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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Preliminary Version	Mar 05
1.1	Elaborated link specifications and operation details	Mar 05
1.2	Updated safety section and added assembly and labeling sections	Aug 05
1.3	Updated specifications	Sep 05
1.4	Minor corrections throughout manual	Apr 07
1.5	Added table format throughout section 4. General clean up.	Feb 09

WARNING

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

Do not hook up the 7707MT-HD DWDM cards directly with a short fiber optic cable. The 7707MT-HD DWDM cards produce +7dBm of power, which will damage the receiver if connected directly.

1. OVERVIEW

The 7707MT-HD is a VistaLINK® enabled fiber transmitter that extends one HD or SD digital video signal over a fiber optic link, accompanied by four AES audio signals, serial data, and one GPIO signal. Audio and control signals are embedded into HD, SD, or SDTi video for optical transport. Embedded audio and control are extracted from the optical signal by a companion receiver module. The 7707MT-HD is designed to operate with a companion 7707MR-HD receiver, to permit communication over fiber optic cable with low latency.

Monitoring and control of card status and parameters is provided locally at the card-edge, or remotely via VistaLINK® capability. The optical output is available in an assortment of optical wavelengths, accommodating 1310nm, 1550nm, CWDM, or DWDM transmission schemes. The 7707MT-HD occupies one card slot and can be housed in either a 1RU frame, which will hold up to three modules, or a 3 RU frame, which will hold up to 15 modules.

Features
- HD/SD video, AES audio, serial data, and GPIO conveniently presented in a single product.
- Provides embedding of audio and control signals into HD-SDI (SMPTE 292M), SD-SDI (SMPTE 259M-C), or SDTi (SMPTE 305.2M).
- Audio sample rate conversion permits asynchronous input of 32KHz, 44.1KHz, or 48KHz AES, with up to 24-bit resolution.
- Audio sample rate conversion may be disabled to permit Dolby-E support.
- With sample rate conversion enabled, transport of audio and control signals is independent of video interruptions other than format change.
- Audio inputs automatically accept balanced or unbalanced AES without configuration.
- Bi-directional serial port accommodates RS-422, RS-232, or RS-485 data.
- Serial data rates up to 153Kb/s with low latency through link.
- Monitoring of input video format, audio group availability, EDH or CRC errors, and optical power.
- Configurable embedding and selectable input video cleaning provide flexibility.
- Comprehensive signal and status monitoring via four-digit card-edge display or VistaLINK®.
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant).
- DWDM wavelengths also available (ITU-T G.694.1 compliant).
- Compatible with multi-mode and single-mode fiber (dual fiber version).
- SC/PC, ST/PC, or FC/PC fiber connector options.
- Fully hot-swappable from front of frame.
- VistaLINK® enabled for remote monitoring and control when installed in 7700FR-C frame with 7700FC VistaLINK® Frame Controller.

Application Configuration:

Several versions of the 7707MT-HD allow the user to choose the optimal function / price / performance ratio to suit a particular application. Versions with an F2 suffix transmit and receive optical over separate fibers. Versions with a W suffix transmit (1550nm) and receive (1310nm) on different wavelengths over a single fiber. Versions with no suffix transmit and receive on the same wavelength (1310nm) over a single fiber.

Table 1-1 shows typical applications and power budget calculations for the 7707MT-HD series.

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE ORDERING INFO	TX POWER	RECEIVE SIDE ORDERING INFO	Rx SENSITIVITY	DESCRIPTION
Multi-Mode	2	<1kM	7707MT13-HD-F2	-7dBm	7707MR13-HD-F2	-23dBm	1310nm on Tx & Rx fibers
Single Mode	2	16dB/45Km	7707MT13-HD-F2	-7dBm	7707MR13-HD-F2	-23dBm	1310nm on Tx & Rx fibers
Single Mode	1	9dB/25Km*	7707MT13-HD	-10dBm	7707MR13-HD	-19dBm	1310nm, bi-directional, one fiber
Single Mode	1WDM	20dB/57Km	7707MT15-HD-W	-1dBm	7707MR13L-HD-W	-21dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single Mode	1CWDM	19dB/76Km**	7707MTyy-HD-F2	0dBm	7707MRxx-HD-F2	"-23dBm	Different CWDM wavelengths for Tx & Rx with 8 channel CWDM Mux/Demux**
Single Mode	1CWDM	24dB/96Km**	7707MTyy-HD-F2	0dBm	7707MRxx-HD-F2-H	"-28dBm	Different CWDM wavelengths for Tx & Rx with 8 channel CWDM Mux/Demux**,
Single Mode	1DWDM	25dB/100Km**	7707MTDyyy-HD-F2	"+7dBm	7707MRDxxx-HD-F2	"-23dBm	Different DWDM wavelengths for Tx & Rx with 8 channel DWDM Mux/Demux***
Single Mode	1DWDM	30dB/120Km***	7707MTDyyy-HD-F2	"+7dBm	7707MRDxxx-HD-F2-H	"-28dBm	Different DWDM wavelengths for Tx & Rx with 8 channel DWDM Mux/Demux***
With >20dB return loss on fiber interface				Tx Power Rx Sensitivity are nominal values ±1dBm			
** Assumes 8ch CWDM Mus/Demux loss of 3.5dB				Fiber loss = 0.35/0.25dB per Km @1310nm/1550nm			
***Assumes 8 Ch DWDM Mux/Demux loss of 5dB							

Table 1-1: 7707MT-HD Application Configuration
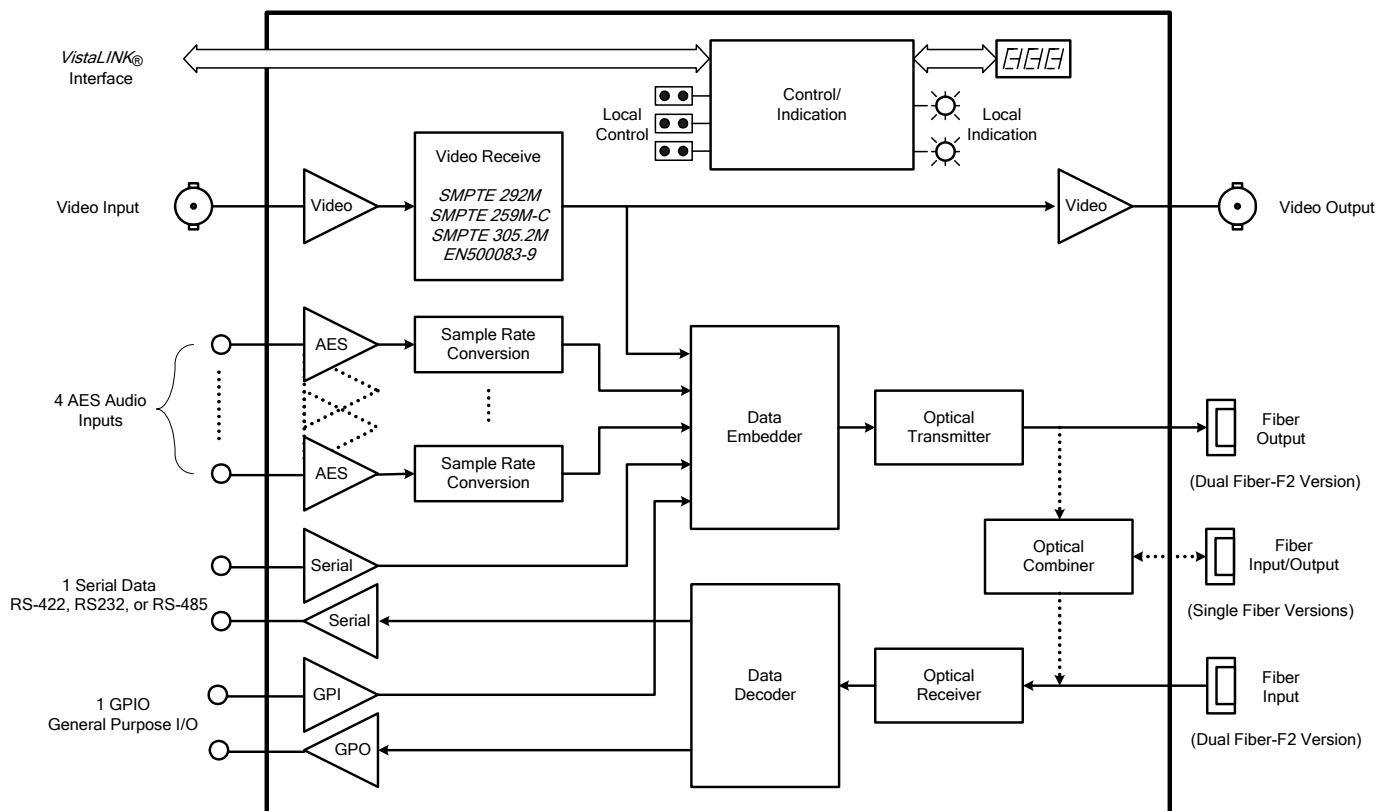
Figure 1-1: 7707MT-HD Block Diagram

2.   INSTALLATION

Each 7707MT-HD module comes with a companion rear plate that has two BNC connectors, a multi-pin removable terminal block, and an SC/PC (shown), ST/PC or FC/PC optical connector. For information on mounting the rear plate and inserting the module into the frame see section 3 of the 7700FR chapter. The following diagram shows single-fiber and dual-fiber rear plate options.
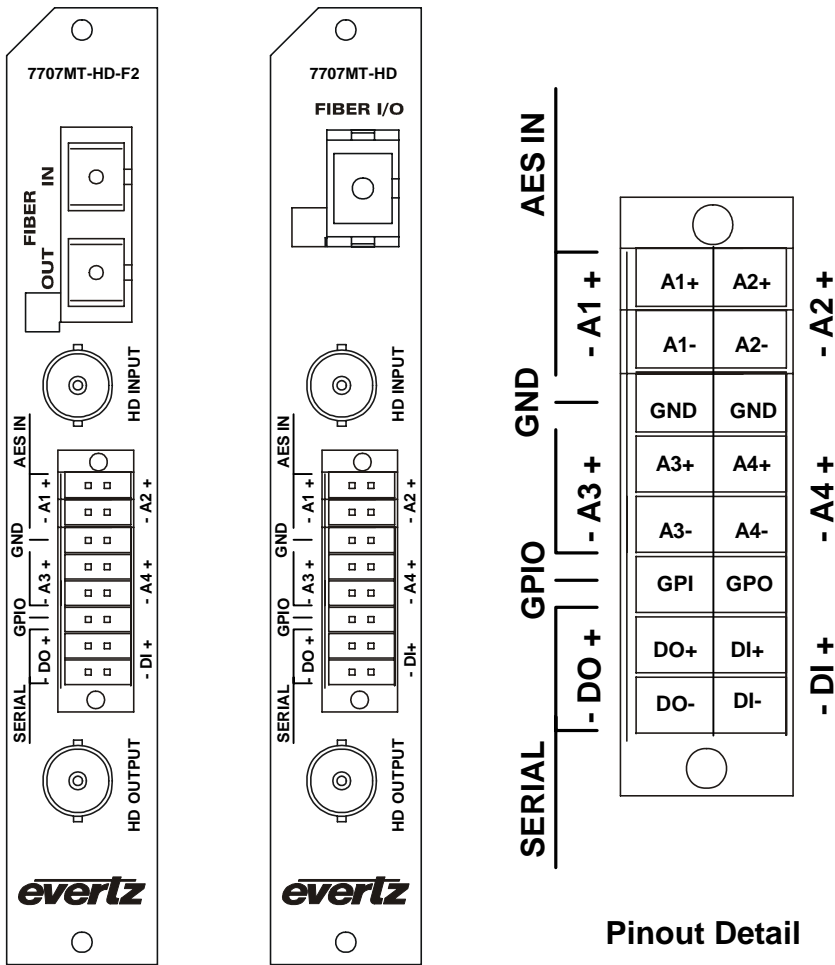
Figure 2-1: 7707MT-HD Rear Plates & Pin Out

2.1.   ELECTRICAL SIGNAL CONNECTIONS

HD INPUT: Input BNC connector for serial digital video signals compatible with HD-SDI (SMPTE 292M), SD-SDI (SMPTE 259M-C), and SDTi (SMPTE 305.2M) standards. This input provides adaptive equalization for up to 100m of industry standard Belden 1694A cable, at 1.485Gb/s. At 270Mb/s, this input provides adaptive equalization for up to 300m of Belden 1694A cable. See section 3.1 for video input specifications**.**

HD OUTPUT: Reclocked, level-restored, loop-back output BNC connector for serial digital video signals compatible with HD-SDI (SMPTE 292M), SD-SDI (SMPTE 259M-C), SDTi (SMPTE 305.2M), or DVB-ASI (EN 500083-9) standards. See section 3.2 for video output specifications**.**

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

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

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

See section 3.3 for AES audio input specifications.

SERIAL IN: Bi-directional serial data connections of the removable terminal block. The 7707MT-HD accommodates one channel of RS-422, RS-232, or RS-485 serial data. Data input connections are labeled DI, while data output connections are labeled DO. The card must be configured for use with the RS-422, RS-232, or RS-485, as described in section 3.4. Serial data connections are assigned per the data type selected. RS-422 and RS-232 signals are connected as follows:

RS-422 - Connect positive and negative RS-422 input and output signals to the corresponding positive and negative terminals of the 7707MT-HD. Bi-directional data will be communicated to and from the companion 7707MR-HD.

RS-232 - Connect each RS-232 input data signal to the positive or negative DI terminal of the 7707MT-HD. The companion 7707MR-HD will output each signal on the corresponding positive or negative DO terminal. Likewise, serial data signals applied to the companion 7707MR-HD will be output from the 7707MT-HD.

RS-485 - Operation with RS-485 requires that DI and DO terminals be connected together. The DI+ terminal should be connected to the DO+ terminal, and the DI- terminal should be connected to the DO- terminal. Connect positive and negative RS-485 signals to the corresponding positive and negative terminals of the 7707MT-HD.

See section 3.4 for serial data specifications.
See section 4.2.10 to 4.2.15 for serial data configuration instructions.

GPIO: General Purpose Input and Output connections of the removable terminal block. The General Purpose Output is a normally-open dry-contact relay closure. The General Purpose Input is an active-low, opto-isolated connection.

See section 3.5 for GPIO specifications.

2.2. OPTICAL SIGNAL CONNECTIONS

For details about link operation, see sections 4.1 and 4.2.

2.2.1. Single Fiber Version

FIBER I/O: This is the optical input/output of the single-fiber 7707MT-HD version of the module. The connector is a female SC/PC (shown), ST/PC, or FC/PC connector as specified at the time of purchase. This input/output should be connected to the FIBER I/O connector of a companion single-fiber 7707MT-HD module with a suitable fiber optic cable.

Single-fiber versions of the 7707MT-HD are designed to work with single-mode fiber optic cable. Single fiber 7707MT13-HD versions use 1310nm wavelengths. Single fiber 7707MT15-HD-W versions transmit and receive on 1550nm and 1310nm wavelengths respectively.

Note that while the optical input to the companion 7707MR-HD is invalid (i.e. not connected) then the optical output of the companion 7707MR-HD will also be invalid. This will result in a LINK…LOS condition (section 4.2.1) at the optical input of the 7707MT-HD

The optical output of the 7707MT-HD can be configured to operate in continuous or discontinuous mode as described in section 4.2.8. If discontinuous mode is selected, while the video input to the 7707MR-HD is invalid (VID…LOS condition, section 4.2.1) then this optical output will be disabled. If continuous mode is selected, then a valid optical video output will be maintained.

2.2.2. Dual Fiber Versions

FIBER IN: This is the optical input to the dual-fiber 7707MT-HD-F2 version of the module. The connector is a female SC/PC (shown), ST/PC, or FC/PC connector as specified at the time of purchase. This input should be connected to the FIBER OUT connection of a companion dual-fiber 7707MT-HD-F2 module with a suitable fiber optic cable. The dual fiber 7707MT-HD-F2 version accepts input wavelengths from 1270nm to 1610nm, accommodating standard, CWDM or DWDM transmission schemes. When connected directly to a companion dual-fiber module, the 7707MT-HD-F2 is compatible with multi-mode fiber optic cable. If not connected directly (i.e. connected through CWDM, DWDM, WDM, or splitter/combiner) the 7707MT-HD-F2 is compatible only with single-mode fiber optic cable.

Note that while the optical input to the companion 7707MR-HD is invalid (i.e. not connected) then the optical output of the companion 7707MR-HD will also be invalid. This will result in a LINK…LOS condition (see section 4.2.1) at the optical input of the 7707MT-HD.

FIBER OUT: This is the optical output of the dual-fiber 7707MT-HD-F2 version of the module. The connector is a female SC/PC (shown), ST/PC, or FC/PC connection as specified at the time of purchase. This optical output is available in 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant). This output should be connected to the FIBER IN connector of a companion dual-fiber 7707MT-HD-F2 module with a suitable fiber optic cable. The output wavelength is marked on the rear panel of each 7707MT-HD-F2. When connected directly to a companion dual-fiber module, the 7707MT-HD-F2 is compatible with multi-mode fiber optic cable. If not connected directly (i.e. connected through CWDM, DWDM, WDM, or splitter/combiner) the 7707MT-HD-F2 is compatible only with single-mode fiber optic cable.

The optical output of the 7707MT-HD can be configured to operate in continuous or discontinuous mode as described in section 4.2.8. If discontinuous mode is selected, while the video input to the 7707MR-HD is invalid (VID…LOS condition, section 4.2.1), then this optical output will be disabled. If continuous mode is selected, then a valid optical video output will be maintained.

2.3. CARE AND HANDLING OF OPTICAL FIBER

2.3.1. Safety

⚠ !	**CLASS 1 LASER PRODUCT**

Background colour: yellow
Triangular band: black
Symbol: black

2.3.2. Assembly

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

2.3.3. Labeling

Certification and Identification labels are combined into one label. As there is no 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: 7707MT13-HD, 7707MT13-HD-F2, 7707MT15-HD-W
  7707MTxx-HD, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61)
  7707MTDyyy-HD (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**

2.3.4. Handling and Connecting Fibers

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

The transmission characteristics of the fiber are dependent on the shape of the optical core and therefore care must be taken to prevent fiber damage due to heavy objects or abrupt fiber bending. Evertz recommends that you maintain a minimum bending radius of 5 cm to avoid fiber-bending loss that will decrease the maximum attainable distance of the fiber cable. The Evertz fiber optic modules come with cable lockout devices, to prevent the user from damaging the fiber by installing a module into a slot in the frame that does not have a suitable I/O module. For further information about care and handling of fiber optic cable see section 3 of the Fiber Optics System Design section of this manual binder.

3.   SPECIFICATIONS

3.1.   SERIAL DIGITAL VIDEO INPUT

Number of Signals: 1 Input
Standards: SMPTE 292M (HD-SDI), SMPTE 259M-C (SD-SDI),
                                  SMPTE305.2M (SDTi)
Connector: BNC input per IEC 169-8
Equalization: Automatic to 100m (typ) @ 1.485Gb/s with Belden 1694A or equivalent
                                  cable
                                  Automatic to 250m (typ) @ 270 Mb/s with Belden 1694A or equivalent cable
Return Loss: > 15 dB up to 1.5GHz

3.2.   SERIAL DIGITAL VIDEO OUTPUT

Number of Signals: 1 Output
Standards: SMPTE 292M (HD-SDI), SMPTE 259M-C (SD-SDI),
                                  SMPTE305.2M (SDTi), EN500083-9 (DVB-ASI)
Connectors: BNC per IEC 169-8
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 150ps nominal @1.485Gb/s
                                  600ps nominal @270Mb/s
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 1.5GHz
High Freq. Jitter: < 0.2 UI

3.3.   AES AUDIO INPUTS

Number of Signals: 4 Inputs
Standards: AES3-2003 (Balanced AES), SMPTE 276M (Unbalanced AES)
Connector: 16 pin removable terminal strip
Sampling Rate: 32KHz, 44.1KHz, 48kHz
Resolution: up to 24 bits
Minimum Input: < 200mVp-p
Maximum Input:
  Balanced: > 7Vp-p
  Unbalanced: > 1.2Vp-p
Equalization:
  Balanced: < 1500ft @ 48KHz, with Belden 1800B, and 2Vp-p source signal
  Unbalanced: < 1200m @ 48KHz, with Belden 8281, and 1Vp-p source signal
Impedance:
  Balanced: ≈ 110Ω
  Unbalanced: ≈ 75Ω
Return Loss: > 15dB, from 1MHz to 6MHz
Wideband Jitter: < 10nsp-p, with conditions of minimum to maximum cable length

3.4.   SERIAL DATA

Number of Signals:	1 input/output
Connector at Breakout:	Multi-pin Removable Terminal Block
Signal Type:	RS-422, RS-232, or RS-485 (selectable)
Input Termination:	High impedance
Input Failsafe Bias:	5KΩ to 5V on DI+ (selectable)
Baud Rate:	Up to 153Kb/s (selectable

3.5.   GENERAL PURPOSE INPUTS

Number of Signals:	1 Input
Connector at Breakout:	Multi-pin Removable Terminal Block
Type:	Opto-isolated, Active low
Input Voltage:	
Safe Voltage Range:	-20V to +10V
Off Condition (min):	+3.5V
On Condition (max):	+2.5V (active low)
Input Current (min):	1mA
Input Current (max):	10mA (internally limited)

3.6.   GENERAL PURPOSE OUTPUTS

Number of Signals:	1 GPO Outputs, 1 Common Reference (GPO COMMON)
Connector at Breakout:	Multi-pin Removable Terminal Block
Output Type:	Dry contact relay closure to GPO COMMON, normally open
Output Current (min):	100mA

3.7.   OPTICAL INPUTS/OUTPUTS

Number of Connections:	1 (Single fiber version)
	2 (Dual fiber version)
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
Input Optical Sensitivity:	See Table 1-1
Wavelengths:	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm (See ordering information)
DWDM:	C-Band/L-Band (ITU-T G.694.1 compliant)
Output Power:	
1310nm FP:	-7dBm $\pm$ 1dBm
CWDM:	0dBm $\pm$ 1dBm
DWDM:	+7dBm $\pm$ 1dBm

3.8.   ELECTRICAL

Voltage: +12VDC
Power:
  Non-DWDM: 9W
  DWDM: 12W

3.9.   PHYSICAL

7700 or 7701 frame mounting
Number of slots: 1

4. STATUS INDICATORS AND DISPLAYS

The 7707MT-HD has 8 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.
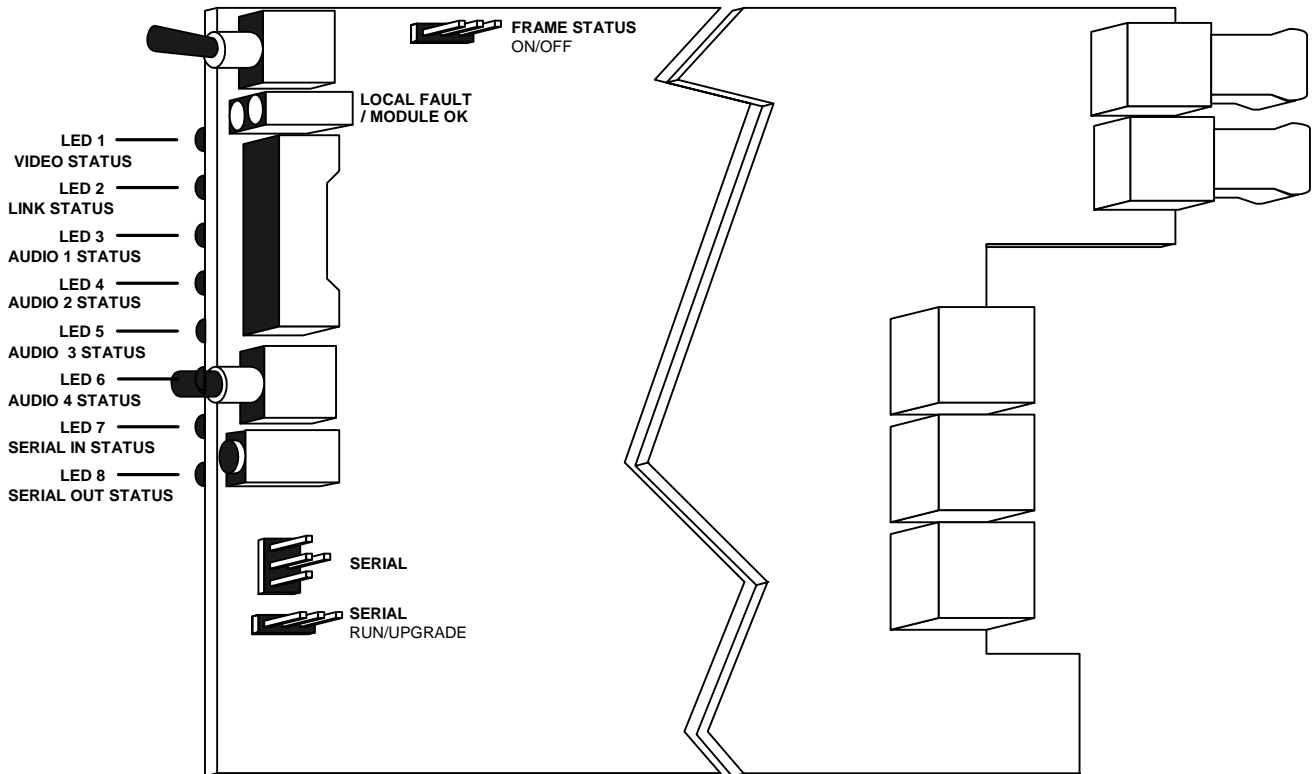
Figure 4-1: Location of Status Indicators and Jumpers

4.1. STATUS INDICATOR LEDS

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

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

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

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

LED 1, VIDEO STATUS: This LED indicates the status of the video Input. When a valid input video signal is detected the LED will be green. When CRC errors are detected within the input video signal (with error detection enabled, see section 4.2.17) the LED will flash red. If no video is detected on the video input of the 7707MT-HD the LED will remain off.

LED 2, LINK STATUS: This LED indicates the status of the Fiber Input. When a valid optical input signal is detected the LED will be green. When CRC errors are detected within the input video signal (with error detection enabled, see section 4.2.16) the LED will flash red. If no valid optical signal is detected on the fiber input of the 7707MT-HD the LED will remain off. Note that while the optical input to the companion 7707MR-HD is invalid (eg. not connected) then the optical output of the companion 7707MR-HD will also be invalid. This will result in a LINK…LOS condition (section 4.2.1) at the optical input of the 7707MT-HD.

LED 3, AUDIO 1 STATUS: This LED indicates the status of Audio Input 1. When a valid input audio signal is detected the LED will be green. When errors are detected within the input audio signal (with error detection enabled, see section 4.2.18) the LED will flash red. If no audio is detected on the first audio input of the 7707MT-HD the LED will remain off.

LED 4, AUDIO 2 STATUS: This LED indicates the status of Audio Input 2. When a valid input audio signal is detected the LED will be green. When errors are detected within the input audio signal (with error detection enabled, see section 4.2.18) the LED will flash red. If no audio is detected on the second audio input of the 7707MT-HD the LED will remain off.

LED 5, AUDIO 3 STATUS: This LED indicates the status of Audio Input 3. When a valid input audio signal is detected the LED will be green. When errors are detected within the input audio signal (with error detection enabled, see section 4.2.18) the LED will flash red. If no audio is detected on the third audio input of the 7707MT-HD the LED will remain off.

LED 6, AUDIO 4 STATUS: This LED indicates the status of Audio Input 4. When a valid input audio signal is detected the LED will be green. When errors are detected within the input audio signal (with error detection enabled, see section 4.2.18) the LED will flash red. If no audio is detected on the fourth audio input of the 7707MT-HD the LED will remain off.

LED 7, SERIAL IN STATUS: This LED indicates the status of Serial input data. When a valid input data signal is detected the LED will be green. When parity errors are detected (with error detection enabled, and parity information present) the LED will flash red. If no data is detected on the serial data input of the 7707MT-HD the LED will remain off.

LED 9 SERIAL OUT STATUS: This LED indicates the status of Serial output data. When a valid output data signal is detected the LED will be green. If no output serial data is detected the LED will remain off.

4.2.   DOT MATRIX DISPLAY

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

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

Pushbutton ⇨				
Menu Level 1	**Menu Level 2**	**Menu Level 3**	**Menu Level 4**	**Menu Level 5**

Indications

LASR...ERR (Laser Error)
Supersedes
LINK...LOS (Fiber-Link Loss)
Supersedes
VID...LOS (Video Loss)
Supersedes
OK (Ay-Okay)

⇧ Toggle Switch ⇩

Selections / Selections / Selections / Indications

STAT (Status)

VIN (Video Input)
- **STD** (Video Standard) — Indications: **Standards Per Table**, **LOS** (Loss of VIdeo)
- **GRP1** (Audio Group 1) / **GRP2** (Audio Group 2) / **GRP3** (Audio Group 3) / **GRP4** (Audio Group 4) — Indications: **FREE** (Group Unused), **USED** (Group Used), **CLN** (Group Cleaned), **LOS** (Loss of Video)

AIN1 (Audio Input 1) / **AIN2** (Audio Input 2) / **AIN3** (Audio Input 3) / **AIN4** (Audio Input 4) — Indications: **32K** (32KHz), **44K** (44KHz), **48K** (48KHz), **LOS** (Loss of Signal)

PWR (Optical Power) — Indications: **-1 to -40** (dBm Value), **OVR** (power over max), **LOW** (power under min)

VER (Software Version) — Indications: **Software Version**

BACK (Abort)

CTRL (Control)

FOUT (Fiber-Link Output)
- **LASR** (Laser Enable Mode) — Selections: **CONT** (Continuous), **DISC** (Discontinuous)

AIN1 (Audio Input 1) / **AIN2** (Audio Input 2) / **AIN3** (Audio Input 3) / **AIN4** (Audio Input 4)
- **SRC** (Sample Rate Convert) — Selections: **ON** (Enable Conversion), **OFF** (Disable Conversion)

SER (Serial Data)
- **TYPE** (Data Type) — Selections: **232** (RS-232), **422** (RS-422), **485** (RS-485)
- **RATE** (Baud Rate) — Selections: **Selections Per Table**
- **BIAS** (Failsafe Bias) — Selections: **ON** (Bias On), **OFF** (Bias Off)

EMBD (Embedding)
- **A1+2** (AES1 and AES2) / **A3+4** (AES3 and AES4) — Selections: **GRP1** (Audio Group 1), **GRP2** (Audio Group 2), **GRP3** (Audio Group 3), **GRP4** (Audio Group 4), **NONE** (Don't Embed) !Δ used groups are not provided as selections
- **SER** (Serial Data):
  - **LN1** (Vanc Embed Line 1) — Selections: **0** (Line 0) to **2047** (line 2047), **NONE** (Don't Embed Line 1)
  - **LN2** (Vanc Embed Line 2) — Selections: **0** (Line 0) to **2047** (line 2047), **NONE** (Don't Embed Line 2)
  - **DID** (Data ID) — Selections: **50** (DID=50) to **5F** (DID=5F)
  - **SDID** (Secondary Data ID) — Selections: **1** (SDID=1) to **FF** (SDID=FF)
- **GPIO** (GPIO Data):
  - **LN** (Vanc Embed Line) — Selections: **0** (Line 0) to **2047** (line 2047), **NONE** (Don't Embed)
  - **DID** (Data ID) — Selections: **50** (DID=50) to **5F** (DID=5F)
  - **SDID** (Secondary Data ID) — Selections: **1** (SDID=1) to **FF** (SDID=FF)
- **HCLN** (Input Hanc Cleaning) — Selections: **ON** (Clean Input Hanc), **OFF** (Pass Input Hanc)

EDET (Error Detection)
- **FIN** (Fiber-Link Input) — Selections: **ON** (Indicate Errors to LED), **OFF** (Disable Error Indication)
- **ViN** (Video Inputs) — Selections: **ON** (Indicate Errors to LEDs), **OFF** (Disable Error Indication)
- **AIN** (AES Inputs) — Selections: **ON** (Indicate Errors to LEDs), **OFF** (Disable Error Indication)

JACK (Monitor Jack)
- **CHAN** (Audio Channel) — Selections: **AUD1** (Audio 1), **AUD2** (Audio 2), **AUD3** (Audio 3), **AUD4** (Audio 4)
- **VOL** (Volume) — Selections: **0** to **64** (Arbitrary Range)

DISP (Display Orientation) — Selections: **HORZ** (Horizontal), **VERT** (Vertical)

FRST (Factory Reset) — Selections: **NO** (Abort), **YES** (Accept)

BACK (Abort)

**Figure 4-2: Card Edge Menu Structure**

4.2.1. Display Warning Status Indications

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

LASR…ERR:	Laser Error Warning. Flashing indication alternates between **LASR** and **ERR**
LINK…LOS:	Video Loss of Optical Signal. Flashing indication alternates between **LINK** and **LOS**
VID…LOS:	Video Loss of Signal. Flashing indication alternates between **VID** and **LOS**
OK:	Okay. No warning conditions are active

Note that while the optical input to the companion 7707MR-HD is invalid (i.e. not connected) then the optical output of the companion 7707MR-HD will also be invalid. This will result in a LINK…LOS condition at the optical input of the 7707MT-HD.

4.2.2. Displaying the Video Standard

The card-edge display of the 7707MT-HD can report the signal standard present at the active video input. To indicate the input video standard, select the STAT (Status) menu item in menu level 1 followed by VIN (Video Input) and STD (Video Standard) menu items.

1080i/60	1080i/60 standard is present.
1080i/59.94	1080i/59.94 standard is present.
1080i/50	1080i/50 standard is present.
1035i/60	1035i/59.94 standard is present.
1035i/59.94	1035i/59.94 standard is present.
1080i/48	1080i/48 standard is present.
1080i/47.96	1080i/47.96 standard is present.
720p/60	720p/60 standard is present.
720p/59.94	720p/59.94 standard is present.
NTSC	NTSC standard is present.
PAL	PAL standard is present.
LOS	Loss of signal. No valid video signal is detected at the selected input

```
STAT
  VIN
    STD
      STANDARDS PER
      TABLE
      LOS
```

4.2.3. Displaying the Status of Input Video Embedded Audio Groups

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

STAT	
VIN	
GRP1-GRP4	
FREE	
USED	
CLN	
LOS	

FREE	The monitored audio group is unused in applied input video.
USED	The monitored audio group is used in applied input video.
CLN	The monitored audio group is used in applied input video, but has been cleaned by the 7707MT-HD.
LOS	No video input detected.

4.2.4. Displaying the AES Audio Sample Rate

The 7707MT-HD can detect the sample rate of valid AES input audio on each channel, which can be reported to the display. To indicate the AES input sample rate, select the STAT (Status) menu item in menu level 1, followed by the AIN1, AIN2, AIN3, or AIN4 (Audio Input 1 through 4) menu item. The following list describes possible Audio Sample Rate indications:

STAT	
AIN1-AIN4	
32K	
44K	
48K	
LOS	

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

4.2.5. Displaying the Received Optical Power

STAT	
PWR	
-1 to -40	
OVR	
LOW	

-40 to **-1**	Power monitoring range (in dBm units) for the standard optical receiver option.
-40 to **-7**	Power monitoring range (in dBm units) for the high sensitivity (-H) optical receiver option.
OVR	Received optical power is greater than maximum. *CAUTION: Never exceed the maximum specified optical input power for the specific product option that you posses. See section 3.7 for optical input specifications. Exceeding the maximum optical input power can permanently damage the optical receiver.*
LOW	Received optical power is less than –40dBm.

4.2.6. Displaying the Firmware Version

Software operating on the 7707MT-HD has a version number associated with it. This version number can be indicated to the display. By this means, it can be verified that the module is operating with the most recent software. To indicate the software version to the display, select the STAT (Status) menu item in menu level 1, followed by the VER (Software Version) menu item. The following list describes possible indications for this menu selection:

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

4.2.7. Selection the Output Laser Enable Mode

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

CTRL	
FOUT	
LASR	
CONT	
DISC	

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

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

4.2.8. Selecting AES Sample Rate Conversion

Audio must have a sample rate of 48KHz, and be synchronous to video for embedding. To accommodate other input audio sample rates, or asynchronous signals, the 7707MT-HD provides sample rate conversion. Sample rate conversion should be turned on for normal operation, however, Dolby-E audio uses a proprietary encoding scheme that is not compatible with sample rate conversion; it should be disabled for Dolby-E. To enable or disable sample rate conversion, select the CTRL (Control) menu item in menu level 1, followed by the AIN1, AIN2, AIN3, or AIN4 (Audio Inputs 1 through 4) and SRC (Sample Rate Convert) menu items.

CTRL	
AIN1-AIN4	
SRC	
ON	
OFF	

ON   Turns sample rate conversion ON.
OFF   Turns sample rate conversion OFF.

4.2.9. Selecting the Serial Data Type

The serial data interface of the 7707MT-HD is configurable as RS-422, RS-232, or RS485. To select the data type, select the CTRL (Control) menu item in menu level 1, followed by the SER (Serial Data), followed by the TYPE (Data Type).

CTRL
SER
TYPE
232
422
485

232	Configures card to transmit RS232.
422	Configures card to transmit RS422.
485	Configures card to transmit RS485.

4.2.10. Selecting the Serial Data Rate

To select the serial data rate, select the CTRL (Control) menu item in menu level 1, followed by the SER (Serial Data), followed by the RATE (Baud Rate). The following list describes the possible user selections for this menu item:

CTRL
SER
RATE
SELECTIONS PER TABLE

300	Configures card to transmit at 300Kb/s
600	Configures card to transmit at 600 Kb/s
1K2	Configures card to transmit at 1.2 Kb/s
2K4	Configures card to transmit at 2.4 Kb/s
4K8	Configures card to transmit at 4.8 Kb/s
9K6	Configures card to transmit at 9.6 Kb/s
14K4	Configures card to transmit at 14.4 Kb/s
19K2	Configures card to transmit at 19.2 Kb/s
38K4	Configures card to transmit at 38.4 Kb/s
57K6	Configures card to transmit at 57.6 Kb/s
76K8	Configures card to transmit at 76.8 Kb/s
115K	Configures card to transmit at 115 Kb/s
153K	Configures card to transmit at 153 Kb/s

4.2.11. Configuring the Serial Data Fail Safe Bias

RS-485 applications sometimes require a failsafe bias at the serial data interface, to ensure a known signal state while communications are in an idle state. The 7707MT-HD provides a configurable failsafe bias to accommodate such requirements. To configure the failsafe bias, select the CTRL (Control) menu item in menu level 1, followed by the SER (Serial Data), followed by the BIAS (Failsafe Bias).

CTRL
SER
BIAS
ON
OFF

ON	Enables fail safe bias.
OFF	Disables fail safe bias.

4.2.12. Selecting Audio Embedding Group

This user menu item provides configuration of the embedded audio groups. To minimize conflicts, groups that are detected as USED in the applied input video are not provided as selections. To select the audio embedding groups select the CTRL (Control) menu item in menu level 1, followed by the EMBD (Audio Embedding) and A1+2 (AES 1 and AES 2) or A3+4 (AES 1 and AES 2) menu items.

```
CTRL
  EMBD
    A1+2 / A3+4
      GRP1
      GRP2
      GRP3
      GRP4
      NONE
```

GRP1	Embed the selected AES signals (A1+2 or A3+4) into group 1.
GRP2	Embed the selected AES signals (A1+2 or A3+4) into group 2.
GRP3	Embed the selected AES signals (A1+2 or A3+4) into group 3.
GRP4	Embed the selected AES signals (A1+2 or A3+4) into group 4.
NONE	Will not embed the selected AES signals (A1+2 or A3+4) into video.

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

4.2.13. Selecting Serial Data Embedding Parameters

The 7707MT-HD embeds serial data into vertical ancillary (VANC) data space of the video. To provide flexibility, the user is able to configure VANC embedding parameters. Configuration parameters are provided by selecting the CTRL (Control) menu item in menu level 1, followed by the EMBD (Embedding) and SER (Serial Data) menu items.

```
CTRL
  EMBD
    SER
      LN1
      LN2
      DID
      SDID
```

LN1	Serial data embed line 1.
LN2	Serial data embed line 2.
DID	Data ID.
SDID	Secondary Data ID.

Depending on the serial data rate, and available embedding space, serial data may occupy one or two lines of VANC. The 7707MT-HD provides VANC cleaning to accommodate removal of any unwanted VANC data that might be present in input video. The user must note the range of VANC space for the particular standard used, and configure the 7707MT-HD accordingly. If ample space is known to be available on a particular line, and the serial input of the 7707MT-HD is not operating near its maximum speed, then serial data can be embedded onto a single line. To select the data embedding line, select the CTRL (Control) menu item in menu level 1, followed by the EMBD (embedding) and SER (Serial Data) menu items. The following list describes possible user selections for LN1 (VANC Embed Line 1) and LN2 (VANC Embed Line 2) menu item.

```
CTRL
  EMBD
    SER
      LN1 / LN2
        0 to 2047
        NONE
```

`0 to 2047`   Serial Data embed line (note available lines for particular standard).

`NONE`   Disable embedding configured by this parameter (`LN1` or `LN2`).

The SMPTE 291 standard describes ancillary data packet and space formatting. Per this specification, embedded data has an associated Data ID (DID). To configure a desired DID select the `CTRL` (Control) menu item in menu level 1, followed by the `EMBD` (Embedding) and `SER` (Serial Data) menu items. The following list describes possible user selections for `DID` (Data ID)

```
CTRL
  EMBD
    SER
      DID
        50 to 5F
```

`50 to 5F`   Sets the ID used for data embedding.

The SMPTE 291 standard describes ancillary data packed and space formatting. Per this specification, embedded data has an associated Secondary Data ID (SDID). To configure a desired SDID select the secondary data ID line, then select the `CTRL` (Control) menu item in menu level 1, followed by the `EMBD` (Embedding) and `SER` (Serial Data) menu items.

```
CTRL
  EMBD
    SER
      SDID
        1 to FF
```

`1 to FF`   Sets the secondary ID used for data embedding.

4.2.14. Selecting GPIO Embedding Parameters

The 7707MT-HD embeds GPIO into vertical ancillary (VANC) data space of the video. To provide flexibility, the user is able to configure VANC embedding parameters. Configuration parameters are provided by selecting the `CTRL` (Control) menu item in menu level 1, followed by the `EMBD` (Embedding) and `GPIO` (Serial Data) menu items.

```
CTRL
  EMBD
    GPIO
      LN
      DID
      SDID
```

`LN`   Serial data embed line.
`DID`   Data ID.
`SDID` Secondary Data ID.

Embedded GPIO occupies a single VANC line. The 7707MT-HD provides VANC cleaning as detailed in section 4.2.15, to accommodate the removal of any unwanted VANC data that might be present in input video. The user must note the range of VANC space for the particular standard used, and configure the 7707MT-HD accordingly. To select the data embedding line select the CTRL (Control) menu item in menu level 1, followed by the EMBD (embedding) and GPIO (Serial Data) menu items.

```
CTRL
   EMBD
      GPIO
         LN
            0 to 2047
            NONE
```

0 to 2047   Serial Data embed line (note available lines for particular standard).

NONE   Disable embedding configured by this parameter.

The SMPTE 291 standard describes ancillary data packet and space formatting. Per this specification, embedded data has an associated Data ID (DID). To configure a desired DID select the CTRL (Control) menu item in menu level 1, followed by the EMBD (Embedding) and GPIO (Serial Data) menu items.

```
CTRL
   EMBD
      GPIO
         DID
            50 to 5F
```

50 to 5F   Sets the ID used for data embedding.

The SMPTE 291 standard describes ancillary data packed and space formatting. Per this specification, embedded data has an associated Secondary Data ID (SDID). To configure a desired SDID select the secondary data ID line, then select the CTRL (Control) menu item in menu level 1, followed by the EMBD (Embedding) and GPIO (Serial Data) menu items.

```
CTRL
   EMBD
      GPIO
         SDID
            1 to FF
```

1 to FF   Sets the secondary ID used for data embedding.

4.2.15. Selecting Video HANC Cleaning

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

```
CTRL
   EMBD
      HCLN
         ON
         OFF
```

ON   Clears all data in the horizontal ancillary data space.

OFF   Passes all data in the horizontal ancillary data space. The 7707MT-HD will append embedded audio data where space permits.

4.2.16. Selecting Fiber Input Error Detection

The 7707MT-HD is capable of detecting CRC or EDH errors in optical input video. To turn error detection ON or OFF, select the CTRL (Control) menu item in menu level 1 followed by the EDET (Error Detection) menu items, followed by FIN (Fiber Input) menu item.

```
CTRL
   EDET
      FIN
         ON
         OFF
```

ON   Enable error detection. Errors will be reported to the card edge LED or VistaLINK®.

OFF Disable error detection.

4.2.17. Selecting Video Input Error Detection

The 7707MT-HD is capable of detecting CRC or EDH errors at the video input. To turn error detection ON or OFF select the CTRL (Control) menu item in menu level 1 followed by the EDET (Error Detection) menu items, followed by VIN (Video Input) menu item.

```
CTRL
   EDET
      VIN
         ON
         OFF
```

ON   Enable error detection. Errors will be reported to the card edge LED or VistaLINK®.

OFF Disable error detection.

4.2.18. Selecting AES Error Detection

The 7707MT-HD is capable of detecting errors at the AES inputs. To turn error detection ON or OFF select the CTRL (Control) menu item in menu level 1 followed by the EDET (Error Detection) menu items, followed by AIN (AES Inputs) menu item.

```
CTRL
   EDET
      AIN
         ON
         OFF
```

ON   Enable error detection. Errors will be reported to the card edge LED or VistaLINK®.

OFF Disable error detection.

4.2.19. Selecting the Headphone Monitoring Jack Channel

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

CTRL
JACK
CHAN
AUD1
AUD2
AUD3
AUD4

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

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

CTRL
JACK
VOL
0 to 64

0 to 64 Sets the volume of the headphone jack.

4.2.20. Setting the Orientation of the Display

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

CTRL
DISP
HORZ
VERT

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

4.2.21. Selecting the Factory Reset Configuration

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

CTRL
FRST
NO
YES

NO   Do not initialize factory reset. Return to previous menu item, without changes.
YES   Initialize factory reset.

A factory reset will initialize the following configurations (as described by the menu item and selection):

- **CTRL/FOUT/LASR**   **CONT**
- **CTRL/AIN1/SRC**   **ON**
- **CTRL/AIN2/SRC**   **ON**
- **CTRL/AIN3/SRC**   **ON**
- **CTRL/AIN4/SRC**   **ON**
- **CTRL/SER/TYPE**   **422**
- **CTRL/SER/RATE**   **9K6**
- **CTRL/SER/BIAS**   **OFF**
  CTRL/EMBD/A1+2   **GRP1**
- **CTRL/EMBD/A3+4**   **GRP2**
- **CTRL/EMBD/SER/LN1**   **9**
- **CTRL/EMBD/SER/LN2**   **10**
- **CTRL/EMBD/SER/DID**   **52**
- **CTRL/EMBD/SER/SDID**   **1**
- **CTRL/EMBD/GPIO/LN**   **9**
- **CTRL/EMBD/GPIO/DID**   **52**
- **CTRL/EMBD/GPIO/SDID**   **2**
- **CTRL/EMBD/HCLN**   **ON**
- **CTRL/EDET/FIN**   **OFF**
  CTRL/EDET/VIN   **OFF**
- **CTRL/EDET/AIN**   **OFF**
- **CTRL/JACK/CHAN**   **AUD1**
- **CTRL/JACK/VOL**   **30**

5. JUMPERS AND CONTROLS

Several jumpers, located at the front of the module, are used to preset various operating modes.

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

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

5.2. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE: The UPGRADE jumper 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 SERIAL header at the card edge. Re-install the module into the frame. Run the upgrade as described in the *Upgrading Firmware* section of this manual. Once the upgrade is complete, remove the module from the frame, move the UPGRADE jumper into the *RUN* position, remove the upgrade cable and re-install the module. The module is now ready for normal operation.

6. VISTALINK® REMOTE MONITORING/CONTROL

6.1. WHAT IS VISTALINK®?

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

There are 3 components of SNMP:

1. An SNMP manager, also known as a Network Management System (NMS), is a computer running special software that communicates with the devices in the network. Evertz 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 7707MT-HD and 7707MR-HD 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
Laser Error Warning Status	See section 4.2.1
Link Loss Warning Status	See section 4.2.1
Video Loss Warning Status	See section 4.2.1
Standard Error Warning Status	See section 4.2.1
Input Video Standard Status	See section 4.2.2
Input Video Audio Group Status	See section 4.2.3
AES Audio Sample Rate Status	See section 4.2.4
Input Optical Power	See section 4.2.5

Table 6-1: VistaLINK® Monitored Parameters

6.3. VISTALINK® CONTROLLED PARAMETERS

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

Parameter	Description
Optical Output Video Standard Control	See section 4.2.5
Laser Enable Mode Control	See section 4.2.7
Audio Sample Rate Conversion Control	See section 4.2.8
Serial Data Interface Control	See section 4.2.10 through 4.2.14
Audio Embedding Control	See section 4.2.12
Serial Data Embedding Control	See section 4.2.17
GPIO Embedding Control	See section 4.2.14
Input Video HANC Cleaning Control	See section 4.2.15
Input Video VANC Cleaning Control	See section 4.2.15
Fiber Error Detection Control	See section 4.2.16
Video Error Detection Control	See section 4.2.17
Audio Error Detection Control	See section 4.2.18
Serial Data Error Detection Control	

Table 6-2: VistaLINK® Controlled Parameters

6.4. VISTALINK® TRAPS

The following traps are reported via the VistaLINK® interface.

Trap	Description
Laser Error Warning Status	See section 4.2.1
Link Loss Warning Status	See section 4.2.1
Video Loss Warning Status	See section 4.2.1
Standard Error Warning Status	See section 4.2.1

Table 6-3: VistaLINK® Traps

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