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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Original Version	Feb 01
1.1	Added eight new CWDM wavelengths	Dec 02
1.2	Updated optical sensitivity and added –H version	Jul 04
1.3	Updated safety section and added assembly and labeling sections	July 05
1.4	Updated formatting	Nov 08

WARNING

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

Do not hook up the 7705OO-HD DWDM cards directly with a short fiber optic cable. The 7705OO-HD DWDM cards produce +7dBm of power which will damage the receiver if connected directly.

1. OVERVIEW

The 7705OO-HD Fiber Optic Wavelength Converter provides an economical method of converting the wavelength for optical distribution of SMPTE 292M (1.5 Gb/s) HDTV serial digital signals. In addition the module can operate as an optical to coaxial converter. The 7705OO-HD converter features one optical input with two reclocked coaxial outputs and one reclocked fiber output. The 7705OO-HD has been designed to be used primarily as a reclocking 1.5Gb/s distribution amplifier, however, it can also be used as a non-reclocking SMPTE 310M (19.4 Mb/s), DVB-ASI, or SMPTE 259M (143 to 540 Mb/s) distribution product.

The 7705OO-HD is available in different versions to meet a variety of applications. All versions accept 1310 nm to 1610 nm optical input signals on multi-mode or single-mode fiber and translate the signal to the same or a different wavelength as indicated below.

Features:

- Reclocking mode for SMPTE 292M (1.5 Gb/s) signals
- Non-reclock mode for SMPTE 310M (nominal 19.4 Mb/s), SMPTE 259M (143 to 540 Mb/s) or DVB-ASI, or most other bit rates less than 1.5 Gb/s
- Fully hot-swappable from front of frame with no fiber or BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects and maintain polarity from input to output for DVB-ASI applications.
- Operation with multi-mode or single-mode fiber
- SC/PC, ST/PC or FC/PC connector options
- Tally output on Frame Status bus upon loss of input signal

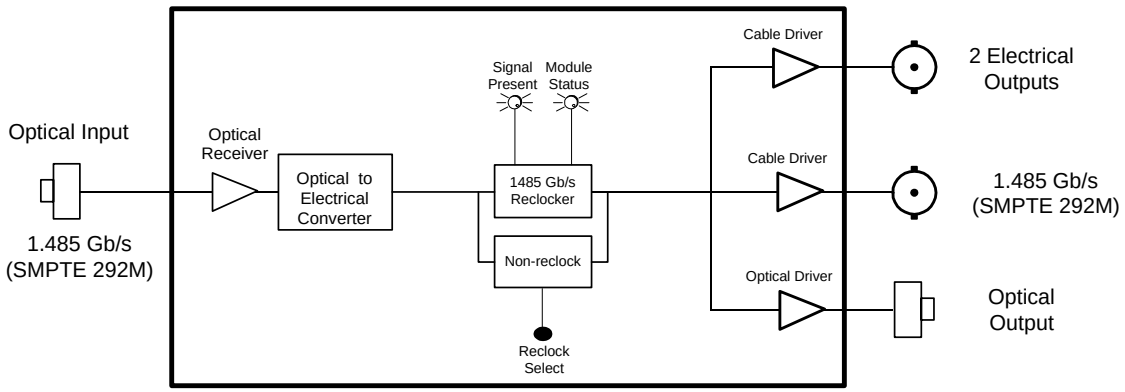

Figure 1-1: 7705OO-HD Block Diagram

2. INSTALLATION

The 7705OO-HD comes with a companion rear plate that has three BNC connectors and two SC/PC (shown), ST/PC or FC/PC optical connectors. For information on mounting the rear plate and inserting the module into the frame see section 3 of the 7700FR chapter.

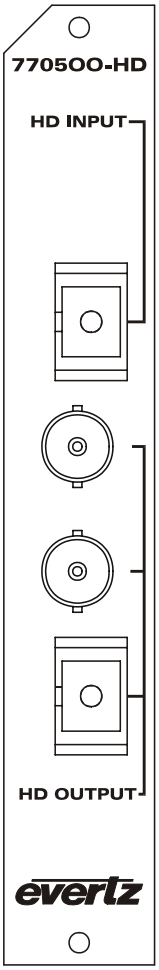

Figure 2-1: 7705OO-HD Rear Panel

HD INPUT: There is a SC/PC (shown), ST/PC or FC/PC female connector for optical 10-bit serial digital video signals compatible with the SMPTE 292M standard. The 7705OE-HD can also be used in non-reclock mode with SMPTE 310M (nominal 19.4 Mb/s), SMPTE 259M (143 to 540 Mb/s) or DVB-ASI, or any other signal with bit rate less than 1.5 Gb/s. See section 5.1 for information on operating the module in non-reclock mode.

HD OUTPUT: There are two BNC connectors with reclocked serial component video outputs, compatible with the SMPTE 292M standard. In non-reclock mode these outputs contain an equalized copy of the input signal.

There is one SC/PC (shown), ST/PC or FC/PC female connector with reclocked serial component video outputs, compatible with the SMPTE 292M standard. This connector is the optical output from the 7705OO-HD as shown in section 3.2.

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

Certification and Identification labels are combined into one label. As there is not enough room on the product to place the label it is reproduced here in the manuals.

- There is no date of manufacture on this label as it can be traced by bar code label placed on the Printed circuit board of each Evertz plug-in module
- The Model number is one of: 7705OO13-HD, 7705OO13-HD-H, 7705OO15-HD, 7705OO15-HD-H 7705OOxx-HD, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61) 7705OODyyy-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

2.1.4. Handling and Connecting Fibers

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

The transmission characteristics of the fiber are dependent on the shape of the optical core and therefore care must be taken to prevent fiber damage due to heavy objects or abrupt fiber bending. Evertz recommends that you maintain a minimum bending radius of 5 cm to avoid fiber-bending loss that will decrease the maximum attainable distance of the fiber cable. The Evertz fiber optic modules come with cable lockout devices, 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. OPTICAL VIDEO INPUT

Standards:	
Normal:	SMPTE 292M
Non-Reclock Mode:	SMPTE 310M (MPEGTX 19.4 & 40Mb/s) or SMPTE 259M A, B, C, D, or DVB-ASI or any other bit rate less than 1.5 Gb/s
Connector:	SC/PC, ST/PC or FC/PC female housing
Maximum Input Power:	
Standard Version	0dBm
-H Version	-7.0dBm
Wavelength	1270 nm to 1610 nm
Optical Sensitivity:	
Standard Version	-23dBm
-H Version	-28dBm
Fiber Size:	62 μm core / 125 μm overall

3.2. OPTICAL VIDEO OUTPUT

Standards:	Same as input
Number of Outputs:	1 reclocked
Connector:	SC/PC, ST/PC or FC/PC female housing
Return Loss:	< 14 dB
Rise and Fall Time:	200 ps nominal
Wide Band Jitter:	< 0.2 UI (reclocked)
Fiber Size:	9 μm core / 125 μm overall

3.3. ELECTRICAL VIDEO OUTPUTS

Number of Outputs:	2 Per Card-Reclocked.
Standards:	same as input
Connectors:	BNC per IEC 169-8
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB up to 1 Gb/s, > 12 dB up to 1.5 Gb/s
Wide Band Jitter:	< 0.15 UI (reclocked)

3.4. ELECTRICAL

Voltage:	+ 12VDC
Power:	6 Watts
EMI/RFI:	Complies with FCC regulations for class A devices Complies with EU EMC directive

3.5. PHYSICAL

7700 or 7701 frame mounting:
Number of slots: 1

4. STATUS LEDS

MODULE OK: This Green LED will be On when the module is operating properly.

LOCAL FAULT: This Red LED will be On when the *CARRIER PRESENT* LED is Off or when there is a fault in the module power supply.

CARRIER PRESENT: This Green LED will be On when there is a valid signal present at the module input.

5. JUMPERS

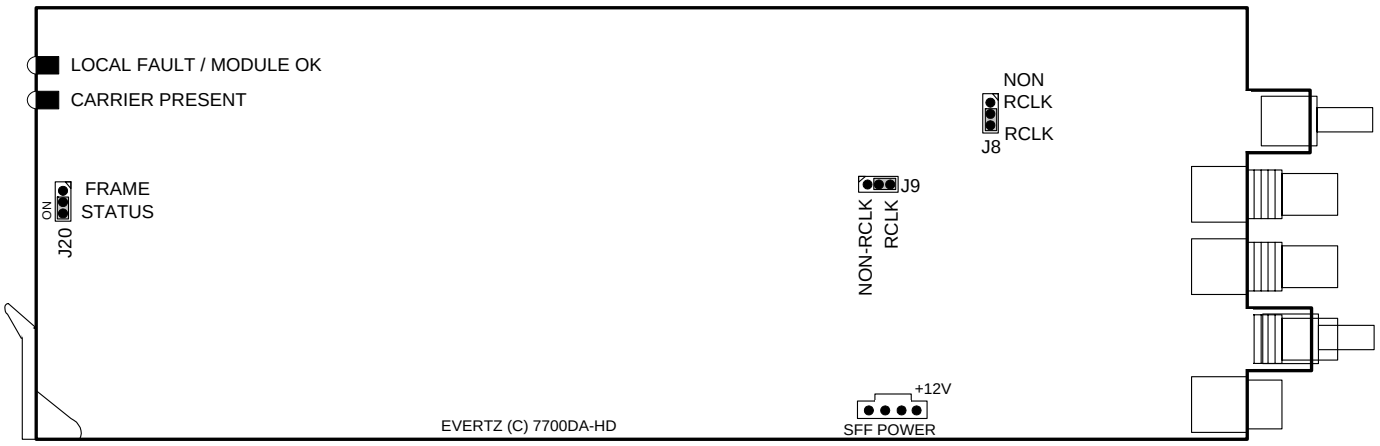

Figure 5-1: Jumper Locations for Rev C DA Cards

5.1. SELECTING RECLOCK OR NON-RECLOCK MODE

There are two jumpers J8 and J9 that determine whether the module will operate as a reclocking distribution amplifier with SMPTE 292M (1.5 Gb/s) video signals or as a non-reclocking distribution amplifier with other data rates.

RCLK/NON-RCLK: To select the normal reclocking mode put both of these jumpers in the *RCLK* position. To select the non-reclocking mode install both of these jumpers in the *NON-RCLK* position.

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

The FRAME STATUS jumper located at the front of the module 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 PS FRAME STATUS LED's and on the Frame's Fault Tally output) install this jumper in the On position. On Rev A and Rev B boards install the jumper. (default)

When this jumper is installed in the Off position local faults on this module will not be monitored. On Rev A and Rev B boards remove the jumper and re-install it so that only one side is connected.

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