TABLE OF CONTENTS

Figures

Tables

REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	Aug 09

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1. OVERVIEW

The 7767RGBT-VIP-3G enables the VIP Advanced and VIP-X systems to support a computer graphics input remotely. The transmitter accepts RGBHV and DVI with resolution support up to WUXGA (1920x1200) via a single DVI-I connector (DVI-I to VGA HD-15 dongle provided). The 7767RGBT-VIP-3G card outputs a single serial digital output via coax connector. This output can be fed directly into the VIP Advance system via it's coax input or into a VIP-X system as an input to the VIP-X router. For full frame rate high resolution support the output format of the 7767RGBT can be set to 3Gbps. For standard resolution support the card can operate at 1.5Gbps to pass through any standard router or DA.

The 7767RGBT-VIP-3G occupies one card slot in the 3RU 7800FR, and can be housed in a 7701FR 1RU frame that will hold up to 3 modules. Other frame options include the 350FR portable frame and the S7701FR stand alone frame.

Features & Benefits:

- Supports DVI or RGBHV transport over a single coax
- Works exclusively with the 7867VIPA and 7867VIPX series multi-image display modules *
- Evertz 3G/1.5G router compatible
- VESA video resolutions supported up to WUXGA
- Two channel audio input support *
- Full 24 bits per pixel colour resolution
- Superior digital data transmission
- Fully hot-swappable from front of frame with no fiber or coax disconnect/reconnect required

Monitoring and control of the card status and parameters are provided locally at the card-edge, or remotely via *Vista*LINK® capability using a 7700FC Frame Controller card installed in the frame along with the product.

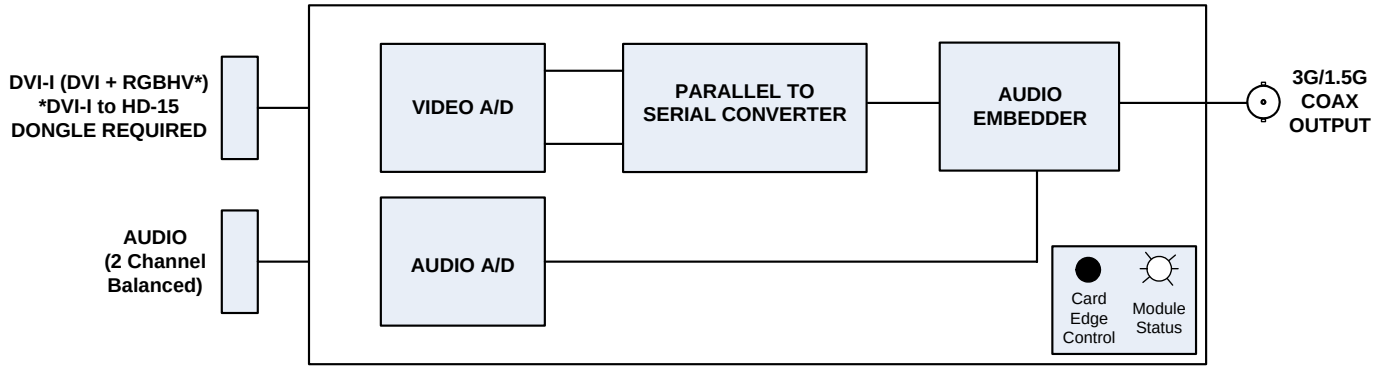

Figure 1-1: 7767RGBT-VIP-3G Block Diagram

2. INSTALLATION

The 7767RGBT-VIP-3G module comes with a companion rear plate that has one DVI-I video connector and one analog audio terminal. In addition, there will be a BNC connector for link connections.

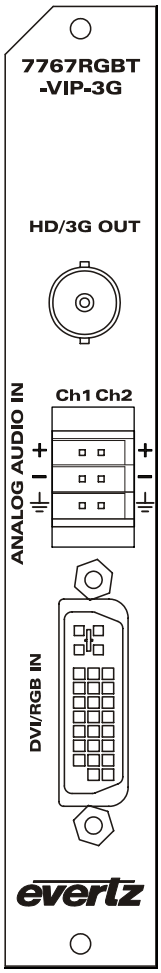

Figure 2-1: 7767RGBT-VIP-3G Rear Plate

2.1. SIGNAL CONNECTIONS

VIDEO INPUT : The 7767RGBT-VIP-3G 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: The 7767RGBT-VIP-3G 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 (⏚).

2.2. BNC CONNECTIONS

HD/3G SDI outputs: BNC connector for the electrical link output of the 7767RGBT-VIP-3G. This signal should be connected to the INPUT port of a SD/HD/3G SDI compliant device. The specific video rate is selectable based on the SDI format, for SD-SDI: 270Mbps, for HD-SDI: (1080i/50/60, 1080p/25/30, 720p/50/60) 1.5Gbps, for 3G: (1080p/50/60) 2.97Gbps. This connection may be extended using Belden 1694 or equivalent cable up to 50 meters.

3. SPECIFICATIONS

3.1. ANALOG VIDEO INPUTS

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:	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:	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

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. COAXIAL OUTPUT

Number:	1
Connector:	BNC per IEC 61169-8 Annex A
Cable Equalization:	Automatic

3.6. ELECTRICAL

Voltage: 12V DC (nominal)
Power: 11 Watts (max)

3.7. PHYSICAL

7700/7800FR or 7701FR frame mounting: 1 slot

4. CARD-EDGE MONITORING AND CONTROL

The 7767RGBT-VIP-3G 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 the card.

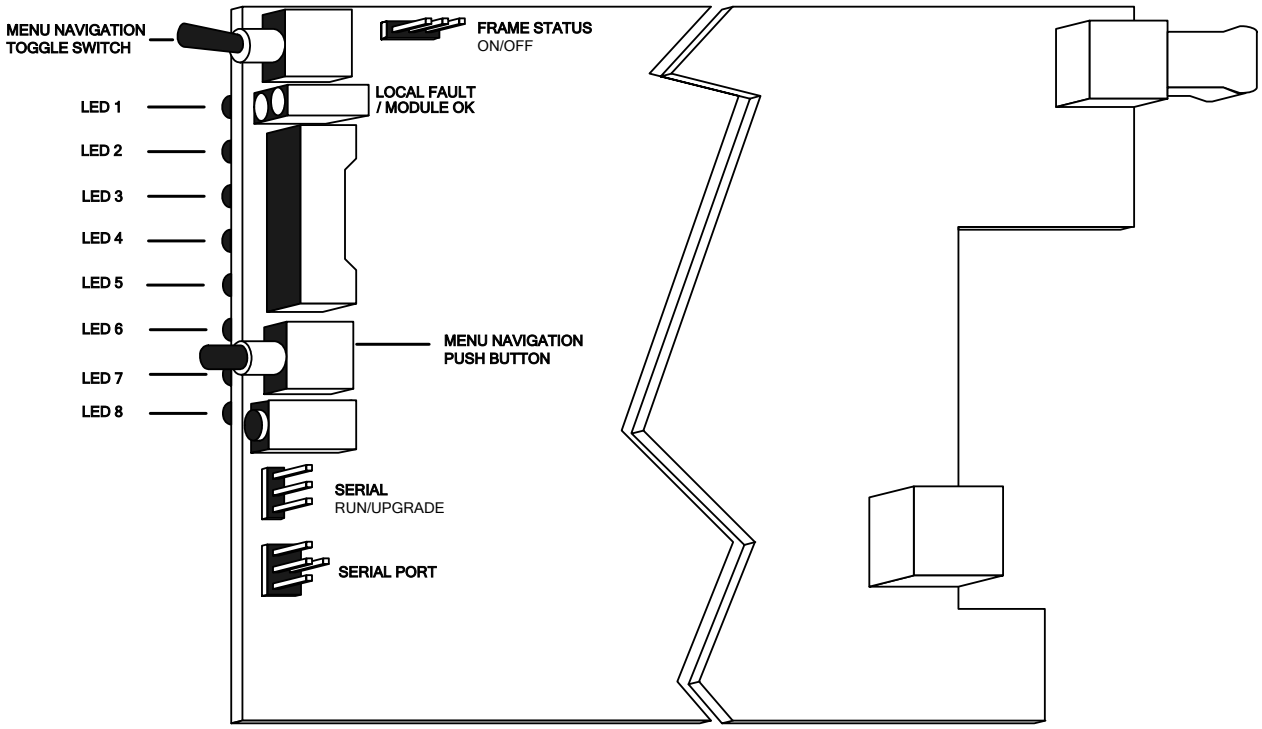

Figure 4-1: Location of Status Indicators and Jumpers

	7767RGBT-VIP-3G
LED 1	RGB PRESENT
LED 2	DVI PRESENT
LED 3	AUDIO 1
LED 4	AUDIO 2
LED 5	(reserved)
LED 6	(reserved)
LED 7	(reserved)
LED 8	(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.

AUDIO PRESENT: 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.

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.

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.

4.2.1. Card-Edge Display Indications

There are indicators that appear on the dot matrix display of the 7767RGBT-VIP-3G. This can be used to determine the model of the device and the current version of firmware loaded on the device.

4.2.2. Selecting the Output Format Mode

The cards coax output can be set to different output modes, these modes are described below:

MODE
SDI
3LNK
GLNK

SDI: Serial Digital Video output mode, SD-SDI, HD-SDI, 3G-SDI, according to their respective SMPTE standards.

3LNK: 3G-GLINK video output mode – Evertz proprietary output mode, receiver must be a 7867VIPA-DUO or 7867VIPX module.

GLNK: Evertz proprietary GLINK output format (2.5Gbps), supported by 2430GDAC and 3000MVP-GLINK4 input module.

4.2.3. Max Video Output Bit Rate Setting

The MAXB item controls the max bit rate output from the card. This control allows the user to define what the serial bit rate of the card will be at a maximum to carry the input video over the coax output link. This feature is useful when the receiver cannot support 3Gbps, but instead 1.5Gbps is the max bit rate.

MAXB
1.5G
3.0G

1.5G: Sets the output bit rate to 1.5Gbps, input resolutions of 1280x720 or smaller will be mapped to 720p and all other input resolutions will be mapped to 1920x1080p/30.

3.0G: Sets the output bit rate to 3Gbps, all input resolutions will be mapped to 1920x1080p/50 or 60.

4.2.4. Horizontal Offset Control

The horizontal offset control is used to control the horizontal position of the input video source with respect to the output raster. This control is used for analog RGB/VGA input signals where the video does not auto-align correctly.

HOFF
-1024 to +1024

-1024 to +1024: offset the image horizontally (left or right)

4.2.5. Vertical Offset Control

The Vertical offset control is used to control the vertical position of the input video source with respect to the output raster. This control is used for analog RGB/VGA input signals where the video does not auto-align correctly.

VOFF
-1024 to +1024

-1024 to +1024: offset the image vertically (up or down)

4.2.6. Displaying Input Signal Resolution

RES

To display the input signal resolution (if an input video signal is present) the display will show the detected resolution and refresh rate.

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 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 the 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 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 7701 Frame 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

Currently the device is not SNMP enabled.

6.3. *VISTA*LINK® CONTROLLED PARAMETERS

Currently the device is not SNMP enabled.