2407RGBT/DVIT
DVI and RGB Video/Audio
Portable Fiber Transmitter

Instruction Manual

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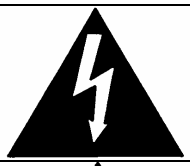
IMPORTANT SAFETY INSTRUCTIONS

	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

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WARNING

Never look directly into an optical fiber. Irreversible eye damage can occur in a matter of milliseconds.

Do not hook up the 2407RGBT/DVIT DWDM cards directly to companion receivers with short fiber optic cables. The 2407RGBT/DVIT DWDM cards produce +7dBm of power, which will damage the receiver if connected directly.

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	Oct 07
1.1	Added information on accessing the toggle switch and pushbutton	Jan 09
1.2	Added DDC Value information to section 1	Sept 09

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1. OVERVIEW

The 2407RGBT RGB/DVI Fiber Transmitter extends one digital (DVI) or analog (RGB) video display connection over a single fiber optic or coaxial link, with display resolutions up to WUXGA (1920 x 1200). The DVI-I connector combines analog and digital display technologies, promoting optimum compatibility with different display types. Two optional analog audio inputs 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 2407RGBT is designed to operate with a companion 2407RGBR or 2407RGBR receiver, to allow communication over fiber optic cable with minimal latency.

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

Monitoring and control of the card status and parameters are provided locally at the card-edge, or remotely via *Vista*LINK® capability. The optical output of the 2407RGBT is available in 1310nm, 1550nm, CWDM and DWDM wavelengths.

Features:

- Digital (DVI) and analog (RGB) display technologies are supported through one interface on the 2407RGBT
- Available in a variety of fiber optic versions
- VESA video resolutions supported up to WUXGA (1920x1200)
- Two optional analog audio inputs
- Optional keyboard and mouse
- Optional USB interface
- Full 24 bits per pixel colour resolution
- True DC restoration with AGC for analog RGB input signals
- Ideal for use with high resolution LCD, plasma or projection screens
- Full-bandwidth 3 Gb/s signal transport over fiber – no compression or sub-sampling
- All configuration settings are controlled locally through the card-edge user interface, or remotely through *Vista*LINK®
- Comprehensive signal and card status monitoring are available locally on the four-digit card-edge display, or remotely through *Vista*LINK®
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths also available (ITU-T G.694.1 compliant)
- Selectable continuous or discontinuous laser operation modes

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	-19dBm	1310nm on Tx and Rx fibers
Single-Mode	12dB/34km	2407RGBT13-A2KM - USB-F2	-7dBm	2407RGBR13-A2KM - USB-F2	-19dBm	1310nm on Tx and Rx fibers
Single-Mode	8dB/20km*	2407RGBT15-A2KM -W	-1dBm	2407RGBR13M-A2KM -W	-17dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	15.5dB/60km**	2407RGBTxx-A2KM - USB-F2	0dBm	2407RGBRyy-A2KM - USB-F2	-19dBm	Different CWDM Wavelengths for Tx & Rx, with 8Ch CWDM Mux/Demux**
Single-Mode	21dB/80km***	2407RGBTDxxx-A2KM - USB-F2	+7dBm	2407RGBRDyyy-A2KM - USB-F2	-19dBm	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: Sample Typical Fiber Application Configurations

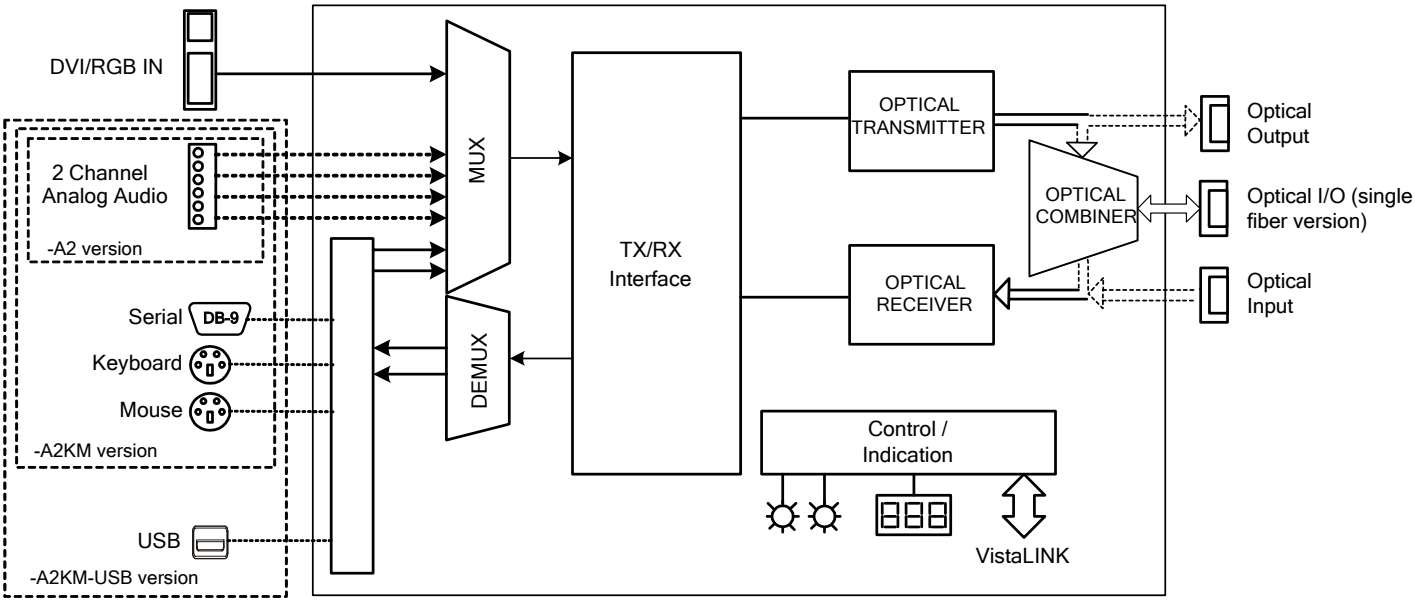


Figure 1-1: 2407RGBT Block Diagram

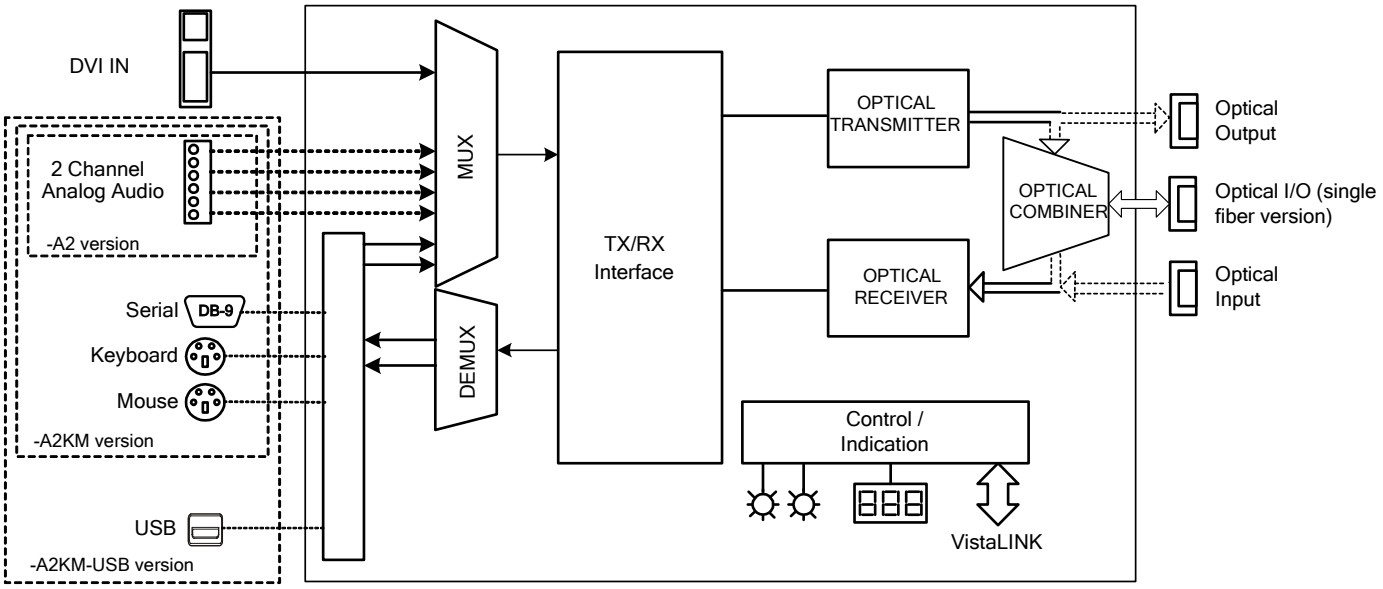


Figure 1-2: 2407DVIT Block Diagram

1.1. SETTING UP THE DDC VALUE

DDC (Display Data Channel) is a series of protocols that enables plug and play communication between a graphics adapter and a computer monitor. It allows the display to communicate its supported display modes and display parameters to the graphics adapter.

The DDC emulation mode will need to be set on the transmitter card (RGBT/DVIT) before plugging a PC into the RGBT/DVIT card. If the DDC is subsequently changed then a full re-boot will need to occur to allow the DDC change to take effect.

1. Ensure that the PC is off or not connected to the RGBT/DVIT card.

2. Set the DDC emulation mode depending on your system configuration:

   LCD: Emulate display with digital (DVI) input and output.
   CRTA: Emulate display with analog (RGB) input and analog (RGB) output.
   CRTD: Emulate display with analog (RGB) input and digital (DVI) output.

3. Connect the PC to the RGBT/DVIT card and power on the computer.

Please note: The DDC setting can not be set and applied while the PC is on and connected to the RGBT card. Please ensure that the PC is not connected or is turned off when changing the DDC.

2. INSTALLATION

The 2407RGBT/DVIT modules are stand-alone units that have 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 a type-B USB connector. In addition, there will be SC/PC (shown), ST/PC, or FC/PC optical connector(s). On 2407RGBT 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. The following diagrams show some sample rear plate options for the 2407RGBT and 2407DVIT.

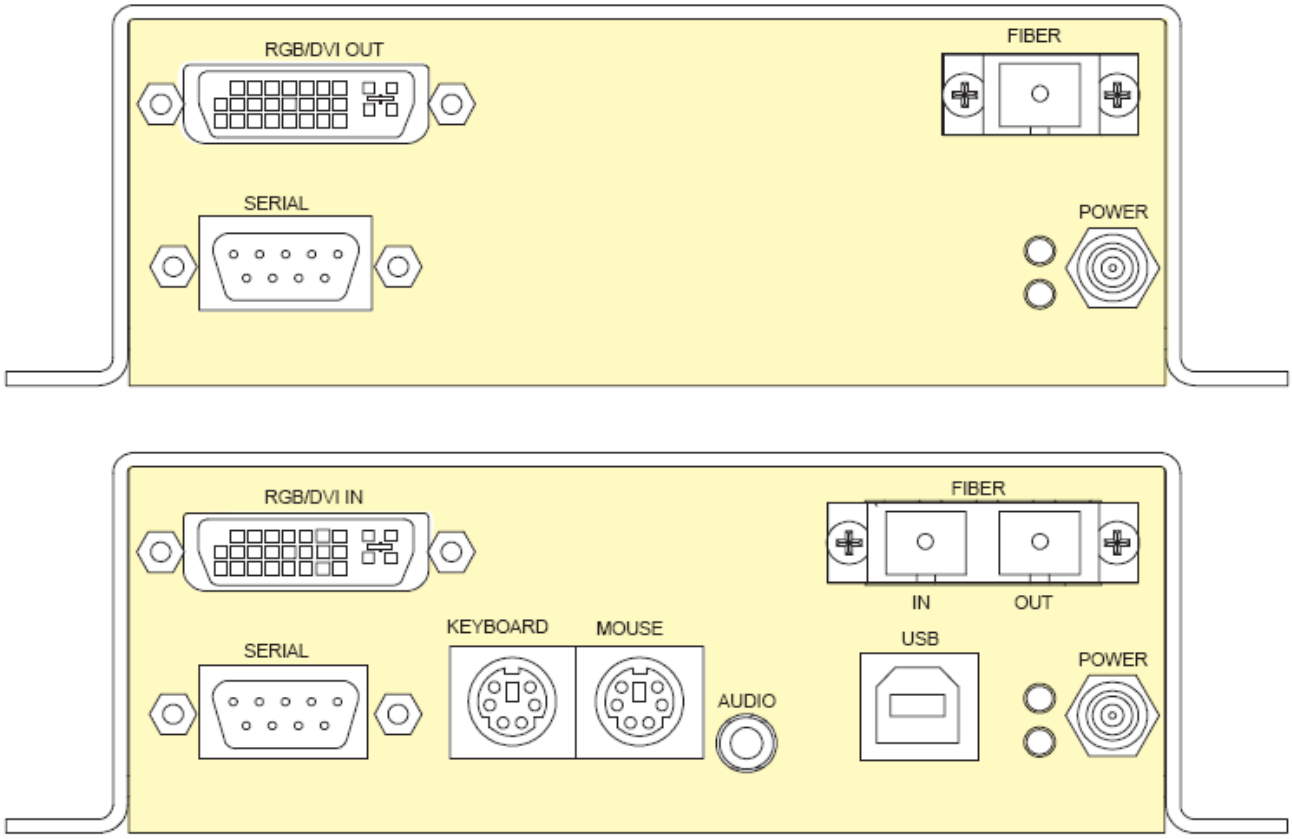


Figure 2-1: 2407RGBT/DVIT I/O CONNECTIONS

2.1. OPTICAL CONNECTIONS

FIBER OUTPUT: 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 2407RGBR/DVIR receiver. The output signal on the 2407RGBT/DVIT-GF will be in the G-Link format for connection to Evertz MVP™ multi-display products.

FIBER INPUT (F2 Versions): There is one SC/PC (shown), ST/PC, or FC/PC female connector when the 2407RGBT/DVIT is equipped with an optical input. This wide band optical input accepts optical wavelengths of 1270nm to 1610nm and is compatible with multimode fiber when connected directly to a companion 2407RGBR/DVIR receiver.

FIBER I/O (W Versions): There is one SC/PC (shown), ST/PC, or FC/PC female connector when the 2407RGBT/DVIT is equipped with a combined optical input/output. This connector should be mated to a companion 2407RGBR/DVIR13M-W version card using single-mode fiber optic cable.

2.2. SIGNAL CONNECTIONS

VIDEO INPUT: The 2407DVIT accommodates digital DVI input signals only. The 2407RGBT DVI-I connector accommodates analog and digital display technologies, promoting optimal compatibility with different display types. Input DVI signals 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 INPUTS (A2 & A2KM Versions): The 2407RGBT/DVIT-A2 and 2407RGBT/DVIT-A2KM modules provide a terminal block for input connections compatible with either balanced or unbalanced analog audio. Balanced audio signals should be connected to the positive (+) and negative (-) input 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 (⏚).

KEYBOARD (A2KM Versions): The 2407RGBT/DVIT-A2KM provides a PS2 port for a keyboard connection. Using a PS2 cable, connect this port to the PS2 keyboard port on the computer.

MOUSE (A2KM Versions): The 2407RGBT/DVIT-A2KM provides a PS2 port for a mouse connection. Using a PS2 cable, connect this port to the PS2 mouse port on the computer.

SERIAL (A2KM Versions): Female DB9 RS-232 serial port with standard PC style layout. Connect this port to the computer using a straight-through serial cable. This port may also operate in RS-422 mode by changing a user-selectable menu item. (See section 4.4.8)

USB (USB Versions): When equipped with the USB option, the 2407RGBT/DVIT provides a single type-B USB port. Connect this port to the computer using a USB cable. To the computer, the 2407RGBT/DVIT will appear as a USB hub.

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 performed only at the Evertz facility 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 the bar code label placed on the printed circuit board of each Evertz plug-in module.

- The model number is one of: 2407RGBT13, 2407RGBT13-A2, 2407RGBT13-A2KM-USB-F2, 2407RGBT15-A2KM-W, 2407RGBTxx, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61) with additional suffixes as above, or 2407RGBTDyyy (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) with additional suffixes as above. 2407DVIT part numbers are similar, replacing “RGBT” with “DVIT”.

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 clean the optical end face of a connector properly 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 caused by 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. Evertz fiber optic modules come with lockout devices to prevent the user from damaging the fiber connector by installing a module into a slot in the frame that does not have a suitable rear plate. 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

Video and audio performance specifications are measured at the output of a companion 2407RGBR/DVIR Receiver.

3.1. ANALOG VIDEO INPUTS (2407RGBT ONLY)

Number of Signals: 1
Signal Type: RGB
Sync Type: H and V, or Sync on Green
Connector: DVI-I 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 (max)
Impedance: 75Ω
SNR: >55dB
Input Level: 1Vp-p (max)
Linear Distortion: 2% (max)
Intensity Distortion: 2% (max)

3.2. DIGITAL VIDEO INPUTS

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 INPUTS (A2 & A2KM VERSIONS)

Number of Signals: 2
Connector: Removable Terminal Block
Input Level: +24dBu (max)
Input Impedance: 20kΩ (min, differential)
Frequency Response: ±0.1dB (max, 20Hz to 20KHz)
THD: < 0.005% (max, 20Hz to 20KHz, @ 0dBFS)
S/N Ratio: >85dB (min)
Channel Phase: ±1° (max, 20Hz to 20KHz)
Signal Quantization: 24 bits

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: DB9F

3.7. USB PORT (USB VERSIONS ONLY)

Standard: USB 1.1
Number: 1
Connector: USB type-B

3.8. 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

3.9. OPTICAL INPUT (-A2KM VERSIONS ONLY)

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

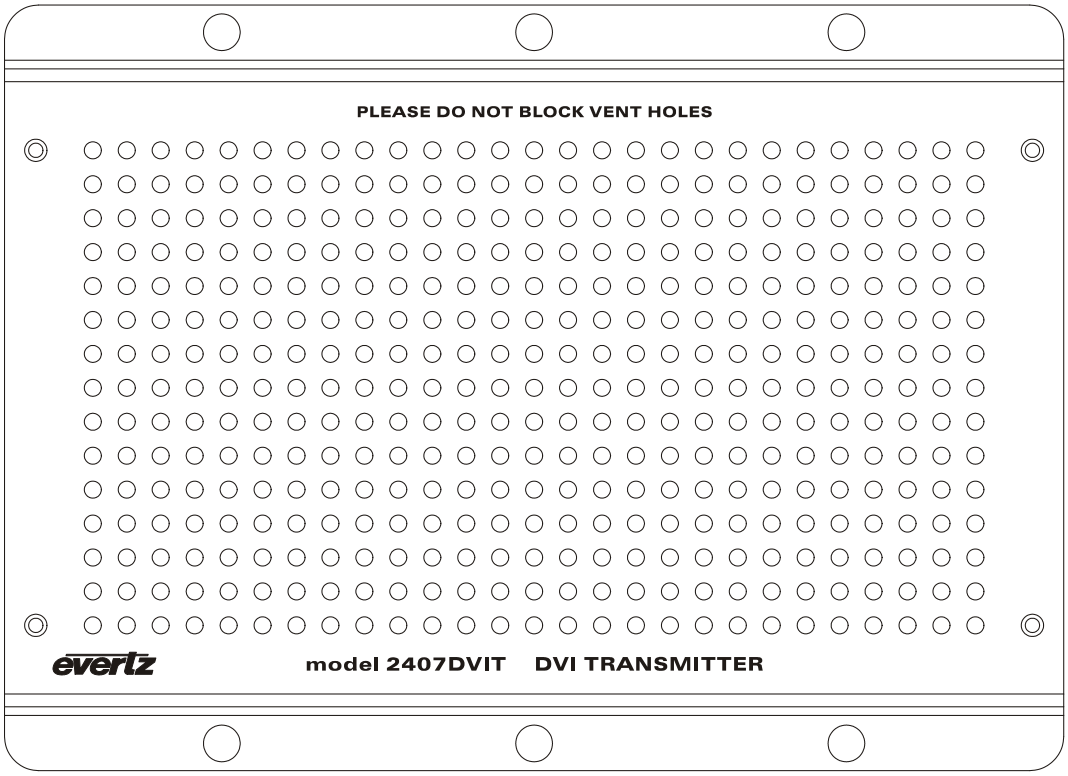
3.10. ELECTRICAL

Voltage: 12V DC (nominal)
Power:
- **Non DWDM Laser:** 11 Watts (max)
- **DWDM Laser:** 14 Watts (max)

3.11. PHYSICAL

Stand Alone units

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).

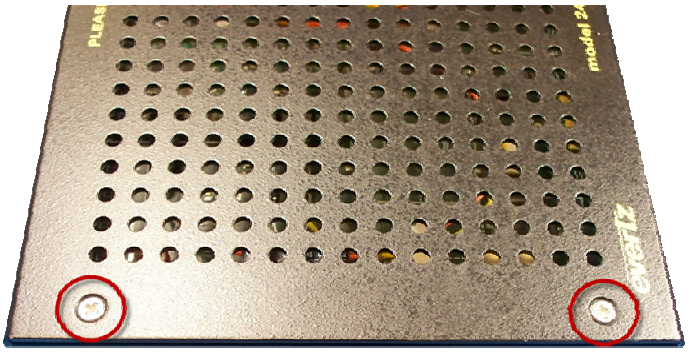


Figure 4-1: Identifying Top Screws

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).

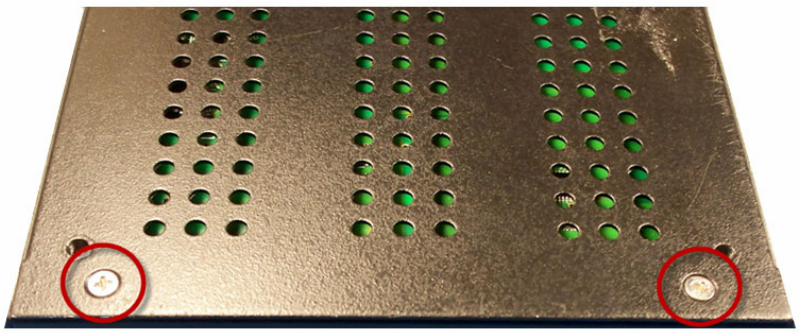


Figure 4-2: Screws on Bottom of Unit

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

6. With the side panel removed, the toggle switch and push button are exposed to perform unit functions.

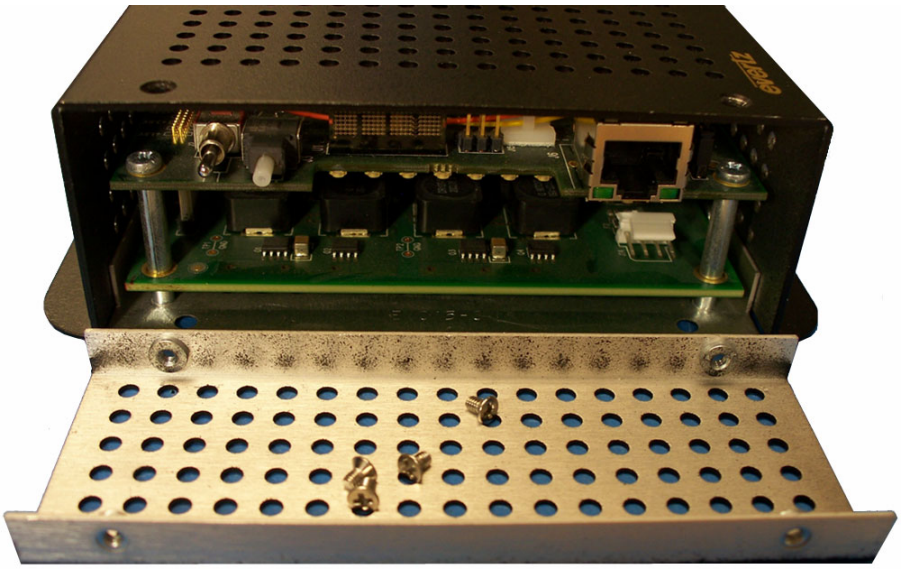


Figure 4-3: Inside View of Unit

4.2. CARD EDGE OPERATION

The 2407RGBT/DVIT has four LED status indicators and a four-digit dot-matrix display on the front card-edge to show the card's operational status at a glance. The card-edge pushbutton and toggle switch are used to select various control and status indicators on the dot-matrix display. Figure 4-4 shows the locations of the indicators and controls.

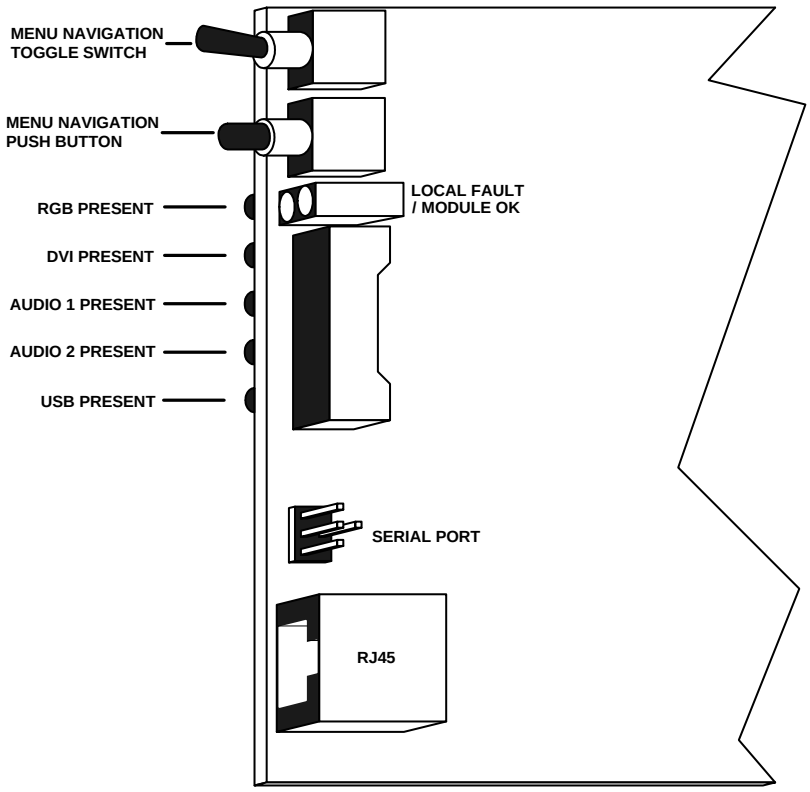


Figure 4-4: Location of Status Indicators and Jumpers

4.3. STATUS INDICATOR LEDS

LOCAL FAULT: This red LED indicates poor module health. Several conditions could cause this fault indication to be active:

- The output laser is disabled (see section 4.4.2)
- Laser fault
- Optical link not established (-A2KM versions only)
- Input video not present
- A card power fault exists (i.e. a blown fuse)

This 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 the output laser is operating properly, and the card power is good.

RGB PRESENT: This green LED indicates the presence of an analog video input signal.

DVI PRESENT: This green LED indicates the presence of a digital video input.

USB PRESENT: This green LED indicates the presence of a USB connection (-USB versions only).

AUDIO PRESENT (A2 & A2KM Version Only): These two green LEDs indicate the signal presence of the two respective audio input channels. Signal presence indication considers the audio detection threshold set by the user. Refer to section 4.4.5 for details about setting the audio detection threshold.

4.4. CARD-EDGE DISPLAY AND CONTROLS

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 4-5 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
LASR FAIL VID LOS OK	BACK			All
	CTRL	BACK		All
		LASR (Laser)	**CONT** DISC	All
		SHAR (Sharpness)	**0** to 63 (Only when RGB Pres)	RGBT/DVIT, RGBT/DVIT-A2
		DDC (Display Data Channel)	**LCD** CRT	All
		DET (Analog Audio Detection Threshold)	10 to -30 (**-10**)	RGBT/DVIT-A2, RGBT/DVIT-KM and RGBT/DVIT-KM-USB
		DUR (Analog Audio Detection Duration)	1 to 20 (**10**)	RGBT/DVIT-A2, RGBT/DVIT-KM and RGBT/DVIT-KM-USB
		VOL (Volume)	0 to 64 (**20**)	RGBT/DVIT-A2, RGBT/DVIT-KM and RGBT/DVIT-KM-USB
		SER (Serial Data setting)	**232** 422	RGBT/DVIT-KM and RGBT/DVIT-KM-USB
		DISP (Display)	**VERT** HORZ	All
	STAT	BACK		All
		PWR	Optical Power	RGBT/DVIT-KM and RGBT/DVIT-KM-USB
		RES	Detected input resolution	All
		SHAR	Current sharpness setting	Not KM's
		DDC	Current ddc setting	All
		INSC	Input sync	All
		VER	Firmware version	All

Figure 4-5: 2407RGBT/DVIT Card Edge Menu Flow Cart

4.4.1. Card-Edge Display Warning Indications

There are flashing warning indicators that may appear on the display of the 2407RGBT. These warning indicators can overwrite other displayed text. Pressing the pushbutton will clear a warning indicator from the display and allow access to other menu items. Possible warning indicators are:

LASR ERR Laser error - warns of laser end-of-life condition
TYPE ERR Type error - warns of Input errors
LINK…LOSS Optical link not established
OK Optical link established, no video input or laser problems

4.4.2. Selecting the Output Laser Control 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 2407RGBT/DVIT supports both modes of operation.

CTRL
LASR
CONT
DISC

To configure the mode *laser control*, 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.

4.4.3. Setting the RGB Output Video Sharpness (2407RGBT models only)

This menu item allows control over the sharpness of the RGB video output at the 2407RGBR receiver. Note that this menu item is only available when there is RGB video input present at the 2407RGBT.

CTRL
SHAR
0 to 31

To control 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 can then be used to set the value. Press the pushbutton to apply the displayed selection and return to the first menu level. The following selections are available for this menu item:

0-31 Output RGB video sharpness

4.4.4. Selecting the Display Data Channel Mode

The Display Data Channel is a digital connection between a computer display and the graphics adapter that allows the display to communicate its specifications to the adapter. The 2407RGBT/DVIT can emulate either a display with a digital input connection (DVI – to be used when connecting to a graphics adapter with DVI output) or a display with an analog input connection (RGB – to be used when connecting to a graphics adapter with RGB output).

CTRL
- *DDC*
  - *CRT*
  - *LCD*

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

CRT	Emulate display with analog (RGB) input
LCD	Emulate display with digital (DVI) input

4.4.5. Setting the Analog Audio Detection Threshold (A2 & A2KM Versions Only)

Two card-edge LEDs indicate signal presence of the two respective analog audio channels. A detection threshold is used to indicate audio signal presence. The audio detection threshold adjustment is implemented in the digital domain, and applies to both channels. The range of threshold adjustment is –30dBu to +10dBu, in 1dB increments. Threshold adjustment is completed using the card-edge interface or through *Vista*LINK® control.

CTRL
- *DET*
  - *0 to 31*

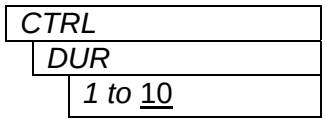
To change the audio detection threshold, select the CTRL menu item in the first menu level. Use the toggle switch to select the DET menu item and press the pushbutton. The toggle switch may then be used to change the threshold value. Select the desired value then press the pushbutton to apply the displayed selection and return to the first menu level. The following selections are available for this menu item:

-30 to **+10**	Detection threshold range, describing a dBu value

The factory default configuration applies an audio detection threshold value of -10dBu.

4.4.6. Setting the Analog Audio Detection Duration (A2 & A2KM Versions Only)

The DUR control sets the amount of time (in seconds) the audio is below the level set by the DET control before the audio is considered missing. The range of adjustment is 1 to 10 seconds, in one-second increments. Adjustment is completed using the card-edge interface or through *Vista*LINK® control.



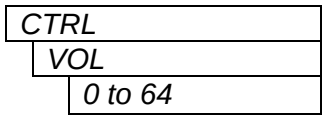
To change the audio detection duration, select the CTRL menu item in the first menu level. Use the toggle switch to select the DUR menu item and press the pushbutton. The toggle switch may then be used to change the value. Select the desired value then press the pushbutton to apply the displayed selection and return to the first menu level. The following selections are available for this menu item:

1 to **10** Detection duration range in seconds

The factory default configuration applies an audio detection threshold value of 10 seconds.

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

The 2407RGBT/DVIT 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.



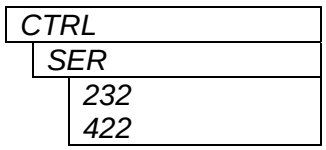
To configure the headphone jack, select the CTRL menu item in the first menu level. The 2407RGBT/DVIT allows the user to control the headphone monitoring jack volume. Use the toggle switch to select the VOL menu item and press the pushbutton. The toggle switch may then be used to change the volume. Press the pushbutton to apply the displayed selection 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.

4.4.8. Selecting the Serial Port Mode (-A2KM versions)

The 2407RGBT/DVIT serial port can operate in RS-232 or RS-422 modes.



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

232 RS232 serial port
422 RS422 serial port

4.4.9. 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 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 Input Optical Power (optical -A2 and -A2KM versions only)

The 2407RGBT/DVIT can measure and display the input optical spower over a range of -1dBm to –40dBm in increments of 1dBm.

STAT
PWR
OVER
-1 to –40
Low

To display the input optical power, select the STAT menu item in the first menu level, then use the toggle switch to display the PWR option and press the pushbutton to select it. The display will show one of the following:

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

4.4.11. Displaying Input Signal Resolution

The signal resolution option displays the video resolution detected at the input (i.e. 1920x1200). The resolution option will also indicate if no resolution is detected.

STAT
RES
(detected input resolution)

To display the input signal resolution, select the STAT menu item in the first menu level, then use the toggle switch to display the RES option and press the pushbutton to select it. The display will show NONE if no input signal is detected. If an input video signal is present, the display will show the detected resolution and refresh rate.

4.4.12. Displaying Current Sharpness Setting

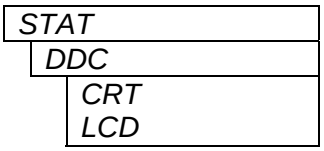
This menu item SHAR displays the sharpness setting of the RGB video output at the 2407RGBR receiver. Note that this menu item is only available when RGB video input is present at the 2407RGBT.

STAT
SHAR
(current sharpness)

To display the current sharpness, select the STAT menu item in the first menu level, then use the toggle switch to display the RES option and press the pushbutton to select it. The display will show the current sharpness setting.

4.4.13. Displaying the Selected Display Data Channel Mode

To display the selected Display Data Channel mode, select the STAT menu item in the first menu level. Use the toggle switch to select the DDC menu item and press the pushbutton.

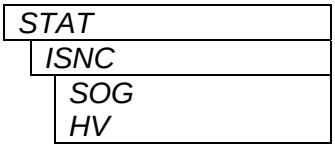


The DDC display will show one of the following:

CRT DDC set to emulate analog RGB display
LCD DDC set to emulate digital DVI display

4.4.14. Displaying the Video Input Sync

The 2407RGBT can display the type of sync signal that is present at the video input. To indicate the input sync type, select the STAT menu item in menu level 1. Use the toggle switch to select the ISNC menu item and press the pushbutton.



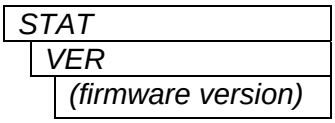
The Video Input Sync will indicate one of the following:

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.

4.4.15. 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. The firmware version will scroll across the display.



The firmware version will be displayed similar to the following:

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 completed, 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 2407RGBT 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. Note that some items may not be available depending on the type/options on the particular card.

Parameter Name	Notes	Description
Input Video Resolution		Input video resolution
Optical Power	-A2KM versions	Input optical power
Card Type		Card Type
RGBR/DVIR Optical Power	-A2KM versions	Optical input power present at receiver
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. Note that some items may not be available depending on the type/options on the particular card.

Parameter Name	Notes	Description
Sharpness	2407RGBT only when RGB video at input	Controls output video sharpness at 2407RGBR
Detection	-A2 versions	Audio detection level threshold
Duration	-A2 versions	Audio detection duration
Laser	0 = discontinuous 1 = continuous	Laser continuous or discontinuous mode
Optical Power Alarm Threshold	-A2KM versions	Low optical power level for alarm trap
Receiver Video Output on Link Loss	0 = black 1 = suspend 2 = power down	Receiver video output mode on optical link loss
Receiver Output Video Control	0 = normal 1 = black 2 = suspend 3 = power down	Control of video output on receiver – allows output of link video, black or DPMS modes
FTP Upgrade Destination		Selects whether this card or the connected receiver is the target of the FTP upgrade
RGBR Output Sync		Controls sync type on RGB output

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