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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First release	Sept 2010

WARNING

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

Do not hook up the 7707VAT-3G DWDM cards and 7707VAR-3G cards directly with a short fiber optic cable. The 7707VAT-3G DWDM card produces +7dBm of power which will damage the receiver if connected directly.

Do not hook up the 7707VAT-3G cards that output more than -7dBm of power (see 7707VAT-3G specifications for output power of various laser types) and 7707VAR-3G-H high sensitivity receiver cards directly with a short fiber optic cable. The 7707VAT-3G cards that produce more than -7dBm of power will damage the receiver if connected directly.

1. OVERVIEW

The 7707VAT-3G is a VistaLINK®-capable fiber optic transmitter for 3G, HDTV or SDTV video and AES audio signals. This single card module accepts one 3G, HDSDI or SD-SDI video plus four AES audio and transmits them on a single fiber. The companion 7707VAR-3G receiver converts the 3G, HD, SD and AES back to video and audio.

The optical output is available in an assortment of optical wavelengths accommodating 1310/1550nm, CWDM and DWDM transmission schemes. The 7707VAT-3G occupies one card slot and can be housed in a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules, a 350FR portable frame that will hold up to 7 modules or a standalone enclosure which holds 1 module.

Features:

- Supports SMPTE 424M standards @ 2.970 Gb/s
- Supports HDTV video formats @ 1.485Gb/s
- Supports 525/625 line component 4:2:2 SDI @ 270Mb/s
- Supports 32, 44.1, 48 kHz AES audio inputs
- Dolby-E® compatible
- AES audio inputs can be synchronous or asynchronous to each other and/or to input video
- Reclocked video output for additional signal distribution or monitoring
- Signal transport over fiber uninterrupted by loss of video or AES audio input feeds
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®
- VistaLINK® capability is available when modules are used with the 3RU 7800FR or 350FR portable frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, 3RU portable frame that holds up to 7 modules or a standalone frame which will hold 1 module
- Automatic coaxial input equalization up to 100m at 1.485Gb/s and 250m at 270Mb/s (Belden 1694A), 70m at 3G
- Fully Hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable (contact factory for multi-mode applications)
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

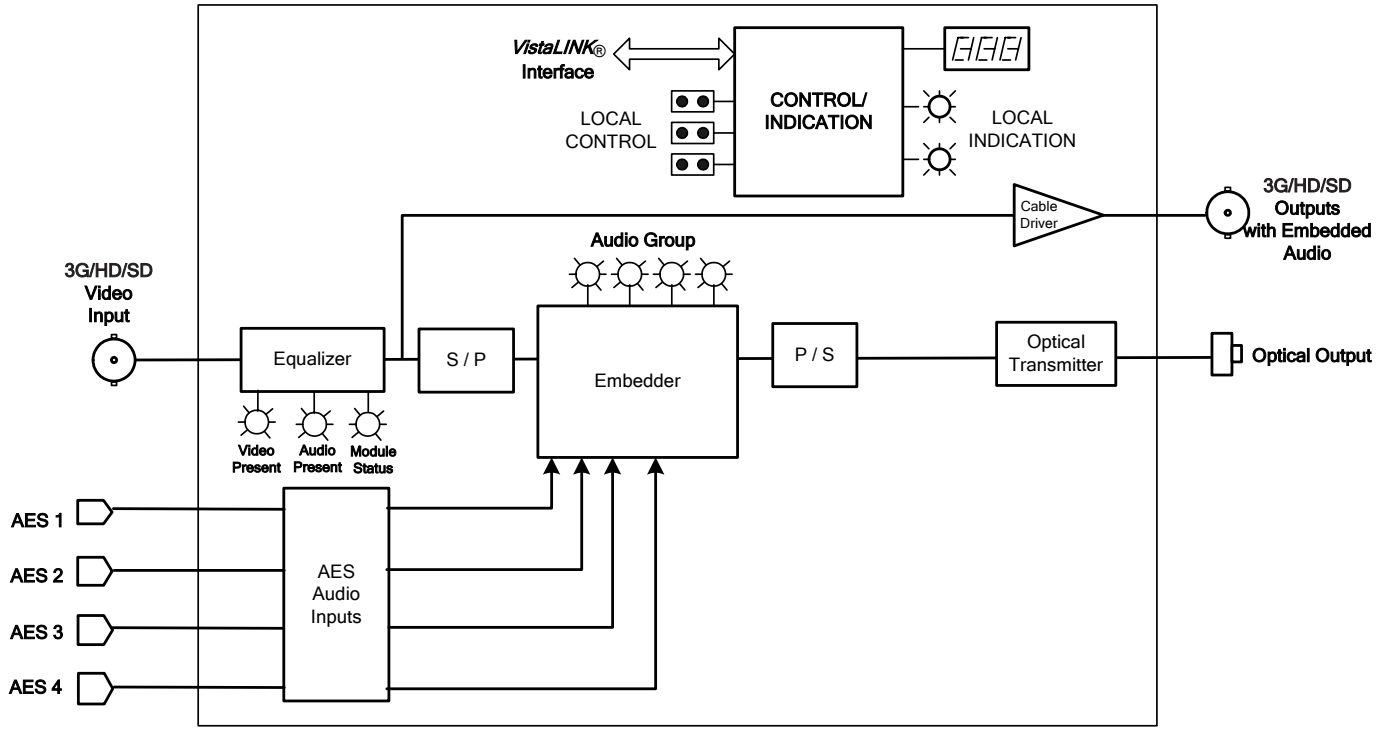


Figure 1-1: 7707VAT-3G Block Diagram

2. INSTALLATION

Each 7707VAT-3G module comes with a companion rear plate that has two BNC connectors, multi-pin removable terminal block connections, and an SC/PC (shown), ST/PC or FC/PC optical connector. For information on mounting the rear plate and inserting the module into the frame see section 3 of the 7700FR chapter.

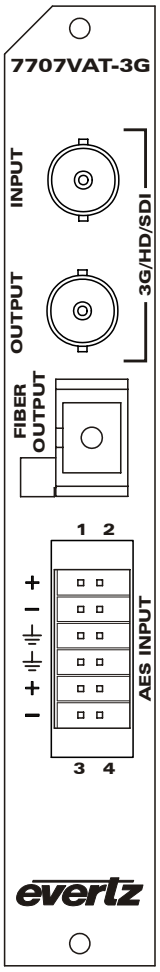


Figure 2-1: 7707VAT-3G Rear Panel

2.1. VIDEO SIGNAL CONNECTIONS

3G/HD/SDI INPUT: Input BNC connector for serial digital video signals compatible with HD-SDI (SMPTE 292M), SD-SDI (SMPTE 259M-C), or SDTi (SMPTE 305.2M) standards. This input provides adaptive equalization for up to 100m of industry standard Belden 1694A cable, at 1.485Gb/s. At 270Mb/s, this input provides adaptive equalization for up to 250m of Belden 1694A cable. See section 3.1 for video input specifications.

3G/HD/SDI OUTPUT: Reclocked, level-restored, loop-back output BNC connector for serial digital video signals compatible with HD-SDI (SMPTE 292M), SD-SDI (SMPTE 259M-C), or SDTi (SMPTE 305.2M) standards. See section 3.2 for video output specifications.

2.2. AES AUDIO CONNECTIONS

AES IN: AES audio input connections of the removable terminal block. The 7707VAT-3G accommodates four AES audio channels, designated as A1, A2, A3, and A4. Each of these four channels has a positive and negative terminal associated with it, and is able to accept balanced or unbalanced AES without card configuration. Balanced and unbalanced audio signals are connected as follows:

Balanced: Connect positive and negative audio signals to the corresponding positive and negative terminals of the 7707VAT-3G. This connection arrangement yields a nominal 110Ω input impedance for balanced audio signals.

Unbalanced: Connect unbalanced audio signals to the positive input terminal of the 7707VAT-3G. Leave the negative input terminal unconnected. This connection arrangement yields a nominal 75Ω input impedance for unbalanced audio signals.

See section 3.3 for AES audio input specifications.

2.3. OPTICAL SIGNAL CONNECTIONS

FIBER OUTPUT: This is the optical output for the 7707VAT-3G. This output should be connected to the FIBER IN connector of a companion 7707VAR-3G module with a suitable fiber optic cable. The 7707VAR-3G maintains active output video while input video is not suitable for transmission (VID…LOS or STD…ERR condition. See section 4.2.1). In this case, active picture will be grey. The connector is a female SC/PC (shown), ST/PC, or FC/PC connection as specified at the time of purchase. This optical output is available in 1310nm, 1550nm, up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant) and up to 40 DWDM wavelengths (ITU-T G.694.1 compliant). The output wavelength or DWDM channel number is marked on the rear panel of each module. When connected directly to a companion module, the output is compatible with multi-mode fiber optic cable. If not connected directly (i.e. connected through CWDM, DWDM, WDM, or splitter/combiner) the output is compatible only with single-mode fiber optic cable.

Do not hook up the 7707VAT-3G DWDM cards and 7707VAR-3G cards directly with a short fiber optic cable. The 7707VAT-3G DWDM card produces +7dBm of power which will damage the receiver if connected directly.

Do not hook up the 7707VAT-3G cards that output more than -7dBm of power (see 7707VAT-3G specifications for output power of various laser types) and 7707VAR-3G-H high sensitivity receiver cards directly with a short fiber optic cable. The 7707VAT-3G cards that produce more than -7dBm of power will damage the receiver if connected directly.

2.4. CARE AND HANDLING OF OPTICAL FIBER

2.4.1. Safety

CLASS 1 LASER PRODUCT

Background colour: yellow
Triangular band: black
Symbol: black

2.4.2. Assembly

Assembly or repair of the laser sub-module is done only at Evertz facility and performed only by qualified Evertz technical personnel.

2.4.3. Labeling

Certification and Identification labels are combined into one label. As there is not enough room on the product to place the label it is reproduced here in the manuals.

- There is no date of manufacture on this label as it can be traced by bar code label placed on the Printed circuit board of each Evertz plug-in module

- The Model number is one of: 7707VAT13-3G, 7707VAT15-3G, 7707VATxx-3G, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61) 7707VATDyyy-3G (Dyyy represents ITU Grid Channel: D200, D210, D220, D230, D240, D250, D260, D270, D280, D290, D300, D310, D320, D330, D340, D350, D360, D370, D380, D390, D400, D410, D420, D430, D440, D450, D460, D470, D480, D490, D500, D510, D520, D530, D540, D550, D570, D580, D590, D600)

Figure 2-2: Reproduction of Laser Certification and Identification Label

2.4.4. Handling and Connecting Fibers

Never touch the end face of an optical fiber. Always keep dust caps on optical fiber connectors when not connected and always remember to properly clean the optical end face of a connector before making a connection.

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 5 cm to avoid fiber-bending loss that will decrease the maximum attainable distance of the fiber cable. The Evertz fiber optic modules come with cable lockout devices, to prevent the user from damaging the fiber by installing a module into a slot in the frame that does not have a suitable I/O module. For further information about care and handling of fiber optic cable see section 3 of the Fiber Optics System Design section of this manual binder.

3. SPECIFICATIONS

3.1. SERIAL VIDEO INPUT

Standards:	SMPTE 424M, SMPTE 292M, SMPTE 259M-C, SMPTE 305M (SDTi), DVB-ASI (without separate audio)
Connector:	4 BNC per IEC 61169-8 Annex A
Equalization:	Automatic to 70m @ 2.970Gb/s and 250m @ 270Mb/s with Belden 1694A (or equivalent)
Return Loss:	> 15 dB up to 1.485Gb/s

3.2. SERIAL VIDEO OUTPUT

Number of Outputs:	1 reclocked
Connector:	BNC per IEC 61169-8 Annex A
Signal Level:	800mV nominal
DC Offset:	0V ± 0.5V
Rise and Fall Time:	< 270ps for HDI, < 900ps for SD
Overshoot:	< 10% of amplitude
Return Loss:	> 15dB up to 1.485Gb/s
High Freq. Jitter:	< 0.2 UI to 1.5G

3.3. AES AUDIO INPUTS

Number of Signals:	4 Inputs
Standards:	AES3-2003 (Balanced AES), SMPTE 276M (Unbalanced AES)
Connector:	12 pin terminal block
Sampling Rate:	32KHz, 44.1KHz, 48kHz
Resolution:	up to 24 bits
Minimum Input:	200mV p-p
Maximum Input:	
Balanced:	7V p-p
Unbalanced:	1.2V p-p
Equalization:	
Balanced:	<600m @ 48kHz, with Belden 1800B, and 2V p-p source signal
Unbalanced:	<1200m @ 48KHz, with Belden 8281, and 1V p-p source signal
Impedance:	
Balanced:	≈ 110Ω
Unbalanced:	≈ 75Ω
Return Loss:	> 15dB, from 1MHz to 6MHz
Alignment Jitter:	< 10ns p-p, with conditions of minimum to maximum cable length

3.4. OPTICAL OUTPUT

Number:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14dB
Wavelengths:	See Ordering Information
Output Power:	
1310nm FP(Standard):	-7dBm ±1dBm
1550nm & CWDM DFB:	0dBm ±1dBm
DWDM DFB:	7dBm ±1dBm
Fiber Size:	9µm core/125 mm overall

3.5. ELECTRICAL

Voltage:	+12VDC
Power:	11W (Non-DWDM), 13W (DWDM)

3.6. COMPLIANCE

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 INDICATORS AND DISPLAYS

The 7707VAT-3G has five LED status indicators and a 4-digit dot-matrix display on the front card-edge for monitoring and control of card status and parameters. The card-edge pushbutton and toggle switch are used to select various indications to the dot-matrix display. Figure 4-1 shows the locations of the indicators and pushbutton.

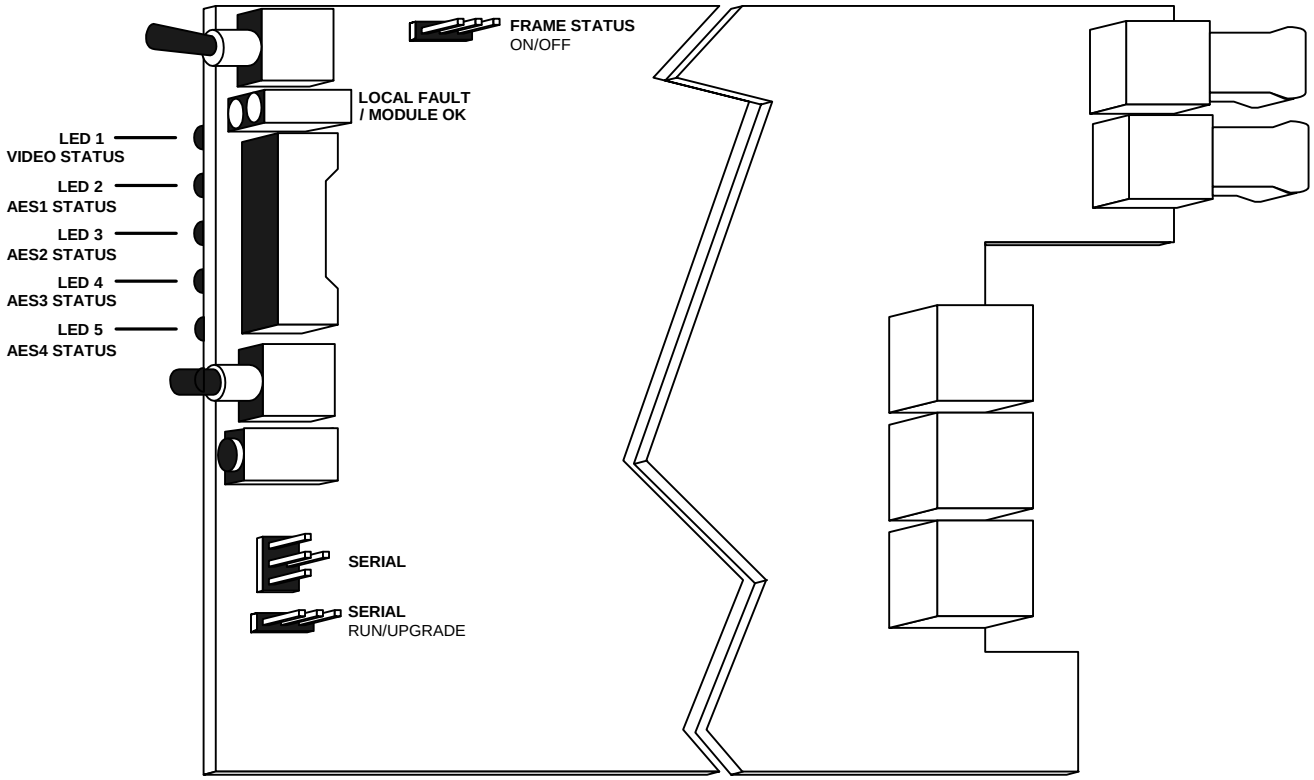


Figure 4-1: Location of Jumpers and Card Edge Controls

4.1. STATUS INDICATOR LEDS

Two large LEDs at the front card-edge indicate operational health of the module as follows:

MODULE OK: This green LED indicates good module health. It will be on while a valid signal is present at the video input, the output laser is operating properly, and the card power is good.

LOCAL FAULT: This red LED indicates poor module health. Three conditions could cause this fault indication to be active: (1) No valid signal is present at the video input, (2) operation of the output laser is erroneous, or (3) if a card power fault exists (i.e. a blown fuse). The LOCAL FAULT indication can also be reported to the frame by setting the FRAME STATUS jumper.

There are five small LEDs on the back of the card-edge that indicate signal presence. These LEDs are Bi-colour, and able to illuminate as red or green. The functions of these LEDs are as follows:

LED 1, VIDEO STATUS: This LED indicates the status of the video Input. When a valid input video signal is detected the LED will be green. The LED will be red while errors are detected within the input video. If no video is detected on the video input of the 7707VAT-3G the LED will remain off.

LED 2, AES 1 STATUS: This LED indicates the status of Audio Input 1. When a valid input audio signal is detected the LED will be green. When errors are detected within the input audio signal the LED will flash red. If no audio is detected on the first audio input of the 7707VAT-3G the LED will remain off.

LED 3, AES 2 STATUS: This LED indicates the status of Audio Input 1. When a valid input audio signal is detected the LED will be green. When errors are detected within the input audio signal the LED will flash red. If no audio is detected on the second audio input of the 7707VAT-3G the LED will remain off.

LED 4, AES 3 STATUS: This LED indicates the status of Audio Input 1. When a valid input audio signal is detected the LED will be green. When errors are detected within the input audio signal the LED will flash red. If no audio is detected on the third audio input of the 7707VAT-3G the LED will remain off.

LED 5, AES 4 STATUS: This LED indicates the status of Audio Input 1. When a valid input audio signal is detected the LED will be green. When errors are detected within the input audio signal the LED will flash red. If no audio is detected on the fourth audio input of the 7707VAT-3G the LED will remain off.

4.2. DOT-MATRIX DISPLAY AND CONTROLS

Additional monitoring and control functions are implemented via the 4-digit dot-matrix display and controls located at the card-edge. The card-edge pushbutton and toggle-switch are used to navigate through the display menu. Figure 4-2 provides a quick reference to the display menu structure.

Pressing the pushbutton advances the display to the next menu level. The toggle-switch may then be used to move up or down through selections of that menu level. Select BACK to return to the previous menu level.

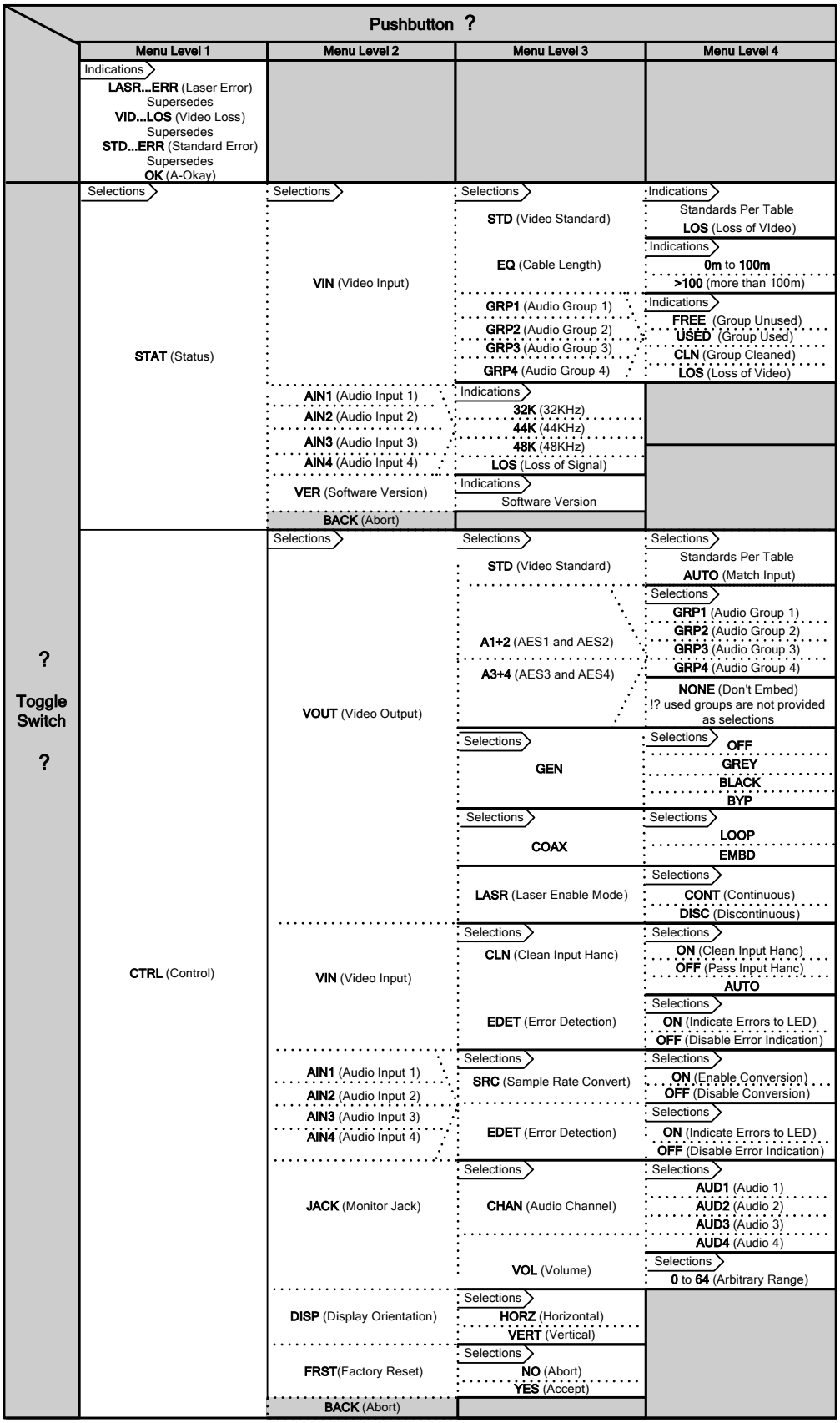


Figure 4-2: Card-edge Menu Quick Reference

If a specific menu selection has a configuration value associated with it, then this may be changed using the toggle switch. Pressing the pushbutton will apply the displayed value and return you to the previous menu level.

The most recent user selection will be maintained in non-volatile memory in the event of power loss to the module.

4.2.1. Display of Warning Status Indications

Upon entering menu level 1 on power up, or following a configuration selection, the default display selection will indicate the warning status of the 7707VAT-3G. This warning status indication can also be entered while already in menu level 1, by using the toggle switch. During normal operation, while no warnings conditions are active, the OK indication will be displayed. Three warning indications can supersede this display state. The following list describes possible indications for this menu item, listed in order of display priority:

LASR….ERR	Laser Error Warning. Flashing indication alternates between **LASR** and **ERR**
VID….LOS	Video Loss of Signal. Flashing indication alternates between **VID** and **LOS**
STD….ERR	Video Standard Error. Input video standard does not match a manually selected output video standard. Flashing indication alternates between **STD** and **ERR**
OK	Okay. No warning conditions are active

4.2.2. Displaying the Input Video Standard

The card-edge display of the 7707VAT-3G can report the signal standard present at the active video input. To indicate the input video standard, select the STAT (Status) menu item in menu level 1 followed by VIN (Video Input) and VSTD (Video Standard) menu items. The following list describes possible indications for this menu selection:

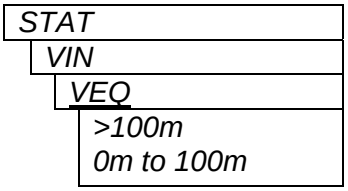
STAT
- *VIN*
  - *VSTD*
    - *1080i/60*
    - *1080i/59.94*
    - *1080i/50*
    - *1035i/60*
    - *1035i/59.94*
    - *1080i/48*
    - *1080i/47.96*
    - *720p/60*
    - *720p/59.94*
    - *N270*
    - *P270*
    - *LOS*

The *MUTE* controls (1 to 4) allow the user to mute each channel.
1080i/60 or 1080p/30sF standard is present:

1080i/60	1080i/60 or 1080p/30sF standard is present
1080i/59.94	1080i/59.94 or 1080p/29.97sF standard is present
1080i/50	1080i/50 or 1080p/25sF standard is present
1035i/60	1035i/59.94 standard is present
1035i/59.94	1035i/59.94 standard is present
1080i/48	1080i/48 or 1080p/24sF standard is present
1080i/47.96	1080i/47.96 or 1080p/23.98sF standard is present
720p/60	720p/60 standard is present
720p/59.94	720p/59.94 standard is present
N270	525i/59.94 standard is present
P270	624i/50 standard is present
LOS	Loss of signal. No valid video signal is detected at the selected input

4.2.3. Displaying the Input Equalization Strength

The 7707VAT-3G adaptively adjusts the amount of equalization applied to the digital video input and the applied equalization strength can be reported to the display. To indicate the input equalization strength, select the STAT (Status) menu item in menu level 1 followed by the VIN (Video Input) and VEQ (Video Equalization) menu items.



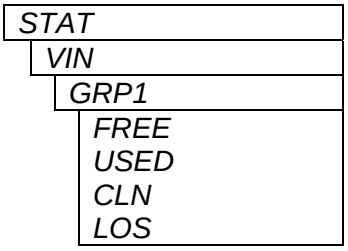
The following list describes possible indications for this menu selection:

0m to **100m** — Amount of equalization adaptively applied to the digital video input in meters.

>100m — Adaptive equalization greater than 100m.

4.2.4. Displaying the Status of Input Video Embedded Audio Groups

The 7707VAT-3G allows the user to monitor the status of input video embedded audio groups. This allows conflicts to be identified and resolved. To view the current status of input video embedded audio groups, select the STAT (Status) menu item in menu level 1, followed by the VIN (Video Input) and GRP1, GRP2, GRP3 or GRP4 (Audio Groups 1 through 4) menu items. For the sake of brevity, only the GRP1 menu item will be described below.



The following list describes possible indications for this menu item:

FREE — The monitored audio group is unused in applied input video.

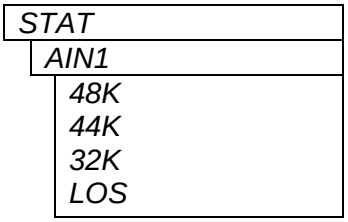
USED — The monitored audio group is used in applied input video.

CLN — The monitored audio group is used in applied input video, but has been cleaned by the 7707VAT-3G. See section 4.2.10 for details.

LOS — No video input detected.

4.2.5. Displaying the AES Audio Sample Rate

The 7707VAT-3G can detect the sample rate of valid AES input audio on each channel and the detected sample rate can be reported to the display. To indicate the AES input sample rate, select the STAT (Status) menu item in menu level 1, followed by the AIN1, AIN2, AIN3, or AIN4 (Audio Input 1 through 4) menu item. For the sake of brevity, only the AIN1 menu item will be described below.



The following list describes possible Audio Sample Rate indications:

48K — AES input sample rate is 48KHz
44K — AES input sample rate is 44.1KHz
32K — AES input sample rate is 32KHz
LOS — Loss of signal. No valid signal is detected

4.2.6. Displaying the Software Version

Software operating on the 7707VAT-3G has a version number associated with it. This version number can be indicated to the display. By this means, it can be verified that the module is operating with the most recent software. To reveal the software version,* select the STAT (Status) menu item in menu level 1, followed by the VER (Software Version) menu item.

- *STAT*
  - *VER*
    - *VER x.x BUILD xxx*

The following describes the function of version menu item:

VER x.x BUILD xxx	Software version. Character string scrolls across four digit display

4.2.7. Selecting the Output Video Standard

User configuration selects the video standard for transmission over the optical interface. If the AUTO mode is selected, then the output video standard will match the input video standard. Otherwise, the output video standard will be as selected, regardless of the input standard. To configure the output video standard sent across the optical link by the 7707VAT-3G, select the CTRL (Control) menu item in menu level 1, followed by the VOUT (Video Output) and STD (Video Standard) menu items.

- *CTRL*
  - *VOUT*
    - *STD*
      - *AUTO*
      - *1080i/60*
      - *1080i/59.94*
      - *1080i/50*
      - *1035i/60*
      - *1035i/59.94*
      - *1080i/48*
      - *1080i/47.96*
      - *720p/60*
      - *720p/59.94*
      - *N270*
      - *P270*

The following list describes possible user selections for this menu item:

AUTO	Automatically transports the video standard detected at the input
1080i/60	1080i/60 or 1080p/30sF standard
1080i/59.94	1080i/59.94 or 1080p/29.97sF standard
1080i/50	1080i/50 or 1080p/25sF standard
1035i/60	1035i/59.94 standard
1035i/59.94	1035i/59.94 standard
1080i/48	1080i/48 or 1080p/24sF standard
1080i/47.96	1080i/47.96 or 1080p/23.98sF standard
720p/60	720p/60 standard
720p/59.94	720p/59.94 standard
N270	525i/59.94 standard
P270	625i/50 standard

The 7707VAT-3G maintains active output video while input video is not suitable for transmission (VID…LOS or STD…ERR condition. See section 4.2.1). In this case, active picture will be black.

4.2.8. Selecting Audio Embedding Group

This user menu item provides configuration of the embedded audio groups. To minimize conflicts, groups that are detected as USED in the applied input video (see section 4.2.4) are not provided as selections. To select the audio embedding groups select the CTRL (Control) menu item in menu level 1, followed by the VOUT (Video Output) and A1+2 (AES 1 and AES 2) or A3+4 (AES 1 and AES 2) menu items. For the sake of brevity, only the A1+2 menu item will be described below.

- *CTRL*
  - *VOUT*
    - *A1+2*
      - *GRP1*
      - *GRP2*
      - *GRP3*
      - *GRP4*
      - *NONE*

The following list describes possible user selections for this menu item:

GRP1 Embed the selected AES signals (A1+2 or A3+4) into group 1.

GRP2 Embed the selected AES signals (A1+2 or A3+4) into group 2.

GRP3 Embed the selected AES signals (A1+2 or A3+4) into group 3.

GRP4 Embed the selected AES signals (A1+2 or A3+4) into group 4.

NONE Will not embed the selected AES signals (A1+2 or A3+4) into video.

Note that the same audio group cannot be selected twice; the selection for A1+2 cannot match the selection for A3+4. To minimize conflicts, the group configured for A3+4 will not be provided as a selection for group A1+2, and vise-versa.

4.2.9. Selecting the Output Video when the Signal is Lost

The GEN menu item enables the user to select the type of generated output that will be displayed on loss of video.

- *CTRL*
  - *VOUT*
    - *GEN*
      - *OFF*
      - *GREY*
      - *BLACK*
      - *BYP*

The following list describes possible user selections for this menu item:

OFF When set to OFF, the video output is muted upon loss or interruption of the input video.

GREY When the signal is lost, grey video will be output. This enables a video "keep-alive" function for sustained transport of embedded audio upon input video loss, interruption or timing errors. A grey signal is generated until input video is re-qualified as valid (i.e., no loss, interruption or timing errors for some time).

BLACK When the signal is lost, black video will be output. This enables a video "keep-alive" function for sustained transport of embedded audio upon input video loss, interruption or timing errors. A black signal is generated until input video is re-qualified as valid (i.e., no loss, interruption or timing errors for some time).

BYP When set to BYP, the video “keep alive” function is bypassed for use in cases where input video has minor interruptions or timing errors that should not trigger the generated black or gray “keep-alive” output. This selection does not affect embedding or other functions of the product, except that input video must have sustained quality that is suitable for embedding.

4.2.10. Selecting the COAX Mode

The COAX menu item enables the user to either pass the original audio or embed the current audio into the selected group.

- *CTRL*
  - *VOUT*
    - *COAX*
      - *LOOP*
      - *EMBD*

The following list describes possible user selections for this menu item:

LOOP When set to *LOOP*, the module will pass the original audio from the input to the output.

EMBD When set to *EMBD*, the audio will be embedded into the selected group and will be sent to video out.

4.2.11. Selecting the Output Laser Enable Mode

In some applications it is desirable to have the laser output disabled while no input video signal is present. Alternatively, it may be preferable to maintain an optical output signal, even with no input video. The 7707VAT-3G supports both modes of operation. To configure the output laser enable mode, select the CTRL (Control) menu item in menu level 1 followed by the VOUT (Video Output) and LASR (Laser) menu items.

- *CTRL*
  - *VOUT*
    - *LASR*
      - *CONT*
      - *DISC*

The following list describes possible user selections for this menu item:

CONT Continuous operation. Laser is always enabled, even without valid video signal.

DISC Discontinuous operation. Laser is disabled when no valid input video is detected.

4.2.12. Selecting Input Video Cleaning

Information might already be contained in the horizontal ancillary space of the applied input video. The user might wish to maintain this information in an unaltered state, or the user could favour cleaning this information. To enable or disable input video cleaning, select the CTRL (Control) menu item in menu level 1 followed by the VIN (Video Input) and CLN (Clean Input Hanc) menu items.

- *CTRL*
  - *VIN*
    - *CLN*
      - *ON*
      - *OFF*
      - *AUTO*

The following list describes possible user selections for this menu item:

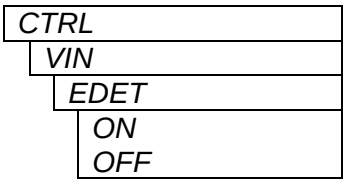
ON Enables cleaning of all embedded audio from input video HANC.

OFF Disables cleaning of embedded audio from input video HANC. In the case where CTRL/VOUT/Ax+x menu selects a conflicting group for embedding, the priority is given to embedded audio in input video.

AUTO Automates cleaning of embedded audio from input video HANC. In the case where CTRL/VOUT/Ax+x menu selects a conflicting group for embedding, the group is cleaned from input video and the priority is given to the 7707VAT-3G.

4.2.13. Selecting Video Error Detection

The 7707VAT-3G is capable of detecting incoming CRC or EDH errors on its video input. To turn error detection on or off select the CTRL (Control) menu item in menu level 1 followed by the VIN (Video Input) and EDET (Error Detection) menu items.



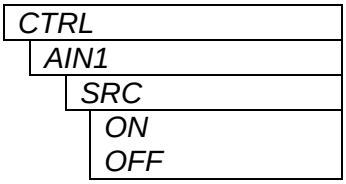
The following list describes possible user selections for this menu item:

ON Enable video error detection. Errors will be reported to the card edge LED or VistaLINK®. The VIDEO STATUS LED will blink red on the occurrence of an error.

OFF Disable video error detection.

4.2.14. Selecting AES Sample Rate Conversion

Audio must have a sample rate of 48KHz for embedding. To accommodate other input audio sample rates, the 7707VAT-3G provides sample rate conversion. Sample rate conversion should be turned on for normal operation; however, Dolby-E audio uses a proprietary encoding scheme that is not compatible with sample rate conversion. To enable or disable sample rate conversion, select the CTRL (Control) menu item in menu level 1, followed by the AIN1, AIN2, AIN3, or AIN4 (Audio Inputs 1 through 4) and SRC (Sample Rate Convert) menu items. For the sake of simplicity, only AIN1 menu item will be described in this manual.



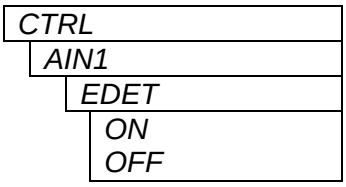
The following list describes possible user selections for this menu item:

ON Turns sample rate conversion ON

OFF Turns sample rate conversion OFF

4.2.15. Selecting Audio Error Detection

The 7707VAT-3G is capable of detecting incoming errors on its four audio inputs. To turn audio error detection on or off select the CTRL (Control) menu item in menu level 1, followed by the AIN1, AIN2, AIN3, or AIN4 (Audio Inputs 1 through 4) and EDET (Error Detection) menu items. For the sake of simplicity, only AIN1 will be described.



The following list describes possible user selections for this menu item:

ON Enable audio error detection. Errors will be reported to the card edge LED or Vista*LINK*®. The corresponding AUDIO STATUS LED will blink red on the occurrence of an error.

OFF Disable audio error detection.

4.2.16. Selecting the Headphone Monitoring Jack Channel

The 7707VAT-3G provides a convenient headphone monitoring jack at the card-edge. The monitored audio channel is configured by the user, via the card-edge interface. Audio volume of the headphone monitoring jack can also be adjusted using the card-edge volume control. To configure the headphone monitoring jack channel, select the CTRL (Control) menu item in menu level 1, followed by the JACK (Audio Jack) and CHAN (Audio Channel) menu items.

- *CTRL*
  - *JACK*
    - *CHAN*
      - *AUD1*
      - *AUD2*
      - *AUD3*
      - *AUD4*

The following list describes possible user selections for this menu item:

AUD1	Channel 1 is selected to the headphone monitoring jack
AUD2	Channel 2 is selected to the headphone monitoring jack
AUD3	Channel 3 is selected to the headphone monitoring jack
AUD4	Channel 4 is selected to the headphone monitoring jack

To configure the headphone volume, select the CTRL (Control) menu item in menu level 1, followed by the JACK (Audio Jack) and VOL (Volume) menu items.

- *CTRL*
  - *JACK*
    - *VOL*
      - *0 to 64*

The following list describes possible user selections for this menu item:

0 to 64	Sets the volume of the headphone jack.

4.2.17. Setting the Orientation of the Display

The 7707VAT-3G provides the ability to adjust the orientation of the display. When using a 3RU frame it is convenient to have the text read vertical whereas when using a 1RU frame a horizontal display is desirable. To change the orientation of the display select the CTRL (Control) menu item in menu level 1, followed by the DISP (Display) menu item.

- *CTRL*
  - *DISP*
    - *HORZ*
    - *VERT*

The following list describes possible user selections for this menu item:

HORZ	Sets the orientation of the text to horizontal
VERT	Sets the orientation of the text to vertical

4.2.18. Selecting the Factory Reset Configuration

It is convenient to have a quick method of returning all configuration settings to a known value. The 7707VAT-3G provides a factory reset for this purpose. All values which are user configurable will be returned to a known state, as indicated below. To initialize a factory reset, select the CTRL (Control) menu item in menu level 1, followed by the FRST (Factory Reset) menu item.

- *CTRL*
  - *DISP*
    - *NO*
    - *YES*

The following list describes possible user selections for this menu item:

NO	Return to previous menu item, without modification of configuration settings
YES	Initialize factory reset

5. JUMPER CONTROLS

5.1. SELECTING WHETHER LOCAL FAULTS WILL BE MONITORED BY THE GLOBAL FRAME STATUS

The FRAME STATUS jumper J4 determines whether local faults (as shown by the Local Fault indicator) will be connected to the 7700FR frame's global status bus.

FRAME STATUS: To monitor faults on this module with the frame status indicators (on the Power Supply FRAME STATUS LED's and on the Frame's Fault Tally output) install this jumper in the On position. (Default)

When this jumper is installed in the Off position local faults on this module will not be monitored.

5.2. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE: The UPGRADE jumper J5 is used when firmware upgrades are being done to the module. For normal operation it should be installed in the *RUN* position. See the *Upgrading Firmware* section of this manual for more information.

To upgrade the firmware in the module unit pull it out of the frame. Move the UPGRADE jumper into the *UPGD* position. Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto the SERIAL header at the card edge. Re-install the module into the frame. Run the upgrade as described in the *Upgrading Firmware* section of this manual. Once the upgrade is complete, remove the module from the frame, move the UPGRADE jumper into the *RUN* position, remove the upgrade cable and re-install the module. The module is now ready for normal operation.

6. VISTALINK® REMOTE MONITORING/CONTROL

6.1. WHAT IS VISTALINK®?

VistaLINK® is Evertz's remote monitoring and configuration platform which operates over an Ethernet network using Simple Network Management Protocol (SNMP). SNMP is a standard computer network protocol that enables different devices sharing the same network to communicate with each other. VistaLINK® provides centralized alarm management, which monitors, reports, and logs all incoming alarm events and dispatches alerts to all the VLPro Clients connected to the server. Card configuration through VistaLINK® PRO can be performed on an individual or multi-card basis using simple copy and paste routines, which reduces the time to configure each module separately. Finally, VistaLINK® enables the user to configure devices in the network from a central station and receive feedback that the configuration has been carried out.

There are 3 components of SNMP:

1. An SNMP, manager also known as a Network Management System (NMS), is a computer running special software that communicates with the devices in the network. Evertz VistaLINK® Pro Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz VistaLINK® enabled fiber optic products.

2. Managed devices (such as the 7707VAT-3G), each with a unique address (OID), communicate with the NMS through an SNMP Agent. Evertz VistaLINK® enabled 7700 series modules reside in the 3RU 7700FR-C MultiFrame and communicate with the manager via the 7700FC VistaLINK® frame controller module, which serves as the Agent.

3. A virtual database, known as the Management Information Base (MIB), lists all the variables being monitored, which both the Manager and Agent understand. Please contact Evertz for further information about obtaining a copy of the MIB for interfacing to a third party Manager/NMS.

For more information on connecting and configuring the VistaLINK® network, see the 7700FC Frame Controller chapter.

6.2. VISTALINK® MONITORED PARAMETERS

The following parameters can be remotely monitored via the VistaLINK® interface.

Parameter	Description
Video Input Standard	The detected video standard
Cable Length	Indicates input cable length in metres
Input Video Embedded Audio Group 1, 2, 3, 4	Status of Input video embedded audio groups
AES Input 1, 2, 3, 4	Displays AES Audio sample rate

Table 6-1: VistaLINK® Monitored Parameters

6.3. VISTALINK® CONTROLLED PARAMETERS

The following parameters can be remotely controlled via the VistaLINK® interface.

Parameter	Description
Video Output Standard	Sets output video standard
Laser	Sets output laser mode
Clean Input Video HANC	Enable/ Disable input video HANC cleaning
AES 1 / 2 Destination	Sets destination for AES 1 and 2
AES 3 / 4 Destination	Sets destination for AES 3 and 4
AES 1 to 4 Sample Rate Conversion	Enable/ Disable sample rate converters
Cable Length Alarm Threshold	Sets cable length alarm threshold

Table 6-2: VistaLINK® Controlled Parameters

6.4. VISTALINK® TRAPS

The following parameters can be remotely enabled and monitored through the VistaLINK® interface as traps in Alarm View.

Parameter	Description
Video Loss	Triggers on loss of input video signal
Video Error	Triggers on error in input video signal
Laser Fault	Triggers on optical output laser fault
Cable Length Fault	Triggers on cable length exceeds set threshold
AES Audio 1 to 4 Loss	Triggers on loss of AES audio signal
AES Audio 1 to 4 Error	Triggers on AES audio error

Table 6-3: VistaLINK® Traps