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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	Nov 04
1.1	Updated safety section and added assembly and labeling sections	Aug 05
1.2	Change of 7707RGBT-A2KM-F2 part number to 7707RGBT-A2KM-USB-F2	Sept 05
1.3	Added DVIT; EO, coaxial & G-Link options; other updates & corrections	July 06
1.3.1	Added LED functionality table	Mar 07
1.3.2	Fixed referencing and typos	April 07
1.4	Added 7707RGBT-A2-GC rear plate to Figure 2-1. Added tables to Section 4.	
1.5	Modified section 4.2.7 with new menu items	Jun 09
1.6	Added DDC Value information to section 1	Sept 09

WARNING

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

Do not hook up the 7707RGBT/DVIT DWDM cards directly to companion receivers with short fiber optic cables. The 7707RGBT/DVIT DWDM cards produce +7dBm of power, which will damage the receiver if connected directly.

1. OVERVIEW

The 7707RGBT 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 7707RGBT is designed to operate with a companion 7707RGBR receiver, to allow communication over fiber optic cable with minimal latency.

The 7707DVIT provides the same features listed above, but only accepts a digital (DVI) input.

Instead of fiber optic cable connections, the -C and –C2 versions of the card provide an economical 3.125 Gb/s electrical coaxial link.

The –EO versions provide an electrical I/O path via coaxial cable in addition to the fiber I/O path. This allows the cards to interface with electrical routers supporting 3.125 Gb/s, while providing the capability to convert the electrical signal back to optical on the same card, prior to transmission.

The –GF version provides a fiber optic link and the –GC version provides a coaxial link to transmit an RGB or DVI signal to interface with Evertz MVP™ or VIP™ multi-display products using the G-Link protocol.

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 7707RGBT is available in 1310nm, 1550nm, CWDM and DWDM wavelengths.

Features:

- Digital (DVI) and analog (RGB) display technologies are supported through one interface on the 7707RGBT
- Available in a variety of fiber optic and coaxial versions
- VESA video resolutions supported up to WUXGA (1920x1200)
- Two optional analog audio inputs
- Optional keyboard, mouse and serial
- Optional USB interface
- Optional G-Link support for use with Evertz VIP™ and MVP™ multi-display products
- Full 24 bits per pixel color resolution
- True DC restoration with AGC for analog RGB input signals
- Ideal for use with high resolution LCD, plasma or projection screens
- Convenient audio monitoring headphone jack with adjustable volume
- 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
- Hot swappable from the front of the frame

Fiber Type	Optical/Link Budget	Transmit Side		Receive Side		Description
		Ordering Product Info	TX Power	Ordering Product Info	RX Sensitivity	
Multi-Mode	< 500m	7707RGBT13-A2KM-USB-F2	-7dBm	7707RGBR13-A2KM -USB-F2	-19dBm	1310nm on Tx and Rx fibers
Single-Mode	12dB/34km	7707RGBT13-A2KM -USB-F2	-7dBm	7707RGBR13-A2KM -USB-F2	-19dBm	1310nm on Tx and Rx fibers
Single-Mode	8dB/20km*	7707RGBT15-A2KM -W	-1dBm	7707RGBR13M-A2KM -W	-17dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	15.5dB/60km**	7707RGBTxx-A2KM -USB-F2	0dBm	7707RGBRyy-A2KM -USB-F2	-19dBm	Different CWDM Wavelengths for Tx & Rx, with 8Ch CWDM Mux/Demux**
Single-Mode	21dB/80km***	7707RGBTDxxx-A2KM -USB-F2	+7dBm	7707RGBRDyyy-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

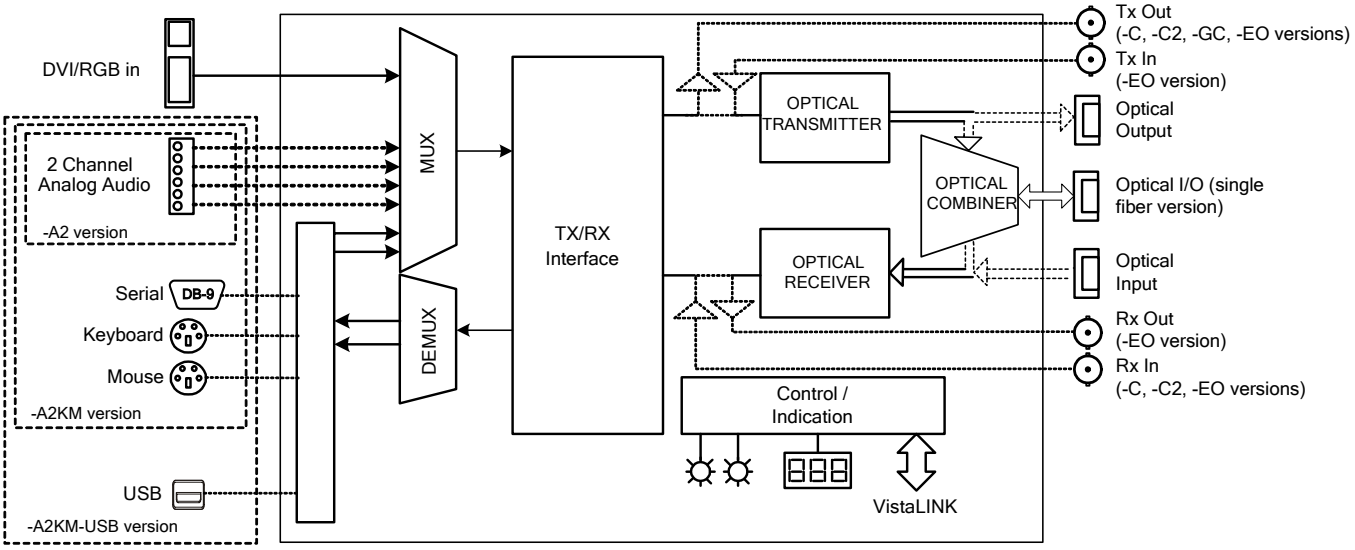


Figure 1-1: 7707RGBT Block Diagram

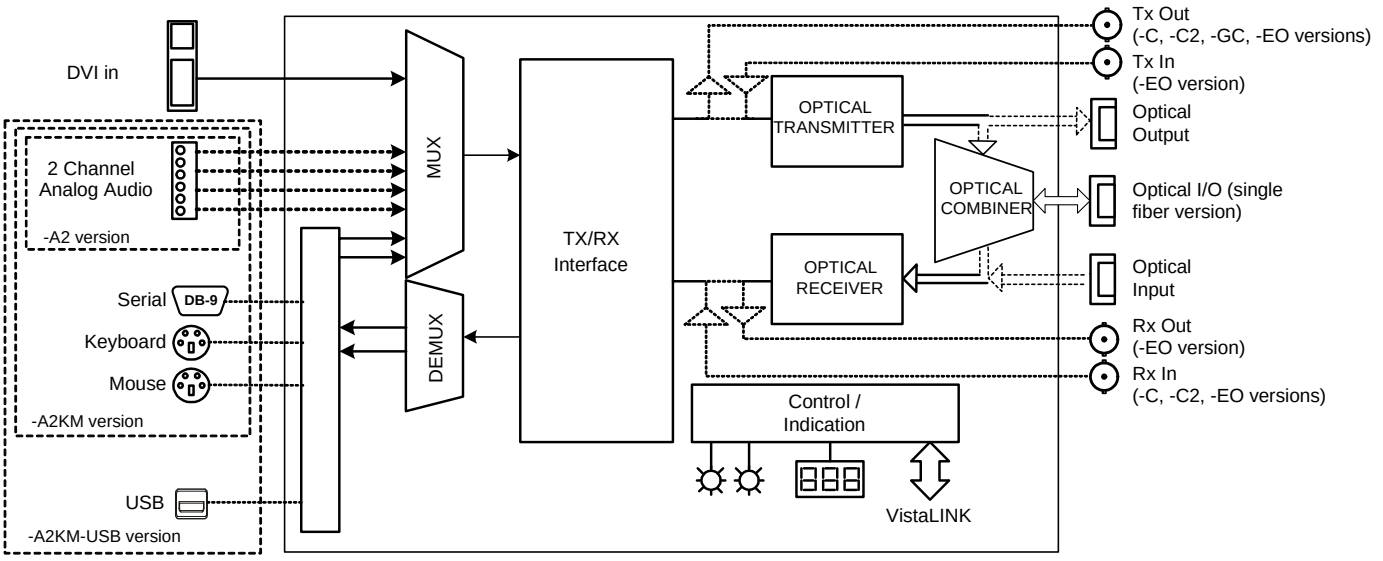


Figure 1-2: 7707DVIT Block Diagram

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

Each 7707RGBT/DVIT 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 a type-B USB connector. In addition, there will be SC/PC (shown), ST/PC, or FC/PC optical connector(s) and/or BNC connectors for link connections. On 7707RGBT 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 7707RGBT and 7707DVIT.

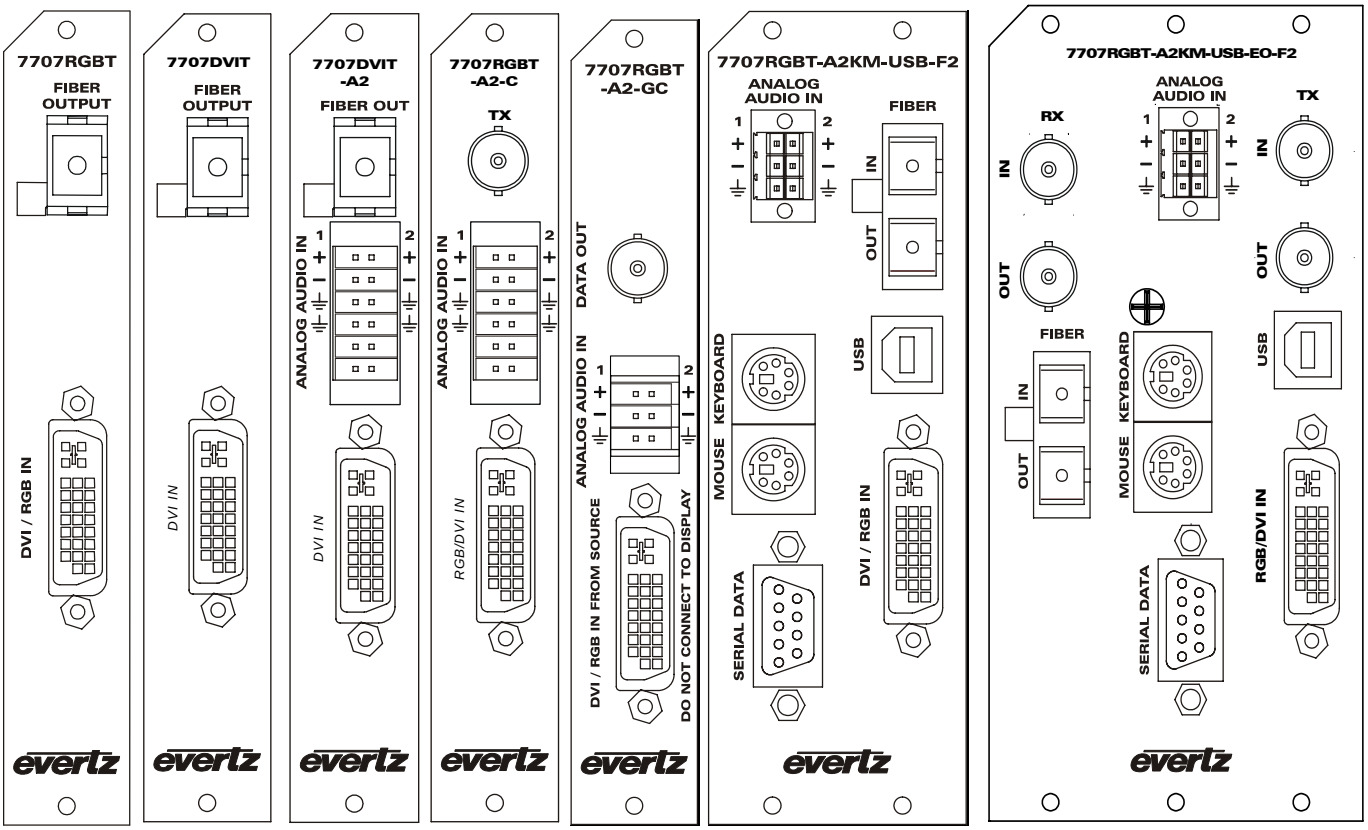


Figure 2-1: 7707RGBT/DVIT Rear Plates

2.1. OPTICAL CONNECTIONS

FIBER OUTPUT: There is one SC/PC (shown), ST/PC, or FC/PC female connector when the 7707RGBT/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 7707RGBR/DVIR receiver. The output signal on the 7707RGBT/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 7707RGBT/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 7707RGBR/DVIR receiver.

FIBER I/O (W Versions): There is one SC/PC (shown), ST/PC, or FC/PC female connector when the 7707RGBT/DVIT is equipped with a combined optical input/output. This connector should be mated to a companion 7707RGBR/DVIR13M-W version card using single-mode fiber optic cable.

2.2. SIGNAL CONNECTIONS

VIDEO INPUT : The 7707DVIT accommodates digital DVI input signals only. The 7707RGBT 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.

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 7707RGBT/DVIT-A2 and 7707RGBT/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 7707RGBT/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 7707RGBT/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 RS232 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 RS422 mode by changing a user-selectable menu item (see section 4.2.7).

USB (USB Versions): When equipped with the USB option, the 7707RGBT/DVIT provides a single type-B USB port. Connect this port to the computer using a USB cable. To the computer, the 7707RGBT/DVIT will appear as a USB hub.

2.3. BNC CONNECTIONS (-C, –C2 & -EO VERSIONS ONLY)

Tx (-C, -C2 versions): BNC connector for the electrical link output of the 7707RGBT/DVIT. This signal should be connected to the INPUT port of a companion 7707RGBR/DVIR. The –GC version of the 7707RGBT/DVIT will output a G-Link formatted signal for connection to Evertz MVP™ multi-display products. In either case, this connection may be extended using Belden 1694 or equivalent cable.

Rx (-A2KM –C2 versions): BNC connector for the electrical link input of the 7707RGBT/DVIT. This signal should be connected to the OUTPUT port of a companion 7707RGBR/DVIR.

Tx OUT (-EO Versions): BNC connector for the electrical bypass output of the 7707RGBT/DVIT optical output (see Figure 1-1). This port should be connected to the Tx IN port of another 7707RGBT/DVIT card and may be switched using a 3.125Gb/s capable electrical router. This signal may be extended using Belden 1694 or equivalent cable. If switching of this signal is not required, it may be directly connected to the card's own optical output by installing a short BNC cable between Tx OUT and Tx IN.

Tx IN (-EO Versions): BNC connector for the electrical bypass input of the 7707RGBT/DVIT optical output. The incoming electrical signal to this port will be converted to an optical signal at the optical output port (see Figure 1-1). This port accepts the Tx OUT signal from another 7707RGBT/DVIT card, which may be switched using a 3.125Gb/s capable electrical router. If switching of this signal is not required, it may be directly connected to the card's own electrical output by installing a short BNC cable between Tx OUT and Tx IN.

Rx OUT (-A2KM -EO versions): BNC connector for the electrical bypass output of the 7707RGBT/DVIT optical input. The incoming optical signal to the 7707RGBT/DVIT will be converted to an electrical signal at this port (see Figure 1-1). This port should be connected to the Rx IN port of another 7707RGBT/DVIT and may be switched using a 3.125Gb/s capable electrical router. This signal may be extended using Belden 1694 or equivalent cable. If switching of this signal is not required, it may be directly connected to the card's own electrical input by installing a short BNC cable between Rx OUT and Rx IN.

Rx IN (-A2KM -EO versions): BNC connector for the electrical bypass input of the 7707RGBT/DVIT optical input (see Figure 1-1). This port accepts the Rx OUT signal from another 7707RGBT/DVIT, which may be switched using a 3.125Gb/s capable electrical router. If switching of this signal is not required, it may be directly connected to the card's own optical input by installing a short BNC cable between Rx OUT and Rx IN.

2.3.1. Interfacing Coaxial/Optical (-EO) Version Cards with an Electrical Router

-EO version cards are equipped with on-board electrical/optical conversion capabilities. Electrical bypass ports for the optical in/outputs allow the use of a 3.125 Gb/s capable electrical router for switching signals between the transmitters and receivers without requiring the use of additional external electrical-to-optical and optical-to-electrical converters.

See section 2.3 for an explanation of the electrical bypass ports (Tx IN, Tx OUT, Rx IN, Rx OUT). Figure 2-2 illustrates a typical setup using an electrical router with unidirectional (non-A2KM version) coaxial/optical 7707RGBT/DVIT transmitters and 7707RGBR/DVIR receivers. The electrical outputs of multiple 7707RGBT/DVIT cards may be switched among the electrical inputs of the same cards. The optical output will reflect whichever electrical input happens to be connected to that particular card. This allows electrical switching of the optical signals connected to the companion 7707RGBR/DVIR receivers.

Figure 2-3 illustrates a typical setup using an electrical router with bidirectional (-A2KM version) coaxial/optical 7707RGBT/DVIT transmitters and 7707RGBR/DVIR receivers. Note the additional pair of electrical connections to the router. To ensure proper system operation in bidirectional configurations, it is important that the Tx OUT and Rx OUT from any one 7707RGBT/DVIT are both switched at the same time to the Tx IN and Rx IN on a single destination 7707RGBT/DVIT. This should be taken into account when programming router salvo operations.

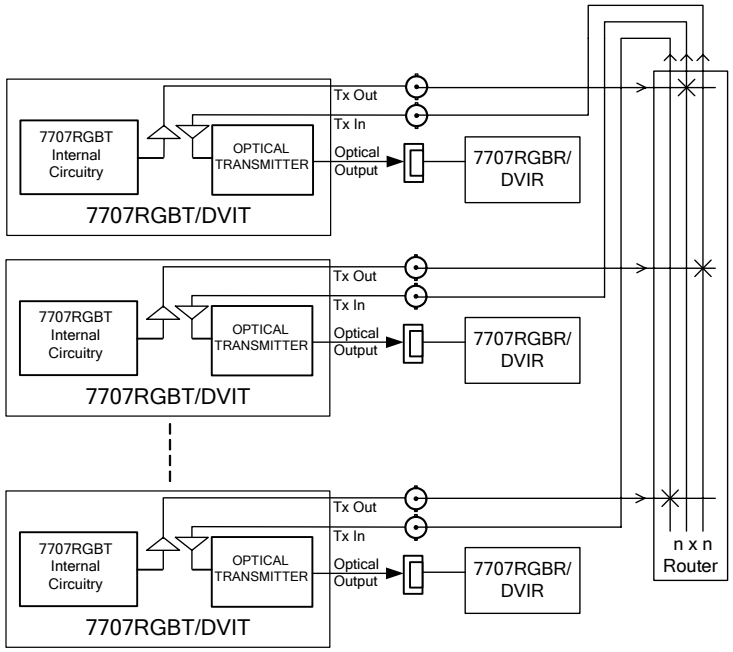


Figure 2-2: 7707RGBT/DVIT Unidirectional Electrical Router Interface – Sample Configuration

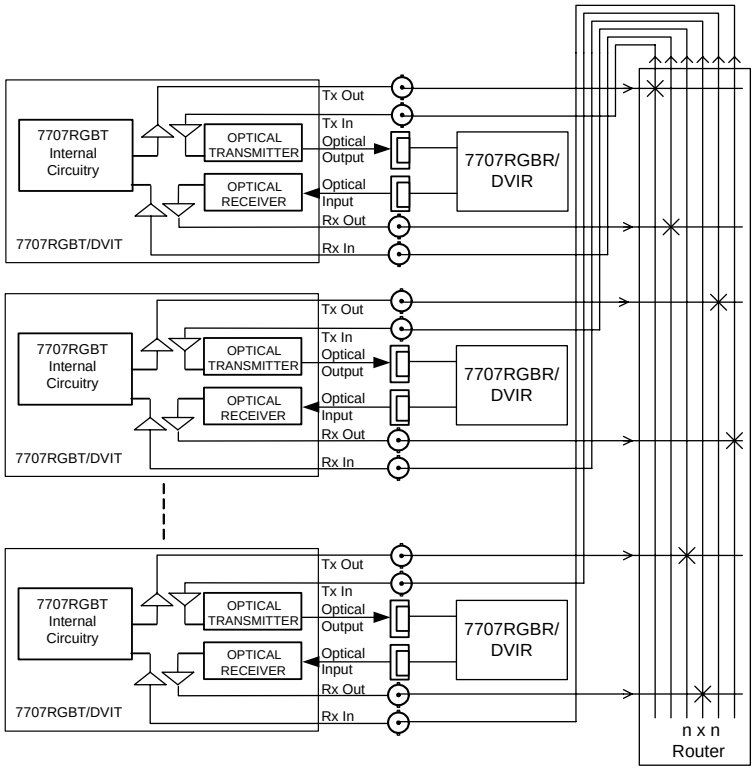


Figure 2-3: 7707RGBT/DVIT Bidirectional Electrical Router Interface – Sample Configuration

2.4. CARE AND HANDLING OF OPTICAL FIBER

2.4.1. Safety

CLASS 1 LASER PRODUCT

Background colour: yellow
Triangular band: black
Symbol: black

2.4.2. Assembly

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

2.4.3. 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: 7707RGBT13, 7707RGBT13-A2, 7707RGBT13-A2KM-USB-F2, 7707RGBT13-EO, 7707RGBT13-A2-EO, 7707RGBT13-A2KM-USB-EO-F2, 7707RGBT15-A2KM-W, 7707RGBTxx, (xx = 27, 29, 31, 33, 35, 37, 43, 45, 47, 49, 51, 53, 55, 57, 59, 61) with additional suffixes as above, or 7707RGBTDyyy (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. 7707DVIT part numbers are similar, replacing “RGBT” with “DVIT”.

Figure 2-4: Reproduction of Laser Certification and Identification Label

2.4.4. 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 7707RGBR/DVIR Receiver.

3.1. ANALOG VIDEO INPUTS (7707RGBT 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. COAXIAL OUTPUT (-C, -C2, -GC AND -EO VERSIONS ONLY)

Number: 1 or 2 (-EO versions only)
Connector: BNC per IEC 61169-8 Annex A
Cable Equalization: Automatic

3.10. 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

3.11. COAXIAL INPUT (- C2 & -EO VERSIONS ONLY)

Number: 1 or 2 (-EO versions only)
Connector: BNC per IEC 61169-8 Annex A

3.12. ELECTRICAL

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

3.13. PHYSICAL

7700 or 7701 frame mounting:

Number of Slots	Model	
1	7707RGBT/DVIT13	7707RGBT/DVIT13-A2
	7707RGBT/DVIT-C	7707RGBT/DVIT-A2-C
	7707RGBT/DVIT-GC	7707RGBT/DVIT-A2-GC
	7707RGBT/DVIT-GF	7707RGBT/DVIT-A2-GF
2	7707RGBT/DVIT13-C	7707RGBT/DVIT13-A2KM-USB-F2
	7707RGBT/DVIT13-A2-C	7707RGBT/DVIT-A2KM-USB-C2
	7707RGBT/DVIT13-A2KM-F2	7707RGBT/DVIT15-A2KM-W
	7707RGBT/DVIT-A2KM-C2	7707RGBT/DVIT15-A2KM-USB-W
3	7707RGBT/DVIT13-A2KM-EO-F2	7707RGBT/DVIT13-A2KM-USB-EO-F2

4. CARD-EDGE MONITORING AND CONTROL

The 7707RGBT/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. Additionally, an optional audio monitoring headphone jack is provided at the card-edge for verification of signal presence and content. Figure 4-1 shows the locations of the indicators and controls. Refer to Table 4-1 for LED functionality on different cards.

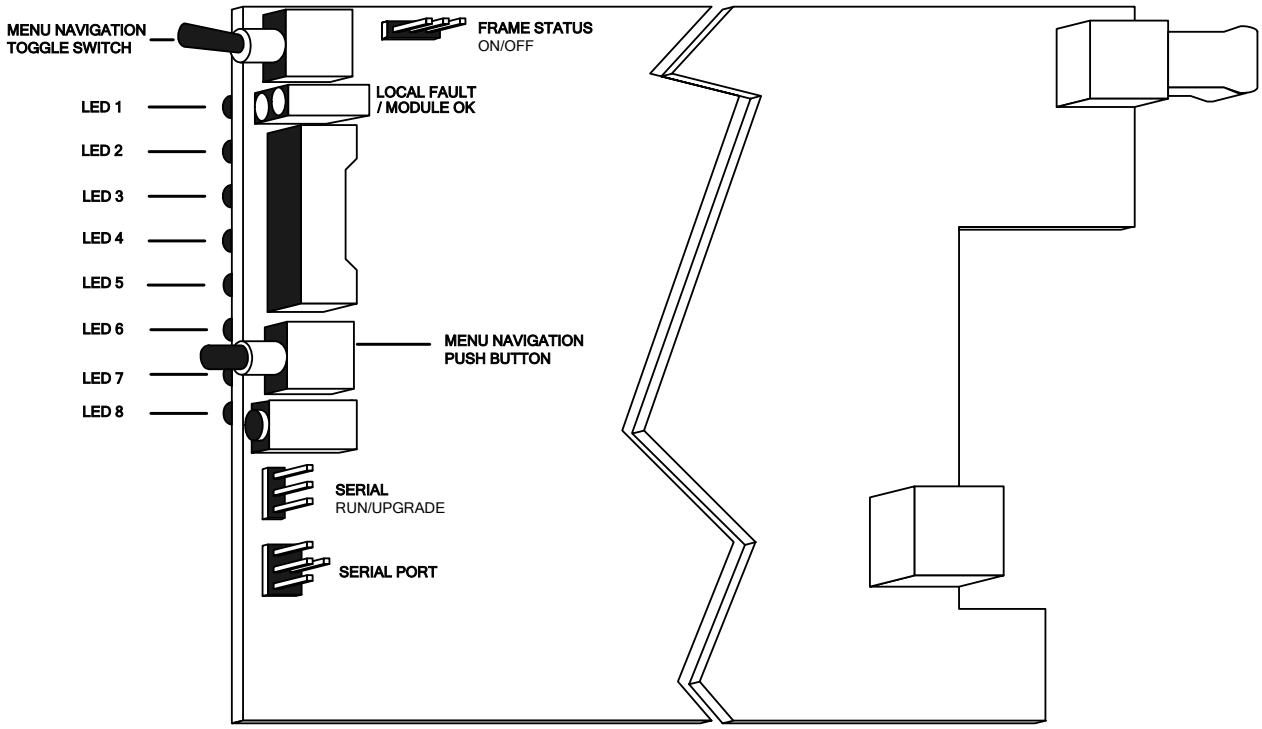


Figure 4-1: Location of Status Indicators and Jumpers

	7707 RGBT	7707 RGBT-A2	7707 RGBT-A2-GF	7707 RGBT-A2KM	7707 RGBT-A2KM-USB
LED 1	RGB PRESENT	RGB PRESENT	VIDEO PRESENT	RGB PRESENT	RGB PRESENT
LED 2	DVI PRESENT	DVI PRESENT	AUDIO 1	DVI PRESENT	DVI PRESENT
LED 3	(reserved)	AUDIO 1	AUDIO 2	AUDIO 1	AUDIO 1
LED 4	(reserved)	AUDIO 2		AUDIO 2	AUDIO 2
LED 5				(reserved)	USB PRESENT
LED 6				(reserved)	(reserved)
LED 7				(reserved)	(reserved)
LED 8				(reserved)	(reserved)

Table 4-1: LEDs Functionality

4.1. 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 4.2.4)
- 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 4.2.2 for details about setting the audio detection threshold.

4.2. 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 4-2 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 adjustments.

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.

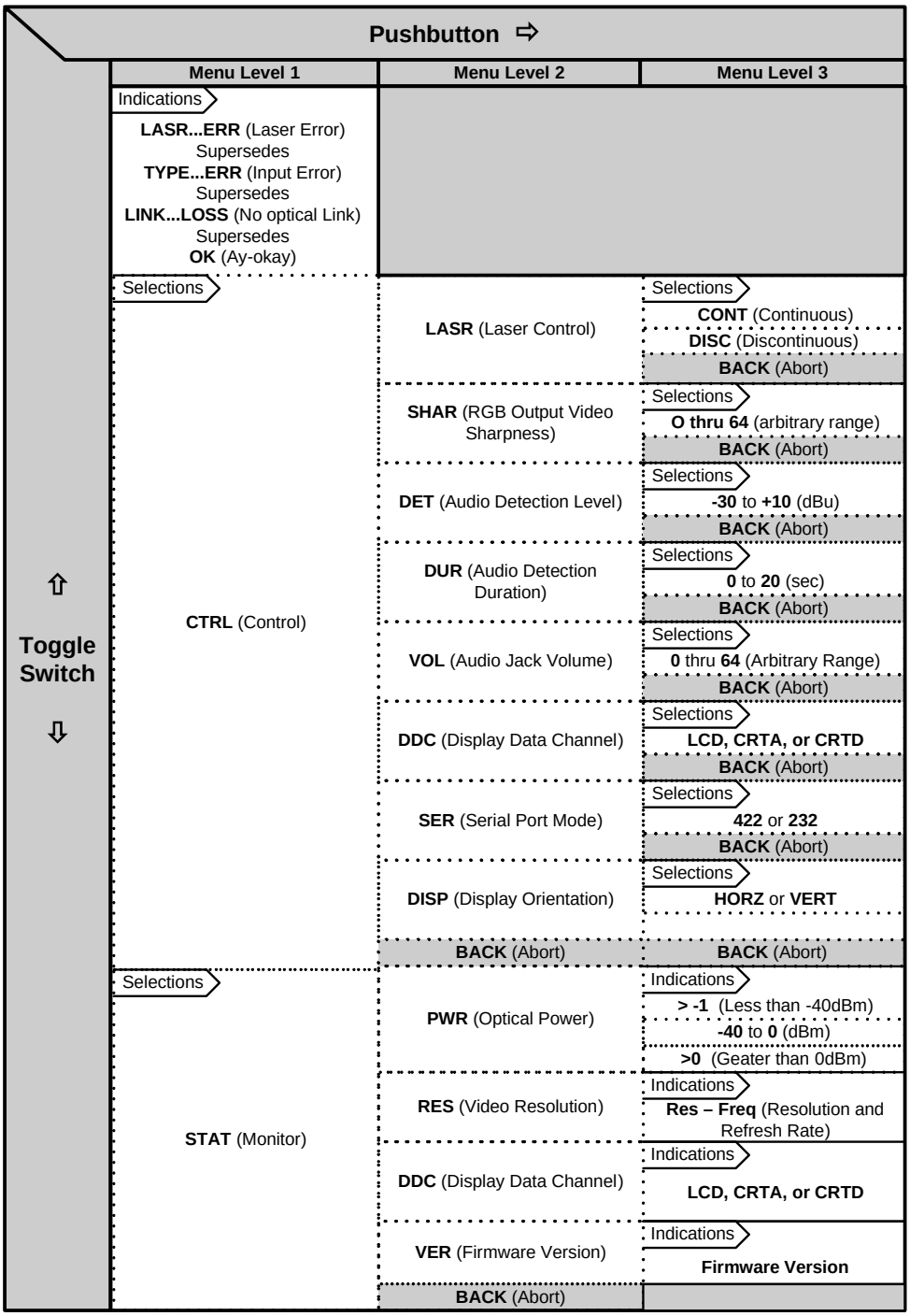


Figure 4-2: 7707RGBT/DVIT Card Edge Menu Flow Cart

4.2.1. Card-Edge Display Warning Indications

There are flashing warning indicators that may appear on the display of the 7707RGBT. These warning indicators can overwrite other displayed text. Pressing the pushbutton will clear a warning indicator from the display and will allow access to other menu items. Possible warning indicators are:

LASR…ERR: Laser error - warns of laser end-of-life condition.
LINK…LOSS: Optical link not established.
OK: Optical link established. No video input or laser problems.

4.2.2. 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 7707RGBT/DVIT 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.

4.2.3. Setting the RGB Output Video Sharpness (7707RGBT models only)

This menu item allows control over the sharpness of the RGB video output at the 7707RGBR receiver. Note that this menu item is only available when there is RGB video input present at the 7707RGBT.

CTRL
  SHAR
    0 - 64

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:

0-64: Output RGB video sharpness

4.2.4. 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
    -30 to +10

To change the audio detection threshold, select CTRL, the first menu item in 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.

4.2.5. 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 (see section 4.2.3) 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.

CTRL
  DUR
    0 - 20

To change the audio detection duration, select the CTRL menu item in menu level 1. 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 menu level 1. The following selections are available for this menu item:

1 to **20:** Detection duration range in seconds.

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

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

The 7707RGBT/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.

CTRL
VOL
0 - 64

To configure the headphone jack, select the CTRL menu item in the first menu level. The 7707RGBT/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.

4.2.7. Selecting the Display Data Channel Mode

The *Display Data Channel* is a digital connection between a computer display and a graphics adapter that allows the display to communicate its specifications to the adapter. The 7707RGBT/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
LCD
CRTA
CRTD

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:

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.

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

The 7707RGBT/DVIT serial port can operate in RS232 or RS422 modes.

CTRL
SER
422
232

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.

4.2.9. 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.

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

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.

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. Displaying the Input Optical Power (Optical -A2 and –A2KM Versions Only)

The 7707RGBT/DVIT can measure and display the input optical power over a range of -1dBm to –40dBm in increments of 1dBm.

- *STAT*
  - *PWR*
    - *> -1*
    - *-1 to -40*
    - *< -40*

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).

4.2.11. Displaying Input Signal Resolution

- *STAT*
  - *RES*
    - *RES - FREQ*

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.

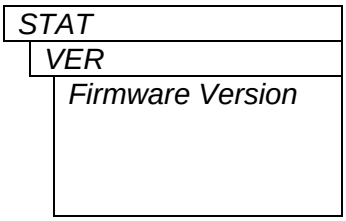
4.2.12. Displaying the Selected Display Data Channel Mode

- *STAT*
  - *DDC*
    - *CRT*
    - *LCD*

To display the selected Display Data Channel mode (see section 4.2.6) 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 display will show one of the following:

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

4.2.13. 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.

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 4-1 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 LEDs 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

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 *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 7707RGBT 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	7707RGBT only when RGB video at input	Controls output video sharpness at 7707RGBR
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
V-Shift	-A2KM, -GF, -GC versions	Adjusts the vertical position of the output picture
H-Shift	-A2KM, -GF, -GC versions	Adjusts the horizontal position of the output picture

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

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