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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release Firmware version 1.01b1; JAR version 48	Sept 2011

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1. OVERVIEW

Signal availability is critical to the operations of any facility. Evertz leads the industry with the most complete range of smart automatic protection changeovers. The 7800R4x2-3G provides users with the assurance that the program path is protected with a switch to a backup signal in the event of a fault.

This device:

- Provides four source inputs and four outputs (2 program and 2 preview)
- Provides automatic changeover protection between inputs 1 & 2
- Provides additional changeover protection for emergency inputs 3 & 4
- Provides real time preview of any input
- Provides essential audio and video fault monitoring for changeover criteria
- Provides a backup bypass relay protection
- Configuration via SNMP frame controller

Based on award winning, patented audio and video monitoring technology, this device can manually or automatically switch from the primary input to the backup input. Additionally this device offers two more emergency inputs (3&4) that can be switched to manually via GPI contact closure, network control panel and/or VistaLINK®.

The 7800R4x2-3G is VistaLINK® capable, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP) giving the flexibility to manage operations, including signal monitoring and module configuration from SNMP capable control systems (Manager or NMS).

The 7800R4x2-3G occupies 1 card slot and can be housed in the 3RU 7800FR and 7800FR-QT frames which have a 15 slot capacity.

Features:

- Four 3G/HD/SD-SDI inputs (primary, backup and two additional emergency inputs)
- Four outputs (2 program and 2 preview outputs)
- Bypass relay protection between primary input 1 and program output 1
- Automatic smart switch based on essential audio and video monitoring
- Manual override to backup inputs
- Switch control via GPI, network control panel and SNMP
- Real time VistaLINK® monitoring and trending
- High density approach offers 14 modules within 3RU

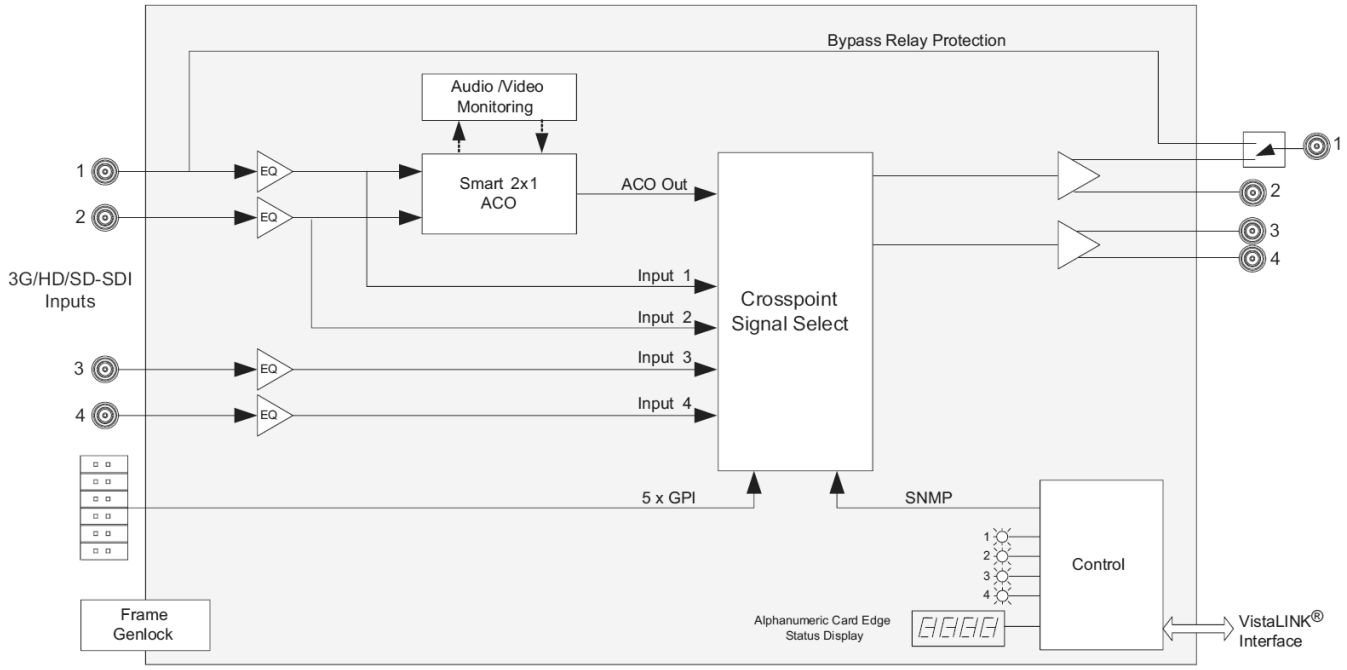

Figure 1-1: 7800R4x2-3G Block Diagram

2. INSTALLATION OF 7800R4X2-3G

2.1. REAR PLATE DESCRIPTION

The 7800R4x2-3G comes standard with a companion +3RU rear plate and occupies 1 slot in a 7800FR frame. Figure 2-1 provides an illustration of the 7800R4x2-3G rear plate. For information on mounting the rear plate and inserting the module into the frame, see section 3 of the 7800FR manual.

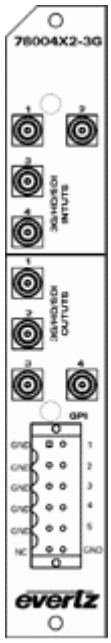

Figure 2-1: 7800R4x2-3G Rear Plate

3. SPECIFICATIONS

3.1. SERIAL VIDEO INPUTS

Number of Inputs:	4 Auto detect
Standard:	SMPTE 259M (525/625) SMPTE 292M (1080i/720p) SMPTE 424M (1080p)
Connector:	Din 1.0/2.3
Cable Equalization:	Automatic to >300m @270Mb/s >150m @1.5 Gb/s >100m @3 Gb/s Belden 1694A cable (or equivalent)
Return Loss:	>20dB up to 270MHz >15dB up to 1.5GHz >10dB up to 3GHz

3.2. SERIAL VIDEO OUTPUTS

Number of Outputs:	4 (2 program and 2 preview)
Standard:	Same as input
Connector:	Din 1.0/2.3
Signal Level:	800mV Nominal
DC Offset:	0V +/- 5V
Rise and Fall Time:	900ps nominal at 270Mb/s 200ps nominal at 1.5Gb/s <135ps at 3 Gb/s
Overshoot:	<10% of amplitude <0.2UI at 1.5Gb/s <0.3UI at 3 Gb/s

3.3. GENLOCK

Type:	Analog 525 or 625, Tri Level HD
Connector:	BNC per IEC 61169-8 Annex A (Frame reference selectable only)
Impedance:	75Ω termination

3.4. GENERAL PURPOSE INPUTS

Number of Inputs:	5
Type:	Opto-isolated, active low Internal pull-ups +5V or +12V
Connector:	2x6 Straight Box Terminal Strip (included)
Signal Level:	Closure to ground

3.5. ELECTRICAL

Voltage:	+12V DC
Power:	16W
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

3.6. PHYSICAL (NUMBER OF SLOTS)

350FR:	1
7700FR-C:	1
7800FR:	1
7800FR-QT:	1

4. VISTALINK® CONFIGURATION

4.1. GENERAL TAB

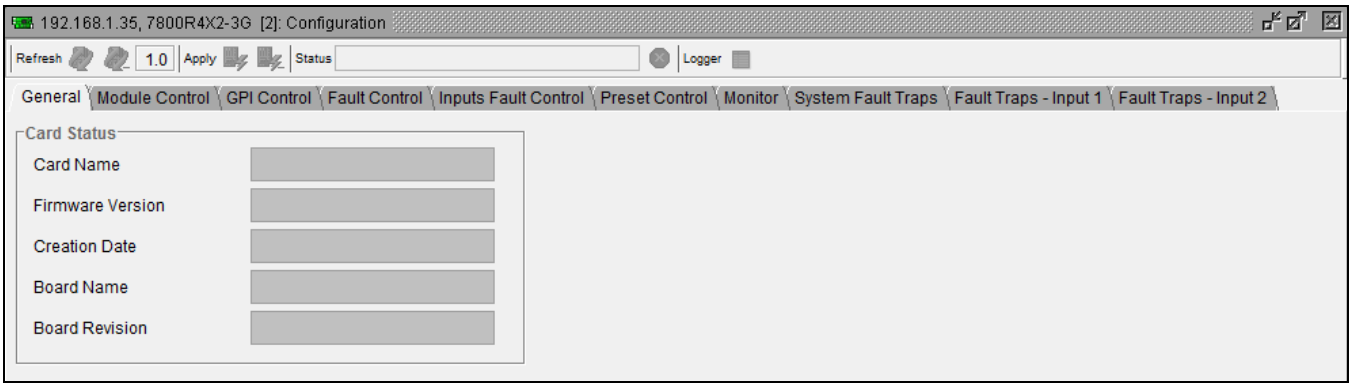

Figure 4-1: VistaLINK® PRO General Tab

4.1.1. Card Name

General
Card Name

Indicates the product model number of the card (including installed options).

4.1.2. Firmware Version

General
Firmware Version

Indicates the currently installed firmware version.

4.1.3. Creation Date

General
Creation Date

Indicates the build date of the firmware version.

4.1.4. Board Name

General
Board Name

Indicates the product hardware version of the module.

4.1.5. Board Revision

General
Board Revision

Indicates the hardware version of the module.

4.2. MODULE CONTROL TAB

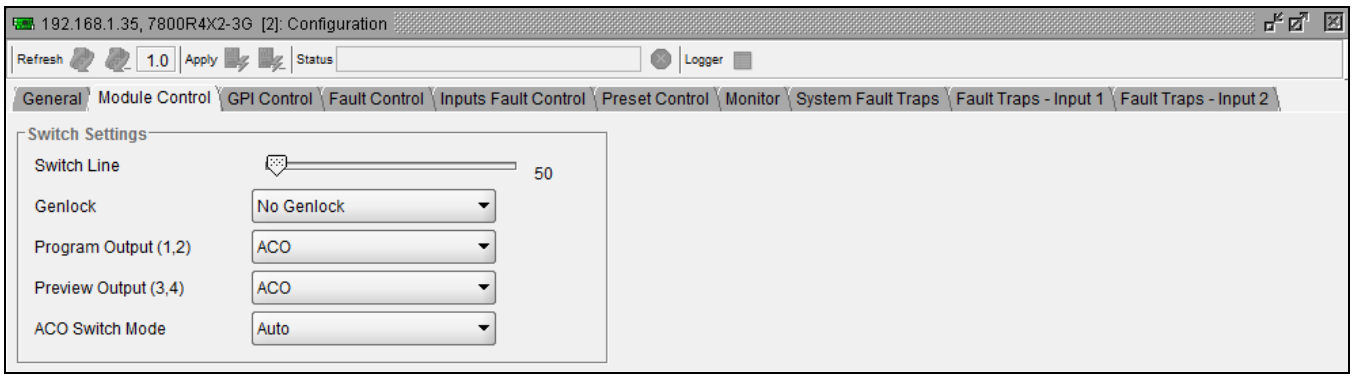

Figure 4-2: VistaLINK® PRO Module Control Tab

4.2.1. Switch Line

Module Control
Switch Line
1 to 1125

Sets switch line number. The available range is from lines 1 and 1125.

4.2.2. Genlock

Module Control
Genlock
No Genlock *Frame Reference 1* *Frame Reference 2*

Enables the user to set the input for *Genlock*.

Select "No Genlock" to have the card free-run.

Select "Reference Input 1" or "Reference Input 2" to utilize the respective frame reference bus.

4.2.3. Program Output (1,2)

Module Control
Program Output (1,2)
ACO *Input 1* *Input 2* *Input 3* *Input 4*

Enables the user to set the *Program Output* to "ACO" or "Input 1" – "Input 4".

When set to "ACO", the module will automatically switch between Input 1 and Input 2 depending on the fault condition.

4.2.4. Preview Output (3,4)

Module Control
Preview Output (3,4)
ACO *Input 1* *Input 2* *Input 3* *Input 4*

Enables the user to set the *Preview Output* to "ACO" or "Input 1" – "Input 4".

When set to "ACO", the module will automatically switch between Input 1 and Input 2 depending on the fault condition.

4.2.5. ACO Switch Mode

Module Control
ACO Switch Mode
Auto
Auto Switch Back

Sets the switching behaviour of the 7800R4x2-3G.

Auto – The module will be in auto switch mode. It will retain its current route state until that signal becomes invalid, at which point it will switch to the other input.

Auto Switch Back – The module will be in auto switch back mode. Input 1 is the primary input. If it becomes invalid, the output will switch to Input 2. If Input 1 returns to valid, then the output will switch back to Input 2.

4.3. GPI CONTROL TAB

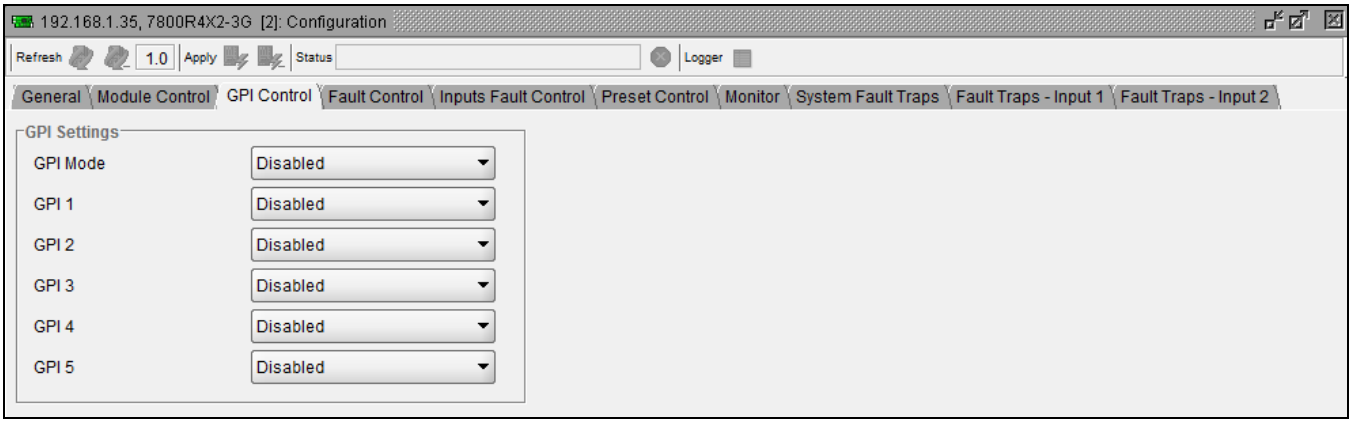

Figure 4-3: VistaLINK® PRO GPI Control Tab

4.3.1. GPI Mode

GPI Control
GPI Mode
Disabled
Level Sensitive
Momentary

Sets the GPI Operation Mode.

Disabled – The module will not be controlled by GPI's.

Level Sensitive – The GPI's will be activated when brought ground.

Momentary *– The GPI's will be activated on a level change.**

* Not implemented at this time

For brevity, only *GPI 1* will be discussed in the manual. *GPI 2* to *GPI 5* have the same menu.

4.3.2. GPI Mode

- *GPI Control*
  - *GPI 1*
    - *Disabled*
    - *ACO to PGM*
    - *Input 1 to PGM*
    - *Input 2 to PGM*
    - *Input 3 to PGM*
    - *Input 4 to PGM*
    - *ACO to PREV*
    - *Input 1 to PREV*
    - *Input 2 to PREV*
    - *Input 3 to PREV*
    - *Input 4 to PREV*
    - *Load Preset 1*
    - *Load Preset 2*
    - *Load Preset 3*
    - *Load Preset 4*
    - *Load Preset 5*
    - *Load Preset 6*
    - *Load Preset 7*
    - *Load Preset 8*
    - *Load Preset 9*
    - *Load Preset 10*

Sets the operation of the selected GPI.

Disabled – The GPI will have no effect.

ACO to PGM(PREV) – The ACO output will be routed to the PGM(PREV) output.

Input 1-4 to PGM(PREV) – The selected Input will be routed to the PGM(PREV) output.

Load Preset 1-10 – The selected Preset will be loaded.

4.4. FAULT CONTROL TAB

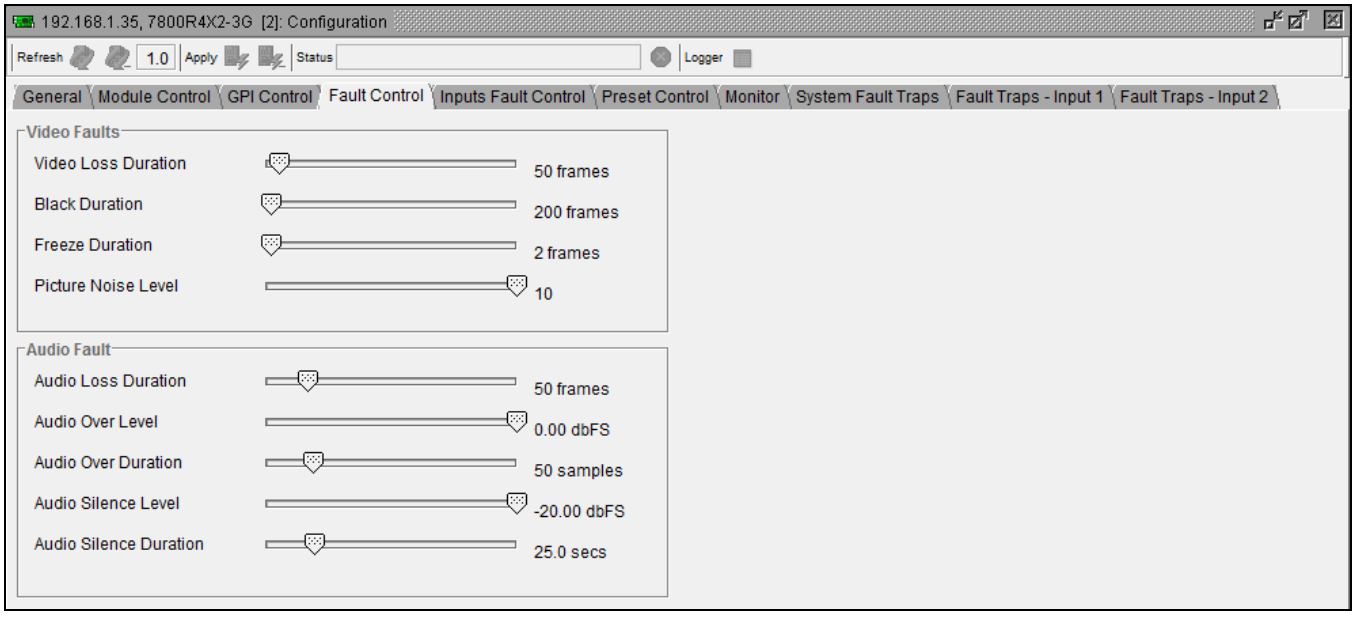

Figure 4-4: VistaLINK® PRO Fault Control Tab

4.4.1. Video Loss Duration

Fault Control
Video Loss Duration
0 to 900

Sets the number for frames of a video loss before a video loss alarm is raised.

4.4.2. Black Duration

Fault Control
Black Duration
4 to 9996

Sets the number for frames of black video detected before a black video alarm is generated.

4.4.3. Freeze Duration

Fault Control
Freeze Duration
6 to 9998

Sets the number for frames of picture freeze before a picture freeze alarm is generated.

4.4.4. Picture Noise Level

Fault Control
Picture Noise Level
1 to 10

The **Picture Noise Level** slider sets the approximate level of noise expected in the video signal feed, it is used by the freeze detect feature to distinguish motion from background noise on top of a video feed.

As a guide, the range of options available from min to max is:
1 = digital freeze (no noise on top of frozen picture)
10 = 40 dB SNR

4.4.5. Audio Loss Duration

Fault Control
Audio Loss Duration
0 to 300

Sets the number for frames of an audio loss before an audio loss alarm is raised.

4.4.6. Audio Over Level

Fault Control
Audio Over Level
-30 to 0

Sets the audio level that is considered as ‘over’ ranging from -30dBFS to 0dBFS.

4.4.7. Audio Over Duration

Fault Control
Audio Over Duration
3 to 255

Sets the maximum duration of audio over ranging from 3 samples to 255 samples.

4.4.8. Audio Silence Level

Fault Control
Audio Silence Level
-96 to -20

Sets the audio level that is considered as ‘silence’ ranging from -96dBFS to -20dBFS.

4.4.9. Audio Silence Duration

Fault Control
Audio Silence Duration
0.5 to 127

Sets the maximum duration of audio silence ranging from 0.5 seconds to 127 seconds.

4.5. INPUTS FAULT CONTROL

The *Inputs Fault Control* tab enables the user to select the fault trigger conditions for *Input 1* and *Input 2* as illustrated in Figure 4-5. If the selected fault occurs, an alarm will be sent to the user. As well, the user can control the duration and logic relationship of selected fault triggers.

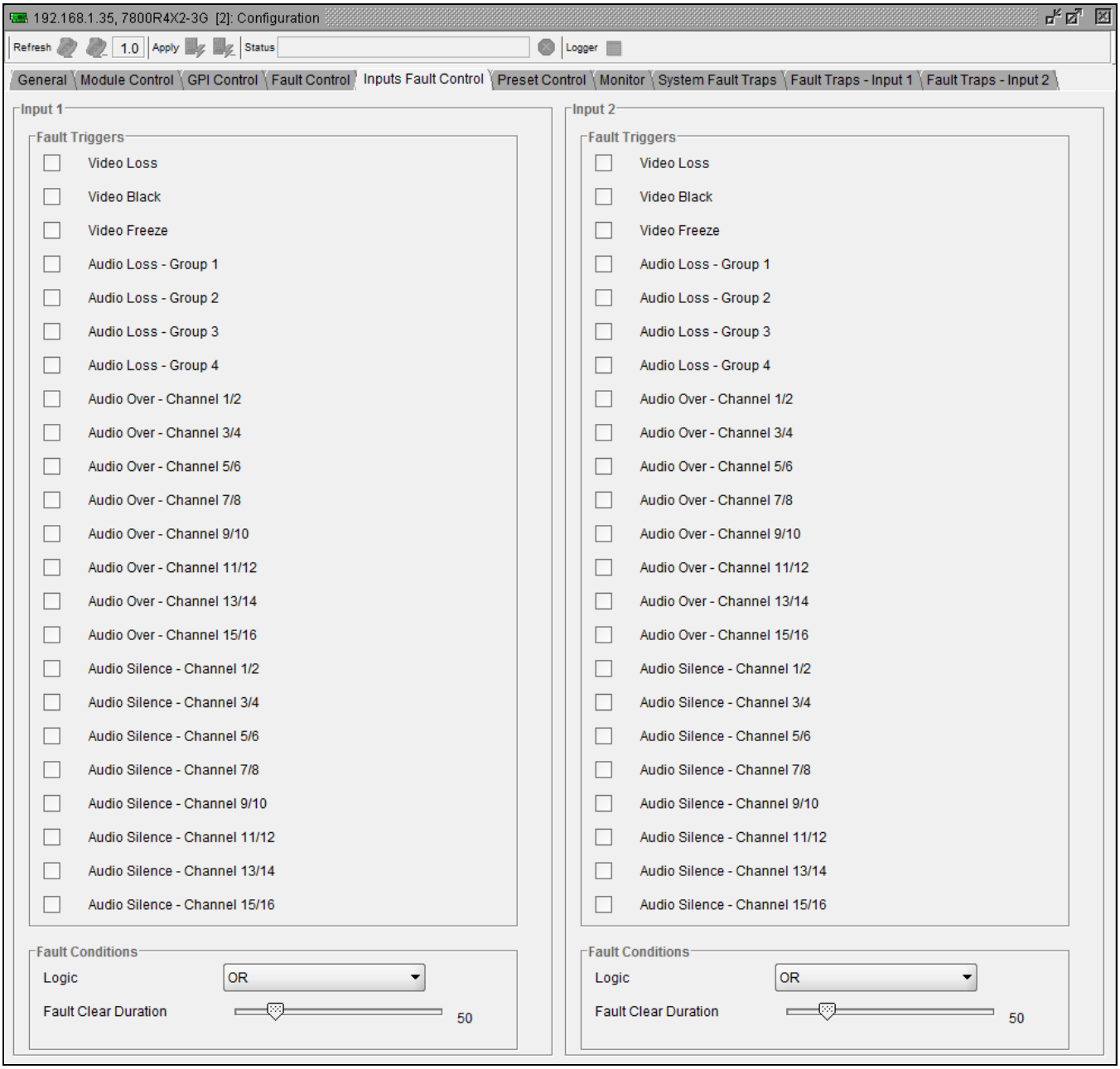

Figure 4-5: VistaLINK® PRO Inputs Fault Control Tab

4.5.1. Fault Conditions

4.5.1.1. Logic

Inputs Fault Control *Logic* *OR* *AND*	Enables the user to set the fault trigger. Selecting "OR" will trigger a fault if any of the selected fault conditions occurs. Selecting "AND" will trigger a fault when all the selected fault conditions occurs.

4.5.1.2. Fault Clear Duration

Inputs Fault Control *Fault Clear Duration* *1 to 254*	Defines how long the fault condition will be held after the fault condition is no longer true. The setting ranges from 1 to 254 frames.

4.6. PRESET CONTROL TAB

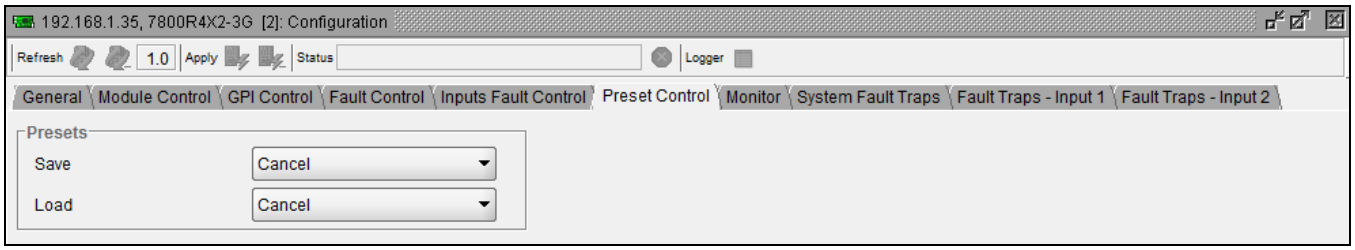

Figure 4-6: VistaLINK® PRO Preset Control Tab

4.6.1. Save

Preset Control *Save* *Cancel* *Preset 1 to Preset 10*	Allows the user to save the current configuration to a user preset.

4.6.2. Load

Preset Control *Load* *Cancel* *Factory Defaults* *Preset 1 to Preset 10*	Allows the user to load and recall configurations from a user preset. The user can also recall a factory default preset.

4.7. MONITOR TAB

The video status and the ACO status are shown in the *Monitor* tab as illustrated in Figure 4-7.

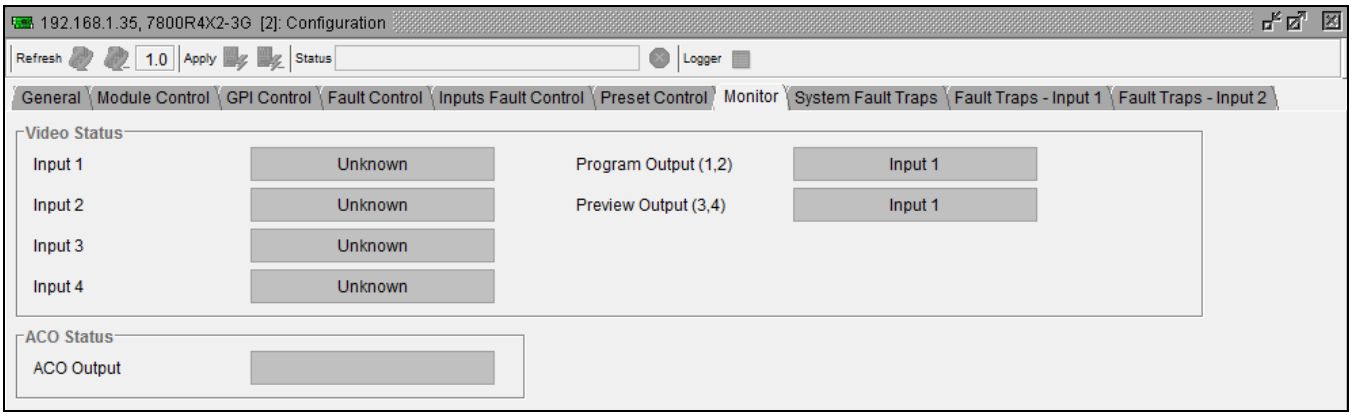

Figure 4-7: VistaLINK® PRO Monitor Tab

4.8. SYSTEM FAULT TRAPS

The *System Fault Traps* tab enables the user to set system fault traps and monitor the trap status as illustrated in Figure 4-8. To enable a particular trap, simply click the box located beside each trap so that a check-mark appears. When a check-mark is present, the trap is enabled. When a check-mark is not present, the trap is disabled.

The *Trap Status* section defines whether a trap is a normal condition or a fault condition. Green indicates a normal condition and red indicates a fault condition.

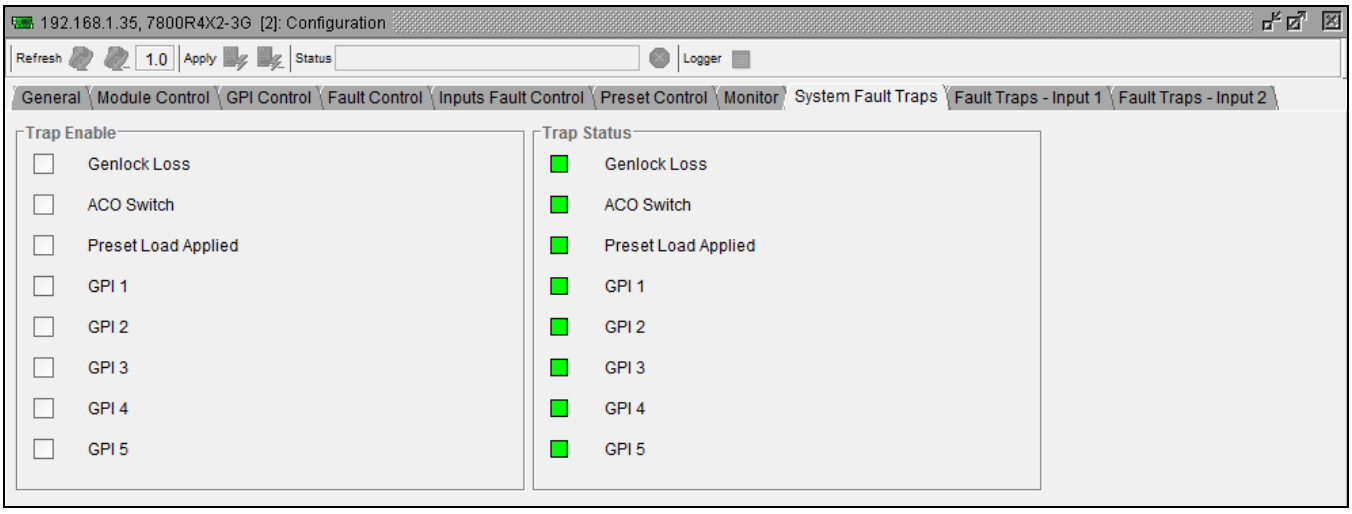

Figure 4-8: VistaLINK® PRO System Fault Traps Tab

4.9. FAULT TRAPS – INPUT 1 & INPUT 2

The *Fault Traps* tabs enable the user to set video and audio traps and monitor trap statuses as illustrated in Figure 4-9. These parameters are applicable to both *Fault Traps – Input 1* and *Fault Traps – Input 2.* For the sake of brevity, only *Fault Traps – Input 1* will be discussed in the manual. To enable a particular trap, simply click the box located beside each trap so that a check-mark appears. When a check-mark is present, the trap is enabled. When a check-mark is not present, the trap is disabled.

The *Trap Status* section defines whether a trap is a normal condition or a fault condition. Green indicates a normal condition and red indicates a fault condition.

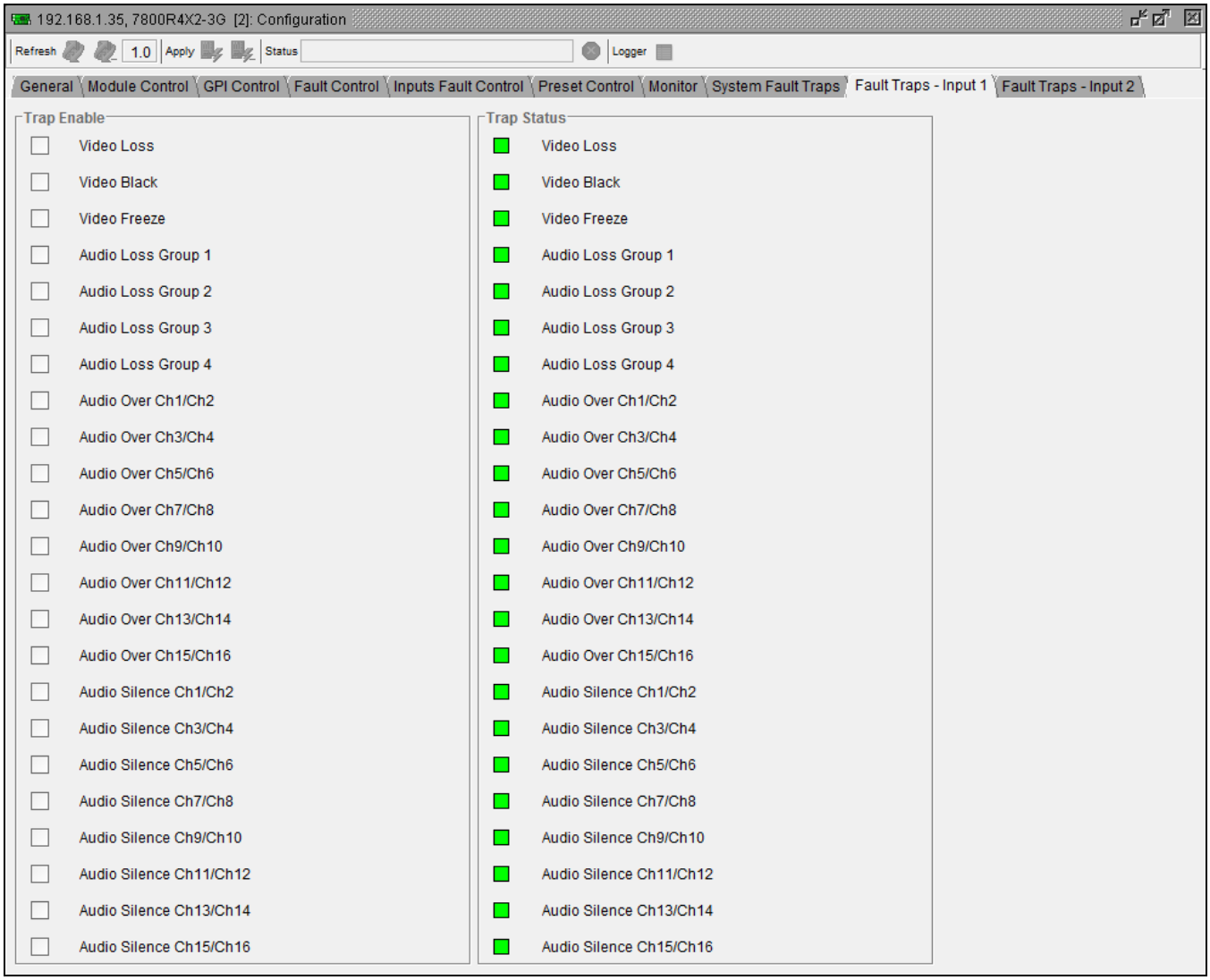

Figure 4-9: VistaLINK® PRO Fault Traps Tab

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