2407RGBR/DVIR
DVI and RGB Video/Audio
Portable Fiber Receiver

Instruction Manual

IMPORTANT SAFETY INSTRUCTIONS

⚡	The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "Dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
!	The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (Servicing) instructions in the literature ac-companying the product.

- Read this information
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades, one blade being wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way (ie. liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped).

WARNING
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

WARNING
DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS ARE PLACED ON THE EQUIPMENT.

WARNING
TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE PLUG FROM THE DUAL POWER SUPPLIES AC RECEPTACLE.

WARNING
THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.

INFORMATION TO USERS IN EUROPE

NOTE

This equipment with the CE marking complies with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European standards:

- EN60065   Product Safety
- EN55103-1   Electromagnetic Interference Class A (Emission)
- EN55103-2   Electromagnetic Susceptibility (Immunity)

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the European Union EMC directive. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING

Changes or Modifications not expressly approved by Evertz Microsystems Ltd. could void the user's authority to operate the equipment.

Use of unshielded plugs or cables may cause radiation interference. Properly shielded interface cables with the shield connected to the chassis ground of the device must be used

TABLE OF CONTENTS

REVISION HISTORY

REVISION	**DESCRIPTION**	**DATE**
1.0	First Release	Oct 07
1.1	Added information on accessing the toggle switch and pushbutton	Jan 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 2407RGBR/DVIR DWDM cards directly with a short fiber optic cable. The 2407RGBR/DVIR DWDM cards produce +7dBm of power, which will damage the receiver if connected directly.

1. OVERVIEW

The 2407RGBR RGB Fiber Receiver extends one digital (DVI) or analog (RGB) video display connection over a single fiber optic link with display resolutions up to WUXGA (1920 x 1200). The DVI-I connector combines analog and digital display technologies, promoting optimal compatibility with different display types. Two optional analog audio outputs are also available, as well as optional serial data, USB, keyboard, and mouse. These options facilitate complete remote computer control and display, including the ability to connect USB peripherals. The 2407RGBR is designed to operate with a companion 2407RGBT transmitter.

The 2407DVIR provides the same features listed above, but only accepts a digital (DVI) input.

Monitoring and control of card status and card parameters are provided locally, at the card-edge, or remotely via *Vista*LINK® capability. The 2407RGBR/DIVIR has a wide-band optical input and can accept any wavelength between 1270nm and1610nm.

Features:
- Digital (DVI) and analog (RGB) display technologies are supported through one interface on the 2407RGBR
- Available in a variety of fiber optic and coaxial versions
- VESA video resolutions supported up to WUXGA (1920x1200)
- Two optional analog audio channels
- Optional keyboard and mouse
- Optional USB interface
- Full 24 bits per pixel colour resolution
- Convenient audio monitoring headphone jack with adjustable volume
- Full-bandwidth 3 Gb/s signal transport over fiber – no compression or sub-sampling
- Ideal for use with high resolution LCD, plasma or projection screens
- All configuration settings are controllable through the card-edge user interface, or *Vista*LINK®
- Comprehensive signal and card status monitoring via four-digit card-edge display, or *Vista*LINK®
- Wide-band optical input is compatible with standard, CWDM, or DWDM transmission schemes
- Compatible with multi-mode and single-mode fiber
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot-swappable from front of frame

Fiber Type	Optical/Link Budget	Transmit Side		Receive Side		Description
		Ordering Product Info	TX Power	Ordering Product Info	RX Sensitivity	
Multi-Mode	< 500m	2407RGBT13-A2KM-USB-F2	-7dBm	2407RGBR13-A2KM -USB-F2	-21dBm	1310nm on Tx and Rx fibers
Single-Mode	14dB/40km	2407RGBT13-A2KM -USB-F2	-7dBm	2407RGBR13-A2KM -USB-F2	-21dBm	1310nm on Tx and Rx fibers
Single-Mode	17dB/48km*	2407RGBT15-A2KM -W	-2dBm	2407RGBR13L-A2KM -W	-19dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	17.5dB/70km**	2407RGBTxx-A2KM -USB-F2	0dBm	2407RGBRyy-A2KM -USB-F2	-21dBm	Different CWDM Wavelengths for Tx & Rx, with 8Ch CWDM Mux/Demux**
Single-Mode	23dB/92km***	2407RGBTDxxx-A2KM -USB-F2	+7dBm	2407RGBRDyyy-A2KM -USB-F2	-21dBm	Different DWDM Wavelengths for Tx & Rx, with 8Ch DWDM Mux/Demux***

* With >20dB return loss on fiber interfaces
** Assumes 8Ch CWDM Mux/Demux loss of 3.5dB
*** Assumes 8Ch DWDM Mux/Demux loss of 5dB

Tx Power/Rx Sensitivity are nominal values of ± 1dBm
Fiber loss =0.35/0.25dB per km @ 1310nm/1550nm

Table 1-1: Typical Application Configurations
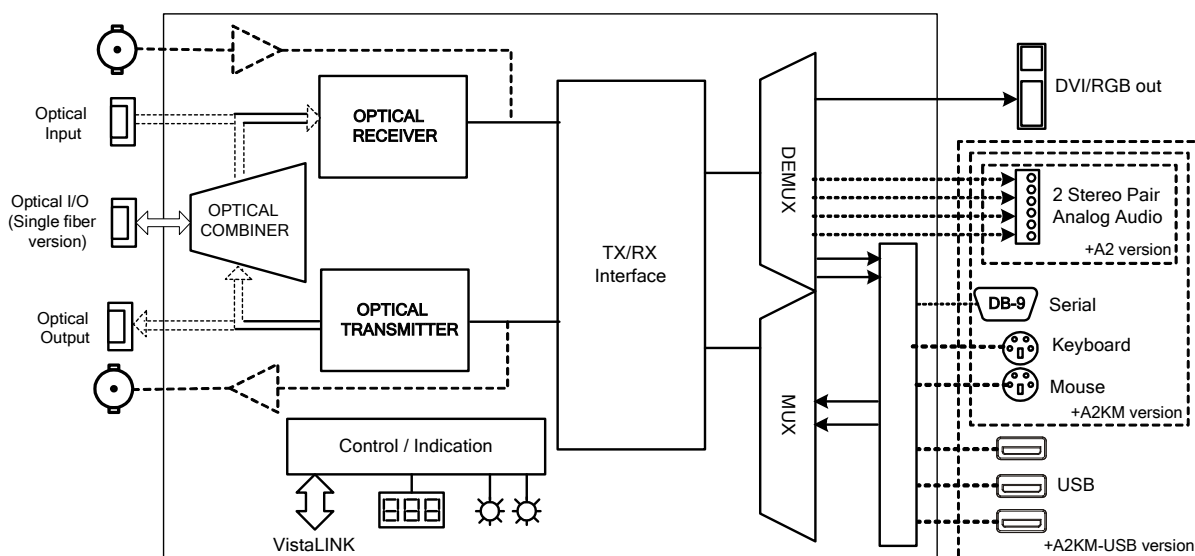
Figure 1-1: 2407RGBR Block Diagram
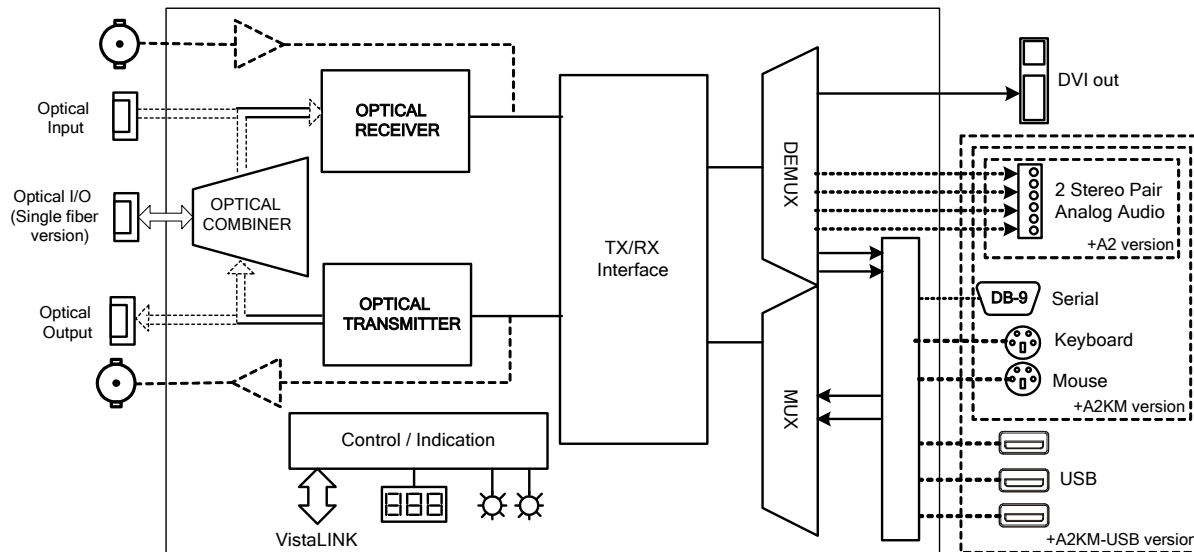
Figure 1-2: 2407DVIR Block Diagram

2.   INSTALLATION

Each 2407RGBR/DVIR module comes with a companion rear plate that has one DVI-I video connector and (depending on the options ordered) may also have analog audio terminals, PS2 keyboard and mouse connectors, a DB9 serial connector, and three type-A USB connectors. In addition, there will be SC/PC (shown), ST/PC, or FC/PC optical connector(s) and/or a BNC connector for link connections. On 2407RGBR models only, the DVI-I connector supports combined analog and digital video through a single interface. An industry-standard DB-15 connector adapter may be used for RGB. For information on mounting the rear plate and inserting the module into the frame, see section 3 of the 7700FR chapter. The following diagrams show some sample rear plate options for the 2407RGBR and 2407DVIR.
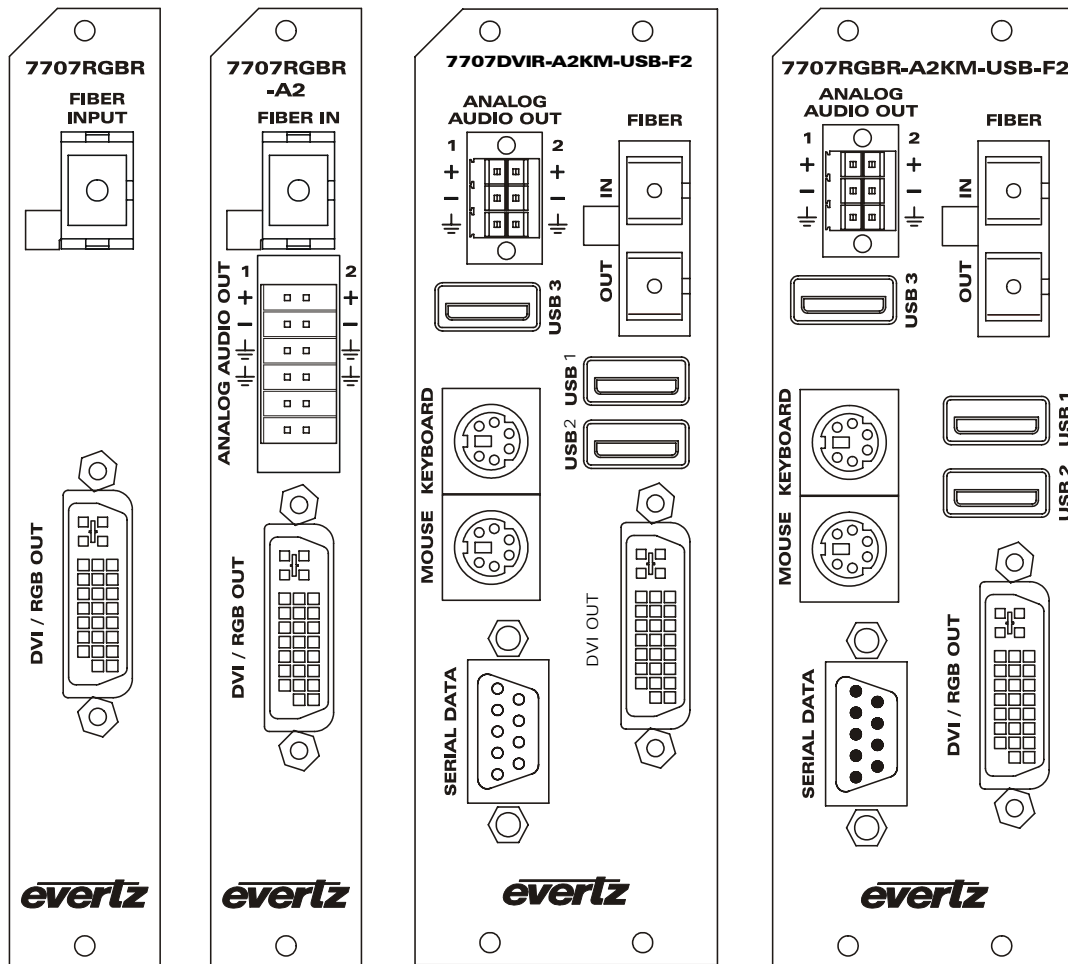
Figure 2-1: 2407RGBR/DVIR Rear Panels

2.1.   OPTICAL CONNECTIONS

FIBER INPUT: There is one SC/PC (shown), ST/PC or FC/PC female connector for the optical input to the 2407RGBR/DVIR. This wide band optical input accepts optical wavelengths of 1270nm to 1610nm, accommodating standard or CWDM transmission schemes. This input is compatible with multimode fiber when connected directly to a companion 2407RGBT/DVIT transmitter.

FIBER OUTPUT (F2 Versions): There is one SC/PC (shown), ST/PC, or FC/PC female connector when the 2407RGBT/DVIT is equipped with an optical output. The optical output is available in 1310nm, 1550nm, CWDM (ITU-T G.694.2 compliant) and DWDM (ITU G.694.1 compliant) wavelengths. This connector is compatible with multimode fiber when connected directly to a companion 2407RGBT/DVIT transmitter.

FIBER I/O (A2KM-W Version Only): There is one SC/PC (shown), ST/PC or FC/PC female connector with the optical input/output for the 2407RGBT/DVIT15-W version. This connector should be mated to a companion 2407RGBR13L-W version card using single-mode fiber optic cable.

All single fiber versions of the 2407RGBR13L-W are designed to work only with single-mode fiber optic cable.

2.2. SIGNAL CONNECTIONS

VIDEO OUTPUT: The 2407DVIR accommodates display devices with digital DVI connections only. The 2407RGBR DVI-I connector accommodates analog and digital display technologies, promoting optimal compatibility with different display types. Display devices with DVI connectors may be connected directly to this port. A DB-15 RGB connection may also be accommodated using an industry standard DB-15 to DVI-I adapter such as the Belkin F2E4162, or appropriately terminated cable assembly such as the Amp 16539332-1.

> **Note: When making digital DVI connections, Evertz recommends using only high quality DVI cables, no longer than 6 feet (1.8m).**

AUDIO OUTPUTS (A2 & A2KM Versions): The 2407RGBR/DVIR-A2 and 2407RGBR/DVIR-A2KM modules provide a terminal block for output connections compatible with either balanced or unbalanced analog audio. Balanced audio signals should be connected to the positive (+) and negative (-) output terminals. Unbalanced audio signals should be connected to the positive (+) input terminal, and a jumper connection should be installed between the negative (-) input terminal and the ground terminal ($\perp$).

KEYBOARD (A2KM Versions): The 2407RGBR/DVIR-A2KM provides a PS2 port for a keyboard connection. Connect this port to a standard PS2 keyboard.

MOUSE (A2KM Versions): The 2407RGBR/DVIR-A2KM provides a PS2 port for a mouse connection. Connect this port to a standard PS2 mouse.

SERIAL (A2KM Versions): Female DB9 RS-232 serial port with standard PC style layout. This port may be connected to serial peripherals. This port may also operate in RS-422 mode by changing a user-selectable menu item.

USB PORTS (USB Versions): When equipped with the USB option, the 2407RGBR/DVIR provides three type-A USB ports. These ports may be used to connect USB peripherals.

2.3.   CARE AND HANDLING OF OPTICAL FIBER

2.3.1. Safety

⚠ !

CLASS 1 LASER PRODUCT

Background colour: yellow
Triangular band: black
Symbol: black

2.3.2. Assembly

Assembly or repair of the laser sub-module is done only at Evertz facility and performed only by qualified Evertz technical personnel.

2.3.3. 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: 2407RGBR, 2407RGBR-A2, 2407RGBR13-A2KM- F2, 2407RGBR13-A2KM-USB-F2, 2407RGBR13M-A2KM-W
2407 RGBR xx, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61)
2407 RGBR Dyyy (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). 2407DVIR part numbers are similar, replacing "RGBR" with "DVIR".
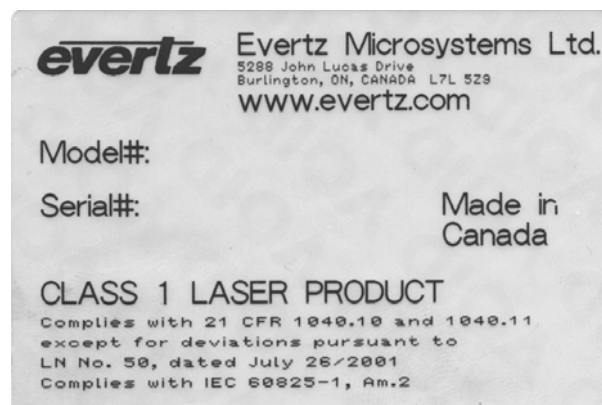
Figure 2-2: Reproduction of Laser Certification and Identification Label

2.3.4. 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. ANALOG VIDEO OUTPUTS

Number of Signals:	1
Signal Type:	RGB
Sync Type:	H and V, or Sync on Green
Connector:	DVI-1 with Analog, or 15-pin HD-15 VGA Analog (with adapter)
Display Resolution:	
Non-A2KM versions:	Up to WUXGA, 1920x1200 @ 75Hz
-A2KM versions:	Up to WUXGA, 1920x1200 @ 60Hz
Colour Depth:	24 Bit
Analog Bandwidth:	300MHz (min)
Impedance:	75Ohm
Analog Output Level:	1.4Vp-p (max)
SNR:	>55dB
Linear Distortion:	2% (max)
Intensity Distortion:	2% (max)

3.2. DIGITAL VIDEO OUTPUTS

Number of Signals:	1
Signal Type:	TMDS, per DVI specification
Connector:	DVI-I
Display Resolution:	
Non-A2KM versions:	Up to WUXGA, 1920x1200 @ 75Hz
-A2KM versions:	Up to WUXGA, 1920x1200 @ 60Hz
Colour Depth:	24-Bit

3.3. DIGITAL VIDEO CONTROL

Number of Signals:	1
Signal Type:	DDC2B, per DVI specification
Connector:	DVI-I

3.4. ANALOG AUDIO OUTPUTS (A2 & A2KM VERSIONS)

Number of Signals:	2
Type:	Balanced or unbalanced analog audio
Connector:	12-pin Removable Terminal Block
Output Level:	
Into High Impedance:	+24dBu (max)
Into 600Ω:	+23dBu (max)
Level:	-20dB to +3dB
Frequency Response:	$\pm$0.1dB (max, 20Hz to 20KHz)
THD + Noise:	0.005% (max, 20Hz to 20KHz)
S/N Ratio:	>85dB (min)
Channel Phase:	$\pm$1° (max, 20Hz to 20KHz)
Output Impedance:	>20kΩ (nom, differential)

3.5. KEYBOARD/MOUSE INPUT/OUTPUT (A2KM VERSIONS)

Number: 2
Connector: 1 PS2 each for keyboard and mouse

3.6. SERIAL PORT (A2KM VERSIONS)

Standard: RS232 or RS422 (user selectable)
Number: 1
Connector: DB9M

3.7. USB PORT (USB VERSIONS)

Standard: USB 1.1
Number: 3
Connector: USB type-A

3.8. OPTICAL INPUT

Connector: SC/PC, ST/PC, FC/PC female housing
Input Wavelength: 1270 to 1610nm (min)
Input Power: 0dBm (max)
Input Optical Sensitivity: -19dBm

3.9. OPTICAL OUTPUT

Connector: SC/PC, ST/PC, FC/PC female housing
Fiber Size and Type: Single Fiber versions: 9 μm core / single mode
Output Wavelengths:
   Standard: 1310nm, 1550nm (nominal)
   CWDM: 1270nm to 1610nm (ITU-T G.694.2 compliant).
   DWDM: 1530nm to 1560nm (ITU-T G.694.1 compliant).
Output Power:
   1310nm FP (Standard): -7 dBm ±1dBm
   -W Version: -1 dBm ±1dBm
   CWDM DFB: 0 dBm ±1dBm
   DWDM DFB: +7 dBm ±1dBm

3.10. ELECTRICAL

Voltage: 12V DC (nom)
Power:
   Non DWDM Laser: 11 Watts (max)
   DWDM Laser: 14 Watts (max)

3.11. PHYSICAL

   Dimensions
   With Flanges: 7.81"Lx5.63"Wx1.75"H
                (199mm L x 143mm W x 45mm H)

4. CARD-EDGE MONITORING AND CONTROL

4.1. ACCESSING THE TOGGLE SWITCH AND PUSH BUTTON

To expose the card edge controls you must remove the side panel. To do so, follow the instructions listed below:

1. Locate the two screws on the top (near the front) of the 2407 unit, as shown in Figure 4-1.

2. Remove these two screws (highlighted in Figure 4-1 with red circles).
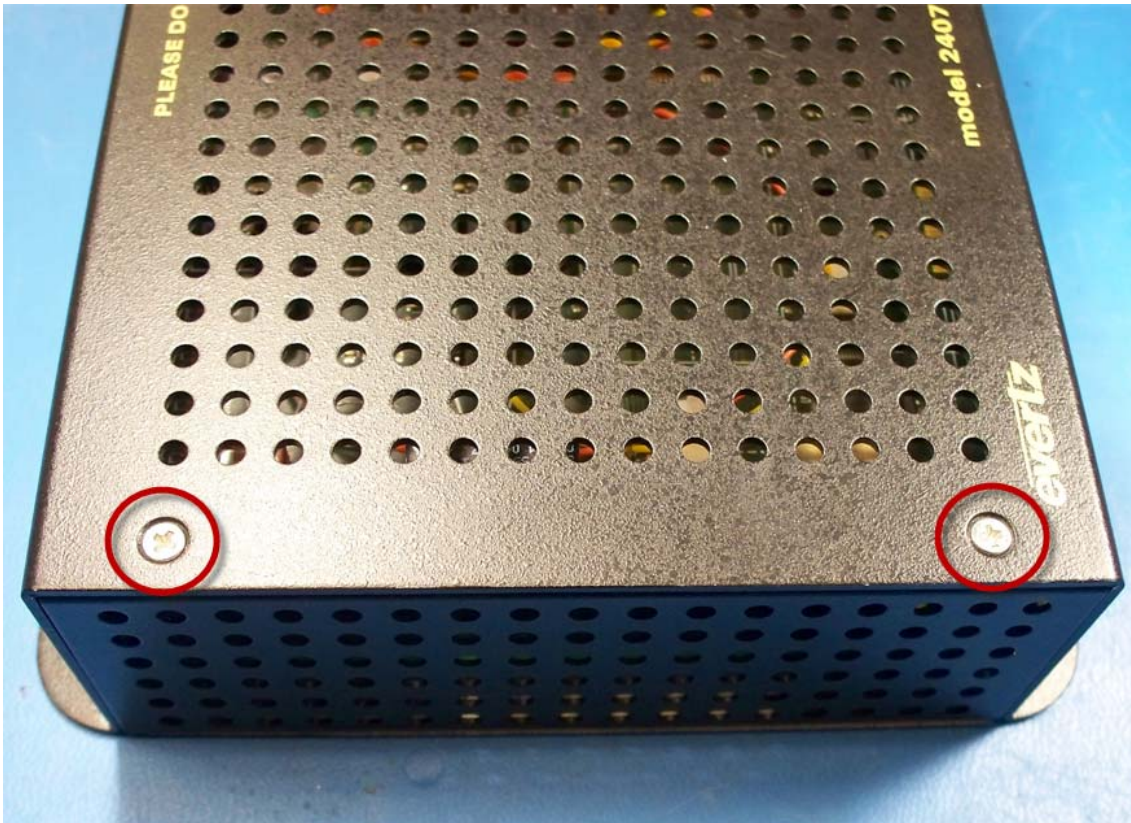
Figure 4-1: Identifying Top Screws

3. Flip the unit on its back and note the two screws at the bottom (near the front) of the 2407 unit, as shown in Figure 4-2.

4. Remove these two screws (highlighted in Figure 4-2 with red circles).
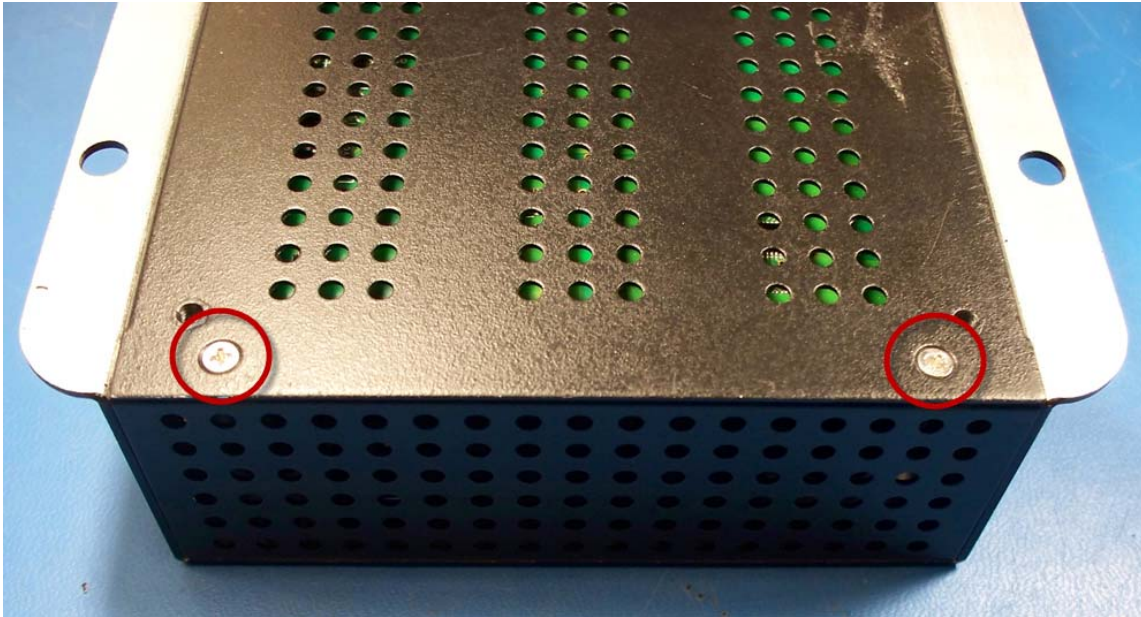
Figure 4-2: Screws on Bottom of Unit

5. Gently pull the front panel outwards from the frame.

6. Now the toggle switch and push button are exposed to perform unit functions.
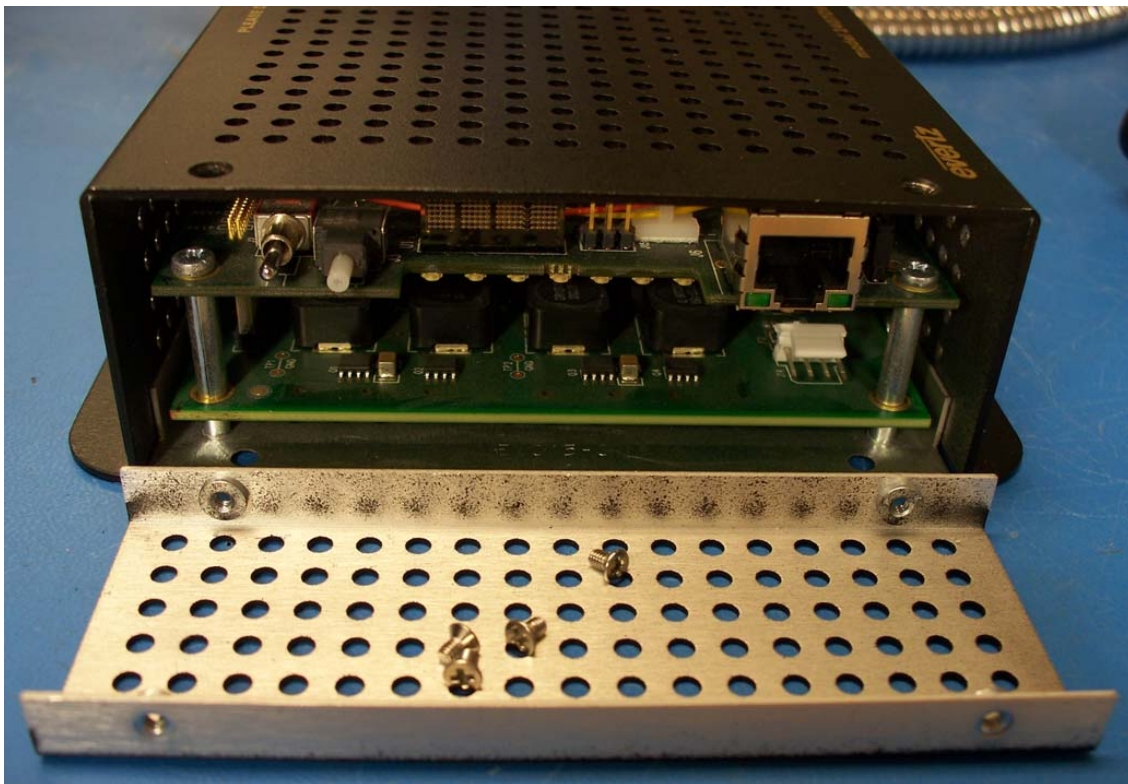
Figure 4-3: Inside View of Unit

4.2. CARD EDGE OPERATION

The 2407RGBR/DVIR has nine LED status indicators and a 4-digit dot-matrix display on the front card-edge to show operational status of the card at a glance. The card-edge pushbutton and toggle switch are used to select various control and status indications to the dot-matrix display. Additionally, an audio monitoring headphone jack is provided at the card-edge, for verification of signal presence and content. Figure 4-4 shows the locations of the indicators and controls.
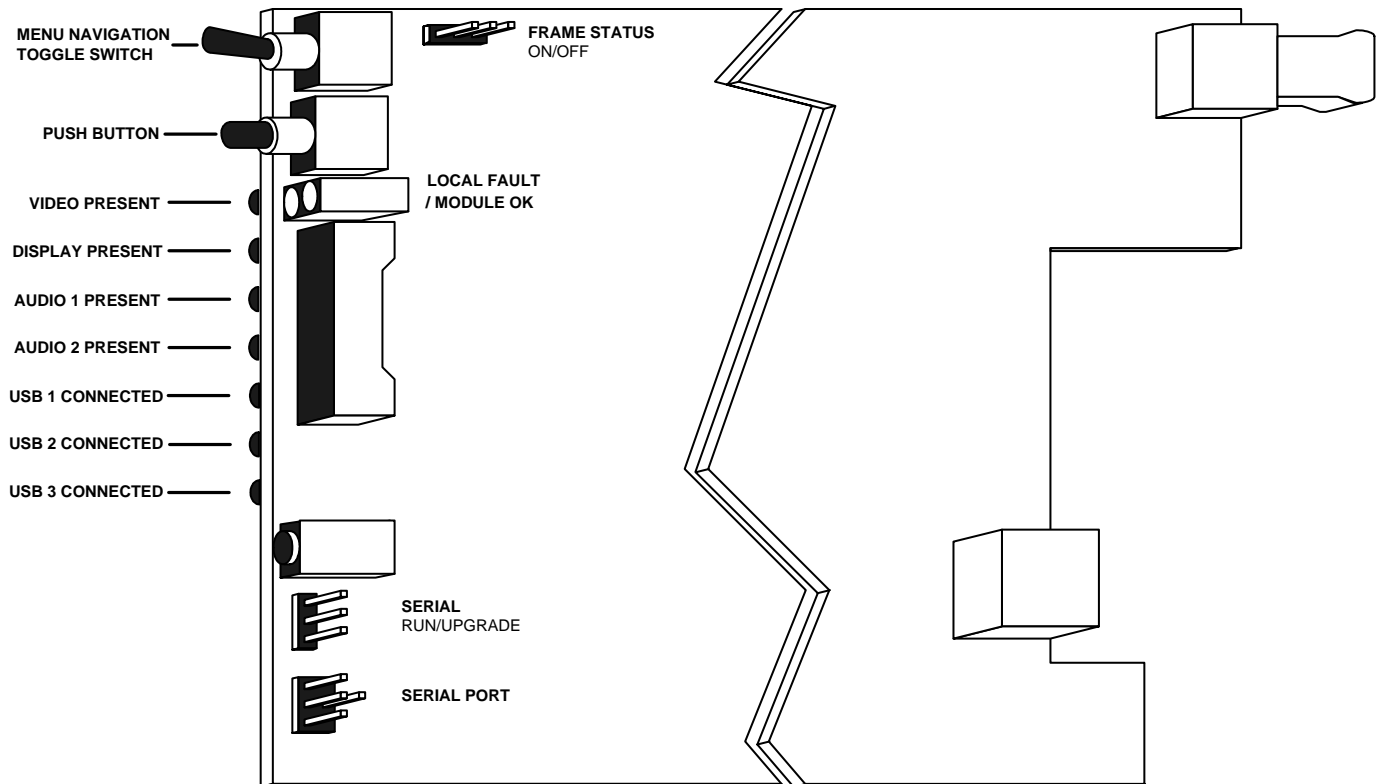
Figure 4-4: Location of Status Indicators and Jumpers

4.3. STATUS INDICATOR LEDS

LOCAL FAULT: This red LED indicates poor module health. Several conditions could cause this fault indication to be active:
  - o A link with a companion 2407RGBT/DVIT has not been achieved
  - o A card power fault exists (i.e. a blown fuse)
  - o No input video
  - o Laser fault (-A2KM versions)

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

MODULE OK: This green LED indicates good module health. It will be on while a link is maintained with a companion 2407RGBT/DVIT, and the card power is good.

VIDEO PRESENT: When active, this green LED indicates that a video signal is present at the optical input, and is compatible with the connected video display. Video format compatibility is determined using DDC (Display Data Channel) information detected from the video display. If no DDC information is detected from the video display (Display Present LED is off), then any received video format will be considered valid.

DISPLAY PRESENT: This green LED indicates that DDC (Display Data Channel) control data is detected from the connected video display. If no DDC data is detected, then any received video signal will appear at the outputs without qualification of display compatibility.

AUDIO PRESENT (A2 & A2KM Versions): These two green LED's indicate the signal presence of the two respective audio input channels. Signal presence indication considers the audio detection threshold set by the user on the transmitter card (Refer to the 2407RGBT/DVIT manual for more information).

USB CONNECTED (USB Versions):   These three green LED's indicate that a USB connection is established on the respective port.

4.4. CARD-EDGE DISPLAY AND CONTROLS

Additional signal and status monitoring is provided via the 4-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 4-5 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.

Level 1	Level 2	Level 3	Level 4	NOTES
LINK LOS OK	BACK			All
	CTRL	BACK		All
		HSFT	-5 to 5 (**0**)	All RGBR/DVIR-
		VSFT	-5 to 5 (**0**)	All RGBR/DVIR-
		BRT	0 to 63 (**32**)	All
		OSET	**NORM** BLAK SUSP OFF	All
		OLOS	**BLAK** SUSP OFF	All
		LASR	**CONT** DISC	-A2KM, -A2KM-USB
		SHAR	**0** to 31 (Only when RGB Present)	-A2KM and -A2KM-USB
		VOL	0 to 64 (**20**)	-A2, -A2KM and -A2KM-USB
		DISP	**VERT** HORZ	All
	STAT	BACK		All
		RES	Detected video resolution	All
		TYPE	Detected input video type (on RGBT) - DVI, RGB.	All
		ISNC	Input Sync (on RGBT) - None, HV, SOG	All
		PWR	Optical Power	All
		VER	Firmware version	All

Figure 4-5: 2407RGBR/DVIR Card Edge Menu Flow Cart

4.4.1. Card-Edge Display Warning Indications

There are flashing warning indications that might appear on the display of the 2407RGBR/DVIR. These warning indications can overwrite other display text, and supersede each other by order of priority. By pressing the pushbutton, a warning indication can be cleared from the display, and access to other menu items is maintained. Possible warning indications are:

LASR…ERR   Laser error - warns of laser (if equipped) end-of-life condition.
LINK…LOSS   Optical link not established
OK   Optical link established, no video input or laser (if equipped) problems

4.4.2. Adjusting the Horizontal and Vertical Shift (All RGBR/DVIR)

The RGBR and DVIR modules allow the user to adjust the vertical and horizontal position of the output picture.

CTRL
HSFT
-5 to 5 (0)

To adjust the Horizontal Shift, select the CTRL menu item in the first menu level. Use the toggle switch to select the HSFT menu item and press the pushbutton. The toggle switch may then be used to change the value. Press the pushbutton to apply the displayed value and return to the first menu level.

The value of the horizontal shift can range from –5 to 5. The default value is 0.

CTRL
VSFT
-5 to 5 (0)

To adjust the Vertical Shift, select the CTRL menu item in the first menu level. Use the toggle switch to select the VSFT menu item and press the pushbutton. The toggle switch may then be used to change the value. Press the pushbutton to apply the displayed value and return to the first menu level.

The value of the vertical shift can range from –5 to 5. The default value is 0.

4.4.3. Adjusting the Output Brightness (2407RGBR Models Only)

The 2407RGBR allows adjustment of the output signal brightness to accommodate display devices with varying input sensitivities.

CTRL
BRT
0 to 63 (32)

To adjust the brightness, select the CTRL menu item in the first menu level. Use the toggle switch to select the BRT menu item and press the pushbutton. The toggle switch may then be used to change the level. Press the pushbutton to apply the displayed value and return to the first menu level. The following selections are available for this menu item:

0 **to** 63   Range of brightness selection

The factory default configuration applies a brightness value of 0, which will output a signal equivalent in brightness to that received at the 2407RGBT.

4.4.4. Adjusting the Output Setting

Adjusting the output setting forces the output video to NORMAL, BLACK, SUSPEND, or OUTPUT OFF. Adjusting this setting overrides the video input regardless of its status.

```
CTRL
   OSET
      NORM
      BLAK
      SUSP
      OFF
```

To adjust the Output Setting, select the `CTRL` menu item in the first menu level. Use the toggle switch to select the `OSET` menu item and press the pushbutton. The toggle switch may then be used to change the output mode. Press the pushbutton to apply the displayed value and return to the first menu level. The following selections are available for this menu item:

NORM   Selecting this option sets the output setting to Normal.
BLAK   Selecting this option sets the output setting to Black.
SUSP   Selecting this option suspends the output setting.
OFF   Selecting this option turns the output off.

4.4.5. Adjusting the Output on Loss

The output on loss setting determines what the output video is set to upon loss of video input.

```
CTRL
   OLOS
      BLAK
      SUSP
      OFF
```

To adjust the Output on Loss, select the `CTRL` menu item in the first menu level. Use the toggle switch to select the `OLOS` menu item and press the pushbutton. The toggle switch may then be used to change the mode. Press the pushbutton to apply the displayed value and return to the first menu level. The following selections are available for this menu item:

BLAK   Selecting this option sets the output setting to Black.
SUSP   Selecting this option suspends the output setting.
OFF   Selecting this option turns the output loss off.

4.4.6. Selecting the Output Laser Enable Mode (A2KM Versions Only)

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 2407RGBR/DVIR supports both modes of operation.

```
CTRL
   LASR
      CONT
      DISC
```

To configure the mode *laser enable*, select the `CTRL` menu item in the first menu level. Use the toggle switch to select the `LASR` menu item 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. The following selections are available for this menu item:

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.

The factory default configuration applies the `CONT` mode of laser enable.

4.4.7. Adjusting the Sharpness (A2KM Versions Only)

This control enables the user to adjust the sharpness of the RGB.

CTRL
SHAR
0 to 31

To adjust the sharpness, select the CTRL menu item in the first menu level. Use the toggle switch to select the SHAR menu item and press the pushbutton. The toggle switch may then be used to change the level. Press the pushbutton to apply the displayed value and return to the first menu level.

The value range is 0 to 31. The default value is 0.

4.4.8. Adjusting the Headphone Jack Volume (A2 & A2KM Versions Only)

The 2407RGBR/DVIR provides a convenient audio monitoring headphone jack at the card-edge. This jack can be used to verify signal presence or content for each audio channel. The headphone jack volume can be adjusted via the card-edge interface.

CTRL
VOL
0 to 64

To configure the headphone jack, select the CTRL menu item in the first menu level. The 2407RGBR/DVIR allows the user to control the headphone monitoring jack volume. Use the toggle switch to select the VOL menu item and press the pushbutton. The toggle switch may then be used to change the volume. Press the pushbutton to apply the displayed value and return to the first menu level. The following selections are available for this menu item:

0 to **64**   Range of volume selection for the headphone monitoring jack

The factory default configuration applies an audio volume value of 20.

4.4.9. Adjusting 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 pushbutton 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.

4.4.10. Displaying the Video Resolution and Refresh

The 2407RGBR/DVIR will detect and indicate the video format present at the optical input. It should be ensured that this format is compatible with the connected video display. Most video displays will return DDC (Display Data Channel) control data to the 2407RGBR/DVIR. This DDC data contains information describing video formats compatible with the connected display. If the format of the received video signal is not compatible with the connected display, then the output is switched off and a TYPE… ERR warning is indicated on the display. If no DDC information is detected from the video display (Display Present LED is off), then any received video format will be considered valid.

STAT
RES
(detected video resolution)

To display the video format indication, select the STAT menu item in the first menu level. Use the toggle switch to select the RES menu item and press the pushbutton. Following this selection, a scrolling indication of the video format will appear in the card-edge display, including resolution and refresh rate.   If no video signal is detected, the display will indicate NONE.   To exit the resolution display, press the pushbutton to return to the previous menu level.

4.4.11. Displaying the Connected Display Type (2407RGBR Models Only)

The 2407RGBR will display the video source type connected to the 2407RGBT.

STAT
TYPE
CRT
LCD

To indicate the video source type, select the STAT menu item in the first menu level. Use the toggle switch to select the TYPE menu item and press the pushbutton. One of the following will be indicated:

CRT   RGBT input video is RGB
LCD   RGBT input video is DVI

To exit the Display Type display, press the pushbutton to return to the previous menu level.

4.4.12. Displaying the Input Video Sync Type (2407RGBR Models Only)

The 2407RGBR can display the type of sync signal that is present at the video input of the 2407RGBT transmitter. To indicate the input sync type, select the STAT menu item in the first menu level. Use the toggle switch to select the ISNC menu item and press the pushbutton. One of the following will be indicated:

STAT
ISNC
SOG
HV

SOG   Sync signal at the RGBT input is Sync On Green
HV   Sync signal at the RGBT input is RGB H and V

To exit the Input Sync Type display, press the pushbutton to return to the previous menu level.

4.4.13. Displaying the Input Optical Power

The 2407RGBR/DVIR can measure and display optical power over a range of –40 to 0dBm in 1dBm increments. To display the optical power, select the STAT menu item in the first menu level. Use the toggle switch to select the PWR menu item and press the pushbutton.

STAT	
PWR	
-40 to 0	
LOW	
OVR	

The following list describes all possible indications for this menu selection:

-40 to **0**	Optical input power in dBm units.
LOW	Optical input power is below –40dBm.
OVR	Optical input power is in excess of 0dBm.

4.4.14. Displaying the Firmware Version

The VER option displays the card's current firmware version. To display the firmware version, select the STAT menu item in the first menu level then use the toggle switch to display the VER option and press the pushbutton to select it.

STAT	
VER	
Firmware	
Version	

The firmware version will scroll across the display.

For example: **VER 1.0 BLD 067**

5.   JUMPER CONTROLS

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

5.1.   CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

RUN/UPGRADE: The RUN/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 the *Upgrading Firmware* chapter in the front of the binder for more information.

To upgrade the firmware in the module unit pull it out of the frame. Move the RUN/UPGRADE jumper J16 into the *UPGRADE* position. Install the Upgrade cable provided (located in the vinyl pouch in the front of the binder) onto SERIAL header J7 at the card edge. Re-install the module into the frame. Run the upgrade as described in the *Upgrading Firmware* chapter in the front of the binder. Once the upgrade is complete, remove the module from the frame, move J16 into the *RUN* position, remove the upgrade cable and re-install the module. The module is now ready for normal operation.

6. *VISTA*LINK® REMOTE MONITORING/CONTROL

6.1. WHAT IS *VISTA*LINK®?

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 *Vista*LINK® enabled fiber optic products.
2. Managed devices (such as 2407RGBR cards), each with a unique address (OID), communicate with the NMS through an SNMP Agent. Evertz *Vista*LINK® enabled 7700 series modules reside in the 3RU 7700FR-C MultiFrame and communicate with the manager via the 7700FC *Vista*LINK® 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 *Vista*LINK® network, see the 7700FC Frame Controller chapter.

6.2. *VISTA*LINK® MONITORED PARAMETERS

The following parameters can be remotely monitored through the *Vista*LINK® interface.

Parameter Name	Notes	Description
Input Video Resolution		Input video resolution
Optical Power		Input optical power
Card Type		Card Type
Source video type	RGBR models only	Source video type connected to RGBT (CRT=RGB, LCD=DVI)
Output Video Resolution	-A2KM versions	Resolution of video output at the receiver
RGBT Input Sync	0 = none 1 = RGBHV 2 = Sync on Green	Input video sync type

Table 6-1: *Vista*LINK® Monitored Parameters

6.3. *VISTA*LINK® CONTROLLED PARAMETERS

When the CONTROL jumper is set to the REMOTE position, the following parameters can be remotely controlled through the *Vista*LINK® interface. When the MASTER jumper is set to the LOCAL position the local jumper settings will override the settings configured through the *Vista*LINK® interface.

Parameter Name	Notes	Description
Laser	-A2KM versions 0 = discontinuous 1 = continuous	Laser continuous or discontinuous mode
Optical power alarm threshold	All except coaxial versions	Low optical power level for alarm trap
Video output on link loss	0 = black 1 = suspend 2 = power down	Video output mode on optical link loss
Output video control	0 = normal 1 = black 2 = suspend 3 = power down	Control of video output – allows output of link video, black or DPMS modes
RGBR output sync	0 = Auto 1 = RGBHV 2 = Sync on Green	Controls sync type on RGB output
V-Shift		Adjusts the vertical position of the output picture
H-Shift		Adjusts the horizontal position of the output picture

Table 6-2: *Vista*LINK® Controlled Parameters