TABLE OF CONTENTS

Figures

Tables

REVISION HISTORY

REVISION	DESCRIPTION	DATE
0.1	Preliminary Version	May 05
1.0	First release -updated drawings, and menu items	Jun 05
1.1	Updated safety section and added assembly and labeling sections	July 05
1.2	Updated specifications, VistaLINK® tables	Aug 05
1.2.1	Formatting, typos fixed	Jan 06
1.3	Added specifications for OC-48 option	Feb 06
1.3.1	Updated Menus. Fixed typos, referencing and formatting.	Apr 07
1.4	Updated rear plate drawing	Apr 08
1.4.1	Updated LED order in Figure 4-1	Aug 08

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-8-OC48 DWDM and 7707VR-8-OC48 cards directly with a short fiber optic cable. The 7707VT-8-OC48 DWDM card produces +7dBm of power, which will damage the receiver if connected directly.

Do not hook up 7707VT-8-OC48 cards that output more than -7dBm of power (see 7707VT-8-OC48 specifications for output power of various laser types). Do not hook up the 7707VR-8-H high sensitivity receiver cards directly with a short fiber optic cable. The 7707VT-8-OC48 cards that produce more than -7dBm of power will damage the receiver if connected directly.

1. OVERVIEW

The 7707VT-8-OC48 is a *Vista*LINK® enabled, fiber transmitter for SDI, DVB-ASI or SDTi video signal that transports signals at OC-48/STM-16 data rates (2.488 Gb/s) and interfaces directly to SONET/SDH infrastructure. The card also has a built-in Ethernet transceiver with a 10/100 Base-T port. This single card combines up to eight asynchronous SDI, DVB-ASI or SDTi signals using Time Domain Multiplex (TDM) technology and transmits them over a single fiber. The companion 7707VR-8-OC48 Octal SDI Receiver demultiplexes the signals and converts them back to separate SDI video feeds.

The 7707VT-8-OC48 and companion 7707VR-8-OC48 will transparently pass incoming 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 fiber output is available in an assortment of optical wavelengths, accommodating standard, CWDM or DWDM transmission schemes.

7707VT13-8-OC48	1310 nm FP	-7dBm output, suitable for distances up to 50 Km
7707VT15-8-OC48	1550 nm DFB	0dBm output, suitable for distances up to 75 Km

There are several versions with built in isolators specifically suited to coarse wave division multiplexing (CWDM) applications. These versions all have 0dBm output and are suitable for distances up to 75 Km.

7707VT27-8-OC48	1270 nm DFB
7707VT29-8-OC48	1290 nm DFB
7707VT31-8-OC48	1310 nm DFB
7707VT33-8-OC48	1330 nm DFB
7707VT35-8-OC48	1350 nm DFB
7707VT37-8-OC48	1370 nm DFB
7707VT43-8-OC48	1430 nm DFB
7707VT45-8-OC48	1450 nm DFB
7707VT47-8-OC48	1470 nm DFB
7707VT49-8-OC48	1490 nm DFB
7707VT51-8-OC48	1510 nm DFB
7707VT53-8-OC48	1530 nm DFB
7707VT55-8-OC48	1550 nm DFB
7707VT57-8-OC48	1570 nm DFB
7707VT59-8-OC48	1590 nm DFB
7707VT61-8-OC48	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 >120 km @ 270 Mb/s (for DWDM applications contact the factory).

7707VTDyyy-8-OC48	DWDM DFB laser output, yyy – ITU channel number

The 7707VT-8-OC48 occupies two card slots in the 3 RU frame, which will hold up to 7 modules or one card slot in the 1RU frame, which will hold up to three modules. One 7707VT-8-OC48 module can also be installed in the S7701 stand-alone enclosure.

Features:

- Transports signal over OC-48/STM-16 data rates (2.488Gb/s)
- Single card TDM multiplexer for eight asynchronous SD-SDI, SDTi and DVB-ASI signals
- Built-in Ethernet transceiver with one 10/100 Base-T port
- Interfaces directly to SONET/SDH infrastructure
- Uncompressed, full-rate video transport
- Signal transport uninterrupted by loss of any SDI, DVB-ASI or SDTi input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Stratum 3 wander/holdover/jitter compliance
- Wide input frequency range tolerance (±50ppm)
- Comprehensive signal and card status monitoring via four character card-edge display
- *Vista*LINK® – enabled offering remote monitoring, control and configuration capabilities via SNMP. *Vista*LINK® is available when modules are used with the 3RU 7700FR-C frame, a 7700FC *Vista*LINK® Frame Controller module in slot 1 of the frame using the 9000NCP Network Control Panel or Evertz *Vista*LINK® PRO or other third party SNMP manager software.
- Automatic coaxial equalization up to 250m at 270Mb/s (Belden 8281)
- 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

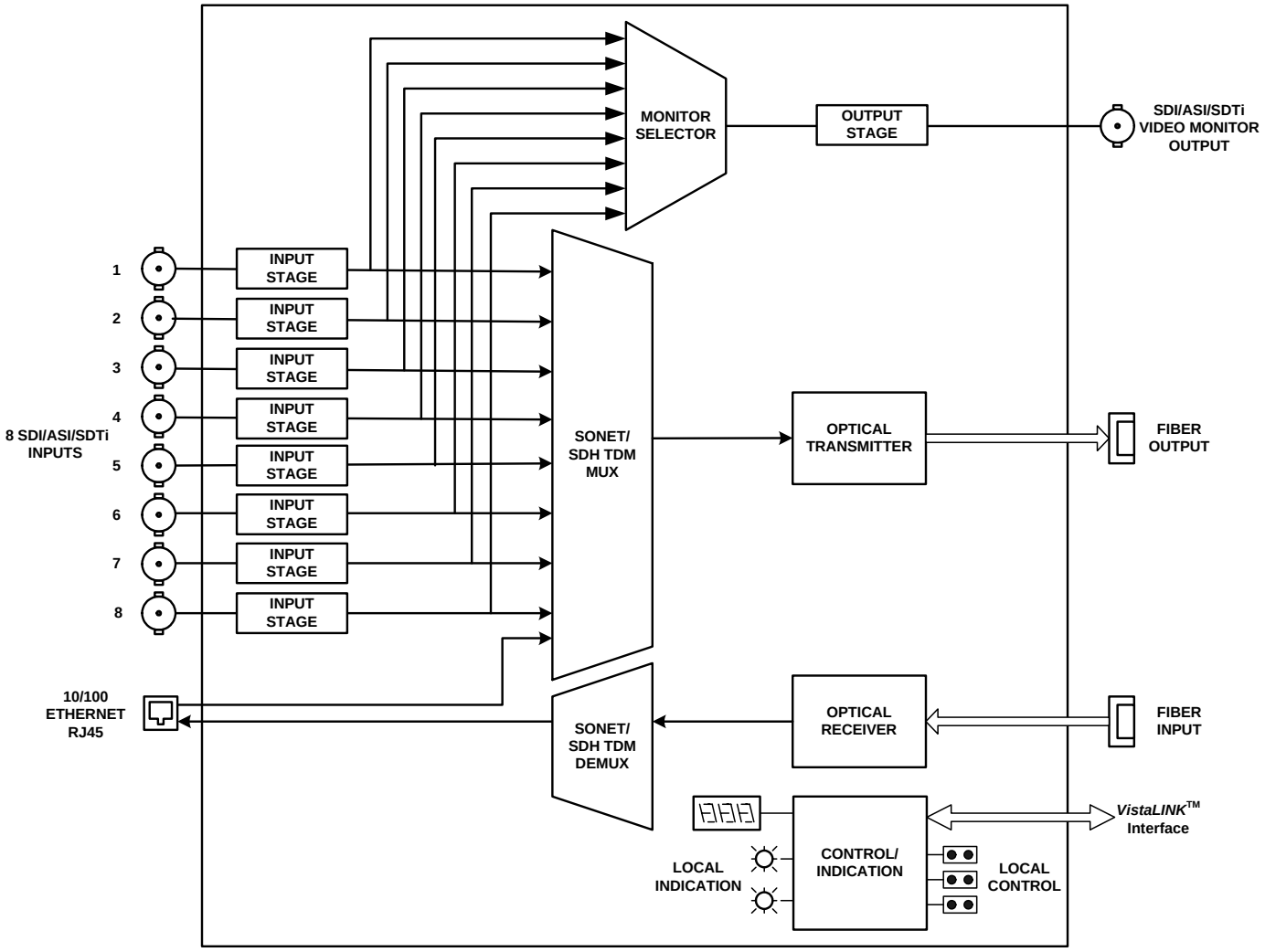

Figure 1-1: 7707VT-8-OC48 Block Diagram

2. INSTALLATION

The 7707VT-8-OC48 comes with a companion rear plate that has nine 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.

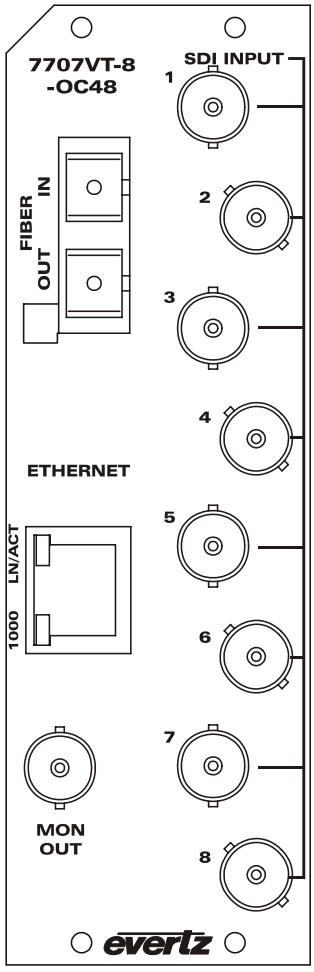

Figure 2-1: 7707VT-8-OC48 Rear Panel

SDI INPUT: Eight independent BNC input connectors for 10-bit serial digital video signals compatible with the SMPTE 259M, DVB-ASI or SMPTE 305M standards. These inputs provide adaptive compensation for up to 250m of industry standard Belden 8281 cable, at 270Mb/s.

MON OUTPUT: User selectable video loopback output. Any of the inputs can source this output for reclocked loop back functionality. Selection is controlled via card edge menu or *Vista*LINK®. If EDH correction is activated, the selected output will be EDH corrected.

FIBER OUTPUT Output SC/PC, SC/PC with cover (shown), ST/PC or FC/PC female connector. This optical output contains the eight input SDI video signals. Any ancillary data (e.g. embedded audio, closed captioning, etc) present in the input SDI video stream prior to multiplexing is transparently passed through to the fiber output.

Do not hook up the 7707VT-8-OC48 DWDM and 7707VR-8-OC48 cards directly with a short fiber optic cable. The 7707VT-8-OC48 DWDM card produces +7dBm of power, which will damage the receiver if connected directly.

Do not hook up the 7707VT-8-OC48 cards that output more than -7dBm of power (see 7707VT-8-OC48 specifications for output power of various laser types) and/or the 7707VR-8-H high sensitivity receiver cards directly with a short fiber optic cable. The 7707VT-8-OC48 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

Background colour: yellow
Triangular band: black
Symbol: black

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

The 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: 7707VT13-8-OC48, 7707VT15-8-OC48, 7707VTxx-8-OC48, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61) 7707VTDyyy-8 (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. 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 the 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 259M-C, SMPTE 305M(SDTi), DVB-ASI.
Number of Inputs:	8 independent SDI,SDTi or DVB-ASI 270Mb/s signals
Connector:	8 BNC input per IEC 60169-8 Amendment 2
Equalization:	Automatic 250m (min) @ 270 Mb/s with Belden 1694 or equivalent cable
Return Loss:	> 15 dB up to 1.5Gb/s
Frequency Offset Tolerance:	±50ppm

3.2. SERIAL VIDEO OUTPUTS

Standards:	SMPTE 259M-C, SMPTE 305M, DVB-ASI
Number of Outputs:	1 Independent SDI, SDTi or DVB-ASI 270Mb/s signals
Connectors:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV(nominal)
DC Offset:	0V ± 0.5V
Rise and Fall Time:	900ps(nominal)
Overshoot:	< 10% of amplitude
Return Loss:	> 12dB
Wide Band Jitter:	< 0.2UI

3.3. OPTICAL OUTPUT

Standards:	OC-48/STM-16
Number of Outputs:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14 dB
Wide Band Jitter:	< 0.2UI
Fiber Size:	9 μm core / 125 μm overall
Wavelengths:	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm (See ordering information)
DWDM:	C-Band channel 20 to 60, 100GHz spacing (ITU-T G.694.1 compliant)
Output Power:	
1310nm FP:	-7dBm ± 1dBm
1550nm & CWDM:	0 dBm ± 1dBm
DWDM:	+7dBm ± 1dBm

3.4. OPTICAL INPUT

Number of Inputs:	1
Standards:	OC-48/STM-16
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 25dB
Wavelength:	1270nm to 1610nm
Maximum Input Power:	
Standard:	-1dBm
High Sensitivity (-H):	-8dBm
Optical Sensitivity:	
Standard:	-21dBm
High Sensitivity (-H):	-28dBm

3.5. ELECTRICAL

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

3.6. PHYSICAL

Number of slots: 2

3.7. 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.

4. STATUS INDICATORS AND DISPLAYS

The 7707VT-8-OC48 has 10 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 and toggle switch are used to select various displays on the alphanumeric display. Figure 5-1 shows the locations of the indicators, pushbutton and toggle switch.

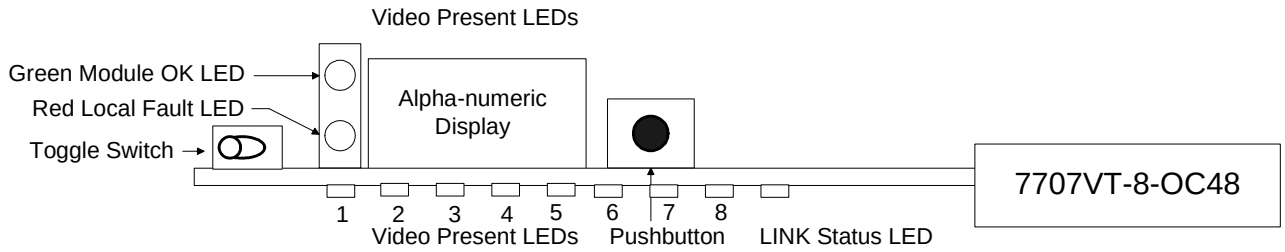

Figure 4-1: Location of Status Indicators and Controls

4.1. STATUS INDICATOR LEDS

LOCAL FAULT: On the 7707VT-8-OC48 board this Red LED will be ON if a laser fault exists, or if the laser is set to Discontinuous mode with no valid inputs present, or if a local input power fault exists (i.e.: a blown fuse).

The LOCAL FAULT indications can also be reported to the frame through the FRAME STATUS jumper.

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

On the 7707VT-8-OC48 there are nine small LEDs on the front of the board that indicate the optical link status and the presence of video signals.

LINK STATUS LED:

GREEN	Valid signal input. No errors.
RED	Valid signal input. Errors detected.
OFF	No valid input detected.

VIDEO 1 STATUS LED:

GREEN	Valid signal input. No errors.
RED	Valid signal input. Errors detected.
OFF	No valid input detected.
YELLOW	Input is blocked by user from being transported through fiber.

VIDEO 2-8 STATUS LEDs function similar to VIDEO 1 STATUS LED.

4.2. CARD EDGE DISPLAY

Additional signal and status monitoring is provided via the 4-digit dot-matrix display located at the card-edge. The card edge toggle switch is used to select whether you are displaying status from the card (monitoring mode) or setting control parameters for the card (control mode). Press the toggle switch to select 'monitor mode' (STAT) or 'control mode' (CTRL). Figure 4-2 shows the menu structure for the 7707VT-8-OC48 card.

Level 1	Level 2	Level 3	Level 4	Level 5
STAT	FIBR	STD	OC, STM, LOSS	
		CIC	15m/24H	TIME, ESL, SESL, ESS, SESS, ESP, SESP, SEFS
		LIC	15m/24H	TIME, ESL, SESL, ESS, SESS, ESP, SESP, SEFS
		ESR	SECT, LINE, PATH	0.0% - 100%
		LOSL	0 to 9999	0 to 9999
		REF	OUT	REF, XO, HOLD, LINK
			IN	LOS, FOS, OK
		PWR	-40 to 0 dB	
	VID1-VID8	STD	ASI, N270, P270, LOSS	
		EDH	PRES, LOSS	
		SDTI	PRES, LOSS	
	ETH	LINK	UP, DOWN	
		SPD	10, 100, 1000, DOWN	
CTRL	FIBR	STD	OC, STM	
		LASR	CONT, DISC	
		REF	LINK, XO, HOLD, AUTO	
		CIC	ALL, 15M, 24H	CLR
		LOSL	CLR	
		CESR	CLR	
		SETH	SESS, SESL, SESP, SEFS	1 to 9999
	VID1-VID8	EDH		
	VMON	VID1-VID8		
	PSWD	0 to 9999		
	This area visible only if correct password is entered	PWSL	0 to 9999	
		VID1-VID8	DIS, EN	
	DISP	HORZ, VERT		

Figure 4-2: Card Edge Menu

4.2.1. STAT Menu

When in monitoring mode, the toggle switch determines what data is being displayed on the alphanumeric display. Each time the toggle switch is pressed up/down, the display advances to the next/previous option.

The card-edge pushbutton and toggle switch are used to navigate through the display menu. Figure 4-3 provides a quick reference to the monitoring mode display. The details of each of the displays are described in the sections 4.2.1.1 to 4.2.1.11. For information about setting up the module in control mode (CTRL) see section 4.2.2.

Level 1	Level 2	Level 3	Level 4	Level 5
STAT	FIBR	STD	OC, STM, LOSS	
		CIC	15m/24H	TIME, ESL, SESL, ESS, SESS, ESP, SESP, SEFS
		LIC	15m/24H	TIME, ESL, SESL, ESS, SESS, ESP, SESP, SEFS
		ESR	SECT, LINE, PATH	0.0% - 100%
		LOSL	0 to 9999	
		REF	OUT	REF, XO, HOLD, LINK
			IN	LOS, FOS, OK
		PWR	-40 to 0 dB	
	VID1-VID8	STD	ASI, N270, P270, LOSS	
		EDH	PRES, LOSS	
		SDTI	PRES, LOSS	
	ETH	LINK	UP, DOWN	
		SPD	10, 100, 1000, DOWN	

Figure 4-3: STAT Menu Structure

4.2.1.1. Displaying the Optical Link Data Standard

STAT
- *FIBR*
  - *STD*
    - *OC*
    - *STM*

The STD menu shows the current transmission standard implemented by the card.
OC is displayed for SONET transmission.
STM is displayed for SDH transmission.
These modes can be set through the control menu, see section 4.2.2.

4.2.1.2. Displaying the Current Interval Counter

STAT
- *FIBR*
  - *CIC*
    - *12m*
    - *24h*

The Current Interval Counter menu provides the user with an option to monitor 15m or 24h counters to detect errored transmission.

The following parameters are available:
TIME, ESL, SESL, ESS, SESS, ESP, SESP, SEFS

For a detailed description see Table 4-1.

STAT/FIBR/CIC	15M	24H
TIME	Current 15 minute interval elapsed time	Current 24 hour interval elapsed time
ESL	Current 15 minute interval, errored seconds line	Current 24 hour interval, errored seconds line
SESL	Current 15 minute interval, severe errored seconds line	Current 24 hour interval, severe errored seconds line
ESS	Current 15 minute interval, errored seconds section	Current 24 hour interval, errored seconds section
SESS	Current 15 minute interval, severe errored seconds section	Current 24 hour interval, severe errored seconds section
ESP	Current 15 minute interval, errored seconds path	Current 24 hour interval, errored seconds path
SESP	Current 15 minute interval, severe errored seconds path	Current 24 hour interval, severe errored seconds path
SEFS	Current 15 minute interval, severe errored seconds frame	Current 24 hour interval, severe errored seconds frame

Table 4-1: Current Interval Counter Menu

For detailed information about these parameters, refer to section 4.2.1.13

4.2.1.3. Displaying the Last Interval Counter

STAT
FIBR
LIC
12m
24h

Displays the last interval counter for the following parameters: TIME, ESL, SESL, ESS, SESS, ESP, SESP, SEFS

STAT/LIC	15M	24H
ESL	Last 15 minute interval, errored seconds line	Last 24 hour interval, errored seconds line
SESL	Last 15 minute interval, severe errored seconds line	Last 24 hour interval, severe errored seconds line
ESS	Last 15 minute interval, errored seconds section	Last 24 hour interval, errored seconds section
SESS	Last 15 minute interval, severe errored seconds section	Last 24 hour interval, severe errored seconds section
ESP	Last 15 minute interval, errored seconds path	Last 24 hour interval, errored seconds path
SESP	Last 15 minute interval, severe errored seconds path	Last 24 hour interval, severe errored seconds path
SEFS	Last 15 minute interval, severe errored seconds frame	Last 24 hour interval, severe errored seconds frame

Table 4-2: Last Interval Counter Menu

4.2.1.4. Displaying the Errored Seconds Ratio

```
STAT
  FIBR
    ESR
      SECT
      LINE
      PATH
```

Displays the Errored Seconds Ratio in Percentage for Section, Line, and Path layers from 0.0 to 100 %

4.2.1.5. Displaying the Loss of Signal seconds in Line Layer

```
STAT
  FIBR
    LOSL
```

Displays the Loss of Signal seconds in Line Layer.

4.2.1.6. Displaying the Link Output Reference Clock Source

```
STAT
  FIBR
    LOSL
      REF
        OUT
```

Displays Link Output Clock Reference Source.

REF ERR = Reference error
XO = Oscillator
HOLD = Hold Over
LINK = Link Input

4.2.1.7. Displaying the Link Input Status

```
STAT
  FIBR
    LOSL
      REF
        IN
```

Displays Link Input Status.

OK = LINK VALID
LOS = LINK LOST
FOS = FREQUENCY OFFSET

4.2.1.8. Displaying the TDM Data Errors

```
STAT
  TDMD
    LOSS
    ERR
    OK
```

Displays if there are errors in the clear channel TDM data. This allows you to monitor if transmission errors are occurring at the SONET network or at TDM stream.

4.2.1.9. Displaying the Video Standard

- *STAT*
  - *VID1-VID8*
    - *STD*
      - *ASI*
      - *N270*
      - *P270*
      - *LOSS*

Displays the video standard present at the input.

N270: SMPTE 259M-C, 270 Mb/s 4:2:2 Component 525 line, 4:3 or SMPTE 305M

P270: SMPTE 259M-C, 270 Mb/s 4:2:2 Component 625 line, 4:3 or SMPTE 305M

ASI: Indicates DVB-ASI Signal at Input

LOSS: Loss of Valid Input Signal

4.2.1.10. Detecting the EDH Presence in a Compatible Signal

- *STAT*
  - *VID1-VID8*
    - *EDH*
      - *PRES*
      - *LOSS*

Displays input video EDH status.

4.2.1.11. Displaying the SDTI Status

- *STAT*
  - *VID1-VID8*
    - *SDTI*
      - *PRES*
      - *LOSS*

Displays input video SDTI status.

4.2.1.12. Ethernet Status and Speed

- *STAT*
  - *ETH*
    - *LINK: UP, DOWN*
      - *SPD:*
      - *10*
      - *100*
      - *1000*
      - *DOWN*

Displays the Ethernet Connection Status and Transmission Speeds.

4.2.1.13. Performance Monitoring and Error Reporting

The 7707VT-8-OC-48 card enables the user to proactively monitor the performance parameters of three physical layers in two different counter settings. A *current interval counter* is indicated on the card as CIC and the *last interval counter* is indicated as LIC. Both counters keep track of 15-minute and 24-hour time period.

To display the errors, depress the pushbutton, go to STAT/FIBR and choose the appropriate setting (for example, STAT/FIBR/CIC/15m/ESL to access the line errors reported in the last 15 minutes on the current interval counter). Refer to Figure 4-2 and Figure 4-3 for menu structure.

Line Layer Performance Parameters

- *ESL (Errored Seconds – Line)* shows the number of seconds during which a line Bit Interleaved Parity (BIP) error or an alarm signal was detected.
- *SESL (Severely Errored Seconds – Line)* displays the number of seconds during which H, line BIP, or alarm signal error was detected. H can be set by the user through the CTRL/SETH/SESL menu.

Section Layer Performance Parameters

- *ESL (Errored Seconds – Section)* shows the number of seconds during which a signal Bit Interleaved Parity (BIP) error or an alarm signal was detected.
- *SESL (Severely Errored Second – Section)* shows the number of seconds during which H, section BIP, or alarm signal error was detected. H can be set by the user through the CTRL/SETH/SESS menu.

Path Layer Performance Parameters

- *ESL (Errored Seconds – Path)* shows the number of seconds during which a path Bit Interleaved Parity (BIP) error or an alarm signal was detected.
- *SESL (Severely Errored Seconds – Path)* shows the number of seconds during which H, more path BIP, or alarm signal error was detected. H can be set by the user using the CTRL/SETH/SESP menu.

Frame Errors

- *SEFS (Severe Errored Seconds – Frame)* shows the number of seconds during which H or more Frame errors were detected. H can be set by the user in the CTRL/SETH/SEFS menu.

4.2.2. Control Menu

The Control menu enables the user to control and set different parameters on 7707VT-8-OC48 cards.

Level 1	Level 2	Level 3	Level 4	Level 5
CTRL	FIBR	STD	OC, STM	
		LASR	CONT, DISC	
		REF	LINK, XO, HOLD, AUTO	
		CIC	ALL, 15M, 24H	CLR
		LOSL	CLR	
		CESR	CLR	
		SETH	SESS, SESL, SESP, SEFS	1 to 9999
	VID1-VID8	EDH		
	VMON	VID1-VID8		
	PSWD	0 to 9999		
	This area visible only if correct password is entered	PWSL	0 to 9999	
		VID1-VID8	DIS, EN	
	DISP	HORZ, VERT		

Figure 4-4: Control Menu

4.2.2.1. Setting the Optical Link Standard

```
CTRL
  FIBR
    STD
      OC
      STM
```

The user can select the standard for transmission from the Control menu. To set the Optical Link Data Standard to SONET, select OC (SONET). For SDH transmission, select STM.

4.2.2.2. Setting the Behavior of Laser When There is No Applied Video

On the 7707VT-8-OC48, the LASR menu item allows the user to set the behavior of the laser transmitter when there is no video signal applied to the coaxial video inputs.

```
CTRL
  FIBR
    LASR
      CONT
      DISC
```

CONT: The laser will transmit continuously regardless of whether there are valid input video signals present on the coaxial inputs of the 7707VT-8-OC-48

DISC: The laser will turn off when there is no recognizable video on any of the coaxial inputs.

4.2.2.3. Setting the Clock Source

```
CTRL
  FIBR
    REF
      XO
      LINK
      HOLD
      AUTO
```

Four different clock settings are available for serial fiber output. Select the appropriate clock source from the FIBR/REF menu. Choose XO to select the Stratum 3 oscillator, Auto to automatically select the best setting, LINK to select POS Link clock and Hold to select Hold Over mode.

4.2.2.4. Clearing the Counters

```
CTRL
  FIBR
    CIC
      ALL/15M/24H
        CLR
```

This control enables you to clear the contents of all the current counters and reset them back to the default values by going into the CTRL/FIBR/CIC menu. Choose 15m to clear the 15-minute counter or 24h to clear the 24-hour counter - or choose All to clear both counters.

To clear the loss of link counter, go to CTRL/FIBR/LOSL and choose CLR to clear it.

```
CTRL
  FIBR
    LOSL
      CLR
```

Clear Loss of Link Counter.

This control enables the user to clear the loss of link counter.

To clear the error ratios (ESR SECT, LINE and PATH), go to CTRL/FIBR/CESR and choose CLR to clear them and restart the timer.

CTRL *FIBR* *CESR* *CLR*	Clear Error Ratios.

4.2.2.5. Setting the Severe Errored Second Threshold

CTRL *FIBR* *SETH* *SESS* *SESL* *SESP* *SEFS*	SESS = Severe Errored Seconds – Section SESL = Severe Errored Seconds – Line SESP = Severe Errored Seconds – Path SEFS = Severe Errored Seconds – Frame SET THRESHOLD FOR SEVERE ERRORED SECONDS 1 TO 9999.

You can set the value of the BIP errors occurring in one second at or above which it is considered a severely errored second. These threshold limits can be set for Line, Section or Path layers. Threshold values are from 1 to 9999.

4.2.2.6. Activating or Deactivating EDH Processing

CTRL *VID1-VID8* *EDH* *ON* *OFF*	Enables or Disables EDH Processing of Compatible signals. **ON:** Input Signals will be EDH monitored and recalculated EDH packets will be embedded into the video signal. Flags are also updated. EDH processing will not monitor or modify non-compatible signals (ex. DVB-ASI). **OFF:** EDH recalculation and reinsertion is disabled. EDH errors are still reported when present.

If input signal has EDH packets, EDH Insert will always be forced to ON.

4.2.2.7. Signal BLOCK Configuration

Depress the pushbutton and select the PSWD option. Actuate the toggle switch to achieve the correct code number (Factory Default = 7154).

CTRL *PSWD* *PWSL*	Store a new passcode (0-9999) required for BLOCK configuration. This menu is not available without entering the correct passcode.
CTRL *PSWD* *VID1-VID8*	When Disabled, the data input on the selected signal is not placed on the fiber link data stream. This menu item cannot be modified without entering the correct passcode, though its current state is viewable.

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

On the 7707VT-8-OC48 card, the **DISP** display allows the user to set a horizontal or vertical orientation for the card edge display messages. After one second the display will show a message indicating the current orientation of the display. When this message is showing, press the pushbutton to change the orientation of the display.

CTRL *DISP* *VERT* *HOR*	**VERT** Vertical display used when the module is housed in the 3-rack unit 7700FR frame. **HOR** Horizontal display used when the module is housed in the 1 rack unit 7701FR frame or the stand-alone enclosure.

4.2.2.9. Monitoring a Specific Channel

The 7707VT-8-OC48 enables the user to output a channel without having to switch the BNC connectors. A ***MON OUT*** terminal is provided which can be set to output any of the eight channels.

CTRL *VMON* *VID1-VID8*	This control enables user selectable video loopback output. This option allows the user to select one of the eight channels to output on the **MON OUT** connector.

5. JUMPERS

Several jumpers, located at the front of the module are used to preset various operating modes. Figure 5-1 shows the locations of the jumpers on the board.

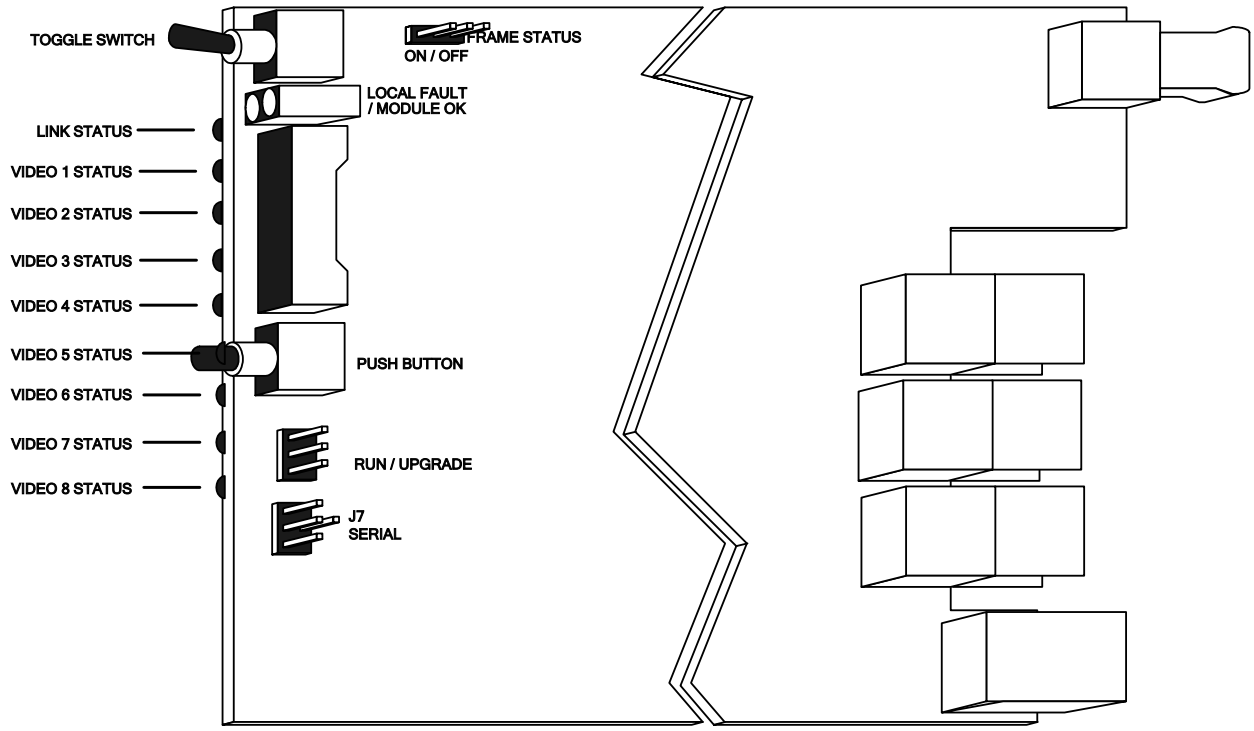

Figure 5-1: Location of Status Indicators and Jumpers

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. Each of the cards of the module pair has a frame status jumper. Be sure to change both jumpers to the same state.

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

The 7707VT-8-OC48 card can be configured for firmware upgrades using the UPGRADE jumpers or with the serial port 'u' command as described below.

5.2.1. Using the Upgrade Jumper

UPGRADE: The UPGRADE jumper 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 *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. Re-install the module into the frame. Run the upgrade as described in the *Upgrading Firmware* section in the front of this manual 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.

5.2.2. Upgrade Serial Port Command

Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto the SERIAL header at the card edge of the card to be upgraded. Connect this cable to your computer and run a terminal program as described in the *Upgrading Firmware* section in the front of this manual binder. Type in "u" without the quotes and hit Enter. Follow the prompts that are presented on your terminal screen and proceed to download the new firmware specified for this card.

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 VL-Fiber demo 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 7707VT-8-OC48 and 7707VR-8-OC48 cards), 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 through the VistaLINK® interface.

Parameter	Description
Video 1 to 8: Input Video Standard	Indicates the presence of a valid video input signal.
Video 1 to 8: Cable Length	Indicates equalization applied to input video as a percent. Shorter cable length should have low percent equalization.

Table 6-1: VistaLINK® Monitored Parameters

6.3. VISTALINK® CONTROLLED PARAMETERS

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

Parameter	Description
EDH Insert 1 to 8	Enables recalculated EDH packets to be inserted into video stream, with updated error flags.
Monitoring Video	Select the input to source the video monitor output port or turn monitor output OFF.
Video Enable 1 to 8	Allows the User to enable/disable specific video paths. Disabled input data will not be placed on the fiber link.
Change Password	Setup the Password used to access the Video Blocking features.
Cable Length Threshold	Set the equalization strength that trips an alarm if the signal degrades.
Laser	Allows user to control the laser behavior when no video is present on coaxial inputs. In Discontinuous mode the laser will be shut off with no valid input signals. In Continuous mode the laser will continuously transmit and maintain the link to the VR-8.

Table 6-2: VistaLINK® Controlled Parameters

6.4. VISTALINK® TRAPS

The following traps can be VistaLINK® enabled and monitored.

Trap	Description
Video Loss 1 to 8	Triggers when there is a loss of a valid video signal.
Video Error 1 to 8	Triggers when a video error has occurred.
EDH Packet Missing 1 to 8	Triggers upon loss of EDH Error Detection packets in video input.
EDH Error 1 to 8	Triggers when an EDH error has occurred.
Cable Length Fault 1 to 8	Triggers when equalization is higher than set Cable Length Threshold.
Laser Fault	Triggers when there is a laser fault.

Table 6-3: VistaLINK® Traps