VIP-X SYSTEM 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 un-insulated, 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 (i.e.: servicing) instructions in the literature accompanying the product.

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Don't use this apparatus near water.
- Clean only with a dry cloth.
- Don't block any ventilation openings.
- Install in accordance with the manufacturer's instructions.
- Don't install near any heat sources such as radiators, heat registers, stoves, or other apparatuses (including amplifiers) that produce heat.
- Don't defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than other. A grounding-type plug has two blades and a third grounding prong. The wide blade or third prong is provided for your safety. If the plug provided does not fit into your outlet, consult an electrician to replace 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, such as damage to the power-supply cord or plug, contact with liquid (or any object small enough to enter the apparatus), exposure to rain or moisture, drop damage, or upon experiencing any abnormal operation.

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 POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE.

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

INFORMATION FOR USERS IN EUROPE

This equipment with the CE marking complies with 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/her own expense.

INFORMATION FOR USERS IN THE U.S.A.

FCC Class A Digital Device or Peripheral

This equipment has been tested and found to comply with the regulations 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/her 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.

WARNING

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

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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	Jun 08

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1. OVERVIEW

The VIP-X simultaneously addresses two common issues by combining a functional and highly reliable control room routing platform with a modular multi-image display system in one integrated package. Building the next control room will be simple using the VIP-X, as it enables two complex items in the control room to function as a single system. The VIP-X eliminates system complexity, saves space and is more economical compared to the traditional autonomous solutions. The VIP-X can be tailored for all control room signals and budget requirements. It is available in several package sizes from a 32 input system with up to 32 router outputs and as many as 24 multi-image displays, or it can be ordered for larger systems that accommodate up to 288 inputs and 288 router outputs and as many as 72 multi-image displays.

The VIP-X is constructed around Evertz highly successful model that everything in the system can either be hot-swappable or redundant where applicable. This philosophy has served Evertz well, as the MVP was first to introduce the concept and it has become the industry standard in multi-image display processors.

Figure 1-1: VIPX64, VIPX128, VIPX288 & MVP/Maestro Control Software

The new VIP-X control room solution from Evertz represents the best of Evertz technology:

- Advanced routing technology: Xenon & EQX
- Advanced multi-viewer technology: MVP & VIP
- Advanced user control system: MVP server and Maestro software

Features:

- Accepts up to 576 HD, SD inputs, and can provide up to 72 multi-image display outputs
- Auto-sensing HD/SD and 3Gbps (SMPTE 424M) inputs
- Uses Evertz next generation image processing technology, which is the same technology used in conversion products
- Supports display resolutions of up to 1920x1080p
- Allows for full screen viewing of any input on both outputs
- Supports all display types via DVI and HD-SDI outputs (all active simultaneously)
- Provides support for dynamic under monitor displays and tallies
- Supports advanced on screen graphics, including analog clocks, transparency control of objects, raised bezels and borders, drop shadows, and bitmap backgrounds
- Supports true type font including non-Latin alphabets
- Built-in graticule generator
- Enables the decoding and display of VITC/HD time code
- Minimal processing delay (~1 frame)
- Real time control of display outputs via Maestro

1.1. X-LINK ENABLED ROUTERS

X-LINK outputs are an additional set of outputs from Evertz standard router platforms. They are for the purpose of providing connectivity to monitoring devices. X-LINK outputs do not limit the number of outputs on the router, X-LINK outputs are in addition to the standard video router outputs. Please refer to the Table 1-1 below for more details. X-LINK outputs are completely independent of the standard video router; sources can be mapped to each output on the router including X-LINK without blocking or compromise.

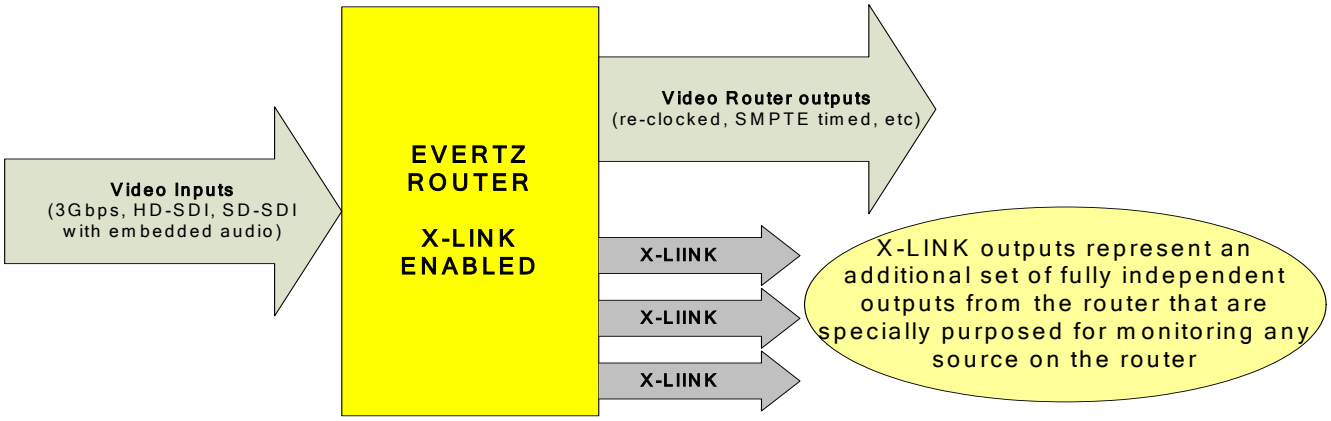

Figure 1-2: Flow of Output

PRODUCT	INPUTS	STANDARD VIDEO OUTPUTS	X-LINK OUTPUTS	TOTAL ROUTER OUTPUTS
Xenon 4RU	64 3G/HD/SD	64	96 (3*X-LINK)	160
Xenon 8RU	128 3G/HD/SD	128	192 (6*X-LINK)	320
EQX 16RU	288	288	288 (9*X-LINK)	576
EQX 26RU	576	576+ 32 Mon outs	256 (8*X-LINK)	864

Table 1-1: X-LINK Enable Router Outputs

1.2. X-LINK INTERCONNECT

X-LINK is used to directly connect the 7767VIPX display modules to the router to enable multi-image display outputs from the router. Figure 1-3 details how a single X-LINK output from the router is used to connect to multiple 7767VIPX modules dependent on the type of display module used. A single XLINK-BHP-3 (3m X-LINK cable) is used to connect up to two 7767VIPX16x2 display modules, providing up to 16 connections to each module via a single 7767VIPX-RP2 rear plate. A single XLINK-BHPS-3 (3m split X-LINK cable) is used to connect up to four 7767VIPX8x2 display modules, providing up to 8 connections from the router to each module via two 7767VIPX-RP2 rear plates. The X-LINK connections are destinations from the router; therefore, any source to the router can be routed to any X-LINK destination independently. This enables the 7767VIPX display modules to display any source from the router on any display, at any size and aspect ratio, and no limits to the number of instances of a source on the display or the sizes of each instance.

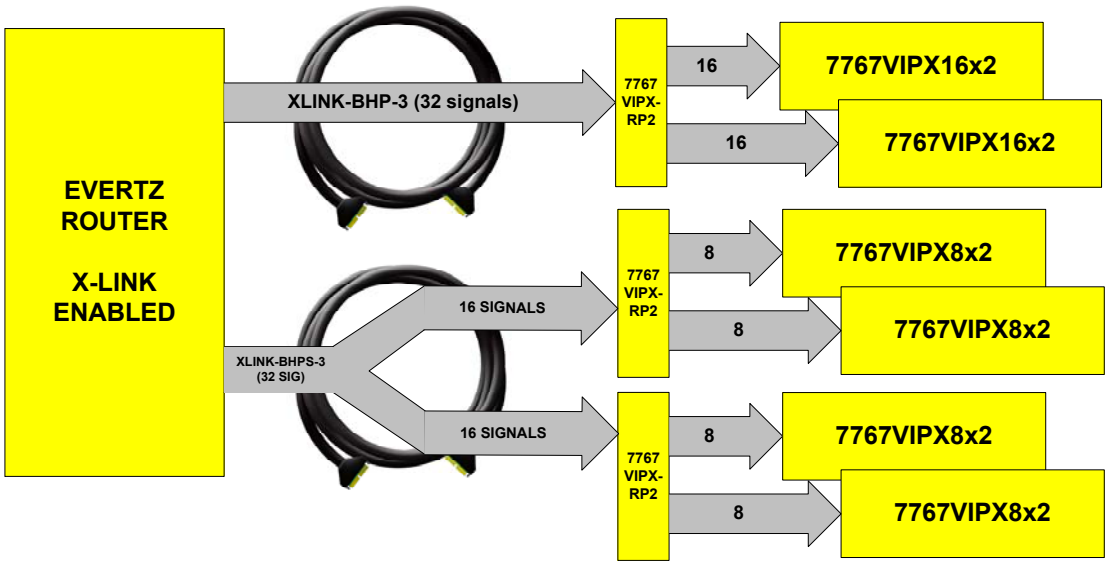

Figure 1-3: X-LINK Interconnect

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2. HARDWARE DETAILS

2.1. ROUTER PLATFORMS

2.1.1. Xenon 4RU

The Xenon 4RU router can be used as a VIP-X foundation platform, with up to 64 3G/HD/SD inputs and up to 64 outputs for signal routing. One of the two output boards in the Xenon 4RU can be "X-LINK" enabled to provide additional monitoring outputs to enabled monitoring products (i.e. 7767VIPX modules or 3000RP4-XLINK rear panel for the VIP-X). With a single X-LINK enabled output card installed, a total of six (6) X-LINK outputs are available from the router system.

Figure 2-1: Xenon 4RU – 64x64 Router

2.1.2. Xenon 8RU

The Xenon 8RU router can be used as a VIP-X foundation platform, with up to 128 3G/HD/SD inputs and up to 128 outputs for signal routing. Two of the four output boards in the Xenon 8RU can be "X-LINK" enabled to provide additional monitoring outputs enabled monitoring products, for example 7767VIPX modules or 3000RP4-XLINK rear panel for the VIP-X. With both X-LINK enabled output cards installed, a total of six (6) X-LINK outputs are available from the router system.

Figure 2-2: Xenon 8RU – 128x128 Video Router

2.1.3. EQX 16RU

The EQX 16RU router can be used as a VIP-X foundation platform, no other router is more advanced in terms of technology and redundancy. EQX 16RU offers up to 288 3G/HD/SD inputs and 288 outputs for signal routing. The EQX16 is "X-LINK" enabled via the addition of the EQX-OP288-XLINK output module and the EQX16-288x288 cross point module installed in the lower or third cross point slot in the router. With the addition of the EQX-OP288-XLINK output module a total of nine (9) main X-LINK outputs are available.

The EQX 16RU frame must be ordered with the +XLINK option, a standard EQX 16RU chassis may not be upgraded with X-LINK outputs, unless it was constructed as a +XLINK version.

Figure 2-3: EQX 16RU – 288x288 Router

2.1.4. EQX 26RU

The EQX 26RU router can be used as a VIP-X foundation platform, offering the largest possible footprint for both router and multi-image displays. EQX 26RU offers up to 576 3G/HD/SD inputs and 576 outputs for signal routing. The EQX26 is “X-LINK” enabled via the addition of the EQX-OP36-XLINK output module and two EQX16-288x288 cross point modules installed in the primary and redundant cross point locations for the frame. A maximum of sixteen EQX-OP36-XLINK output modules can be installed in the EQX 26RU frame.

Figure 2-4: EQX 26RU – 576x576 Router

2.2. VIP-X COMPONENTS

2.2.1. XE-OP32SX-XLINK

Xenon output module with 32 SD-SDI outputs via mini-BNC (DIN) outputs plus three (3) X-LINK outputs (see Appendix A for information on DIN connectors). A single XE-OP32SX-XLINK output card can be installed in the Xenon 4RU router, and two XE-OP32SX-XLINK output cards can be installed in the Xenon 8RU router.

Figure 2-5: XE-OP32SX-XLINK

2.2.2. XE-OP32HX-XLINK

Xenon output module with 32 HD-SDI/SD-SDI outputs via mini-BNC (DIN) outputs plus three (3) X-LINK outputs (see Appendix A for information on DIN connectors). A single XE-OP32HX-XLINK output card can be installed in the Xenon 4RU router, and two XE-OP32SX-XLINK output cards can be installed in the Xenon 8RU router.

Figure 2-6: XE-OP32HX-XLINK

2.2.3. EQX-OP288-XLINK

EQX-OP288-XLINK EQX passive rear output module provides up to nine (9) X-LINK outputs. The output board is installed in the rear of EQX 16RU router frame below the power connector and above the redundant frame controller rear module. It requires that the EQX16FR be ordered with the "+XLINK" option and the third cross point be installed in the frame. The EQX-OP288-XLINK can only be installed in the EQX 16RU frame.

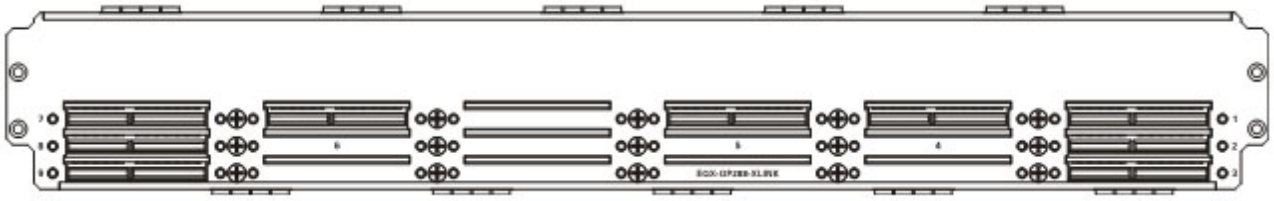

Figure 2-7: EQX-OP288-XLINK

2.2.4. EQX-OP576-XLINK

EQX passive rear output module provides up to eighteen (18) X-LINK outputs. It is installed in the rear of EQX 16RU router frame below the power connector and above the redundant frame controller rear module. It requires that the EQX16FR be ordered with the "+XLINK2" option and the redundant cross point and third cross point be installed in the frame. The EQX-OP576-XLINK can only be installed in the EQX 16RU frame.

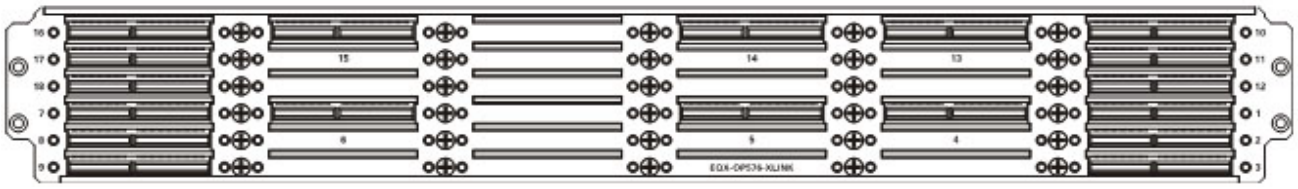

Figure 2-8: EQX-OP576-XLINK

2.2.5. EQX-OP36-XLINK

EQX-OP36-XLINK output module is used to provide X-LINK outputs from the EQX routers both 16RU and 26RU by providing X-LINK from a router output slot, as compared to the EQX-OP288-XLINK module that provides X-LINK outputs without using all of the output slots in the router. The EQX-OP36-XLINK provides a single X-LINK output plus 4 BNC outputs. It utilizes one output slot in the EQX and must be paired with a second EQX-OP36-XLINK output board as a single rear plate is shared between two output modules. Also, please note for this card can provide a total of 36 outputs from the EQX router, both the primary cross point for the output module and the redundant output module must be used.

When using the EQX-OP36-XLINK output module, cross point redundancy is not possible for the card and for the output card positioned in the router below it.

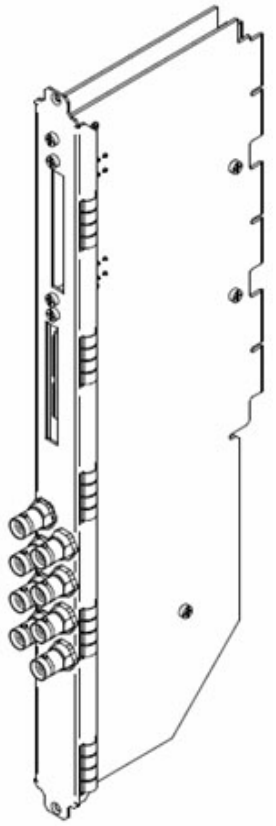

Figure 2-9: EQX-OP36-XLINK

2.2.6. X-LINK Cable

The X-LINK cable provides a high-density extension of the additional outputs from the routers to the 7767VIPX-RP2 rear module and the 3000MVP-RP4-XLINK. The standard X-LINK cable length provided with all X-LINK enabled products is 5 meters (15 feet).

Figure 2-10: XLINK-BHP-5

There are two varieties of X-LINK cables:

XLINK-BHP-5: Five meter X-LINK cable (standard)

XLINK-BHPS-5: Five meter split X-LINK cable

2.2.7. XLINK-BHP2U-96C

XLINK-BHP2U-96C is a break out panel with three (3) X-LINK inputs on the rear of the BHP and 96 standard coax connectors on the front. Each X-LINK input is converted to a total of 32 BNCs. The panel is 19" rack mountable and requires 2RU of rack space. The panel ships with three special 1m (3 feet) cables (no substitutions can be made). The XLINK-BHP2U-96C can be used to convert X-LINK into a standard coax connection. These coax connectors can then be used to feed monitoring equipment, Evertz does not recommend the use of this BHP to feed downstream equipment expecting SMPTE standard video signals. Evertz makes no claims that the coax copy of X-LINK video will meet the SMPTE standards for SD, HD or 3Gbps. The BHP panel can be used to extend X-LINK by converting to standard coax cable (Belden 1694A or comparable cable) and offering extension up to 50m (150 feet).

Figure 2-11: Front Panel View of the XLINK-BHP2U-96C

Figure 2-12: Rear Panel View of the XLINK-BHP2U-96C

2.2.8. 3000MVP-RP4-XLINK

The rear panel for the 3000FR is to enable support for X-LINK connections from “X-LINK” enabled router platforms. It supports up to four (4) 3000 series input modules in the VIP-X, and occupies 4 slots in the 3000FR. Up to 4 3000MVP-OV-SNX cards, or 3000MVP-OV-HSN or a mix of the two can be used with this rear plate.

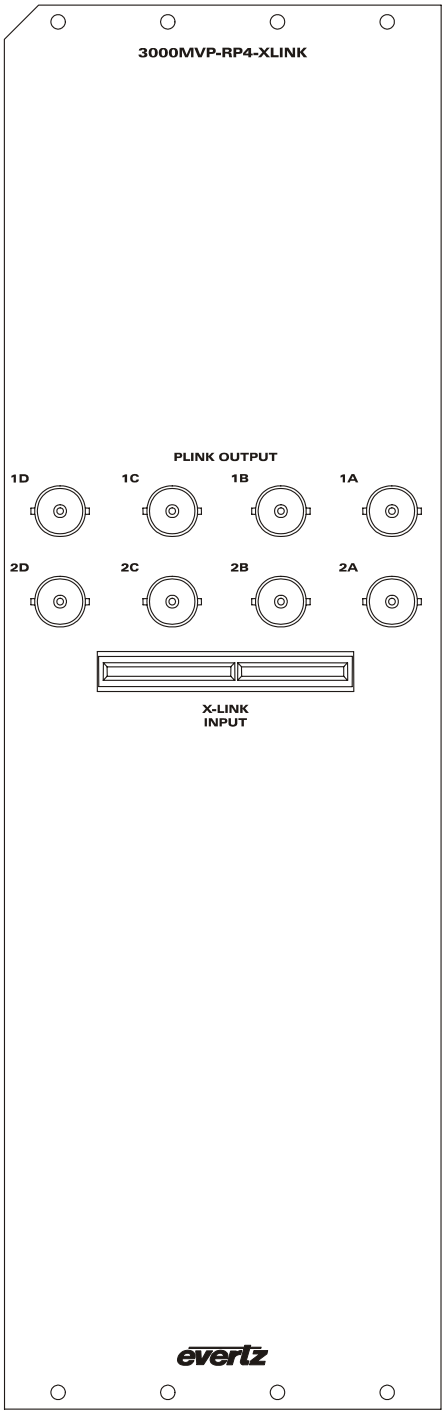

Figure 2-13: 3000MVP-RP4-XLINK Rear Plate

2.2.9. 7767VIPX-RP2

The rear panel for the 7767VIPX display modules supports up to two 7767VIPX16x2 modules, or up to two 7767VIPX8x2 modules. The 7767VIPX-RP2 occupies 5 slots in the 7700FR-D frame. It provides connectivity from the router to the 7767VIPX display module inputs via the X-LINK connector. There are two X-LINK connectors on the rear plate, which allows for separate sources of X-LINK to connect to the 7767VIPX module. The outputs of the 7767VIPX module are connected via the 7767VIPX-RP2, which include the following:

- x2 DVI outputs per 7767VIPX module
- x2 HD-SDI outputs per 7767VIPX module
- x2 Ethernet outputs per 7767VIPX module
- x1 GLINK input per 7767VIPX module
- x1 GLINK output per 7767VIPX module
- x1 HD15 connector used for GPI/O, RS-232/422, and LTC

Figure 2-14: VIPX-RP2 Rear Plate

For specific details as to the specifications for each of the connections see section 6.1 and 6.2.

The following is an example of how X-LINK connections are distributed to the 7767VIPX16x2 cards that are plugged into the 7767VIPX-RP2 rear plate:

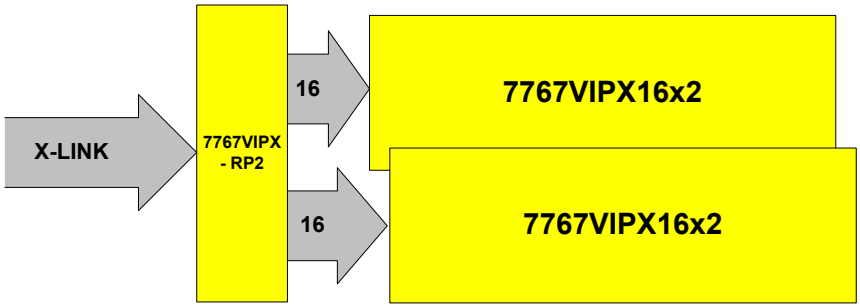

Figure 2-15: Distribution of X-LINK connections to the 7767VIPX16x2

The following is an example of how X-LINK connections are distributed to the 7767VIPX8x2 cards that are plugged into the 7767VIPX-RP2 rear plate:

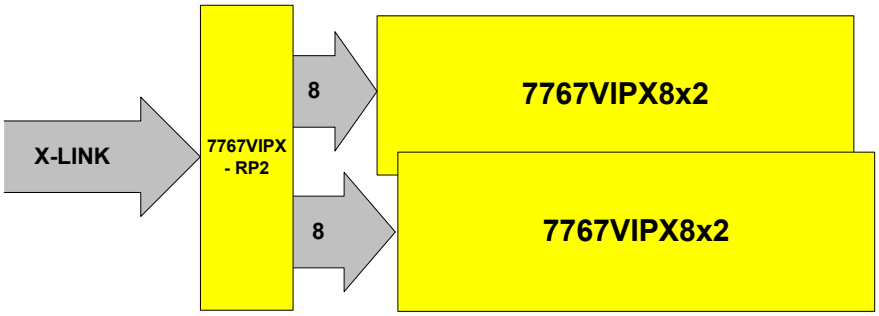

Figure 2-16: Distribution of X-LINK connections to the 7767VIPX8x2

2.2.10. 7700FR-D FRAME

The 7700FR-D frame provides up to 360W per power supply. It can only support a maximum of four 7767VIPX modules due to the power requirements of the 7767VIPX modules. The 7700FR-D frame should only be used in technical spaces where noise is not a concern.

The 7767VIPX modules must be installed in the 7700FR-D or DQ frame.

Figure 2-17: 7700FR-D Frame

2.2.11. 7700FR-DQ FRAME

The 7700FR-DQ frame provides up to 360W per power supply. The frame utilizes side venting for improved air-flow through the frame, resulting in the use of lower air-flow fans which perform with a quieter operation. The 7700FR-DQ frame is recommended to be used in installs where noise is of concern.

The 7767VIPX modules must be installed in the 7700FR-D or DQ frame.

3. HARDWARE INSTALLATION

This section provides installation instructions for the various VIP-X hardware components. It offers recommendations as to placement and positioning of the hardware noted above.

3.1. RACKING VIP-X FRAMES

3.1.1. Xenon 4RU and 8RU

The Xenon frames both 4RU and 8RU are to be mounted in a standard 19" rack. The total depth of the Xenon frame is 17.75", and therefore a rack depth of at least 30" or greater is recommended. The position of the frame within the rack is up to the installer to provide the best access for cabling, etc.

The Xenon router and the 7700FR-D frame with 7767VIPX modules, or the 3000FR with 3000MVP-X-RP4-XLINK rear plates must be positioned so that a 5m (15 foot) X-LINK cable can be used to interconnect.

3.1.2. EQX 16RU and 26RU

The EQX frames both 16RU and 26RU are to be mounted in a standard 19" rack. The total depth of the Xenon frame is 19.4", and therefore a rack depth of at least 30" or greater is recommended. The position of the frame within the rack is up to the installer to provide the best access for cabling, etc.

The Xenon router and the 7700FR-D frame with 7767VIPX modules, or the 3000FR with 3000MVP-X-RP4-XLINK rear plates must be positioned so that a 5m (15 foot) X-LINK cable can be used to interconnect.

3.1.3. 7700FR-D / 7700FR-DQ

The 7700FR-D / DQ frames are to be mounted in a standard 19" rack. The total depth of the 7700FR-D frame is 14.5". The position of the frame within the rack should be determined by the installer to provide the best access for cabling, etc.

The 7700FR-D frame must be installed so that the 7767VIPX-RP2 rear plate can be connected to the router via a 5m (15 foot) X-LINK cable. Evertz recommends placement of the 7700FR-D in the same rack or adjacent rack to the router to which it is to be connected.

3.2. INSTALLING VIP-X REAR PANELS

3.2.1. Installing XE-OP32xX-XLINK Output Module in Xenon

The XE-OP32SX-XLINK and XE-OP32HX-XLINK output modules are installed in the Xenon 4RU and Xenon 8RU routers. The XLINK enabled output board must be installed in the first output slot of the Xenon router. Only a single XE-OP32xX-XLINK output module can be installed in the Xenon 4RU, only two X-LINK enabled output modules can be installed in the Xenon 8RU. Please refer to Figure 3-1 and Figure 3-2 for frame layout examples of both the Xenon 4RU and Xenon 8RU.

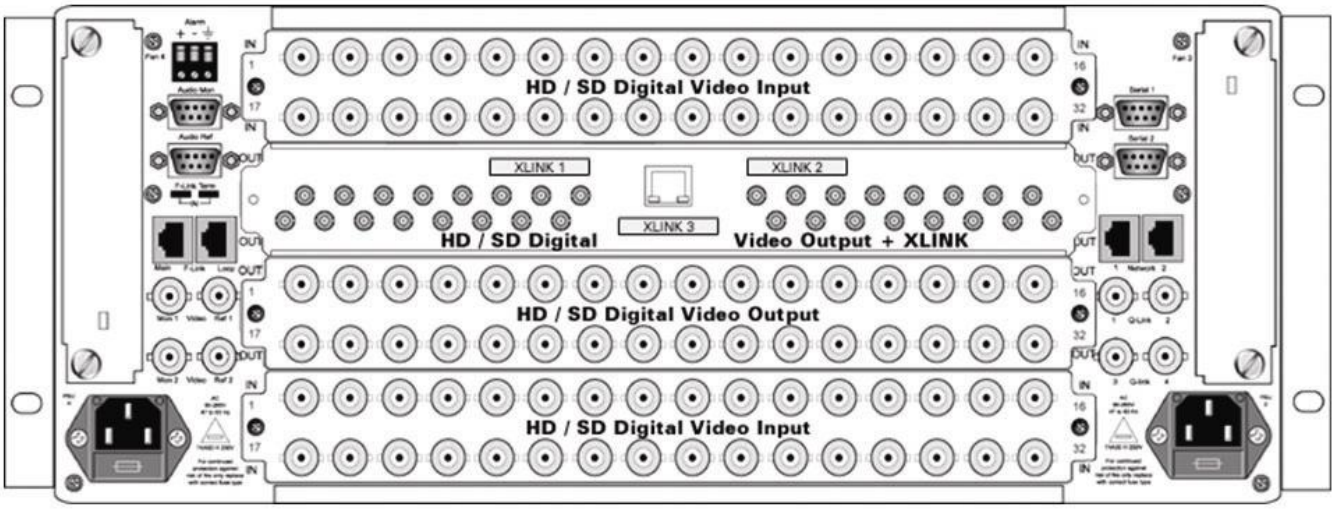

Figure 3-1: Xenon 4RU with One XE-OP32HX-XLINK Output Card Installed

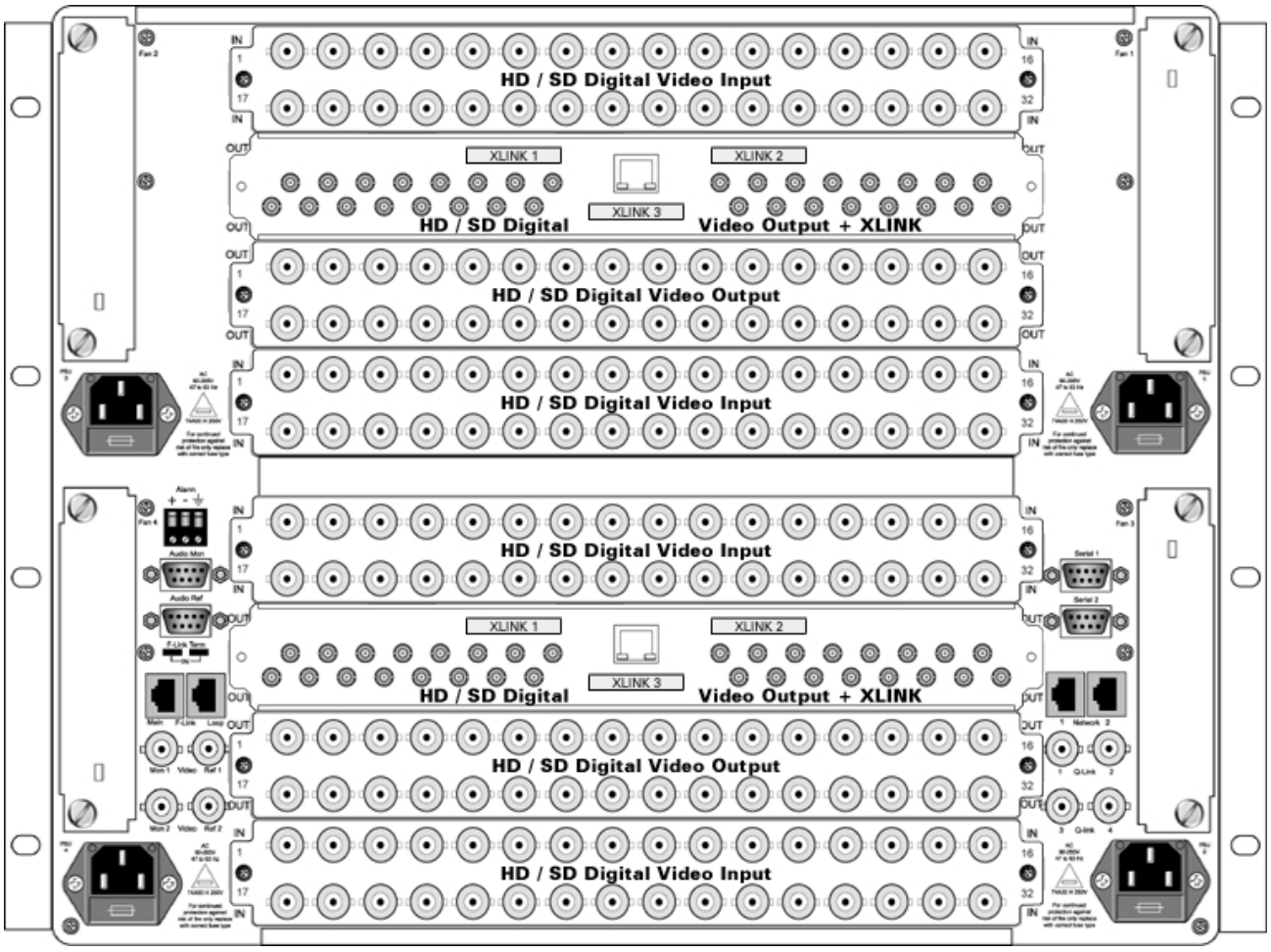

Figure 3-2: Xenon 8RU with Two XE-OP32HX-XLINK Output Cards Installed

3.2.2. Installing EQX-OP288-XLINK and EQX-OP576-XLINK Rear Module in EQX 16RU

The EQX-OP288-XLINK and EQX-OP576-XLINK are installed in the EQX 16RU router.

The EQX 16RU frame must be factory X-LINK enabled; the frame type must be EQX16FR-XLINK or part of an EQX package with –XLINK option. The EQX-OP288-XLINK and EQX-OP576-XLINK output modules will not work in any of the non-XLINK enabled EQX 16RU frames. The EQX 16RU non-XLINK enabled router cannot be upgraded in the field, this is an option only installed at the factory. The EQX-OP288/576-XLINK module is installed in the very bottom of the EQX 16RU router, see Figure 3-3 for location details.

To obtain outputs from this output module, the lower or third cross point must be installed in the router.

Figure 3-3: EQX 16RU with EQX-OP288-XLINK Installed (Two X-LINK Cables Installed)

3.2.3. Installing EQX-OP36-XLINK Output Card in EQX 26RU

The EQX-OP36-XLINK output module is installed in the standard output router slot of the EQX 26RU. A single rear plate is shared between two EQX-OP36-XLINK output cards; therefore two adjacent slots must be dedicated to this function.

Both primary and redundant cross points must be installed in the router to enable the outputs for the EQX-OP36-XLINK output card.

No cross point redundancy is available when using this output card.

The output slot in the opposite half of the router cannot be an EQX-OP36-XLINK or EQX-OP36-MON card. It can only be an EQX-OP18H card or similar; the standard output card will not have access to the redundant cross point.

3.2.4. Installing the 7767VIPX-RP2 Rear Plate in the 7700FR-D frame

The 7767VIPX-RP2 is installed in the 7700FR-D or 7700FR-DQ frame. The rear plate occupies 5 slots in the frame; a maximum of two 7767VIPX-RP2 rear plates can be installed in the 7700FR-D frame. The 7767VIPX-RP2 cannot be installed in the 7700FR-C or 350FR frame. The recommended placement of the rear plate in the 7700FR-D frame is as follows: RP1 occupies slots 1, 2, 3, 4, 5 and RP2 occupies slots 11, 12, 13, 14, 15. See Figure 3-4 below for details on recommended rear positions in the 7700FR-D frame.

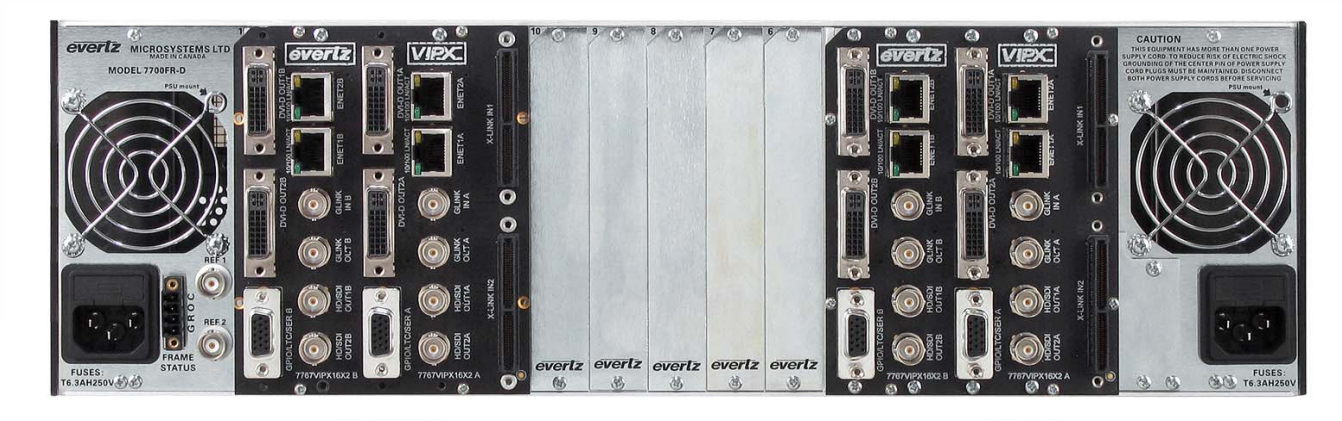

Figure 3-4: 7700FR-D with Two 7767VIPX-RP2 Installed

3.2.5. Installing the XLINK cable

The X-LINK cable XLINK-BHP-5 or XLINK-BHPS-5 should be installed last after all cabling is completed in the rack. The X-LINK cable is keyed so that it can only be installed in a single direction. The thumbscrews should be used to secure the cable to the rear plate.

Do not over tighten the screw. It is only intended for securing the cable and does not need to be tightened all the way. Over tightening can cause damage to both the X-LINK connector and the nut on the rear plate. Ensure that the thumbscrew is not cross-threaded as this can also cause damage to the rear plate nut.

When connecting the X-LINK cable from the Xenon router the opposite end of the cable is to be installed in the X-LINK1 port on the 7767VIPX-RP2 rear plate. If cabling the EQX 16RU router with EQX-OP288-XLINK, the opposite end of the cable is wired into the XLINK1 port on the 7767VIPX-RP2 rear plate. If cabling the EQX-OP576-XLINK and using the additional X-LINK outputs for redundancy, the first X-LINK output from X-LINK outputs 1 through 9 are to be installed in the XLINK 1 port of the 7767VIPX-RP2 rear plate, and the corresponding X-LINK output 10 through 18 is to be installed in the XLINK2 port of the 7767VIPX-RP2 rear plate.

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4. SYSTEM COMMUNICATION

The following section details the VIP-X system communication interconnectivity, including networking connections, X-LINK connections and video.

4.1. NETWORK CONNECTIVITY

4.1.1. Xenon Based VIP-X Solution

Figure 4-1 below, details the Ethernet connection points in the system. Evertz recommends that a proper Ethernet 10/100 base Ethernet switch or greater be used to support the systems network. Also, Evertz highly recommends the VIP-X system be operated on its own VLAN where possible.

Each Xenon enabled output card has a separate Ethernet port which is used to control the X-LINK outputs for that card. Each 7767VIPX module has its own Ethernet port which is used to control the associated 7767VIPX device. Ethernet 2 on the 7767VIPX device must be used for proper communication.

The “System Manager” server computer must also be connected to the same network as the hardware for the purpose of managing the system. Use the computer’s appropriate Ethernet port for this connectivity.

All Ethernet based control panels must be on the same network as the VIP-X system in order to control the system. All control panels, and software clients connect via TCP/IP to the System Manager software, which relays the information to the hardware as appropriate.

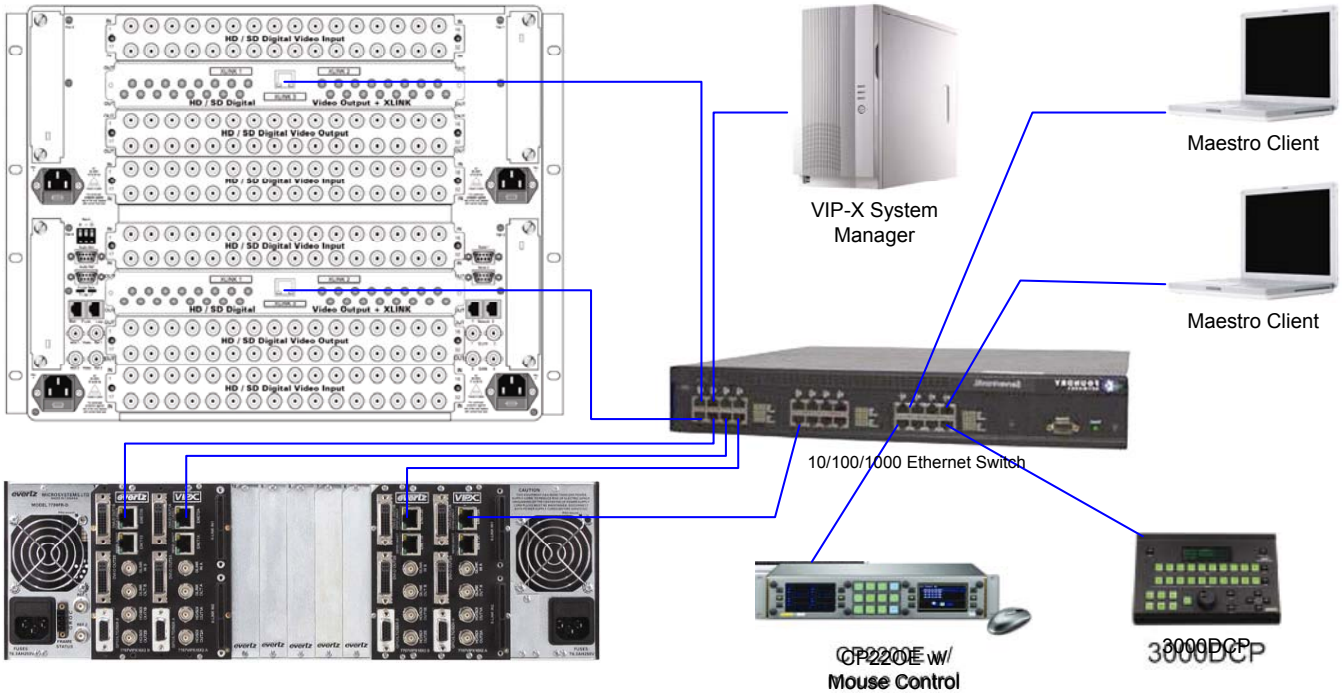


Figure 4-1: Network Connectivity Diagram – Xenon Router

4.1.2. EQX Based VIP-X Solution

Figure 4-2 details the Ethernet connection points in the system. Evertz recommends that a proper Ethernet 10/100 base Ethernet switch or greater be used to support the systems network. Also, Evertz highly recommends the VIP-X system be operated on its own VLAN where possible.

Each EQX has a frame controller based Ethernet port labeled “Network 1A.” This is the standard Ethernet communication port for the Ethernet router. For more complex network topologies where dual Ethernet connections are being made and/or dual frame controller units are being used, please refer to the accompanying documentation of the router for details as to how to configure the network connections in this case. Each 7767VIPX modules has its own Ethernet port which is used to control the associated 7767VIPX device. Ethernet 2 on the 7767VIPX device must be used for proper communication.

The “System Manager” server computer must also be connected to the same network as the hardware for the purpose of managing the system. Use the computer’s appropriate Ethernet port for this connectivity.

All Ethernet based control panels must be on the same network as the VIP-X system in order to control the system. All control panels, and software clients connect via TCP/IP to the System Manager software, which relays the information to the hardware as appropriate.

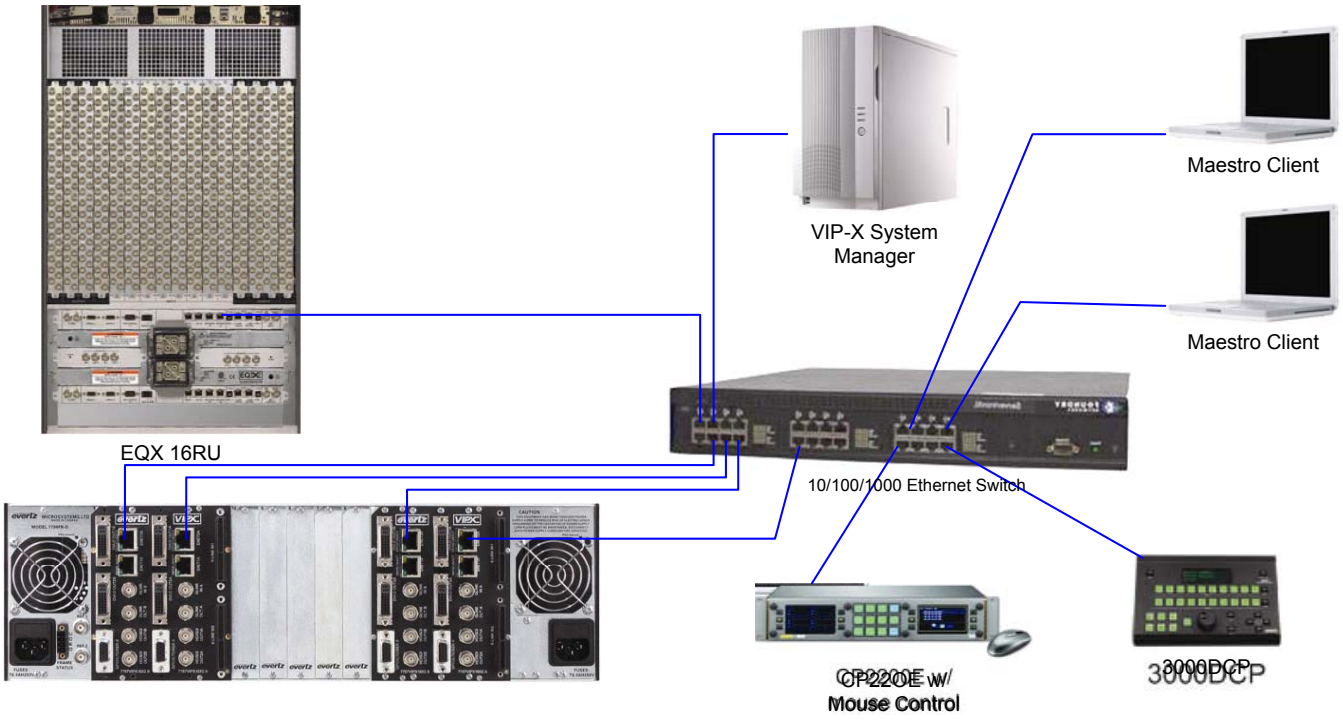


Figure 4-2: Network Connectivity Diagram – EQX 16RU Router

5. 7767VIPX8x2, 7767VIPX16x2 MODULES

The 7767VIPX8x2 and 7767VIPX16x2 modules come with a companion rear plate. The rear panel (7767VIPX-RP2) for the 7767VIPX display modules supports up to two 7767VIPX16x2 modules, or up to two 7767VIPX8x2 modules. The 7767VIPX-RP2 occupies 5 slots in the 7700FR-D frame.

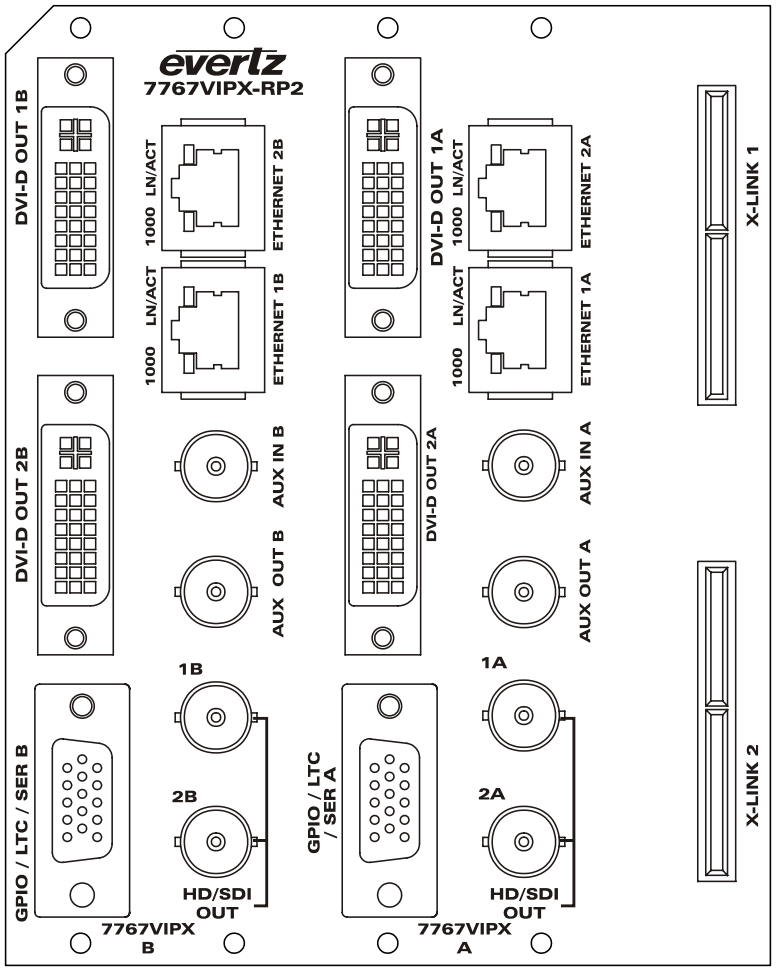


Figure 5-1: 7767VIPX-RP2 Rear Plate

5.1. VIDEO INPUTS AND OUTPUTS

X-LINK: The 7767VIPX8x2 has 2 X-LINK connector inputs that auto sense 3Gb/s, HD-SDI and SD-SDI, or 10-bit serial digital video signals compatible with the SMPTE 424M, SMPTE 292M and SMPTE 259M-C standards. Since the 7767VIPX-RP2 rear panel accommodates two VIP-X modules, the rear plate has two X-LINK connectors (one for each VIP-X module).

HD/SDI OUTPUT 1A/B & 2A/B: When the output resolution of the card is set to 720p, 1080i, 1080p, 625i, and 525i this BNC connector has 10-bit serial digital video signals compatible with the SMPTE 424M, SMPTE 292M and SMPTE 259M-C standards. When the output resolution of the card is set to other resolutions, this output will not be active. Since the 7767VIPX-RP2 rear panel accommodates two VIP-X modules, the rear plate has HD/SDI Outputs 1A and 2A for the first VIP-X module and HD/SDI Outputs 1B and 2B for the second VIP-X module.

AUX IN A/B: Auxiliary serial data input.

AUX OUT A/B: Auxiliary serial data output.

5.2. GENLOCK REFERENCE

To lock/time the output of the VIP to house reference the genlock input should be used.

GENLOCK INPUT: The genlock input is applied to the 7700FR-D frame, which provides genlock to all 7767VIPX modules installed in the frame. The genlock signal may be NTSC or PAL colour black. The reference input type is auto detected. The genlock reference input is terminated to 75 ohms.

5.3. DVI VIDEO CONNECTIONS

DVI-D OUTPUT: The VESA DVI-I connectors provide DVI-D outputs suitable for driving a computer video monitor. The 7767VIPX-RP2 has two DVI-D outputs. The monitor must be capable of scanning at the line and pixel rate of the video input standard that is being used.

Since the 7767VIPX-RP2 rear panel accommodates two VIP-X modules, the rear plate two has DVI-D connections for each VIP-X module. DVI-D 1A and 2A for the first VIP-X module and DVI-D 1B and 2B for the second VIP-X module.

The following resolutions are supported by the VIP module at both 50Hz and 60Hz:

XGA (1024x768)	SXGA (1280x1024)	UXGA (1600x1200)
WXGA (1280x768)	720p (1280x720)	576p/625i(720x576)
480p/525i (720x480)	WXGA Alt (1366x768)	SXGA+(1400x1050)
WSXGA+(1680x1050)	1080p(1920x1080)	WUXGA(1920x1200)
XGA (1024x768)	SXGA (1280x1024)	UXGA (1600x1200)
WXGA (1280x768)	720p (1280x720)	576p/625i(720x576)

Table 5-1: Supported Resolutions at 50Hz and 60Hz

Recommended maximum cable lengths:

- DVI digital max length = 3 meters, or 10 feet
- VGA analog max length = 5 meters, or 15 feet

5.4. GENERAL PURPOSE INPUTS AND OUTPUTS

GPI interfacing with the 7767VIPX is possible through 4 general purpose inputs (pins 10, 11, 12, 13) and 2 general purpose outputs (pins 4, 9) available on the HD-15 connector on the rear plate of the module. The GPIs are active low with internal pull-up resistors (4.7k Ohms) to +5 V. To make an input active, lower the signal to near ground potential (i.e. connect to shell or chassis ground). This can be done with a switch, relay, TTL drive, GPO output, or using another similar method. Figure 5-2 shows the input circuit for the general-purpose inputs. Figure 5-4 shows an example of how to interface the VIP GPI inputs to higher voltage systems.

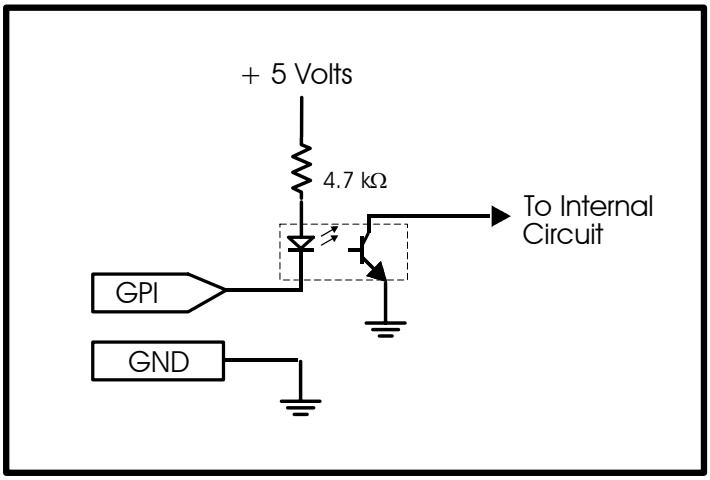


Figure 5-2: GPI Input Circuitry

The GPOs are active low with internal pull-up (10kΩ) resistors to +5 V. When the output goes low, it is able to sink up to 10 mA; when the output goes high, the signal will go high (+5 V). **Do not draw more than 100μA from the output.** Figure 5-3 shows the circuit for the general-purpose output:

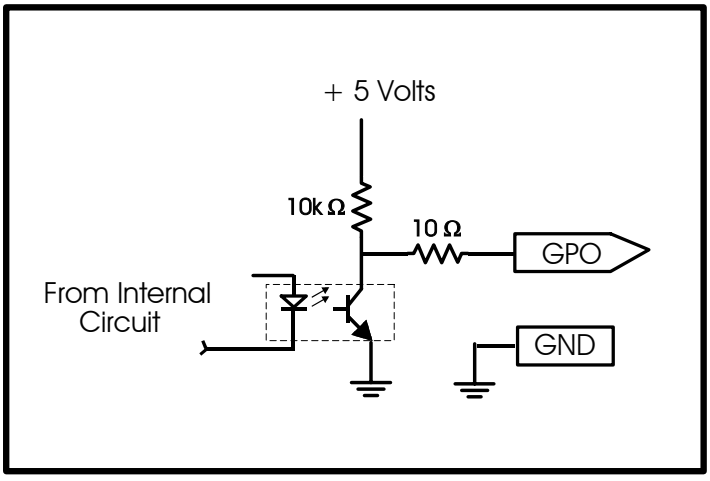


Figure 5-3: **GPO Output Circuitry**

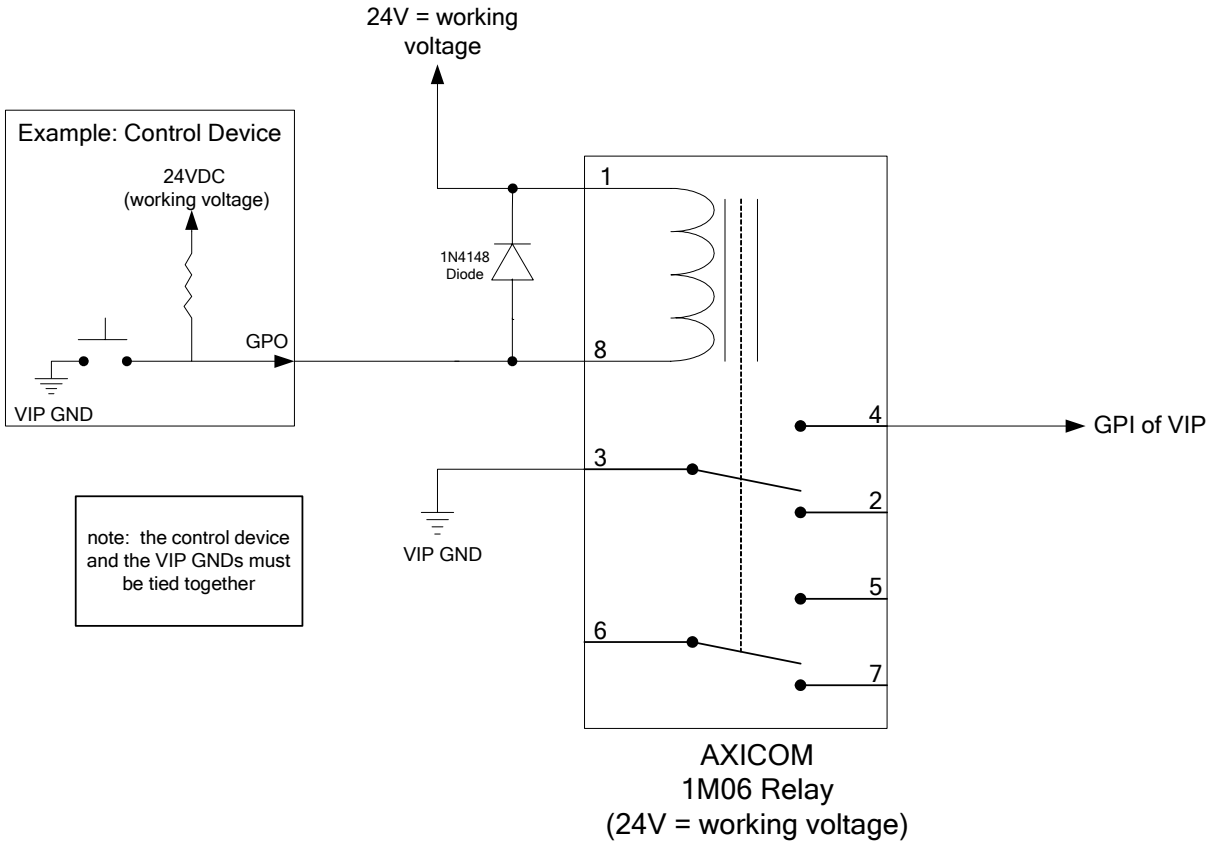


Figure 5-4: Interfacing GPIs to a High Voltage GPI System

5.5. LTC AND SERIAL DATA INPUTS (AUXILIARY INTERFACE)

The 7767VIPX has an LTC input and a serial data port available on the HD-15 connector on the module's rear plate. Please refer to Table 5-2 for more information on the HD-15 connector. Since the 7767VIPX-RP2 rear panel accommodates two VIP-X modules, the rear plate has a total of two HD-15 connectors (one for each VIP-X module).

Figure 5-5 highlights the location of the HD-15 connector on the VIP-X rear plate.

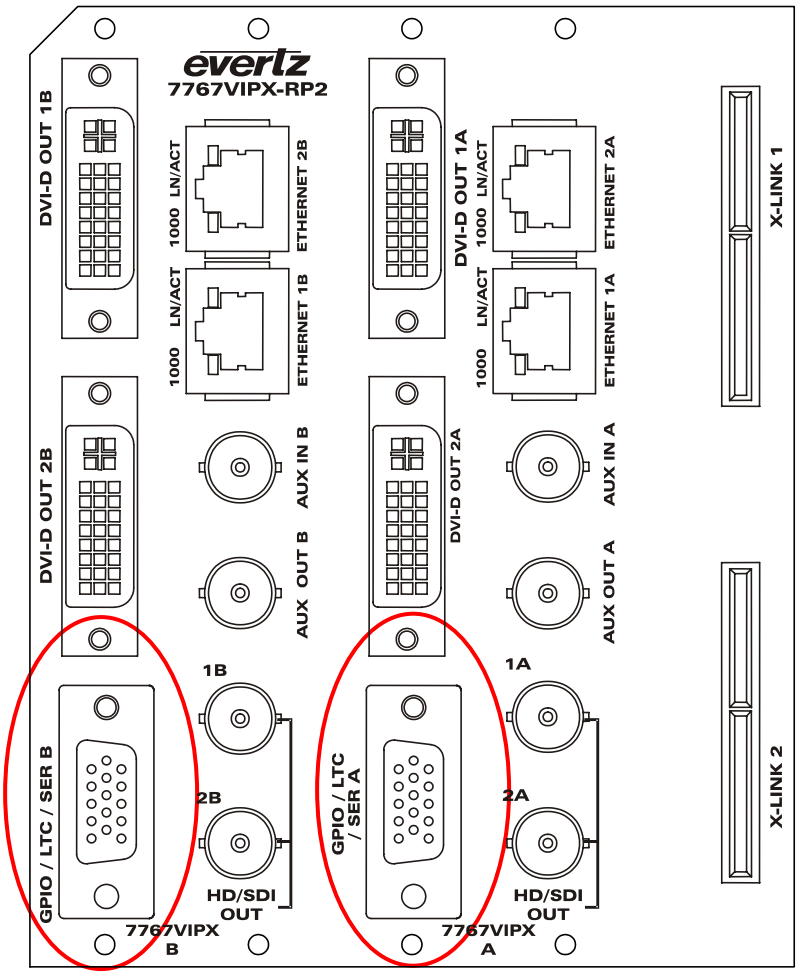


Figure 5-5: Rear Plate – Ports for Attaching the HD-15

Table 5-2 below, identifies the pin assignments for the general-purpose HD-15 connector mounted on the rear plate for the VIPX X-LINK enabled Advanced Duo modules.

PIN	FUNCTION	DESCRIPTION
1	RS-422: RX+ (CTSM)	Used for RS-422 communication – VIP RX+, to be connected to upstream devices TX+
2	RS-232: TX RS-422: TX+ (RTSM)	Used for RS-422 communication – VIP TX+, to be connected to upstream devices RX+
3	LTC +	LTC interface, positive terminal
4	GPO1	General purpose output 1
5	GND	GND
6	RS-232: RX RS-422: RX- (RXDM)	Used for RS-232 communication – VIP RX, to be connected to upstream devices TX. Also used for RS-422 communication – VIP RX-, to be connected to upstream devices TX-
7	RS-232: TX RS-422: TX- (TXDM)	Used for RS-232 communication – VIP TX, to be connected to upstream devices RX. Also used for RS-422 communication – VIP TX-, to be connected to upstream devices RX-
8	LTC -	LTC interface, negative terminal
9	GPO0	General purpose output 0
10	GPI3	General purpose input 3
11	GPI0	General purpose input 0
12	GPI1	General purpose input 1
13	GPI2	General purpose input 2
14	AES_OUT0	AES output 0 – unbalanced. To be used for monitoring embedded audio from source. Assigned normally to display 1.
15	AES_OUT1	AES output 1 – unbalanced. To be used for monitoring embedded audio from source. Assigned normally to display 2.

Table 5-2: HD-15 Pin-Out

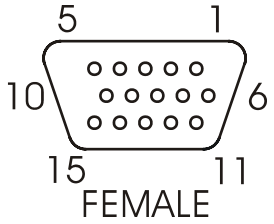


Figure 5-6: 7767VIPX16x2/8x2 HD-15 General Purpose Pin-Out

5.6. ETHERNET NETWORK CONNECTIONS

ETHERNET1 / 2: These RJ-45 connectors are Ethernet ports which facilitate control via VistaLINK® PRO or Maestro software. It is also used for FTP firmware upgrades. The VIP module comes delivered from the factory with Ethernet 2 as the default active port; Ethernet 1 is disabled and is not used at this time. Since the 7767VIPX-RP2 rear panel accommodates two VIP-X modules, the rear plate has Ethernet ports 1A and 2A for the first VIP-X module and 1B and 2B for the second VIP-X module.

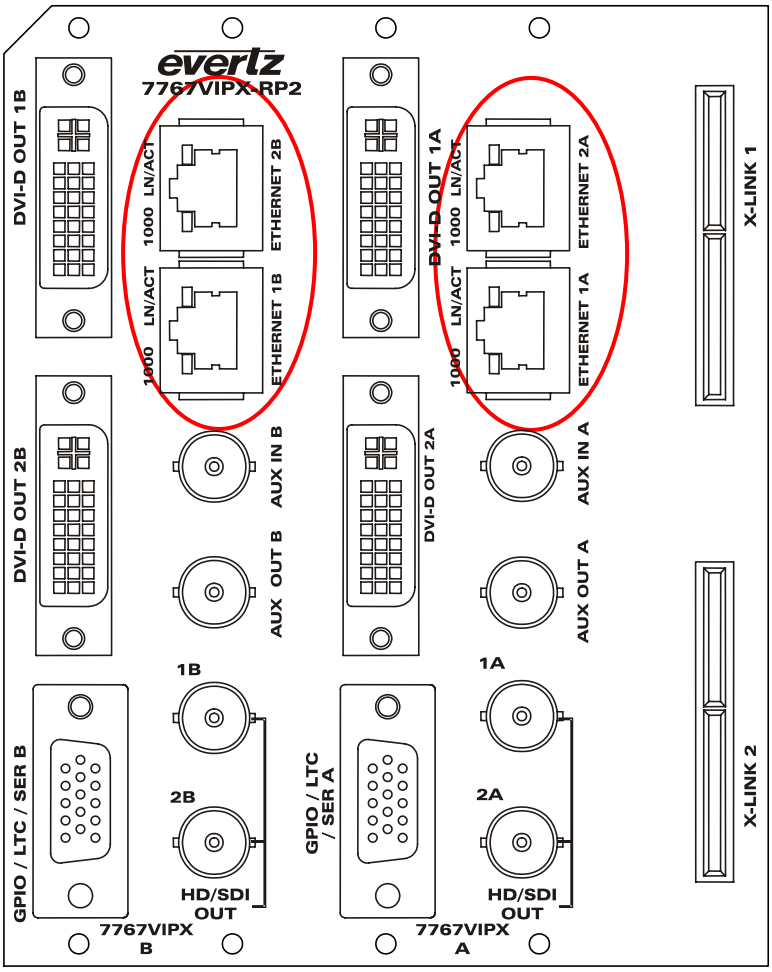
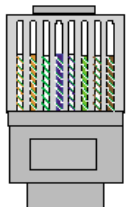


Figure 5-7: Rear Plate – Ethernet Ports

The 7767VIPX8x2and 7767VIPX16x2 are designed to be used with either 10Base-T (10 Mbps) or 100Base-TX (100 Mbps) also known as *Fast Ethernet*, twisted pair Ethernet cabling systems. When connecting for 10Base-T systems, category 3, 4, or 5 UTP cable as well as EIA/TIA – 568 100Ω STP cable may be used. When connecting for 100Base-TX systems, category 5 UTP cable is required. Make the network connection by plugging one end of a “straight through” cable into the RJ-45 receptacle of the 7767VIPX8x2 or 7767VIPX16x2 and the other end into a port of the supporting hub. If the user is connecting the VIPX card directly to an Ethernet port on a computer the user will have to use a “crossover” cable.

The straight-through RJ-45 cable can be purchased or can be constructed using the pinout information in Table 5-3. A colour code wiring information is provided in Table 5-3 for the current RJ-45 standards (AT&T 258A or EIA/TIA 258B colour coding shown). Also refer to the notes following the table for additional wiring guide information.



Pin #	Signal	EIA/TIA 568A	AT&T 258A or EIA/TIA 568B	10BaseT or 100BaseT
1	Transmit +	White/Green	White/Orange	X
2	Transmit –	Green/White or White	Orange/White or Orange	X
3	Receive +	White/Orange	White/Green	X
4	N/A	Blue/White or Blue	Blue/White or Blue	Not used (required)
5	N/A	White/Blue	White/Blue	Not used (required)
6	Receive –	Orange/White or Orange	Green/White or Green	X
7	N/A	White/Brown	White/Brown	Not used (required)
8	N/A	Brown/White or Brown	Brown/White or Brown	Not used (required)

Table 5-3: Standard RJ45 Wiring Colour Codes

Note the following cabling information for this wiring guide:

- Only two pairs of wires are used in the 8-pin RJ-45 connector to carry Ethernet signals
- Even though pins 4, 5, 7 and 8 are not used, it is mandatory that they be present in the cable
- 10BaseT and 100BaseT use the same pins; a crossover cable made for one will also work with the other
- Pairs may be solid colours and not have a stripe
- Category 5 cables must use Category 5 rated connectors

The maximum cable run between the 7767VIPX8x2 or 7767VIPX16x2 and the supporting hub is 300 ft (90 m). The maximum combined cable run between any two end points (i.e. 7767VIPX8x2 and PC/laptop via network hub) is 675 feet (205 m).

Devices on the Ethernet network continually monitor the receive data path for activity as a means of checking that the link is working correctly. When the network is idle, the devices also send a link test signal to one another to verify link integrity. The rear panel is fitted with two LEDs to monitor the Ethernet connection.

10/100: This Amber LED is ON when a 100Base-TX link is last detected. The LED is OFF when a 10Base-T link is last detected (the LINK LED is ON). Upon power-up the LED is OFF as the last detected rate is not known and therefore defaults to the 10Base-T state until rate detection is complete.

LN/ACT: This dual purpose Green LED indicates that the 7767VIPX card has established a valid linkage to its hub, and whether the 7767VIPX card is sending or receiving data. This LED will be ON when the 7767VIPX card has established a good link to its supporting hub. This gives the user a good indication that the segment is wired correctly. The LED will BLINK when the 7767VIPX card is sending or receiving data. The LED will be OFF if there is no valid connection.

In order to use the Ethernet connection the user will have to configure the IP addresses for the network.

5.7. 7767VIPX8X2/16X2 BLOCK DIAGRAM

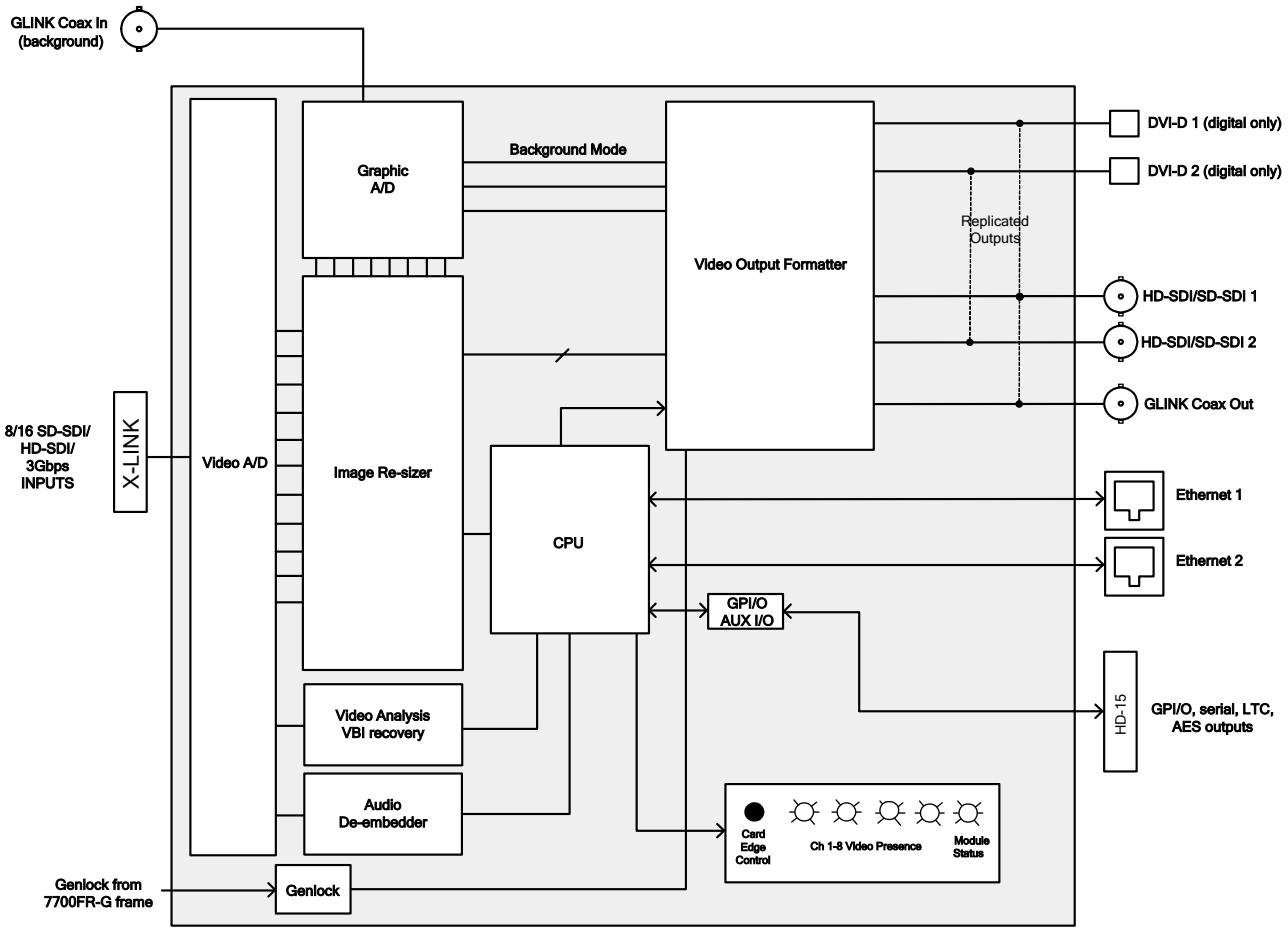


Figure 5-8: 7767VIPX8x2/16x2 Block Diagram

6. TECHNICAL DESCRIPTION

6.1. 7767VIPX8X2 SPECIFICATIONS

The 7767VIPX8x2 is an X-LINK enabled VIP Advanced display processor module. It supports up to eight video inputs distributed from a router via "X-LINK" interconnect. 7767VIPX8x2 supports up to two unique multi-image display outputs via DVI and HD-SDI. Each DVI output can have an independent resolution, resolutions range from XGA (1024x768) to WUXGA (1920x1200). 7767VIPX modules are installed in Evertz 7700FR-D frame, which uses high output power supplies. Up to 4 modules or two pairs of 7767VIPX8x2 cards can be installed in a single 7700FR-D frame. Each 7767VIPX8x2 occupies half of the 7767VIPX-RP2 rear plate which is a five slot rear plate; up to two 7767VIPX8x2 modules are supported by a single 7767VIPX-RP2 rear plate.

Each 7767VIPX8x2 display module accepts up to 8 sources from the router via X-LINK and can view any source on both of its display outputs. A single source can be viewed multiple times on either display. A single source can be replicated up to 120 times across the two displays.

6.1.1. Serial Video Inputs

Standard: 3Gbps (SMPTE 424M), and/or
HD-SDI (SMPTE 292M),
SD-SDI (SMPTE 259M-C)
Number of Inputs: 8
Connector: X-LINK (Evertz proprietary)
Equalization: Automatic to 100m (Belden 1694A)
Return Loss: > 15dB up to 270Mb/s
Embedded Audio: SMPTE 272M-A

6.1.2. Background (Computer) Video Input

Standard: GLINK (Evertz proprietary) requires video to GLINK formatter
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Resolution: 640x480 (VGA) to 1600x1200 (UXGA)
Input Impedance: 75Ω

6.1.3. Display Video Output

Standard: VESA (DVI-D) up to WUXGA (1920x1200)
Number of Outputs: 2
Connector: DVI-I
Video: 1V p-p RGB, 60/50 Hz refresh
Impedance: 50Ω

6.1.4. Serial Video Output

Standard: Selectable HD/SD serial monitoring output (720p, 1080i, 625i, 525i)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal (HD), 740ps nominal (SD)
Overshoot: < 10% of amplitude

6.1.5. Genlock Input

Type: NTSC/PAL colour black
Level: 1V p-p nominal
Connector: BNC via 7700FR-D (frame genlock)

6.1.6. General Purpose Interface I/O (GPI/GPO)

Number of Inputs: 4 (pins 10,11,12,13)
Number of Outputs: 2 (pins 4,9)
Type: GPI: 1 Opto-isolated, active low with internal pull-ups to +5V
GPO: 1 Relay closure to ground
Input Signal: Closure to ground
Connector: HD-15

6.1.7. Input/Output Serial Port

Number of Ports: 1 RS-232 (pins 6, 7) or 1 RS-422 (pins 1, 2, 6, 7)
Connector: HD-15
Baud Rate: Up to 1Mbaud
Format: Image Video, TSL

6.1.8. Ethernet

Network Type: Fast Ethernet 100 Base-TX 1EEE 802.3U standard for 100Mbps base band CSMA/CD local area network
Connector: RJ-45 x2

6.1.9. Electrical

Voltage: +12V DC
Power: 75W

6.1.10. Physical

Number of Slots: 5 slots (single module occupies only ½ of total rear plate)

6.2. 7767VIPX16X2 SPECIFICATIONS

X-LINK enabled VIP Advanced display processor module supports up to sixteen video inputs distributed from router via "X-LINK" interconnect. The 7767VIPX16x2 supports up to two unique multi-image display outputs via DVI and HD-SDI. Each DVI output can have an independent resolution. Resolutions range from XGA (1024x768) to WUXGA (1920x1200).

7767VIPX modules are installed in Evertz 7700FR-D frame, which uses high output power supplies. Up to 4 modules or two pairs of 7767VIPX16x2 cards can be installed in a single 7700FR-D frame. Each 7767VIPX16x2 occupies half of the 7767VIPX-RP2 rear plate; up to two 7767VIPX16x2 modules are supported by a single 7767VIPX-RP2 rear plate.

Each 7767VIPX16x2 display module accepts up to 16 sources from the router via X-LINK and can view any source on both of its display outputs. A single source can be viewed multiple times on either display. A single source can be replicated up to 120 times across the two displays.

6.2.1. Serial Video Inputs

Standard: 3Gbps (SMPTE 424M), and/or
HD-SDI (SMPTE 292M),
SD-SDI (SMPTE 259M-C)
Number of Inputs: 16
Connector: X-LINK (Evertz proprietary)
Equalization: Automatic to 100m (Belden 1694A)
Return Loss: > 15dB up to 270Mb/s
Embedded Audio: SMPTE 272M-A

6.2.2. Background (Computer) Video Input

Standard: GLINK (Evertz proprietary) requires video to GLINK formatter
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Resolution: 640x480 (VGA) to 1600x1200 (UXGA)
Input Impedance: 75Ω

6.2.3. Display Video Output

Standard: VESA (DVI-D) up to WUXGA (1920x1200)
Number of Outputs: 2
Connector: DVI-I
Video: 1V p-p RGB, 60/50 Hz refresh
Impedance: 50Ω

6.2.4. Serial Video Output

Standard: Selectable HD/SD serial monitoring output (720p, 1080i, 625i, 525i)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal (HD), 740ps nominal (SD)
Overshoot: < 10% of amplitude

6.2.5. Genlock Input

Type: NTSC/PAL colour black
Level: 1V p-p nominal
Connector: BNC via 7700FR-D (frame genlock)

6.2.6. General Purpose Interface I/O (GPI/GPO)

Number of Inputs: 4 (pins 10, 11, 12, 13)
Number of Outputs: 2 (pins 4, 9)
Type: GPI: 1 Opto-isolated, active low with internal pull-ups to +5V
GPO: 1 Relay closure to ground
Input Signal: Closure to ground
Connector: HD-15

6.2.7. Input/Output Serial Port

Number of Ports: 1 RS-232 (pins 6,7) or 1 RS-422 (pins 1,2,6,7)
Connector: HD-15
Baud Rate: Up to 1Mbaud
Format: Image Video, TSL

6.2.8. Ethernet

Network Type: Fast Ethernet 100 Base-TX 1EEE 802.3U standard for 100Mbps base band CSMA/CD local area network
Connector: RJ-45 x2

6.2.9. Electrical

Voltage: +12V DC
Power: 75W

6.2.10. Physical

Number of Slots: 5 slots (single module occupies only ½ of total rear plate)

7. STATUS LEDS

7.1. MODULE STATUS LEDS

MODULE STATUS: This Green LED will be on when the module is operating properly.

LOCAL FAULT: This Red LED makes it easy to identify one module in a frame that is missing an essential input or has another fault.

The Red LED will blink on and off if the microprocessor is not running.

The Red LED will be on when there is a fault in the module power supply or a user configurable error condition exists (as configured through the Frame Status Trigger menu option).

7.2. VIDEO STATUS LED AND CARD EDGE 4-CHARACTER DISPLAY

Some key user components can be found at the card edge:

1. Toggle Switch
2. Local Fault Status LED
3. 4 Character Dot Matrix Display
4. Push Button

Toggle Switch: This component will become active once the card has completed booting. Its primary function is to navigate through the menu system.

Local Fault Status LED: This component will be set upon initial power up to red. Once the card is in a normal operating mode, it will be set to green. If the card has booted, and the LED remains red or becomes red, this indicates an internal error.

4 Character Dot Matrix Display: This component will become active once power is applied to the card. This component is used to relay text-based information to the user. It will be used to scroll build and card information, or display the menu options to the user.

Push Button: This component will become active once the card has completed booting. It is primarily used for navigating through the menu system.

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8. USER JUMPERS

Several jumpers are used to preset various operating modes. Figure 8-1 illustrates the location of the jumpers on the bottom and top boards respectively.

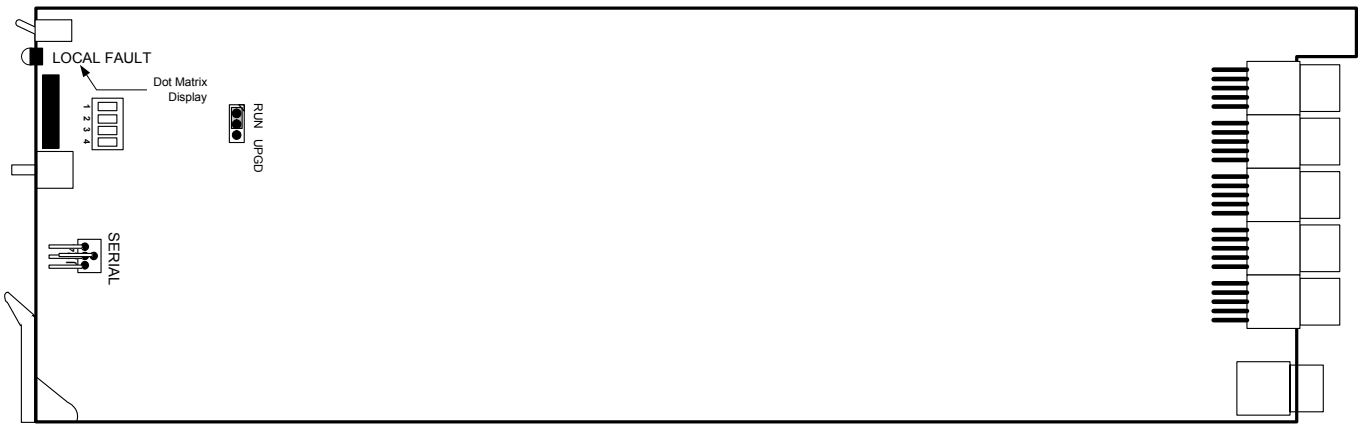

Figure 8-1: Location of Jumpers (7700G4X)

8.1. SELECTING WHETHER LOCAL FAULTS ON THE BOARD WILL BE MONITORED BY THE GLOBAL FRAME STATUS

The **FRAME STATUS** jumper J4, on the bottom board, determines whether local faults (as shown by the Local Fault indicator) on the bottom board will be connected to the 7700FR frame's global status bus.

FRAME STATUS: To monitor faults on this module with the frame status indicators (on the Power Supply FRAME STATUS LED's and on the Frame's Fault Tally output) install this jumper in the On position. (Default)

When this jumper is installed in the Off position local faults on this module will not be monitored.

8.2. CONFIGURING THE MODULE FOR FIRMWARE UPGRADES VIA SERIAL PORT

RUN/UPGRADE

The RUN/UPGRADE jumper on the bottom board 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 via the serial port pull it out of the frame. Move the RUN/UPGRADE jumper 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 section 10.2. Once the upgrade is complete, remove the module from the frame, move the jumper into the *RUN* position, remove the upgrade cable and re-install the module. The module is now ready for normal operation.

The serial port method of upgrading the firmware will take over 15 minutes and is not recommended unless the FTP method fails.

9. MODULE CONFIGURATION

The parameters of the VIP™ module are configured through the following tools:

Module Card-edge: Enables the user to set the module's network settings.

Module Serial Port: Enables the user to set the module IP address and TRAP destination IP addressing, network identification.

Web Server Interface: A web browser can be used to connect to a VIP. This interface does not require any additional software to be installed other than the user's standard web browser software (i.e. Internet Explorer, Fire Fox, etc).

Maestro: This is a software configuration tool included with every VIP module used to design preset layouts for one or multiple VIP systems, along with all on screen display elements including audio bar graphs, UMD, tallys and fault messages. Specifically colour, transparency, borders, etc. that are all included in the final display output.

***Vista*LINK® PRO:** An SNMP software tool that is used to set the fault monitoring thresholds and durations for each VIP module detected on the network and/or for fault message (TRAP) receipt and data logging.

Module Card-edge DIP Switches: Only to be enabled during boot-up sequence, DIP switches enable the following cases/features:

1. Used to clear high level NV– DIP switch 2, 3 and 4 open (to the right)
2. Used to clear low level NV– DIP switch 2, and 4 open (to the right)
3. If none of the above cases/features are required, leave all DIP switches closed (to the left)

9.1. CONFIGURING THE MODULE VIA THE CARD EDGE MENU

While out of the menu system, the user will see product identification and build revision across the 4 character dot matrix display.

To enter the menu on the card-edge, press the card-edge pushbutton once and follow the menu headings on the 4-character display. To adjust any parameter, use the toggle switch to move up or down to the desired parameter and press the pushbutton. Using the toggle switch, adjust the parameter to its desired value. If the parameter is a numerical value, the number will increase if the toggle switch is pushed upward and will decrease if the toggle switch is pushed down. If the parameter contains a list of choices, the user can cycle through the list by pressing the toggle switch in either direction. The parameter values are changed as the user cycles through the list.

When the user has stopped at the desired value, depress the pushbutton. This will return to the parameter select menu item the user is setting (the display shows the parameter name being set). To change another parameter, use the toggle switch to select other parameters. If neither the toggle switch nor pushbutton is operated for several seconds the card edge control will exit the menu system and return to an idle state.

On all menus, there is an extra selectable item: *BACK*. Selecting *BACK* will take the user to the previous menu (the one that was used to get into the current menu). On the main menu, *BACK* will take the user to the normal operating mode (indicated by the moving line on the card edge display).

Table 9-1 provides a brief description of the top level of the menu tree that appears when the user enters the card edge menu system. Selecting this item will take the user down into the next menu level to set the value of that parameter. The details of those parameters are described in section 9.1.1.

NET	Menu item for setting the devices IP address* ***Note:*** After setting the IP address and saving, the card must be power cycled for changes to take effect.

Table 9-1: Top Menu Structure

9.1.1. Configuring the Display

NET
- *BACK*
- *IP*
- *NMSK*
- *GTWY*
- *BCST*
- *DHCP*
- *SAVE*

BACK: Option to navigate back up one level from the current menu position. This is the factory default menu option.

IP: (NETWORK ADDRESS): Option for setting the IP address for the VIP module. All 4 octets must be set.
NOTE: After changing the IP address, navigate to the SAVE option in order to store the IP address for the device, then power cycle the device for the address to take effect.

NMSK (NETWORK MASK): Option for setting the net mask for the VIP module.
NOTE: After changing the Netmask, navigate to the SAVE option in order to store the setting for the device, then power cycle the device for the address to take effect.

GTWY (GATEWAY ADDRESS): Option for setting the gateway address for the VIP module.
NOTE: After changing the Gateway address, navigate to the SAVE option in order to store the setting for the device, then power cycle the device for the address to take effect.

BCST (BROADCAT ADDRESS): Option for setting the broadcast address for the VIP module.
NOTE: After changing the Broadcast address, navigate to the SAVE option in order to store the setting for the device, then power cycle the device for the address to take effect.

DHCP (DHCP ENABLE/DISABLE): Option for enabling or disabling DHCP for the VIP module, normally set to disabled.
NOTE: After changing the DHCP, navigate to the SAVE option in order to store the setting for the device, then power cycle the device for the address to take effect.

SAVE (SAVE NETWORK SETTINGS): Option for saving changes made to the above options. The user is required to save only a single time for multiple changes to be applied.

NOTE: After saving, the VIP modules must be power cycled.

9.2. CONFIGURING THE MODULE USING THE MODULE SERIAL PORT

Through the card-edge's serial port, and using the serial 7700 upgrade cable connected to a PC's serial port running HyperTerminal (or equivalent), the VIP module's IP address, subnet, and SNMP TRAP destination address are identified. The 7700 upgrade cable supplied with the 7700FR-D frame is a multi-coloured ribbon cable with a six pin header socket on one end and a female 9 pin D connector on the other end, (Evertz part number WA-S76) which is normally in the vinyl pouch at the front of the manual binder.

Configure the port settings of the terminal program as follows:

Baud	**115200**
Data bits	**8**
Parity	**None**
Stop bits	**2**
Flow Control	**None**

Once the card is powered-up, the HyperTerminal connection displays boot-up status information and once complete, ends with the "Status Message" as shown below:

```
Initialization Completed - 7767VIP Running
```

Press the <ENTER> key to view the main Menu. In the Main Menu, the following options are present for module configuration. Once changes have been completed and saved, the VIP module should be power-cycled for the changes to take effect.

```
-----------------------------------------------------------
|                    Main Menu                            |
|              (7767VIPX8x2 1.0.0)                        |
 ----------------------------------------------------------
(1) Network Configuration
(2) Onboard Server Configuration
(3) SNMP Configuration
(4) Under Monitor Display Setup
(5) Auxiliary Serial Port Setup
(6) SNTP Source
(7) Network Audio Configuration
(8) Nielsen Configuration
(9) Engineering/Debug

(X) Exit
>
```

9.2.1. Network Configuration

1) **Network Configuration** – This menu option is used to set the IP parameters for this VIP module.

```
 ------------------------------------------------
ENET: 1 MAC: 00:02:c5:10:5e:73

IP address:       192.168.9.62
Netmask address:  255.255.255.0
Gateway:          0.0.0.0
Broadcast address: 192.168.9.255
DHCP/Hotswap mode: Off
 ------------------------------------------------
(1) Set IP Address
(2) Set Netmask
(3) Set Gateway
(4) Set Broadcast Address
(5) Set DHCP/Hotswap mode

(S) Save and Exit
(X) Exit
```

9.2.2. On Board Server Setup

2) **On Board Server Configuration** – This menu option is used to set up the internal server properties of the VIP module.

Server: The Server should be enabled for normal VIP operation. In a system where the VIPX external PC based server is used the server should be disabled.

GPId: The *GPId* should be enabled when using GPIs to load layouts on the VIP module.

VGPId: The *VGPId* should be enabled when using virtual GPIs to load layouts on the VIP module.

DCPd: The *DCPd* should be enabled when using the 3000DCP desktop control panel with the VIP.

SYMPHd: The *SYMPHd* should be enabled when using the Symphony Third Party protocol. The third party protocol allows for external control devices to change layouts on the VIP. The communication of this control is done using TCP/IP default port = 9750. Please see Evertz' Symphony Protocol version 1 for more details regarding the protocol itself.

```
------------------------------------------------
Onboard Server: Enabled
Onboard GPId: Disabled
Onboard VGPId: Disabled
Onboard DCPd: Disabled
Onboard SymphD: Disabled
------------------------------------------------
(1) Display connection status
(2) Enable server
(3) Enable gpid
(4) Enable vgpid
(5) Enable dcpd
(6) Enable symphd

(S) Save and Exit
(X) Exit
>
```

9.2.3. SNMP Configuration

3) **SNMP Configuration** – This menu option is used to set the TRAP destination IP address, which originates at this VIP (if enabled).

```
----------------------------------------
No Trap Destinations Assigned
----------------------------------------

(1) Set Trap IP Address
(2) Remove Trap IP Address
(3) Community Strings

(S) Save and Exit
(X) Exit
> $
```

9.2.4. UMD Setup

4) **UMD Setup** – Set the dynamic UMD.

The UMD Setup is as follows:

Protocol: Image Video
Input Type: Serial

```
 ------------------------------------------------

(1) Set protocol

(S) Save and exit
(X) Exit without saving

Select UMD Protocol: (1 - 3)
    1. Image Video
    2. Philips ASCII
    3. XY Integrator
    4. TSL 3.1
    5. Echo
    6. TSL 4.0
    7. Harris Image Video

Select Input Type: (1 - 2) – Option for Image Video Protocol only
    1. Serial
    2. Network
```

9.2.5. Auxiliary Serial Port Setup

5) **Auxiliary Serial Port Setup:** If utilizing the serial port for dynamic UMD information, use this menu option to set the serial port parameters.

Auxiliary Serial Port Setup: (Use the following settings to configure the auxiliary serial port)

Baud Rate	**9600**
Data Bits	**8**
Parity	**None**
Stop Bits	**2**
Standard	**RS-232**

---

(1) Set baud rate
(2) Set number of data bits
(3) Set parity
(4) Set number of stop bits
(5) Set standard

(S) Save and exit
(X) Exit without saving

9.2.6. SNTP Setup – Network Time Protocol

6) **SNTP Source** – This menu option is used to set the NTP server source IP address. Set the IP address for the NTP server on the network. The VIP must be on the same network in order to contact the server. This menu will also display the last updated network time.

Active sntp source: 0.0.0.0
New sntp source: 0.0.0.0
Last time sntp updated at
sntp time: 0:0:0

---

(1) Set SNTP Source Address

(S) Save and Exit
(X) Exit
>

9.2.7. Network Audio Setup – Future Enhancement Feature

7) **Network Audio Setup:** This option is not available at the time of the manual update.

```
------------------------------------------------------------
        Network audio to video input mapping
 ID     IP address              Video Inputs
                      1  2  3  4  5  6  7  8  9 10 11 12
  0    192.168.9.62     *
 ------------------------------------------------------------
         Audio source to video input mapping
Channel                    Video inputs
pairs     1  2  3  4  5  6  7  8  9 10 11 12
 1 (1 2)  1  .  .  .  .  .  .  .  .  .  .  .
 2 (3 4)  .  .  .  .  .  .  .  .  .  .  .  .
 3 (5 6)  .  .  .  .  .  .  .  .  .  .  .  .
 4 (7 8)  .  .  .  .  .  .  .  .  .  .  .  .
 ------------------------------------------------------------
(1) Set video input
(2) Clear video input
(3) Set audio source for video input
(4) Clear audio source for video input

(S) Save and Exit
(X) Exit
```

9.2.8. Nielsen Configuration

8) **Nielsen monitoring Setup:** This menu option is used for configuring the IP interface to the 7767ND-HD Nielsen decoder product for the display of Nielsen ratings code.

```
------------------------------------------------------------
        Network audio to video input mapping
 ID     IP address              Video Inputs
                      1  2  3  4  5  6  7  8  9 10 11 12
  0    192.168.9.62     *
 ------------------------------------------------------------
         Audio source to video input mapping
Channel                    Video inputs
Pairs     1  2  3  4  5  6  7  8  9 10 11 12
 1 (1 2)  1  .  .  .  .  .  .  .  .  .  .  .
 2 (3 4)  .  .  .  .  .  .  .  .  .  .  .  .
 3 (5 6)  .  .  .  .  .  .  .  .  .  .  .  .
 4 (7 8)  .  .  .  .  .  .  .  .  .  .  .  .
 ------------------------------------------------------------
(1) Set video input
(2) Clear video input
(3) Set audio source for video input
(4) Clear audio source for video input

(S) Save and Exit
(X) Exit
```

9.3. WEB SERVER INTERFACE

A simple web server interface is provided for control over the VIP. This interface is accessed remotely via an IP connection to the device from a PC. To interface to the VIP and control using the web interface simply set the IP address on the VIP, place a PC on the same network either directly connecting to the VIP via cross over Ethernet cable or through a network switch. Ensure the PC's network adapter is set to the same network as the VIP. For example, if the VIP is set to 192.168.9.100, then set the PC to 192.168.9.xxx (any value between 2 and 254 excluding the value 100 which is the VIP module). Once the PC is confirmed to be on the same network as the VIP (use PING in DOS window to confirm), open a web browser (i.e. Internet Explorer, or Fire Fox, etc) (address bar) and in the navigation toolbar type the IP address of the VIP (for example, 192.168.9.100). Upon connecting the VIP, the VIP will display the screen identified in Figure 9-1, where the card provides access to control using standard web interface navigation tools.

The web browser is easy to navigate. Simply select a major category, either Card Setup or Layout, and then use the sub categories in the main body of the page to navigate and setup specific options for the module. To ensure that the settings being viewed are correct, first press the "Update" button on the page to refresh the view. Secondly, make a change using the simple drop down dialog boxes. After a change has been made, press the *Save* button to apply the change to the card. Some changes may require the card to be restarted or reset. The following sections detail the various card options available through the web client interface.

9.3.1. Card Setup: Display Setup

The Display Setup screen enables the user to configure the output properties for the VIP module.

Output Resolution: This parameter enables the user to select the resolution format for the DVI output.

Refresh Rate: This parameter enables the user to select the refresh rate for the output.

Horizontal Offset: This parameter enables the user to adjust the position of the active picture in respect to the amount of horizontal offset for the analog output signal.

Vertical Offset: This parameter enables the user to adjust the position of the active picture in respect to the amount of vertical offset for the analog output signal.

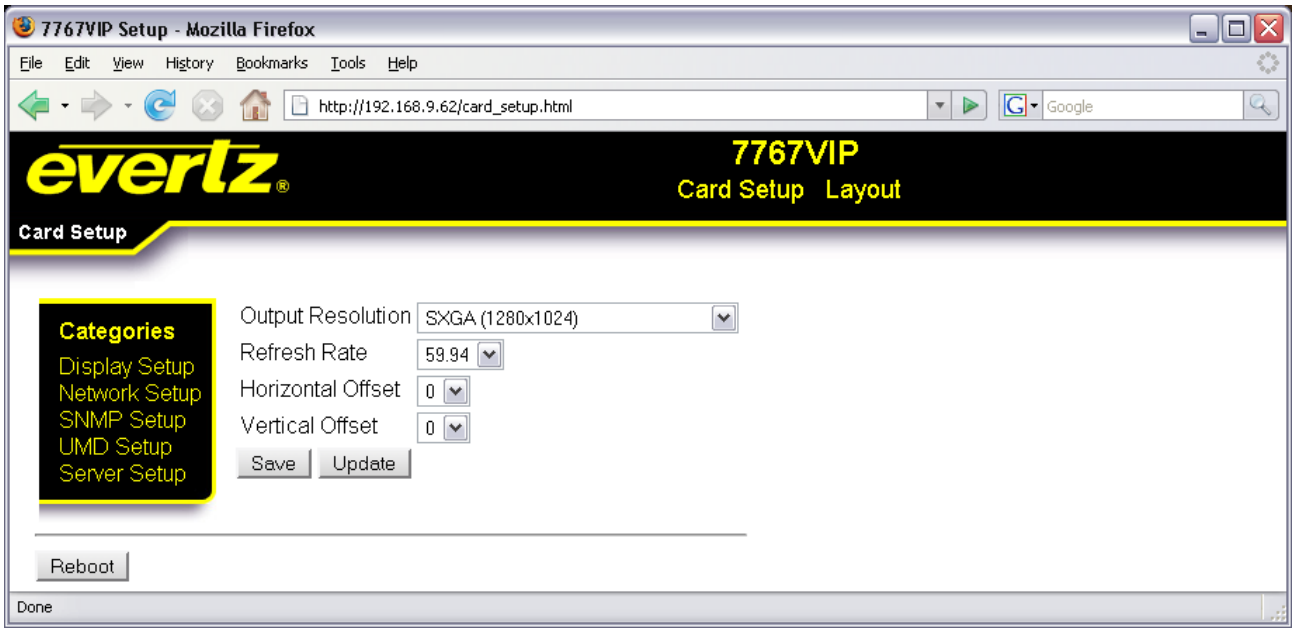

Figure 9-1: Display Setup

9.3.2. Card Setup: Network Setup

The Network Setup screen enables the user to configure the network properties of the VIP module.

IP Address: This parameter enables the user to set the IP address for the device.

Netmask: This parameter enables the user to set the Netmask for the device.

Gateway: This parameter enables the user to set the Gateway address for the device.

Broadcast: This parameter enables the user to set the Broadcast address for the device.

DHCP: This parameter allows the user to enable or disable DHCP for the device.

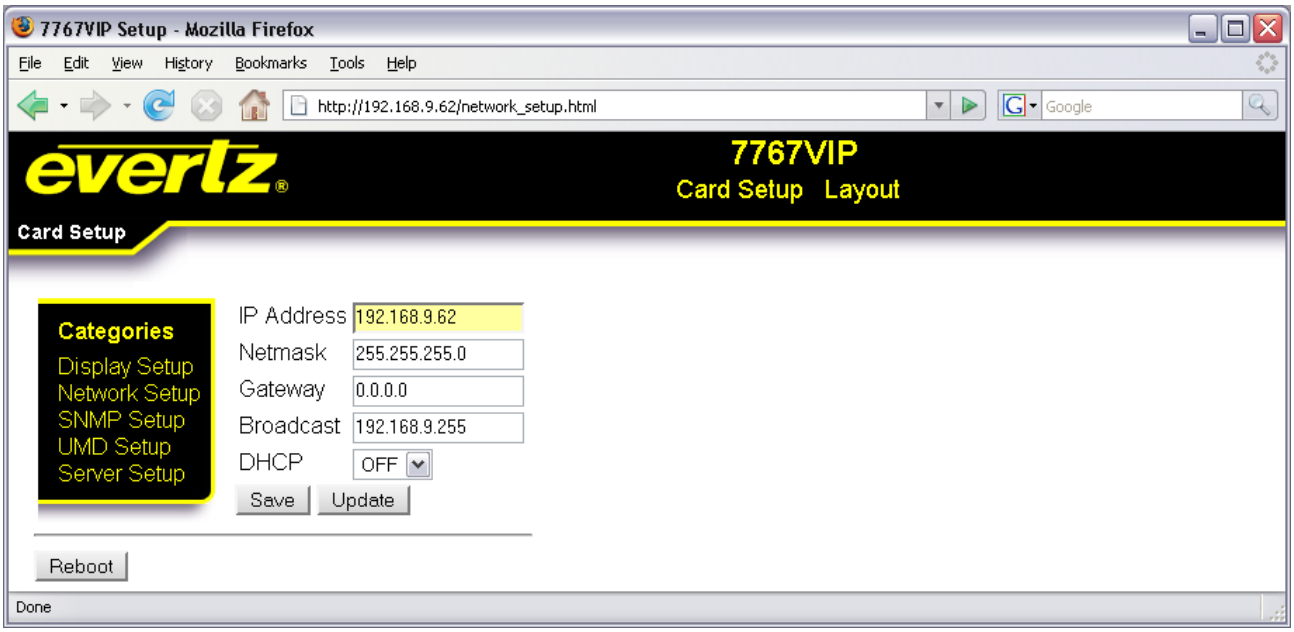

Figure 9-2: Network Setup

9.3.3. Card Setup: SNMP Setup

The SNMP Setup enables the user to configure the SNMP trap destinations for up to five trap destinations that can be supported.

Trap Destination 1 to 5: This parameter enables the user to enter an IP Address for the SNMP server.

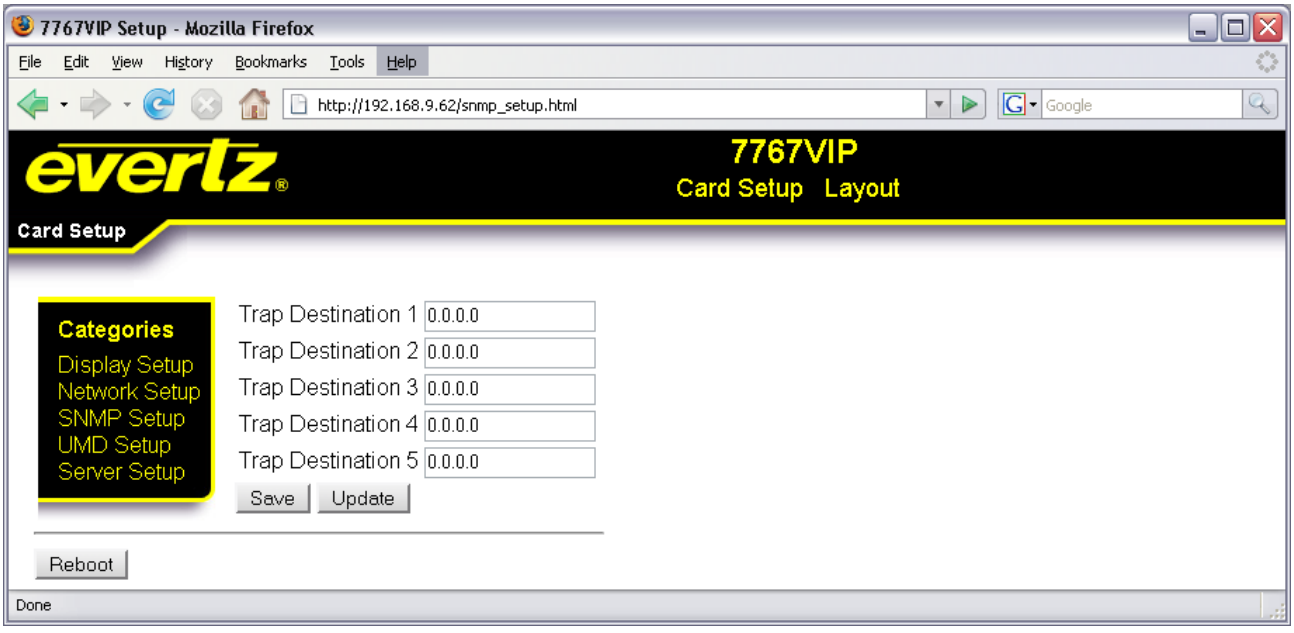

Figure 9-3: SNMP Setup

9.3.4. Card Setup: UMD Setup

The UMD Setup enables the user to configure the UMD protocol for the VIP.

Protocol: This parameter enables the user to select the appropriate UMD protocol. The options include:

- **Image Video:** Supports both Ethernet and serial connections
- **Philips ASCI (VMSI 3000):** Support for Jupiter control system (requires additional configuration files)
- **XY Integrator:** Support for Harris routers (requires additional configuration files)
- **TSL 3.1:** TSL standard protocol, support for both Ethernet and serial
- **TSL 4.0:** TSL advanced protocol, support for both Ethernet and serial
- **ECHO:** Echoes commands in bound on auxiliary serial port to configuration serial port (upgrade port)

Input Type: This parameter enables the user to select the format for the input. The format will be either serial or Ethernet (requires an IP address port to be defined in the next property)

Network Port: This parameter enables the user to set the network port that the protocol device would use to connect to the VIP module, for example 9800.

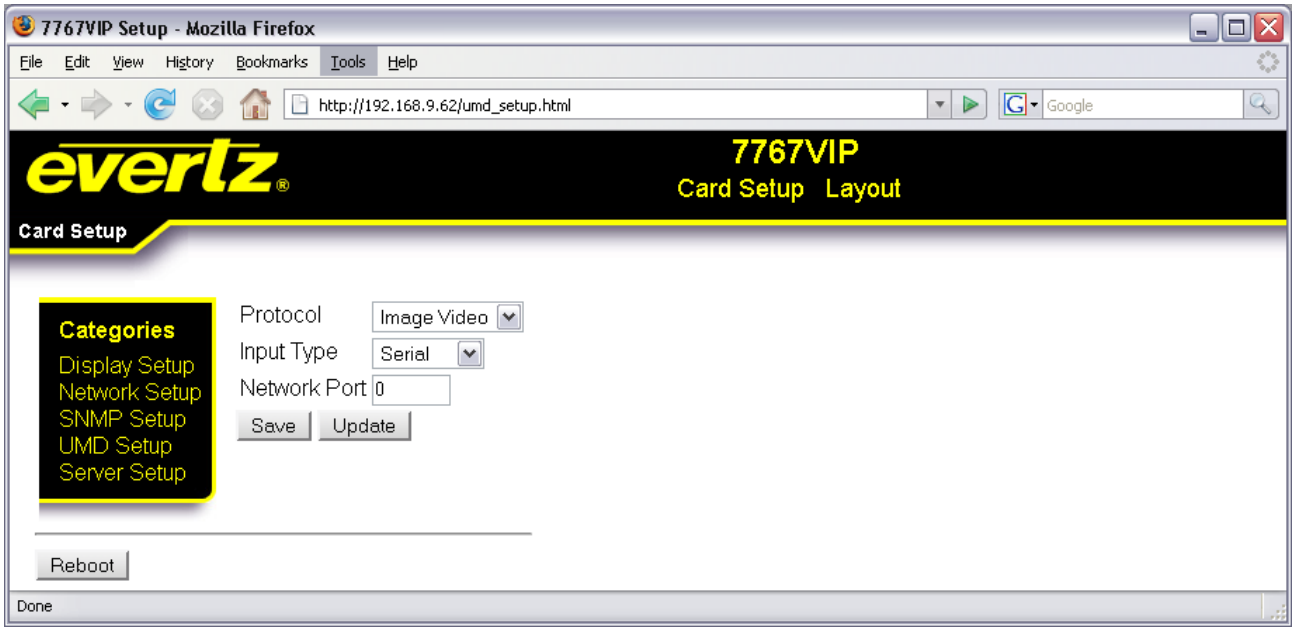

Figure 9-4: UMD Setup

9.3.5. Card Setup: Server Setup

The Server Setup screen enables the user to configure the VIP's server based properties.

Enable Server: This parameter allows the user to enable or disable the VIP's on board server. The default setting is enabled. This setting must be disabled when the VIP is to be used in a larger system where the System Manager is being used to control the VIP.

Enable GPId/VGPId: This parameter allows the user to enable or disable the ability to use GPIs and VGPIs to load layouts and change sources on the VIP.

Enable DCPd: This parameter allows the user to enable or disable the ability to use the 3000DCP desktop control panel with the VIP.

Enable SYMPHd: This parameter allows the user to enable or disable the ability to use Symphony third party protocol to control the VIP.

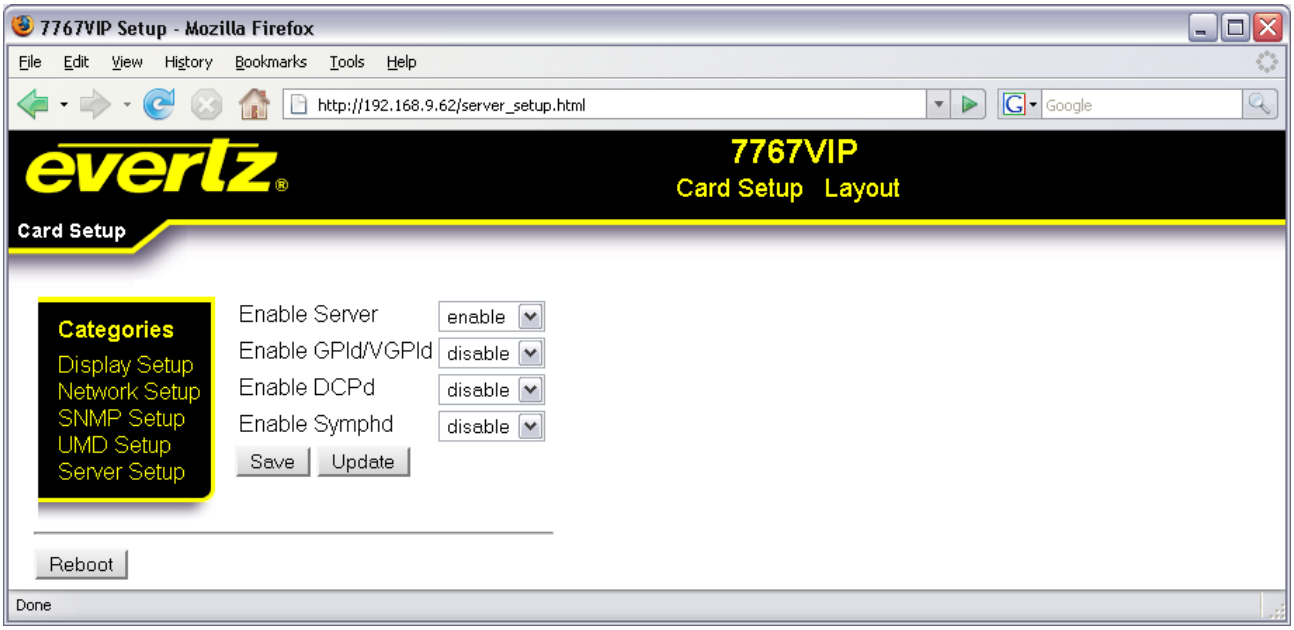

Figure 9-5: Server Setup

9.4. MVP/VIP MAESTRO SOFTWARE

This section describes the MVP/VIP Maestro installation:

Minimum PC Requirements for VIP Maestro:

- Standard Pentium 4 class machine
- 512MB RAM
- 100Mb Ethernet Card, TCP/IP configured
- 8MB Video card
- 1024x768 screen resolution
- Windows NT4, 2000, XP, Server 2003 operating system
- CD-ROM drive

Installation Instructions:

1. Copy the MVP/VIP Maestro Installation software to the PC.
2. Launch the installation by double-clicking the icon.
3. Follow the installation instructions detailed on the pop-up windows of the installer.
4. Upon completion, the desktop will show the “MVP/VIP Maestro” icon.

Please refer to the Maestro manual for information on how to use the software.

10. UPGRADING FIRMWARE

The 7767VIPX8x2 and 7767VIPX16x2 possess firmware that is contained in a FLASH EPROM device. From time to time firmware updates will be provided to add additional features to the unit.

There are two methods of updating the firmware in the 7767VIPX8x2 and 7767VIPX16x2 units: File Transfer Protocol (FTP) and Serial Upload. Due to the large size of the firmware binary file, the FTP method is the preferred method of updating the firmware.

Prior to initiating the upgrade process:

- Confirm the version of code currently installed on the unit by using the front panel display.
- Download the new application code from the Evertz FTP site (www.evertz.com). Unzip the file into a temporary working folder on the PC.

10.1. UPGRADING THE FIRMWARE USING FTP

The user will need the following equipment in order to update the Firmware:

- PC with available communications port and Ethernet network port.
- "Straight-thru" serial extension cable (DB9 female to DB9 male) or (DB25 female to DB9 male).
- Special upgrade cable supplied with the 7700FR-D frame. This multi-coloured ribbon cable with a six pin header socket on one end and a female 9 pin D connector on the other end, (Evertz part number WA-S76) which is normally in the vinyl pouch at the front of the manual binder.
- Appropriate Ethernet cable as outlined in section 5.6.
- Terminal program such as HyperTerminal.
- New firmware supplied by Evertz.

10.1.1. Step 1 – Determine the IP Addresses

Before any FTP (file transfer protocol) upgrades can be initiated, the user must determine the IP address of the 7767VIPX card. Both the PC/laptop and the unit must be on the same subnet for the FTP upgrade to work properly. Follow the procedure outlined in section 9.2.1 to set the IP address for the card.

10.1.2. Step 2 – Establishing a Valid Network Connection

1. Connect a crossover network cable from the PC/laptop to the card.

2. Open a DOS window. This can be accomplished by using the run command under the start button, type "cmd". Please refer to Figure 10-1 for more information.

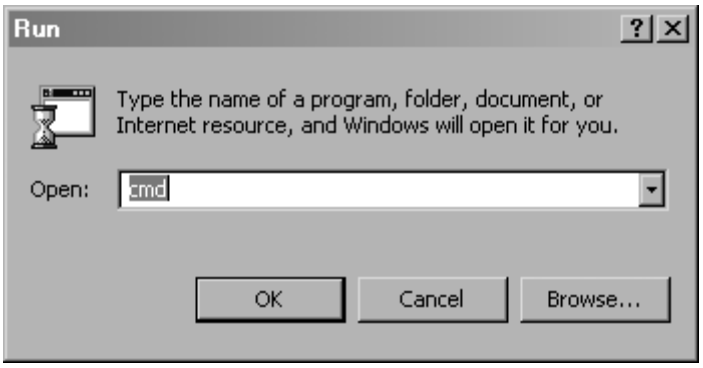

Figure 10-1: Run Window

3. "Ping" the IP address of the module being upgraded to confirm a valid network connection. In the command prompt window type: `ping xxx.xxx.xxx.xxx` (IP address of the module) and press `<Enter>`.

   If a proper network connection has been established, a "reply" is displayed on the DOS window. If there is a faulty network connection, a "Destination Host Unreachable" message is provided. If this occurs, either the IP addresses of the nodes should be verified or the network (Ethernet) cable is faulty. For more information, please see sections 5.6 and 9.2.1 of this manual.

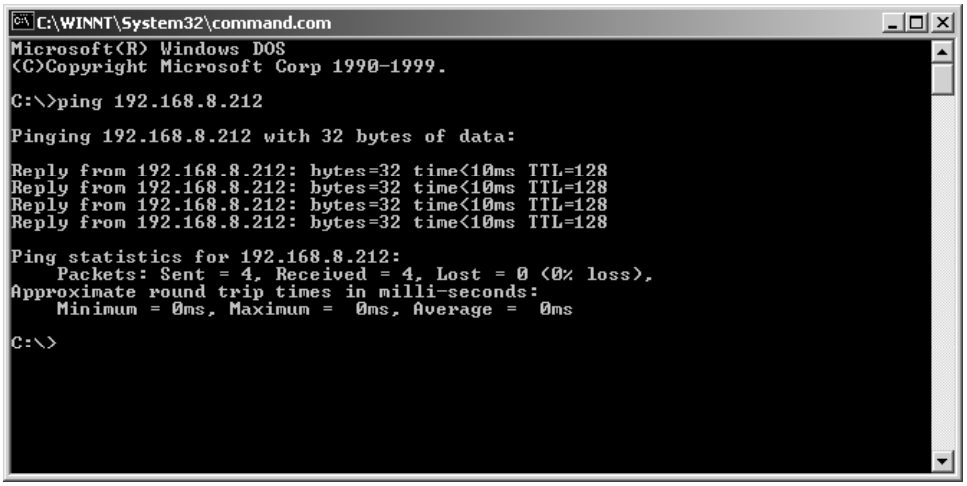

Figure 10-2: Pinging the IP Address

10.1.3. Step 3 – Upgrading the Application Code

4. Obtain the new application code and place it on the local drive of the PC.

5. In the command prompt window type: `ftp xxx.xxx.xxx.xxx` (IP address of the module).

6. Press the <Enter> key when prompted for a "Username".

7. Press the <Enter> key when prompted for a "Password". A message indicating a log in is displayed.

8. At the "FTP>" prompt type `hash` to turn on the progress indicator during the ftp upload.

9. At the "FTP>" prompt type `quote site upgrade` to put the unit in upgrade mode. A message indicating that the user is in upgrade mode is displayed.

10. At the "FTP>" prompt type: `put "the name of the file.bin"` to send the firmware to the unit. (For example: `put 7767VIP_1v0b310.bin`)

11. If the application file is not local to where the user is performing the ftp, then include the path with the name (For example: `put c:\firmware\ 7767VIP_1v0b310.bin`).

During this time it is mandatory that all power cycles of the unit be avoided. Figure 10-3 displays a successful FTP session.

12. A message indicating the successful connection to the module is displayed.

13. File transfer occurs in several seconds, and the DOS window displays the "FTP>" prompt again.

14. At the "FTP>" prompt type `quit` to exit the FTP procedure.

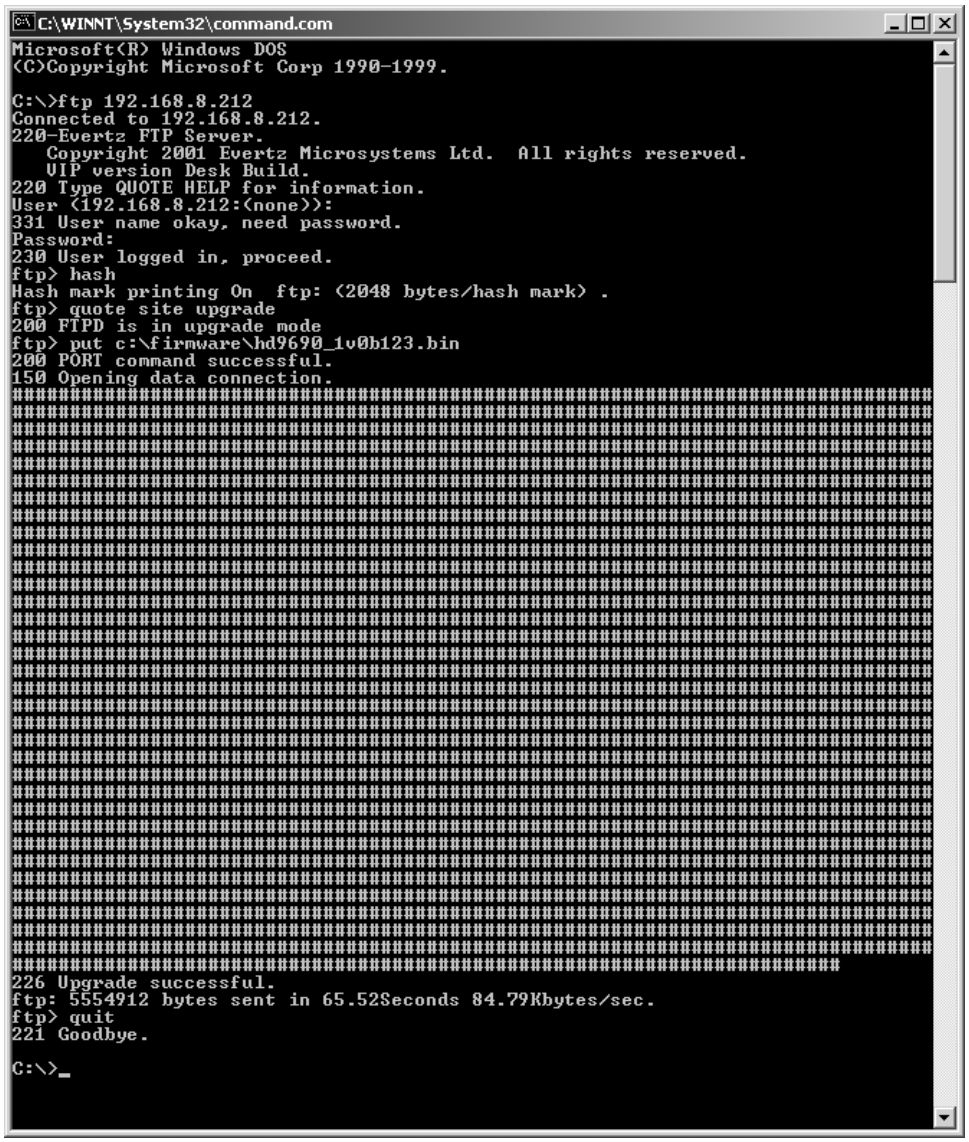

Figure 10-3: Upgrade Window

10.1.4. Step 4 – Completing the Upgrade

15. Disconnect the power to the unit and then plug it back into reboot the unit.

16. The user can now close the DOS window and disconnect the network cable.

10.2. UPGRADING THE FIRMWARE USING RS-232 SERIAL CABLE

This method of upgrading the firmware will take over 15 minutes and is not recommended unless the FTP method fails.

The user will need the following equipment in order to update the Firmware:

- PC with available communications port. The communication speed is 115200 baud, therefore a 486 PC or better with a 16550 UART based communications port is recommended.
- "Straight-thru" serial extension cable (DB9 female to DB9 male) or (DB25 female to DB9 male).
- Special upgrade cable supplied with the 7700FR-D frame. This multi-coloured ribbon cable with a six pin header socket on one end and a female 9 pin D connector on the other end, (Evertz part number WA-S76) is normally in the vinyl pouch at the front of the manual binder.
- Terminal program that is capable of Xmodem file transfer protocol. (Such as HyperTerminal).
- New firmware supplied by Evertz.

10.2.1. Step 1 – Setup

17. Connect the 7700PB Serial Upgrade cable to the 2 row x 3 pin header on the bottom board.

18. Connect the 9 pin connector on the end of the Serial Update cable to the PCs' RS-232 communications port.

19. Start the terminal program.

20. Configure the port settings of the terminal program as follows:

Baud	**115200**
Parity	**no**
Data bits	**8**
Stop bits	**2**
Flow Control	**None**

10.2.2. Step 2 – Invoke Upload Mode from the Terminal Program

21. Power up the VIPX card. After the unit powers up, a banner with the boot code version information should appear in the terminal window. The cursor to the right of the word "BOOT>" should be spinning for about 5 seconds then the unit will continue to boot. While the cursor is spinning press Ctrl-X to abort the boot-up process.

    For example:

```
PPC BOOT>
```

22. The following is a list of possible reasons for failed communications:
    - Defective Serial Upgrade cable.
    - Wrong communications port selected in the terminal program.
    - Improper port settings in the terminal program. (Refer to step 20 for settings).

Note that HyperTerminal will not change port settings while connected. Click on HyperTerminal's "Disconnect" Button then click the "Reconnect" button to activate changes to the port settings.

23. Hit the <ENTER> key on the computer once.

24. Type the word "upload", without quotes, and hit the <ENTER> key once.

25. The user should now see a prompt asking to upload the file.

10.2.3. Step 3 – Uploading the New Firmware

26. Upload the "*.bin" file supplied using the X-Modem transfer protocol of the terminal program. If the user does not start the upload within 10 minutes the unit's Boot code will time out. The user can restart the upgrade process by power cycling the unit.

27. When the transfer is complete (can take up to 15+ minutes) the terminal will return to the PPCBOOT prompt.

    For Example:

```
UPLOAD OKAY
PPC BOOT> |
```

28. The following is a list of possible reasons for a failed upload:
    - If the user receives the message "transfer cancelled by remote" the user must restart the terminal program and load the bin file, then remove and install the module again.
    - The supplied "*.bin" file is corrupt.
    - Wrong file specified to be uploaded.
    - Wrong file transfer protocol used – make sure to specify Xmodem, not Xmodem 1K.
    - The PCs' RS-232 communications port cannot handle a port speed of 57600.
    - Noise induced into the Serial Upgrade cable.

10.2.4. Step 4 – Completing the Upgrade

29. Power cycle the unit. It should proceed through a normal boot up sequence.

30. The user can now close the terminal program and disconnect the RS-232 serial cable from the PC and the unit.

11. SETTING UP PROTOCOLS

Sections 11.1 to 11.4 explain how to set up the following protocols on the VIP system:

- Image Video Protocol
- TSL Protocol
- X-Y Protocol
- ASCII Protocol

Only set up the protocols that are relevant to the system.

11.1. SETTING UP VIPX TO WORK WITH IMAGE VIDEO PROTOCOL

1. Select either RS-422 or RS-232 serial operation by setting jumpers J33 and J34 to one of these two positions on the auxiliary daughter card of the display card.

2. Power up the system.

3. Set up the auxiliary (rear) serial port baud rate to match the router/switcher device.

   This is performed via the upgrade serial port on the front of the card.

4. Select **(5) Auxiliary Serial Port Setup** from the main menu of the terminal program.

   Ensure the settings match those listed below:

```
------------------------------------------------
|          Auxiliary Serial Port Setup          |
|             (7767VIPX8x2 1.0.0)               |
------------------------------------------------
------------------------------------------------
Baud Rate:      115200
Data Bits:           8
Parity:           None
Stop Bits:           2
------------------------------------------------
(1) Set baud rate
(2) Set number of data bits
(3) Set parity
(4) Set number of stop bits

(S) Save and Exit
(X) Exit
>
```

Figure 11-1: Auxiliary Port Setup Menu

5. Select **(4) Under Monitor Display Setup** from the main menu to set up the display card for Image Video protocol operation.

```
-----------------------------------------------
|          Under Monitor Display Setup          |
|              (7767VIPX8x2 1.0.0)              |
 ----------------------------------------------
 ----------------------------------------------
 Protocol:     Image Video
 Input Type:   serial
 ----------------------------------------------
(1) Set protocol

(S) Save and Exit
(X) Exit
>
```

Figure 11-2: Under Monitor Display Setup

6. Wire the serial connection from the router/switcher to the auxiliary serial port of the VIPX.

7. Power-cycle the VIPX frame.

8. Using Maestro, add a UMD to a video object by dragging and dropping it onto the video object.

9. In **Mode Settings > Mode > Function**, select Protocol ID from the drop-down box.

10. Set the Active Protocol ID to match the video mapping defined by the router/switcher.

When the VIPX receives a command from the router/switcher it will now be displayed on the output display.

11.2. SETTING UP VIPX TO WORK WITH TSL PROTOCOL

1. Select RS-422 serial operation by setting jumpers J33 and J34 to this position on the auxiliary daughter card on the display card.

2. Power up the system.

3. Set up the auxiliary (rear) serial port baud rate to match the router/switcher device.

   This is performed via the upgrade serial port on the front of the card.

4. Select **(5) Auxiliary Serial Port Setup** from the main menu of the terminal program.

Ensure the settings match those listed below:

```
-----------------------------------------------
|          Auxiliary Serial Port Setup          |
|              (7767VIPX8x2 1.0.0)              |
 -----------------------------------------------
 -----------------------------------------------
Baud Rate:        38400
Data Bits:        8
Parity:           even
Stop Bits:        1
 -----------------------------------------------
(1) Set baud rate
(2) Set number of data bits
(3) Set parity
(4) Set number of stop bits

(S) Save and Exit
(X) Exit
```

Figure 11-3: Auxiliary Serial Port Settings

5. Select **(4) Under Monitor Display Setup** from the main menu to set up the display card for TSL protocol operation.

Ensure the settings match those listed below:

```
-----------------------------------------------
|          Under Monitor Display Setup          |
|             (3000PPV v1.06 b1248)             |
 -----------------------------------------------
 -----------------------------------------------
 Protocol:     TSL
 Input Type:   serial
 -----------------------------------------------
(1) Set protocol

(S) Save and Exit
(X) Exit
`
```

Figure 11-4: Under Monitor Display Setup Settings

6. Wire the serial connection from the router/switcher via the HD-15 connector.

7. Power-cycle the VIP frame.

8. Using Maestro, add a UMD to a video object by dragging and dropping it onto the video object.

9. Navigate to **Mode Settings** > **Mode** > **Function**, and select **Protocol ID** from the drop-down box.

10. Set the Active Protocol ID to match the video mapping defined by the router/switcher.

When the VIPX receives a command from the router/switcher it will now be displayed on the output display.

11.3. SETTING UP VIPX TO WORK WITH X-Y PROTOCOL

Use the following set of instructions to configure the VIPX to use the X-YI protocol.

11.3.1. Creating the Text Files

1. Create two text files named “router_src.cfg” and “router_dst.cfg”, and save both files to the compact flash card on the display card(s) in the VIPX system.

   Please use the following example to create these two files:

router_src.cfg

# src id	string
0	“name 1”
1	“name 2”
2	“name 3”
3	“name 4”

Figure 11-5: Source ID and String

Example:
Sample `router_src.cfg` file:

```
0 name1
1 name2
2 name3
3 name4
```

router_dst.cfg

# umd protocol id	dst id
0	1
1	2
2	3

Figure 11-6: Sample Text Files

Example:
Sample `router_dst.cfg` file:

```
0 1
1 2
2 3
```

2. FTP both files to the compact flash cards of all display cards in the system:

```
C:\ftp "ip address of display card"
ftp>put router_src.cfg
ftp>put router_dst.cfg
ftp>quit
```

11.3.2. Setting Up the Display Card(s)

1. Select either RS-422 or RS-232 serial operation by setting jumpers J33 and J34 to one of these two positions on the auxiliary daughter card of the display card.

2. Power up the system.

3. Set up the auxiliary (rear) serial port baud rate to match the router/switcher device.

4. This is performed via the upgrade serial port on the front of the card.

5. Select **(5) Auxiliary Serial Port Setup** from the main menu of the terminal program.

Ensure the settings match those listed below:

```
-----------------------------------------------
|          Auxiliary Serial Port Setup          |
|              (7767VIPX8x2 1.0.0)              |
 ----------------------------------------------
 ----------------------------------------------
Baud Rate:        9600
Data Bits:           8
Parity:           None
Stop Bits:           1
 ----------------------------------------------
(1) Set baud rate
(2) Set number of data bits
(3) Set parity
(4) Set number of stop bits

(S) Save and Exit
(X) Exit
>
```

Figure 11-7: Auxiliary Serial Port Setup

6. Select **(4) Under Monitor Display Setup** from the main menu to set up the display card for XY Integrator protocol operation.

```
-----------------------------------------------
|          Under Monitor Display Setup          |
|              (7767VIPX8x2 1.0.0)              |
 ----------------------------------------------
 ----------------------------------------------
 Protocol:     XY Integrator
 Input Type:   serial
 ----------------------------------------------
(1) Set protocol

(S) Save and Exit
(X) Exit
>
```

Figure 11-8: Setting up XY Integrator Protocol Operation

7. Wire the serial connection from the router/switcher to the auxiliary serial port of the VIPX.

8. Power-cycle the VIPX frame.

9. Using Maestro, add a UMD to a video object by dragging and dropping it onto the video object.

10. Navigate to **Mode Settings > Mode > Function**, and select **Protocol ID** from the drop-down box.

11. Set the Active Protocol ID to match the video mapping defined by the router/switcher.

When the VIPX receives a command from the router/switcher it will now be displayed on the output display.

The command that the user expects to see is as follows:

```
S:02,0     = 02:  level 0, destination 2
     = ,1:  source 1
```

Figure 11-9: Command Displayed on the Output Display

Therefore, using the above files as an example – the user will display at UMD protocol ID 1, the text string “name 2”.

11.4. SETTING UP VIPX TO WORK WITH ASCII PROTOCOL

11.4.1. Creating the Text File

1. Create a text file named “router.cfg” and save it to the compact flash on the display card.

Use the following example to setup the file:

# Input id	String
0	Source 0
1	Source 1
2	Source 2
3	Evertz VIP-X

Figure 11-10: Input ID and String

Example:

```
0 Source0
1 Source1
2 Source2
3 Evertz VIP-X
```

2. FTP the file to the compact flash cards of all display cards in the system:

```
C:\ftp “IP address of display card”
ftp>put router.cfg
ftp>quit
```

11.4.2. Setting Up the Display Card(s)

1. Select either RS-422 or RS-232 serial operation by setting jumpers J33 and J34 to one of these two positions on the auxiliary daughter card of the display card.

2. Power up the system.

3. Set up the auxiliary (rear) serial port baud rate to match the router/switcher device.

   This is performed via the upgrade serial port on the front of the card.

4. Select **(5) Auxiliary Serial Port Setup** from the main menu of the terminal program.

   Ensure the settings match those listed below:

```
-----------------------------------------------
|          Auxiliary Serial Port Setup          |
|              (7767VIPX8x2  1.0.0)             |
 ----------------------------------------------
 ----------------------------------------------
Baud Rate:      115200
Data Bits:           8
Parity:            None
Stop Bits:           2
 ----------------------------------------------
(1) Set baud rate
(2) Set number of data bits
(3) Set parity
(4) Set number of stop bits

(S) Save and Exit
(X) Exit
>
```

Figure 11-11: Auxiliary Serial Port Setup Menu

5. Select **(4) Under Monitor Display Setup** from the main menu to set up the display card for ASCII protocol operation.

```
-----------------------------------------------
|          Under Monitor Display Setup          |
|              (7767VIPX8x2  1.0.0)             |
 ----------------------------------------------
 ----------------------------------------------
 Protocol:     Philips ASCII
 Input Type:   serial
 ----------------------------------------------
(1) Set protocol

(S) Save and Exit
(X) Exit
>
```

Figure 11-12: Under Monitor Display Setup Menu

6. Wire the serial connection from the router/switcher to the auxiliary serial port of the VIPX.

7. Power-cycle the VIPX frame.

8. Using Maestro, add a UMD to a video object by dragging and dropping it onto the video object.

9. Navigate to **Mode Settings > Mode > Function**, and select **Protocol ID** from the drop-down box.

10. Set the Active Protocol ID to match the video mapping defined by the router/switcher.

When the VIPX receives a command from the router/switcher it will now be displayed on the output display.

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12. SYSTEM MANAGER SOFTWARE

12.1. INSTALLING SOFTWARE

1. Contact Evertz service for an update on the latest software. System Manager software is only available through a private FTP site.

2. After obtaining the latest software from Evertz, run the software installer by double-clicking on the setup .exe (i.e. MVP-setup-2.5.2.exe)

3. Follow the installer's instructions.

The user *must* install the Maestro software and the System Manager. The System Configuration Tool is not required for the PC-based server install because this is built into the System Manager Utility.

4. After the install is complete, the Maestro and System Manager icons will appear on the desktop.

12.2. CONFIGURING A SYSTEM

The System Manager utility software is used for both configuring and controlling a PC-based system server. To set up a new system and launch the server, follow the instructions below:

1. Double-click the MVP System Manager icon on the desktop.

2. Under the System menu select, "Add System." This will launch the system configuration wizard.

3. Follow the steps in the wizard to define the system that the server will be controlling.

   The wizard will guide the user through the following steps:

   I. Provide a name for the system.
   II. Select if **SNMP**, **GPI**, or **VGPI** preset loading will be used.
   III. Adjust the system properties. (Be sure to carefully read the description for each property).
   IV. Define all of the input and output components in the system, packet routing hardware, and desktop control panels.

Remember to add an IP address for each of the components.

   V. Define the PLINK interconnect for the system. The setup can be visualized using the visualize links button.

4. After set-up is complete, the system should appear on the main page of the System Manager. If changes to the configuration of the system are required, double-click on the system in the main page, or highlight the system and press the **modify system** button.

5. Before proceeding, the PC server must be unlocked.

   To unlock the server, click on the **Server LOCKED** button. Enter the server key provided as shown in Figure 12-1, with dashes "-". After entering the key, the lock symbol will change and the server will be "UNLOCKED".

Figure 12-1: Unlocking the Server

6. To start the system, click on the **Start System** (GO) button.

   The status window (lower pane) of the software will report the connection status of the server to the VIP-X hardware. If there is a problem connecting to any of the hardware, an error message will be displayed here. Use the status tab to view the hardware components' network connection status to the VIP-X server. Please see Figure 12-2.

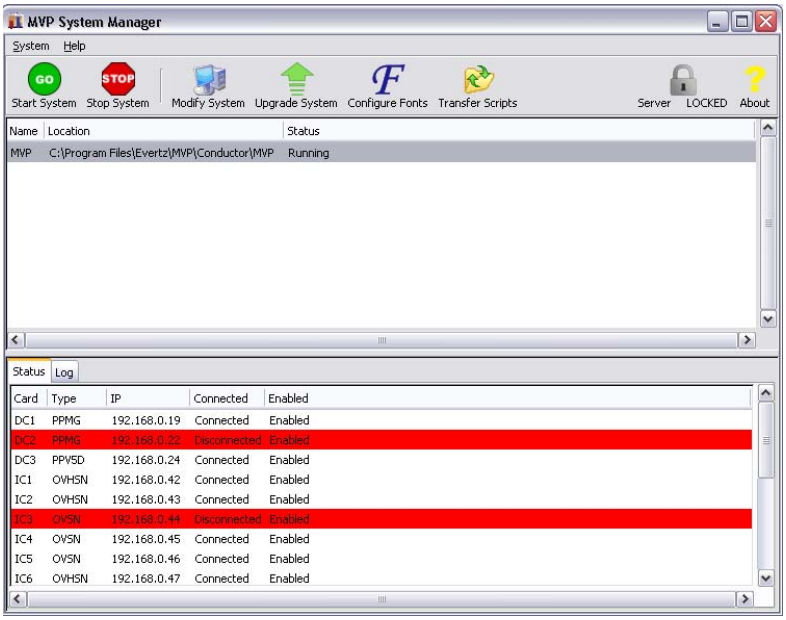

Figure 12-2: System Connection Status Window

7. To stop a server, click the **Stop System** (STOP) button.

8. To exit the System Manager, the user must navigate to the **System** menu and then select **Quit**.

If the user uses the windows "X" button, the program will only *minimize* to the tool tray, not exit.

13. CONFIGURING THE 3000 DCP DESKTOP CONTROL PANEL

Please note that this section assume that the System Configuration Tool (SCT) has already been installed and configured.

13.1. FOR PC – DCP SETUP

1. Press the *Select* and *Setup* buttons on the DCP at the same time to enter the setup menu.

2. Ensure that the DCP has the correct IP address as entered in the Hardware Setup Table.

3. Verify all network settings. Use the arrow buttons and rotary knob to enter network information. Also ensure that the DCP is connected to the same network as the VIP-X, and can be pinged from the PC running the Maestro application.

It may take a few seconds in order for the DCP to connect.

When it does, the dot-matrix display will go from displaying “No Clients Connected” to “Evertz 3000DCP DCPd@ xxx.xxx.xxx.xxx”.

DCP presets are saved using the format “dnn-pnn”, where nn is the display number and preset button number.

Use the Maestro software to save presets as a script (**File** > **Save as script**) using the described format. Maestro will automatically place the preset for the DCP in the correct location.

Example:

d01-p01, assigns the preset to display 1 preset button 1
d01-p12, assigns the preset to display 1 preset button “shift” 2 (12)
d04-p08, assigns the preset to display 4 preset button 8

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14. *VISTA*LINK® REMOTE MONITORING/CONTROL

14.1. WHAT IS *VISTA*LINK®?

*Vista*LINK® 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. *Vista*LINK® 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 *Vista*LINK® 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, *Vista*LINK® 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.

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15. APPENDIX A: DIN SPECIFICATIONS

Evertz DIN1.0/2.3 Connector Details

As I/O density increases and size decreases today's broadcast manufactures are constantly looking for ways to find a happy medium between these two diametrically opposed concepts. One simple way is to move away from standard 75Ω BNC connectors and to begin using some smaller form factor 75 Ω connector. Recent developments from connector manufactures has resulted in the availability of a new type of connector quickly becoming popular to meet exactly this need. The connector is referred to as a DIN type connector. Sometimes mistakenly referred to as MiniDIN, Mini BNC or SMA connectors DIN type 75 Ω connectors are becoming very popular both due to their high performance capability, easily supporting 3G applications, their obvious high density, and the fact that the connector offers a positive locking style connector instead of BNC's compression style fit. Evertz's next generation of smaller high density applications must not only work well in terms of performance and signal quality. They must also support 3Gb/s signals, work well in difficult physical environments such as Trucks and OB vans. That is why for applications requiring a connector with a higher density than that of BNC while offering 3Gb/s performance and a positive lock onto their mating jack Evertz has chosen to use the DIN connector.

The particular connector chosen is the DIN1.0/2.3 connector. This connector, originally established as a 50 Ω connector for the telecommunications industry, has been redesigned as a 75 Ω connector for the broadcast industry. The connectors are typically rated to 3.7-4Gb/s data rates (a 4Gb/s capable connector might be referred to as a 2GHz connector) and support typical mini hi-res cable or standard HD/3G cable depending on the connector.

For small diameter cable, Belden 1855A is the cable Evertz uses as a reference, but of course any cable with appropriately matching specifications to that of Belden 1855A cable will work. When choosing a different cable take care to compare the AWG/diameter of the center conductor, the OD (outside diameter) of the outer shield, and the OD of the jacket (total cable OD), as the measurements that should be carefully matched to ensure the cable will properly perform with the DIN1.0/2.3 connectors that support this size cable. Information on 1855A style connector is included below.

For large diameter cable, Belden 1694A is the cable Evertz uses as a reference but of course any cable with appropriately matching specifications to that of Belden 1694A cable will work. Information on 1694A style connectors is included below. There are several other types of connectors available from different manufacturers, which meet the DIN1.0/2.3 specification, and these connectors will work too. We offer this information on 3rd party connectors as a result of empirical anecdotal testing and not as an endorsement of one vendor over another. Please contact Evertz for further support and information regarding DIN Specifications.

ITT Cannon DIN1.0/2.3 Connector details

The Cannon 75 _ 1.0/2.3 connector series are widely used in applications requiring a high density solution and have become a standard in telecommunications in many parts of the world. Designed to meet the requirements of DIN 47247 and CECC 22230, these connectors feature a push/pull coupling mechanism to ensure mating integrity and a snap-on interface for ease of connection. Due to their small size these connectors can be densely packed while providing significant space savings over other 75Ω connector products.

Connectors and Tooling are available from ITT Cannon or your local ITT Cannon distributor. Additional information can be found at ITT Cannon's website: www.ittcannon.com under: products, RF75, 1.0/2.3

Electrical	
Impedance	75 Ω nominal
Frequency Range	With 75 Ω connector on 75 Ω cable = 0 -2 GHz
Voltage Rating	At Sea Level = 250 Vrms
Insulation Resistance	1000 M Ω minimum
Contact Resistance	Inner contact = 6 m Ω typical maximum Outer contact = 2.5 m Ω maximum
With 75 connector on 75 Ω cable and F=1GHz	0.1 maximum
Mechanical	
Withdrawal Force, inner female contact	0.2 N (0.04 lbs.) minimum
Withdrawal force, outer male contact	0.7 N (0.15 lbs.) minimum
Insertion force between: Jacks & plugs	10 N (2.24 lbs.) maximum
Withdrawal force between: Jacks & plugs	0.9 N (0.20 lbs.) minimum
Materials	Bodies and nuts: Brass
	Inner male contact: Brass of Berylium Copper.
	Inner and outer female contacts: Berylium Copper.
	Insulators: PTFE or Thermoplastics
	Crimp ferrules: Copper alloy
Finish / Plating:	Contact surfaces: Gold over Nickel.
	Bodies and crimp ferrules: Nickel or Gold over Nickel
Environmental	
Temperature Rating	-40 degrees C to 85 degrees C
General	
Connector Durability	500 matings minimum
Standards	CECC 22230, DIN 47297, RC9333 (T54 only)

ITT Cannon DIN1.0/2.3 Assembly Details

ITT

JAYS CLOSE,
VIABLES INDUSTRIAL ESTATE,
BASINGSTOKE. UK.
RG22 4BA

No. BBAI-1269 iss/rev H

ECO/DCN K5861

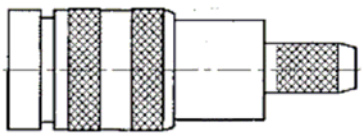
Dimensions in: mm

ASSEMBLY INSTRUCTIONS

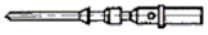
1.0/2.3 Full Crimp\Solder Crimp Straight Plug Connector

IF IN DOUBT ASK

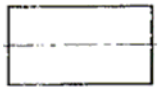
Tools Required: Locator: T4852 Crimp Tool: See Table.



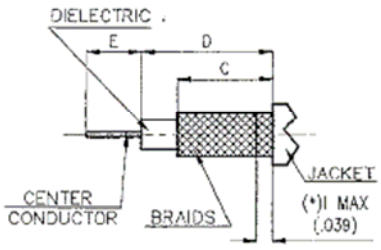
BODY ASSEMBLY



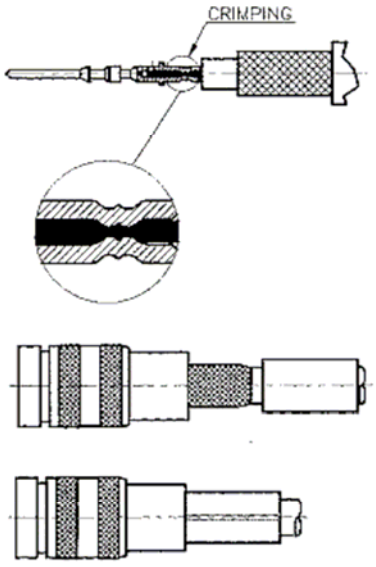
INNER MALE CONTACT



FERRULE



(*) TRIM THE INTERMEDIATE FOIL TO THE INDICATED DIMENSION.



1. Prepar cable to the dimensions shown, being careful not to damage the braid, dielectric, foil or inner conductor.

Stripping Detail	C	D	E
A	6.00(.236)	8.30(.327)	3.50(.138)
B	8.00(.315)	10.50(.413)	3.50(.138)

For cables with a foil under the braid, spread braid and trim back to dimensions shown. Except RA 7000 cable where the foil should be left in place over the dielectric.

2. Crimp contact on to inner conductor using a M22520/2-01 (ITT Cannon part number 995-0001-584) set to the selector number shown in the table below, fitted with positioner T4852. Ensure that the conductor is visible through the inspection hole in the side of the contact. This contact may also be soldered.

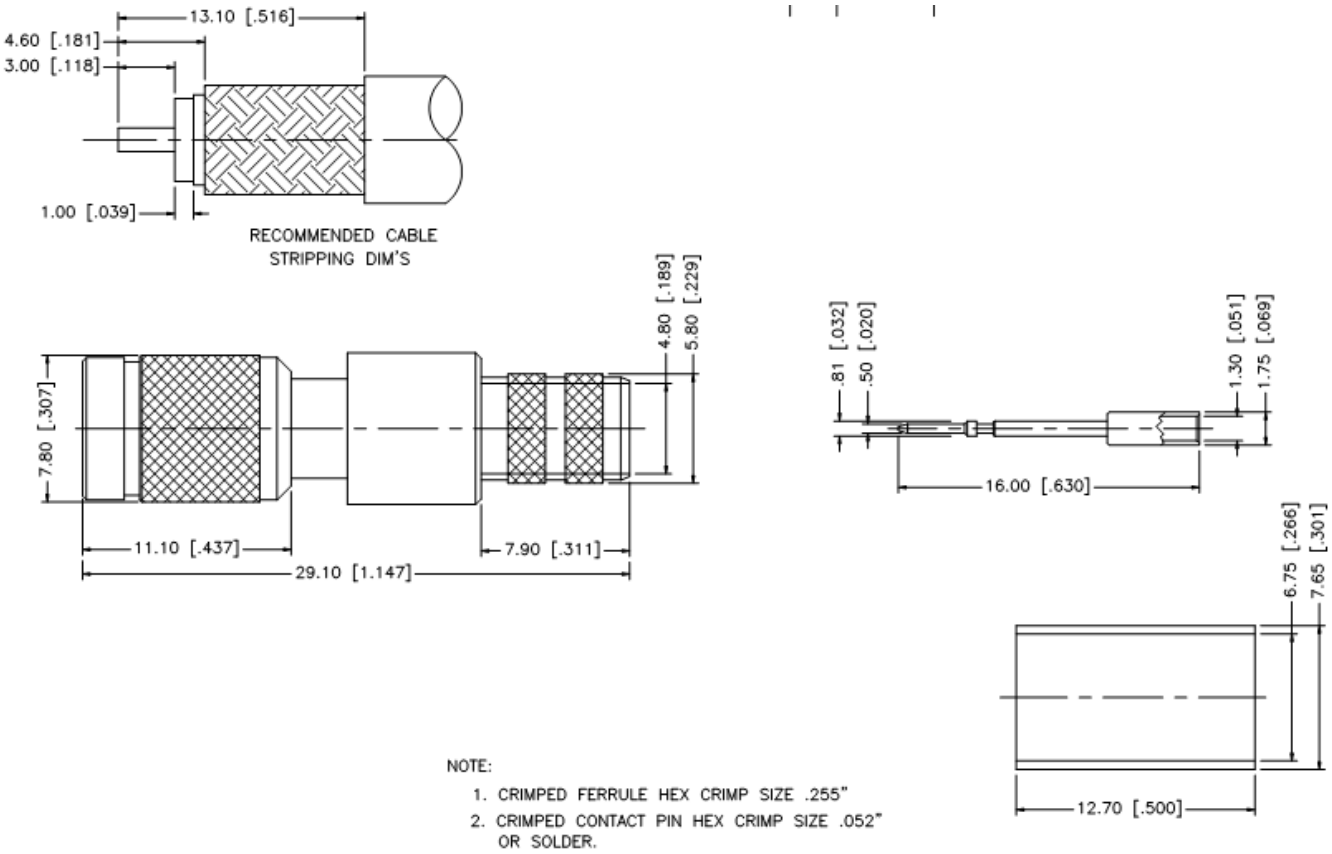
3 Place the crimp ferrule over the cable sheath.

4. Fit the connector body onto the cable/conductor so that the rear body slides between the dielectric and braid (gently twisting and rocking the connector body to spread the braids will help). Push home until a click is felt.

5. Slide the crimp ferrule forward, over the braid until it butts against the rear of the connector. Crimp using ITT Cannon crimp tool T1025/- fitted with a suitable die set (see table).

Cable Type	Stripping Detail	Selector Setting	Die Size	Die Part Number
A (0.4/2.4)	B	3	5.4 (.213)	K29265
B (0.25/1.45)	A	3	3.25 (.128)	K29263
BT3002	A	3	4.3 (.170)	T1025/36
FLEX 2	A	3	3.25 (.128)	K29263
RA7000	B	4	5.18 (.204)	T1025/6
RA8000	A	3	3.25 (.128)	K29263
RD179	A	3	3.84 (.151)	T1025/9
RG179	A	3	3.25 (.128)	K29263
ST212	A	3	3.8 (.151)	T1025/9
TZC75005	B	4	6.5 (.255)	T1025/11
1855A	B	4	5.4 (.213)	K29265

Evertz OEM DIN1.0/2.3 Connector details (CRIMP/CRIMP) for 1694A Assembly Details



White Sands DIN1.0/2.3 Connector details (1 piece CRIMP) for 1855A

SPECIFICATIONS

Impedance	75 Ohm
Frequency Range	DC – 3.0 GHz (dependent upon cable limitations)
Insertion Loss	<0.1dB @ 1 GHz
Cable Retention Force	> 40 lbs.
Center pin retention	> 150 grams
Mating style	Positive locking
Current Rating	2 Amps
Working Voltage	< 300 vrms
Center Conductor Contact & plating	Phosphor Bronze with Gold Plate
Body Material	Brass
Body Plating	Nickel
RFI	> 85dB

White Sands Engineering's 1.0/2.3FP plug features a fixed pin, one-piece design which can be installed quickly and reliably in the field. It is compatible with our YR46940 mini RG59 precision video cables as well as Belden 1855A, Gepco VDM230, Commscope 7538B, Coleman 99401. White Sands can provide connectors and tools, or cable assembles terminated with 1.0/2.3FP or other connectors as needed.

For more information on the 1.0/2.3FP and our entire line of fixed pin, one-piece connectors for mini RG59, visit our website at www.whitesandsengineering.com.

White Sands DIN1.0/2.3 Connector details (1 piece CRIMP) for 1855A Assembly Details

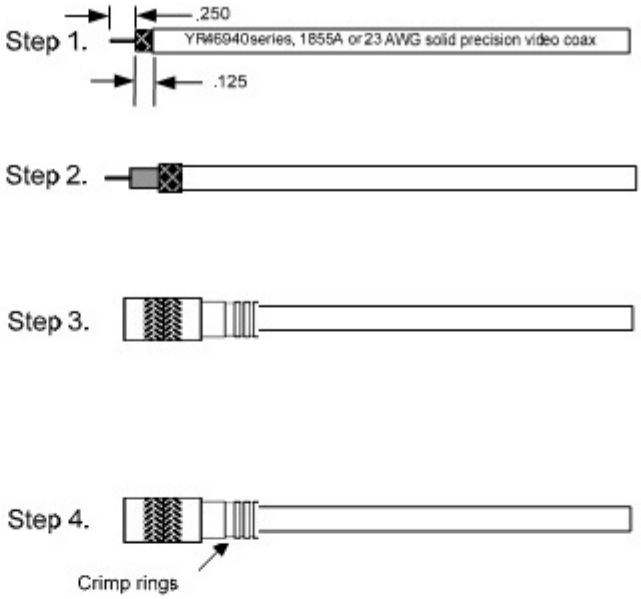
STEP 1: Use CPT7538125 tool to strip cable to proper dimensions as shown. Make sure there is no braid wrapped around the center conductor creating a short.

STEP 2: Fold Braid back over jacket. Leave foil on dielectric, ensuring foil is smooth all around dielectric.

STEP 3: Insert the center conductor and dielectric with foil into the center diameter of connector. Push connector onto the cable while rotating the connector ½ a turn. Ensure cable is inserted completely into the connector with no braid visible behind the connector.

Note - Continuity test cable before crimping to ensure a good connection.

STEP 4: Crimp one time on all 3 rings of the connector where shown using the .213 die on the ACT483 crimp tool.



The positive locking mechanism in this connector ensures secure mating that will not be affected by vibration or accidental tugs on the cable. Connectors can only be unmated from high density panels using the 1.0REMTOOL.

1.0/2.3FP CABLE ASSEMBLY TOOLS

CPT7538125 Strip tool, 1/4" x 1/8" for mini RG59 cable

ACT483 Crimp tool, .270" and .213" hex dies for mini RG59 connectors

1.0REMTOOL Removal tool for 1.0/2.3FP connectors