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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	Feb 2006
1.1	Made updates to parameters in section 1. Fixed typos.	Sept 2007
1.2	Updated specs and card edge control menu structure	Oct 2008
1.3	Added delay specification to section 3.	Oct 2009
1.4	Updated Output Power specifications.	Aug 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 7707VT-4-HS DWDM cards and any 7707VR-4-HS series cards directly with a short fiber optic cable. The 7707VT-4-HS DWDM card produces +7dBm of power, which will damage the receiver if connected directly.

Do not hook up the 7707VT-4-HS cards that output more than -7dBm of power (see 7707VT-4-HS specifications for output power of various laser types) and 7707VR-4-HS-H high sensitivity receiver cards directly with a short fiber optic cable. The 7707VT-4-HS cards that produce more than -7dBm of power will damage the receiver if connected directly.

1. OVERVIEW

The 7707VT-4-HS is a *Vista*LINK® enabled fiber transmitter for two HD-SDI signals; or one HD-SDI signal and three SDI/SDTi signals; or four SDI/SDTi signals. This single card combines the input signals using Time Domain Multiplexing (TDM) technology and transmits them over a single fiber. The companion 7707VR-4-HS Quad SDI/Dual HD-SDI Receiver demultiplexes the signals and converts them back to separate SDI/SDTi and/or HD-SDI video feeds

The 7707VT-4-HS and companion 7707VR-4-HS will transparently pass incoming HD-SDI or SDI video feeds with embedded AES audio or any other data in the horizontal or vertical ancillary data space. Monitoring and control of card status and parameters is provided locally at the card edge or remotely via *Vista*LINK®.

The 7707VT-4-HS is available in different versions to meet a variety of applications.

7707VT13-4-HS	1310 nm FP	Suitable for distances up to 50 Km
7707VT15-4-HS	1550 nm DFB	Suitable for distances up to 75 Km

There are several versions with built in isolators specifically suited to coarse wave division multiplexing (CWDM) applications. The CWDM versions are suitable for distances up to 75 Km.

7707VT27-4-HS	1270 nm DFB
7707VT29-4-HS	1290 nm DFB
7707VT31-4-HS	1310 nm DFB
7707VT33-4-HS	1330 nm DFB
7707VT35-4-HS	1350 nm DFB
7707VT37-4-HS	1370 nm DFB
7707VT43-4-HS	1430 nm DFB
7707VT45-4-HS	1450 nm DFB
7707VT47-4-HS	1470 nm DFB
7707VT49-4-HS	1490 nm DFB
7707VT51-4-HS	1510 nm DFB
7707VT53-4-HS	1530 nm DFB
7707VT55-4-HS	1550 nm DFB
7707VT57-4-HS	1570 nm DFB
7707VT59-4-HS	1590 nm DFB
7707VT61-4-HS	1610 nm DFB

There are several versions with built in isolators specifically suited to Dense Wave Division Multiplexing (DWDM) applications. The DWDM versions are suitable for distances more than 75 Km. For DWDM applications, please contact the factory.

7707VTDyyy-4-HS   DWDM DFB laser output, yyy – ITU channel number

Features:

- Single card multiplexor allowing the flexibility of various combinations of HD-SDI and SDI/SDTi signals:
  - o Two HD-SDI signals or;
  - o One HD-SDI signal and three SDI/SDTi signals or;
  - o Four SDI/SDTi signals
- Two auto-sensing inputs for HD-SDI or SDI/SDTi signals
- Two inputs for SDI/SDTi signals
- One SDI/SDTi or HD-SDI loopback output, user selectable from the four video inputs
- Signal transport is uninterrupted by the loss of any HD-SDI or SDI/SDTi input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Comprehensive signal and card status monitoring via four-digit card-edge display
- *Vista*LINK® –enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC *Vista*LINK® Frame Controller
- Automatic coaxial equalization up to 100m at 1.485Gb/s and 250m at 270Mb/s (Belden 1694A or equivalent cable)
- Fully hot swappable from front of frame with no fiber/coax disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm and up to 16 CWDM wavelengths
- DWDM wavelengths also available
- SC/PC, ST/PC, FC/PC fiber connectors available
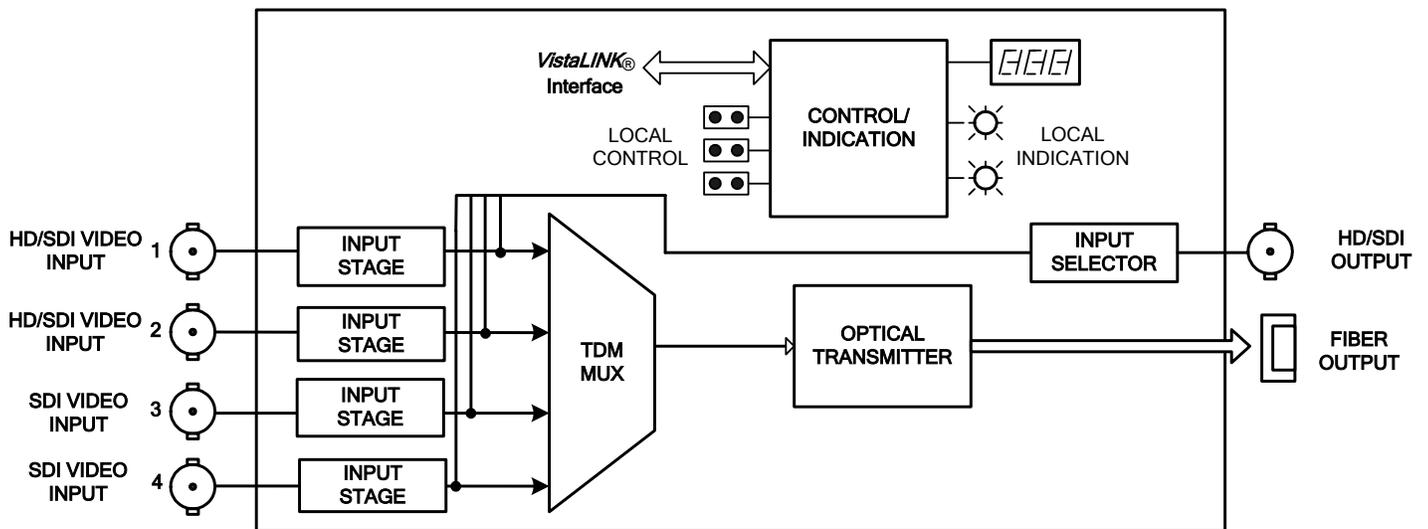
Figure 1-1: 7707VT-4-HS Block Diagram

2.   INSTALLATION

The 7707VT-4-HS comes with a companion rear plate that has five BNC connectors and one 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.
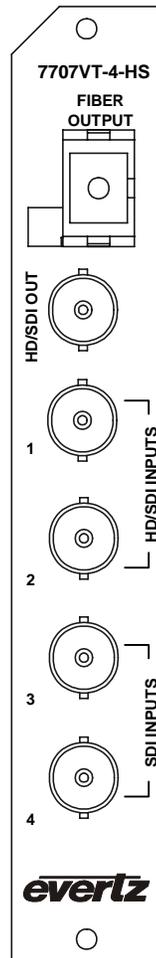
Figure 2-1: 7707VT-4-HS Rear Panel

HD/SDI INPUTS: Two independent BNC input connectors for HD-SDI or SDI/SDTi video signals compatible with HD-SDI (SMPTE 292M), SD-SDI (SMPTE 259M-C) or SDTi (SMPTE 305.2M) standards (auto sensing). These inputs provide adaptive compensation for up to 100m of industry standard Belden 1694A cable at 1.485Gb/s or 250m of 1694A cable at 270Mb/s.

SDI INPUTS: Two independent BNC input connectors for SDI/SDTi video signals compatible with SD-SDI (SMPTE 259M-C) or SDTi (SMPTE 305.2M) standards. These inputs provide adaptive compensation for up to 250m of industry standard Belden 1694A cable at 270Mb/s.

The following signal combinations may be installed on the input connectors:

Connector	Input Combination #1	Input Combination #2	Input Combination #3	Input Combination #4
1	HD-SDI	HD-SDI	SDI/SDTi	SDI/SDTi
2	HD-SDI	SDI/SDTi	HD-SDI	SDI/SDTi
3	N/A	SDI/SDTi	SDI/SDTi	SDI/SDTi
4	N/A	SDI/SDTi	SDI/SDTi	SDI/SDTi

Table 2-1: Input Signal Combinations

HD/SDI OUTPUT: There is one BNC output which acts as a loopback for the input signals. The signal present at the output is user selectable among the four input signals via local or *Vista*LINK® controls. Reclocking is provided at this output.

OPTICAL OUTPUT: Output SC/PC (Shown), ST/PC or FC/PC female connector. The optical output signal at this connector contains the TDM multiplexed input HD-SDI and/or SDI/SDTi video signals. Any ancillary data (e.g. embedded audio, closed captioning, etc) present in the input video streams prior to multiplexing are transparently passed through to this output.

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 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 a splitter/combiner) the output is compatible only with single-mode fiber optic cable.

> **Do not hook up 7707VT-4-HS DWDM cards and any 7707VR-4-HS series cards directly with a short fiber optic cable. The 7707VT-4-HS DWDM card produces +7dBm of power, which will damage the receiver if connected directly.**

> **Do not hook up the 7707VT-4-HS cards that output more than -7dBm of power (see 7707VT-4-HS specifications for output power of various laser types) and 7707VR-4-HS-H high sensitivity receiver cards directly with a short fiber optic cable. The 7707VT-4-HS cards that produce more than -7dBm of power will damage the receiver if connected directly.**

2.1. CARE AND HANDLING OF OPTICAL FIBER

2.1.1. Safety

⚠	CLASS 1 LASER PRODUCT

2.1.2. Assembly

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

2.1.3. 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 the bar code label placed on the printed circuit board of each Evertz plug-in module
- The Model number is one of: 7707VT13-4-HS, 7707VT15-4-HS
  7707VTxx-4-HS, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61)
  7707VTDyyy-4-HS (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)
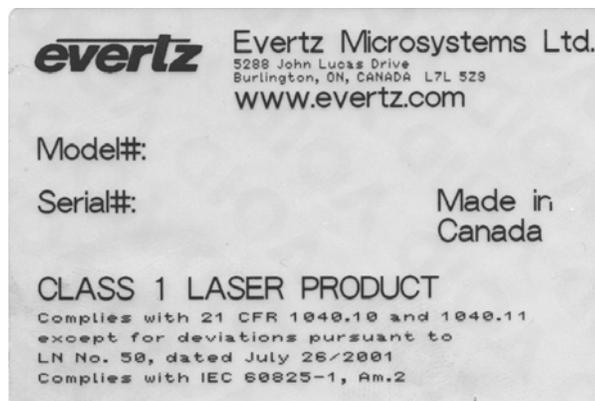
Figure 2-2: Reproduction of Laser Certification and Identification Label

2.1.4. 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. This prevents 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

Number of Inputs: 2 HD/SDI/DVB-ASI and 2 SDI/DVB-ASI video signals
Standards:
  HD/SDI Inputs: SMPTE 292M, SMPTE 259M-C, DVB-ASI
  SDI Inputs: SMPTE 259-C, DVB-ASI
Connector: 4 BNC per IEC 61169-8 Annex A
Equalization: Automatic to 100m at 1.485Gb/s and 250m at 270Mbp/s with Belden 1694A or equivalent cable
Return Loss: > 15 dB up to 1.5Gb/s

3.2. SERIAL VIDEO OUTPUT

Number of Outputs: 1, loopback signal user selectable from above 4 inputs
Connector: BNC per IEC 61169-8 Annex A
Standards: SMPTE 292M, SMPTE 259-C, SMPTE 305.2M
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: <270ps at 1.485Gb/s and 900ps nominal at 270Mb/s
Overshoot: <10% of amplitude
Return Loss: >12dB to 1.5Gb/s
Wideband Jitter: < 0.2UI

3.3. OPTICAL OUTPUT

Number of Outputs: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Rise and Fall Time: 200 ps nominal
Wide Band Jitter: < 0.20UI
Fiber Size: 9 μm core / 125 μm overall
Wavelengths:
  Standard: 1310nm, 1550nm (nominal)
  CWDM: 1270nm to 1610nm (ITU-T G.694.2 compliant)
  DWDM: ITU channel 20 to 60, 100GHz spacing, (ITU-T G.694.1 compliant)
Output Power:
  1310nm FP (Standard): -6dBm ± 1dBm
  1550nm & CWDM DFB: +1dBm ± 0.5dBm
  DWDM DFB: +7dBm ± 1dB

3.4. SYSTEM PERFORMANCE

Delay of Transmitter/Receiver Pair: <1.6ms

> **Delay is through a 1 meter length fiber cable between the transmitter/receiver modules.**

3.5.   ELECTRICAL

Voltage: +12 VDC
Power: 10 Watts (Non DWDM)
                    13 Watts (DWDM)

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
Laser Safety: Complies with 24 CFR 1040.10 and 1040.11 except for deviations
                        pursuant to LN No. 50, dated July 26, 2001
                        Complies with IEC 60825-1, Am. 2
EMI/RFI: Complies with FCC regulations for class A devices
                        Complies with EU EMC directive 89/336/EEC

3.7.   PHYSICAL

7700 or 7701 Frame Mounting
Number of Slots: 1

4.   STATUS INDICATORS AND DISPLAYS

The 7707VT-4-HS has 7 LED Status indicators and a 4 digit alphanumeric display on the front card edge to show operational status of the card at a glance. The card edge pushbutton is used to select various displays on the alphanumeric display. Figure 4-1 shows the locations of the indicators and pushbutton.
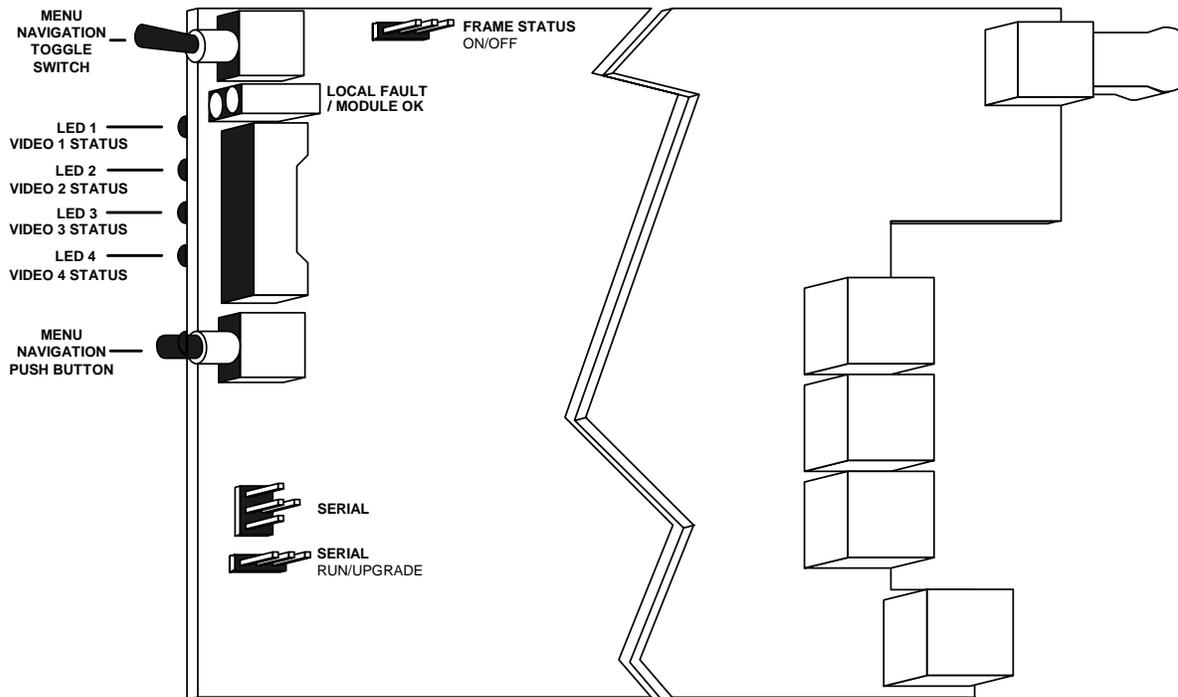
Figure 4-1: Location of Status Indicators, Jumpers and Controls

4.1.   STATUS INDICATOR LEDS

LOCAL FAULT: This Red LED indicates poor module health, will be ON if a laser fault exists, if a local internal power fault exists (i.e.: a blown fuse), or the laser is set to Discontinuous mode with no valid inputs present. Whether or not this LOCAL FAULT indication is reported to the frame may be determined by the FRAME STATUS jumper (see section 5.1).

MODULE OK: This Green LED indicates good module health. It will be ON when a valid input signal is present and the laser and internal power are good.

On the edge of the 7707VT-4-HS there are four small multi-coloured LEDs that indicate the status of the video signals:

VIDEO 1 STATUS: **Green** indicates the presence of a valid signal on channel 1.
Yellow indicates that the signal connected to channel 1 conflicts with the currently selected input mode (see section 4.2.4).
Red indicates the detection of bit errors on channel 1 (when bit error detection is enabled – see section 4.2.7).
LED Off indicates signal loss on channel 1.

VIDEO 2 STATUS: **Green** indicates the presence of a valid signal on channel 2.
Yellow indicates that the signal connected to channel 2 conflicts with the currently selected input mode (see section 4.2.4).
Red indicates the detection of bit errors on channel 2 (when bit error detection is enabled – see section 4.2.7).
LED Off indicates signal loss on channel 2.

VIDEO 3 STATUS: **Green** indicates the presence of a valid signal on channel 3.
Yellow indicates that the signal connected to channel 3 conflicts with the currently selected input mode (see section 4.2.4).
Red indicates the detection of bit errors on channel 3 (when bit error detection is enabled – see section 4.2.7).
LED Off indicates signal loss on channel 3.

VIDEO 4 STATUS: **Green** indicates the presence of a valid signal on channel 4.
Yellow indicates that the signal connected to channel 4 conflicts with the currently selected input mode (see section 4.2.4).
Red indicates the detection of bit errors on channel 4 (when bit error detection is enabled – see section 4.2.7).
LED Off indicates signal loss on channel 4.

4.2.   DOT-MATRIX DISPLAY / CARD STATUS AND CONTROLS

Additional status monitoring and controls are provided via the 4-digit dot-matrix display located at the card-edge. The card-edge toggle-switch (see Figure 4-1) is used to navigate through the display menus and the pushbutton is used to select options. Figure 4-2 provides a quick reference to the display menu structure.

Pushbutton ⇨

Top Level	Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4
Indications⟩	Selections⟩	Selections⟩	Selections⟩	Indications⟩
LASR...ERR (Laser Error)		**VID1** (Video Input 1)	**STD** (Video Standard)	**Standards Per Table**
				LOS (Loss of Signal)
OK (Laser OK)			**EQ** (Cable Length)	Indications⟩ **0%** to **100%**
		VID2 (Video Input 2)	Selections⟩ **STD** (Video Standard)	Indications⟩ **Standards Per Table**
				LOS (Loss of Signal)
			EQ (Cable Length)	Indications⟩ **0%** to **100%**
		VID3 (Video Input 3)	Selections⟩ **STD** (Video Standard)	Indications⟩ **Standards Per Table**
				LOS (Loss of Signal)
	STAT (Status)		**EQ** (Cable Length)	Indications⟩ **0%** to **100%**
		VID4 (Video Input 4)	Selections⟩ **STD** (Video Standard)	Indications⟩ **Standards Per Table**
				LOS (Loss of Signal)
			EQ (Cable Length)	Indications⟩ **0%** to **100%**
		MODE (Input Mode)	Indications⟩ **HHXX** (HHXX Mode)	
			HSSS (HSSS Mode)	
			SHSS (SHSS Mode)	
		VER (Software Version)	Indications⟩ **Software Version**	
		BACK (Abort)		
		Selections⟩	Selections⟩	
		MODE (Input Mode)	**AUTO** (Auto Mode)	
			HHXX (HHXX Mode)	
			HSSS (HSSS Mode)	
			SHSS (SHSS Mode)	
		EDET (Error Detection)	Selections⟩ **ON** (Indicate VIdeo Errors)	
			OFF (Disable Error Indication)	
		VOUT (Loopback Output)	Selections⟩ **VID1** (Output Video 1)	
			VID2 (Output Video 2)	
			VID3 (Output Video 3)	
			VID4 (Output Video 4)	
	CTRL (Control)	**LASR** (Laser Enable Mode)	Selections⟩ **CONT** (Continuous)	
			DISC (Discontinuous)	
		DISP (Display Orientation)	Selections⟩ **HORZ** (Horizontal)	
			VERT (Vertical)	
		FRST (Factory Reset)	Selections⟩ **NO** (Abort)	
			YES (Accept)	
		BACK (Abort)		

⇧

Toggle Switch

⇩

Figure 4-2: Card Edge Menu Structure

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

The top level, default display indicates overall card status and warnings:

> **OK**   Card is functioning properly
> **LASR…ERR**   Laser Error Warning – Flashing indication alternates between **LASR** and **ERR**.

Pressing the pushbutton from this default display will allow the user to select from **STAT** (status) and **CTRL** (control) menu items.

4.2.2. Displaying the Video Standard

The 7707VT-4-HS detects the video standard of the signals present at its inputs. To display the video standard, select the **STAT** menu item in menu level 1, then use the toggle switch to display the desired video channel (from **VID1** to **VID4**) and press the pushbutton to select it. Use the toggle switch to display the **STD** option and use the pushbutton to select it. For the sake of brevity, only the description for Video Input 1 (VID1) will be provided. The video standard will be displayed from the list below:

1080i/60	1080i/48	P270
1080i/59.94	1080i/47.96	SDTI-N270
1080i/50	720p/60	SDTI-P270
1035i/60	720p/59.94	
1035i/59.94	N270	**LOS** (Loss of Signal)

STAT
VID1
STD
Standard
LOS
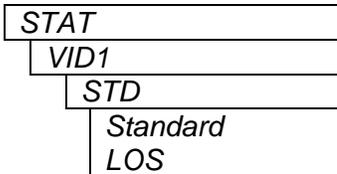
Standard: One of the above mentioned video standards will be listed.

LOS   Loss of Signal – A valid output is not present.

4.2.3. Displaying the Equalization Strength

The 7707VT-4-HS performs automatic cable equalization to compensate for up to 100m of Belden 1694 (or equivalent) cable at 1.485Gb/s or 250m at 270Mb/s. To display the applied equalization, select the **STAT** menu item in menu level 1, then use the toggle switch to display the desired video channel (from **VID1** to **VID4**) and press the pushbutton to select it. Use the toggle switch to display the **EQ** option and use the pushbutton to select it. For the sake of brevity, only the description for Video Input 1 (VID1) will be provided.

STAT
VID1
EQ
0% to 100%
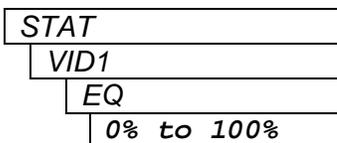
Applied equalization is indicated as follows:

0% to 100%   Indicates applied equalization in percentage of maximum available equalization strength. A very weak or disconnected input signal will indicate 100% equalization.

4.2.4. Displaying the Input Mode

The input mode of the 7707VT-4-HS is configured either automatically or manually by the user depending on the signals connected to the inputs of the card (see section 4.2.6 for details). To display the input mode, select the **STAT** menu item in menu level 1 then use the toggle switch to display the **MODE** option and press the pushbutton to select it.

STAT
MODE
HHXX
HSSS
SHSS

See Table 4-1 for more information on input modes and signal connections.

HHXX   *HHXX Mode*
HSSS   *HSSS Mode*
SHSS   *SHSS Mode*

The possible modes and connected signals are as follows:

Connector	HHXX	HSSS	SHSS
1	HD-SDI or SDI/SDTi	HD-SDI or SDI/SDTi	SDI/SDTi
2	HD-SDI or SDI/SDTi	SDI/SDTi	HD-SDI or SDI/SDTi
3	N/A	SDI/SDTi	SDI/SDTi
4	N/A	SDI/SDTi	SDI/SDTi

Table 4-1: Input Modes and Signal Connections

4.2.5. Displaying the Firmware Version

The **VER** option displays the card's current firmware version. To display the firmware version, select the **STAT** menu item in menu level 1 then use the toggle switch to display the **VER** option and press the pushbutton to select it.

STAT
VER
VER xx BLD xxx

The firmware version will scroll across the display.

For example: **VER 1.0 BLD 067**

4.2.6. Setting the Input Mode

Several input modes are available depending on the input signal combination the user wishes to connect to the 7707VT-4-HS. The input mode may be manually set for a specific input signal combination, or the card may be configured to automatically select the optimum mode depending on the connected input signals. To set the input mode, select the **CTRL** menu item in menu level 1, then use the toggle switch to display the **MODE** option and press the pushbutton to select it. Use the toggle switch to go through the available settings and press the pushbutton to select the desired option.

CTRL
MODE
AUTO
HHXX
HSSS
SHSS

See Table 4-2 for more information on input modes and signal connections.

AUTO   Auto selects the optimum input mode based on connected signals
HHXX   *HHXX Mode*
HSSS   *HSSS Mode*
SHSS   *SHSS Mode*

The available manual settings and signal combinations are as follows:

Connector	HHXX	HSSS	SHSS
1	HD-SDI or SDI/SDTi	HD-SDI or SDI/SDTi	SDI/SDTi
2	HD-SDI or SDI/SDTi	SDI/SDTi	HD-SDI or SDI/SDTi
3	N/A	SDI/SDTi	SDI/SDTi
4	N/A	SDI/SDTi	SDI/SDTi

Table 4-2: Input Modes and Signal Connections

If a new signal is connected that conflicts with the present mode setting, it will not be transmitted by the 7707VT-4-HS. The corresponding Signal Status LED will be yellow, indicating a signal conflict on that channel. The 7707VT-4-HS will NOT drop or otherwise interrupt any of the existing signals in the event that a new conflicting signal is connected.

The **AUTO** input mode will automatically select the optimum input mode (**HHXX**, **HSSS** or **SHSS**) depending on the signals that are connected to the 7707VT-4-HS. If a signal is connected that the 7707VT-4-HS cannot accommodate in any of the above modes, the Signal Status indicator corresponding to that channel will be yellow. The 7707VT-4-HS will NOT drop or otherwise interrupt any of the existing signals in the event that a new conflicting signal is connected.

Whether the input mode is selected automatically or manually by the user, it may be displayed by the **MODE** selection under the **STAT** menu (see section 4.2.4).

4.2.7. Setting Video Error Detection

The 7707VT-4-HS can detect bit errors in the incoming video signals. The **EDET** menu item turns this error detection on or off. When turned on, the Signal Status Indicator corresponding to a signal containing bit errors will turn red and a trap value will be set (see section 6.4). To set the error detection mode, select the **CTRL** menu item in menu level 1, then use the toggle switch to display the **EDET** option and press the pushbutton to select it. Use the toggle switch to select between **ON** and **OFF**.

CTRL
EDET
ON
OFF

The **EDET** settings are as follows:

ON   Video error detection is turned on
OFF   Video error detection is turned off

4.2.8. Controlling Loopback Connector Output

The **VOUT** menu item allows the user to control which input video signal will be passed through to the "HD/SDI OUT" connector on the 7707VT-4-HS. To select the output signal, select the **CTRL** menu item in menu level 1, then use the toggle switch to display the **VOUT** option and press the pushbutton to select it.

```
CTRL
   VOUT
      ON
      OFF
```
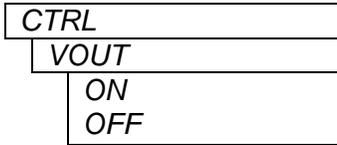
The possible selections are as follows:

VID1   Video input channel 1 signal will be available at the output
VID2   Video input channel 2 signal will be available at the output
VID3   Video input channel 3 signal will be available at the output
VID4   Video input channel 4 signal will be available at the output

4.2.9. Controlling the Behavior of the Laser

On the 7707VT-4-HS the **LASR** option allows the user to set the behavior of the laser transmitter when there is no video signal applied to the video inputs. To set the laser behavior, select the **CTRL** menu item in menu level 1, then use the toggle switch to display the **LASR** menu selection and press the pushbutton to select it. Use the toggle switch to choose between **CONT** and **DISC** and press the pushbutton to select the mode of operation.

```
CTRL
   LASR
      CONT
      DISC
```
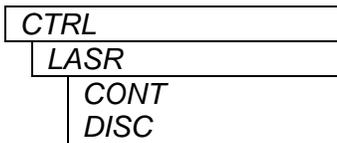
The possible selections are as follows:

CONT   Laser will transmit continuously regardless of whether there are valid input video signals present on the inputs of the 7707VT-4-HS.

DISC   The laser will turn off when there is no recognizable video on the 7707VT-4-HS inputs.

> **Note: With the 7707VT-4-HS set to discontinuous mode, due to the laser turning off, the companion 7707VR-4-HS will indicate an optical signal loss when no input video signal is present at the 7707VT-4-HS.**

4.2.10. Setting the Orientation of the Text on the Card Edge Display

The **DISP** display option allows the user to set a horizontal or vertical orientation for the card edge display messages. To set the display orientation, select the **CTRL** menu item in menu level 1, then use the toggle switch to display the **DISP** menu selection and use the pushbutton to select it. Use the toggle switch to change between **HOR** and **VERT**. Press the pushbutton to make your selection.

```
CTRL
   DISP
      HOR
      VERT
```
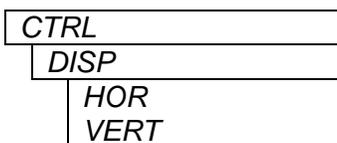
The possible selections are as follows:

HOR   Horizontal display used when the module is housed in the 1 rack unit 7701FR frame or the stand-alone enclosure.

VERT   Vertical display used when the module is housed in the 3-rack unit 7700FR frame.

4.2.11. Resetting Factory Defaults

The **FRST** menu option will return the 7707VT-4-HS to factory defaults. To return all settings to factory defaults, select the **CTRL** menu item in menu level 1, then use the toggle switch to display the **FRST** menu selection and use the pushbutton to select it. Use the toggle switch to change between **YES** and **NO**. Press the pushbutton to make your selection.

CTRL
FRST
YES
NO

The possible selections are as follows:

YES   Return all card settings to factory default.
NO   Retain current settings.

5.   JUMPERS AND LOCAL CONTROLS

Several jumpers, located at the front of the module are used to preset various operating modes. Figure 4-1 shows the location of the jumpers.

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

The FRAME STATUS jumper 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 the 7707VT-4-HS with the frame status indicators on the Power Supply FRAME STATUS LEDs 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 by the power supply LEDs or the frame's Fault Tally output but will only be indicated by the local fault indicator on the card itself.

5.2.   CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

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

To upgrade the 7707VT-4-HS's firmware, begin by pulling it out of the frame. Move the UPGRADE jumper into the UPGRADE 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 (see Figure 4-1). 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. *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 fiber optic products.

2. Managed devices (such as 7707VT-4-HS and 7707VR-4-HS 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 through the *Vista*LINK® interface.

Parameter	Description
Video 1, 2, 3, 4 Standard	A range of values describing the detected video standard (see section 4.2.2)
Video Input Mode	Indicates current video input mode (HHXX, HSSS or SHSS)

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

6.3. *VISTA*LINK® CONTROLLED PARAMETERS

The following parameters can be remotely controlled through the *Vista*LINK® interface.

Parameter	Description
Video Input Mode	AUTO, HHXX, HSSS or SHSS input mode (see section 4.2.4)
Video Error Detection	Enable or disable bit error detection on the input video signals (see section 4.2.7)
Loopback output	Control which input signal is looped back to the video output (see section 4.2.8)
Laser Control	Allows users to control the laser behavior when no video is present on the inputs (see section 4.2.9)

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

6.4. *VISTA*LINK® TRAPS

The following traps can be remotely reported through the *Vista*LINK® interface.

Trap	Description
Video 1, 2, 3, 4 Presence	Indicates the absence of a valid video input signal (indicated by an unlit Video Status LED)
Video 1, 2, 3, 4 Error	Indicates the detection of bit errors in the incoming video signals

Table 6-3: *Vista*LINK® Traps

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