TABLE OF CONTENTS

Figures

Tables

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Preliminary Version	Jan 05
1.1	Added 7707VAR-U-HD and updated laser warnings	Jul 05
1.2	Updated Menu and VistaLINK descriptions	Sept 05
1.3	Updated *Vista*LINK® description and fixed format	Jun 08
1.4	Updated features & specs Updated menu structure format (section 4.2.1 to 4.2.13)	Oct 08
1.5	Added GEN menu descriptions	Dec 08
1.6	Updated Genlock menu item	Oct 09

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-HD DWDM cards and 7707VAR-HD cards directly with a short fiber optic cable. The 7707VAT-HD DWDM card produces +7dBm of power which will damage the receiver if connected directly.

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

1. OVERVIEW

The 7707VAR-HD fiber receiver extends one HD or SD digital video signal over a fiber optic link, accompanied by four AES audio signals. Video and audio signals are decoded from a single HD, SD, or SDTi optical transport signal containing embedded audio, which is input from a companion transmitter module. Outputs are provided for video and four AES audio signals. The 7707VAR-HD is designed to operate with a companion 7707VAT-HD transmitter, to permit communication over distances up to 120Km, with minimum possible latency. The 7707VAR-U-HD has unbalanced audio connections and is identical to the 7707VAR-HD in all other respects.

Monitoring and control of the card status and parameters is provided locally, at the card-edge, or remotely via *Vista*LINK® capability. The wide-band optical input of the 7707VAR-HD is compatible with all available 7707VAT-HD transmitter wavelengths.

This card occupies one card slot and can be housed in either a 1RU frame, which will hold up to three modules, or a 3 RU frame, which will hold up to 15 modules.

Features:
- Supports HDTV video formats @ 1.485Gb/s
- Supports 525/625 line component 4:2:2 SDI @ 270Mb/s
- Provides up to four de-embedded AES audio outputs
- Dolby-E™ compatible
- Local display of optical signal strength, video and audio presence, video and AES formats
- Fully hot-swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and *Vista*LINK®
- *Vista*LINK® capability is available when modules are used with the 3RU 7700FR-C or 350FR portable frame and a 7700FC *Vista*LINK® Frame Controller module in slot 1 of the frame
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
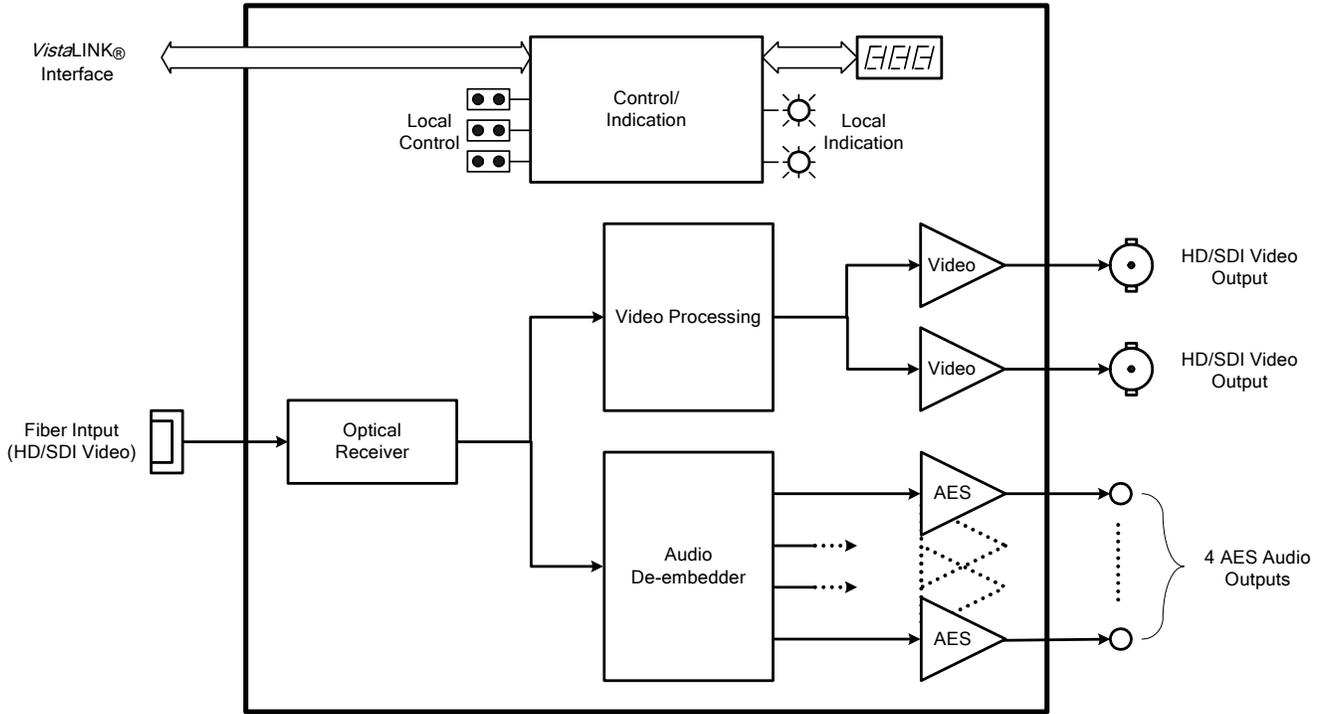
Figure 1-1: 7707VAR-HD Block Diagram

2. INSTALLATION

Each 7707VAR-HD 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. The 7707VAR-U-HD modules come with a companion rear plate that has six BNC connectors and one SC/PC, SC/PC with cover (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.
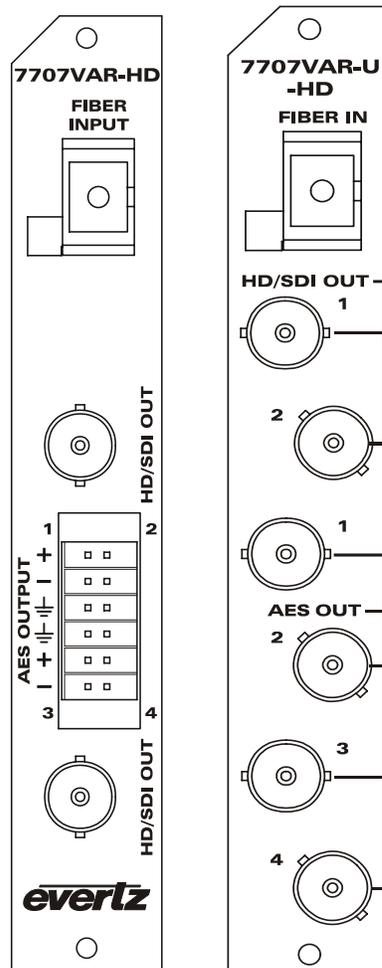
Figure 2-1: 7707VAR-HD Rear Panels

2.1. VIDEO SIGNAL CONNECTIONS

HD OUTPUT: The 7707VAR-HD has two reclocked, level-restored, outputs for serial digital video signals compatible with HD-SDI (SMPTE 292M), or SD-SDI (SMPTE 259M-C) standards. The 7707VAR-HD maintains active output video while optical input video is not suitable for transmission (LINK…ERR or STD…ERR condition. See section 4.2.1). In this case, active picture will be black. Please refer to section 3.2 for video output specifications.

2.2. AES AUDIO CONNECTIONS (MODEL 7707VAR-HD)

AES OUTPUT: AES audio output connections of the removable terminal block. The 7707VAR-HD has four AES audio outputs, 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 output balanced or unbalanced AES. See section 4.2.10 for details on configuring the output type. 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 7707VAR-HD. This connection arrangement yields a nominal 110Ω output impedance for balanced audio signals.

Unbalanced: Connect unbalanced audio signals to the positive output terminal of the 7707VAR-HD. Leave the negative output terminal unconnected. This connection arrangement yields a nominal 75Ω output impedance for unbalanced audio signals. BNC connectors are provided for unbalanced audio outputs on the 7707VAR-HD-U.

See section 3.3 for AES audio output specifications.

2.3. AES AUDIO CONNECTIONS (MODEL 7707VAT-U-HD)

AES OUT: Unbalanced AES audio outputs for four AES audio pairs (2 groups) designated as A1, A2, A3, and A4 are available on four BNC connectors.

2.4. OPTICAL SIGNAL CONNECTIONS

FIBER INPUT: SC/PC, ST/PC or FC/PC female connector. This wideband input accepts optical wavelengths from 1270nm to 1610nm, accommodating standard, CWDM or DWDM transmission schemes.

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

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

2.5. CARE AND HANDLING OF OPTICAL FIBER

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 the user maintains 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 chapter in the front of the binder.

3.   SPECIFICATIONS

3.1.   OPTICAL INPUT

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Return Loss: >25dB
Operating Wavelength: 1270nm-1610nm
Maximum Input Power:
  Standard: -1dBm
  High Sensitivity (-H Version):   -7dBm
Optical Sensitivity:
  Standard: -23dBm
  High Sensitivity (-H Version):   -28dBm

3.2.   SERIAL VIDEO OUTPUTS

Number of Outputs: 2
Standards: SMPTE 292M (HD-SDI), SMPTE 259M-C (SD-SDI), SMPTE305M (SDTi), DVB-ASI (without separate audio)
Connector: 1 BNC per IEC 61169-8 Annex A
Signal Level: 800mV Nominal
DC Offset: 0V $\pm$ 0.5V
Rise and Fall Time: < 270ps for HDSDI, < 900ps for SDI
Overshoot: <10% of amplitude
Return Loss: >15dB up to 1.485Gb/s
Wide Band Jitter: <0.2UI

3.3.   AES AUDIO OUTPUTS

Number of Signals: 4 (user selectable for balanced or unbalanced)
Standards: AES3-2003 (Balanced AES), SMPTE 276M (Unbalanced AES)
Connector:
  7707VAR-HD: 12-pin removable terminal strip
  7707VAR-U-HD: 1 BNC per IEC 61169-8 Annex A
Sampling Rate: 48 KHz
Resolution: up to 24 bits
Signal Level:
  Balanced: 1V p-p $\pm$0.1V
  Unbalanced: 2V p-p $\pm$0.1V Differential
Rise/Fall Times:
  Balanced: 20ns $\pm$5ns
  Unbalanced: 35ns $\pm$5ns
Return Loss: > 15dB, from 1MHz to 6MHz
Wideband Jitter: < 10ns p-p, with conditions of minimum to maximum cable length
Impedance:
  Balanced: 110Ω
  Unbalanced: 75 Ω

3.4. SYSTEM PERFORMANCE (7707VAT-HD + 7707VAR-HD)

Video Input To Output Delay: < 35µs
Audio to Video delay: < 3.3ms with SRC enabled +4ms with audio pop minimization
enabled

3.5. ELECTRICAL

Voltage: +12V DC
Power: 11 Watts

3.6. COMPLIANCE

Electrical Safety: CSA Listed to CSA C22.2 No. 60065-03, UL 60065-03
IEC 60065-(2001-12) 7th Edition
Complies with CE Low voltage Directive 93/68/EEC
EMI/RFI: Complies with FCC regulations for class A devices
Complies with EU EMC directive

3.6 PHYSICAL

7700 or 7701 frame mounting:
Number of slots: 1

4. STATUS INDICATORS AND DISPLAYS

The 7707VAR-HD 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.
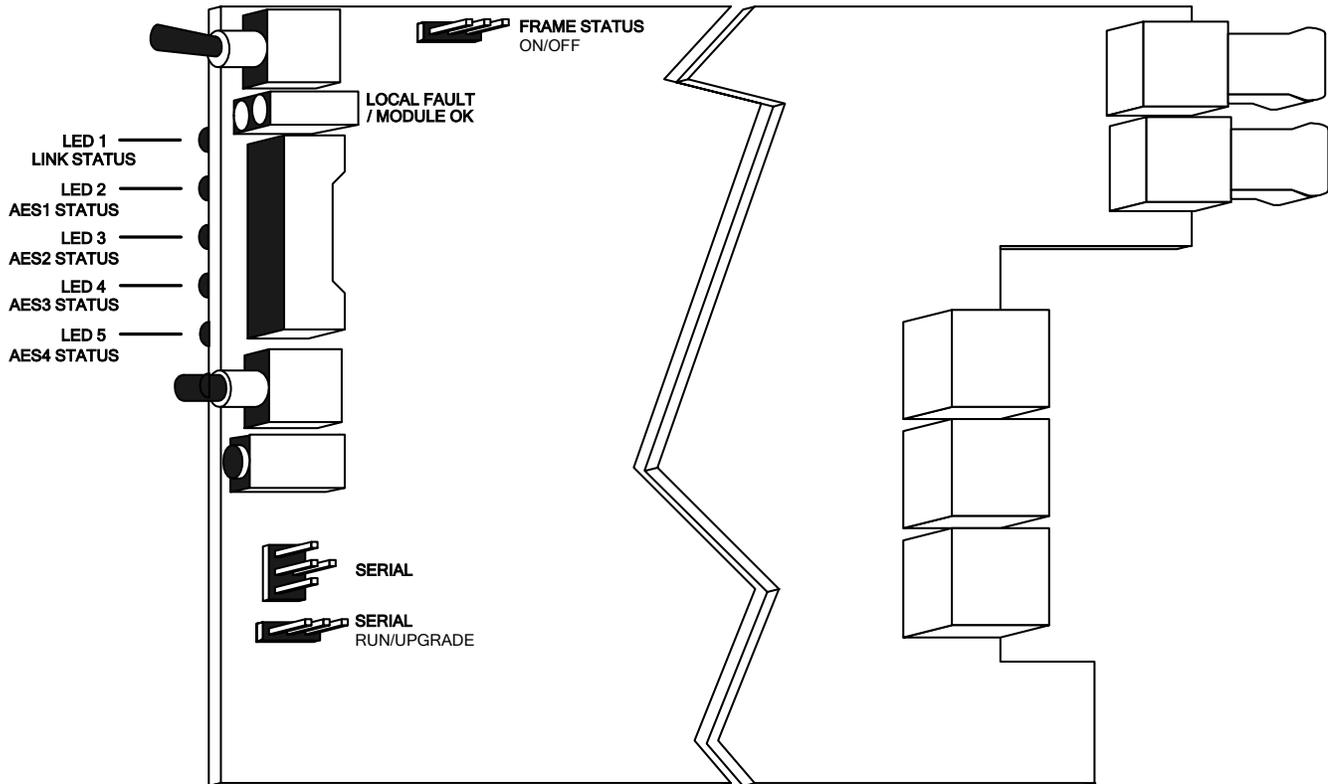
Figure 4-1: Location of Jumpers and Card Edge Controls

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 optical signal is present at the optical input and the card power is good.

LOCAL FAULT: This red LED indicates poor module health. Two conditions could cause this fault indication to be active. No valid signal is present at the optical input or 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 they are 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 optical input video signal. 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 optical input of the 7707VAR-HD the LED will remain off.

LED 2, AES 1 STATUS: This LED indicates the status of Audio output 1. When a valid audio signal is present at the output the LED will be green. If no audio is present at the first audio output of the 7707VAR-HD the LED will remain off.

LED 3, AES 2 STATUS: This LED indicates the status of Audio output 2. When a valid audio signal is present at the output the LED will be green. If no audio is present at the second audio output of the 7707VAR-HD the LED will remain off.

LED 4, AES 3 STATUS: This LED indicates the status of Audio output 3. When a valid audio signal is present at the output the LED will be green. If no audio is present at the third audio output of the 7707VAR-HD the LED will remain off.

LED 5, AES 4 STATUS: This LED indicates the status of Audio output 4. When a valid audio signal is present at the output the LED will be green. If no audio is present at the fourth audio output of the 7707VAR-HD 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.

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 the user to the previous menu level.

evertz

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

| Pushbutton			
Menu Level 1	**Menu Level 2**	**Menu Level 3**	**Menu Level 4**
Indications			
LINK...ERR (Link Error) Supersedes **STD...ERR** (Standard Error) Supersedes **OK** (A-Okay)			
Selections	*Selections*	*Selections*	*Indications*
		STD (Video Standard)	Standards Per Table
			LOS (Loss of VIdeo)
			Indications
	VIN (Video Input)	**PWR** (Optical Power)	**-40 to 0**(dBm Value)
STAT (Status)			**LOW** (less than -40dBm)
			OVR (more than 0dbm)
		GRP1 (Audio Group 1)	*Indications*
		GRP2 (Audio Group 2)	**FREE** (Group Unused)
		GRP3 (Audio Group 3)	**USED** (Group Used)
		GRP4 (Audio Group 4)	**LOS** (Loss of Video)
	VER (Software Version)	*Indications*	
		Software Version	
	BACK (Abort)		
	Selections		*Selections*
		CLN (Clean Output Hanc)	**ON** (Clean Output Hanc)
			OFF (Pass Output Hanc)
	VOUT (Video Output)		*Selections*
		GEN (Output on LOS)	**GRAY** (Gray Active Picture)
			BLK (Black Active Picture)
			OFF (Generation Off)
	VIN (Video Input)		*Selections*
		EDET (Error Detection)	**ON** (Indicate Errors to LED)
			OFF (Disable Error Indication)
Toggle Switch		*Selections*	*Selections*
			GRP1 (Audio Group 1)
			GRP2 (Audio Group 2)
		GRP (Audio Group)	**GRP3** (Audio Group 3)
			GRP4 (Audio Group 4)
	A1+2 (AES1 and AES2)		**NONE** (Don't Embed)
	A3+4 (AES3 and AES4)		*Selections*
		TERM (Termination)	**BAL** (Balanced 100)
CTRL (Control)			**UBAL** (Unbalanced 75)
			Selections
			ON (Silence)
		GEN (Output on LOS)	**OFF** (Generation Off)
			SOFT (Silence + Soft-switch)
		Selections	*Selections*
			AUD1 (Audio 1)
		CHAN (Audio Channel)	**AUD2** (Audio 2)
	JACK (Monitor Jack)		**AUD3** (Audio 3)
			AUD4 (Audio 4)
		VOL (Volume)	*Selections*
			0 to **64** (Arbitrary Range)
		Selections	
	DISP (Display Orientation)	**HORZ** (Horizontal)	
		VERT (Vertical)	
		Selections	
	FRST(Factory Reset)	**NO** (Abort)	
		YES (Accept)	
	BACK (Abort)		

Figure 4-2: Card-edge Menu Quick Reference

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 7707VAR-HD. 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. Two warning indications can supersede this display state. The following list describes possible indications for this menu item, listed in order of display priority:

LINK….ERR   Link Error. Flashing indication alternates between **LINK** and **ERR**. The optical input signal is invalid.

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 7707VAR-HD can report the video standard present at the optical input. To indicate the input video standard, select the STAT (Status) menu item in menu level 1 followed by VIN (Video Input) and STD (Video Standard) menu items.

STAT
VIN
STD
LOS
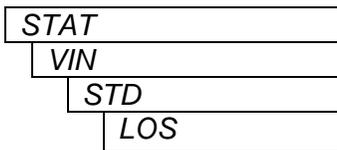
The following list describes possible indications for this menu selection:

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 Received Optical Power

The 7707VAR-HD is equipped with an on-board optical power meter and can report the power to the card edge display in units of dBm. To indicate the input strength of the received signal, select the STAT (Status) menu item in menu level 1 followed by the PWR (Optical Power) menu option.

STAT
VIN
PWR
-40 to 0
LOW
OVR

The following list describes possible indications for this menu selection:

-40 to **0**   Power monitoring range (in dBm units) for the standard optical receiver option.

-40 to **-7**   Power monitoring range (in dBm units) for the high sensitivity (-H) optical receiver option.

LOW   Received optical power is less than –40dBm.

OVR   Received optical power is greater than maximum.

⚠ **Never exceed the maximum specified optical input power for the specific product option that you posses. See section 3.1 for optical input specifications. Exceeding the maximum optical input power can permanently damage the optical receiver.**

4.2.4. Displaying the Status of Input Video Embedded Audio Groups

The 7707VAR-HD 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.

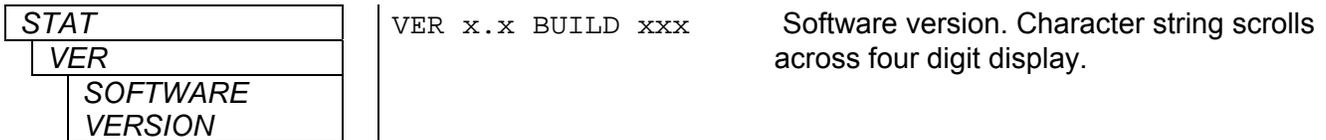| *STAT* |
|---|
| *VIN* |
| *GRP1* |
| *GRP2* |
| *GRP3* |
| *GRP4* |
| *FREE* |
| *USED* |
| *LOS* |
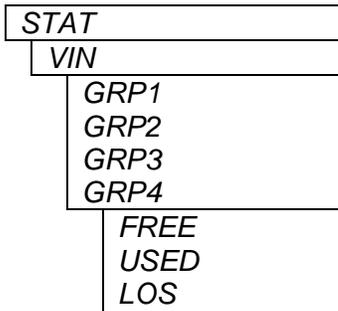
The following list describes possible indications for this menu selection:

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

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

LOS   No video input detected.
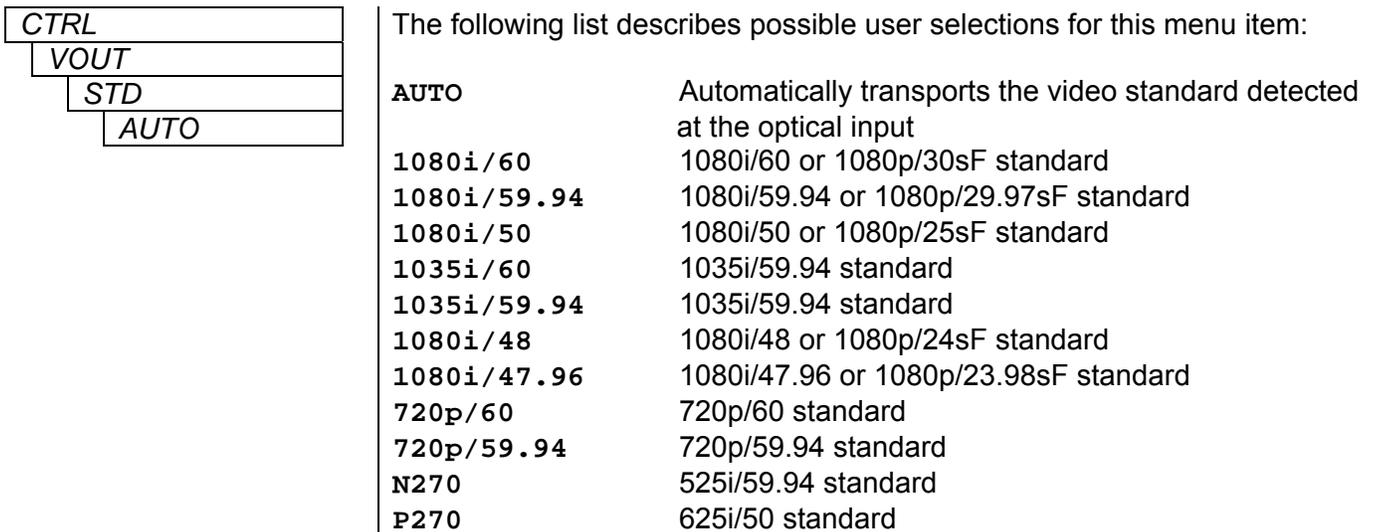
4.2.5. Displaying the Software Version

Software operating on the 7707VAR-HD 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 indicate the software version to the display, select the STAT (Status) menu item in menu level 1, followed by the VER (Software Version) menu item.

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

The user can select the BACK menu item to return to menu level 1.

4.2.6. Selecting the Output Video Standard

User configuration selects the video output standard. If the AUTO mode is selected, then the output video standard will match the input video standard presented to the 7707VAT-HD. Otherwise, the output video standard will be as selected, regardless of the input standard. To configure the output video standard of the 7707VAR-HD, 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

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

AUTO	Automatically transports the video standard detected at the optical 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 7707VAR-HD maintains active output video while optical input video is not suitable for transmission (LINK…ERR or STD…ERR condition. See section 4.2.1). In this case, the active picture will be black.

4.2.7. Selecting Output Video Cleaning

The optical video input signal contains embedded audio information from the 7707VAT-HD, and may also contain other information located in horizontal ancillary data space. The user might wish to maintain this information in an unaltered state, or the user could favour cleaning this information. To enable or disable Output video cleaning, select the CTRL (Control) menu item in menu level 1 followed by the VOUT (Video Input) and CLN (Clean Input Hanc) menu items.

```
CTRL
  VOUT
    CLN
      ON
      OFF
```

ON   Audio groups that are present in input video are cleaned only if they correspond to groups that the 7707VAR-HD is de-embedding from.

OFF   Passes all data in the horizontal ancillary data space.

3.1.1   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. To configure the output video when the signal is lost, the user must select the CTRL (Control) menu item in menu level 1 followed by the VOUT (Video Output) and then select the GEN (Generation Output) menu item.

```
CTRL
  VOUT
    GEN
      OFF
      GREY
      BLACK
```

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

OFF   When set to OFF, no video will be output when the signal is lost.

GREY   When the signal is lost, grey video will be output.

BLACK   When the signal is lost, black video will be output.

4.2.8. Selecting Video Error Detection

The 7707VAR-HD 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) item and then select the EDET (Error Detection) option.

```
CTRL
  VIN
    EDET
      ON
      OFF
```

The following list describes possible selections for this menu item:

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

OFF   Disable video error detection.

4.2.9. Selecting Audio De-embedding Groups

This user menu item provides configuration of the de-embedded audio groups. To select the audio de-embedding groups select the CTRL (Control) menu item in menu level 1, followed by the A1+2 (AES 1 and AES 2) or A3+4 (AES 1 and AES 2) menu items.

```
CTRL
  A1+2
  A3+4
    GRP
      GRP1
      GRP2
      GRP3
      GRP4
      NONE
```
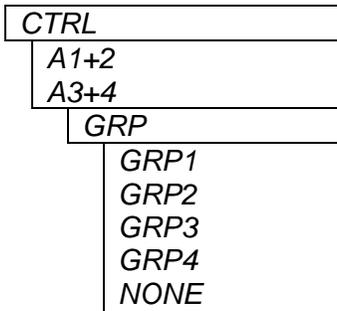
The following list describes possible user selections for this menu item:

GRP1   De-embed group 1 to the selected AES outputs (A1+2 or A3+4).

GRP2   De-embed group 2 to the selected AES outputs (A1+2 or A3+4).

GRP3   De-embed group 3 to the selected AES outputs (A1+2 or A3+4).

GRP4   De-embed group 4 to the selected AES outputs (A1+2 or A3+4).

NONE   This option defines that AES outputs (A1+2 or A3+4) will be mute.

4.2.10. Selecting Balanced or Unbalanced Audio

The 7707VAR-HD provides card-edge configuration of AES outputs as balanced or unbalanced. To configure the output type, select the CTRL (Control) menu item in menu level 1 followed by the A1+2 (AES 1 and AES 2) or A3+4 (AES 1 and AES 2) menu items.

```
CTRL
  A1+2
  A3+4
    TERM
      BAL
      UBAL
```
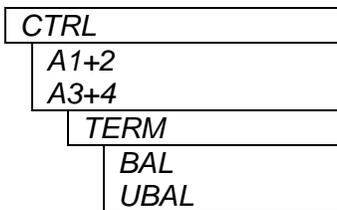
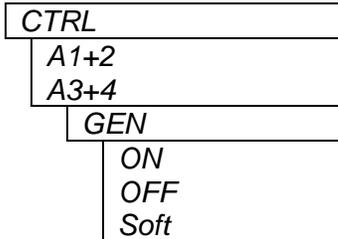The following list describes possible user selections for this menu item:

BAL   Configures output impedance, rise/fall times, and amplitude for balanced AES.

UBAL   Configures output impedance, rise/fall times, and amplitude for unbalanced AES.

NOTE: Settings should always be configured for unbalanced audio on 7707VAR-UHD.

4.2.11. Setting the Audio Generation on Loss of Signal

The user can set the action to take when the input audio is loss. To configure the generation, select the `CTRL` (Control) menu item in menu level 1, followed by `A1+2` (AES 1 and AES 2) or `A3+4` (AES 1 and AES 2) menu items, and then select the `GEN` menu option.

```
CTRL
   A1+2
   A3+4
      GEN
         ON
         OFF
         Soft
```

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

ON	Enables generation of silent AES upon loss of de-embedded audio.
OFF	Mutes the AES output upon loss of de-embedded audio.
Soft	Enables an audio "anti-pop" function to mask audible pops caused by errors resulting from audio or video loss, interruption or errors. The audio is buffered (~2.6ms) and faded prior to detected video or audio loss, interruption or errors.

**4.2.12. Selecting the Headphone Monitoring Jack Channel**

The 7707VAR-HD 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) menu item and then select the `CHAN` (Audio Channel) menu option.

```
CTRL
   JACK
      CHAN
         AUD1
         AUD2
         AUD3
         AUD4
```
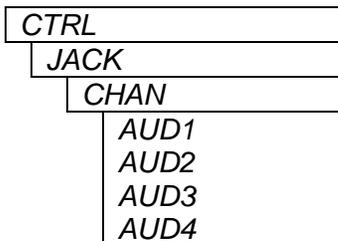
The following list describes possible user selections for this menu item:

AUD1	Audio output channel 1 is selected to the headphone monitoring jack.
AUD2	Audio output channel 2 is selected to the headphone monitoring jack.
AUD3	Audio output channel 3 is selected to the headphone monitoring jack.
AUD4	Audio output 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) item and then select the `VOL` (Volume) menu option.

```
CTRL
   JACK
      VOL
         0 TO 64
```
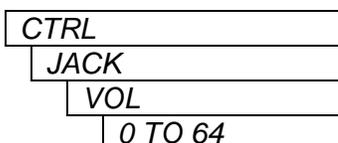
0 to 64	Sets the volume of the headphone jack.

4.2.13. Setting the Orientation of the Display

The 7707VAR-HD 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 option.

CTRL
DISP
HORZ
VERT

HORZ   Sets the orientation of the text to horizontal.

VERT   Sets the orientation of the text to vertical.

4.2.14. Selecting the Factory Reset Configuration

It is convenient to have a quick method of returning all configuration settings to a known value. The 7707VAR-HD 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
FRST
NO
YES

NO   Return to previous menu item, without modification of configuration settings.

YES   Initialize factory reset.

The user can select the BACK menu item to return to menu level 1.

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* chapter in the front of this binder 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* chapter in the front of this binder. 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. *VISTA*LINK® REMOTE MONITORING/CONTROL

6.1. WHAT IS *VISTA*LINK®?

*Vista*LINK® 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. *Vista*LINK® 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 *Vista*LINK® 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, *Vista*LINK® 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 VL-Fiber demo Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz *Vista*LINK® enabled products.

2. Managed devices, (such as 7707VAR-HD and 7707VAT-HD cards), each with a unique address (OID), communicate with the NMS through an SNMP Agent. Evertz *Vista*LINK® enabled 7700 series modules reside in the 3RU 7700FR-C MultiFrame and communicate with the manager via the 7700FC *Vista*LINK® 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 *Vista*LINK® network, see the 7700FC Frame Controller chapter.

6.2. *VISTA*LINK® MONITORED PARAMETERS

The following parameters can be remotely monitored via the *Vista*LINK® interface.

Parameter	Description
Video Input Standard	Identifies the detected video standard at the input
Optical Power	Identifies the received optical power
Embedded Audio Group 1, 2, 3, 4 Status	Displays the status of Input video embedded audio groups

Table 6-1: *Vista*LINK® Monitored Parameters

6.3.   *VISTA*LINK® CONTROLLED PARAMETERS

The following parameters can be remotely controlled via the *Vista*LINK® interface:

Parameter	Description
Video Output Standard	Sets output video standard
Cleaning Output Video HANC	Enable/ Disable output video HANC cleaning
AES 1 / 2 De-embed Group	Sets source for AES 1 and 2
AES 3 / 4 De-embed Group	Sets source for AES 3 and 4
AES 1 / 2 Output Type	Sets AES 1 / 2 output to balanced or unbalanced
AES 3 / 4 Output Type	Sets AES 1 / 2 output to balanced or unbalanced
Optical Power Alarm Threshold	Set the optical power level that triggers an alarm if the fiber signal degrades

Table 6-2: *Vista*LINK® Controlled Parameters

6.4.   *VISTA*LINK® TRAPS

The following parameters can be remotely enabled and monitored through the *Vista*LINK® interface as traps in the Alarm View:

Parameter	Description
AES Audio 1, 2, 3, 4 Loss	Triggers on loss of AES audio signal.
Video Loss	Triggers on loss of input video signal.
Video Error	Triggers on error in input video signal.
Optical Link Loss	Triggers on loss of optical link to 7707VAT-HD.
Optical Power Below Threshold	Triggers on optical power below set threshold.

Table 6-3: *Vista*LINK® Traps