

2432TX-2

Dual Path Dual Link DVI to Serial 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	Feb 2014

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1. OVERVIEW

The 2432TX-2 is a versatile dual path dual-link DVI to serial digital converter. The 2432TX-2 is used as extension of DVI over coax or fiber. The 2432TX-2 is used in combination with the 2431RX-2 dual path dual-link DVI receiver. This self-contained unit accepts up to two simultaneous inputs (DVI, VGA or Component), as well as 1 audio pair per video input, and transmits these inputs over coax (two cables per input for Dual link DVI) and over fiber if SFP option install (two fibers per input for Dual link DVI). The 2432TX-2 can also be used in projects where conversion from DVI to serial digital is required. The 2431TX-2 unit is capable of scaling (best fit) input to SMPTE 259M, 292M or 424M and embeds audio. 2432TX-2 is HDCP compliant.

Features & Benefits:

- Supports two independent DVI, VGA or component inputs
- Provides serial digital outputs via coax as standard and via hot pluggable SFPs with the fiber optics option installed
- Supports SMPTE standard serial digital outputs for applications where DVI, VGA or component video conversion to SDI is required
- Configurable input scaling to best fit SMPTE 259M, 292M or 424M standard
- Full 24 bits-per-pixel color resolution
- Embedded audio (1 stereo pair per input)
- Supports single-mode and multi-mode fiber optic cable (contact factory for multi-mode applications)
- SNMP enabled for configuration.
- HDCP compliant

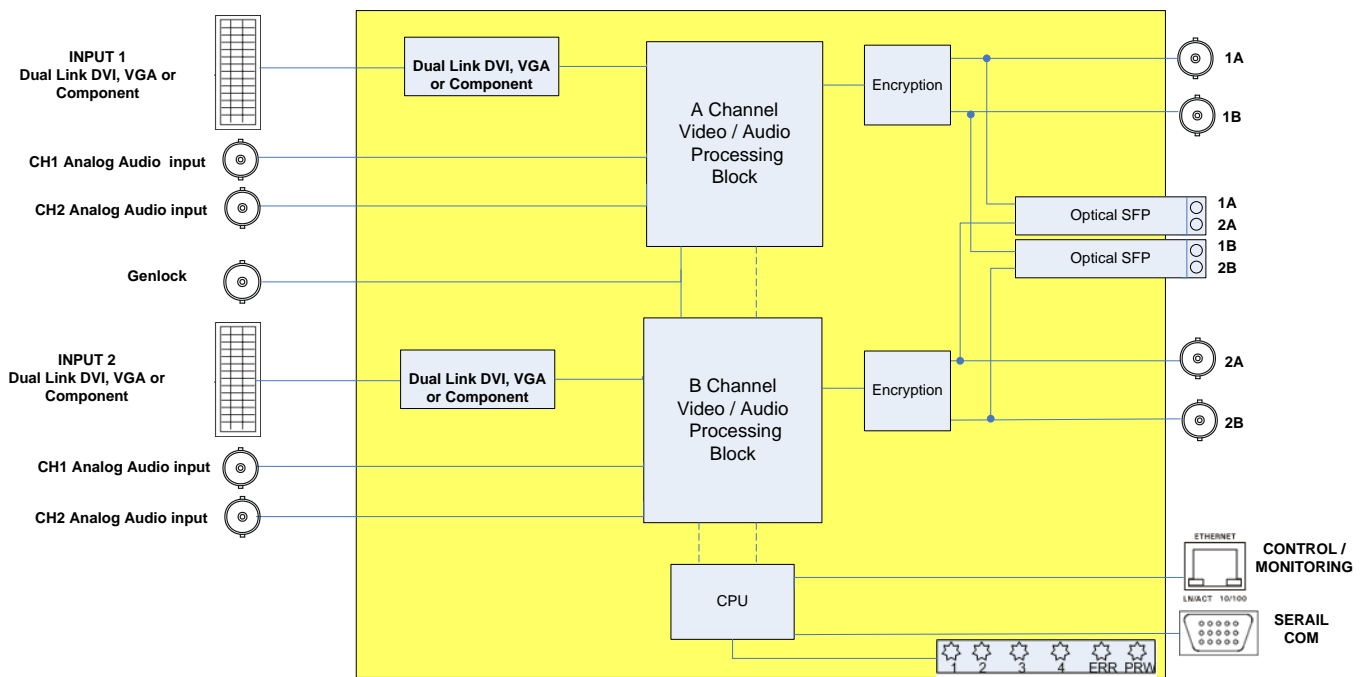


Figure 1-1: 2432TX-2 Block Diagram

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2. INSTALLATION

The 2432TX-2 is a compact module that has two DVI-I input connector, four input BNC connector for 2 pair of analog audio (4x BNC to RCA connector supplied), four output BNC connectors and optional four fiber optic connectors (2 per SFP) (all for connection are only needed for dual-link DVI inputs, One DB-9 serial connector for settings and one Ethernet connector for control and monitoring.



Figure 2-1: 2432TX-2 Rear View

2.1. POWER

The 2432TX-2 comes with an auto-ranging DC voltage adapter that automatically senses the input voltage. Power need to 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 needs to be minimum 18 AWG wire size type SST marked VW-1, maximum 2.5m in length. The DC cable of the voltage adapter needs to be connected to the DC power jack on the side panel. A green LED located beside the DIP switch connector will be illuminated when power is applied to 2432TX-2.

2.2. DVI-I CONNECTORS

DVI-I connector is for digital video inputs. Below table lists pins in the DVI-I connector. (Support DVI-D input only)

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 2-2: 2432TX-2 Rear View – DVI-I Connectors

2.3. BNC CONNECTORS

BNC connectors are used for serial digital outputs (4 BNC connectors) and analog audio input (4 BNC connectors).



Figure 2-3: 2432TX-2 Rear View – BNC Connectors

2.4. FIBER CONNECTORS (OPTIONAL)

2 SFP's (SFP3T-13-2) are used for serial digital output over fiber.



Figure 2-4: 2432TX-2 Rear View – Fiber Connectors

2.5. DB9 CONNECTOR

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

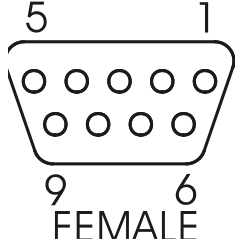
	Pin #	Name	Description
	1		
	2	TxD	RS-232 Transmit Output
	3	RxD	RS-232 Receive Input
	4		
	5	Sig Gnd	RS-232 Signal Ground
	6		
	7		
	8		
	9		

Table 2-2: DB9 Port Pin Out



Figure 2-5: 2432TX-2 Front View – DB9 Connector

2.6. CARE AND HANDLING OF OPTICAL FIBER

2.6.1. 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.

2.6.2. 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.

2.6.3. 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. SPECIFICATIONS

Video Inputs:

Number of Inputs:	2
Connectors:	28-pin DVI
Supported Input Format:	DVI, VGA and Component
Supported Resolution:	VESA: VGA, SVGA, XGA, WXGA, SXGA, SXGA+, UXGA, WSXGA+, WUXGA, WQXGA (dual-link). CEA-861B: 480p, 576p, 720p, 1080i, 1080p
Color Resolution:	24 bits

Analog Audio Input:

Number of Inputs:	1 stereo pair per Video input (BNC to RCA connector included)
Connectors:	BNC per IEC 60169-8 Amendment 2
Impedance:	25K ohms
Frequency Response:	±3dB (20Hz to 20kHz)
THD:	< 0.5% (20Hz to 20KHz)
Channel Phase Difference:	< ±1°
SNR:	> 75 dB
Maximum Input Level:	2 dBu
Signal Quantization:	24 bits @ 48 kHz

Genlock:

Number of Inputs:	1
Connectors:	BNC per IEC 60169-8 Amendment 2
Termination:	75 Ω □ Internal

SDI Output:

Number of Outputs:	2 (Total 4 BNCs are used if Dual link transmission mode is used)
Connectors:	BNC per IEC 60169-8 Amendment 2
Standard:	SMPTE 259M, 292M, 424M and Evertz proprietary 3GLINK

Optical Output:

Number of Outputs:	2 output on single SFP (2 SFP are used if Dual link transmission mode is used)
Connector:	Female LC/UPC

Wavelengths:

Standard:	1310nm
CWDM:	1270-1670nm

Output Power:

1310nm:	-2dB ± 1dBm
CWDM:	+1dBm ± 1dBm

Electrical:

Voltage:	12V DC, Auto ranging 100-240V AC 50/60Hz adapter included
Power:	(Typ): 1.7A (20W) (Max): 2A (24W)

Physical:

Dimensions: With flanges: 7.81"L x 5.63"W x 1.75"H
(199mm L x 143mm W x 45mm H)

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

4. STATUS LEDS

The location of the status indicators are shown in below Figure 4-1.

- PWR:** When ON this LED indicates that the 2432TX-2 is receiving Power.
- ERR:** When Err/Fault LED is ON indicates that there is a problem with the unit.
- 1** When On this LED indicates that the 2432TX-2 is outputting a signal on Input 1A.
- 2** When On this LED indicates that the 2432TX-2 is outputting a signal on Input 2A.
- 3** When On this LED indicates that the 2432TX-2 is outputting a signal on Input 1B.
- 4** When On this LED indicates that the 2432TX-2 is outputting a signal on Input 2B.



Figure 4-1: 2432TX-2 Status LEDS

4.1. USER CONTROLS

4.1.1. Dip Switches



Note: DIP Switch settings are only valid with Version 1.X.X firmware. With firmware version 2.X.X DIP switches are inactive due to functions being moved to serial menu and SNMP for control.

DIP Switch	Function
1	Output format: DOWN=SDI, UP=3G-GLink
2	Changes output bandwidth: DOWN=3G, UP=1.5G (effectively selects between 1080p 60 and 30)
3	Interlace Output: DOWN= Progressive Output, UP=Interlaced Output
4	Genlock: DOWN=Disable, UP=Enable
5&6	Output Frame Rate: [DOWN,DOWN]=59.94fps [UP,DOWN]=60fps [DOWN,UP]=50fps
7	Under Development, Leave Down
8	Under Development, Leave Down

Table 4-1: DIP Switch Functions



Figure 4-2: 2432TX-2 DIP Switches

4.2. 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 4-2: Serial Port Terminal Settings

4.3. SERIAL MENU

Configure your terminal program to the above table settings and press the <enter> button. The session should respond with the 2432TX-2 Main Menu.

```

=====
                          Main Menu
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
(1) Network Configuration
(2) Hardware Version Information
(3) Video Utils Menu
(4) EDID Configuration
(5) Output Configuration Menu
(6) Scaler Configuration Menu
(7) SNMP Configuration
(8) Engineering Menu

<X> Exit
>
    
```

Figure 4-3: 2432TX-2 Serial Menu

4.3.1. Network Configuration

This menu option is used to set the IP parameter on 2432TX-2 module.

```
=====
                        Network Configuration
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====

MAC:                00:02:c5:14:73:35
IP Address:         192.168.194.211
Subnet Mask:       255.255.255.0
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 4-4: Network Configuration

4.3.2. Hardware Version Information

This menu is used to retrieve device information.

```
> 2
<1>2400U5DLI Hardware build 1, S/N 2798990012.
```

Figure 4-5: Hardware Version Information

4.3.3. Video Utilities Menu

This menu has multiple sub menus for Video Standard Information, setting Analog Offsets, Input locking and HDCP content management. Below menu highlight menu structure.

```
=====
                        Video Utils Menu
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====

<1> Video Standard Information
<2> Set Analog Offsets
<3> Lock Input Mode (Analog/Digital)
<4> Enable HDCP Content Processing

<X> Exit
> █
```

Figure 4-6: Video Utilities Menu

4.3.4. Video Standard Information

This menu allows collecting information regarding current input resolution information by selecting input number.

```
Product: 2432TX-2
=====
<1> Video Standard Information
<2> Set Analog Offsets
<3> Lock Input Mode (Analog/Digital)
<4> Enable HDCP Content Processing

<X> Exit
> 1
Input Number? [1-2] > 1
ASPL:           1920
ALPF[0]:        1080
ALPF[1]:         0
TSPL:           2200
TLPF[0]:        1125
TLPF[1]:         0
SPP:             1
Field Rate:     60

=====
```

Figure 4-7: Video Standard Information

4.3.5. Set Analog Offsets

This menu allows setting vertical and horizontal offsets for current input retrieve current offsets information and allow reset the offset through serial sub menu options.

```
=====
Set Analog Offsets

"DVI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Set Vertical offset for the current analog resolution
<2> Set Horizontal offset for the current analog resolution
<3> Display the offsets for the current analog resolution
<4> Factory reset offset settings

<S> Save and Exit
<X> Exit
> █
```

Figure 4-8: Set Analog Offsets

4.3.6. Lock Input Mode

This menu allows user to locks inputs to one of four modes.

1. Digital only (only digital inputs are detected and transmitted)
2. Analog only (only analog inputs are detected and transmitted)
3. Digital Priority (Detects digital inputs first, if not detected, then will detect analog signal)
4. Analog Priority (Detects analog signal first, if not detected, then will detect digital signal)

```
=====
                    Lock Input Mode <Analog/Digital>

"DVI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
Input[0]: Current Mode ANALOG PRIORITY
Input[1]: Current Mode DIGITAL PRIORITY
<1> DIGITAL ONLY
<2> ANALOG ONLY
<3> DIGITAL PRIORITY
<4> ANALOG PRIORITY

<S> Save and Exit
<X> Exit
\
```

Figure 4-9: Lock Input Mode

4.3.7. Enable HDCP Content Processing

This menu allows user to enables/disables HDCP content Processing and enforce encryption for HDCP encrypted content on the output.

```
=====
                    Enable HDCP Content Processing

"DVI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Enable
<2> Disable

<S> Save and Exit
<X> Exit
_
```

Figure 4-10: Enable HDCP Content Processing

4.3.8. EDID Configuration

This menu allow user to verify supported EDID resolutions. Users can verify the EDID settings and also modify EDID settings for each input.

```
=====
                        EDID Configuration
=====

"DVI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Show Supported Resolutions
<2> Show EDID Contents
<3> Modify EDID Contents

<S> Save and Exit
<X> Exit
```

Figure 4-11: EDID Configuration

1. Show supported EDID resolutions.

```

=====
                        EDID Configuration
=====
"DVI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Show Supported Resolutions
<2> Show EDID Contents
<3> Modify EDID Contents

<S> Save and Exit
<X> Exit
> 1

-----
Supported Resolutions List
1: 640x400@85
2: 640x480p@60<CEA-861B>
3: 640x480@73Hz<UGA>
4: 640x480@75Hz<UGA>
5: 640x480@85Hz<UGA>
6: 720x400@70
7: 720<1440>x480i@60Hz<CEA-861B>
8: 720<1440>x576i@50Hz<CEA-861B>
9: 720x576p@50<CEA-861B>
10: 800x600@50Hz
11: 800x600@60Hz<SUGA>
12: 800x600@72Hz<SUGA>
13: 800x600@75Hz<SUGA>
14: 800x600@85Hz<SUGA>
15: 1024x768@60Hz<XGA>
16: 1024x768@50Hz<XGA>
17: 1024x768@70Hz<XGA>
18: 1024x768@75Hz<XGA>
19: 1024x768@85Hz<XGA>
20: 1152x864@60Hz
21: 1152x864@75Hz
22: 1280x720p@50Hz<SMPTIE-296M>
23: 1280x720p@60Hz<SMPTIE-296M>
24: 1280x768@50Hz<WXGA>
25: 1280x768@60Hz<R><WXGA>
26: 1280x768@60Hz<WXGA>
27: 1280x768@75Hz<WXGA>
28: 1280x768@85Hz<WXGA>
29: 1280x960@60Hz
30: 1280x1024@60Hz<SXGA>
31: 1280x1024@75Hz<SXGA>
32: 1280x1024@85Hz<SXGA>
33: 1360x768@60Hz
34: 1400x1050@60Hz<SXGA+>
35: 1440x900@60Hz
36: 1440x900@60Hz<R>
37: 1600x900@60Hz
38: 1600x900@60Hz<R>
39: 1600x1200@50Hz<UXGA>
40: 1600x1200@60Hz<UXGA>
41: 1680x1050@60Hz<R><WSXGA+>
42: 1680x1050@60Hz<WSXGA+>
43: 1920x1080p@25Hz<CEA-861B>
44: 1920x1080p@30Hz<CEA-861B>
45: 1920x1080p@50Hz<CEA-861B>
46: 1920x1080p@60Hz<CEA-861B>
47: 1920x1080i@50Hz<SMPTIE-274M>
48: 1920x1080i@60Hz<SMPTIE-274M>
49: 1920x1200@60Hz<R><WUXGA>
50: 1920x2160@30Hz
51: 1920x2160@60Hz
52: 2560x1600@60Hz<WQXGA>
=====

```

Figure 4-12: Show Supported EDID Resolutions

2. Show EDID Contents

```
=====
                        EDID Configuration
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Show Supported Resolutions
<2> Show EDID Contents
<3> Modify EDID Contents

<S> Save and Exit
<X> Exit
> 2
|
| Video Input 1: DVI
|
| Video Input 2: DVI
|
=====
```

Figure 4-13: Show EDID Contents

3. Modify EDID contents allow user to modify EDID settings in one of four modes:
 - a) DVI factory default EDID setting, contains common VESA resolutions.
 - b) Custom DVI enables user to create a custom native and secondary resolution.
 - c) Analog factory default EDID setting, contains common Analog resolutions.
 - d) Custom Analog enables user to create a custom native and secondary analog resolution.

```
=====
                        Modify EDID Contents
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> DVI Input 1 EDID
<2> DVI Input 2 EDID

<X> Exit
> 1

=====
                        DVI Input 1 EDID
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> DVI                <preset configuration, advertise DVI functionality>
<2> ANALOG             <preset configuration, advertise analog functionality>
<3> CUSTOM DVI        <user-defined configuration, DVI functionality>
<4> CUSTOM ANALOG     <user-defined configuration, analog functionality>

<X> Exit
```

Figure 4-14: Modify EDID Contents

4.3.9. Output Configuration Menu

This menu allow user to select output format, set output bandwidth, set scan mode and set frame rate.

```
=====
                        Output Configuration Menu
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Set Serial Digital Output Format
<2> Set Maximum Bandwidth Limit
<3> Set Scan Mode
<4> Set Frame Rate

<S> Save and Exit
```

Figure 4-15: Output Configuration Menu

1. **Set Serial Digital Output Format** allow user to switch between SDI and 3G-Glink output Evertz proprietary format.

```
=====
                        Set Serial Digital Output Format
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> SMPTE-SDI
<2> 3G-GLink

<X> Exit
>
```

Figure 4-16: Set Serial Digital Output Format

2. **Set Maximum Bandwidth Limit** allows user to set per output bandwidth to be 2.97Gb/s or 1.485Gb/s.

```
=====
                        Set Maximum Bandwidth Limit
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> 3G - 2.97 Gb/s
<2> HD - 1.485 Gb/s
```

Figure 4-17: Set Maximum Bandwidth Limit

3. **Set Scan Mode** allow user to set each output to be progressive and interlace.

```
=====
                          Set Scan Mode
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Interlace
<2> Progressive

<X> Exit
```

Figure 4-18: Set Scan Mode

4. **Set Frame Rate** allow user to set frame per out to be 59.94fps or 50fps.

```
> 4
Frame Rate Options

<1> 59.94 Hz
<2> 50 Hz
```

Figure 4-19: Set Frame Rate

4.3.10. Scaler Configuration Menu

This menu allows user to enable or disable output scaling per input.

```
=====
                          Scaler Configuration Menu
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Enable/Disable Scaler
<S> Save and Exit
<X> Exit
> 1

=====
                          Enable/Disable Scaler
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> ENABLED
<2> DISABLE

<X> Exit
> 1
Input Number? [1-2] > 1█
```

Figure 4-20: Scaler Configuration Menu

4.3.11. SNMP Configuration

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

```
=====
                        SNMP Configuration
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
(1) SNMP V1 Setup
(2) SNMP V3 Setup
(3) SNMP Version

(X) Exit
>■
```

Figure 4-21: SNMP Configuration

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

```
=====
                        SNMP V1 Setup
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
(1) Trap Setup
(2) Community Setup

(X) Exit
```

Figure 4-22SNMP V1 Setup Menu

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

4.3.12. SNMP V3 Setup Menu

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

```
=====
                        SNMP V3 Setup
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
(1) SNMP V3 User Setup
(2) SNMP V3 Access Control Setup
(3) SNMP V3 Notification Setup

(X) Exit
```

Figure 4-23: SNMP V3 Setup Menu

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

```
=====
                        SNMP V3 User Setup
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
(1) Add/Edit SNMP V3 User
(2) Remove SNMP V3 User
(3) Show All SNMP V3 User

(X) Exit
```

Figure 4-24: SNMP V3 User Setup

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

```

=====
                        Add/Edit SNMP V3 User

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-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 4-25: Add/Edit SNMP V3 User

- 1) Username allow user to set username used for SNMP V3 authentication.
- 2) Authentication allow user to set MD5 or SHA-1 password encryption.
- 3) Authentication Password allow user to set password used for user authentication.
- 4) User Privacy allow user to set DES or AES packet encryption.
- 5) Encryption Password allow user to set password used for packet encryption.
- 6) Select Access Control model allow 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 allow user to edit existing user profile.

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

```

=====
                        SNMP V3 User Setup

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====

<1> Add/Edit SNMP V3 User
<2> Remove SNMP V3 User
<3> Show All SNMP V3 User

<X> Exit
>2
Enter the User Number >
    
```

Figure 4-26: Remove SNMP V3 User

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

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

=====
                        SNMP V3 User Setup

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Add/Edit SNMP V3 User
<2> Remove SNMP V3 User
<3> Show All SNMP V3 User

<X> Exit
```

Figure 4-27: Show All SNMP V3 User

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

```
=====
                        SNMP V3 Access Control Setup

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Add SNMP V3 Access Control
<2> Remove SNMP V3 Access Control
<3> Show All SNMP V3 Access Control

<X> Exit
```

Figure 4-28: SNMP V3 Access Control Setup

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

```

=====
                Add SNMP U3 Access Control

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
1. MODEL NAME:
2. ACCESS TYPE:
3. ACCESS SECURITY LEVEL:          READONLY
4. READ VIEW:                     Auth Priv
   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

<S> Save and Exit
<X> Exit
  
```

Figure 4-29: Add SNMP V3 Access Control

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

```

=====
                SNMP U3 Access Control Setup

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
<1> Add SNMP U3 Access Control
<2> Remove SNMP U3 Access Control
<3> Show All SNMP U3 Access Control

<X> Exit
>2
Enter the Model Number >■
  
```

Figure 4-30: Remove SNMP V3 Access Control

- C. **Show all SNMP V3 Access Control** allow user to verify all current access control settings on the 2432TX-2.

```
=====
                SNMP V3 Access Control Setup

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
(1) Add SNMP V3 Access Control
(2) Remove SNMP V3 Access Control
(3) Show All SNMP V3 Access Control

(X) Exit
>3
=====
CURRENT ACCESS MODELS
access model 1: DEFAULT_ACCESS_CONTROL NoAuthNoPriv READWRITENOTIFY view
=====
```

Figure 4-31: Show All SNMP V3 Access Control

- 3. **SNMP V3 Notifications Setup** allow user to set trap destination and remove trap destination for SNMP V3.

```
=====
                SNMP V3 Notification Setup

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====
No Notification Destinations Assigned
=====

(1) Add SNMP V3 Notification Destination
(2) Remove SNMP V3 Notification Destination
```

Figure 4-32: SNMP V3 Notification Setup

- A. **Add SNMP V3 Notification Destination** allow user to set trap destination IP address

```
(1) Add SNMP V3 Notification Destination
(2) Remove SNMP V3 Notification Destination

(X) Exit
>1
Enter new trap destination IP address.username >■
```

Figure 4-33: Add SNMP V3 Notification Destination

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

```

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

<1> Add SNMP U3 Notification Destination
<2> Remove SNMP U3 Notification Destination

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

Figure 4-34: Remove SNMP Notification

4.3.13. SNMP Version

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

```

=====
                        SNMP Version
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====

SNMP Get Set Version: U1
SNMP Trap Version:
=====

<1> SNMP Get Set Version Setup
<2> SNMP Trap Version Setup

<S> Save and Exit
<X> Exit
    
```

Figure 4-35: SNMP Version

A. **SNMP Get Set Version Setup** allow user to set SNMP V1 or V3 version used for configuration and update.

```

=====
                        SNMP Version
=====

"DUI-I to G-SDI Converter" Software
Version 1.00 build 3
Built on Tue Dec 04 18:54:53 2012

Product: 2432TX-2
=====

SNMP Get Set Version: U1
SNMP Trap Version:
=====

<1> SNMP Get Set Version Setup
<2> SNMP Trap Version Setup

<S> Save and Exit
<X> Exit
>1
Enter U1 or U3 <Default U1> >
    
```

Figure 4-36: SNMO Get Set Version Setup

B. **SNMP Trap Version Setup** allow user to set SNMP V1 or V3 version used to send traps.

```
Product: 2432TX-2
=====
SNMP Get Set Version: V1
SNMP Trap Version:
-----
<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 4-37: SNMP Trap Version Setup

5. ENGINEERING MENU

This menu is for Evertz personnel only. You 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.

6. UPGRADING FIRMWARE

6.1. UPDATE PROCEDURE

6.1.1. 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.

6.1.2. 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 MCF5272 MONITOR 2.3 BUILD 3 (66 MHZ)
COPYRIGHT 1997, 1998, 1999, 2000, 2001, 2002 EVERTZ MICROSYSTEMS LTD.
28F160C3B FLASH DETECTED
PROD=2430TX-2
MCF5272 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 your computer keyboard at the same time, this should stop the cursor from spinning. The spinning prompt will only remain for about 5 seconds. You 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. You should now see a prompt asking you to upload the file.

6.1.3. Part 3 – Uploading the New Firmware

1. Upload the “*.bin” file supplied using the X-Modem transfer protocol of your terminal program. If you do not start the upload within 10 minutes the 2430TX-2 boot code will time out. You 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 you get the message “transfer cancelled by remote” you 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.

6.1.4. 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. You can now close the terminal program and disconnect the serial cable.

6.2. 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.

7. 2432TX-2 CONFIGURATION USING VISTALINK[®]PRO



Note: Some SNMP setting on 2432TX-2 needs to be done using serial cable. Please refer SNMP section in the manual.

7.1. SNMP V1

Configuring VistaLINK[®] Pro:

1. Obtain jar file for 2432TX-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 2432TX-2.

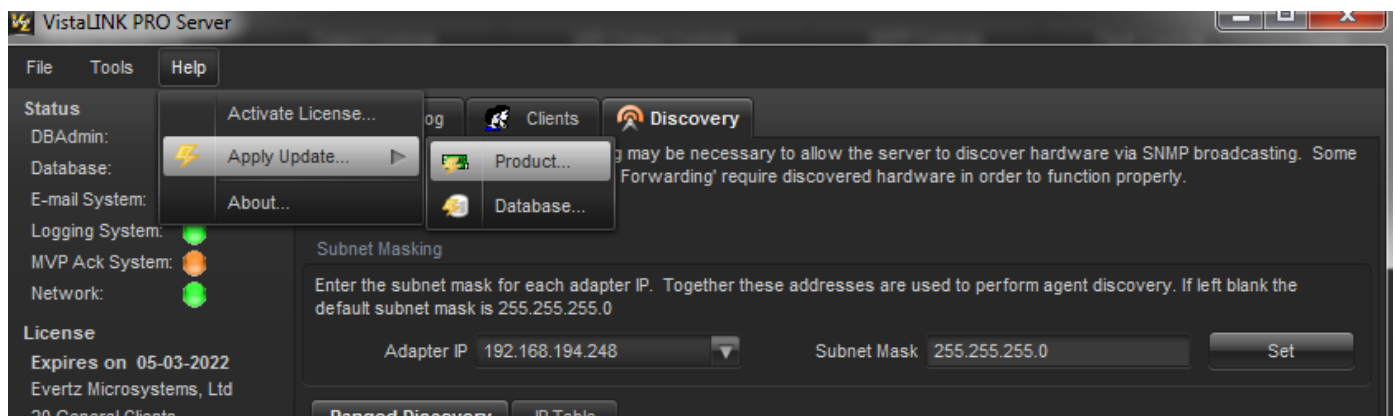


Figure 7-1: Configuring VistaLINK[®] PRO

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 2432TX-2
8. 2432TX-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 2432TX-2

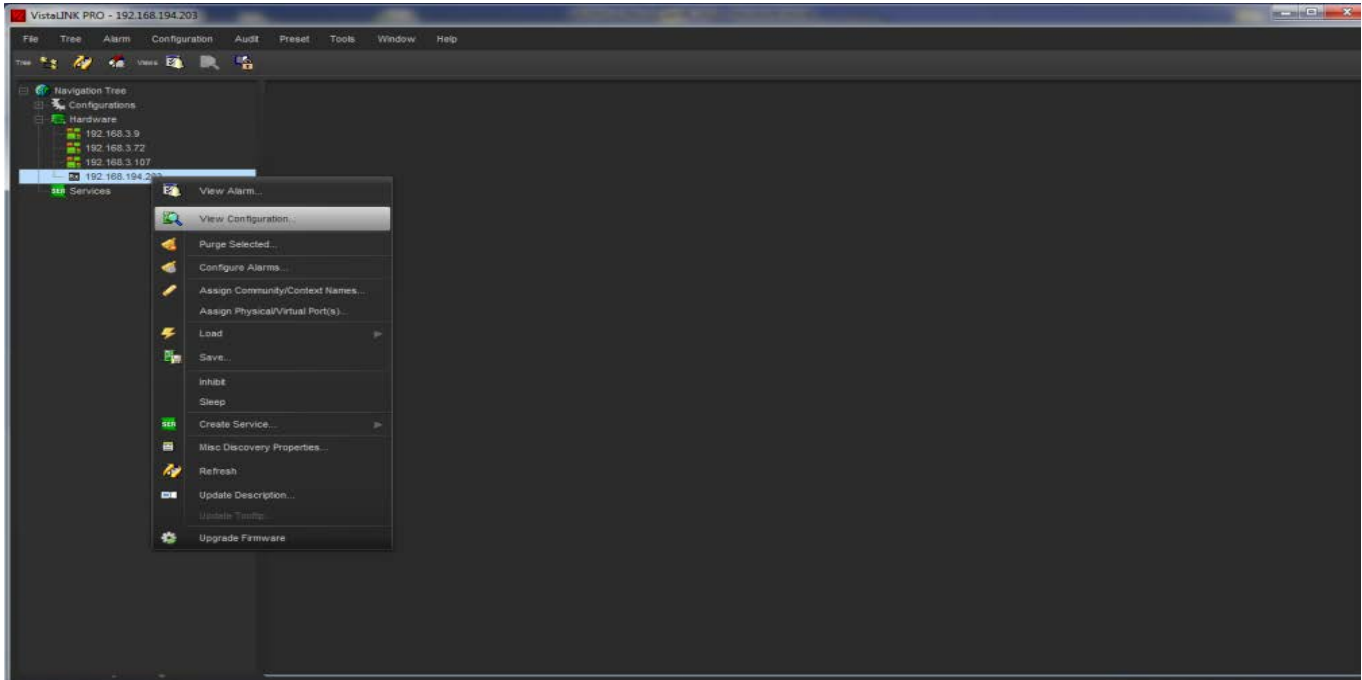


Figure 7-2: Configuration Page for 2432TX-2

7.2. CONFIGURING VLPRO FOR SNMP V3

1. Launch VistaLINK[®] PRO Server and Client.
2. Go to tools > User a menu will appear.

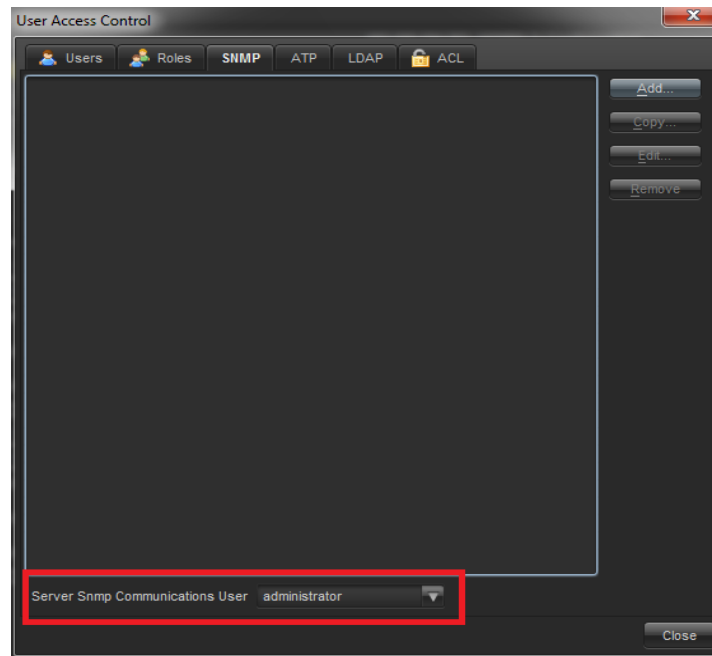


Figure 7-3: Server SNMP Communications User

3. Make sure Server SNMP Communications user is set to current User. (See Figure 7-3)
4. Click the add button and another context menu will appear.

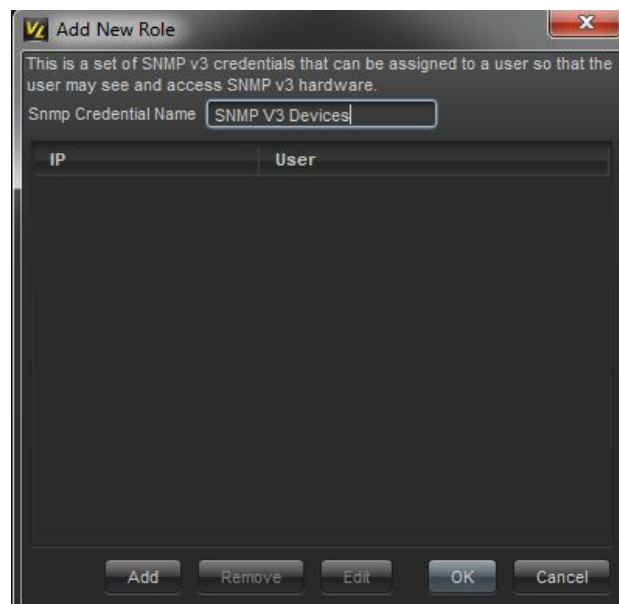


Figure 7-4: Add an SNMP Name for the SNMP V3 Role

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 2432TX-2 unit for authentication
9. Add the authentication password (if any) and the encryption password (if any) in the dialog box. Click OK.

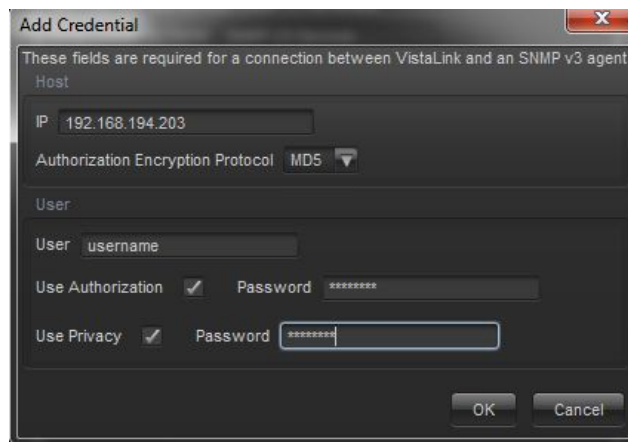


Figure 7-5: Add Authentication Password

10. Navigate to user tab. Select username and click Edit.

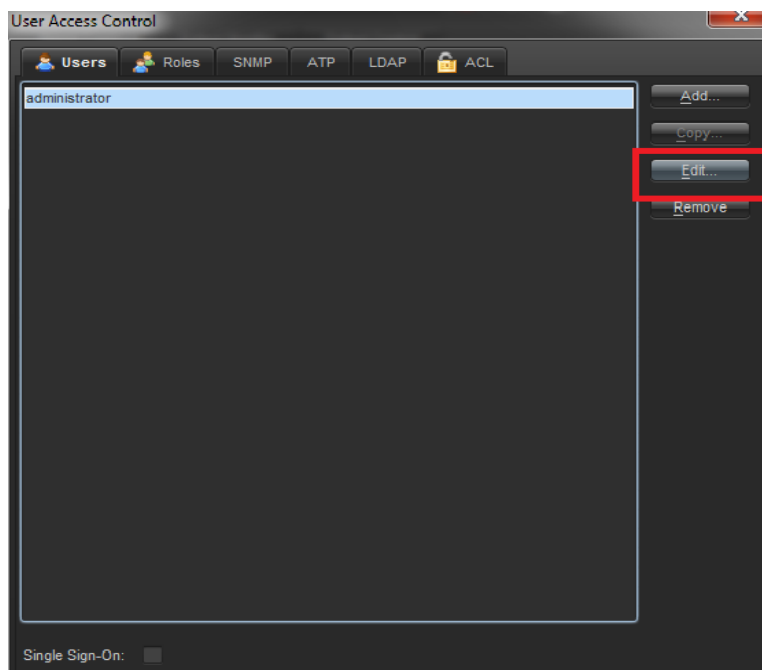


Figure 7-6: Edit Username

11. Navigate to the User's SNMP V3 TAB and add a checkmark to the desired SNMP V3 Group(s) for authentication.

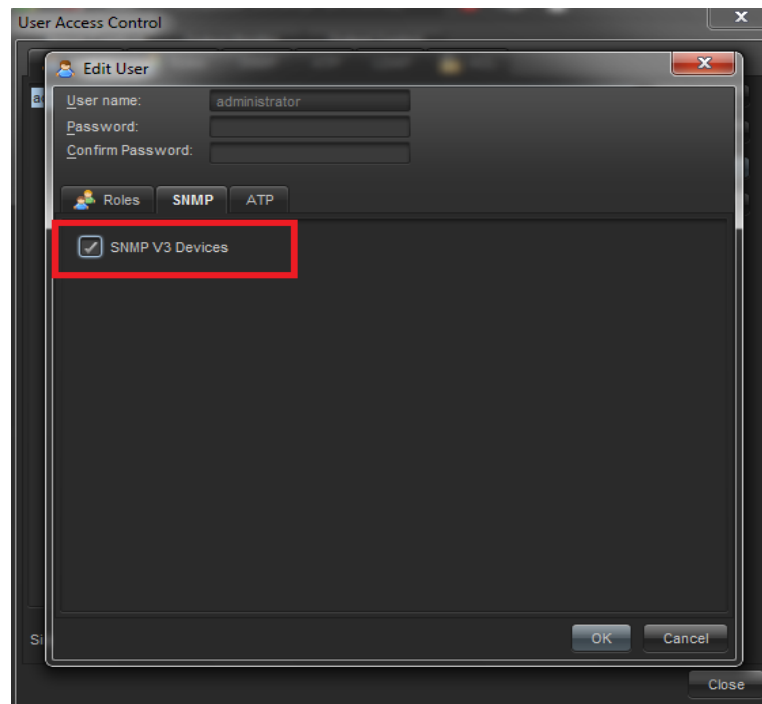


Figure 7-7: SNMP V3 Group(s) Authentication

12. Click OK to save.
13. Reboot VistaLINK[®] Pro Client and Server.
14. The 2432TX-2 will now be configured with SNMP V3.

7.3. 2432TX-2 VISTALINK CONFIGURATION VIEW

1. Configure 2432TX-2 with VistaLINK® Pro, right click on the IP address of 2432TX-2. Select View Configuration form the popup menu that appears, as shown in below.

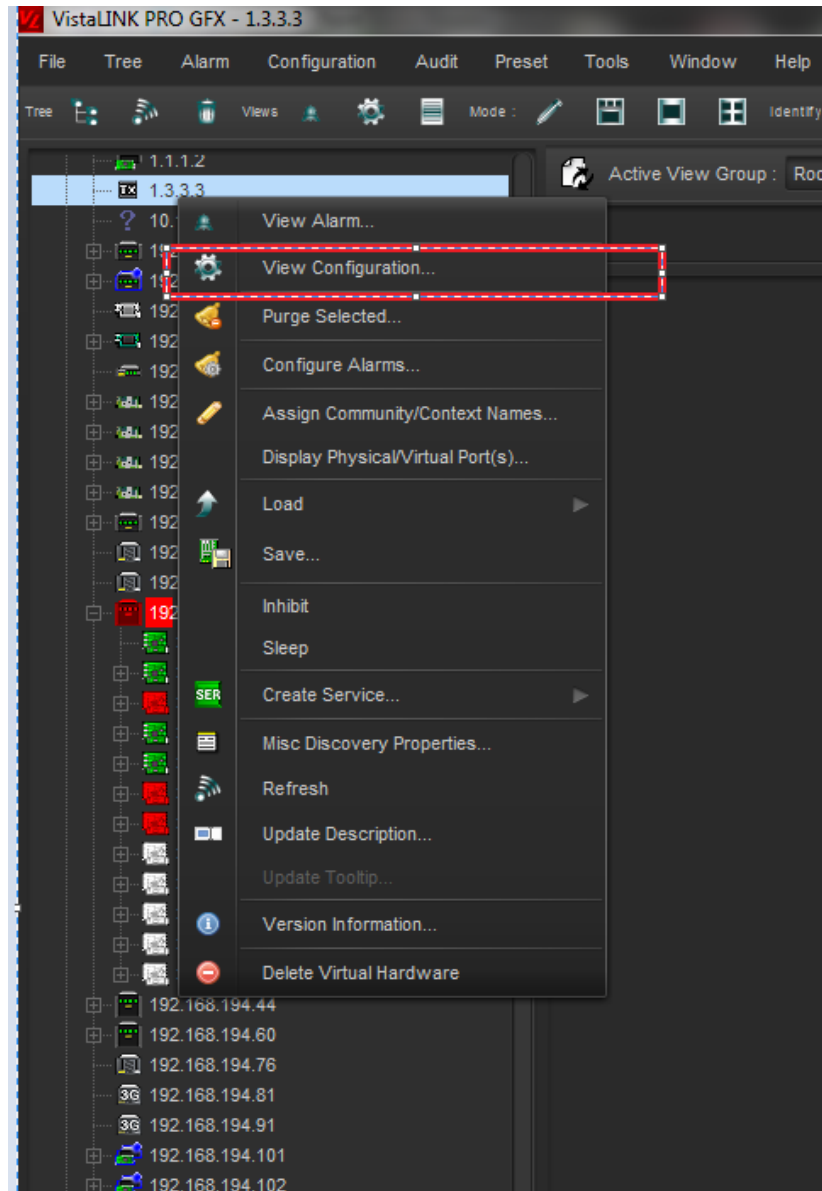


Figure 7-8: Configure 2432TX-2 with VistaLINK® Pro

2. Once View Configuration is selected the user will be presented with the main configuration screen as shown below

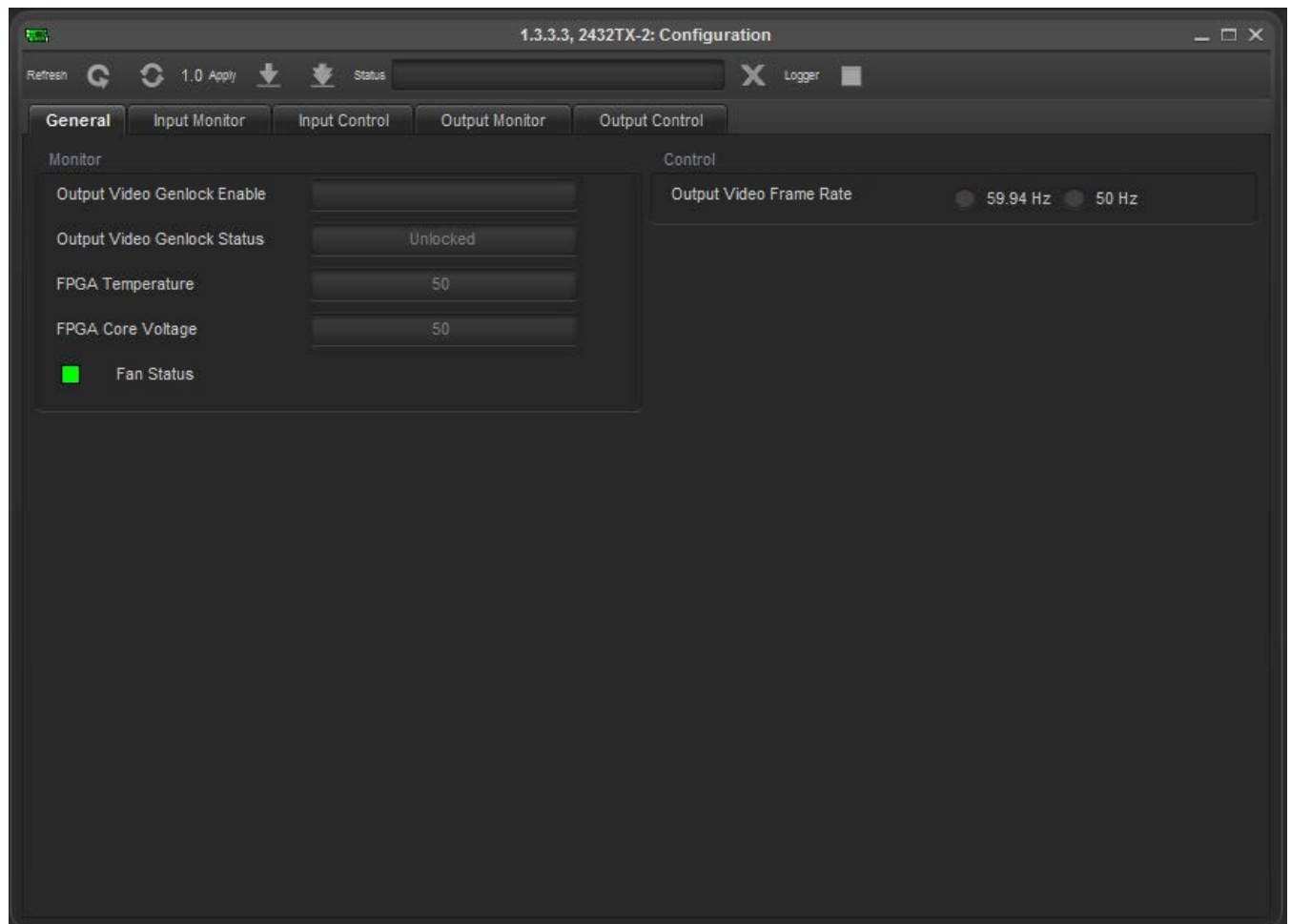


Figure 7-9: Main configuration Screen

3. The user can navigate through the tabs to adjust the configuration parameters. Please see sections below for more information on configuring 2432TX-2.

7.3.1. General Tab

The General tab allows user to monitor Genlock status, Temperature, Fan status and allows control for video frame rate (59.94Hz or 50Hz).

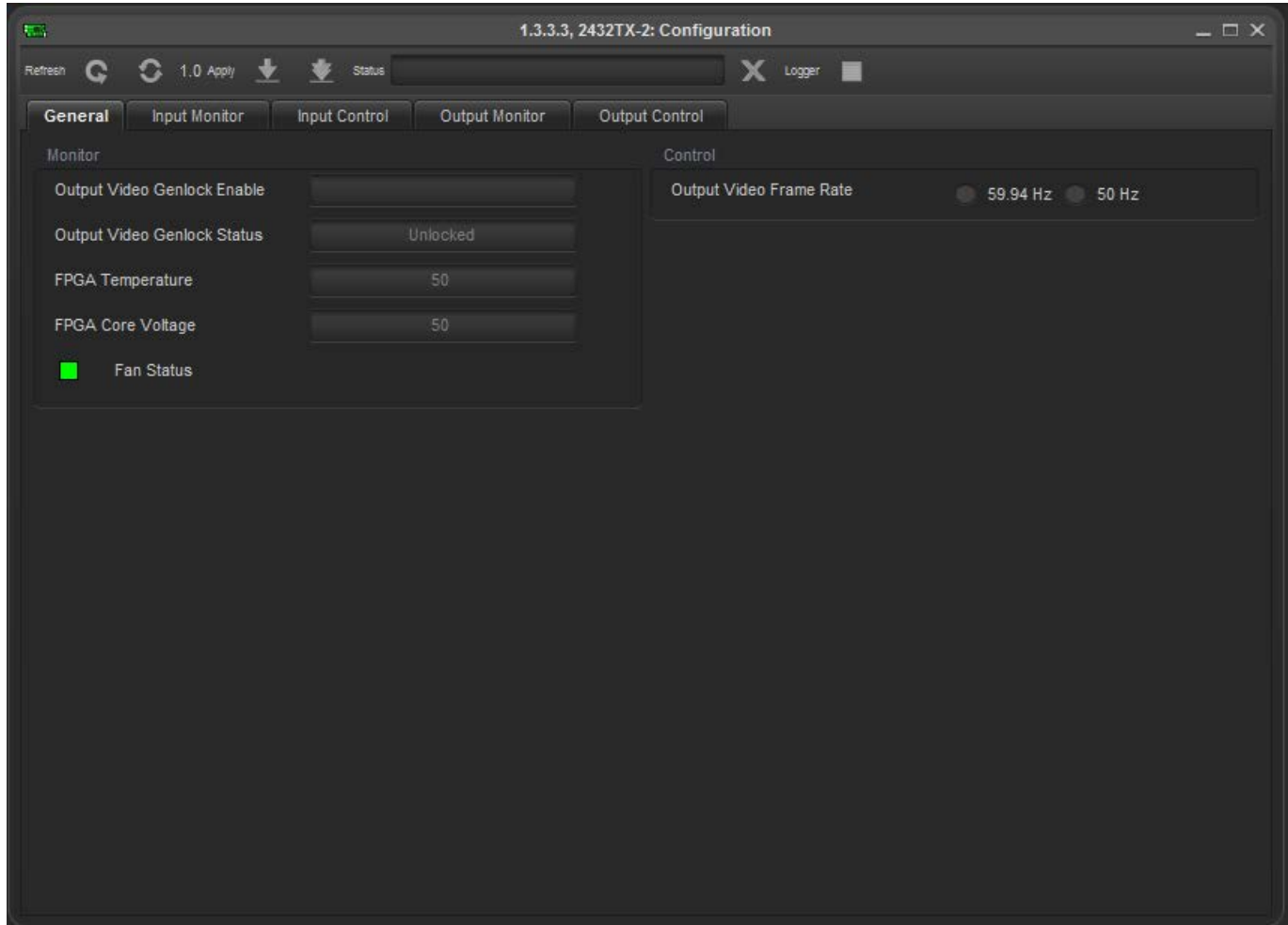


Figure 7-10: General Tab Menu

7.3.2. Monitor

- **Output Video Genlock Enable:** This field displays the current Genlock status of the 2432TX-2 unit.
- **Output Video Genlock Status:** This field displays the current Genlock format of the 2432TX-2 unit.
- **FPGA Temperature:** This field displays the current FPGA temperature in Celsius.
- **FPGA Core Voltage:** This field displays the current FPGA voltage.
- **Fan Status:** This field displays the status of the fan.

7.3.3. Control

This menu allows user to set the Video output frame rate of the unit to be 59.94Hz or 50Hz.

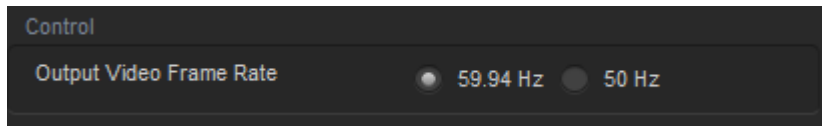


Figure 7-11: Control



Note: Settings are applied to both outputs.

7.3.4. Input Monitor

The General tab allows user to monitor both the inputs for input presence, resolution standard, signal type and signal is dual link or single link.

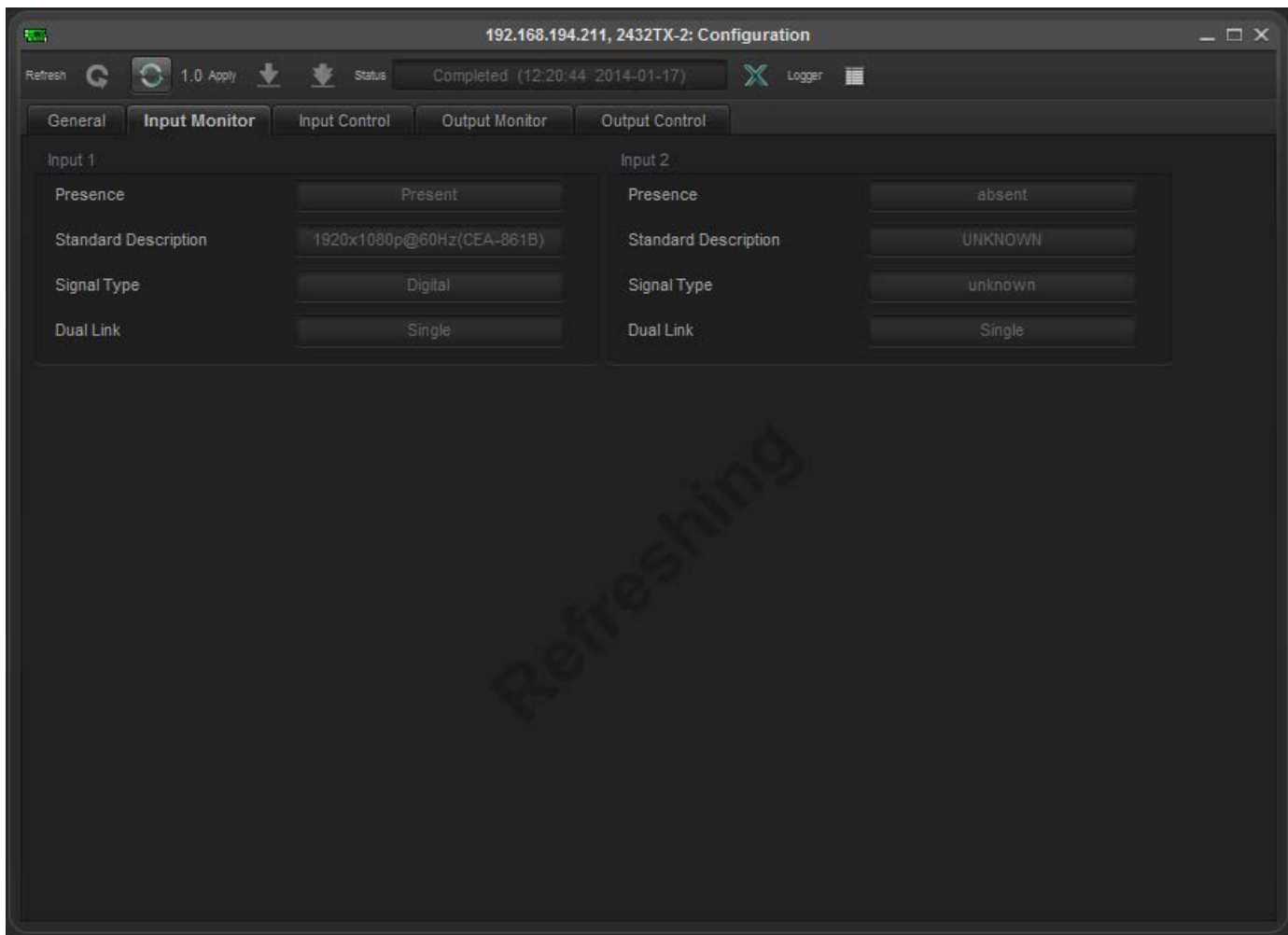


Figure 7-12: Input Monitor Menu



Note: Input monitoring information is displayed for Input 1 and Input 2 as above figure.

- **Presence:** This field display current input being detected on an input.
- **Standard Description:** This field display current resolution standard being detected on an input.
- **Signal Type:** This field display current signal type detected on an input. (Digital, Analog or Component)

7.3.5. Input Control

The Input control tab allows user to set Input detection priority, Enable HDCP signal processing, set color mode, color correction, Horizontal offset and Vertical offset.

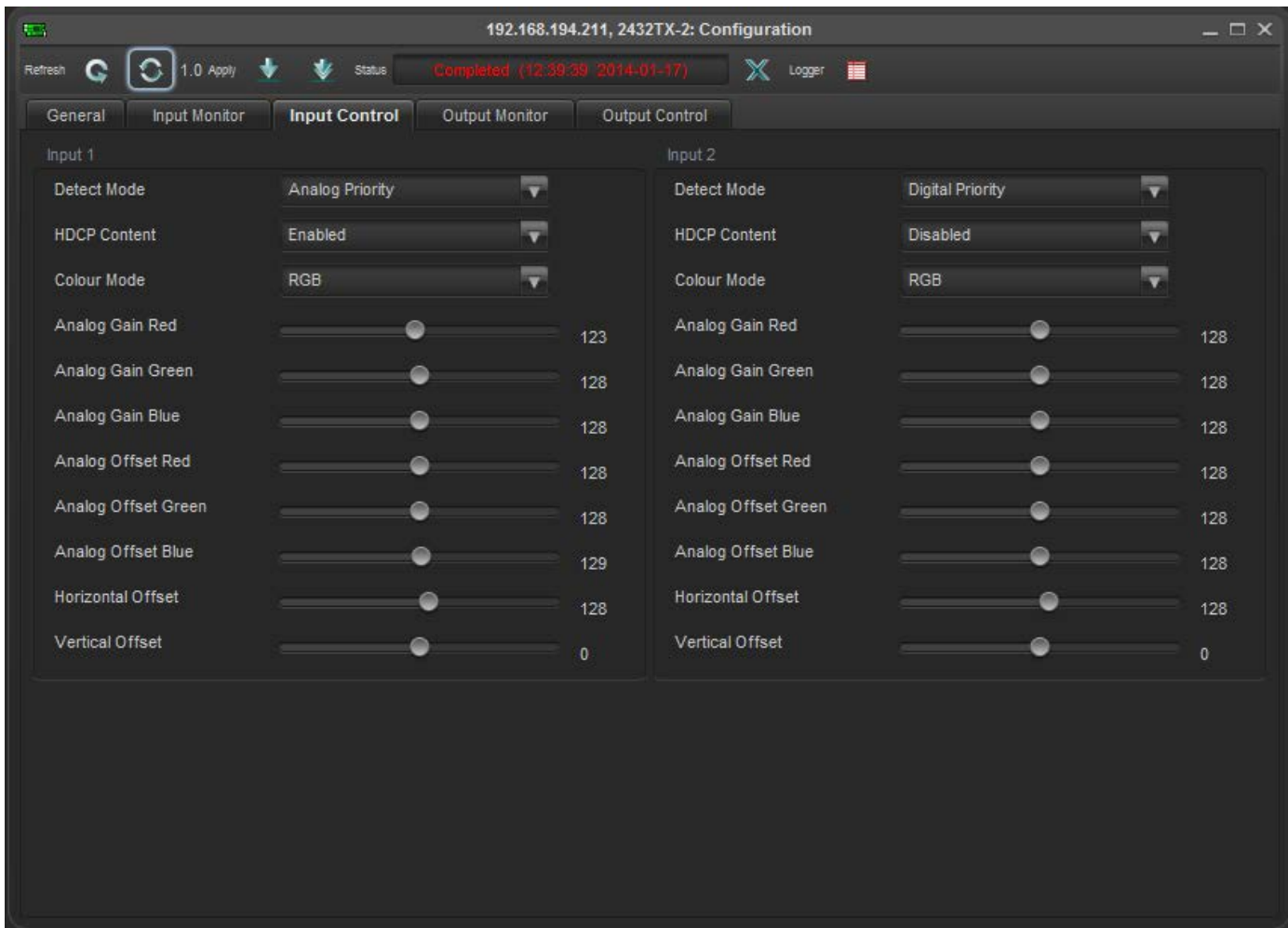


Figure 7-13: Input Control Menu



Note: Input control is available for Input 1 and Input 2 as above figure.

Detect Mode: This menu allows user to set locks priority on a inputs to one of four modes.

1. Digital only (only digital inputs are detected and transmitted)
2. Analog only (only analog inputs are detected and transmitted)
3. Digital Priority (Detects digital inputs first, if not detected, then will detect analog signal)
4. Analog Priority (Detects analog signal first, if not detected, and then will detect digital)

HDCP Content: This menu allows user to enable or disable HDCP content processing.



Note: When HDCP encrypted input is detected. Output 3GLINK is encrypted as well.

Color Mode: This menu allows user to select Input mode between RGB and YPbPr (RGB mode allows DVI/VGA input and YPbPr mode allow component input).

Analog Gain Red: This option allows user to apply red color gain for analog input between 0-255 range.

Analog Gain Blue: This option allows user to apply blue color gain for analog input between 0-255 range.

Analog Gain Green: This option allows user to apply green color gain for analog input between 0-255 range.

Analog Offset Red: This option allows user to apply red color offset for analog input between 0-255 range.

Analog Offset Green: This option allows user to apply green color offset for analog input between 0-255 range.

Analog Offset Blue: This option allows user to apply blue color offset for analog input between 0-255 range.

Horizontal offset: This option allows user to apply horizontal offset to analog input between -2047 to +2047 pixels.

Vertical offset: This option allows user to apply vertical offset to analog input between -2047 to +2047 pixels.

7.3.6. Output Monitor

The Output Monitor tab allows user to monitor video output standard for the unit.

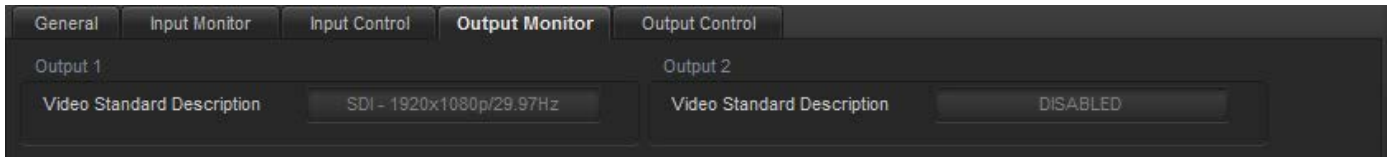


Figure 7-14: Output Monitor Menu



Note: Output monitor is available for Output 1 and Output 2.

7.3.7. Output Control

The Output Control allows user to set Video format, Bandwidth, Fields, dual link signal output, no signal colour, scaling and cropping.

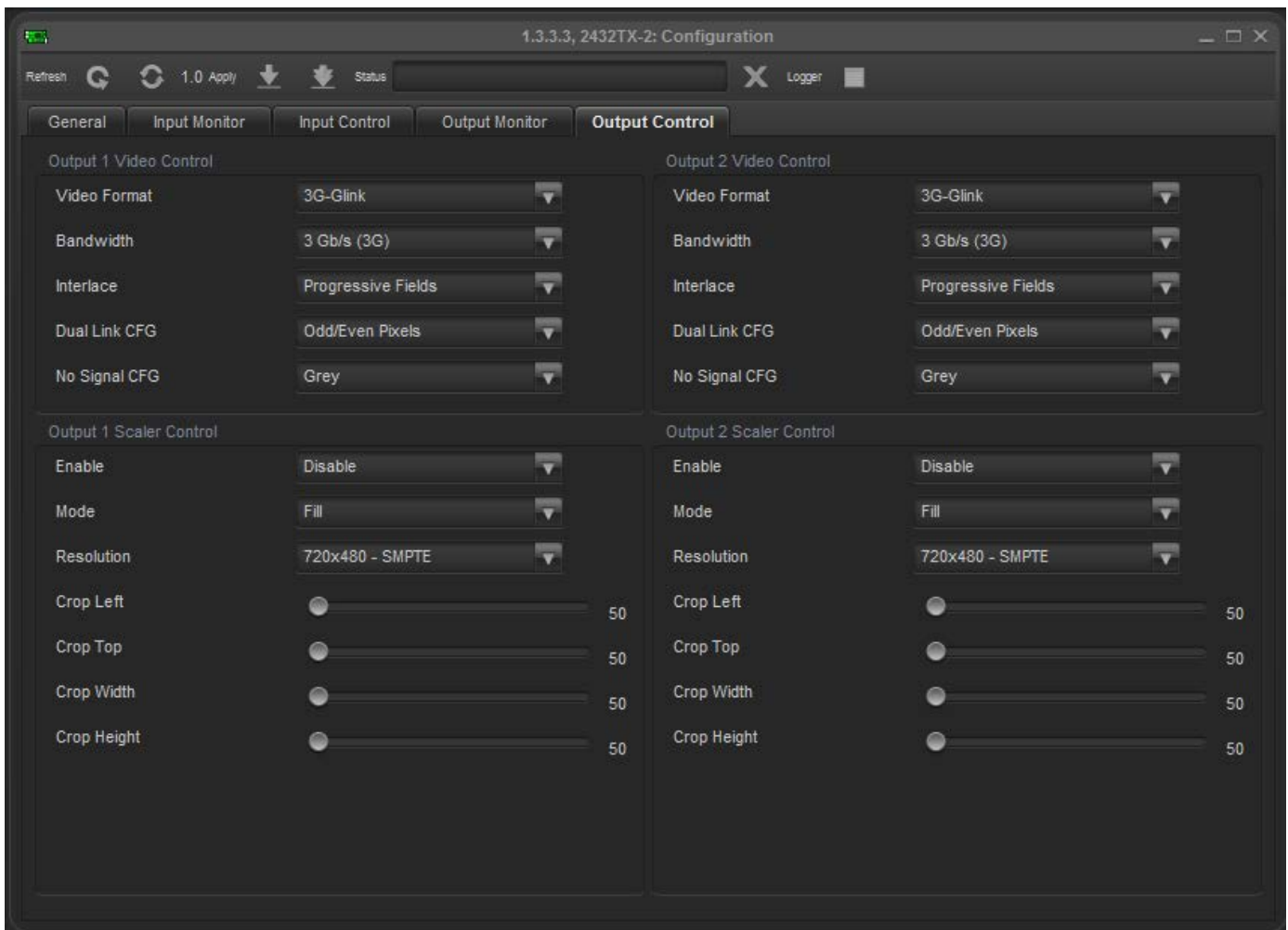


Figure 7-15: Output Control Menu



Note: Output monitor is available for Output 1 and Output 2.

7.3.8. Video Control



Figure 7-16: Video Control Menu



Note: Output monitor is available for Output 1 and Output 2.

Video Format: This option allows user to set output to be SMPTE spec or Evertz proprietary 3G-Glink (For HDCP encrypted input output must be set to 3G-Glink).

Bandwidth: This option allows user to set output bandwidth to be 1.5Gb/s or 3Gb/s.

Interface: This option allows user to set output to be Interlace or Progressive.

Dual Link CFG: This option allows user to set the output raster option (for dual link input where 2 SDI output are used).

1. **Odd/Even Pixels:** Configure the output to send odd pixel on BNC A \ Fiber A and even pixel on BNC B \ Fiber B.
2. **Left/Right Image Halves:** Configure the output to send Left half image on BNC A \ Fiber A and Right half image on BNC B \ Fiber B.
3. **Top/Bottom Image Halves:** Configure the output to send Top half image on BNC A \ Fiber A and bottom half image on BNC B \ Fiber B.

No Signal CFG: This option allows user to set the output raster color to be Gray, Black or Green when no input is present.

7.3.9. Scaler Control

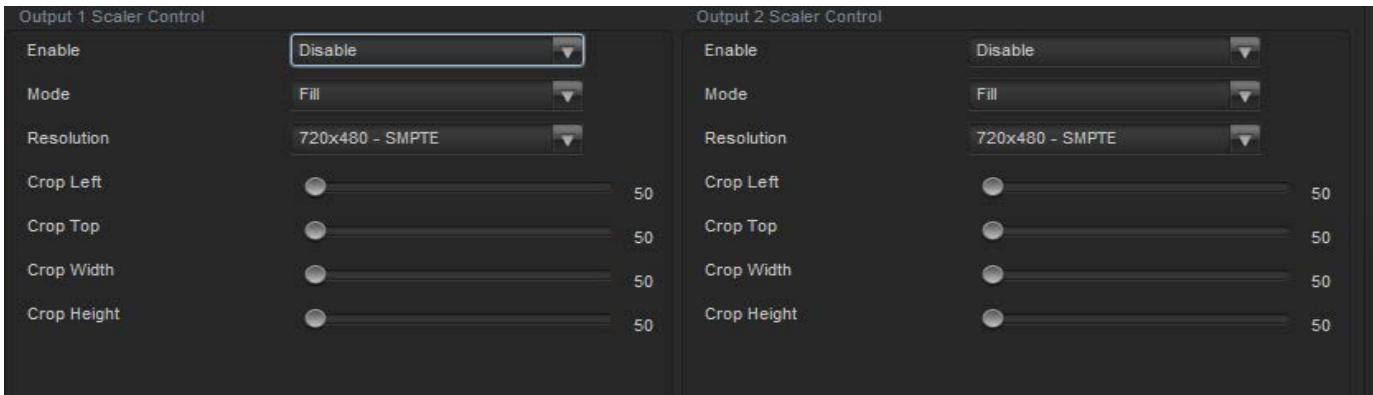


Figure 7-17: Scaler Control Menu

Enable: This option allows user to enable scaler. (When disable does best fit in SDI mode and pass the input resolution if set to 3G-Glink mode).

Mode: This option allows user to set output to fill or maintain aspect ratio.

Resolution: This option allows user to pick output resolution from drop down menu.

Crop Left: This option allows user to set left starting pixel for crop.

Crop Top: This option allows user to set top starting pixel for crop.

Crop Width: This option allows user to set pixel width starting from left crop position.

Crop Height: This option allows user to set pixel height starting from top crop position.