2431RX-2
Dual Path Serial Digital to DVI Converter

Instruction Manual

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INFORMATION TO USERS IN EUROPE

NOTE

CISPR 22 CLASS A DIGITAL DEVICE OR PERIPHERAL

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

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

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

WARNING

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

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

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REVISION HISTORY

<u>REVISION</u>	<u>DESCRIPTION</u>	<u>DATE</u>
1.0	First Release	Mar 2014

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FIGURES

TABLES

1.   OVERVIEW

The 2431RX-2 is a versatile dual path serial digital to DVI converter. The 2431RX-2 is used for projects where high density extension of DVI over coax or fiber is required. 2431RX-2 is used as part of the EFX system for video wall and command center projects. This self-contained module accepts up to two serial inputs over coax or fiber (with additional SFP) and converts them to single link or dual link DVI with a resolution range of up to WQXGA (2560x1600). The possibility to support two paths simultaneously makes the 2431RX-2 a very cost effective Professional AV solution.

2431RX-2 can also be used in applications to convert SDI to DVI, and all major SMPTE standards are supported: SMPTE 259M, 292M, 425M-A, 425M-B.

Features & Benefits:

- Supports two dual independent serial digital inputs over coax up to 3Gbps
- Supports SMPTE standard serial digital inputs as well as Evertz proprietary
- It can optionally support two dual fiber inputs via a hot pluggable SFP
- VESA video resolutions supported up to WUXGA (1920x1200/60) when using Single Link DVI
- VESA video resolutions supported up to WQXGA (2560x1600/60) when using Dual Link DVI
- Full 24 bits-per-pixel color resolution
- Ideal for use with high resolution LCD, plasma, and projection screens
- Superior digital data transmission
- Compact form factor with optional VESA mount brackets (2400VESA)
- Supports single-mode and multi-mode fiber optic cable (contact factory for multi-mode applications)
- Two stereo analog audio outputs
- SNMP enabled for configuration.
- HDCP compliant
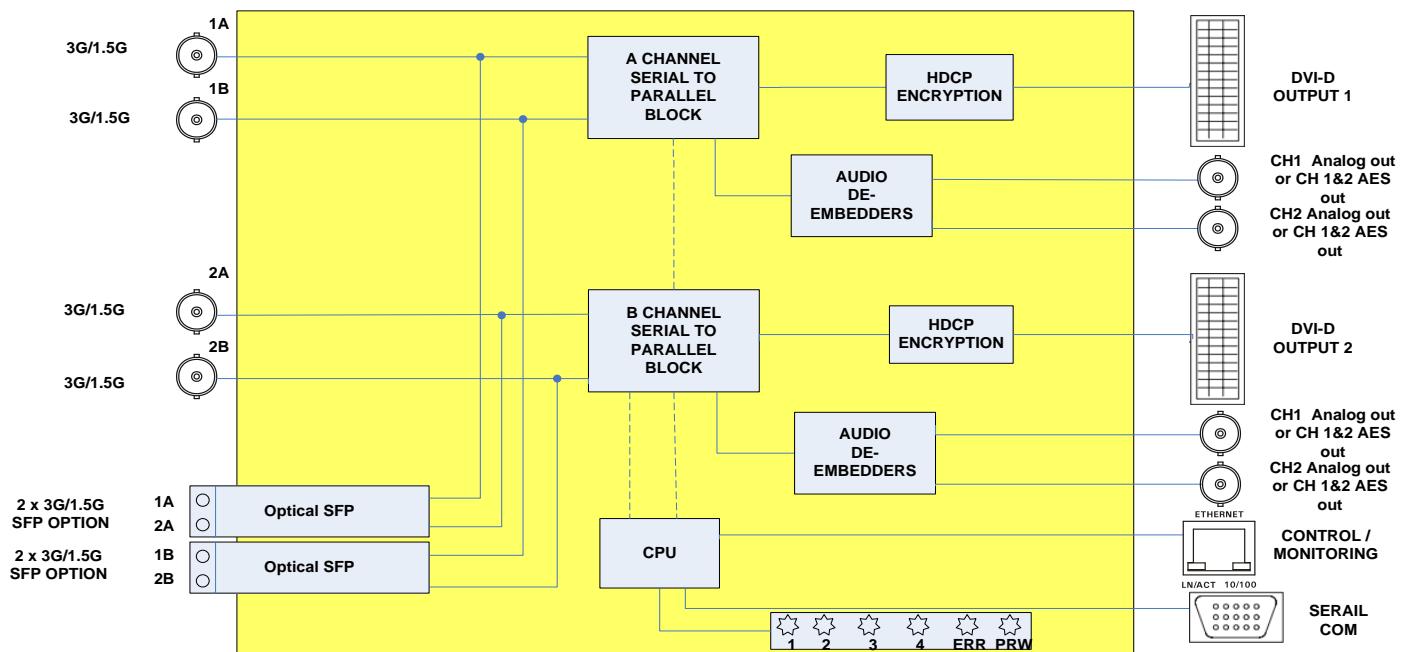
Figure 1-1: 2431RX-2 Block Diagram

2. SPECIFICATIONS

2.1. SERIAL INPUTS

Standard: SMPTE 259M, 292M, 424M and Evertz proprietary format (3Gbps/1.5Gbps)
Number of Inputs: 2 - total 4BNCs when in dual link reception mode
Connector: BNC per IEC 60 169-8 Amendment 2
Equalization: Automatic up to 50m

2.2. OPTICAL INPUT

Number of Inputs: 2 per single SFP (requires second SFP for dual link mode)
Connector: LC/UPC female housing
Maximum Input Power: -3dBm
Wavelength: 1310 nm to 1610nm
Optical Sensitivity: -19dBm
Fiber Size: 62μm core / 125μm overall

2.3. DVI OUTPUTS

Number of Outputs: 2
Connectors: 28 pin DVI-I
Video Resolution: Up to WUXGA (1920x1200) @ 60Hz single link
Up to WQXGA (2560X1600) @ 60Hz dual link
Color Resolution: 24 bits
Voltage Swing: 400mV minimum
Output Clock Jitter: 150ps maximum
Differential Skew: 50ps maximum

2.4. ANALOG AUDIO OUTPUT

Number of Outputs: 2 (1 stereo pair per DVI output)
Connectors: BNC per IEC 60 169-8 Amendment 2 (Includes BNC to RCA connector)
Impedance: High Impedance (> 20kΩ)
Frequency Response: ±0.1dB (20Hz to 20kHz)
THD < 0.005% (20Hz to 20kHz)
Channel Phase Difference < ±1°
SNR > 85DB
Level -20dB to +3dB
Maximum Output Level +24dBu into 10kΩ loads

2.5. ELECTRICAL

Voltage: +12VDC Auto ranging 100-240V AC 50/60Hz
Power: 11 Watts

2.6. PHYSICAL

Dimensions with mounting flanges: 7.81" L x 5.63" W x 1.75" H (199mm L x 143mm W x 45mm H)
Weight: 1 lbs. (0.45 kg)

2.7. COMPLIANCE

Electrical Safety: Power supply UL listed
                            Complies with CE Low voltage directive
Laser Safety: Class 1 laser product
                            Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
                            EU EMC directive

3.   INSTALLATION

The 2431RX-2 is a compact module that has four BNC connectors for serial digital input, four BNC connectors for analog audio output (BNC to RCA connector included), 4 fiber optic connectors (2 per SFP), two DVI-I connectors for video outputs, one DB-9 serial port connector for settings and one Ethernet connector for control and monitoring.
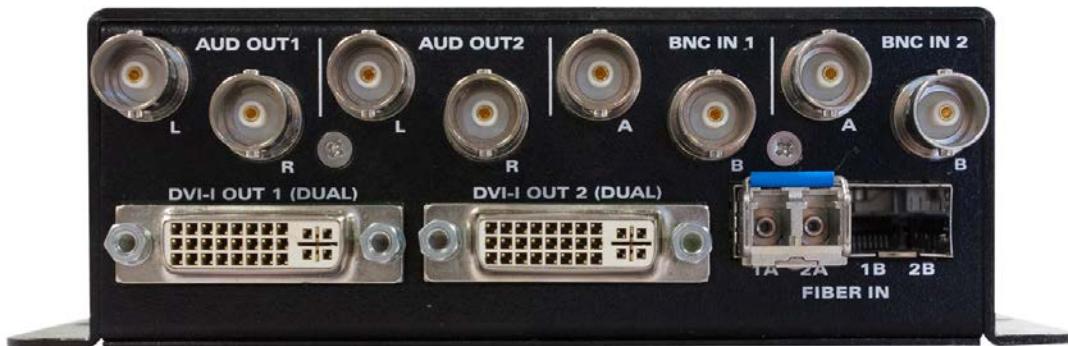
Figure 3-1: 2431RX-2 Rear View

3.1.   POWER

The 2431RX-2 comes with an auto-ranging DC voltage adapter that automatically senses the input voltage. Power should be applied by connecting a 3-wire grounding type power supply cord to the power entry module on the DC voltage adapter. The power cord should be minimum 18 AWG wire size; type SST marked VW-1, maximum 2.5 m in length. The DC cable of the voltage adapter should be connected to the DC power jack on the rear panel. A green LED located beside the DIP switch connector will be illuminated when there is power applied to the 2431RX-2.

12VDC

3.2.   DVI-I CONNECTORS

DVI-I connector is for digital video output. The table below lists pin outs in the DVI-I connector.

Pin	Signal	Pin	Signal	Pin	Signal
1	Data2-	9	Data1-	17	Data0-
2	Data2+	10	Data1+	18	Data0+
3	Data2/4 Shield	11	Data1/3 Shield	19	Data0/5 Shield
4	Data4-	12	Data3-	20	Data5-
5	Data4+	13	Data3+	21	Data5+
6	DDC Clock	14	+5V Power	22	Data5/Clock Shield
7	DDC Data	15	Ground	23	Clock+
8	Analog VSYNC	16	Hot Plug Detect	24	Clock-
C1	Analog RED	C2	Analog GREEN	C3	Analog BLUE
C4	Analog HSYNC	C5	Ground		

Table 2-1: DVI-I Input Connector

Figure 3-2: 2431RX-2 Rear View – DVI-I Connectors

3.3. BNC CONNECTORS

BNC connectors are used for serial digital inputs (4 BNC connectors) and analog audio output (4 BNC connectors).
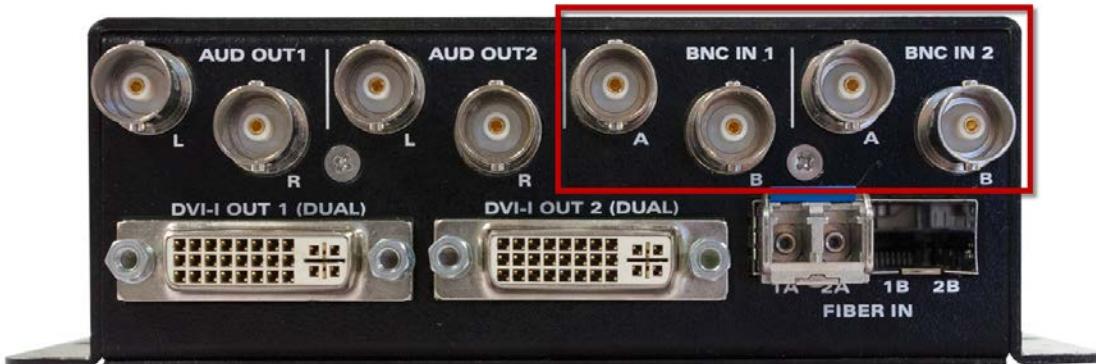
Figure 3-3: 2431RX-2 Rear View – BNC Connectors

3.4. FIBER CONNECTORS (OPTIONAL)

2 SFP's (SFP3R-2) are used for serial digital input over fiber.

Figure 3-4: 2431RX-2 Rear View – Fiber Connectors

3.5. DB9 CONNECTOR

DB9 is a female 9 pin D connector used for connecting to a standard computer serial. The table below shows the pin out of the female DB-9 connector.

	Pin #	Name	Description
	1		
	2	TxD	RS-232 Transmit Output
	3	RxD	RS-232 Receive Input
	4		
	5	Sig Gnd	RS-232 Signal Ground
	6		
	7		
	8		
	9		

Table 2-2: DB9 Port Pin Out

Figure 3-5: 2431RX-2 Front View – DB9 Connector

3.6. CARE AND HANDLING OF OPTICAL FIBER

3.6.1. Safety

⚠ !	**Never look directly into an optical fiber. Non-reversible damage to the eye can occur in a matter of milliseconds.**

The laser modules used in the Evertz 3000MVP modules are Class I, with a maximum output power of 7mW, and a wavelength of 1310 to 1610nm.

3.6.2. Handling and Connecting Fibers

✎	**Note: Never touch the end face of an optical fiber.**

The transmission characteristics of the fiber are dependent on the shape of the optical core and therefore care must be taken to prevent fiber damage due to heavy objects or abrupt fiber bending. Evertz recommends that you maintain a minimum bending radius of 3 cm to avoid fiber-bending loss that will decrease the maximum attainable distance of the fiber cable.

Fiber interconnections must be made securely. The Evertz fiber optical transmitters and receivers come with SC interconnection housings built into the module. With this style of connector, the fiber assembly and the housing assembly can only be connected in one way and with very good repeatability. The fiber interconnect panel that is provided with each product can be ordered with optional SC/PC, ST/PC or FC/PC connectors. The customer is required to provide the optical fiber with the correct connectors to connect the modules together. SC/PC, ST/PC and FC/PC interconnection housing and connectors as well as adapters are industry standards with many available sources.

3.6.3. Making Sure the Optical Fibers are Clean

Dust particles on the ends of the optical fiber greatly increase the signal loss at interconnections, and large dust particles can even obscure light transmission altogether. To minimize the effects of dust contamination at the interconnections, the fiber should be cleaned each time it is mated or unmated. When using interconnection housings to mate two optical fibers it is good practice to remove dust particles from the housing assembly with a blast of dry air or by wiping the end of the fiber connector with the pre-moistened tissue you received with the optical module before mating it to the module. Whenever a fiber is unmated it must be covered immediately. Most fiber manufacturers provide a plastic boot that fits over the ferrule body for this purpose.

3.7. STATUS LEDS

The location of the status indicators are shown in below Figure 3-6.

Power	When ON this LED indicates that the 2431RX-2 is receiving electrical power.
Error	When On this LED indicates that unit is booting (5 sec) or unit has malfunction.
1	Indicates that the 2431RX-2 is receiving video input on BNC or Fiber 1A.
2	Indicates that the 2431RX-2 is receiving video input on BNC or Fiber 2A.
3	Indicates that the 2431RX-2 is receiving video input on BNC or Fiber 1B.
4	Indicates that the 2431RX-2 is receiving video input on BNC or Fiber 2B.

The 2431RX-2 is equipped with colored LEDs. Each color indicates signal type.

Figure 3-6: 2432TX-2 Status LEDs

3.8. USER CONTROLS

3.8.1. Dip Switches

Figure 3-7: 2431RX-2 DIP Switches

DIP Switch	Function
1	Enable deinterlacer for input 1
2	Enable deinterlacer for input 2
3	For future use
4	For future use
5	For future use
6	For future use
7	For future use
8	For future use

Table 3-3: DIP Switch Functions

Note: The DIP switch controls are supported with firmware 1.4.X and below. 1.5.X and higher only support configuration using SNMP and DIP switches are disabled.

4.   CONFIGURATION

4.1.   ACCESSING THE SERIAL PORT MENU

Connect a serial cable to the UPGRADE port at the back of the unit. Do not connect any Ethernet cables to the unit (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**

Table 4-1: Serial Port Terminal Settings

4.2.   SERIAL MENU

Configure your terminal program to the table settings in Table 4-2 and press the <enter> button. The session should respond with the 2431RX-2 **Main Menu**.

```
==================================================
                    Main Menu


   "G-SDI to DVI Converter" Software
   Version 1.02 build 13
   Built on Mon Dec 02 09:55:41 2013

   Product: 2431RX-2
==================================================
(1) Network Configuration
(2) Hardware Version Information
(3) Video Utilities
(4) Scaler Configuration
(5) Under Monitor Display Setup
(6) SNMP Configuration
(7) SNTP Setup
(8) Clock Setup
(9) Engineering Debug

(X) Exit
>
```

Figure 4-1: 2431RX-2 Serial Menu

4.2.1. Network Configuration

This sub-menu enables the user to configure the network settings for the card.


```
    ---------------------------------------------
    MAC:                00:02:c5:13:a2:e7
    IP Address:         192.168.194.210
    Subnet Mask:        255.255.192.0
    Gateway:            192.168.194.1
    DHCP enabled:       False
    ---------------------------------------------
    (1) Set IP Address
    (2) Set Netmask
    (3) Set Gateway
    (4) Use DHCP

    (S) Save and Exit
    (X) Exit
```
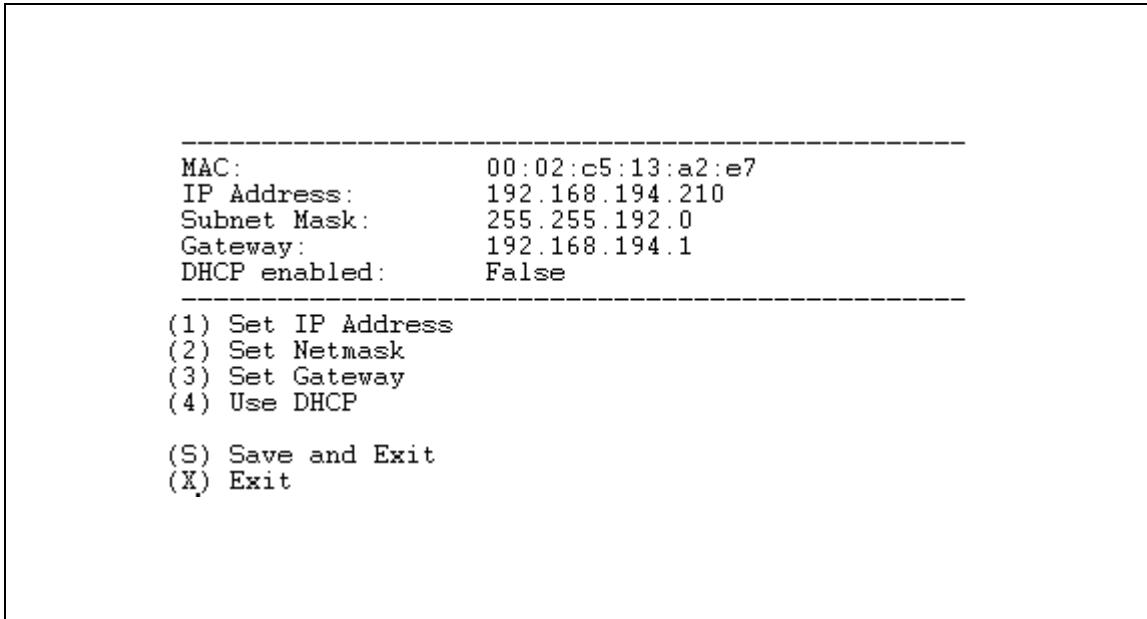
Figure 4-2: Network Configuration

1. Select option (1) Set IP Address and configure the IP address for the Unit ensuring that the IP address is not already in use on the network.

2. Select option (2) Set Netmask and configure the correct subnet mask for your network.

3. If required also configure option (3) Set Gateway.

4. Select option (4) to enable DHCP (Y/N)

Exit from the Network Configuration menu using (S) Save and Exit, NOT (X) Exit.

4.2.2. Hardware Version Information

This menu is used to retrieve device information.


```
    (C)2400V5DAV Hardware build 1, S/N 2778810003.
```
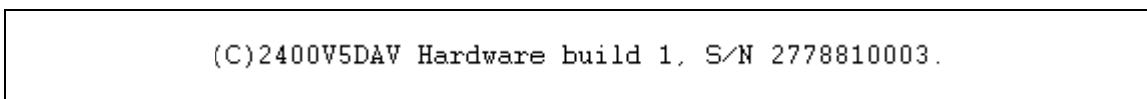
Figure 4-3: Hardware Version Information

4.2.3. Video Utilities Menu

This menu has multiple sub menus for Video Standard Information, Lock Video Input Mode, decimation settings, set output color on signal loss, enable/ disable interlace output format, enable/disable agile locking and display EDID information.

```
==================================================
                  Video Utilities


   "G-SDI to DVI Converter" Software
   Version 1.02 build 13
   Built on Mon Dec 02 09:55:41 2013

   Product: 2431RX-2
==================================================
(1) Video Standard Information
(2) Lock Video Input Mode
(3) YCBCR decimation settings
(4) Set Output Color on Signal Loss
(5) Enable Deinterlacing
(6) Enable Agile Locking
(7) ANX9806 Status Check
(8) Get EDID
(9) Video Processing Settings

(X) Exit
> ■
```

Figure 4-4: Video Utilities Menu

4.2.3.1. Video Standard Information

This menu allows the user to retrieve input video format information.

```
Input Number? [1-2] > 1
SDI/3G-GLink[1]:
ASPL:                1280
ALPF[0]:              720
ALPF[1]:               0
TSPL:               1650
TLPF[0]:             750
TLPF[1]:               0
SPP:                   1
Encrypted:             0
Field Rate:           59
Dual Link:             0
```

Figure 4-5: Video Standard Information

4.2.3.2. Lock Video Input Mode

This menu allows the user to set input mode between 4 settings. (Default is set to auto detect)

1. **GSDI Mode**   1.5G, 3G SDI or 3GLINK (Evertz proprietary signal)
2. **GLINK Mode** Evertz proprietary used with MVP/VIP
3. **RGBR Mode** Evertz Proprietary used with KVM Products
4. **Auto Detect**   Automatically switches between input types (Recommended)

```
"G-SDI to DVI Converter" Software
Version 1.02 build 13
Built on Mon Dec 02 09:55:41 2013

Product: 2431RX-2
==================================================
(1) GSDI Mode
(2) GLINK Mode
(3) RGBR Mode
(4) Auto Detect

(S) Save and Exit
(X) Exit
```
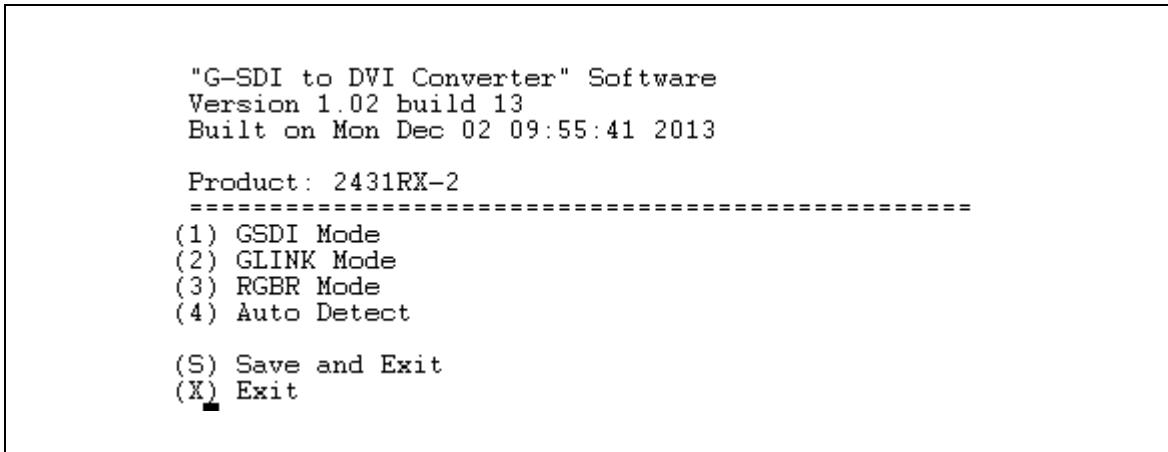
Figure 4-6: Lock Video Input Mode

4.2.3.3. YCBCR Decimation Settings

This menu allows the user to change YCBCR decimation, it applies only when signal type is RGBR.

```
> 3
SRC, YCBCR, decimation? [d b d] >
```
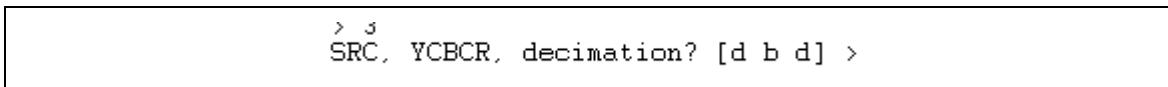
Figure 4-7: YCBCR Decimation Settings

✎   **Note: Setting must not be used without Evertz technical guidance**

4.2.3.4. Set Output Color on Signal Loss

This menu allows the user to set the output color when the signal is loss.

1. Grey   (outputs grey when no input signal is detected)
2. Black   (outputs Black when no input signal is detected)
3. Green   (outputs Green when no input signal is detected)

```
          "G-SDI to DVI Converter" Software
          Version 1.02 build 13
          Built on Mon Dec 02 09:55:41 2013

          Product: 2431RX-2
          ==================================================
          (1) GREY (Default)
          (2) BLACK
          (3) GREEN
```

Figure 4-8: Set Output Color on Signal Loss

4.2.3.5. Enable Deinterlacing

This menu allows the user to turn the deinterlacer on or off on a per channel basis. When deinterlacer is on the 2431RX-2 will output a progressive signal, when deinterlacer is off the 2431RX-2 will output an interlaced signal.

1. Enable (will be prompted for input 1 or 2)
2. Disable (will be prompted for input 1 or 2)

```
   "G-SDI to DVI Converter" Software
   Version 1.02 build 13
   Built on Mon Dec 02 09:55:41 2013

   Product: 2431RX-2
   ==================================================
   (1) Enable
   (2) Disable

   (S) Save and Exit
   (X) Exit
   > 1
   Input Number? [1-2] > 1
   Deinterlacing enabled on input 0. Save changes to retain setting on power-up!!!
```

Figure 4-9: Enable Deinterlacing

4.2.3.6. Enable Agile Locking

This menu allow the user to enable or disable agile locking when the signal type is GLINK.

1. Enable (will be prompted for input 1 or 2)
2. Disable (will be prompted for input 1 or 2)

```
 Product: 2431RX-2
 ================================================
(1) Enable
(2) Disable

(S) Save and Exit
(X) Exit
> 1
Input Number? [1-2] > 1
Agile locking enabled on input 1. Save changes to retain setting on power-up!!!
```

Figure 4-10: Enable Agile Locking

✎ | **Note: Setting must not be used without Evertz technical guidance.**

4.2.3.7. ANX9806 Status Check

This Option is for Evertz Personnel Only.

4.2.3.8. Get EDID

This menu allows the user the option to retrieve EDID information of the monitor connected to input. The user can retrieve EDID information for both the outpust by choosing output 1 or 2.

```
Input Number? [1-2] > 1
EDID : EDID v1.3 Table:
00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F
-------------------------------------------------
00 FF FF FF FF FF FF 00 10 AC 35 40 4C 38 37 33
31 13 01 03 80 41 29 78 EA 8F 95 AD 4F 32 B2 25
0F 50 54 A5 4B 00 81 80 A9 40 D1 00 D1 40 71 4F
81 00 B3 00 01 01 B0 68 00 A0 A0 40 2E 60 30 20
36 00 81 90 21 00 00 1E 00 00 00 FF 00 47 35 30
31 48 39 43 32 33 37 38 4C 0A 28 3C 80 A0 70 B0
23 40 30 20 36 00 81 91 21 00 00 1C 00 00 00 FD
00 31 56 1D 71 1C 00 0A 20 20 20 20 20 20 00 2B

EDID : Pixel Clock            = 26800 (x10 KHz)
EDID : Horizontal Active      = 2560
EDID : Horizontal Blanking    = 160
EDID : Vertical Active        = 1600
EDID : Vertical Blanking      = 46
EDID : Horizontal Sync Offset = 48
EDID : Horizontal Sync Width  = 32
EDID : Vertical Sync Offset   = 3
EDID : Vertical Sync Width    = 6
EDID : Interlaced             = 0
```

Figure 4-11: Get EDID

4.2.3.9. Video Processing Settings

This menu allows the user to configure Output Video Proc control through the serial menu per output path.

```
====================================================
            Video Processing Settings


 "G-SDI to DVI Converter" Software
 Version 1.02 build 13
 Built on Mon Dec 02 09:55:41 2013

 Product: 2431RX-2
====================================================
(1) Print VPROC CTRL Numbers
(2) Set VPROC Val
(3) Initialize Default Values

(S) Save and Exit
(X) Exit
```

Figure 4-12: Video Processing Settings

1. **Print VPROC CTRL Numbers** (Output 1 or 2): Prints out a list of all VPROC controls and current values.

```
Output? [1-2] > 1
#      CTRL
--------------------
0      YGAIN     (-500 to 1000) = 0
1      YOFF      (-200 to 200) = 0
2      CBGAIN    (-500 to 1000) = 0
3      CBOFF     (-200 to 200) = 0
4      CRGAIN    (-500 to 1000) = 0
5      CROFF     (-200 to 200) = 0
6      SATGAIN   (-500 to 1000) = 0
7      HUE       (-1800 to 1800) = 0
8      VIDGAIN   (-500 to 1000) = 0
9      RGAIN     (-500 to 1000) = 0
10     ROFF      (-200 to 200) = 0
11     GGAIN     (-500 to 1000) = 0
12     GOFF      (-200 to 200) = 0
13     BGAIN     (-500 to 1000) = 0
14     BOFF      (-200 to 200) = 0
15     RGBGAMEN  (0 to 1) = 1
16     RGBCLIPEN (0 to 1) = 1
17     GAMLEV    (-128 to 127) = 0
18     RGAM      (-128 to 127) = 0
19     GGAM      (-128 to 127) = 0
20     BGAM      (-128 to 127) = 0
21     RGBLIMLO  (0 to 1023) = 0
22     RGBLIMHI  (0 to 1023) = 1023
```

Figure 4-13: Print VPROC CTRL Numbers

- **Gain Level Controls**

There are eight controls that set the gain of the video. With these controls, the user can adjust the gain of the 3 components in either the Y, Cr, Cb domain or the R, G, B domain over a range of -50% to 100% in 0.1% steps. Gain adjustments in the Y, Cb, Cr domain are made first, and then gain adjustments in the RGB domain. Illegal values are clipped after gain adjustments.

Y Gain: Ranges from –50% to 100% in 0.1% increments.
Cb Gain: Ranges from –50% to 100% in 0.1% increments.
Cr Gain: Ranges from –50% to 100% in 0.1% increments.
R Gain: Ranges from –50% to 100% in 0.1% increments.
G Gain: Ranges from –50% to 100% in 0.1% increments.
B Gain: Ranges from –50% to 100% in 0.1% increments.
Saturation Gain: Ranges from –50% to 100% in 0.1% increments.
Video Gain: Ranges from –50% to 100% in 0.1% increments.

- **DC Offsets**

There are three controls that set the DC Offset of the video signal. With these controls, the user can individually adjust the DC offset of Y, Cr and Cb with a range of +/- 200 quantization levels.

Y Offset: Ranges from –200 to 200 quantization levels in 1 level increments.
Cb Offset: Ranges from –200 to 200 quantization levels in 1 level increments.
Cr Offset: Ranges from –200 to 200 quantization levels in 1 level increments.
R Offset: Ranges from –200 to 200 quantization levels in 1 level increments.
G Offset: Ranges from –200 to 200 quantization levels in 1 level increments.

B Offset: Ranges from –200 to 200 quantization levels in 1 level increments.

```
--------------------
0    YGAIN    (-500 to 1000) = 0
1    YOFF     (-200 to 200) = 0
2    CBGAIN   (-500 to 1000) = 0
3    CBOFF    (-200 to 200) = 0
4    CRGAIN   (-500 to 1000) = 0
5    CROFF    (-200 to 200) = 0
6    SATGAIN  (-500 to 1000) = 0
7    HUE      (-1800 to 1800) = 0
8    VIDGAIN  (-500 to 1000) = 0
9    RGAIN    (-500 to 1000) = 0
10   ROFF     (-200 to 200) = 0
11   GGAIN    (-500 to 1000) = 0
12   GOFF     (-200 to 200) = 0
13   BGAIN    (-500 to 1000) = 0
14   BOFF     (-200 to 200) = 0
15   RGBGAMEN (0 to 1) = 1
```

Figure 4-14: Gain Level Controls

- **Gamma Level**

With this control, the user can adjust the overall Gamma correction factor from - 128 to + 127 in increments of 1.

- **Gamma Level: Ranges from –128 to 127 in 1 level increments.**

```
17   GAMLEV   (-128 to 127) = 0
```

Figure 4-15: Gamma Level

- **Red, Green, Blue Gamma Levels**

With these controls, the user can individually adjust the Red, Green, and Blue Gamma levels from – 128 to + 127 in increments of 1.

Red Gamma Level: Ranges from –128 to 127 in 1 level increments.
Green Gamma Level: Ranges from –128 to 127 in 1 level increments.
Blue Gamma Level: Ranges from –128 to 127 in 1 level increments.

```
18   RGAM   (-128 to 127) = 0
19   GGAM   (-128 to 127) = 0
20   BGAM   (-128 to 127) = 0
```

Figure 4-16: Red, Green, Blue Gamma Levels

- **RGB Limiter**

The **RGB Clip** parameters control RGB clipping/colour legalization process. When set to enable, the module will clip any illegal levels of R, G, and B (individually) to their respective Black and White Levels. If disabled, then the illegal values are passed unmodified.

RGB Lower Limit: Ranges from 0 to 1023 in 1 level increments.
RGB Upper Limit: Ranges from 0 to 1023 in 1 level increments.

```
21    RGBLIMLO (0 to 1023) = 0
22    RGBLIMHI (0 to 1023) = 1023
```

Figure 4-17: RGB Limiter

2. **Set VPROC Value:** The user can change VPROC Values by selecting Output (1 or 2), Control Index Number, and the value to be set.

```
"G-SDI to DVI Converter" Software
Version 1.02 build 13
Built on Mon Dec 02 09:55:41 2013

Product: 2431RX-2
=================================================
(1) Print VPROC CTRL Numbers
(2) Set VPROC Val
(3) Initialize Default Values

(S) Save and Exit
(X) Exit
> 2
Output? [1-2] CTRL[0-23] val [decimal] > 1 0 500
```

Figure 4-18: Set VPROC Value

3. **Initialize Default Values** (Output 1 or 2): this setting will reset the selected Output VPROC control to its factory default values.

```
"G-SDI to DVI Converter" Software
Version 1.02 build 13
Built on Mon Dec 02 09:55:41 2013

Product: 2431RX-2
=================================================
(1) Print VPROC CTRL Numbers
(2) Set VPROC Val
(3) Initialize Default Values

(S) Save and Exit
(X) Exit
> 3
Output? [1-2] > 1
```

Figure 4-19: Initialize Default Values

4.2.4. Scaler Configuration


```
"G-SDI to DVI Converter" Software
Version 1.02 build 13
Built on Mon Dec 02 09:55:41 2013

Product: 2431RX-2
 =================================================
(1) Enable/Disable Scaler
(2) Select Scaler Mode Settings
(3) Select Scaler Output Resolution
(4) Select Scaler Crop Settings
(5) Select Scaler Window Mode Settings

(S) Save and Exit
(X) Exit
> |
```

Figure 4-20: Scaler Configuration

1. **Enable/Disable Scaler:** Allow the user to enable/ disable scaling per path.


```
Product: 2431RX-2
 =================================================

Current Settings:
--------------------------
Channel 1: Scaler Enabled
Channel 2: Scaler Enabled
--------------------------
(1) ENABLE
(2) DISABLE
```

Figure 4-21: Enable/Disable Scaler

> **Note: Setting must not be used without Evertz technical guidance.**

2. **Select Scaler Mode Settings**: Allows the user to select between 4 scaler modes on a per path basis.

Fill Display: Will stretch the display to fit the output dimensions.
Aspect Ratio: This mode maintains 16:9 aspect ratio of the input resolution.
EDID: Reads the display's EDID information connected and will scale any incoming resolution to the monitor's native resolution up to 1920x1200.
Window Mode: Allows an input source to be scaled inside of a predetermined window area of the display. The window can take up any portion of the display.

```
     "G-SDI to DVI Converter" Software
     Version 1.02 build 13
     Built on Mon Dec 02 09:55:41 2013

     Product: 2431RX-2
     =================================================

    Current Settings:
    -------------------------
    Channel 1: Scaler Disabled
    Channel 2: Scaler Disabled
    -------------------------
    (1) Select Channel 1 Scaler Mode
    (2) Select Channel 2 Scaler Mode

    (X) Exit
    > 1
    Select Mode:
     1 => Fill Display
     2 => Aspect Ratio
     3 => Native Raster (from Monitor's EDID)
     4 => Window Mode
```

Figure 4-22: Select Scaler Mode Settings

3. **Select Scaler Output Resolution**: Allows the user to selects the output resolution per path. (Enter 1 or 2 to select output path)

4. **Select Scaler Crop Settings**: Allows the user to crop the input per path. The user can specify Cropping by Pixel or percentage. By entering crop left (left starting position), crop top (top starting position), Crop width (crop width starting from left crop position) and crop height (crop height starting from top crop position)

```
       "G-SDI to DVI Converter" Software
       Version 1.02 build 13
       Built on Mon Dec 02 09:55:41 2013

       Product: 2431RX-2
       =================================================

      Current Settings:
      -------------------------
      Channel 1: Mode   : Pixel Crop
                 Left   : 10
                 Top    : 10
                 Width  : 710
                 Height : 700
      Channel 2: Mode   : Pixel Crop
                 Left   : 0
                 Top    : 0
                 Width  : 0
                 Height : 0
      -------------------------
      (1) Select Channel 1 Scaler Crop Settings
      (2) Select Channel 2 Scaler Crop Settings

      (X) Exit
      > █
```

Figure 4-23: Select Scaler Crop Settings

4.2.5. Under Monitor Display Setup:

This sub Menu controls all UMD settings. UMD's work with Image Video Protocol Only.

```
-----------------------------------------------------
UMD Configurations For Display: 1
On Screen Display ON/OFF: OFF
Display Protocol Id: 0
Image Video Port:     9800
Display Mode:         When Data Present
Horz Align:           Pixel Position
Vert Align:           Pixel Position
Pixel Position:       (0,30)
Text Colour:          FFFFFF80
Background Colour:    00000033
Border Colour:        FFFFFF80
-----------------------------------------------------
(1) Select Display
(2) Enable OSD Graphics
(3) Set UMD Protocol Id
(4) Set Image Video Port
(5) Set Display Mode
(6) Set Horizontal Alignment
(7) Set Vertical Alignment
(8) Set Pixel Position
(9) Set UMD Colours
(10) UMD Line Data
(11) UMD Debug

(S) Save and Exit
(X) Exit
>

Invalid entry!!


=====================================================
```

Figure 4-24: Under Monitor Display Setup

1. **Select Display:** Allows the user to select between UMD settings for Input 1-2.

```
Select Display to Configure [1-2] > 1
```

2. **Enable OSD Graphics:** Allows the user to enable or disable OSD overlay.

```
Enable OSD? [y/n] > y
OSD[0] Enabled!
```

3. **Set UMD Protocol ID:** Allows the user to set the Protocol ID for selected display.

```
Set UMD Protocol ID > 100
```

4. **Set Image Video Port**: Allows the user set the TCP Port Number used for the image video protocol. (Reboot is required for changes to take effect).

```
Set Image Video Port > 9800
```

5. **Set Display Mode**: Allows the user to choose OSD overlay mode from 3 different options.

    0. Always off: Allows the user to turn off OSD's overlay.
    1. Always On: Allows the user to enable OSD overlay to always display.
    2. When Data Present: Allows the user to set OSD overlay to display only when data is present.

```
UMD Display Mode Options

    (0) Always Off
    (1) Always On
    (2) When Data Present
```

6. **Set Horizontal Alignment**: Allows the user to change the Horizontal alignment of OSD's overlay

    0. Left Align: Allows the user to set OSD overlay alignment to left edge of screen
    1. Center Align: Allows the user to set OSD overlay alignment to center of screen
    2. Right Align: Allows the user to set OSD overlay alignment to right edge of screen
    3. Pixel Position: Allows the user to enter start pixel position for OSD overlay alignment

```
Horizontal Alignment Modes

    (0) Left Align
    (1) Center Align
    (2) Right Align
    (3) Pixel Position
```

7. **Set Vertical Alignment**: Allows the user to change the Vertical alignment of OSD's overlay.

    0. Top Align: Allows the user to set OSD overlay alignment position to the top of the screen
    1. Middle Align: Allows the user to set OSD overlay alignment Position to middle of the screen
    2. Bottom Align: Allows the user to set OSD overlay alignment to bottom of the screen
    3. Pixel Position: Allows the user to enter start pixel position for OSD overlay alignment

```
Vertical Alignment Modes

    (0) Top Align
    (1) Middle Align
    (2) Bottom Align
    (3) Pixel Position
```

8. **Set Pixel Position**: Allows the user to create a custom position for OSD.

> **Note: Vertical and Horizontal alignment controls must be set to "Pixel Position" to align custom position and must be entered in: X<Space>Y format (where X = horizontal pixel and Y = Vertical pixel)**

```
Type in Position (x y) > 800 800
```

9. **Set UMD Colors**: Allows the user to set the text color, background color and border color.

```
===============================================
-----------------------------------------------
Text Colour:        FFFFFF80
Background Colour:  00000033
Border Colour:      3333FF80
-----------------------------------------------
(1) Set Text Colour 1
(2) Set Background Colour 1
(3) Set Border Colour 1

(X) Exit
```

a. **Set Text Color:** Allows the user to set the font color and transparency (values in hex where RR= Red, GG= Green, BB= Blue and AA = Transparency)

```
Type in colour in hex (RRGGBBAA) > 80FF8080
```

b. **Set Background Color:** Allows the user to set the background border Color and transparency   (values in hex where RR= Red, GG= Green, BB= Blue and AA = Transparency)

```
Type in colour in hex (RRGGBBAA) >
```

c. **Set Border Color:** Allows the user to set color and transparency of the border (values in hex where RR= Red, GG= Green, BB= Blue and AA = Transparency)

```
Type in colour in hex (RRGGBBAA) > FAFBFC80
```

10. **UMD Line Data**

The 2431RX-2 is capable of outputting 3 separate lines of OSD Data. The user can choose what data type is displayed on each line.

```
Product: 2431RX-2
=================================================
-------------------------------------------------
Line 1 Source: Date
Line 2 Source: Time
Line 3 Source: Time
-------------------------------------------------

Data Source Options
0 - Blank
1 - Time
2 - Date
3 - Segment 1
4 - Segment 2
5 - Segment 3
6 - Date Time
-------------------------------------------------

(1) Set Line 1
(2) Set Line 2
(3) Set Line 3

(X) Exit
>
```
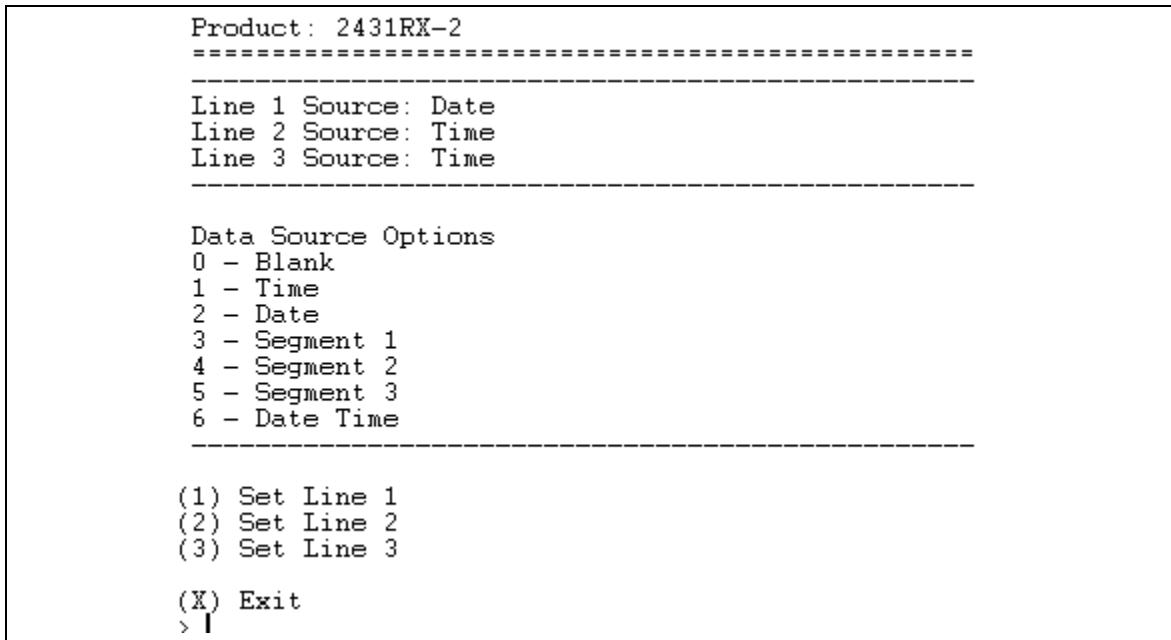
Figure 4-25: UMD Line Data

Available Data Types:

        0 – Blank   (Assigns no data on selected line)
        1 – Time   (Allows NTP Time to be displayed from NTP server)
        2 – Date   (Allows NTP Date to be displayed from NTP server)
        3 – Segment 1 (Displays Image Video Segment 1 Data)
        4 – Segment 2 (Displays Image Video Segment 2 Data)
        5 – Segment 3 (Displays Image Video Segment 3 Data)
        6 – Date Time (Displays NTP Data and time on single line from NTP server)

1. Select Line 1 (Allows the user to change data type for Line 1)
2. Select Line 2 (Allows the user to change data type for Line 2)
3. Select Line 3 (Allows the user to change data type for Line 3)

11. **UMD Debug** (Engineering use only)

4.2.6. SNMP Configuration

This menu allows the user to configure SNMP V1 and V3 settings.

```
         "G-SDI to DVI Converter" Software
         Version 1.02 build 13
         Built on Mon Dec 02 09:55:41 2013

         Product: 2431RX-2
         ==================================================
         (1) SNMP V1 Setup
         (2) SNMP V3 Setup
         (3) SNMP Version

         (X) Exit
```

Figure 4-26: SNMP Configuration Menu

1. **SNMP V1 Setup** allows the user to configure Trap destination and Community strings (read and write) for SNMP V1.

```
         "G-SDI to DVI Converter" Software
         Version 1.02 build 13
         Built on Mon Dec 02 09:55:41 2013

         Product: 2431RX-2
         ==================================================
         (1) Trap Setup
         (2) Community Setup

         (X) Exit
```

Figure 4-27: SNMP V1 Setup Menu

2. **SNMP V3 Setup** allows the user to configure SNMP V3 settings.

3. **SNMP Version** allows the user to set the SNMP V3 version used for control and trap sending. Version 1 and 3 are supported).

4.2.6.1. SNMP V3 Setup Menu

This menu allows the user to setup profile and encryption, access control and trap address control.

```
         Product: 2431RX-2
         ==================================================
         (1) SNMP V3 User Setup
         (2) SNMP V3 Access Control Setup
         (3) SNMP V3 Notification Setup

         (X) Exit
```

Figure 4-28: SNMP V3 Setup Menu

1. **SNMP V3 User Setup** allows the user to add up to 10 SNMP V3 user profiles and encryption types.

```
"G-SDI to DVI Converter" Software
Version 1.02 build 13
Built on Mon Dec 02 09:55:41 2013

Product: 2431RX-2
================================================
(1) Add/Edit SNMP V3 User
(2) Remove SNMP V3 User
(3) Show All SNMP V3 User

(X) Exit
```

Figure 4-29: SNMP V3 User Setup

A. **Add SNMP V3 USER** allows creation and editing of up to 10 SNMP V3 user profiles.

```
"G-SDI to DVI Converter" Software
Version 1.02 build 13
Built on Mon Dec 02 09:55:41 2013

Product: 2431RX-2
================================================
--------------------------------------------------------
1. USER NAME:
2. AUTHENTICATION TYPE:        NONE
3. AUTHENTICATION PASSWORD:
4. ENCRYPTION TYPE:            NONE
5. ENCRYPTION PASSWORD:
6. ACCESS CONTROL MODEL:       DEFAULT_ACCESS_CONTROL
--------------------------------------------------------
(1) User Name
(2) Authentication
(3) Authentication Password
(4) User Privacy
(5) Encryption Password
(6) Select Access Control Model
(7) Select User To Edit

(S) Save and Exit
(X) Exit
```

Figure 4-30: Add/Edit SNMP V3 User

1) Username allows the user to set username used for SNMP V3 authentication.
2) Authentication allows the user to set MD5 or SHA-1 password encryption.
3) Authentication Password allows the user to set password used for user authentication.
4) User Privacy allows the user to set DES or AES packet encryption.
5) Encryption Password allows the user to set password used for packet encryption.
6) Select Access Control model allows the user to set access control model used, by default it is configured to allow read, write and notifications to be sent to the user.
7) Select User to Edit allows the user to edit existing user profile.

B. **Remove SNMP V3 User** allows the user to remove users from access the unit using SNMP V3 authentication.

```
    "G-SDI to DVI Converter" Software
    Version 1.02 build 13
    Built on Mon Dec 02 09:55:41 2013

    Product: 2431RX-2
    ================================================
    (1) Add/Edit SNMP V3 User
    (2) Remove SNMP V3 User
    (3) Show All SNMP V3 User

    (X) Exit
    >
```

Figure 4-31: Remove SNMP V3 User

C. **Show All SNMP V3 User** allows the user to verify which user has authentication to access the unit.

```
    User#1:
    -------------------------------------------------------------
    1. USER NAME:                  evertz_1
    2. AUTHENTICATION TYPE:        SHA-1
    3. AUTHENTICATION PASSWORD:    *********
    4. ENCRYPTION TYPE:            NONE
    5. ENCRYPTION PASSWORD:
    6. ACCESS CONTROL MODEL:       DEFAULT_ACCESS_CONTROL
    -------------------------------------------------------------
```

Figure 4-32: Show All SNMP V3 User

2. **SNMP V3 Access Control Setup** allows the user to limit read/write access for specific OID.

```
    "G-SDI to DVI Converter" Software
    Version 1.02 build 13
    Built on Mon Dec 02 09:55:41 2013

    Product: 2431RX-2
    ==============================================
    (1) Add/Edit SNMP V3 Access Control
    (2) Remove SNMP V3 Access Control
    (3) Show All SNMP V3 Access Control

    (X) Exit
```

Figure 4-33: SNMP V3 Access Control Setup

A. **Add/EDIT SNMP V3 Access Control** allows the user to specify read/write control on a per user basis for any OID.

```
        "G-SDI to DVI Converter" Software
        Version 1.02 build 13
        Built on Mon Dec 02 09:55:41 2013

        Product: 2431RX-2
        ================================================
        ----------------------------------------------------------
        1. MODEL NAME:
        2. ACCESS TYPE:                  READONLY
        3. ACCESS SECURITY LEVEL:         Auth Priv
        4. READ VIEW:
            4.1 MIB TREE INCLUDED 1:
            4.2 MIB TREE INCLUDED 2:
            4.3 MIB TREE INCLUDED 3:
            4.4 MIB TREE EXCLUDED 1:
            4.5 MIB TREE EXCLUDED 2:
            4.6 MIB TREE EXCLUDED 3:
        5. WRITE VIEW:
            5.1 MIB TREE INCLUDED 1:
            5.2 MIB TREE INCLUDED 2:
            5.3 MIB TREE INCLUDED 3:
            5.4 MIB TREE EXCLUDED 1:
            5.5 MIB TREE EXCLUDED 2:
            5.6 MIB TREE EXCLUDED 3:
        6. NOTIFY VIEW:
            6.1 MIB TREE INCLUDED 1:
            6.2 MIB TREE INCLUDED 2:
            6.3 MIB TREE INCLUDED 3:
            6.4 MIB TREE EXCLUDED 1:
            6.5 MIB TREE EXCLUDED 2:
            6.6 MIB TREE EXCLUDED 3:
        ----------------------------------------------------------
        (1) Model Name
        (2) Access Type
        (3) Access Security Level
        (4) Read View
        (5) Write View
        (6) Notify View
        (7) Select Access Model To Edit

        (S) Save and Exit
        (X) Exit
```

Figure 4-34: Add SNMP V3 Access Control

B. **Remove SNMP V3 Access Control** allows the user to remove access controls for a user.

```
         "G-SDI to DVI Converter" Software
         Version 1.02 build 13
         Built on Mon Dec 02 09:55:41 2013

         Product: 2431RX-2
         ================================================
         (1) Add/Edit SNMP V3 Access Control
         (2) Remove SNMP V3 Access Control
         (3) Show All SNMP V3 Access Control

         (X) Exit
         >2
         Enter the Model Number >1█
```

Figure 4-35: Remove SNMP V3 Access Control

C. **Show all SNMP V3 Access Control** allows the user to verify all current access control settings on the 2431RX-2.

Figure 4-36: Show All SNMP V3 Access Control

3. **SNMP V3 Notifications Setup** allows the user to set trap destination and remove trap destination for SNMP V3.

Figure 4-37: SNMP V3 Notification Setup

A. **Add SNMP V3 Notification Destination** allows the user to set trap destination IP address

Figure 4-38: Add SNMP V3 Notification Destination

B.   **Remove SNMP Notification** allows the user to remove notification settings on the unit.

```
    =================================================
    -----------------------------------
    No Notification Destinations Assigned
    -----------------------------------

    <1> Add SNMP V3 Notification Destination
    <2> Remove SNMP V3 Notification Destination

    <X> Exit
    >2
    Enter the Trap Position >█
```

Figure 4-39: Remove SNMP Notification

4.2.6.2. SNMP Version

This menu allows the user to set the unit to communicate using SNMP V1 or V3 version.

```
    "G-SDI to DVI Converter" Software
    Version 1.02 build 13
    Built on Mon Dec 02 09:55:41 2013

    Product: 2431RX-2
    =================================================
    ------------------------------------------------------------
    SNMP Get Set Version: V1
    SNMP Trap Version: V1
    ------------------------------------------------------------
    (1) SNMP Get Set Version Setup
    (2) SNMP Trap Version Setup

    (S) Save and Exit
    (X) Exit
```

Figure 4-40: SNMP Version

1. **SNMP Get Set Version Setup** allows the user to set the SNMP V1 or V3 version used for configuration and update.

```
     "G-SDI to DVI Converter" Software
     Version 1.02 build 13
     Built on Mon Dec 02 09:55:41 2013

     Product: 2431RX-2
     =================================================
     ---------------------------------------------------------
     SNMP Get Set Version: V1
     SNMP Trap Version: V1
     ---------------------------------------------------------
     (1) SNMP Get Set Version Setup
     (2) SNMP Trap Version Setup

     (S) Save and Exit
     (X) Exit
     >1
     Enter V1 or V3 (Default V1) >
```

Figure 4-41: SNMO Get Set Version Setup

2. **SNMP Trap Version Setup** allows the user to set the SNMP V1 or V3 version used to send traps.

```
     "G-SDI to DVI Converter" Software
     Version 1.02 build 13
     Built on Mon Dec 02 09:55:41 2013

     Product: 2431RX-2
     =================================================
     ---------------------------------------------------------
     SNMP Get Set Version: V1
     SNMP Trap Version: V1
     ---------------------------------------------------------
     (1) SNMP Get Set Version Setup
     (2) SNMP Trap Version Setup

     (S) Save and Exit
     (X) Exit
     >2
     Enter V1 or V3 (Default V1) >
```

Figure 4-42: SNMP Trap Version Setup

4.2.7. SNTP Setup


```
=====================================================
                    SNTP Setup


    "G-SDI to DVI Converter" Software
    Version 1.02 build 13
    Built on Mon Dec 02 09:55:41 2013

    Product: 2431RX-2
    =====================================================
    ---------------------------------------------------
SNTP Address: 192.168.194.248
Last time sntp updated at
sntp time: 0:0:0

Daylight saving enabled: Yes

Daylight Savings Start Time
    Mode: Day of Week
    Month: Apr
    Week: 2
    Day of Week: Sunday
    Hour: 2

Daylight Savings End Time
    Mode: Day of Week
    Month: Dec
    Week: 1
    Day of Week: Sunday
    Hour: 2
    ---------------------------------------------------
(1) Set SNTP Server Address
(2) Enable Daylight Savings
(3) Daylight Savings Start Time
(4) Daylight Savings End Time

(S) Save and Exit
(X) Exit
```

Figure 4-43: SNTP Setup

1.   **Set NTP server address** (Allows the user to specify the address of the NTP time server)


```
---------------------------------------------------
(1) Set SNTP Server Address
(2) Enable Daylight Savings
(3) Daylight Savings Start Time
(4) Daylight Savings End Time

(S) Save and Exit
(X) Exit
> 1
Set SNTP Server Address > 192.168.194.248
```

Figure 4-44: Set NTP Server Address

2.   **Enable Daylight savings time** (Toggles Daylight savings time settings On/Off)

```
-------------------------------------------------
(1) Set SNTP Server Address
(2) Enable Daylight Savings
(3) Daylight Savings Start Time
(4) Daylight Savings End Time

(S) Save and Exit
(X) Exit
> 2
Enable DST (y/n) > y
```

Figure 4-45: Enable Daylight Savings Time

3. **Daylight saving start time** (Allows the user to configure the start of DST date/time)

```
"G-SDI to DVI Converter" Software
Version 1.02 build 13
Built on Mon Dec 02 09:55:41 2013

Product: 2431RX-2
=================================================
-------------------------------------------------
Daylight Savings Start Time
      Mode: Day of Week
      Month: Apr
      Week: 2
      Day of Week: Sunday
      Hour: 2
-------------------------------------------------
(1) Set DST Mode
(2) Set DST Month
(3) Set DST Week
(4) Set DST Day of Week
(5) Set DST Hour

(X) Exit
>
```

Figure 4-46: Daylight Saving Start Time

a.   Set DST Mode (Selects between either DAY/Month or Day/Week configuration)

```
Set mode (day of month: 0, day of week: 1) >
```

b.   SET DST Month (Selects the start month for DST

```
Set month (Jan: 1, Feb: 2, ...) > 4
```

c.   Set DST Week (selects the start week for DST)

```
Set day of month (1 - 31) >
```

d.   Set DST Day of Week (Selects the starting Day of week for DST)

```
Set day of week (Sun: 1, Mon: 2, ...) > 1
```

e.   Set DST Hour (Selects the starting hour for DST)

```
Set hour (1 - 24) >
```

4.   **Daylight savings end time** (Allows the user to configure the ending DST Date/Time)

```
====================================================
                Daylight Savings End Time


"G-SDI to DVI Converter" Software
Version 1.02 build 13
Built on Mon Dec 02 09:55:41 2013

Product: 2431RX-2
====================================================
----------------------------------------------------
Daylight Savings End Time
     Mode: Day of Week
     Month: Dec
     Week: 1
     Day of Week: Sunday
     Hour: 2
----------------------------------------------------
(1) Set DST Mode
(2) Set DST Month
(3) Set DST Week
(4) Set DST Day of Week
(5) Set DST Hour

(X) Exit
```

Figure 4-47: Daylight Savings End Time

a.   Set DST Mode (Selects between either DAY/Month or Day/Week configuration)

```
Set mode (day of month: 0, day of week: 1) >
```

b.   SET DST Month (Selects the start month for DST

```
Set month (Jan: 1, Feb: 2, ...) > 4
```

c.   Set DST Week (selects the start week for DST)

```
Set day of month (1 - 31) >
```

d.   Set DST Day of Week (Selects the starting Day of week for DST)

```
Set day of week (Sun: 1, Mon: 2, ...) > 1
```

e.   Set DST Hour (Selects the starting hour for DST)

```
Set hour (1 - 24) >
```

4.2.8. Clock Setup

1. Set Offset (Allows the user to offset the incoming NTP time)

Figure 4-48: Clock Setup - Set Offset

2. Set offset Dir (Allows the user to toggle between a positive and negative offset mode)

Figure 4-49: Clock Setup – Set Offset Dir

3. Set time format (Allows the user to change the time format between a 12 and 24 hour clock).

```
------------------------------------------------
Clock Offset: 02:00:00
Offset Direction: Behind
Time Format: 12 Hour
Date Format: Text
Date and Time: Jan 01, 2005  11:09:30pm
------------------------------------------------
(1) Set Offset
(2) Set Offset Dir
(3) Set Time Format
(4) Set Date Format

(S) Save and Exit
(X) Exit
> 3
 (0: 12 Hour, 1: 24 Hour) > 24
```

Figure 4-50: Clock Setup – Set Time Format

4. Set date format (Allows the user to toggle date format between text and numeric formats).

```
------------------------------------------------
Clock Offset: 02:00:00
Offset Direction: Behind
Time Format: 12 Hour
Date Format: Text
Date and Time: Jan 01, 2005  11:09:47pm
------------------------------------------------
(1) Set Offset
(2) Set Offset Dir
(3) Set Time Format
(4) Set Date Format

(S) Save and Exit
(X) Exit
> 4
 (0: Text, 1: Numeric) > 1
```

Figure 4-51: Clock Setup – Set Date Format

4.2.9. Engineering Menu

This menu is for Evertz personnel only. The user may be requested to access and execute options within this menu when seeking technical support from Evertz. Guidance will be given should this be required.

5.   UPGRADING FIRMWARE

5.1.   UPDATE PROCEDURE

5.1.1. Part 1 – Configuring the Unit for Firmware Upgrades

Connect the 9 pin male connector on the straight through serial extension cable to the COM port on the end of the 2430TX-2. Connect the 9 pin female connector to the PCs' RS-232 communications port.

5.1.2. Part 2 – Terminal Program Setup

1. Start the terminal program.

2. Configure the port settings of the terminal program as follows:

Baud	**115200**
Parity	**No**
Data Bits	**8**
Stop Bits	**2**
Flow Control	**None**

Table 6-1: Serial Terminal Settings

3. Apply power to the 2430TX-2. After the unit powers up, a banner with the boot code version information should appear in the terminal window. The cursor to the right of the word "BOOT>" should be spinning for about 5 seconds then the unit will continue to boot.

For example:

```
EVERTZ MCF54454 MONITOR 1.0 BUILD 259 (266 MHZ)
COPYRIGHT 1997 - 2009 EVERTZ MICROSYSTEMS LTD.
28F256P30B FLASH DETECTED
BRD=2400V5DAV
MODEL=BA2400V5DAV-2430RX2-REVC
PROD=2431RX-2
FRAME=2400
MCF54454 COLD BOOT> |-
```

1. The following is a list of possible reasons for failed communications:
    - Defective serial cable.
    - Wrong communications port selected in the terminal program.
    - Improper port settings in the terminal program (Refer to step 3 for settings).

2. While the cursor is spinning press the <CTRL> and <X> keys on the computer keyboard at the same time, this should stop the cursor from spinning. The spinning prompt will only remain for about 5 seconds. The user must press <CTRL-X> during this 5 second delay. If the unit continues to boot-up, simply cycle the power and repeat this step.

3. Hit the <ENTER> key on your computer once.

4. Type the word "upgrade", without quotes, and hit the <ENTER> key once.

5. The boot code will ask for confirmation. Type "y", without quotes.

6. The user should now see a prompt asking you to upload the file.

5.1.3. Part 3 – Uploading the New Firmware

1. Upload the "*.bin" file supplied using the X-Modem transfer protocol of your terminal program. If the upload is not started within 10 minutes the 2430TX-2 boot code will time out. The user can restart the upgrade process by cycling the power to the unit.

2. The boot code will indicate whether the operation was successful upon completion of the upload.

3. For example:

```
UPLOAD OKAY
7700PB COLD BOOT> |
```

4. The following is a list of possible reasons for a failed upload:

   - If the message "transfer cancelled by remote" is displayed the user must restart the terminal program and load the bin file, then cycle power to the unit.
   - The supplied "*.bin" file is corrupt.
   - Wrong file specified to be uploaded.
   - The PC's RS-232 communications port cannot handle a port speed of 115200.
   - Noise induced into the serial cable.

5.1.4. Part 4 – Completing the Upgrade

1. Type the word "boot", without quotes, and hit the <ENTER> key once or power cycle the unit. The unit should now reboot.
2. The user can now close the terminal program and disconnect the serial cable.

5.2. FTP UPGRADE METHOD

1. Set the IP address on the unit.

2. Connect serial port to the unit.

3. Open HyperTerminal and set the serial setting as follows:

Baud	**115200**
Parity	**no**
Data bits	**8**
Stop bits	**2**
Flow Control	**None**

Table 6-2: Serial Terminal Settings

4. Press "Enter" to access the menu.

5. Select Option 1. Network Configuration.

6. Select Option 1. Set IP address and enter the IP address. Once complete press the <enter> key.

7. Select Option 2. Set Netmask and enter the Netmask. Once complete press the <enter> key.

8. Press "S" to save and exit.

9. Reboot the unit.

10. Open a command prompt on the computer where 2432TX-2 network cable is plugged.

11. Ping the 2432TX-2 to confirm it is reachable from the computer.

12. Ftp to the unit. Press enter for user name and password.

13. Type "quote site upgrade" in the command prompt and press the <enter> key.

14. Type "Put_", then drag and drop the "runtime" file. Once complete press the <enter> key (_ represent space after the Put command)

15. After the ftp is complete, the card will reboot automatically.

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6. 2431RX-2 CONFIGURATION USING VISTALINK®PRO

✎ | **Note: Some SNMP setting on 2431RX-2 needs to be done using serial cable. Please refer to SNMP section in the manual.**

6.1. SNMP V1

Configuring VistaLINK® Pro:

1. Obtain jar file for 2431RX-2.

2. Launch VistaLINK® Pro server. Wait for it to launch.

3. Login to VistaLINK® Pro server. Default login is administrator with no password.

4. Go to Help > apply update > product > and browse to the jar file location of 2431RX-2.
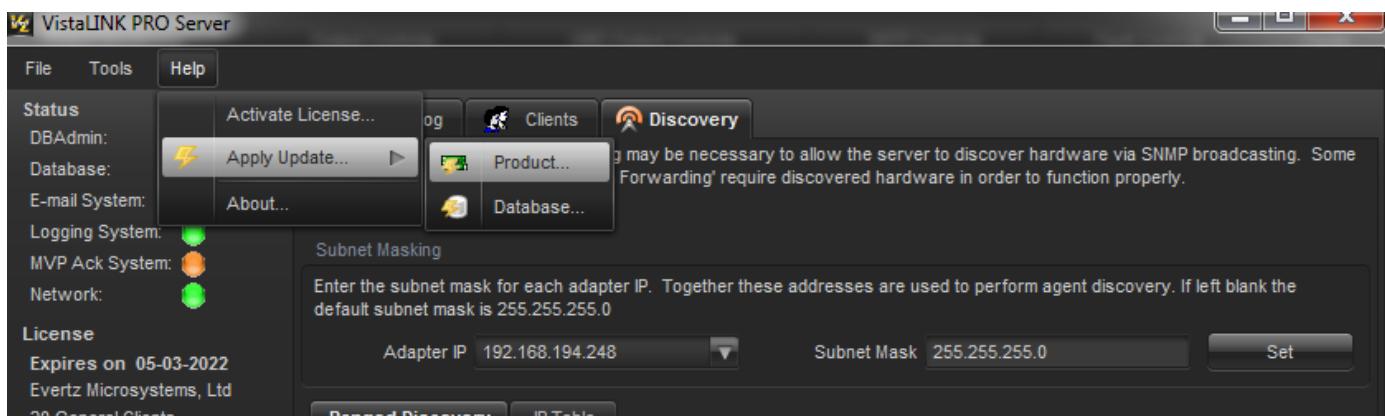
Figure 6-1: Configuring VistaLINK® PRO

5. VistaLINK® Pro will ask you to reboot, select OK.

6. When VistaLINK® Pro Server reboots login and launch VistaLINK® Pro client.

7. Inside VistaLINK® Pro client select the tree menu bar > add/update agent > enter IP address of the 2431RX-2.

8. 2431RX-2 should appear in the hardware tab with an RX icon.

9. To access configuration settings right click on TX icon > View configuration. You will now see the configuration pane for the 2431RX-2.
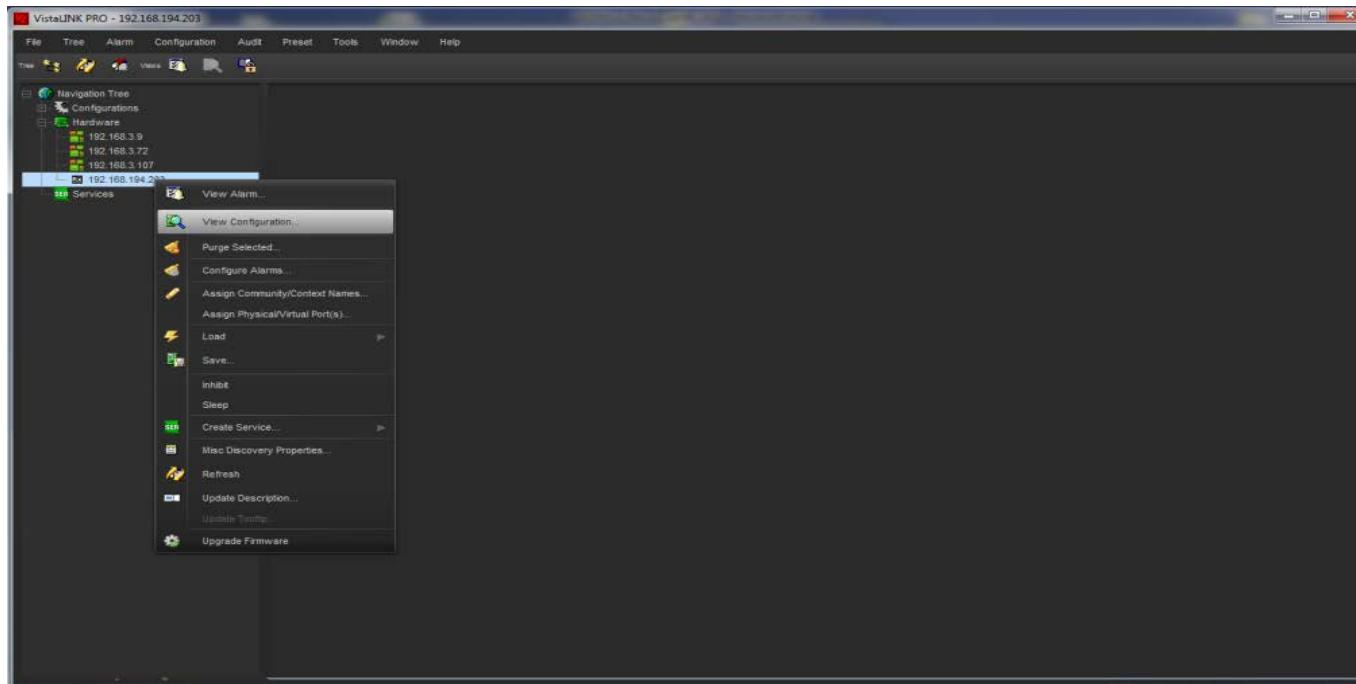
Figure 6-2: Configuration Page for 2431RX-2

6.2. CONFIGURING VLPRO FOR SNMP V3

1. Launch VistaLINK® PRO Server and Client.

2. Go to tools > User a menu will appear.
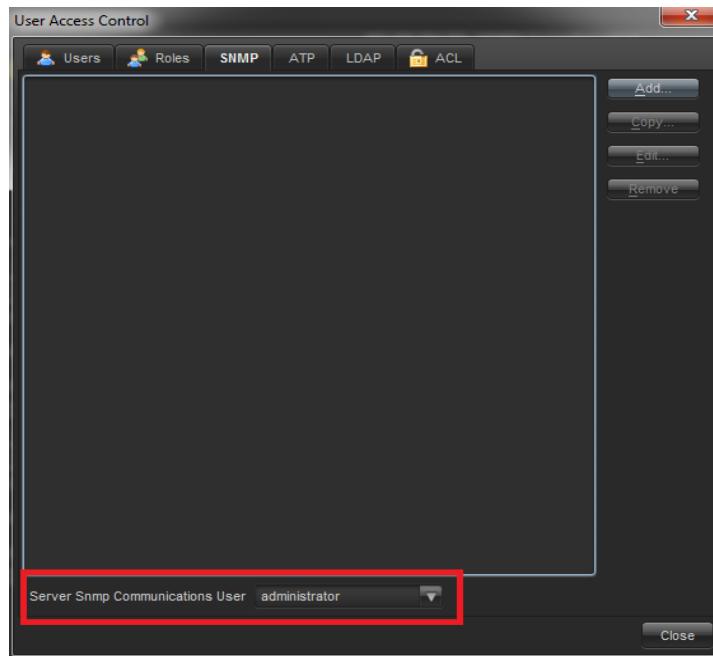
Figure 6-3: Server SNMP Communications User

3. Make sure Server SNMP Communications user is set to current User. (See Figure 6-3)

4. Click the add button and another context menu will appear.

Figure 6-4: Add an SNMP Name for the SNMP V3 Role

5. Add an SNMP name for the SNMP V3 role; this is just a name VLPRO uses to identify a group of devices it is not relegated to any authentication and encryption.

6. Click the Add button to add a new device.

7. Enter IP of the unit, and select password encryption type. MD5 or SHA-1.

8. Enter the username specified on the 2431RX-2 unit for authentication.

9. Add the authentication password (if any) and the encryption password (if any) in the dialog box. Click OK.
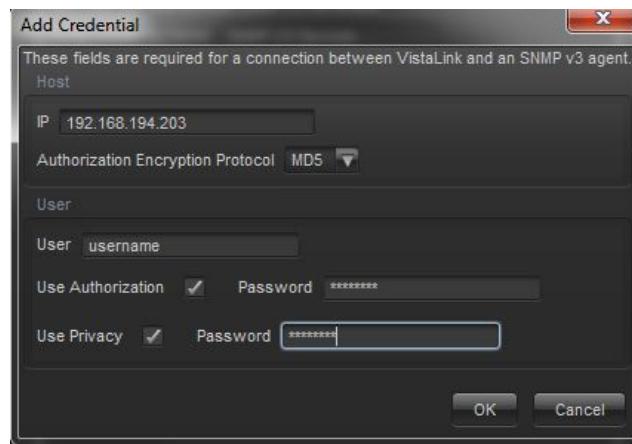
Figure 6-5: Add Authentication Password

10. Navigate to user tab. Select username and click Edit.
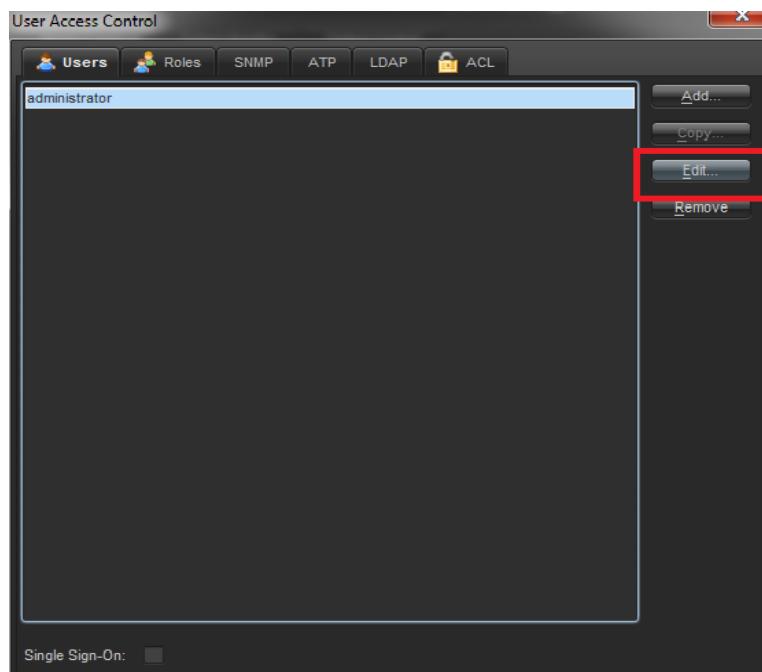
Figure 6-6: Edit Username

11. Navigate to the User's SNMP V3 TAB and add a checkmark to the desired SNMP V3 Group(s) for authentication.
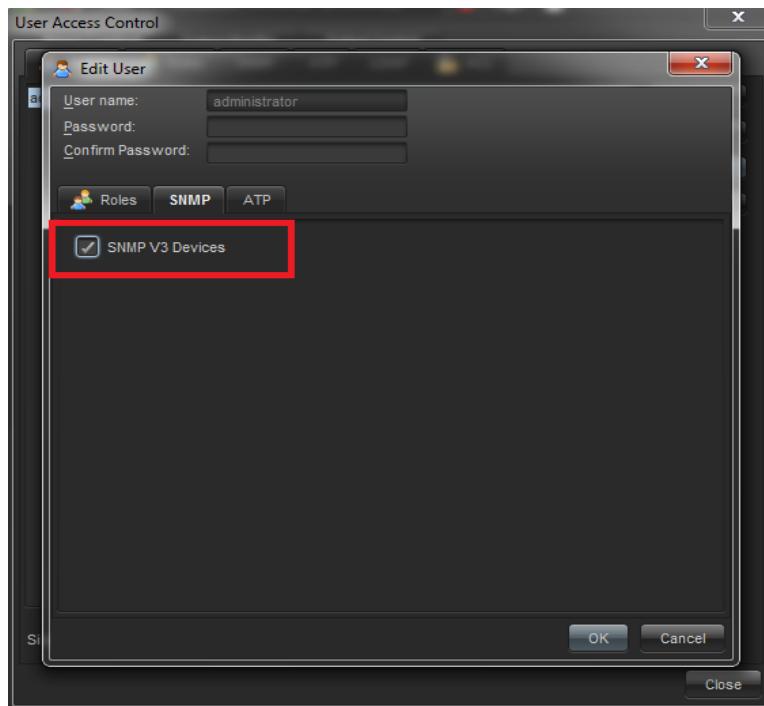
Figure 6-7: SNMP V3 Group(s) Authentication

12. Click OK to save.

13. Reboot VistaLINK® Pro Client and Server.

14. The 2431RX-2 will now be configured with SNMP V3.

6.3. 2431RX-2 VISTALINK® CONFIGURATION VIEW

1. Configure 2431RX-2 with VistaLINK® Pro, right click on the IP address of 2431RX-2. Select View Configuration form the popup menu that appears, as shown in below.
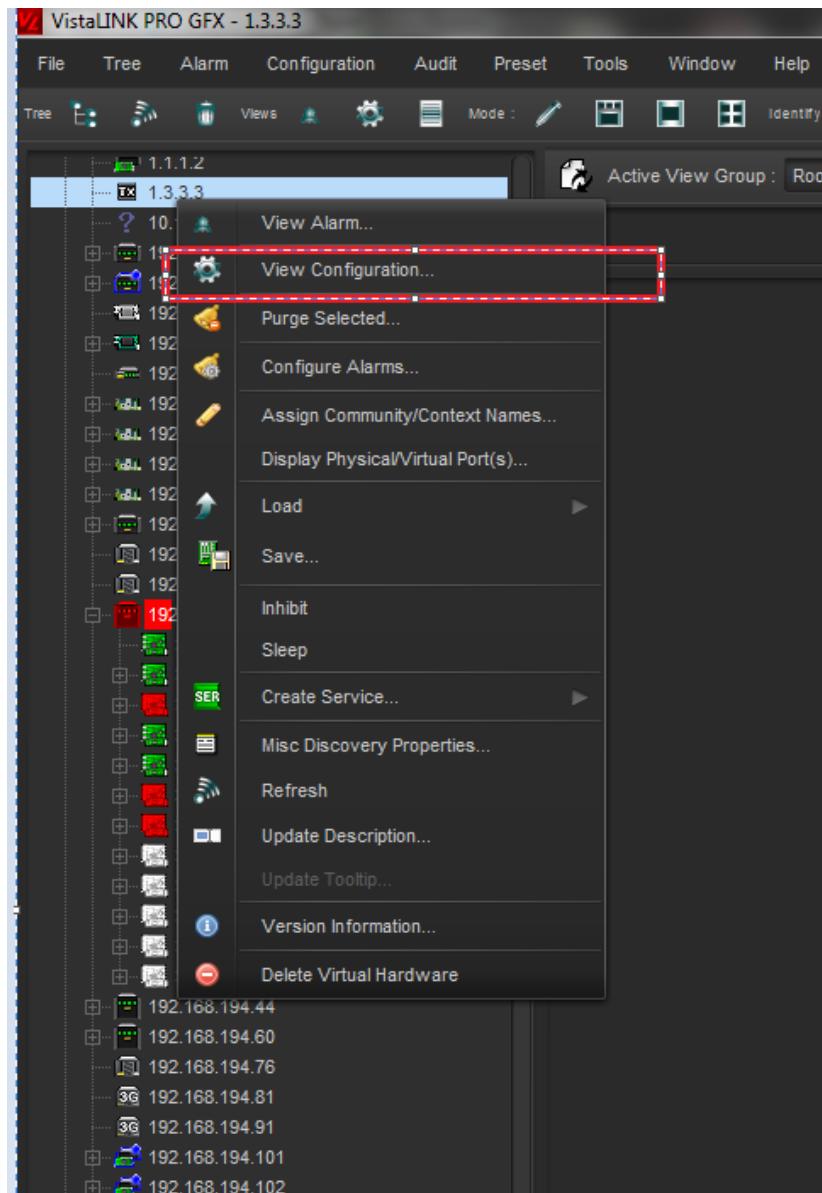
Figure 6-8: Configure 2431RX-2 with VistaLINK® Pro

2. Once **View Configuration** is selected the user will be presented with the main configuration screen as shown below:
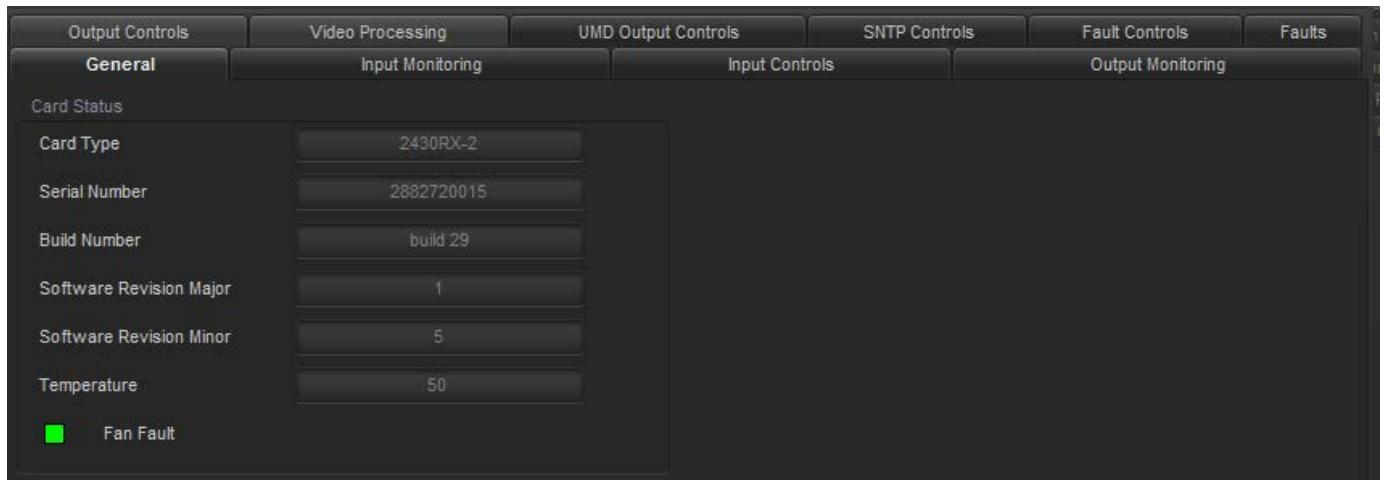
Figure 6-9: Main configuration Screen

6.3.1. General Tab

The General tab shows generic system information including card type, serial number, software version information and device FPGA temperatures.
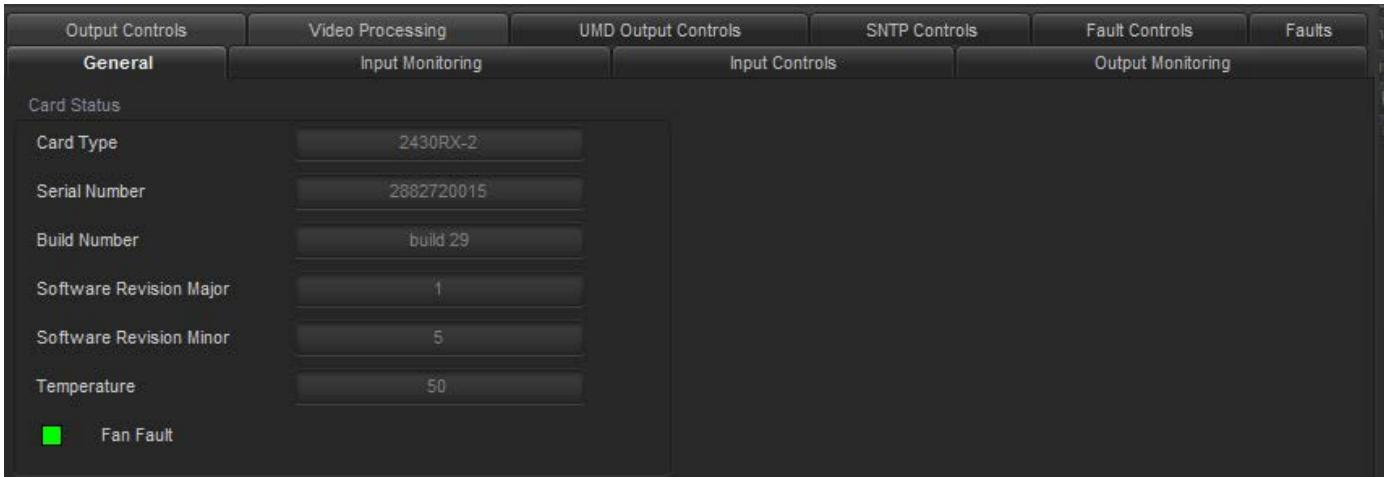
Figure 6-10: General Tab Menu

6.3.2. Input Monitoring

This tab allows the user to view information on the incoming signal including resolution, frame rate, signal format, source input (coaxial or fiber), Incoming signal HDCP encryption status, signal power for fiber input, and audio presence.
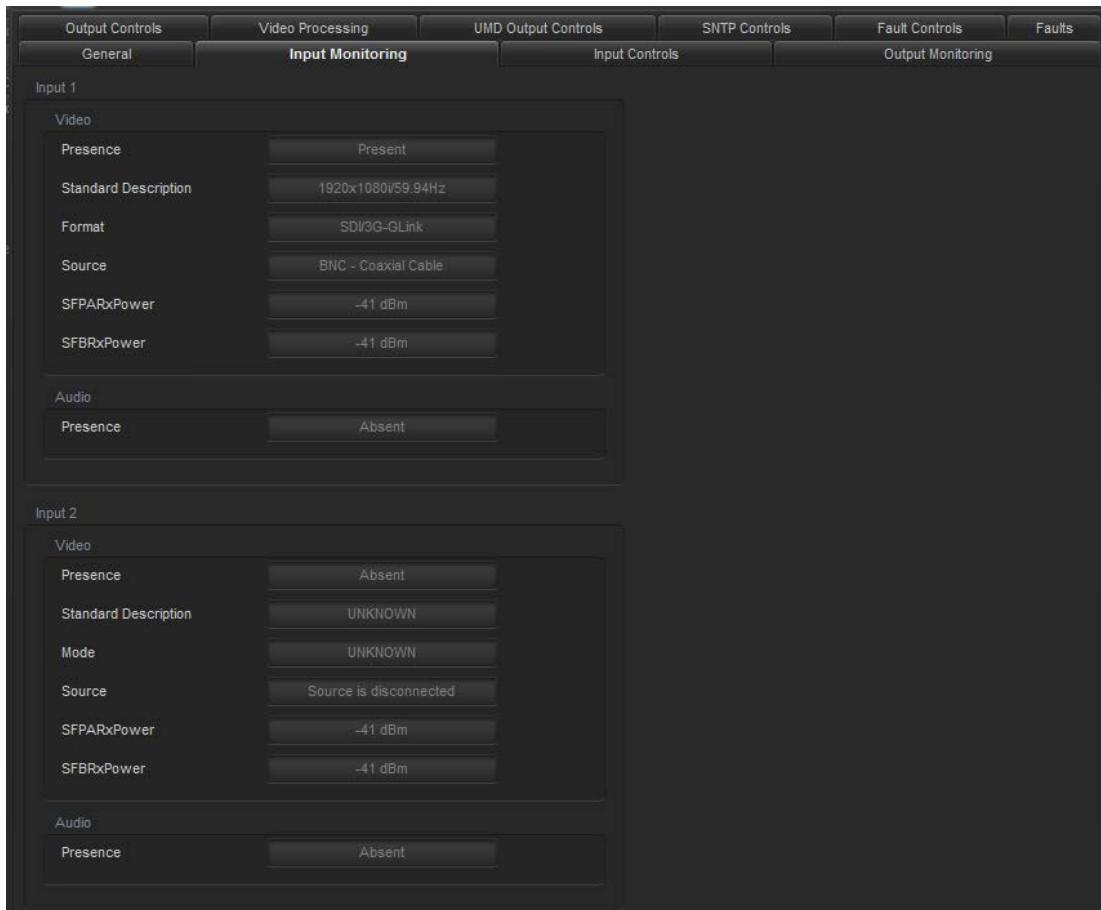
Figure 6-11: Input Monitoring

6.3.3. Input Controls

Input controls tab allows the user to:

- Lock incoming format to 3G-SDI or 3G-Gink, GLink, KVM, or Auto detect.
- Enable/Disable agile locking.
- Enable/Disable video de-interlacing.
- Selecting audio groups for audio de-embedding.
- Selecting audio pairs for audio de-embedding.
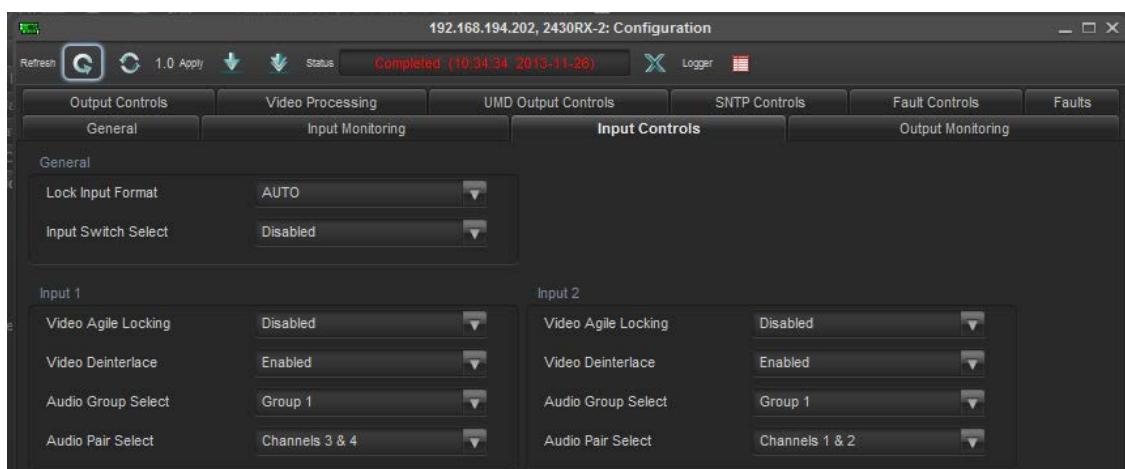
Figure 6-12: Input Controls

6.3.4. Output Monitoring

This Tab allows the user to view the current output resolution being outputted to the displays and HDCP encryption status of the output:

Figure 6-13: Output Monitoring

6.3.5. Output Controls

Output controls tab allows the user to change the output functionalities of the 2431RX-2.
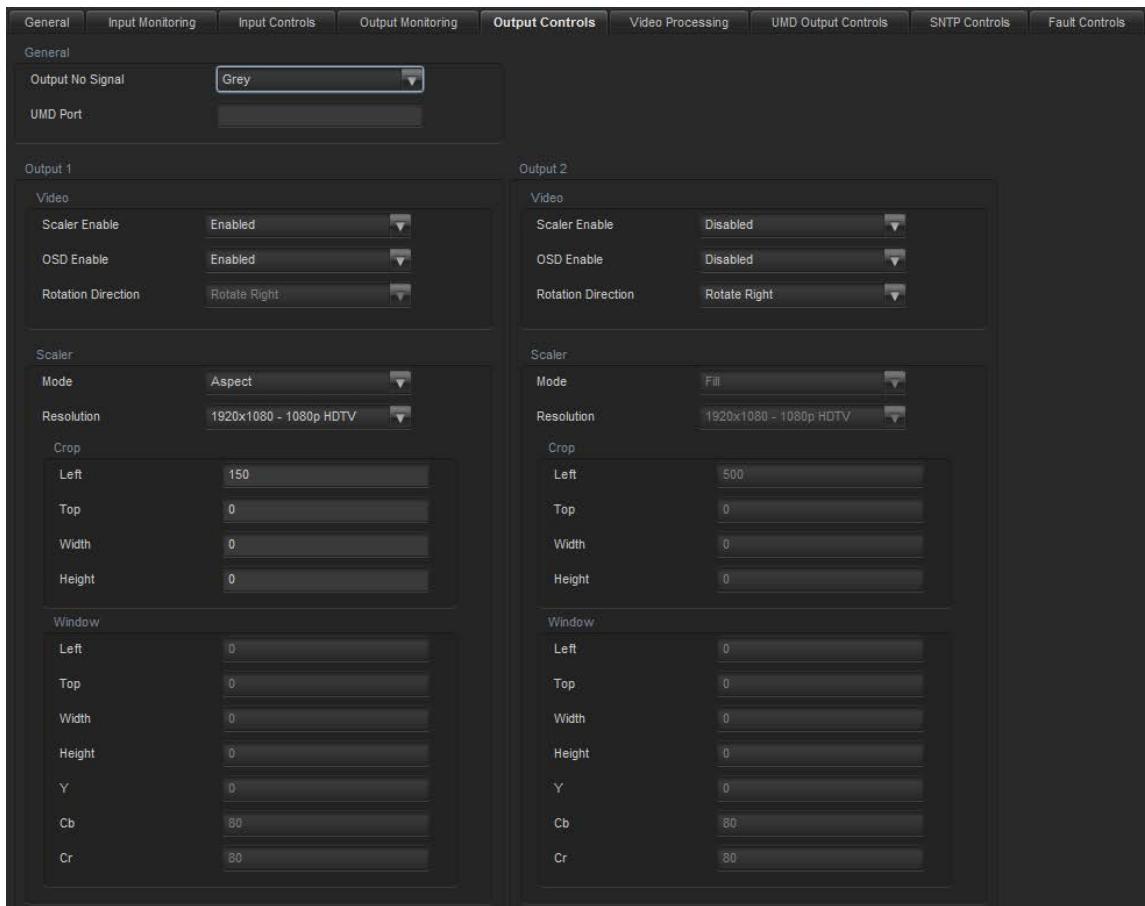
Figure 6-14: Output Controls

Output control tab contains:

- Enable/Disable output scaler on a per channel basis. (Unit will reboot when change is made)
- Enable/Disable OSD on a per channel basis.
- Change rotation direction for warped displays (GLink and 3G-Glink input only). This allows the image to flip 90 degrees left or right.
- Change scaler resolution.
- Change scaler mode. Options are:

  o Fill   stretches image full screen.
  o Aspect   Maintains 16:9 aspect ratios.
  o EDID   Detects the displays native resolution and scales image to fit.
  o Window   Allows an input source to be scaled inside of a predetermined area of the display.

- Change input cropping settings
- Change window crop settings and background colour for window mode scaling
- Toggle output audio mode between stereo unbalanced analog and unbalanced AES. If AES is selected, stereo signal will be duplicated in L and R BNC outputs.

6.3.6. Video Processing Tab

This video processing tab allows the user to apply colour correction to each individual output. An advanced set of processing controls provides the user with substantial control to fine tune the output displays.
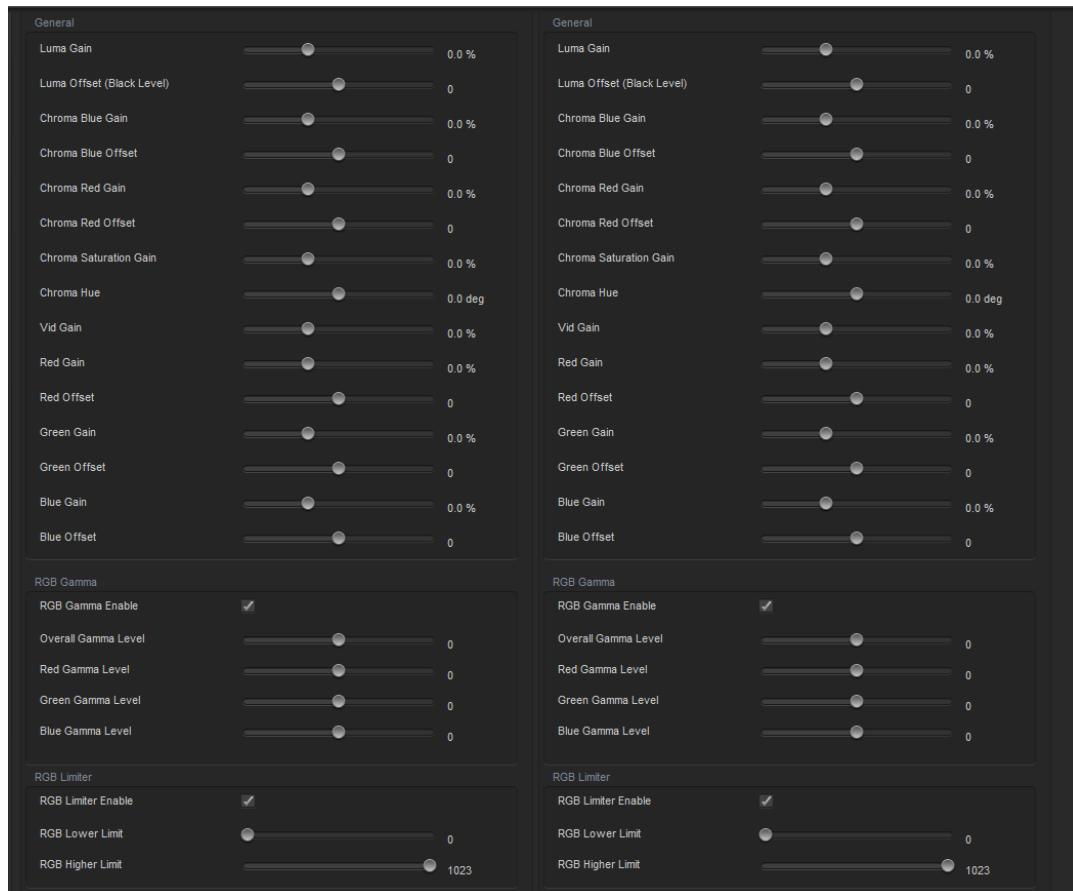

Figure 6-15: Video Processing Tab

6.3.7. UMD Output Controls

This tab allows the user to configure the 2431RX-2's OSD settings.
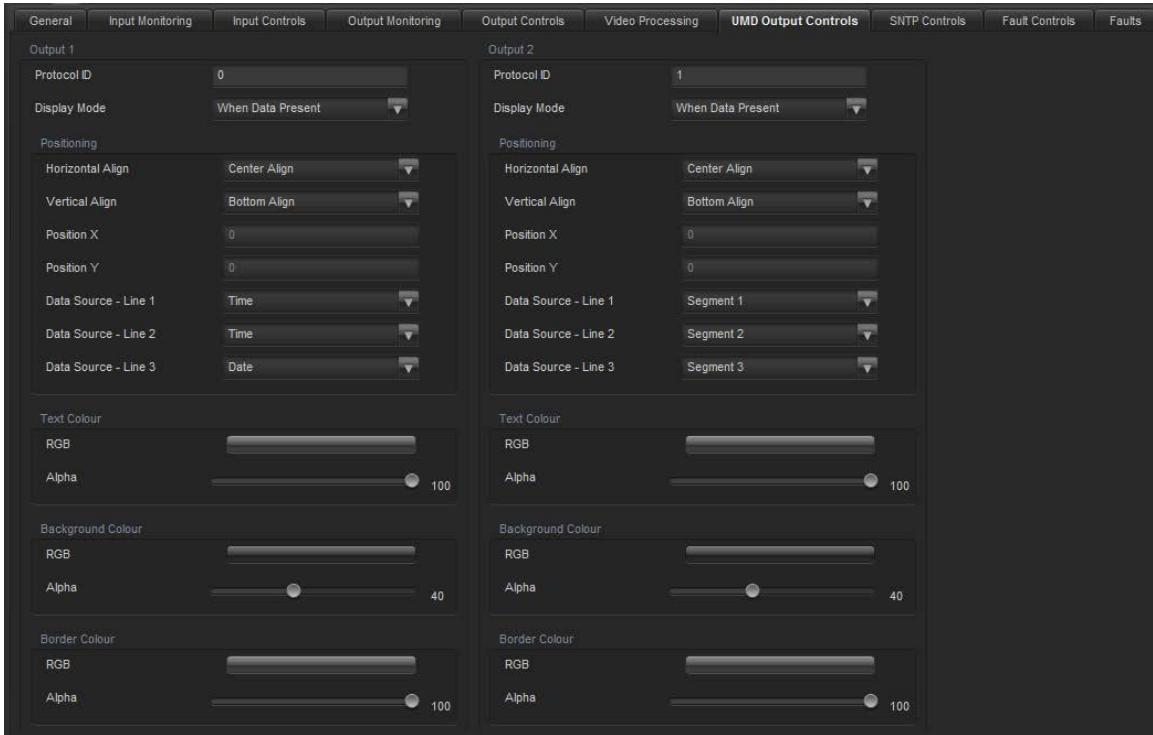
Figure 6-16: UMD Output Controls

Settings include:

- Protocol ID's per display.
- Display mode of UMD.
- Full X,Y positioning controls.
- Provides 3 configurable lines with up to 25 characters supported per line.
- Options for text, background, border color and opacity.

6.3.8. SNTP Controls

This menu allows the user to change NTP clock IP, clock offsets, configure Daylight Savings Time (DST) settings, and change clock and date formats.

Figure 6-17: SNTP Controls

6.3.9. Faults Tab

This tab allows the user to view fault presence and configure fault trap setting for the 2431RX-2.

The user can monitor the following faults

- Fan error   If fan is disconnected or stops spinning the fault will trigger.
- Temperature error   If device temperature exceeds optimal conditions fault will trigger.
- Video Input Lost   Alarms if signal presence is not detected.
- Audio input lost   Alarms if input audio is lost.
- SFP communications Error   Alarms if the 2431RX-2 stops communicating with SFP module.
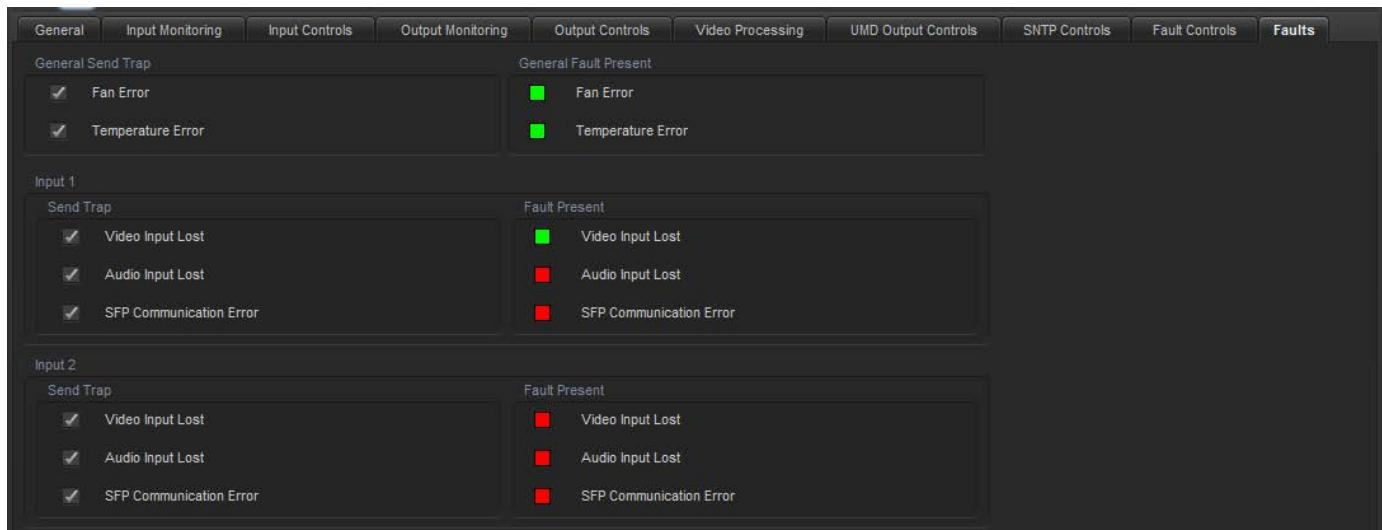
Figure 6-18: Faults Tab

6.3.10. Faults Controls Tab

This tab allows the user to set fault on times for each selected fault. It specifies the amount of time that that must elapse between the fault condition being met and the alarm sending. When conditions are not met, the fault will automatically clear.
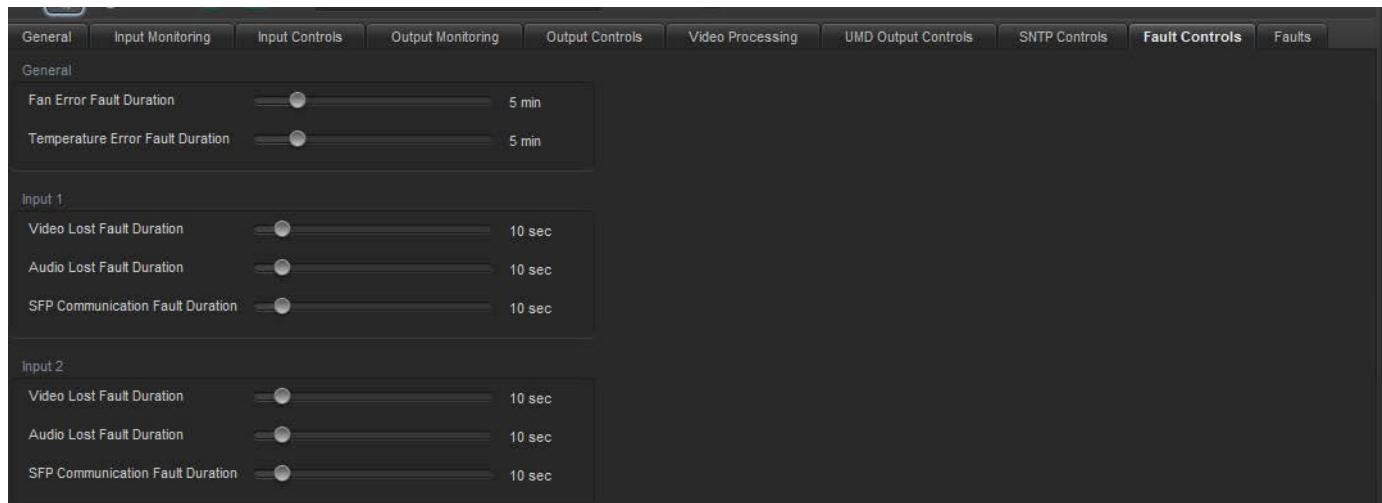
Figure 6-19: Fault Controls Tab