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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Original Version	Aug 06
1.1	Minor corrections & updates	Aug 06
1.2	Added table format throughout section 4. Updated VistaLINK section. General cleanup.	Feb 09
1.3	Fixed formatting errors	May 09

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 7707OO-2-OC DWDM cards directly to each other with a short fiber optic cable. The 7707OO-2-OC DWDM cards produce +7dBm of power, which will damage the receiver if connected directly.

Do not hook up the 7707OO-2-OC CWDM or DWDM cards and 7707OO-2-OC-H with high sensitivity receiver directly to each other with a short fiber optic cable. The 7707OO-2-OC DWDM and CWDM cards produce more than -7dBm of power, which will damage the receiver if connected directly.

1. OVERVIEW

The 7707OO-2-OC is a VistaLINK® enabled, optical to optical wavelength converter for telecom and datacom signals. Reclocking and data rate indication is provided for supported rates from 125 Mb/s to 3.187 Gb/s, as per the table below:

Standard	Data Rate
Telecom	
OC48/STM16	2.488 Gb/s
OC12/STM4	622 Mb/s
OC3/STM1	155 Mb/s
Gigabit Ethernet	1.25 Gb/s
Datacom	
Fiber Channel	2.125 Gb/s
Fiber Channel	1.062 Gb/s
Fiber Channel	531 Mb/s
Fiber Channel	266 Mb/s
Fiber Channel	133 Mb/s
Fast Ethernet	125 Mb/s
XAUI	3.125 Gb/s
XAUI	3.187 Gb/s
ESCON	200 Mb/s

Monitoring and control of card status and parameters is provided locally at the card edge and remotely via VistaLINK®. The 7707OO-2-OC accepts two fiber inputs and provides two optical outputs.

The 7707OO-2-OC 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. They produce a 1310nm optical output signal for interfacing with connected equipment. FP, CWDM and DWDM laser types are available for interface with the fiber link connection (See specifications for complete information).

Features:

- Reclocking and indication for OC-3/STM-1, OC-12/STM-4 and OC-48/STM-16 and a number of other telecom and datacom rates (see specifications)
- Non-reclocking mode for support of additional signal rates
- Full-Duplex
- Wide range optical input (1270nm - 1610nm)
- 1310nm, 1550nm, CWDM and DWDM wavelengths available for fiber link connection
- DWDM wavelengths (ITU-T G.694.1 compliant) also available for fiber link connection
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK® capability
- Detection and display of optical input power and data rate
- Fully hot-swappable from front of frame

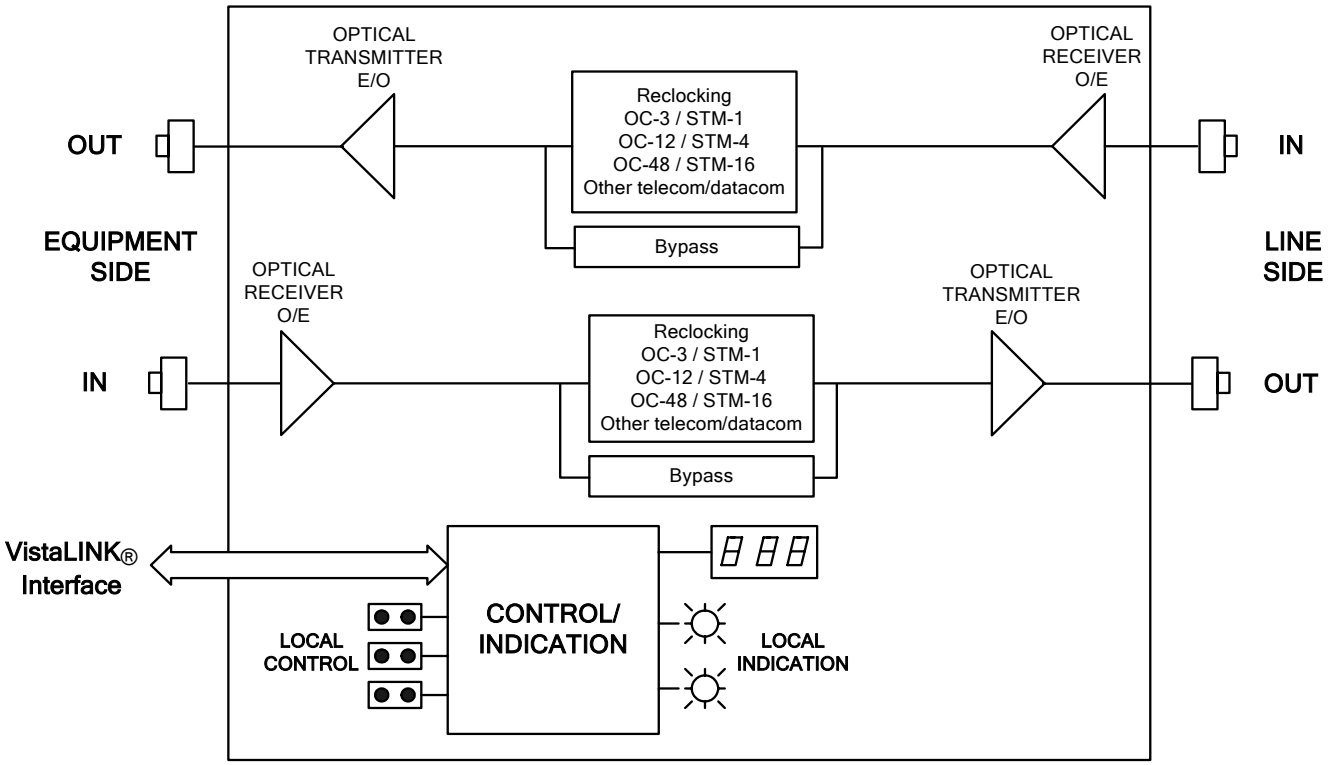


Figure 1-1: 7707OO-2-OC Block Diagram

2. INSTALLATION

The 7707OO-2-OC comes with a companion rear plate that has four SC/PC (shown), ST/PC, FC/PC, or SC/APC optical connectors. For information on mounting the rear plate and inserting the module into the frame see the 7700FR chapter section 3.

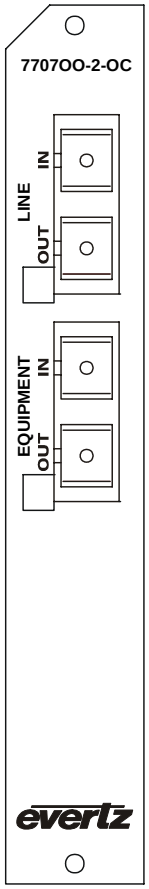


Figure 2-1: 7707OO-2-OC Rear Panel

OPTICAL INPUTS: Inputs for optical signals. Available with SC/PC, ST/PC, FC/PC, SC/APC female connectors. Accepts telecom/datacom (see specifications) optical signals and provides auto-rate selection and reclocking. A non-reclocking mode is also selectable for other bi-level data formats for 125 Mb/s up to 3.187 Gb/s. These wide range inputs accept optical wavelengths of 1270nm to 1610nm, accommodating standard, CWDM or DWDM transmission schemes. The “LINE IN” port is meant for the medium/long-reach fiber link connection and may be a standard PIN or high sensitivity APD input. The “EQUIPMENT IN” port is the short/medium reach input for the connected equipment and is a standard sensitivity PIN input.

OPTICAL OUTPUT: There are two SC/PC (shown), ST/PC, FC/PC or SC/APC female connectors for optical signal outputs. The “LINE OUT” port is meant for the medium/long reach fiber link connection and may be a 1310nm FP, 1550nm DFB, CWDM or DWDM laser as ordered. The “EQUIPMENT OUT” port is the short/medium reach output for the connected equipment and is a standard 1310 nm FP laser.

2.1. CARE AND HANDLING OF OPTICAL FIBER

2.1.1. Safety

CLASS 1 LASER PRODUCT

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: 7707OO13-2-OC, 7707OO15-2-OC, 7707OO15-2-OC-H, 7707OOxx-2-OC, 7707OOxx-2-OC-H (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61) 7707OODyyy-2-OC, 7707OODyyy-2-OC-H (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 INPUTS

Standards (reclocked):

Standard	Data Rate
Telecom	
OC48/STM16	2.488 Gb/s
OC12/STM4	622 Mb/s
OC3/STM1	155 Mb/s
Gigabit Ethernet	1.25 Gb/s
Datacom	
Fiber Channel	2.125 Gb/s
Fiber Channel	1.062 Gb/s
Fiber Channel	531 Mb/s
Fiber Channel	266 Mb/s
Fiber Channel	133 Mb/s
Fast Ethernet	125 Mb/s
XAUI	3.125 Gb/s
XAUI	3.187 Gb/s
ESCON	200 Mb/s

Rates (non-reclocked): 125Mb/s-3.187 Gb/s
Connector: Female SC/PC, ST/PC, FC/PC, SC/APC
Wavelength: 1270nm -1610nm
Optical Sensitivity
Standard & Equipment Side: -21dBm
High Sensitivity (-H): -28dBm
Max. Input Power:
Standard & Equipment Side: -1dBm
High Sensitivity (-H): -7dBm
Fiber Size: 62 μm core / 125 μm overall

3.2. OPTICAL OUTPUTS

Standards: same as optical input
Number of Outputs: 2
Connector: SC/PC, ST/PC, FC/PC, SC/APC female housing
Return Loss: < 14 dB
Fiber Size: 9 μm core / 125 μm overall
Equipment Side:
Wavelengths:
Standard: 1310nm
Output Power:
1310nm FP: -7dBm ± 1dBm

Line Side:

Wavelengths:

Standard: 1310nm, 1550nm (nominal)
CWDM: 1270nm to 1610nm (See ordering information)
DWDM: C-Band/L-Band (ITU-T G.694.1 compliant)

Output Power:

1310nm FP: -7dBm ± 1dBm
CWDM: 0dBm ± 1dBm
DWDM: +7dBm ± 1dBm

3.3. ELECTRICAL

Voltage: +12VDC
Power: 6 Watts (9 Watts DWDM)
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

The 7707OO-2-OC has 4 LED Status indicators and a 4 digit alphanumeric display on the front card edge to show operational status of the card at a glance. The card edge pushbutton is used to select various displays on the alphanumeric display. Figure 4-1 shows the location of the card edge status indicators, dot matrix display, pushbutton and jumpers.

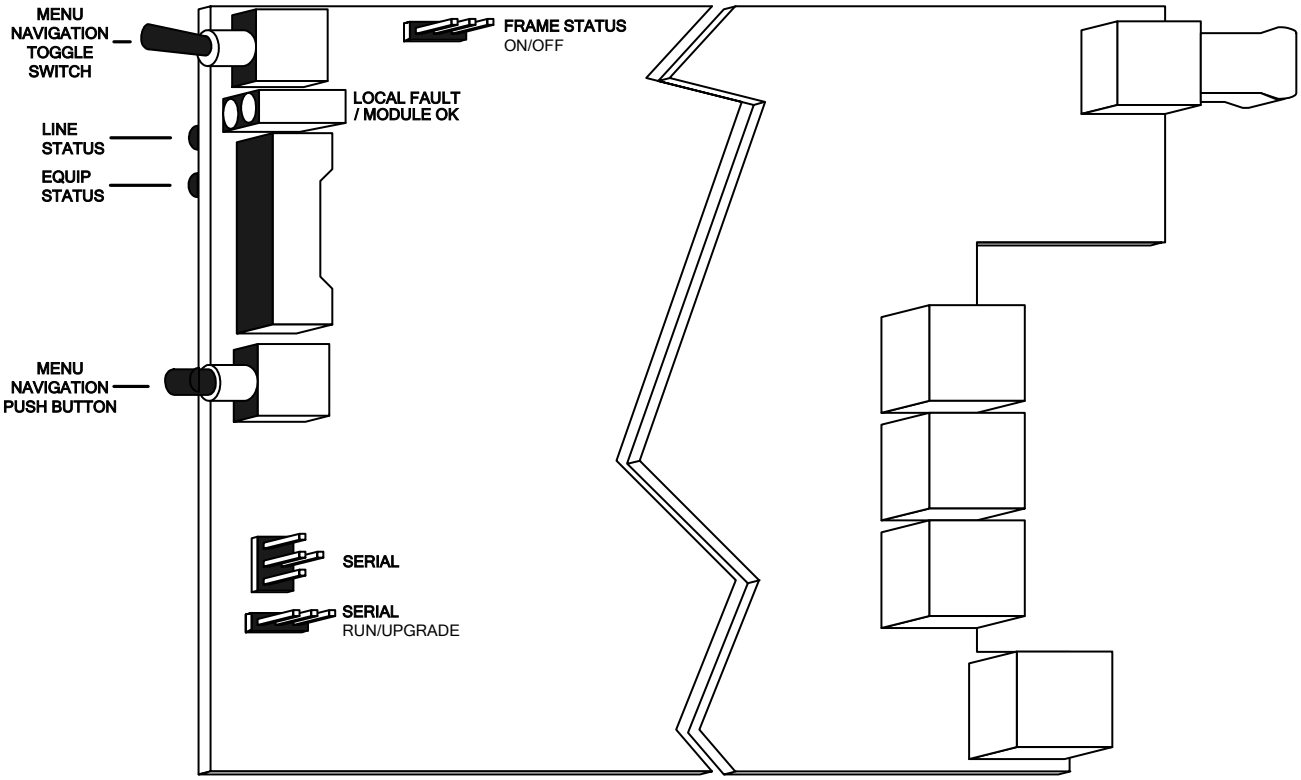


Figure 4-1: 7707OO-2-OC Status Indicator and Jumper Locations

4.1. STATUS INDICATOR LEDS

LOCAL FAULT: This Red LED indicates poor module health and will be on if:

- There is absence of a valid LINE or EQUIPMENT input signal
- A local power fault exists (i.e. a blown fuse).
- LINE or EQUIPMENT laser fault
- Optical input power is reported as "OVER" on LINE or EQUIPMENT inputs

The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

LINE STATUS:	**Red:**	LINE laser fault
	Green:	Locked on to a valid, recognized signal format on LINE input
	Yellow:	LINE input is in non-reclock (bypass) mode
	Off:	Signal is unrecognized, does not match data rate setting or is not present at LINE input
EQUIP STATUS:	**Red:**	EQUIPMENT laser fault
	Green:	Locked on to a valid, recognized signal format on EQUIPMENT input
	Yellow:	EQUIPMENT input is in non-reclock (bypass) mode
	Off:	Signal is unrecognized, does not match data rate setting or is not present at EQUIPMENT input

4.2. DOT-MATRIX DISPLAY

Additional signal and status monitoring is provided via the four-digit dot-matrix display located at the card-edge. The card-edge pushbutton and toggle-switch are used to navigate through the display menu. Figure 4-2 provides a quick reference to the display menu structure.

Pressing the pushbutton advances the display to the next menu level. The toggle-switch may then be used to move up or down through selections of that menu level. Select BACK to return to the top menu level.

CTRL menu items have user-adjustable configuration values associated with them. STAT menu items display operating conditions or configuration values, but do not allow adjustment.

If a specific menu selection has a configuration value associated with it, then this may be changed using the toggle switch. Pressing the pushbutton will apply the displayed value and return you to the previous menu level.

The most recent user selection will be maintained in non-volatile memory in the event of power loss to the module.

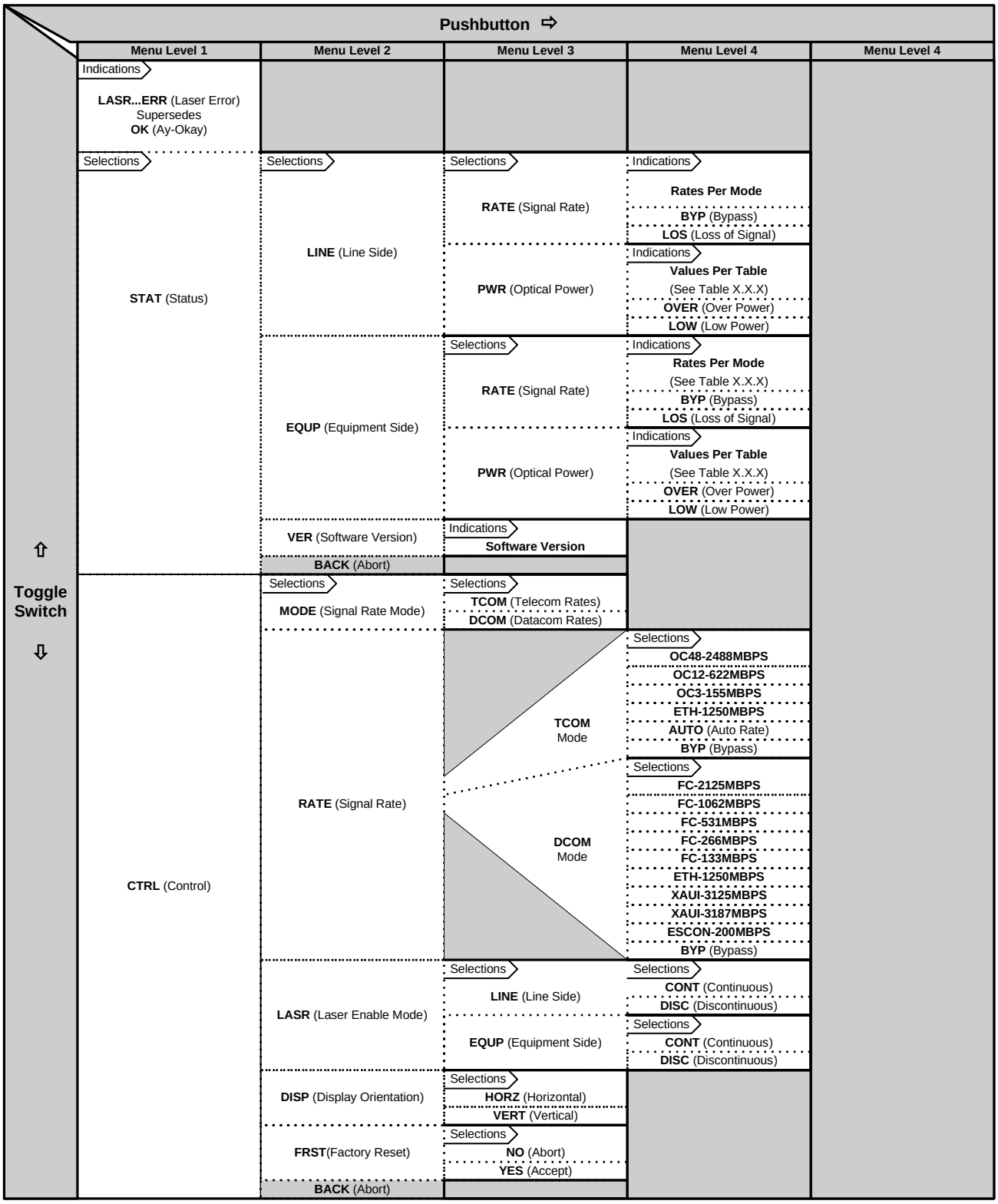


Figure 4-2: Card-Edge Menu Structure

4.2.1. Displaying the Data Standard Detected at the LINE Input

To display the data standard detected at the LINE input, select the **STAT** menu item in menu level 1, then use the toggle switch to display the **LINE** option and press the pushbutton to select it. Use the toggle switch to then display the **RATE** option and press the pushbutton to select it.

- *STAT*
  - *LINE*
    - *RATE*
      - *RATES PER MODE*
      - *BYP*
      - *LOS*

Rates per mode:

OC48-2488MBPS	OC48/STM16, 2.488 Gb/s
OC12-622MBPS	OC-12/STM-4, 622 Mb/s
OC3-155MBPS	OC-3/STM-1, 155 Mb/s
ETH-1250MBPS	Gigabit Ethernet
FC-2125MBPS	Fiber Channel, 2.125 Gb/s
FC-1062MBPS	Fiber Channel, 1.062 Gb/s
FC-531MBPS	Fiber Channel, 531 Mb/s
FC-266MBPS	Fiber Channel, 266 Mb/s
FC-133MBPS	Fiber Channel, 133 Mb/s
ETH-125MBPS	Fast Ethernet
XAUI-3125MBPS	XAUI 3.125 Gb/s
XAUI-3187MBPS	XAUI 3.187 Mb/s
ESCON-200MBPS	ESCON

BYP	LINE input is set to bypass (non-reclock) mode
LOS	No signal present

4.2.2. Displaying the Optical Power at the LINE Input

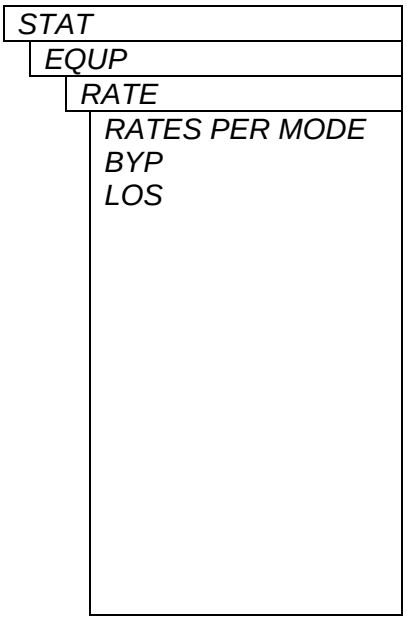
The 7707OO-2-OC module can measure and display the input optical power over a range of -1dBm to –40dBm at increments of 1dBm for the standard version and -7dBm to –40dBm in 1dBm increments for the –H version. To display the optical power detected at the LINE input, select the **STAT** menu item in menu level 1, then use the toggle switch to display the **LINE** option and press the pushbutton to select it. Use the toggle switch to then display the **PWR** option and press the pushbutton to select it.

- *STAT*
  - *LINE*
    - *PWR*
      - *OVER*
      - *-1 TO -40*
      - *-7 TO -32*
      - *LOW*

OVER	Indicates optical input power exceeding –1dBm for standard version and -7dBm for "–H" version
-1 to –40	Optical input power within this range (Standard Version).
-7 to –32	Optical input power within this range (-H Version).
LOW	Input optical power low (< -40 dBm on standard version, < -32 dBm on –H version)

4.2.3. Displaying the Data Standard Detected at the EQUIPMENT Input

To display the data standard detected at the EQUIPMENT input, select the **STAT** menu item in menu level 1, then use the toggle switch to display the **EQUP** option and press the pushbutton to select it. Use the toggle switch to then display the **RATE** option and press the pushbutton to select it.



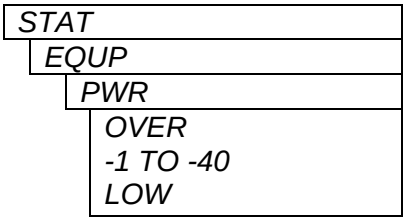
Rates per mode:

OC48-2488MBPS	OC48/STM16, 2.488 Gb/s
OC12-622MBPS	OC-12/STM-4, 622 Mb/s
OC3-155MBPS	OC-3/STM-1, 155 Mb/s
ETH-1250MBPS	Gigabit Ethernet
FC-2125MBPS	Fiber Channel, 2.125 Gb/s
FC-1062MBPS	Fiber Channel, 1.062 Gb/s
FC-531MBPS	Fiber Channel, 531 Mb/s
FC-266MBPS	Fiber Channel, 266 Mb/s
FC-133MBPS	Fiber Channel, 133 Mb/s
ETH-125MBPS	Fast Ethernet
XAUI-3125MBPS	XAUI 3.125 Gb/s
XAUI-3187MBPS	XAUI 3.187 Mb/s
ESCON-200MBPS	ESCON

BYP	EQUIPMENT input is set to bypass (non-reclock) mode
LOS	No signal present

4.2.4. Displaying the Optical Power at the EQUIPMENT Input

The 7707OO-2-OC module can measure and display the input optical power over a range of -1dBm to –40dBm at increments of 1dBm. To display the optical power detected at the EQUIPMENT input, select the **STAT** menu item in menu level 1, then use the toggle switch to display the **EQUP** option and press the pushbutton to select it. Use the toggle switch to then display the **PWR** option and press the pushbutton to select it.



OVER	Indicates optical input power exceeding –1dBm
-1 to –40	Optical input power within this range
LOW	Input optical power low (< -40 dBm)

4.2.5. Displaying the Firmware Version

To display the version of the 7707OO-2-OC's embedded firmware, select the **STAT** menu item in menu level 1, then use the toggle switch to display the **VER** option and press the pushbutton to select it. The display will show the following:

VER x.x BUILD xxx	Software version. Character string scrolls across four digit display.

4.2.6. Selecting the Data Standard Mode

The data rates reclocked by the 7707OO-2-OC are grouped into Telecom and Datacom categories as follows:

Standard	Data Rate
Telecom	
OC48/STM16	2.488 Gb/s
OC12/STM4	622 Mb/s
OC3/STM1	155 Mb/s
Gigabit Ethernet	1.25 Gb/s
Datacom	
Fiber Channel	2.125 Gb/s
Fiber Channel	1.062 Gb/s
Fiber Channel	531 Mb/s
Fiber Channel	266 Mb/s
Fiber Channel	133 Mb/s
Fast Ethernet	125 Mb/s
XAUI	3.125 Gb/s
XAUI	3.187 Gb/s
ESCON	200 Mb/s

The 7707OO-2-OC should be set for either Telecom or Datacom mode as appropriate for the incoming signals. To set the data mode, select the **CTRL** menu item in menu level 1, then use the toggle switch to display the **MODE** option and press the pushbutton to select it.

CTRL
- *MODE*
  - *TCOM*
  - *DCOM*

TCOM Telecom Rates
DCOM Datacom Rates

4.2.7. Setting the Data Standard

For proper operation, the 7707OO-2-OC must be configured to support the incoming signal type. Telecom data rates (see section 4.2.6) may be automatically detected and reclocked or a specific rate may be manually selected. Datacom data rates (see section 4.2.6) must be manually selected. In both modes, a reclocker bypass option is available for signal types/rates that are not listed. To select a particular data rate, select the **CTRL** menu item in menu level 1, and then use the toggle switch to display the **RATE** option and press the pushbutton to select it.

CTRL
- *RATE*
  - *TCOM*
    - *OC48-2488MBPS*
    - *OC12-622MBPS*
    - *OC3-155MBPS*
    - *ETH-1250MBPS*
    - *AUTO*
    - *BYP*

OC48-2488MBPS OC48/STM16, 2.488 Gb/s
OC12-622MBPS OC-12/STM-4, 622 Mb/s
OC3-155MBPS OC-3/STM-1, 155 Mb/s
ETH-1250MBPS Gigabit Ethernet
AUTO Rate is automatically detected and reclocked
BYP Reclocker is bypassed

- *CTRL*
  - *RATE*
    - *DCOM*
      - *FC-2125MBPS*
      - *FC-1062MBPS*
      - *FC-531MBPS*
      - *FC-266MBPS*
      - *FC-133MBPS*
      - *ETH-125MBPS*
      - *XAUI-3125MBPS*
      - *XAUI-3187MBPS*
      - *ESCON-200MBPS*
      - *BYP*

FC-2125MBPS	Fiber Channel, 2.125 Gb/s
FC-1062MBPS	Fiber Channel, 1.062 Gb/s
FC-531MBPS	Fiber Channel, 531 Mb/s
FC-266MBPS	Fiber Channel, 266 Mb/s
FC-133MBPS	Fiber Channel, 133 Mb/s
ETH-125MBPS	Fast Ethernet
XAUI-3125MBPS	XAUI 3.125 Gb/s
XAUI-3187MBPS	XAUI 3.187 Mb/s
ESCON-200MBPS	ESCON
BYP	Reclocker is bypassed

4.2.8. Selecting the Output Laser Enable Mode

In some applications, it is beneficial to disable the laser output with no input signal present. Alternatively, it may be preferable to maintain an optical output signal, even with no input. The 7707OO-2-OC supports both modes of operation.

To configure the laser enable mode, select the **CTRL** menu item in the first menu level. Use the toggle switch to select the **LASR** menu item and press the pushbutton. Then use the toggle switch to select either the **LINE** side laser or the equipment (**EQUP**) side laser and press the pushbutton. The toggle switch can then be used to change the mode of operation. Press the pushbutton to apply the displayed selection and return to the first menu level. For the sake of brevity, only the **LINE** side laser will be discussed in the manual.

- *CTRL*
  - *LASR*
    - *LINE*
      - *CONT*
      - *DISC*

CONT	Continuous operation. Laser is always enabled, even without an active input signal.
DISC	Discontinuous operation. Laser is disabled when no active input signal is detected.

4.2.9. Setting the Orientation of the Text on the Card Edge Display

The **DISP** option allows the user to set a horizontal or vertical orientation for the card edge display. To set the display orientation, select the **CTRL** menu item in the first menu level, then use the toggle switch to show the **DISP** menu selection and use the pushbutton to select it. Use the toggle switch to change between **HORZ** and **VERT**. Press the push button to make your selection.

- *CTRL*
  - *DISP*
    - *HORZ*
    - *VERT*

HORZ	Horizontal display used when the module is housed in the one-rack unit 7701FR frame or the stand-alone enclosure.
VERT	Vertical display used when the module is housed in the three-rack unit 7700FR frame.

4.2.10. Resetting Factory Defaults

The 7707OO-2-OC may have all settings returned to factory defaults using a single menu control item. To reset to factory defaults, select the **CTRL** menu item in the first menu level. Use the toggle switch to select the **FRST** menu item and press the pushbutton.

CTRL		
	FRST	
		NO
		YES

NO	Abort and do not perform factory reset.
YES	Return all configuration values to factory defaults.

5. JUMPERS AND LOCAL CONTROLS

Several jumpers, located at the front of the module are used to preset various operating modes. Figure 4-1 shows the locations of the jumpers.

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. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE: The UPGRADE jumper is used when firmware upgrades are being done to the module. For normal operation it should be installed in the *RUN* position (see NOTE 1). See the *Upgrading Firmware* section of this manual for more information.

To upgrade the firmware in the module unit pull it out of the frame. Move the UPGRADE jumper into the *UPGRADE* position (see NOTE 1). Install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto SERIAL header at the card edge. Re-install the module into the frame. Run the upgrade as described in the *Upgrading Firmware* section of this manual. Once the upgrade is completed, remove the module from the frame, move the UPGRADE jumper into the *RUN* position, remove the upgrade cable and re-install the module. The module is now ready for normal operation.

6. VISTALINK® REMOTE MONITORING/CONTROL

6.1. WHAT IS VISTALINK®?

VistaLINK® is Evertz's remote monitoring and configuration platform which operates over an Ethernet network using Simple Network Management Protocol (SNMP). SNMP is a standard computer network protocol that enables different devices sharing the same network to communicate with each other. VistaLINK® provides centralized alarm management, which monitors, reports, and logs all incoming alarm events and dispatches alerts to all the VLPro Clients connected to the server. Card configuration through VistaLINK® PRO can be performed on an individual or multi-card basis using simple copy and paste routines, which reduces the time to configure each module separately. Finally, VistaLINK® enables the user to configure devices in the network from a central station and receive feedback that the configuration has been carried out.

There are 3 components of SNMP:

1. An SNMP manager, also known as a Network Management System (NMS), is a computer running special software that communicates with the devices in the network. Evertz VL-Fiber demo Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz VistaLINK® enabled fiber optic products.

2. Managed devices (such as 7707OO-2-OC cards) each with a unique address (OID) communicate with the NMS through an SNMP Agent. Evertz VistaLINK® enabled 7700 series modules reside in the 3RU 7700FR-C MultiFrame and communicate with the manager via the 7700FC VistaLINK® frame controller module, which serves as the Agent.

3. A virtual database, known as the Management information Base (MIB), lists all the variables being monitored, which both the Manager and Agent understand. Please contact Evertz for further information about obtaining a copy of the MIB for interfacing to a third party Manager/NMS.

For more information on connecting and configuring the VistaLINK® network, see the 7700FC Frame Controller chapter.

6.2. VISTALINK® MONITORED PARAMETERS

The following parameters can be remotely monitored through the VistaLINK® interface.

Parameter	Description
Card Type	Indicates either 7707OO-SONET or 7707OO-SONET-H card type.
Optical Power	A range of values describing optical power at both the LINE and EQUIPMENT fiber inputs.
Data Rate	The data standard/rate detected at both like LINE and EQUIPMENT inputs.

Table 6-1: VistaLINK® Monitored Parameters

6.3. VISTALINK® CONTROLLED PARAMETERS

The following parameters can be remotely controlled through the VistaLINK® interface.

Parameter	Description
Data Mode	Select telecom or datacom data rates
Data Rate	Select the data rate/standard from available telecom and datacom types, automatic and bypass modes
Laser Mode	Select continuous or discontinuous laser mode for LINE and EQUIPMENT side lasers (separate settings for each)
Optical Threshold	Optical power threshold for low optical power alarm trap – separate settings for LINE and EQUIPMENT receivers

Table 6-2: VistaLINK® Controlled Parameters

6.4. VISTALINK® TRAPS

The following traps can be VistaLINK® enabled and monitored.

Parameter	Description
Laser Fault	Indicates deficient operation of the optical output line and/or equipment laser
Input Signal Presence	Indicates missing signals at LINE and/or EQUIPMENT inputs
Optical Power	Indicates LINE and/or EQUIPMENT optical input power below threshold setting

Table 6-3: VistaLINK® Traps