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REVISION HISTORY

REVISION	DESCRIPTION	DATE
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
1.6	Updated features and technical specifications	Nov 08

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:

- Operation from 19.4Mb/s to 1.5Gb/s
  - Reclocking for SMPTE 292M (1.485Gb/s)
  - Non-reclocking mode for all other rates from 19.4Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI, etc.
- Supports single-mode and multi-mode fiber optic cable
- Fully hot-swappable from front of frame with no fiber or BNC disconnect/reconnect required
- Can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, 3RU portable frame that holds up to 7 modules or a standalone frame which will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display

Input:

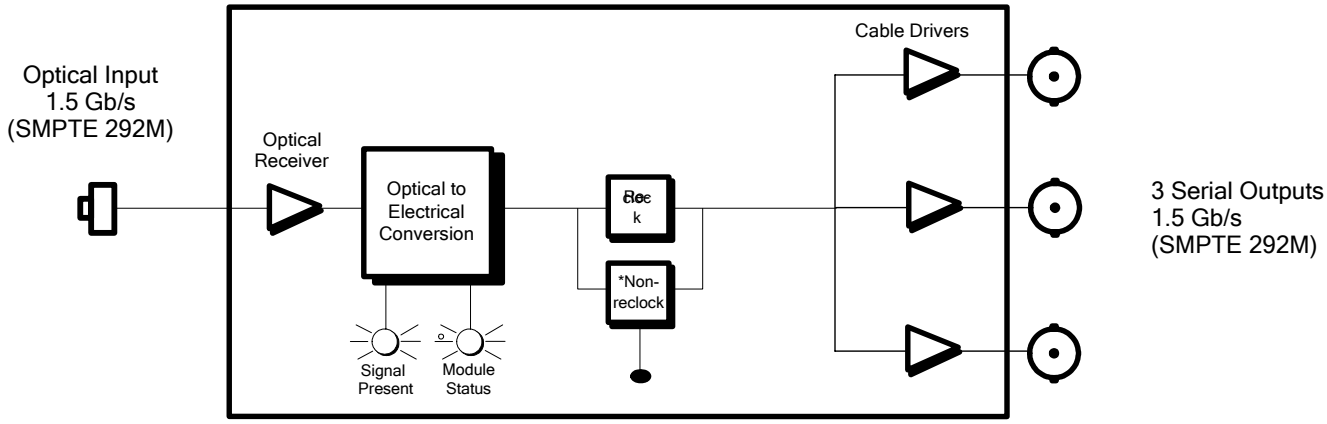
- Optical input range from 1270nm to 1610nm
- Input sensitivity up to -23dBm
- SC/PC, ST/PC, FC/PC connector options

Outputs:

- Three serial digital BNC outputs for fan-out, loop-through or monitoring
- Wideband Jitter < 0.2 UI (reclocked)

Status LEDs:

- Signal presence indication
- Module status indication



*Note: Non-reclock Mode will operate 19.4 Mb/s to 1.5 Gb/s

Figure 1-1: 7705OE-HD Block Diagram

2. INSTALLATION

The 7705OE-HD comes with a companion rear plate that has 3 BNC connectors and 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 section 3 of the 7700FR chapter.

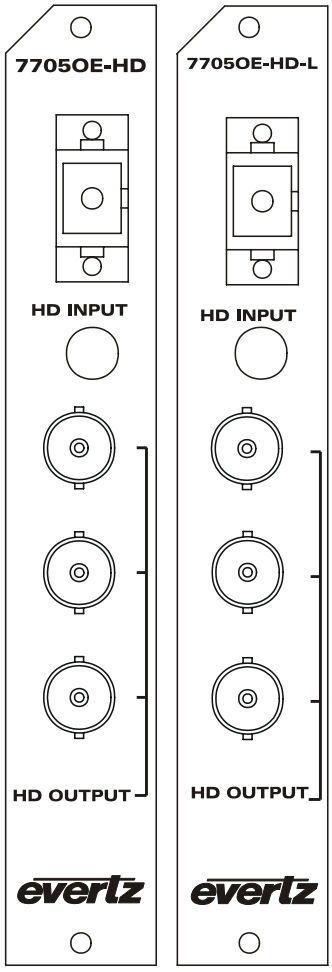


Figure 2-1: 7705OE-HD Rear Panels

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 of 1310nm or from either 1270nm to 1610nm.

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

Standard: SMPTE 292M, 259M, 297M, 305M, 310M, M2S, DVB-ASI, and other Telecom/Datacom standards involving data rates from 19.4Mb/s to 1.5Gb/s

3.1. OPTICAL INPUT

Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female housing
Operating Wavelength: 1270nm to 1610nm
Max. Input Power: -1dBm
Optical Sensitivity: -23dBm
-20 dBm ("L" – long haul version)
Fiber Size: 62 μm core / 125 μm overall

3.2. SERIAL VIDEO OUTPUTS:

Number of Outputs: 3 Reclocked outputs
Connector: 1 BNC per IEC 61169-8 Annex A
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 270ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB to 1GHz, > 12dB to 1.5GHz
Jitter: < 0.2 UI Reclocked

3.3. ELECTRICAL

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
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

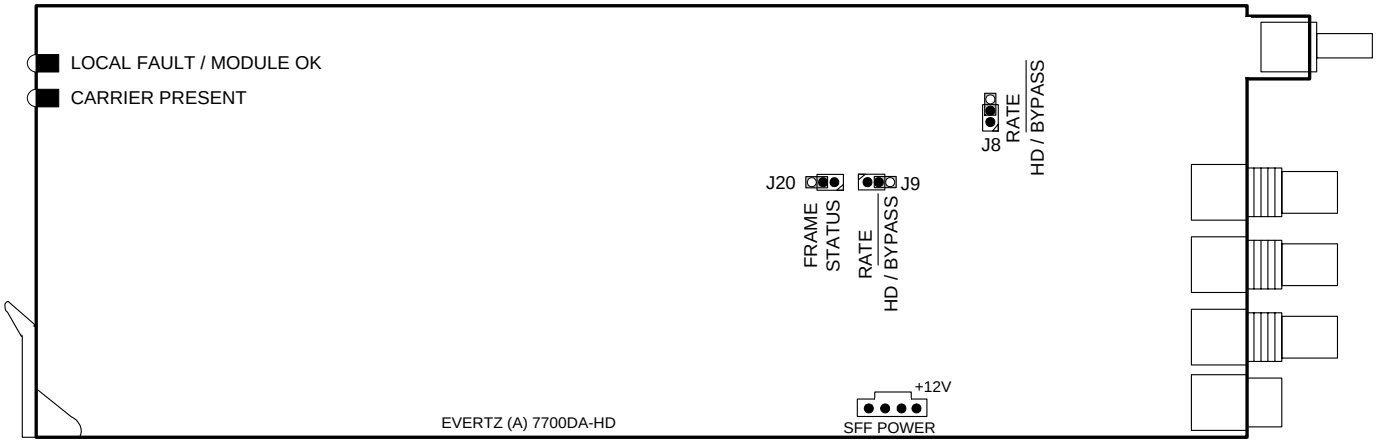


Figure 5-1: Jumper Locations for Rev A and Rev 1 DA Cards

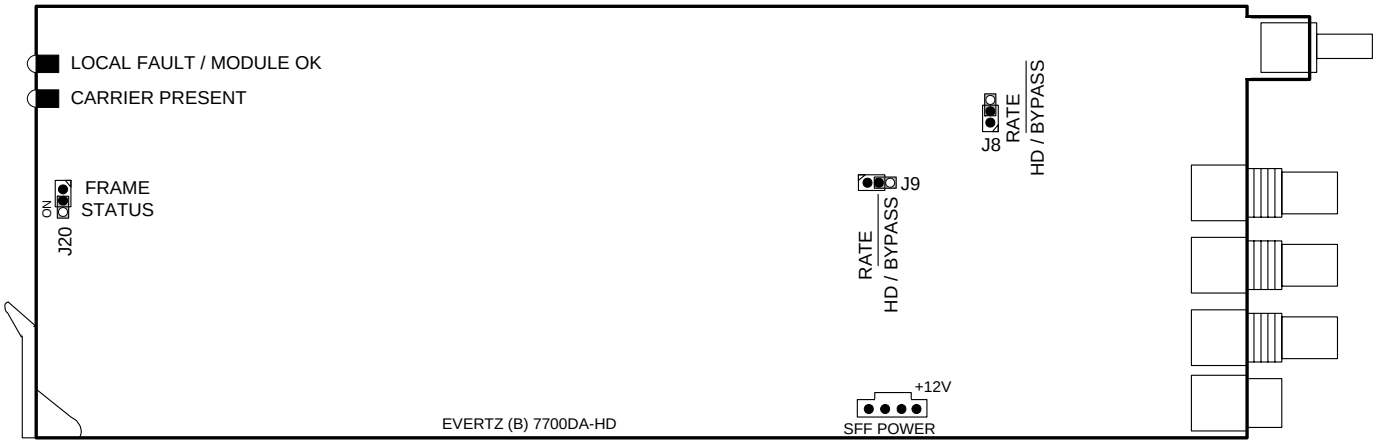


Figure 5-2: Jumper Locations for Rev B DA Cards

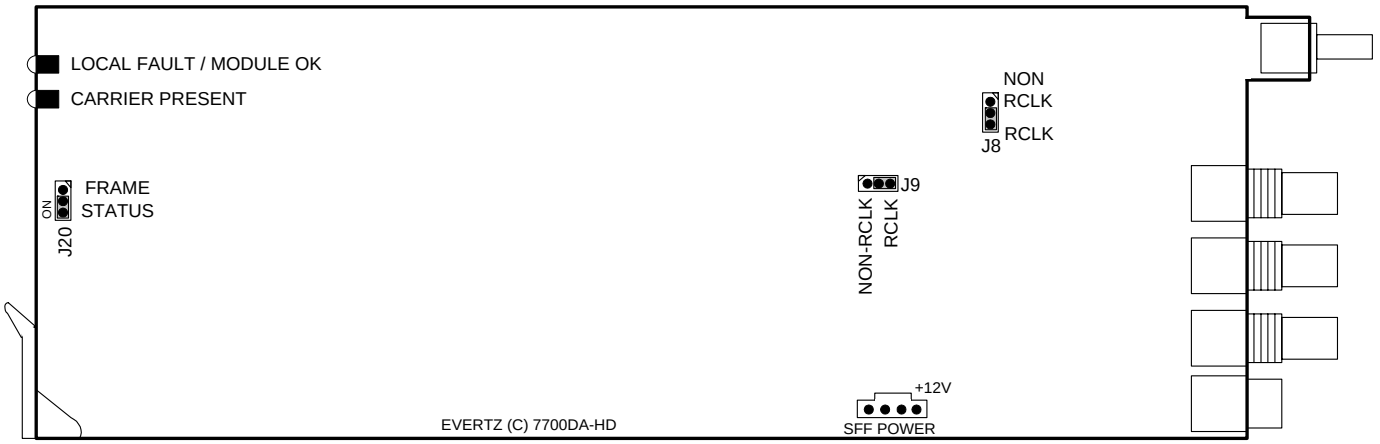


Figure 5-3: Jumper Locations for Rev C DA Cards

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