TABLE OF CONTENTS

Figures

Tables

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First release	Jan 2010

WARNING

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

1. OVERVIEW

The 7707VB-8-ASI-OC3 is a *Vista*LINK® enabled, OC-3/STM-1 (155.52Mb/s) fiber transceiver for DVB-ASI video signals. The card also has a built-in 10/100/1000 Base T Ethernet transceiver port. This dual fiber single card combines 8 asynchronous DVB-ASI signals using Time Domain Multiplex (TDM) technology. A companion 7707VB-8-ASI-OC3 card acts as a demultiplexer for the incoming signal and converts them back to separate ASI video feeds, while utilizing a separate fiber for the outgoing signal.

Monitoring and control of card status and parameters are 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.

7707VB13-8-ASI-OC3	1310 nm FP	-7dBm output, suitable for distances up to 50 km
7707VB15-8-ASI-OC3	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.

7707VB27-8-ASI-OC3	1270 nm DFB
7707VB29-8-ASI-OC3	1290 nm DFB
7707VB31-8-ASI-OC3	1310 nm DFB
7707VB33-8-ASI-OC3	1330 nm DFB
7707VB35-8-ASI-OC3	1350 nm DFB
7707VB37-8-ASI-OC3	1370 nm DFB
7707VB43-8-ASI-OC3	1430 nm DFB
7707VB45-8-ASI-OC3	1450 nm DFB
7707VB47-8-ASI-OC3	1470 nm DFB
7707VB49-8-ASI-OC3	1490 nm DFB
7707VB51-8-ASI-OC3	1510 nm DFB
7707VB53-8-ASI-OC3	1530 nm DFB
7707VB55-8-ASI-OC3	1550 nm DFB
7707VB57-8-ASI-OC3	1570 nm DFB
7707VB59-8-ASI-OC3	1590 nm DFB
7707VB61-8-ASI-OC3	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 (for DWDM applications contact the factory).

7707VBDyyy-8-ASI-OC3	DWDM DFB laser output, yyy – ITU channel number

The 7707VB-8-ASI-OC3 occupies three card slots in the 3 RU frame, which will hold up to 5 modules.

Features:

- Transports signal over OC-3/STM-1 data rates (155.52Mb/s)
- Single card TDM multiplexer and demultiplexer for 8 bi-directional asynchronous DVB-ASI signals
- Built-in Ethernet transceiver with one 10/100/1000 Base-T port with FBM (Fiber Bandwidth Management)
- Interfaces directly to SONET/SDH infrastructure
- Signal transport uninterrupted by loss of any DVB-ASI input feed
- 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 (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

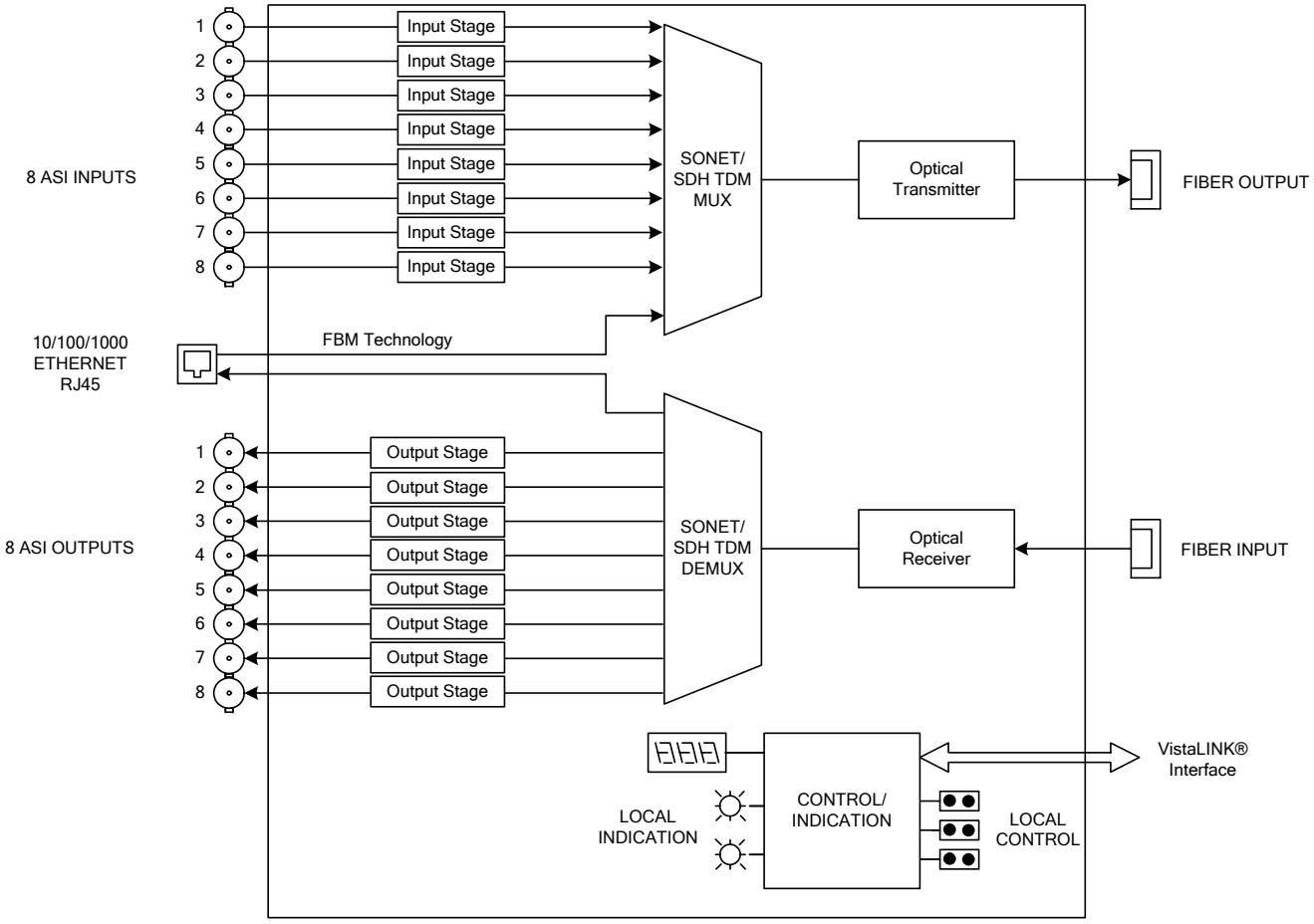


Figure 1-1: 7707VB-8-ASI-OC3 Block Diagram

2. INSTALLATION

The 7707VB-8-ASI-OC3 comes with a companion rear plate that has 16 BNC connectors, one RJ45 connector, and two 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.

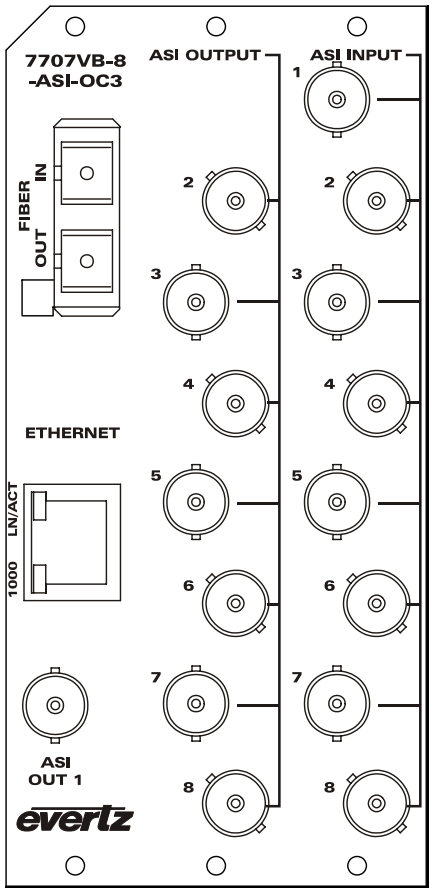


Figure 2-1: 7707VB-8-ASI-OC3 Rear Panel

ASI IN 1-8: Eight independent BNC input connectors compatible with DVB-ASI for a combined bandwidth of 135Mb/s. These inputs provide adaptive compensation for up to 250m of industry standard Belden 1694A cable.

ASI OUT 1-8: Eight independent BNC output connectors compatible with DVB-ASI for a combined bandwidth of 135Mb/s.

OPTICAL INPUT: SC/PC, SC/PC with cover (shown), ST/PC or FC/PC female connector. This wide range input accepts optical wavelengths of 1270nm to 1610nm, accommodating standard or CWDM transmission schemes.

OPTICAL OUTPUT: Output SC/PC, SC/PC with cover (shown), ST/PC or FC/PC female connector. This optical output contains the four input DVB-ASI video signals.

ETHERNET PORT: RJ45 ethernet port for transport and receive of 10/100/1000 Base T Ethernet signal.

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 the bar code label placed on the printed circuit board of each Evertz plug-in module
- The Model number is one of: 7707VB13-8-ASI-OC3, 7707VB15-8-ASI-OC3, 7707VBxx-8-ASI-OC3, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61) 7707VBDyyy-8-ASI-OC3 (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:	DVB-ASI
Number of Inputs:	8 independent DVB-ASI signals with combined bandwidth of 135Mb/s
Connector:	BNC per IEC 61169-8 Annex A
Equalization:	Automatic 250m with Belden 1694 or equivalent cable
Return Loss:	> 15 dB up to 270Mb/s
Frequency Offset Tolerance:	±50ppm

3.2. SERIAL VIDEO OUTPUTS

Standards:	DVB-ASI
Number of Outputs:	8 independent DVB-ASI signals with combined bandwidth of 135Mb/s
Connectors:	BNC per IEC 61169-8 Annex A
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-3/STM-1
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-3/STM-1
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 25dB
Wavelength:	1270nm to 1610nm
Maximum Input Power:	
Standard:	-1dBm
Optical Sensitivity:	
Standard:	-28dBm

3.5. ELECTRICAL

Voltage:	+12VDC
Power:	23 Watts (Non DWDM) 25 Watts (DWDM)

3.6. PHYSICAL

Number of Slots:	3

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 7707VB-8-ASI-OC3 has 21 active 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 4-1 shows the locations of the indicators, pushbutton and toggle switch.

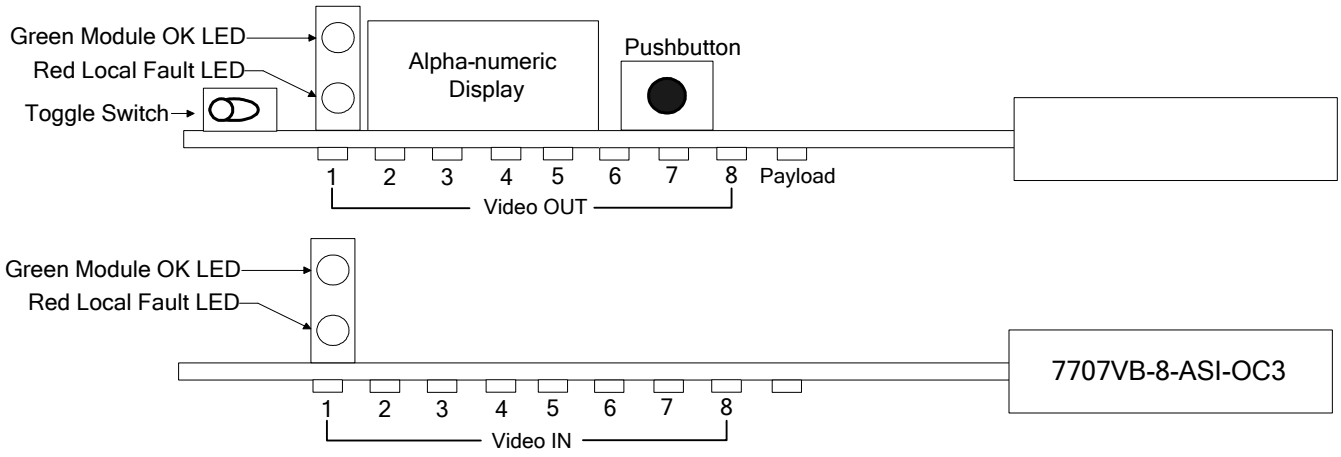


Figure 4-1: Location of Status Indicators and Controls

4.1. STATUS INDICATOR LEDS

LOCAL FAULT: Each of the two 7707VB-8-ASI-OC3 boards has a red and a green local fault LED. The red LED on either board will be ON if a local board fault exits, such as a blown fuse. On the board that also has the pushbutton and display, a red LED also indicates that a laser fault exists, or that the laser is set to Discontinuous mode with no valid inputs present.

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

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 powers are good.

VIDEO IN STATUS LED:

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

VIDEO OUT STATUS LED:

GREEN:	Valid signal at output. No errors.
RED:	Valid signal at output. Errors detected.
OFF:	No valid output detected.
YELLOW:	Output is blocked by the user from being transported through output BNC.

PAYLOAD STATUS LED:

GREEN:	Payload OK.
RED:	Errors detected or signal not present

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 7707VB-8-ASI-OC3 card.

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
OK, LASR ERR, LINK ERR					
STAT	FIBR	STD	OC, SDH		
		PWR	-40 to 0 dBm		
		CIC	15m	TIME	0 to 899
				ESL, SESL, ESS, SESS, ESP, SESP, SEFS	0 to 9999
			24h	TIME	0 to 1439
				ESL, SESL, ESS, SESS, ESP, SESP, SEFS	0 to 9999
		LIC	15m, 24h	ESL, SESL, ESS, SESS, ESP, SESP, SEFS	0 to 9999
		ESR	SECT, LINE, PATH	0.0% - 100%	
		LOSL	0 to 9999		
		REF	OUT	REF ERR, XO, HOLD, LINK	
			INP	LOS, FOS, OK	
	IASI	ASI1, ASI2, ASI3, ASI4, ASI5, ASI6, ASI7, ASI8	RATE	0-107	
			NULL	0-107	
			DATA	0-107	
			PID	0-128	
			CCER	0-9999	
		IPBW	USED	0-135	
	OASI	ASI1, ASI2, ASI3, ASI4, ASI5, ASI6, ASI7, ASI8	RATE	0-107	
			NULL	0-107	
			DATA	0-107	
			PID	0-128	
			CCER	0-9999	
		OPBW	USED	0-135	
	TDMD	LOSS, ERR, OK			

	ETH	LINK	UP,DOWN		
		SPD	10, 100, 1000, DOWN		
	VER	Firmware Version			
CTRL	FIBR	STD	BACK, OC, SDH		
		LASR	BACK, CONT, DISC		
		REF	LINK, XO, AUTO		
		CIC	ALL, 15m, 24h	CLR, BACK	
		LOSL	CLR, BACK		
		CESR	CLR, BACK		
		SETH	SESS, SESL, SESP, SEFS	1 to 9999	
	PSWD	0 to 9999			
	These values may only be modified if the correct passcode is enetered	PWSL	0 to 9999		
		IN1	OUTP	DIS, EN	
			MAXB	1-107	
		IN2	OUTP	DIS, EN	
			MAXB	1-107	
		IN3	OUTP	DIS, EN	
			MAXB	1-107	
		IN4	OUTP	DIS, EN	
			MAXB	1-107	
		IN5	OUTP	DIS, EN	
			MAXB	1-107	
		IN6	OUTP	DIS, EN	
			MAXB	1-107	
		IN7	OUTP	DIS, EN	
			MAXB	1-107	
		IN8	OUTP	DIS, EN	
			MAXB	1-107	
		OUT1, OUT2, OUT3, OUT4, OUT5, OUT6, OUT7, OUT8	OUTP, BACK	DIS, EN	
	ERST	IASI	ASI1, ASI2, ASI3, ASI4, ASI5, ASI6, ASI7, ASI8	BACK, RST	
		OASI	ASI1, ASI2, ASI3, ASI4, ASI5, ASI6, ASI7, ASI8	BACK, RST	
	OASI	ASI1, ASI2, ASI3, ASI4, ASI5, ASI6, ASI7, ASI8	CONT, DISC		
	DISP	HORZ, VERT			

Figure 4-2: Card Edge Menu

4.2.1. STAT Menu

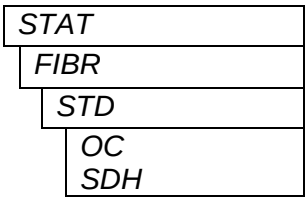
When in monitoring mode, the toggle switch determines what data is being displayed on the alphanumeric display. Each time the toggle switch is pressed up/down, the display advances to the next/previous option. The card-edge pushbutton and toggle switch are used to navigate through the display menu. Figure 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 4.2.1.16. 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	Level 6
OK, LASR ERR, LINK ERR					
STAT	FIBR	STD	OC, SDH		
		PWR	-40 to 0 dBm		
		CIC	15m	TIME	0 to 899
				ESL, SESL, ESS, SESS, ESP, SESP, SEFS	0 to 9999
			24h	TIME	0 to 1439
				ESL, SESL, ESS, SESS, ESP, SESP, SEFS	0 to 9999
		LIC	15m, 24h	ESL, SESL, ESS, SESS, ESP, SESP, SEFS	0 to 9999
		ESR	SECT, LINE, PATH	0.0% - 100%	
		LOSL	0 to 9999		
		REF	OUT	REF ERR, XO, HOLD, LINK	
			INP	LOS, FOS, OK	
	IASI	ASI1, ASI2, ASI3, ASI4, ASI5, ASI6, ASI7, ASI8	RATE	0-107	
			NULL	0-107	
			DATA	0-107	
			PID	0-107	
			CCER	0-128	
		IPBW	USED	0-9999	
	OASI	ASI1, ASI2, ASI3, ASI4, ASI5, ASI6, ASI7, ASI8	RATE	0-135	
			NULL	0-107	
			DATA	0-107	
			PID	0-128	
			CCER	0-9999	
		OPBW	USED	0-135	
	TDMD	LOSS, ERR, OK			
	ETH	LINK	UP,DOWN		
		SPD	10, 100, 1000, DOWN		
	VER	Firmware Version			

Figure 4-3: STAT Menu Structure

4.2.1.1. Displaying the Optical Link Data Standard

This menu selection displays the current transmission standard implemented by the card. To display the *Optical Link Data Standard* from the **STAT** menu, use the toggle switch/pushbutton to select **FIBR** menu and then choose the **STD** menu item.

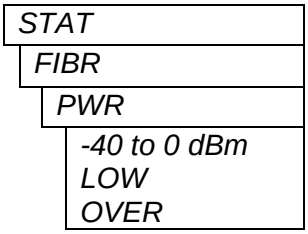


The following indications are possible:

OC SONET transmission
SDH SDH transmission

4.2.1.2. Displaying Optical Power

This menu selection displays the received optical power detected by the fiber receiver module in (dBm). To display the received power from the **STAT** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **PWR** menu item.

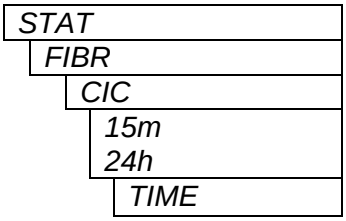


The following indications are possible:

-40 to **0** Optical Power input (dBm) within monitoring range
LOW Optical Power input below –40dBm
OVER Optical Power input above 0dBm

4.2.1.3. Displaying the Current Interval Counter

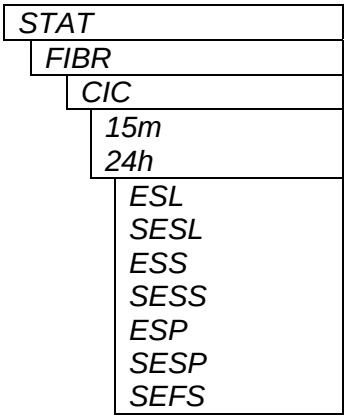
This menu displays *Current Interval Performance Counters*, useful for monitoring network integrity. To display these performance counters from the **STAT** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **CIC** menu item. The module records *Current* performance over 15 minute and 24 hour intervals, which restart once expired. The corresponding status is displayed by selecting either the **15m** or **24h** menu item. To display the current timer value, select **TIME**.



The following indications are possible:

0 to **899/1440** Timer value in seconds or minutes, for 15m or 24h timers, respectively.

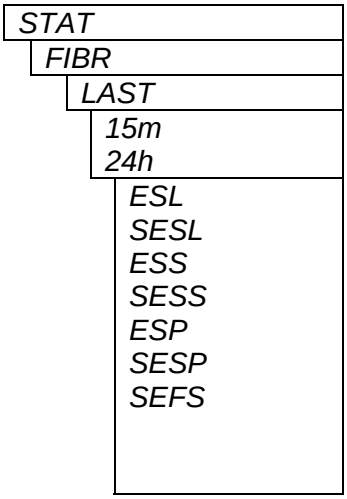
The following menu is available to display performance counts:



ESL	Errored Seconds Line – Seconds having detected B2 errors.
SESL	Severe Errored Seconds Line (threshold set by CTRL/NET/SETH/SESL).
ESS	Errored Seconds Section – Seconds having detected B1 errors.
SESS	Severe Errored Seconds Section (threshold set by CTRL/NET/SETH/SESS).
ESP	Errored Seconds Path – Seconds having detected B3 errors.
SESP	Severe Errored Seconds Path (threshold set by CTRL/NET/SETH/SESP).
SEFS	Severe Errored Frame Seconds – Seconds having severe errored frames.

4.2.1.4. Displaying the Last Interval Counter

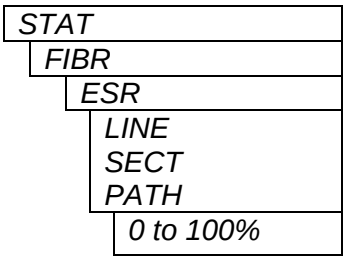
This menu displays *Last Interval Performance Counts* recorded each time the *Live Interval* counters expire. To display these performance counts from the **STAT** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **LAST** menu item. The module records *Last* interval counts for 15 minute and 24 hour intervals. The corresponding status is displayed by selecting either the **15m** or **24h** menu item. The following selections are available to display performance counts:



ESL	Errored Seconds Line – Seconds having detected B2 errors.
SESL	Severe Errored Seconds Line (threshold set by CTRL/NET/SETH/SESL).
ESS	Errored Seconds Section – Seconds having detected B1 errors.
SESS	Severe Errored Seconds Section (threshold set by CTRL/NET/SETH/SESS).
ESP	Errored Seconds Path – Seconds having detected B3 errors.
SESP	Severe Errored Seconds Path (threshold set by CTRL/NET/SETH/SESP).
SEFS	Severe Errored Frame Seconds – Seconds having severe errored frames.

4.2.1.5. Displaying the Errored Seconds Ratio

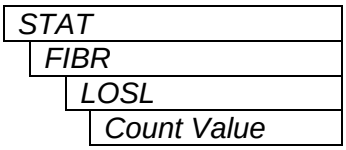
This menu selection displays the *Errored Second Ratios* calculated over the duration since CTRL/FIBR/CESR/CLR was last selected. To display these ratios from the **STAT** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **ESR** menu item. The following selections are available to display *Errored Second Ratios*:



LINE	Errored Seconds Ratio for Line (%). Based on B2 error detection.
SECT	Errored Seconds Ratio for Section (%). Based on B1 error detection.
PATH	Errored Seconds Ratio for Path (%). Based on B3 error detection.

4.2.1.6. Displaying the Loss of Signal seconds in Line Layer

This menu displays a *LOS Seconds Line* counter recorded over the duration since CTRL/FIBR/LOSL/CLR was last selected. To display the *LOSL* counter from the **STAT** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **LOSL** menu item.

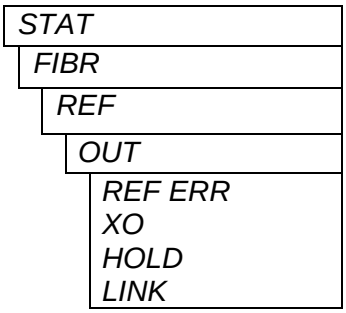


The following indications are possible:

0 to **9999**	LOS Seconds Line count value

4.2.1.7. Displaying the Link Output Reference Clock Source

This menu selection displays *Link Output Reference Clock Source*. To display *Link Output Reference Clock Source* from the **STAT** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **REF** menu item, followed by **OUT** menu item.

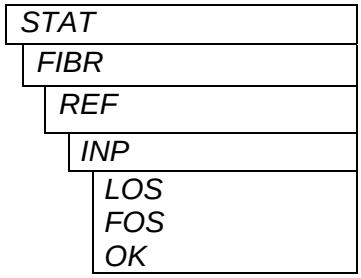


The following indications are possible:

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

4.2.1.8. Displaying the Link Input Status

This menu selection displays the *Link Input Status*. To display the *Link Input Status* from the **STAT** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **REF** menu item, followed by **INP**.

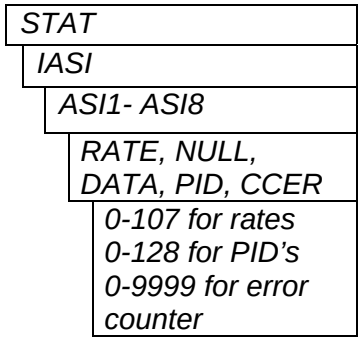


The following indications are possible:

LOS	Link Lost
FOS	Frequency Offset
OK	Link Valid

4.2.1.9. Displaying Input ASI Status Information

This menu selection displays various information contained in the input DVB-ASI stream. Parameters such as *Total TS Bit Rate*, *Null Packet Bit Rate*, *Useful Bit Rate*, *Number of Active PID's*, and *Number of Continuity Count Errors* can be displayed. To display the *ASI Status Information* from the **STAT** menu, use the toggle switch/pushbutton to select the **IASI** menu and then choose one of **RATE, NULL, DATA, PID,** or **CCER** under **ASI(1-8).**

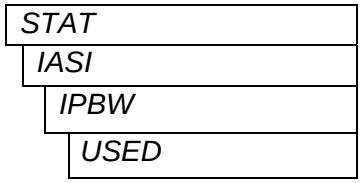


The following indications are possible:

RATE	Total TS Bit Rate
NULL	Null Packet Bit Rate
DATA	Useful Bit Rate
PID	Number of Active PID's
CCER	Number of Continuity Count Errors

4.2.1.10. Displaying the Total Input ASI Bandwidth Used

This menu selection displays the sum of the 8 input channel bandwidths. To display the *Total Input Bandwidth* used from the **STAT** menu, use the toggle switch/pushbutton to select the **IASI** menu and then choose **IPBW,** followed by **USED.**

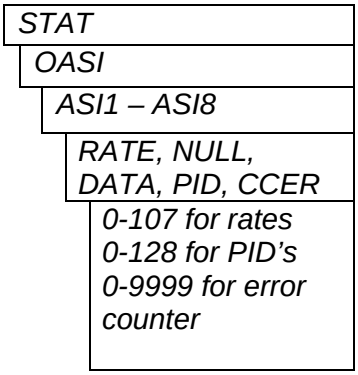


The following indications are possible:

USED	Combined Input Bandwidth

4.2.1.11. Displaying Output ASI Status Information

This menu selection displays various information contained in the output DVB-ASI stream. Parameters such as *Total TS Bit Rate*, *Null Packet Bit Rate*, *Useful Bit Rate*, Number of Active PID's, and *Number of Continuity Count Errors* can be displayed. To display the *ASI Status Information* from the **STAT** menu, use the toggle switch/pushbutton to select the **OASI** menu and then choose one of **RATE, NULL, DATA, PID,** or **CCER** under **ASI(1-8).**

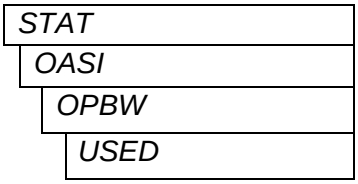


The following indications are possible:

RATE	Total TS Bit Rate
NULL	Null Packet Bit Rate
DATA	Useful Bit Rate
PID	Number of Active PID's
CCER	Number of Continuity Count Errors

4.2.1.12. Displaying the Output ASI Bandwidth Used

This menu selection displays the sum of the 8 output channel bandwidths. To display the T*otal Output Bandwidth Used* from the **STAT** menu, use the toggle switch/pushbutton to select the **OASI** menu and then choose **OPBW**, followed by **USED**.

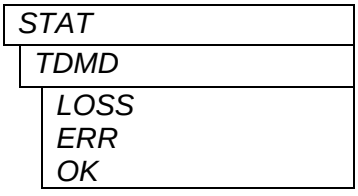


The following indications are possible:

USED	Combined Output Bandwidth

4.2.1.13. Displaying the TDMD Data Errors

This menu selection displays the errors in the clear channel TDM data. This allows the user to monitor if transmission errors are occurring at the SONET network or at the TDM stream. To display the *TDMD Data Error* from the **STAT** menu, use the toggle switch/pushbutton to select the **TDMD** menu.

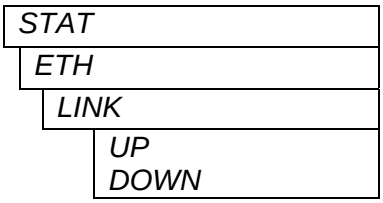


The following indications are possible:

LOSS	TDM Data Lost
ERR	TDM Error Detected
OK	TDM Data is present and no errors are detected

4.2.1.14. Displaying the Ethernet Status

This menu selection displays the Ethernet Status. To display the Ethernet Status from the **STAT** menu, use the toggle switch/pushbutton to select the **ETH** menu and then choose **LINK.**

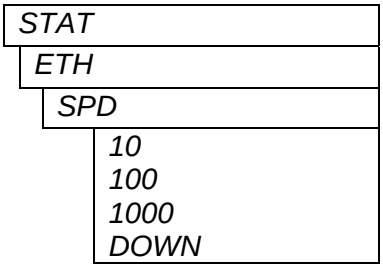


The following indications are possible:

UP	Ethernet input present
DOWN	Ethernet input not present

4.2.1.15. Displaying the Ethernet Speed

This menu selection displays the *Ethernet Transmission Speed*. To display the *Ethernet Transmission Speed* from the **STAT** menu, use the toggle switch/pushbutton to select the **ETH** menu and then choose **SPD.**

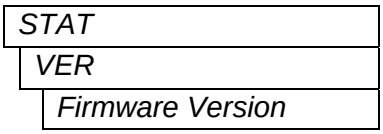


The following indications are possible:

10	10Mb/s Ethernet Link established
100	100Mb/s Ethernet Link established
1000	1000Mb/s Ethernet Link established
DOWN	No Ethernet Link established

4.2.1.16. Displaying Firmware Version

To display the module firmware version from the **STAT** menu, use the toggle switch/pushbutton to select the **VER** menu item.



The following indications are possible:

VER	Firmware version

4.2.2. Control Menu

The *Control* menu enables the user to control and set different parameters on 7707VB-8-ASI-OC3 cards.

Level 1	Level 2	Level 3	Level 4	Level 5	Level 6
CTRL	FIBR	STD	BACK, OC, SDH		
		LASR	BACK, CONT, DISC		
		REF	LINK, XO, AUTO		
		CIC	ALL, 15m, 24h	CLR, BACK	
		LOSL	CLR, BACK		
		CESR	CLR, BACK		
		SETH	SESS, SESL, SESP, SEFS	1 to 9999	
	PSWD	0 to 9999			
	These values may only be modified if the correct passcode is entered	PWSL	0 to 9999		
		IN1	OUTP	DIS, EN	
			MAXB	1-107	
		IN2	OUTP	DIS, EN	
			MAXB	1-107	
		IN3	OUTP	DIS, EN	
			MAXB	1-107	
		IN4	OUTP	DIS, EN	
			MAXB	1-107	
		IN5	OUTP	DIS, EN	
			MAXB	1-107	
		IN6	OUTP	DIS, EN	
			MAXB	1-107	
		IN7	OUTP	DIS, EN	
			MAXB	1-107	
		IN8	OUTP	DIS, EN	
			MAXB	1-107	
		OUT1, OUT2, OUT3, OUT4, OUT5, OUT6, OUT7, OUT8	OUTP, BACK	DIS, EN	
	ERST	IASI	ASI1, ASI2, ASI3, ASI4, ASI5, ASI6, ASI7, ASI8	BACK, RST	
		OASI	ASI1, ASI2, ASI3, ASI4, ASI5, ASI6, ASI7, ASI8	BACK, RST	
	OASI	ASI1, ASI2, ASI3, ASI4, ASI5, ASI6, ASI7, ASI8	CONT, DISC		
	DISP	HORZ, VERT			

Figure 4-4: Control Menu

4.2.2.1. Setting the Optical Link Standard

The *Optical Link Standard* can be controlled using menu selections. To configure the *Optical Link Standard* from the **CTRL** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **STD** menu item.

CTRL
FIBR
STD
OC
SDH

The following selections are available:

OC	SONET Interface
SDH	SDH Interface

4.2.2.2. Setting the Behavior of Laser when no Signal is Applied

The behavior of the laser transmitter when there is no video signal applied to the coaxial video inputs can be controlled using menu selections. To configure the *Laser Behavior* when *No Signal* is applied from the **CTRL** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **LASR** menu item.

CTRL
FIBR
LASR
CONT
DISC

The following selections are available:

CONT	Laser is on regardless of input
DISC	Laser is on with signal present and off with no signal present

4.2.2.3. Setting the Clock Source

Three clock settings are available for serial fiber output. To configure the *Clock Source* from the **CTRL** menu, use the toggle switch/pushbutton to select **FIBR** menu item and then choose the **REF** menu item.

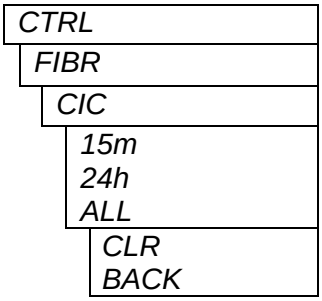
CTRL
FIBR
REF
XO
LINK
AUTO

The following selections are available:

XO	Sets the Stratum 3 oscillator as the clock source
LINK	Sets the POS Link clock as the clock source
AUTO	Automatically select the best setting

4.2.2.4. Clearing the Counters

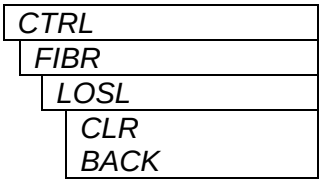
The counter/timer clear can be controlled using menu selections. To configure the counter/timer clear from the **CTRL** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **CIC** menu item.



The following selections are available:

15m	**CLR** to clear the 15-minute counter
24h	**CLR** to clear the 24-hour counter
ALL	**CLR** to clear both counters

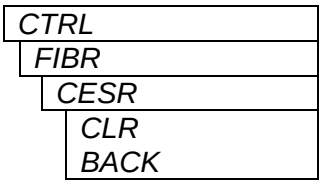
To clear the *Loss of Link Counter* from the **CTRL** menu, use the toggle switch/pushbutton to select the **FIBR** menu and then choose the **LOSL** menu item.



The following selections are available:

LOSL	**CLR** to clear Loss of Link Counter

To clear the *Error Ratios* (ESR SECT, LINE and PATH) from the **CTRL** menu, use the toggle switch/pushbutton to select the **FIBR** menu and then choose the **CESR** menu item.

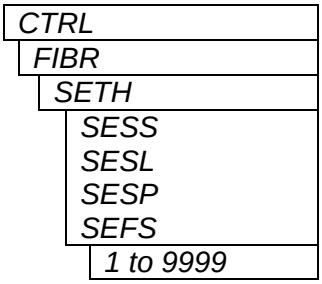


The following selections are available:

CESR	**CLR** to clear all Error Ratios

4.2.2.5. Setting the Severe Errored Second Threshold

The *Severe Errored Second* (SES) threshold can be controlled using menu selections. To configure the *SES Threshold* from the **CTRL** menu, use the toggle switch/pushbutton to select the **FIBR** menu item and then choose the **SETH** menu item.



The following selections are available:

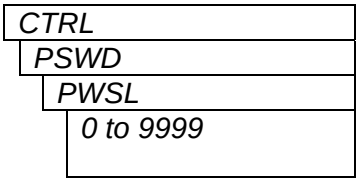
SESS	Severe Errored Seconds – Section
SESL	Severe Errored Seconds – Line
SESP	Severe Errored Seconds – Path
SEFS	Severe Errored Seconds - Frame

4.2.2.6. Passcode Protection Configuration

The channels' passcode protection can be controlled using menu selections. To configure the channel passcode protection from the **CTRL** menu, use the toggle switch/pushbutton to select the **PSWD** menu item. Use the toggle switch to increase or decrease the digits one at a time and use the pushbutton to select each digit until the correct passcode is entered (Default **7154**).

Once the correct passcode is entered, user has the option of blocking individual input or output channels, along with limiting input bandwidth of a particular channel. If the correct passcode is not entered, the user may view the current configuration of these passcode protected menu items, but may not make changes.

The passcode may be changed from the **CTRL** menu. To change the passcode, use the toggle switch/pushbutton to select the **PSWD** menu item and then choose the **PWSL** menu item. A new passcode may then be selected and stored.

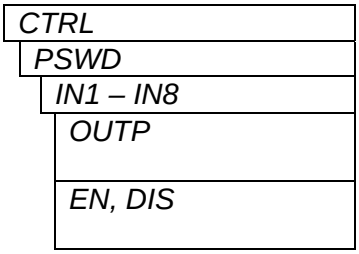


The following selections are available:

PWSL Store a new passcode (0-9999)

This menu is not available without first entering the correct passcode.

To configure *Input Channel Blocking* from the **CTRL** menu, use the toggle switch/pushbutton to select the **PSWD** menu item and then choose from the **IN1 – IN8** menu item, followed by **OUTP** menu item.

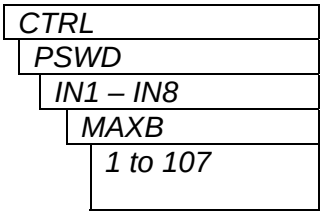


The following selections are available:

EN Enable Input Channel
DIS Disable Input Channel

When Disabled, the data input on the selected signal is not placed on the fiber link data stream.

To configure *Input Channel Bandwidth* from the **CTRL** menu, use the toggle switch/pushbutton to select the **PSWD** menu item and then choose from the **IN1 – IN8** menu item, followed by **MAXB** menu item.

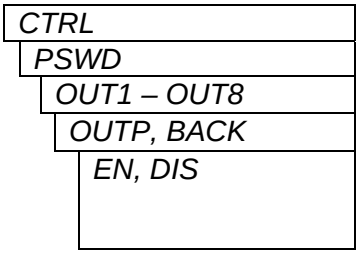


The following selections are available:

MAXB **1 to 107** for each channel with a combined total of **135**

This control enables the user to set the Maximun Input Bandwidth [Mb/s] per Channel Threshold.

To configure *Output Channel Blocking* from the **CTRL** menu, use the toggle switch/pushbutton to select the **PSWD** menu item and then choose from the **OUT1 – OUT8** menu item.



The following selections are available:

EN Enable Input Channel
DIS Disable Input Channel

When Disabled, data on the selected signal is not placed on the output BNC data stream.

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

The text orientation can be controlled using menu selections. To configure the text orientation from the **CTRL** menu, use the toggle switch/pushbutton to select the **DISP** menu item.

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

The following selections are available:

HORZ	Horizontal display
VERT	Vertical display

5. JUMPERS

Several jumpers, located at the front of the module are used to preset various operating modes. Figure 5-1 and 5-2 show the locations of the jumpers on the top board and bottom boards respectively.

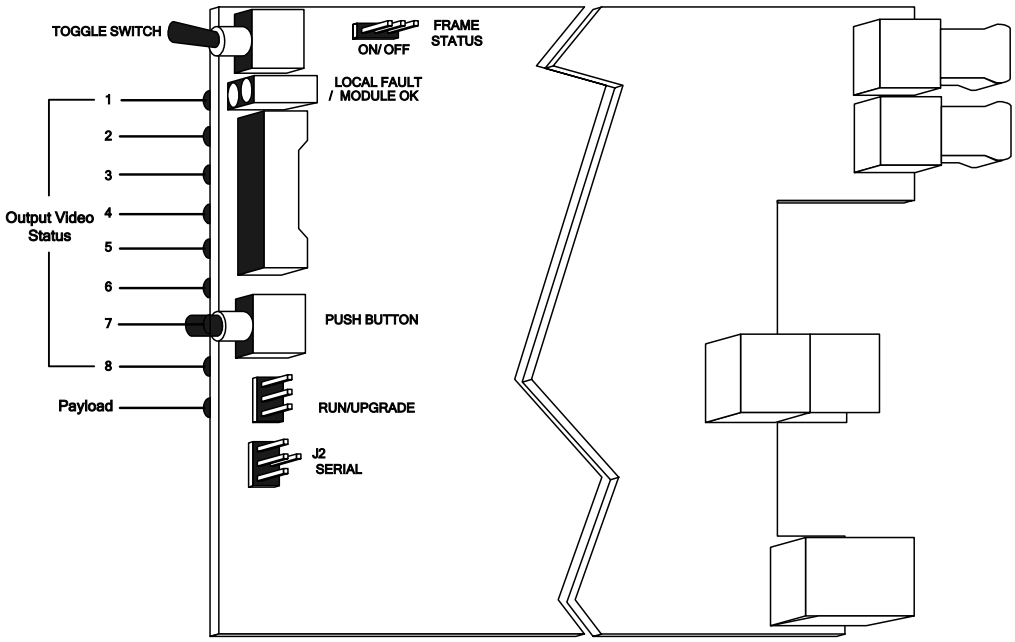


Figure 5-1: Location of Status Indicators and Jumpers – Top Board

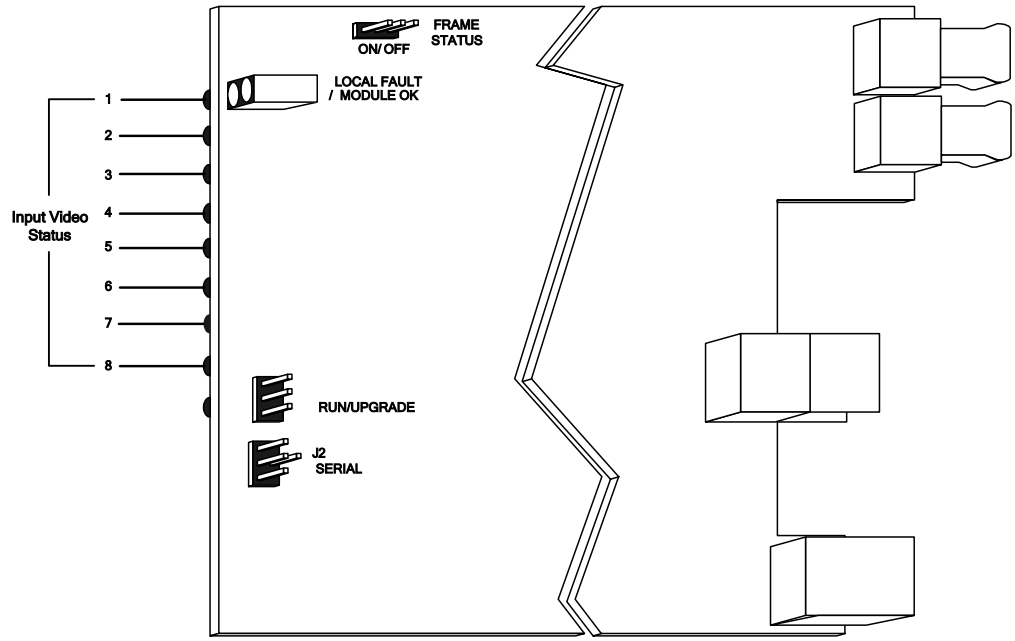


Figure 5-2: Location of Status Indicators and Jumpers – Bottom Board

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

Each of the cards of the module pair needs to be upgraded with its specific firmware (TOP & BOT). Follow the same procedure for both the top and bottom modules. The 7707VB-8-ASI-OC3 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 the enter key. Follow the prompts that are presented on your terminal screen and proceed to download the new firmware specified for this card.

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 7707VB-8-ASI-OC3 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
Card Type	Indicates Card Type.
Optical Standard and Power	Indicates the current transmission standard implemented by the card (SONET or SDH) and the optical power detected on the card.
Input and Output Video Status	Indicates the presence of a valid video signal, Total TS Bit Rate, Null Packet Bit Rate, Useful Bit Rate, Number of Active PID's, and Number of Continuity Count Errors.
Link Input Status	Indicates Link Input Status.
Clock Reference	Indicates the current clock reference set as source.
Errored Seconds – Current and Last	Indicates the errored seconds occurred in 15 min and 24 hr time intervals.
Severe Errored Seconds	Indicates the severe errored seconds occurred in 15 min and 24 hr time interval.
Interval Elapsed Time	Indicates the current timer on 15 minutes and 24 hours counter.
Ethernet	Indicates Ethernet Speed and Link status.
TDMD Status	Indicates TDMD Status.
Firmware Version	Indicates current Firmware Version.

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
Optical Standard	Allows user to set Optical Link Standard.
Laser	Allows the 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 companion 7707VB-8-ASI-OC3.
Reference	Allows the user to select Oscillator, Link or Auto mode for clock settings.
Change Passcode	Setup the Passcode used to access the Video Blocking features.
Threshold	Allows the user to set Optical Level and Errored Seconds Threshold.
Video Block	Allows the user to enable/disable specific input or output video paths.
Output Mode	Allows the user to set output on loss to DISC or CONT mode.
Clear Counters	Allows the user to clear all error counters and reset the timer.

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

6.4. *VISTA*LINK® TRAPS

The following traps can be *Vista*LINK® enabled and monitored.

Trap	Description
Input and Output Video Loss	Triggers when there is a loss of a valid video signal on channels 1-8.
Input Bandwidth	Triggers when Input 1-8 bandwidth is exceeded.
Input and Output Continuity Count Error	Triggers when Input or Output 1-8 detects Continuity Count Errors.
Laser Fault	Triggers when laser fault is detected.
Link Loss	Triggers when a link loss is detected.
Severe Errored Second	Triggers when one or all of severe errored thresholds are crossed.
Errored Second	Triggers when Line, Path or Section errored second is present.
Ethernet Link	Triggers when Ethernet Link is lost.
Optical Power Threshold	Triggered when optical threshold exceeds Optical Power Input.

Table 6-3: *Vista*LINK® Traps