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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Original Version	Oct 08

1. OVERVIEW

The 7705OE-3-HD offers three independent channels of optical to electrical conversion, economically, in a single module. Each independent channel accepts one optical input, complying with SMPTE 297M carrying SMPTE 292M (1.485Gb/s), SMPTE 259M (143-360Mb/s), SMPTE344M (540Mb/s), M2S or DVB-ASI (270Mb/s) signals, and provides one reclocked BNC output. The module will automatically operate in non-reclocking mode in the presence of other rates such as SMPTE310M (19.4Mb/s).

The 7705OE-3-HD is designed as a companion to the 7705EO-3-HD electrical to optical converter. The 7705OE-3-HD provides convenient indication of input optical power and data rate for each channel. The 7705OE-3-HD can be housed in either a 1RU frame, that will hold up to three modules, or a 3RU frame, that will hold up to fifteen modules, providing 45 channels of optical conversion in a single 3RU frame.

Features:

- Three independent channels of optical to electrical conversion that support all SMPTE 292M standards at 1.485Gb/s
- Supports reclocking of all SMPTE 259M standards with operation from 143Mb/s-360Mb/s
- Supports reclocking of additional standards of SMPTE 305M (SDTi), SMPTE 344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Automatically operates in non-reclocking mode in the presence of rates not supported by reclocking
- Fully hot-swappable from front of frame, with no fiber or BNC disconnect/reconnect required
- High density - accommodates up to 45 independent channels of optical conversion, in a single 3RU frame

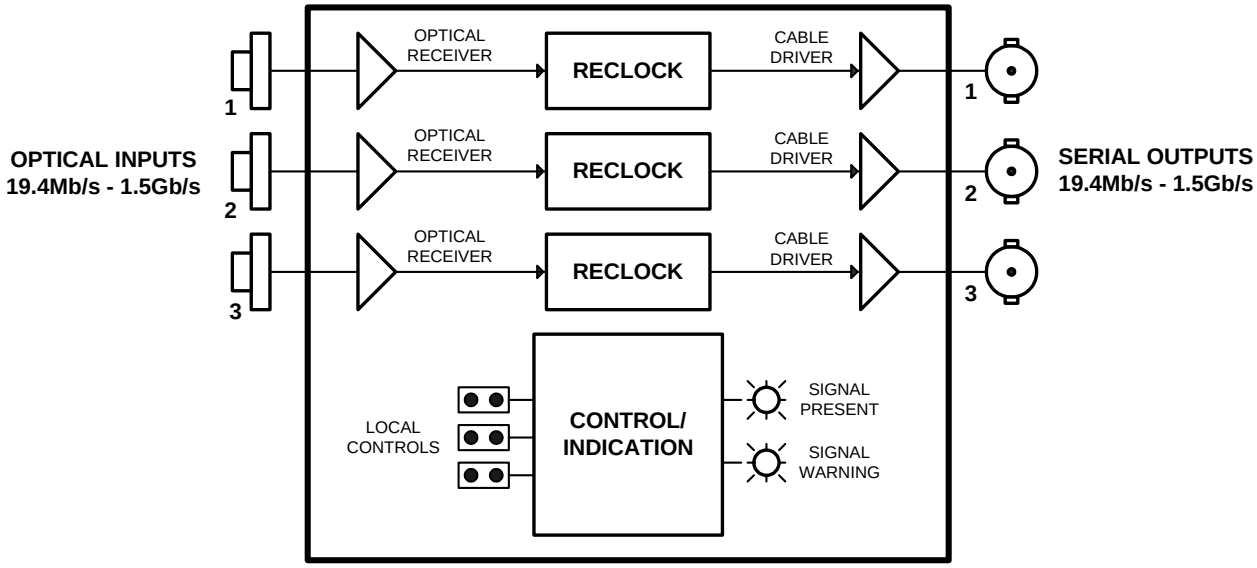

Figure 1-1: 7705OE-3-HD Block Diagram

2. INSTALLATION

The 7705OE-3-HD comes with a companion rear plate that has three BNC connectors and three 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.

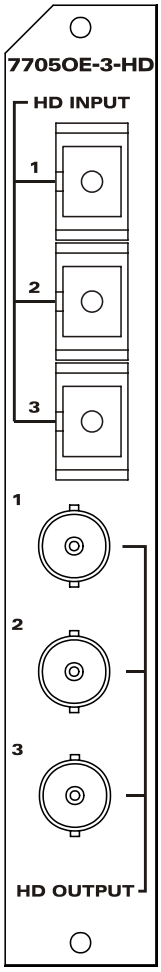

Figure 2-1: 7705OE-3-HD Rear Panel

SDI INPUT: There are three SC/PC (shown), ST/PC or FC/PC female optical connectors for 3 separate channels of SMPTE 297M optical 10-bit serial digital video signals compatible with the SMPTE 292M (1.485Gb/s), SMPTE 259M, SMPTE 305M SMPTE 344M, DVB-ASI or SMPTE 310M (19.4 Mb/s) standards.

SDI OUTPUT: There are three BNC connectors each with a reclocked serial component video output converted from the corresponding channel. The output signals are compatible with the SMPTE 292M (1.485Gb/s), SMPTE 259M, SMPTE 305M SMPTE 344M, DVB-ASI or SMPTE 310M (19.4 Mb/s) standards. See section 5.2 for information about operating the module with DVB-ASI signals.

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 7mW, and a wavelength of 1270 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

3.1. OPTICAL INPUTS

Standards:	SMPTE 297M
Reclocked:	SMPTE 292M (1.485Gb/s), SMPTE 259M A, B, C, D (143 to 540 Mb/s), SMPTE 305M, SMPTE 310M, SMPTE 344M or DVB-ASI
Non-Reclocked:	All rates from 19.4Mb/s (310M) to 1.5Gb/s, excluding those listed above.
Number of Inputs:	3 (independent channels)
Connector:	SC/PC, ST/PC or FC/PC female housing
Wavelength	1270 nm to 1610 nm
Maximum Input Power:	-1 dBm
Optical Sensitivity:	-19dBm to 1.485Gb/s
Fiber Size:	62 μm core / 125 μm overall

3.2. SERIAL VIDEO OUTPUTS:

Standards:	same as input
Number of Outputs:	3 (1 per input channel) Reclocked.
Connectors:	BNC per IEC 169-8
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	600ps nominal @270Mb/s 150ps nominal @1.485Gb/s
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB up to 1.5GHz
High Freq. Jitter:	< 0.2 UI

3.3. ELECTRICAL

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

3.4. PHYSICAL

7700 or 7701 frame mounting:

Number of slots:	1

4. STATUS INDICATORS AND DISPLAYS

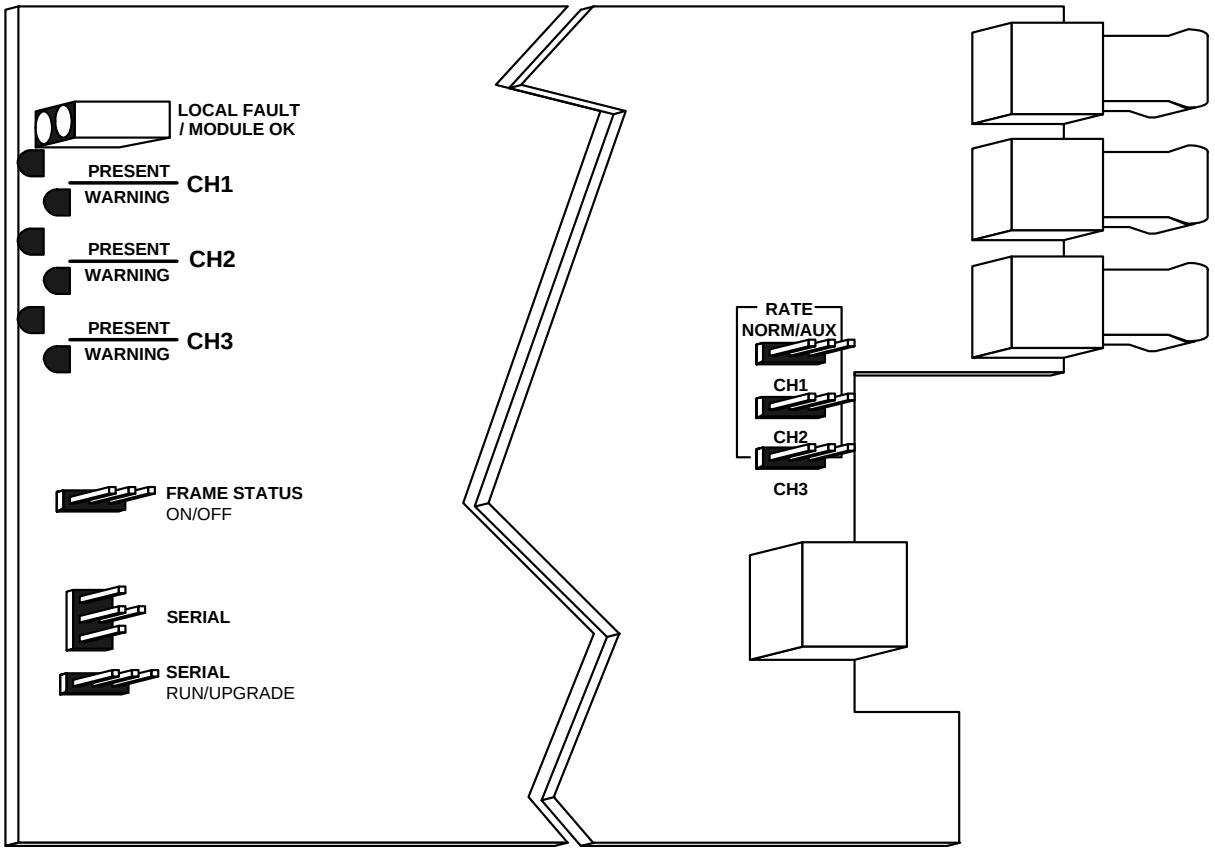

Figure 4-1: Location of Status Indicators and Jumpers

4.1. STATUS INDICATOR LEDS

Two large LEDs on the front of the board indicate the general health of the module:

LOCAL FAULT: This Red LED indicates poor module health and will be On during the absence of a valid input signal on all 3 inputs, if any input detects a weak optical carrier, or if a local input power fault exists (i.e.: a blown fuse). The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

MODULE OK: This Green LED indicates good module health. It will be On when a valid input signal is present on at least one of the input channels and board power is good.

There are three pairs of small LEDs that indicate the status for each channel.

PRESENT: This Green LED indicates the presence of a valid input video signal.

WARNING: This Yellow LED indicates a weak optical carrier.

5. JUMPERS AND LOCAL CONTROLS

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. SELECTING THE AUTOMATIC RECLOCKING RATES

The 7705OE-3-HD accommodates automatic reclocking of SMPTE 292M (1.485Gb/s), SMPTE 259M A, C, D (143, 270, and 360 Mb/s), SMPTE 305M (270 Mb/s SDTi), and SMPTE 344M (540 Mb/s). Additionally, the user can select either DVB-ASI (270Mb/s) or SMPTE 259M B (177Mb/s) to be included in the automatically reclocked signals.

RATE: This jumper is used to select which rates will be included for automatic reclocking. There are three RATE jumpers - one for each channel.

Place this jumper in the NORM position to select SMPTE 259M B (177Mb/s) for automatic reclocking.

Place this jumper in the AUX position to select DVB-ASI (270Mb/s) for automatic reclocking.