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## REVISION HISTORY

<u>REVISION</u>	<u>DESCRIPTION</u>	<u>DATE</u>
1.0	Original Version	May 02
1.1	Removed references to Warning LEDS	May 03

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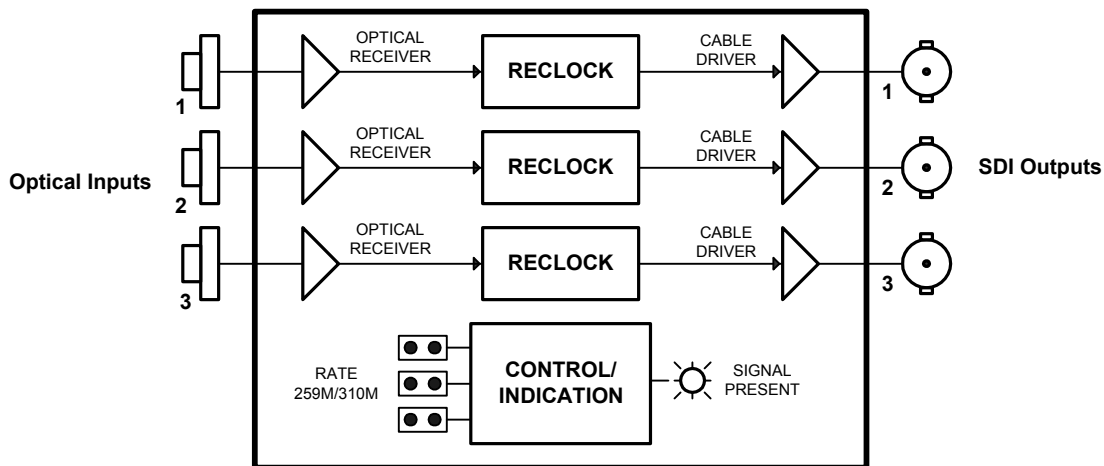
## 1. OVERVIEW

The 7705OE-3 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 259M (143-360Mb/s), SMPTE310M (19.4Mb/s), SMPTE344M (540Mb/s), M2S or DVB-ASI (270Mb/s) signals, and provides one reclocked BNC output. The module can also be set to operate in SMPTE310M (19.4Mb/s) mode.

The 7705OE-3 is designed as a companion to the 7705EO-3 electrical to optical converter. The 7705OE-3 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:

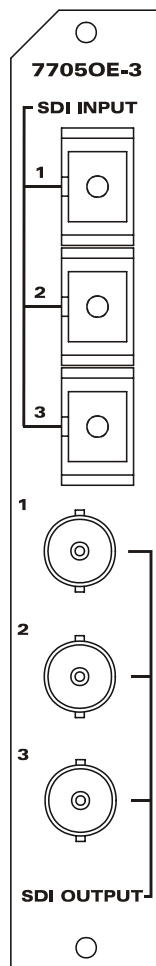
- Supports all SMPTE259M standards with operation from 143Mb/s – 360Mb/s.
- Supports additional standards of SMPTE305M (SDTi), SMPTE310M (19.4Mb/s), SMPTE344M (540Mb/s), M2S and DVB-ASI (270Mb/s).
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required.
- High density - accommodates up to 45 independent channels of optical conversion, in a single 3RU frame.
- 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: 7705OE-3 Block Diagram**

## 2. INSTALLATION

The 7705OE-3 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 the 7700FR chapter section 3.



**Figure 2: 7705OE-3 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 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 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 SMPTE 310M 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**

<b>Standards:</b>	SMPTE 297M
<b>Normal:</b>	SMPTE 259M A, B, C, D (143 to 540 Mb/s), SMPTE 305M, SMPTE 344M or DVB-ASI
<b>Jumper Selectable:</b>	SMPTE 310M (19.4 Mb/s))
<b>Number of Inputs:</b>	3 (independent channels)
<b>Connector:</b>	SC/PC, ST/PC or FC/PC female housing
<b>Wavelength</b>	1310 nm to 1610 nm
<b>Maximum Input Power:</b>	0 dBm
<b>Optical Sensitivity:</b>	-29 dBm @ 270 Mb/s
<b>Fiber Size:</b>	62 $\mu$ m core / 125 $\mu$ m 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  $\pm$ 0.5V  
**Rise and Fall Time:** 900ps nominal  
**Overshoot:** <10% of amplitude  
**Return Loss:** > 15 dB up to 540 Mb/s  
**High Freq. Jitter:** < 0.2 UI

### 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 INDICATORS AND DISPLAYS

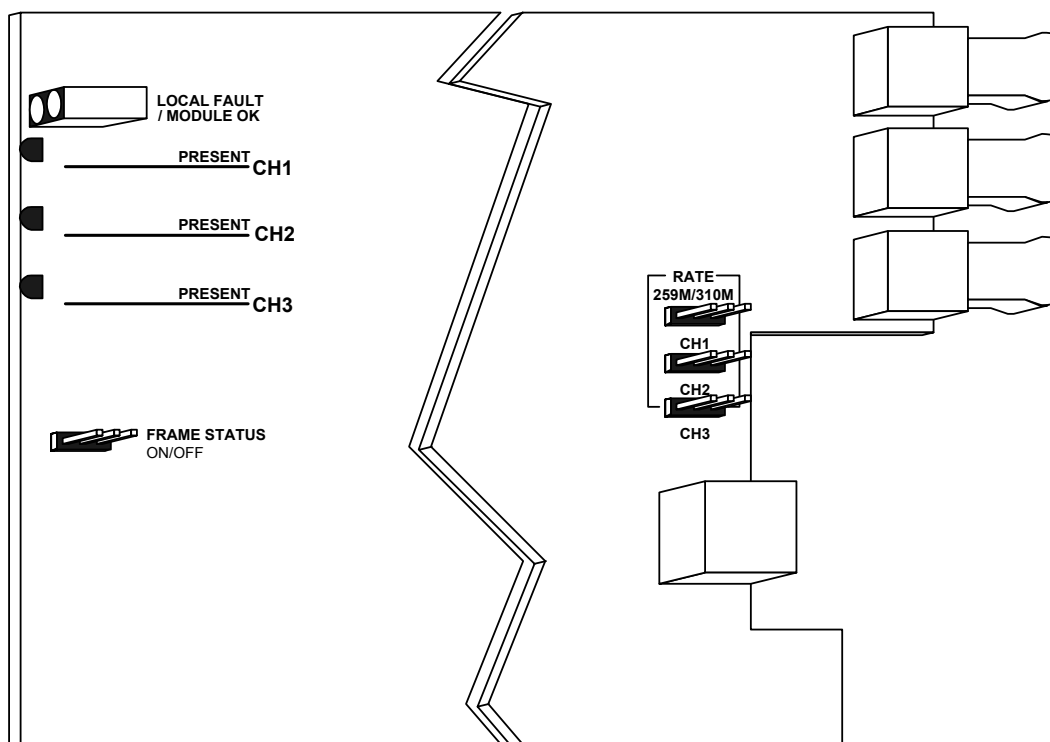


Figure 3: Location of Status Indicators and Jumpers

## **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, board power is good.

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

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

## **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 RECLOCKING RATE**

The RATE SELECT jumpers J18, J21, and J22, determine whether the channel 1, 2 or 3 respectively will operate as a distribution amplifier with SMPTE 259M (143 to 540 Mb/s), SMPTE 305M, SMPTE 344M or DVB-ASI video signals or with SMPTE 310M (19.4 Mb/s) signals

**RATE SELECT** To set the module to operate with SMPTE 259M, SMPTE 305M, SMPTE 344M or DVB-ASI signals install the jumper in the 259M position.

To set module to operate with SMPTE 310M signals install the jumper in the 310M position.

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