** The CRC check for the CAT, PAT, PMT, NIT, EIT, BAT, SDT and TOT indicates whether the content of the corresponding table is corrupted. In this case no further error indication should be derived from the content of the corresponding table.
- **PCR_repetition_error:** The PCRs are used to re-generate the local 27 MHz system clock. If the PCR do not arrive with sufficient regularity then this clock may jitter or drift. The receiver/decoder may even go out of lock. This error indicates that the time interval between two consecutive PCR values is more than 40 ms.
- **PCR_accuracy_error:** The accuracy of ±500 ns is intended to be sufficient for the colour subcarrier to be synthesized from the system clock. This test should only be performed on a constant bitrate TS as defined in ISO/IEC 13818-1.
- **PTS_error:** The Presentation Time Stamps (PTS) should occur at least every 700 ms. The PTS is only accessible if the TS is not scrambled.
- **CAT_error:** The CAT is the pointer to enable the receiver to find the EMMs associated with the CA system(s) that it uses. If the CAT is not present, the receiver is not able to receive management messages.

7.6. TS SYNTAX ERRORS FOR P3

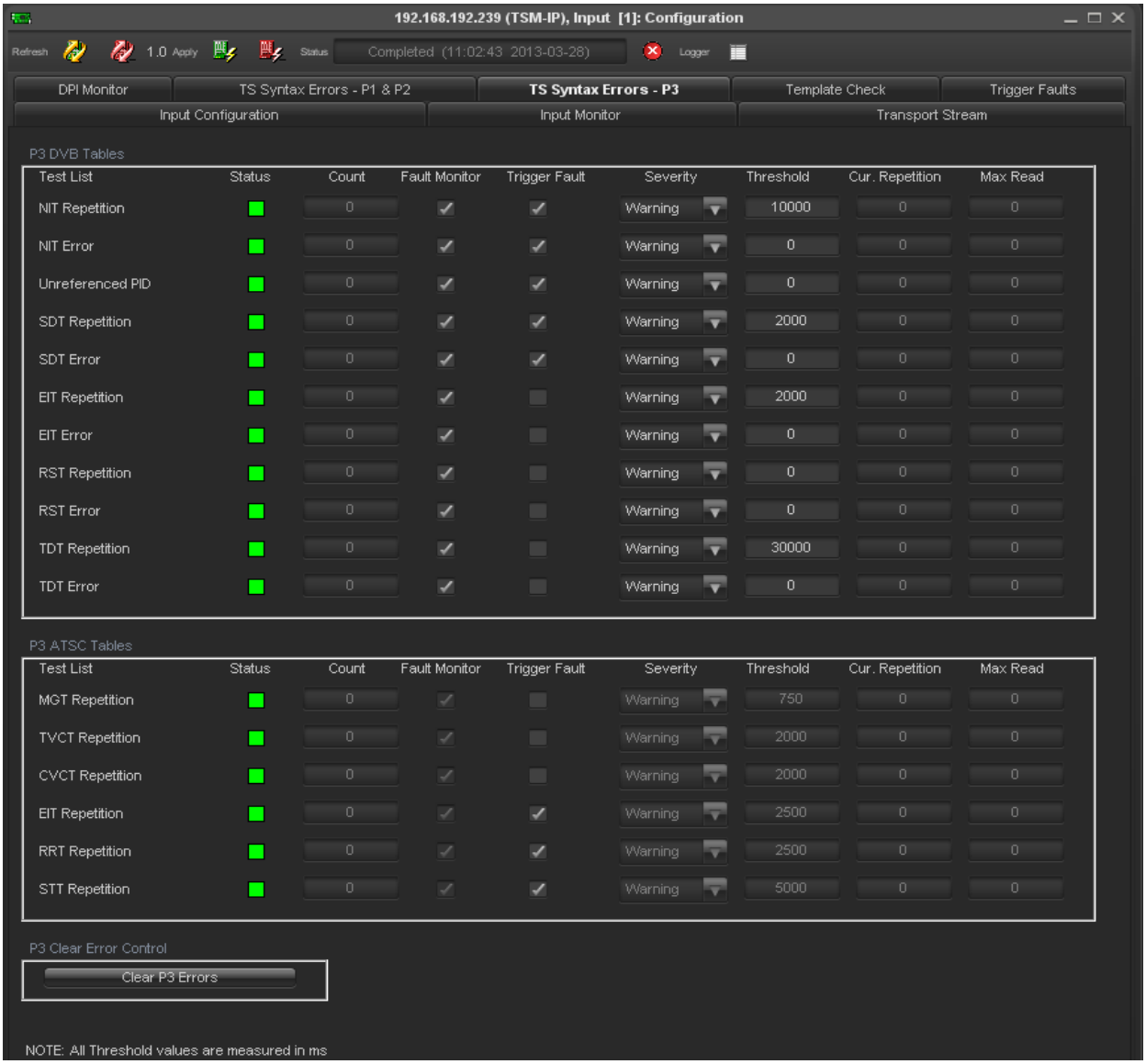


Figure 7-6 - VistaLINK PRO TS Syntax Errors - P3 Tab

7.6.1. P3 DVB TABLES

- **NIT_Repetition_error:** This test checks that any two sections with table_id = 0x40 (NIT_actual) occur on PID 0x0010 within a 25 ms.
- **NIT_error:** Network Information Tables (NITs) as defined by DVB contain information on frequency, code rates, modulation, and polarization etc. of various programs that the decoder can use. It is checked whether NITs are present in the TS and whether they have the correct PID. The test checks that sections with table_id 0x40 or 0x41 in PID value 0x0010 occur at least every 10 s.
- **Unreferenced_PID:** Each non-private program data stream should have its PID listed in the PMTs. This test detects the presence of a PID (other than PAT, CAT, CAT_PIDs, PMT_PIDs, NIT_PID,

SDT_PID, TDT_PID, EIT_PID, RST_PID, reserved_for_future_use PIDs, or PIDs user defined as private data streams) not referred to by a PMT within 0.5 s.

- **SDT_error:** The SDT describes the services available to the viewer. It is split into sub-tables containing details of the contents of the current TS (mandatory) and other TS (optional). Without the SDT, the IRD is unable to give the viewer a list of what services are available. It is also possible to transmit a BAT on the same PID, which groups services into "bouquets".
- **SDT_Repetition_error:** This test checks that the SDT information which describes the services contained in a particular Transport Stream is transmitted at least every 2 seconds on PID 0x0011.
- **EIT Repetition:** This test checks the EIT information that describes what is currently on and what will be on next on each service in a particular Transport Stream. By default it is transmitted at least every 2 seconds.
- **EIT_error:** The EIT (Event Information Table) describes what is on now and next on each service, and optionally details the complete programming schedule. The EIT is divided into several sub-tables, with only the "present and following" information for the current TS being mandatory. The EIT schedule information is only accessible if the TS is not scrambled.
- **RST_Repetition_error:** This test checks that any two sections with table_id = 0x71 (RST) occur on PID 0x0013 within 25 ms (or lower).
- **RST_error:** The RST is a quick updating mechanism for the status information carried in the EIT.
- **TDT_Repetition_error:** This test checks that any two sections with table_id = 0x70 (TDT) occur on PID 0x0014 within 25 ms.
- **TDT_error:** Sections with table_id = 0x70 (TDT) not present on PID 0x0014 for more than 30 s. The TDT carries the current UTC time and date information.

More information can be found at: http://www.etsi.org

7.6.2. P3 ATSC TABLES

- **MGT Repetition:** Master Guide Table. For each type of PSIP tables, the MGT provides the location in the Transport stream, the current version of the table and the length in bytes. This test checks that the Master Guide Table repetition rates do not exceed 150ms.
- **TVCT Repetition:** Terrestrial Virtual Channel Table. Consists of virtual channel definitions where each channel is characterized by the two-part channel number that the user will use to access the service, its text name, how the service is physically delivered, its MPEG-2 program_number, its “source ID” and the type of service. This test checks that the Terrestrial Virtual Channel Table repetition rates do not exceed 400ms.
- **CVCT Repetition:** Cable Virtual Channel Table. Consists of virtual channel definitions where each channel is characterized by the two-part channel number that the user will use to access the service, its text name, how the service is physically delivered, its MPEG-2 program_number, its “source ID” and the type of service. This test checks that the Cable Virtual Channel Table repetition rates do not exceed 400ms.
- **EIT Repetition:** The PSIP table that carries program schedule information for each virtual channel, this test checks the following is true:

- EIT-0 Once every 0.5 seconds
- EIT-1 Once every three seconds
- EIT-2 and EIT-3 Once every minute

- **RRT Repetition:** Rating Region Table. Defines a rating system for a given region characterized by a number of rating dimensions, each of which is composed of two or more rating levels. This test checks that the Rating Region Table repetition rates do not exceed 60,000ms.
- **STT Repetition:** System Time Table. Provides a reference for the time-of-day to receivers. This test checks that the System Time Table repetition rates do not exceed 1000ms.

More information can be found at: http://www.atsc.org

ETSI TR 101 290 Test Conditions

The status LED located to the left of each test will highlight, when in Auto-Refresh the dynamic status of the stream.

For the majority of the ETSI TR 101 290 test it is possible to configure custom configurations to ensure that particular alarms and conditions are fed back to the operator. It is important to select the Monitor Enable check box (to enable custom monitoring parameters to be invoked), select the desired alarm Severity and then configure the test Threshold.

NOTE: Syntax Errors P1, P2 & P3 are measured in ms. PCR Errors are measured in ns.

7.7. TEMPLATE CHECK

The template check tab is a user configurable tab for validating the compliancy of the TS input against the template parameters entered.

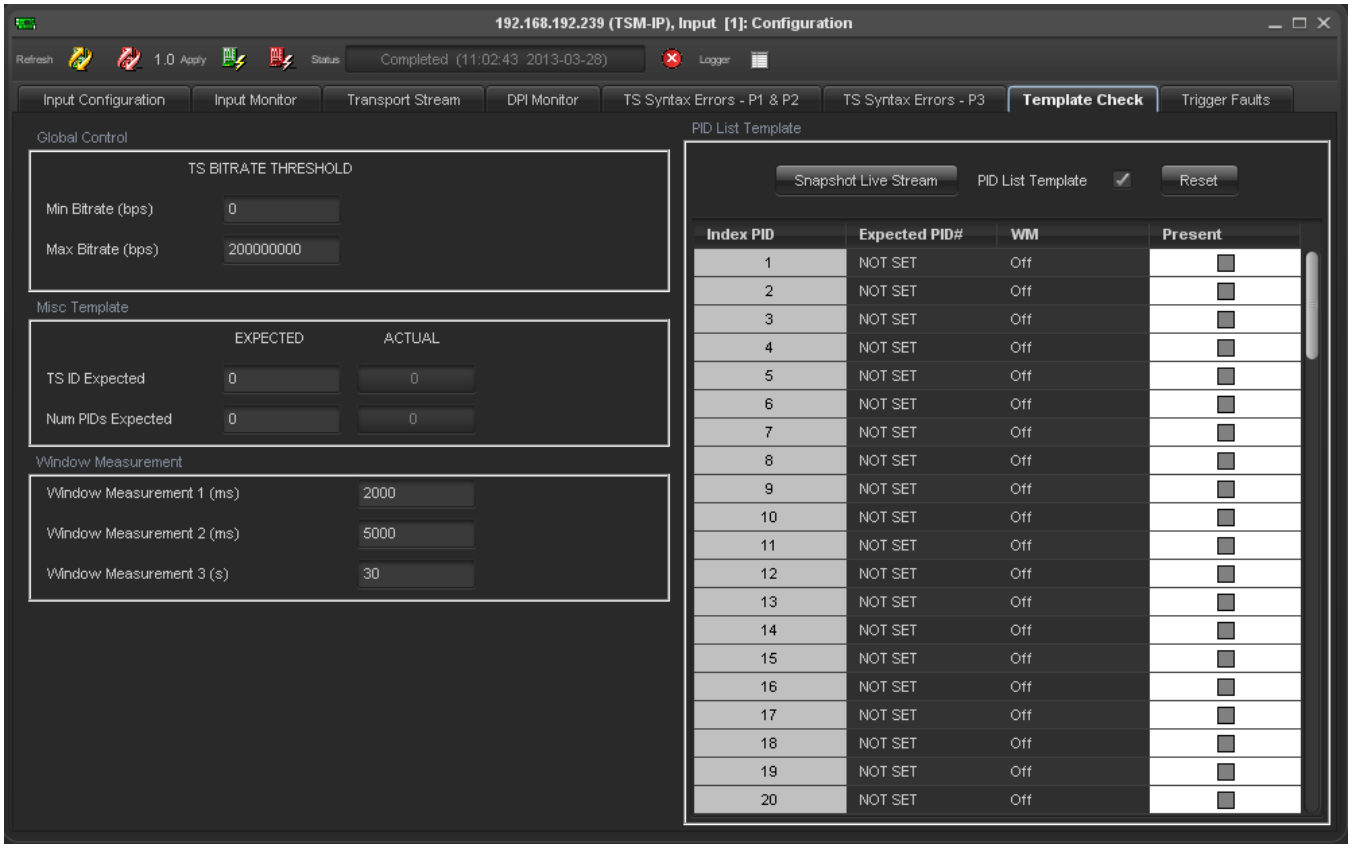


Figure 7-7 - VistaLINK PRO Template Check Tab

7.7.1. GLOBAL CONTROL

Min Bitrate: Enter a decimal value corresponding to the absolute lowest bitrate expected for the whole stream; an alarm condition will be caused if the stream rate should drop below this value.

Max Bitrate: Enter a decimal value corresponding to the highest bitrate expected for the whole stream; an alarm condition will be caused if the stream rate should exceed this value.

7.7.2. MISC. TEMPLATE

TS ID Expected: Enter the value for the Transport Stream ID expected, enter zero to disable the test.

Note: It is not possible to enter the TS ID as a Hex value.

Num PIDs Expected: Enter here the number of PIDs expected in the stream (including the null packets if any), enter zero to disable the test.

7.7.3. WINDOWS MEASUREMENT

The window measurement values determine at what interval each PID (within the PID List Template) should be expected before an alarm condition is met.

Windows Measurement 1 (ms): Enter a decimal value, measurement is in milliseconds.

Windows Measurement 2 (ms): Enter a decimal value, measurement is in milliseconds.

Windows Measurement 1 (s): Enter a decimal value, measurement is in seconds.

7.7.4. PID LIST TEMPLATE

The *PID List Template* provides a stream conformance or validation check. Here we can check the presence of each PID using one of the Window Measurements as detailed above.

Snapshot Live Stream: This control is used to populate the PID List window with the PIDs currently found in the stream. Use of this control is slightly different to most normal operations within VLPro.

- Upon selecting the *Snapshot Live Stream* button, the action trigger is automatically executed and the PID List Template Windows is refreshed after selecting “OK” in the popup Windows.
- On an operational system ensure to de-select the *PID List Template* check box before making a new snapshot, this will avoid alarm conditions being raised as the PID List changes.

PID List Template: Once the *PID List Template* has been populated and fully configured, this check box must be checked to activate the PID List checking. Be sure to check the box once all configuration changes have been made.

Reset PID Template: This control is used to reset the PID List. All entries will be set to “NOT SET”, all *Windows Measurements* (WM) set to “Off”.

7.8. BITRATE VIEW

The standard transport stream parameters will be configured here. As shown below it is possible to see all the packets within the TS stream, organized in ascending order by Service ID. It is possible to reverse the ordering or select another column to re-sort the data. This can be done by double clicking the column header, making sure you are not in the auto refresh mode when doing this.

For each individual PID it is possible to view the minimum and maximum Bitrate since the last reset. By configuring the minimum and maximum threshold it is possible to configure the desired thresholds for notifying the user through VLPro. The Bitrate View is a dynamic view; by clicking the auto refresh it is possible to see near instantaneous values for the stream.

Prog. #	Prog. Na...	PID #	PID Type	Table ver.	Info	Bar Graph	Bitrate(...	Min Bitr...	Min Thr...	Max Bitr...	Max Thr...	Bitrate L...
		8191	NULL Pa...	255	NULL Pa...		12.868	9.237	0.000	12.868	100.000	IN LIMIT
1	TNT East	1000	PMT :PGM1	23	PMT :PGM1		0.006	0.006	0.000	0.007	100.000	IN LIMIT
1	TNT East	1001	MPEG-2 ...	255	MPEG2 V...		2.413	1.716	0.000	2.694	100.000	IN LIMIT
1	TNT East	1002	AC3 Audio	255	N/A		0.198	0.195	0.000	0.200	100.000	IN LIMIT
1	TNT East	1003	AC3 Audio	255	N/A		0.130	0.130	0.000	0.133	100.000	IN LIMIT
1	TNT East	1004	User Priv...	255	User Priv...		0.000	0.000	0.000	0.000	100.000	IN LIMIT
1	TNT East	1640	User Priv...	255	User Priv...		0.000	0.000	0.000	0.000	100.000	IN LIMIT
2	FXE	1005	PMT :PGM2	0	PMT :PGM2		0.006	0.006	0.000	0.006	100.000	IN LIMIT
2	FXE	1006	MPEG-2 ...	255	MPEG2 V...		7.725	5.794	0.000	8.259	100.000	IN LIMIT
2	FXE	1007	MPEG-2 ...	255	Layer II ...		0.135	0.135	0.000	0.139	100.000	IN LIMIT
2	FXE	1008	MPEG-2 ...	255	Layer II ...		0.138	0.135	0.000	0.140	100.000	IN LIMIT
2	FXE	1009	User Priv...	255	User Priv...		0.000	0.000	0.000	0.000	100.000	IN LIMIT
2	FXE	2062	AC3 Audio	255	N/A		0.198	0.195	0.000	0.200	100.000	IN LIMIT
2	FXE	2063	AC3 Audio	255	N/A		0.200	0.194	0.000	0.201	100.000	IN LIMIT
3	THC East	1010	PMT :PGM3	2	PMT :PGM3		0.006	0.006	0.000	0.007	100.000	IN LIMIT
3	THC East	1011	MPEG-2 ...	255	MPEG2 V...		3.681	3.681	0.000	4.388	100.000	IN LIMIT
3	THC East	1012	AC3 Audio	255	N/A		0.198	0.195	0.000	0.200	100.000	IN LIMIT
3	THC East	1013	AC3 Audio	255	N/A		0.196	0.195	0.000	0.201	100.000	IN LIMIT
3	THC East	1014	User Priv...	255	User Priv...		0.000	0.000	0.000	0.000	100.000	IN LIMIT

Figure 7-8 - VistaLINK PRO Bitrate View Tab

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8. APPENDIX

8.1. SETTING UP PROXY CONFIGURATION ON FRAME CONTROLLER

1. Open up the 7800FC (frame controller) webpage using its IP address and login with your credentials.

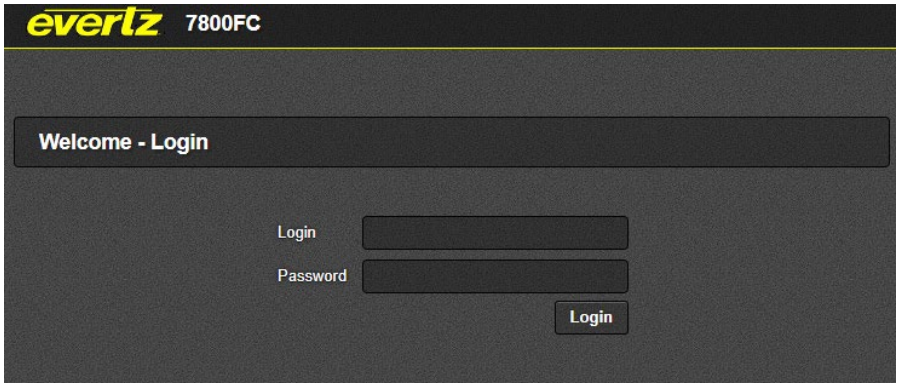

Figure 8-1 : WebEASY® - 7800FC Login

2. Open up the front door of 7800FR frame, note the slot your 7881TSM-IP is inserted in.
3. From the menu, click “Proxy Configuration”.

Figure 8-2 : WebEASY® - 7800FC Sidebar Menu

4. From the Network tab, click on the slot number where the 7881TSM-IP-GE is located
5. Enable proxy mode and enter the address, netmask, and gateway. Make sure this is on the same subnet as your FC.

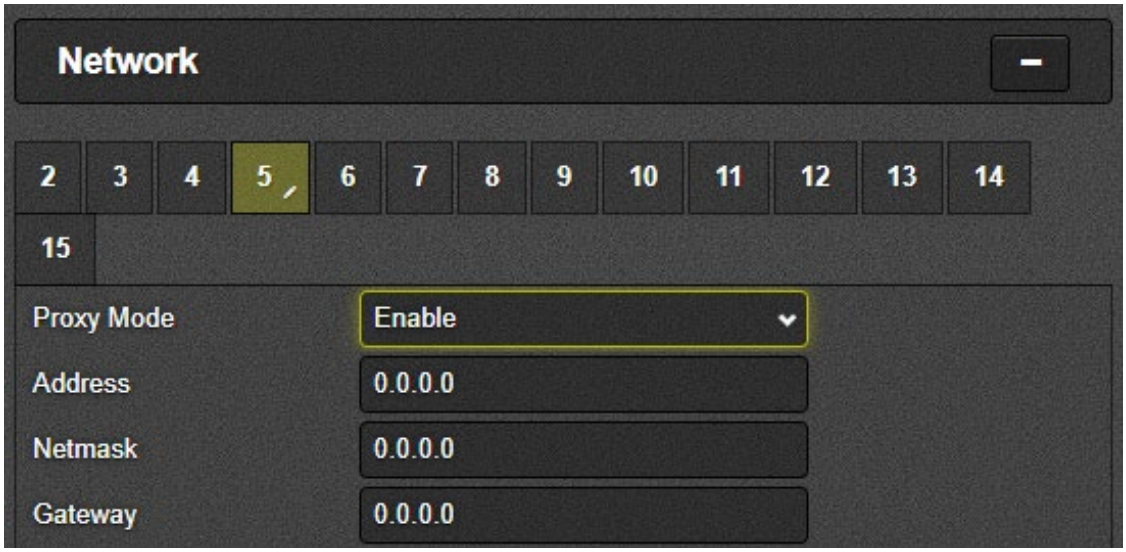

Figure 8-3 : WebEASY® - Network

6. Once everything is entered, hit the “Apply” key to save your settings.
7. Click the “Refresh” key to ensure the settings have been implemented.

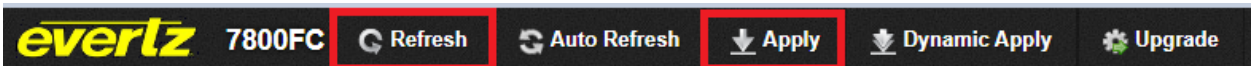

Figure 8-4 : WebEASY® - Top Menu Bar

8.2. CHANGING CONTROL IP ADDRESS THROUGH HDMI

1. Connect HDMI cable to the unit and a keyboard to one of the USB ports at front card edge
2. Login to the unit with **username: customer** and **password: customer**
3. Select option (2) Network Configuration

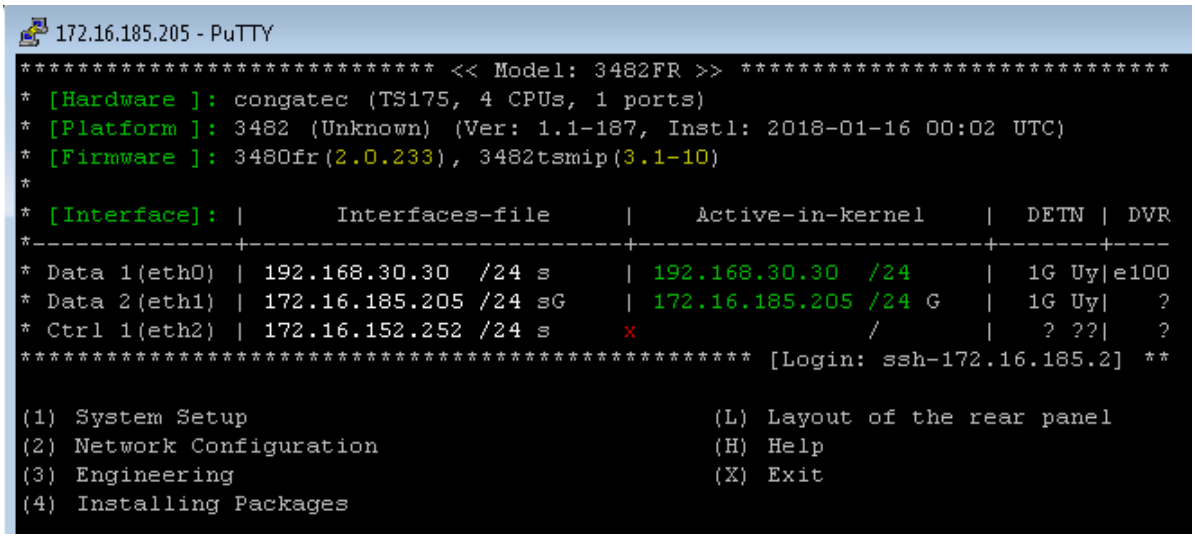

Figure 8-5: 7881TSM-IP PuTTy – Main Menu

4. Select option (1) Network Interfaces file

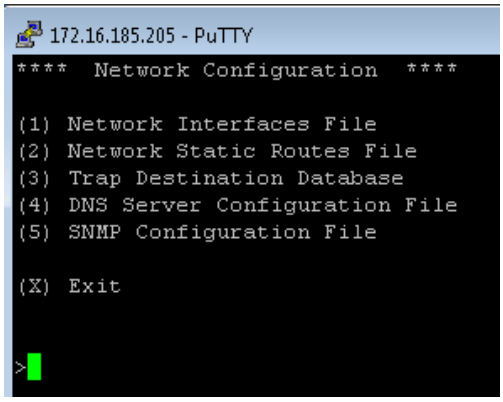

Figure 8-6: 7881TSM-IP PuTTy – Networking Configuration Menu

5. Using up/down/left/right keys on keyboard, move the cursor to Data 2 Address column. You can see square brackets [ ] appear at your current selection. Hit Enter.

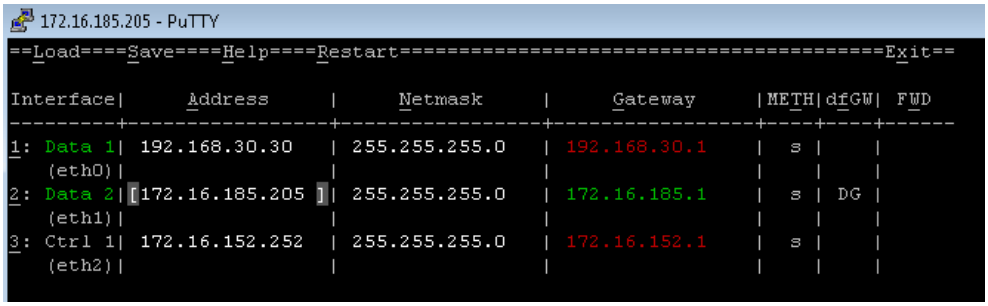

Figure 8-7: 7881TSM-IP PuTTy – Network Interfaces File Setting

6. Type in the new IP address you want to set. Hit Enter

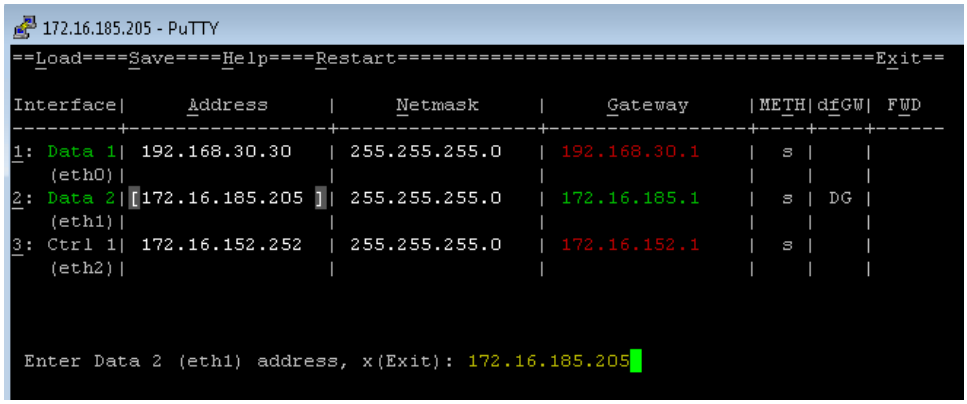

Figure 8-8: 7881TSM-IP PuTTy – Network Interfaces File Setting

7. Repeat steps 4 & 5 for setting Netmask and Gateway.
8. Move cursor to the “dfGW” column of Data2 (eth1) row. Click to set this to DG, as shown in above figure
9. Press “s” to save the changes
10. Press “x” to exit
11. Start a new putty session. Login using username:root and password:Evertz
12. Type “reboot” command to perform full restart of the unit. When the unit comes back, login into customer account and make sure new IP address is saved.
13. The IP address in “Interfaces-file” and “Active-in-kernel” should match. If it does not match, power cycle the unit again.

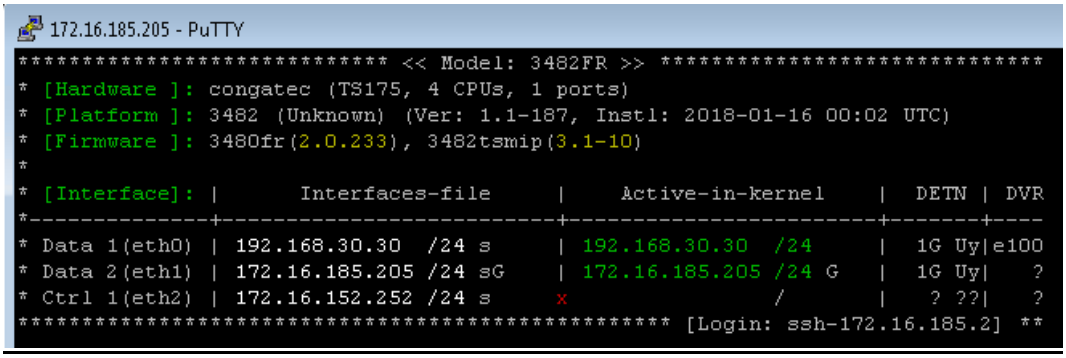

Figure 8-9: 7881TSM-IP PuTTy – Main Menu

9. FIRMWARE UPGRADE OF TSM USING VISTALINK PRO

1. Open VistaLINK PRO and expand the hardware tab in the navigation tree.

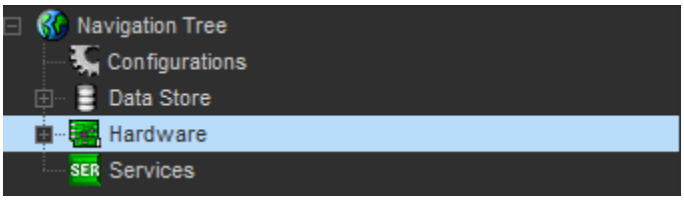

Figure 9-1 – VistaLINK PRO Navigation Tree

2. Add the TSM IP address if not added already. This is done by right-clicking the hardware tab and selecting “Add/Update Agent”. A pop-up will appear to enter the IP Address.

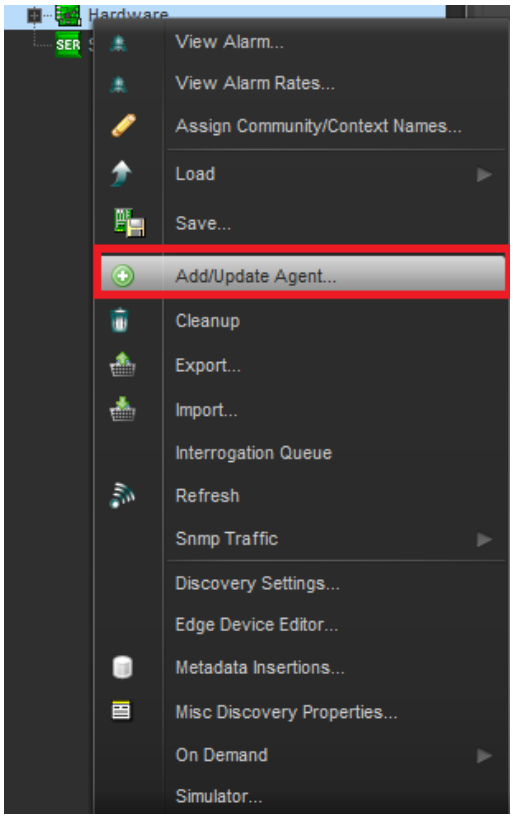

Figure 9-2 - VistaLINK PRO Hardware Tab - Contextual Menu

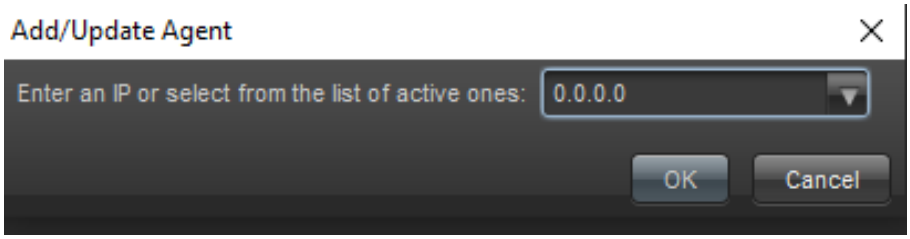

Figure 9-3 - VistaLINK PRO Add/Update Agent Setting

3. Expand the TSM IP address. Right-click on “TSM General” and select “Version Information” at the bottom.

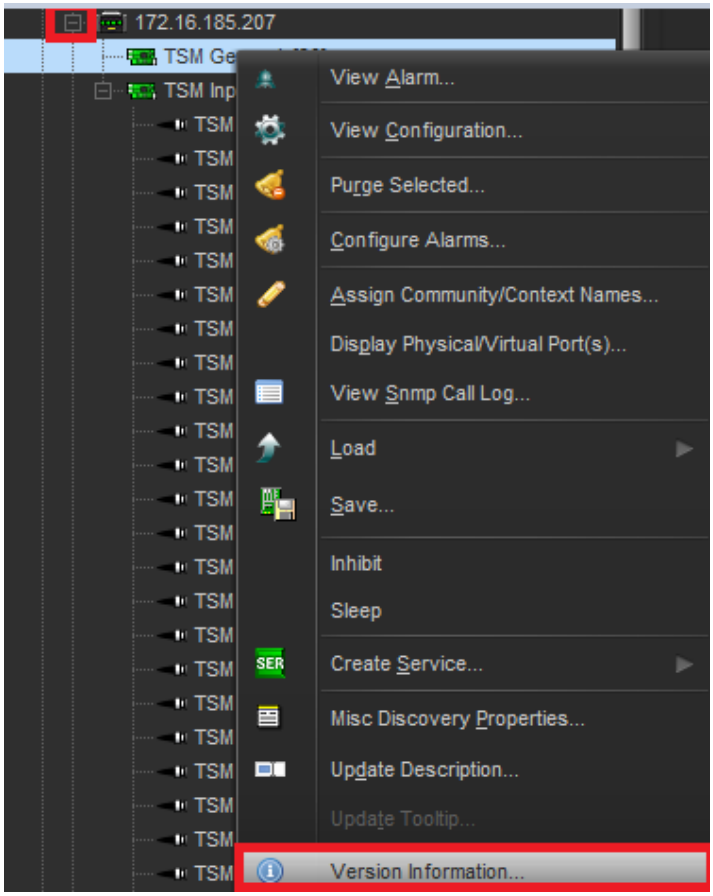

Figure 9-4 - VistaLINK PRO TSM General - Contextual Menu

4. Once the window opens, expand “7881” tab in the hardware tree and left-click the “TSM General” tab. Information will appear on the right side.

5. Ensure the current firmware version reads (As shown below):
   SW Major – “3”
   SW Minor – “01”
   SW Build – “10”

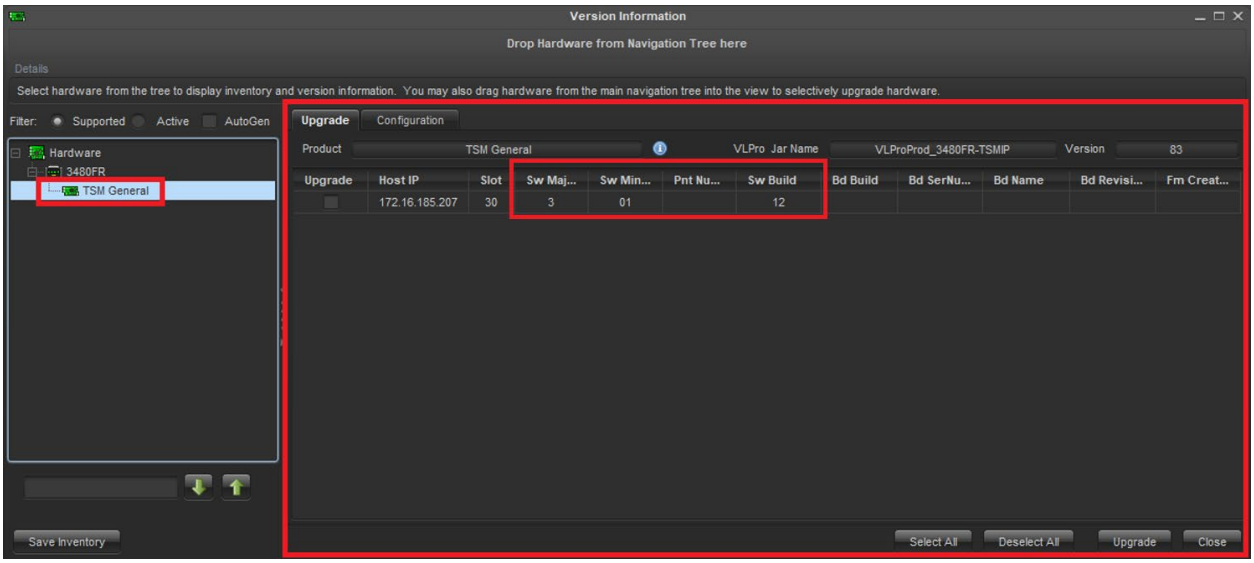

Figure 9-5 - VistaLINK PRO Version Information Setting

6. Checkmark the “Upgrade” box then hit the “Upgrade” button on the bottom-right.

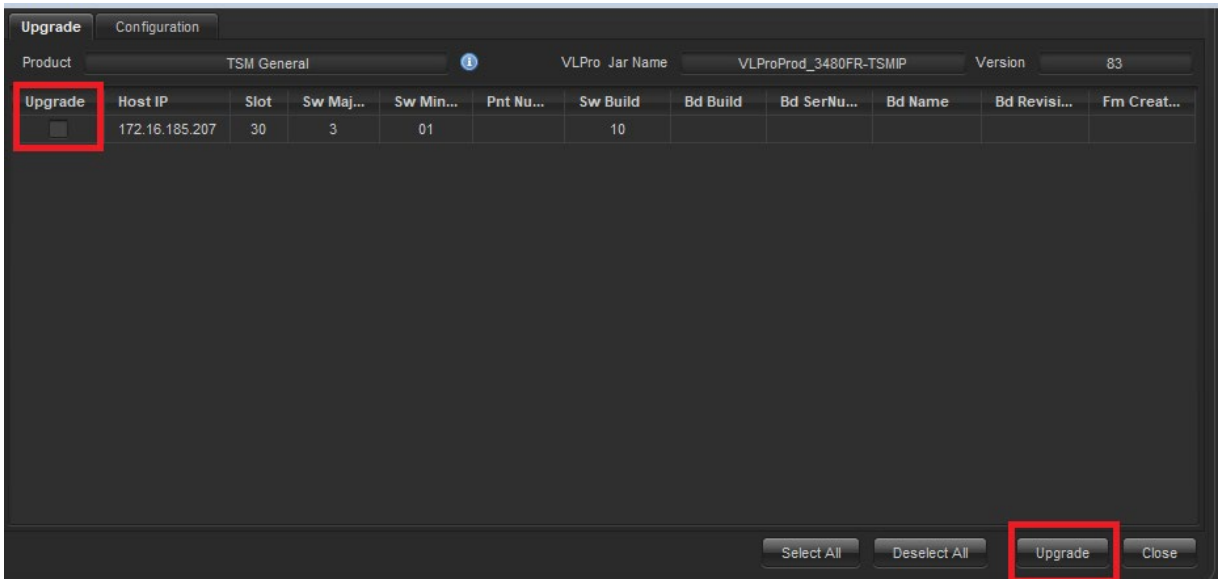

Figure 9-6 - VistaLINK PRO Version Information Setting - Upgrade Tab

7. Browse for the new firmware then hit the “Start” button and the upgrade will begin after 5 seconds. Once completed, the unit will reboot automatically.

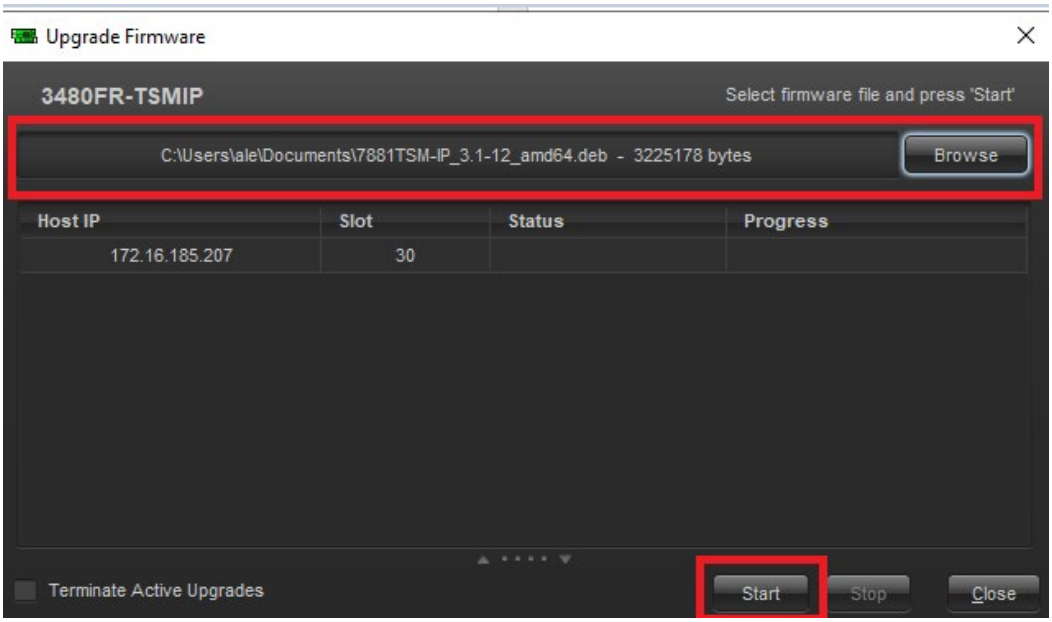

Figure 9-7 - VistaLINK PRO Update Firmware Setting

8. Once the unit is active again, reopen the “Version Information” window again.

9. Ensure the correct firmware version is installed properly (As shown below):
SW Major – “3”
SW Minor – “01”
SW Build – “12”

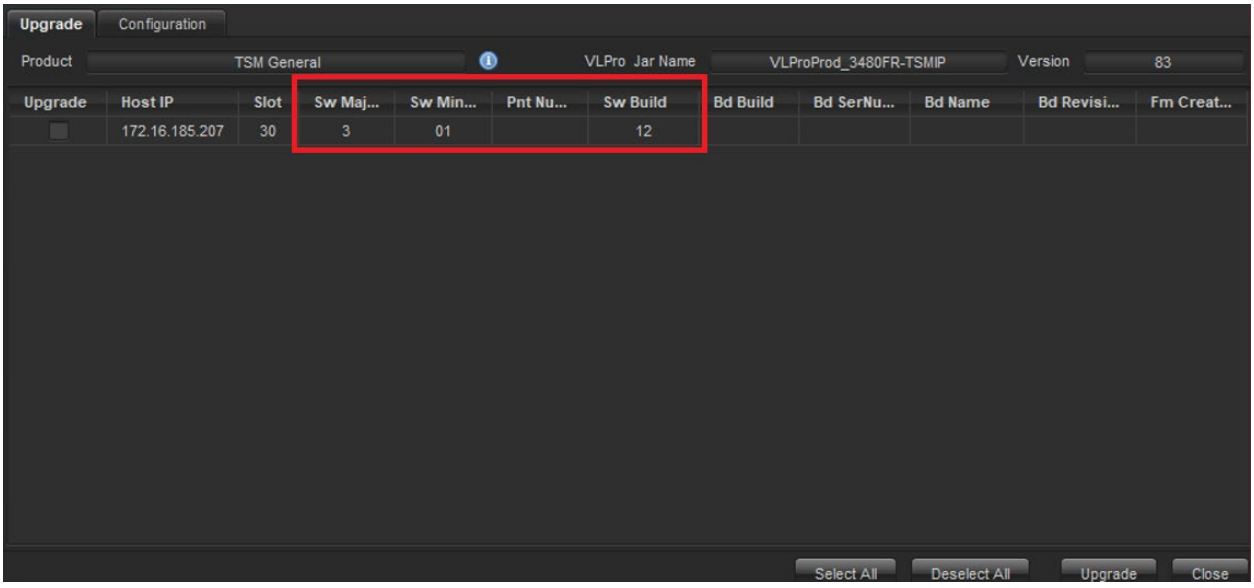

Figure 9-8 - VistaLINK PRO Version Information Setting - Upgrade Tab