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REVISION HISTORY

| <u>REVISION</u>	<u>DESCRIPTION</u>	<u>DATE</u>
1.0	Original Version	June 99
1.1	Bypass mode now called non-reclock mode Figure 1 updated, Figure 3, 4 added	Sept 99
1.2	Added Safety notice	Mar 00
1.3	Added jumper locations for Rev C board (Figure 5 added) Added ST/PC and FC/PC connector options Specifications updated	July 00
1.4	Specifications updated	Feb 01
1.4.1	Figure 1 changed	Jan 02
1.5	Added 8 new CWDM wavelengths	Dec 02

1. OVERVIEW

The 7705OE-HD Fiber to Electrical converter provides an economical method of converting incoming optical distribution for SMPTE 292M (1.5 Gb/s) HDTV serial digital signals to in-plant coaxial distribution. The companion 7705EO-HD Electrical to Fiber converter facilitates conversion from coaxial distribution at the source. The converter features one optical input with three re-clocked serial digital outputs. The 7705OE-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 7705OE-HD is available in 2 different versions with different optical input sensitivity. (See specifications for complete information)

7705OE-HD	-15 dBm input sensitivity
7705OE-HD-L	-22 dBm input sensitivity

Features:
- Reclocking mode for SMPTE 292M (1.5 Gb/s) signals
- Non-reclock mode for SMPTE 310M (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
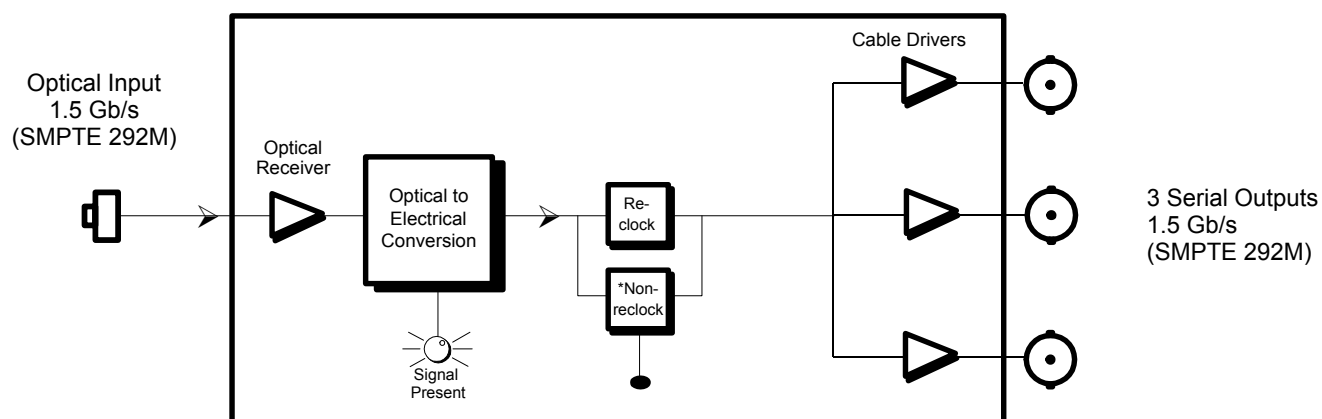
*Note: Non-reclock Mode will operate 19.4 Mb/s to 1.5 Gb/s

Figure 1: 7705OE-HD Block Diagram

2.   INSTALLATION

The 7705OE-HD comes with a companion rear plate that has 3 BNC connectors 1 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 the 7700FR chapter section 3.
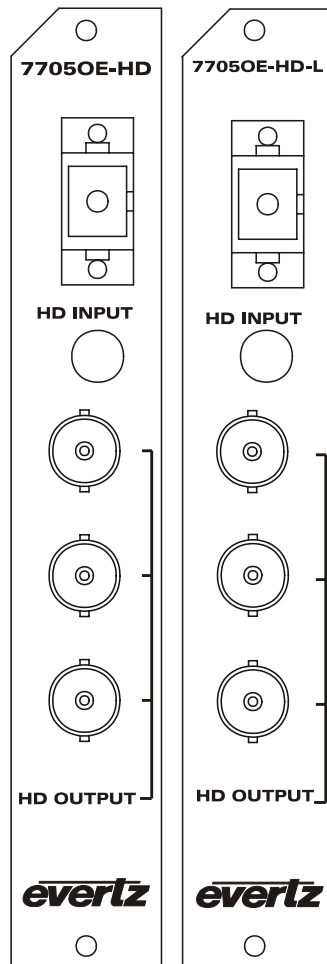
Figure 2: 7705OE-HD Rear Panels

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 (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 three 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.

2.1. CARE AND HANDLING OF OPTICAL FIBER

2.1.1. Safety

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

The laser modules used in the Evertz fiber optic modules are Class I, with a maximum output power of 2mW, and wavelengths from either 1270 nm to 1610 nm.

2.1.2. Handling And Connecting Fibers

✍ | **Never touch the end face of an optical fiber.**

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 3 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 chapter of this manual.

3. SPECIFICATIONS

3.1. OPTICAL INPUT

Standards:
    Normal: SMPTE 292M
    Non-Reclock Mode: SMPTE 310M (19.4 Mb/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: -3dBm
Wavelength   1270nm to 1610nm
Optical Sensitivity: -17 dBm (standard version)
                      -20 dBm ("L" – long haul version)
Fiber Size: 62 μm core / 125 μm overall

3.2. SERIAL VIDEO OUTPUTS:

Number of Outputs: 3 Per Card-Reclocked.
Standards: same as input
Connectors: 3 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)

3.3. ELECTRICAL

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

3.4. 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 input video is lost or 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.
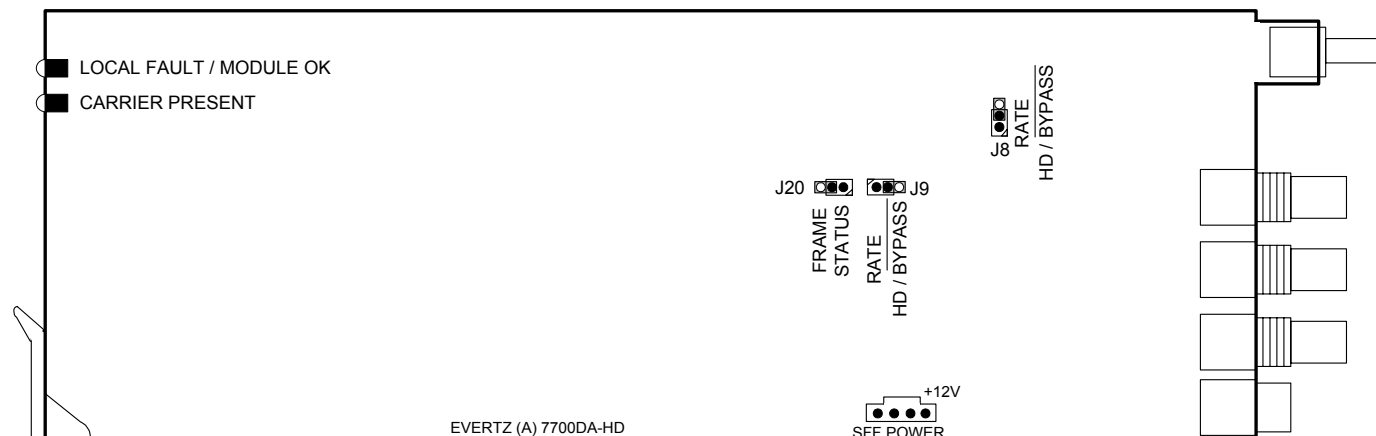
5. JUMPERS

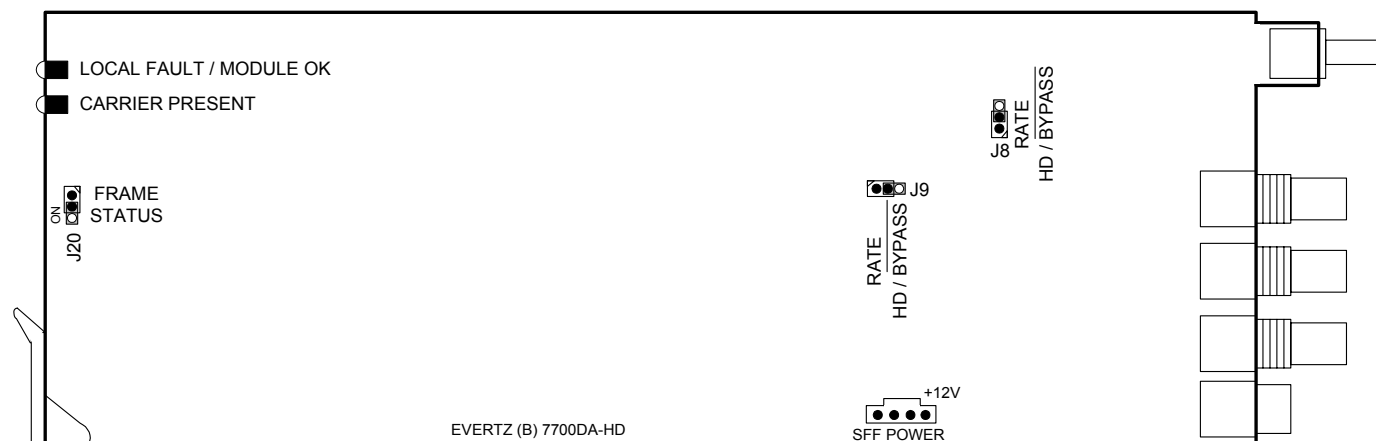**Figure 3: Jumper Locations for Rev A and Rev 1 DA Cards**
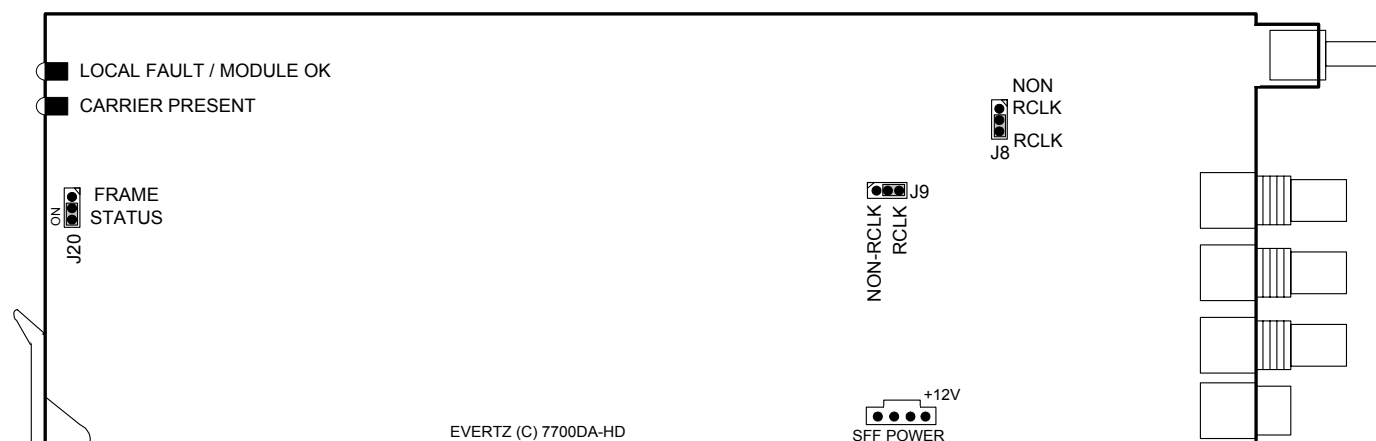
Figure 4: Jumper Locations for Rev B DA Cards

Figure 5: 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.

For the A and B revision of the board:

HD / $\overline{\text{BYPASS}}$ To select the normal reclocking mode remove both of these jumpers. For convenience you may re-install the jumper so that only one side is connected.

To select the non-reclocking mode install both of these jumpers.

For the C revision and later of the board:

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 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 Rev A and B boards remove the jumper and re-install it so that only one side is connected.