7800DA8-12G

12G/3G/HD/SD 1x8 Reclocking Distribution Amplifier
User Manual

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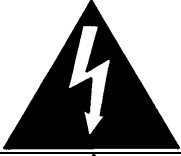
Version 1.0, May 2019

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IMPORTANT SAFETY INSTRUCTIONS

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

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

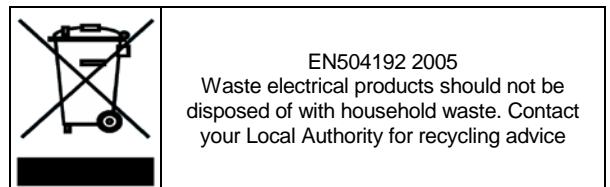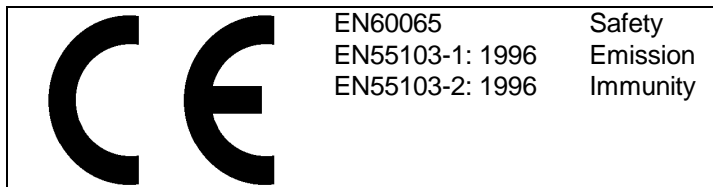|	
!	**WARNING:** **TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS ARE PLACED ON THE EQUIPMENT**
!	**WARNING:** **THIS EQUIPMENT USES POWER/MAINS CONNECTORS FITTED WITH SAFETY GROUND PINS. TO REDUCE THE RISK OF ELECTRIC SHOCK, GROUNDING OF THE GROUND PIN OF THE MAINS PLUG MUST BE MAINTAINED. IN ADDITION GROUNDING OF GROUND TERMINAL ON THE MAIN EQUIPMENT CHASSIS MUST BE MAINTAINED.**

INFORMATION TO USERS IN EUROPE

NOTE

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

Compliance with these directives implies conformity to the following European standards:
- EN60065   Product Safety
- EN55103-1   Electromagnetic Interference Class A (Emission)
- EN55103-2   Electromagnetic Susceptibility (Immunity)

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

$C\epsilon$	EN60065 Safety EN55103-1: 1996 Emission EN55103-2: 1996 Immunity

	EN504192 2005 Waste electrical products should not be disposed of with household waste. Contact your Local Authority for recycling advice

INFORMATION TO USERS IN THE U.S.A.

NOTE

FCC CLASS A DIGITAL DEVICE OR PERIPHERAL

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

WARNING

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

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

Evertz Microsystems Ltd **FC** For Home or Office Use	Tested to comply with FCC Standards	This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: This device may cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation.

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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	First Release	May 2019

Information contained in this manual is believed to be accurate and reliable. However, Evertz assumes no responsibility for the use thereof nor for the rights of third parties, which may be affected in any way by the use thereof. Any representations in this document concerning performance of Evertz products are for informational use only and are not warranties of future performance, either expressed or implied. The only warranty offered by Evertz in relation to this product is the Evertz standard limited warranty, stated in the sales contract or order confirmation form.

Although every attempt has been made to accurately describe the features, installation and operation of this product in this manual, no warranty is granted nor liability assumed in relation to any errors or omissions unless specifically undertaken in the Evertz sales contract or order confirmation. Information contained in this manual is periodically updated and changes will be incorporated into subsequent editions. If you encounter an error, please notify Evertz Customer Service department. Evertz reserves the right, without notice or liability, to make changes in equipment design or specifications.

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1. OVERVIEW

The 7800DA8-12G is a 1x8 distribution amplifier for a wide range of signal rates, including the most current 12G standard. Inputs are automatically equalized and eight isolated, re-clocked outputs are provided. Full remote monitoring and control of important parameters is provided with SNMP/VistaLINK.

Features & Benefits

- ➢ Automatic input equalization
- ➢ Automatic Reclocking
- ➢ VistaLINK® capable for remote monitoring, control and configuration capabilities via SNMP using VistaLINK® PRO, CP-2116E or CP-2232E Control Panels. VistaLINK® is available when modules are used with the 7800FR or 7801FR with 7800/7801FC frame controller installed.

Standards Supported

- • SMPTE ST 2082/1
- • SMPTE ST 424M
- • SMPTE ST 344M
- • SMPTE ST 292M
- • SMPTE ST 259M

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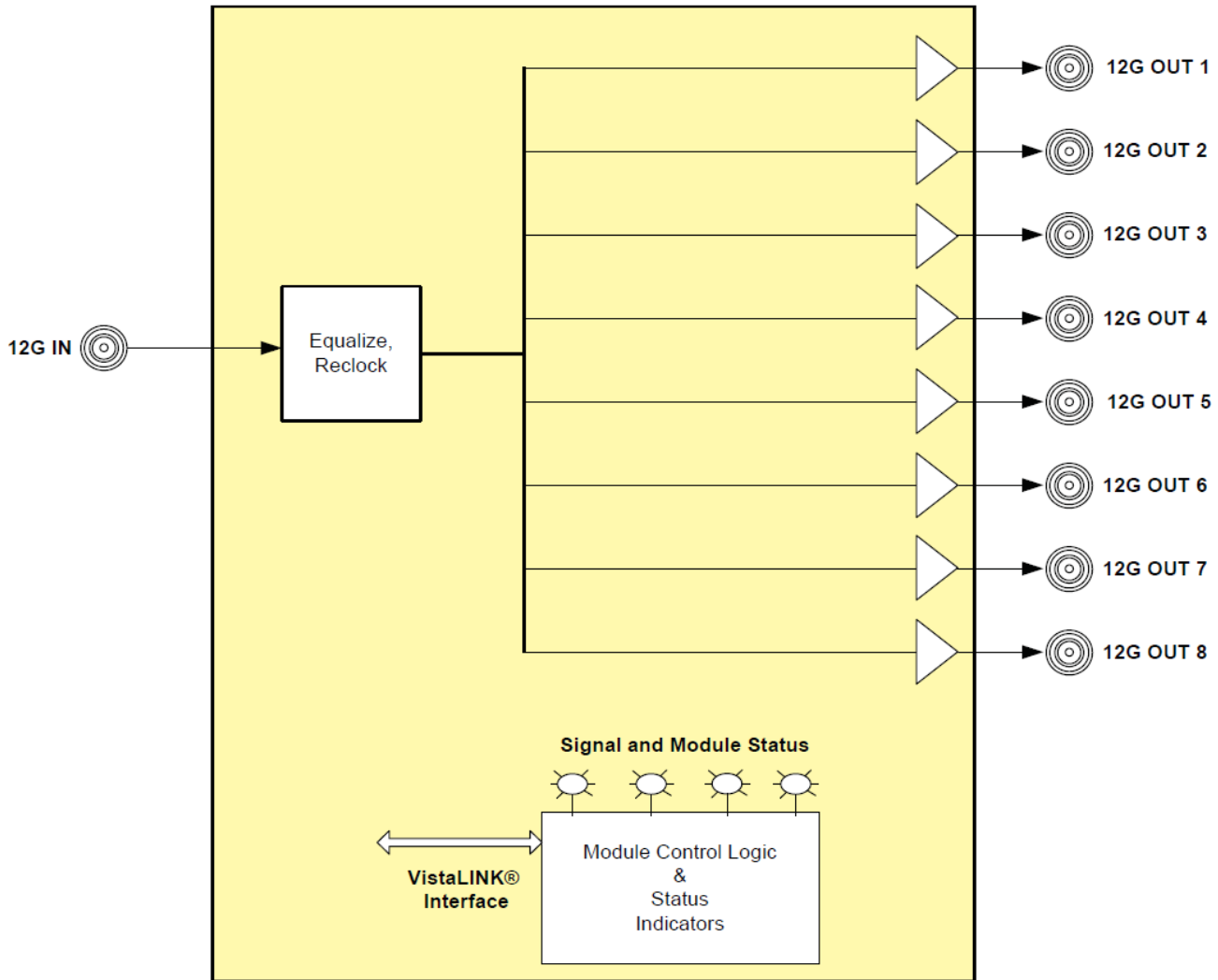
Figure 1-1 : 7800DA8-12G Block Diagram

Ordering Information

7800DA8-12G   12G/3G/HD/SD 1X8 Reclocking Distribution Amplifier

Rear Plate Suffix

+3RU   3RU Rear Plate

Enclosures

7800FR   3RU Multiframe which holds up to 15 single slot modules

7800FR-QT   3RU Multiframe which holds up to 15 single slot modules, low noise

7801FR   1RU Multiframe which holds up to 4 single slot modules or two dual slot modules

2. INSTALLATION

The 7800DA8-12G comes with a companion rear plate that occupies one slot in the frame. For information on inserting the module into the frame see section 3 of the 7800FR manual.
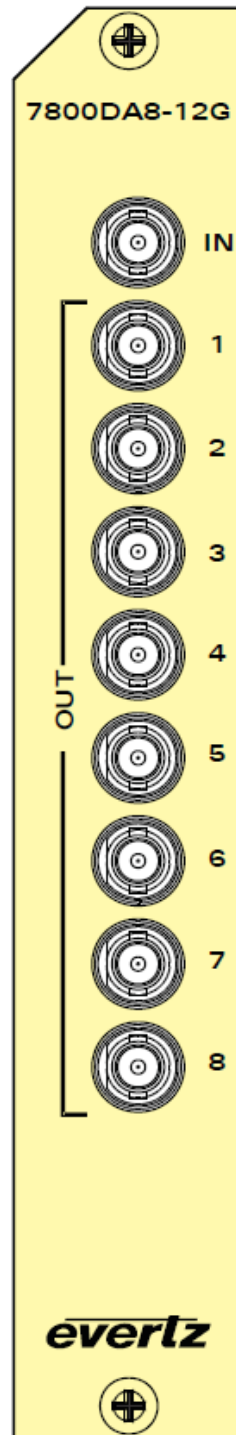
Figure 2-1 : 7800DA8-12G Rear Panel

IN:　　　　　　　　Input BNC connector for 10-bit serial digital video signals compatible with the SMPTE 424M, SMPTE 292M, and SMPTE 259M standard. See section 5.2 for information on selecting the correct video standard.

OUT:　　　　　　　There are eight BNC connectors with reclocked serial component video outputs, compatible with the SMPTE 424M, SMPTE 292M, and SMPTE 259M and non reclocked SMPTE 344M (540Mb/s), and SMPTE 259 (360Mb/s, 143Mb/s).

3. SPECIFICATIONS

3.1 SERIAL VIDEO INPUT

Standards

Reclocked Mode:	SMPTE 2082 (12Gb/s)
	SMPTE 424M (3Gb/s)
	SMPTE 292M (1.5Gbs)
	SMPTE 259M (270Mb/s)
Non reclocked Mode:	SMPTE 344M (540Mb/s)
	SMPTE 259M (360Mb/s, 143 Mb/s)
Connector:	BNC per IEC 61169-8 Annex A

Equalization	Automatic to 80m @ 3Gb/s, 140m @ 1.5Gb/s & 350m @ 270 Mb/s
Return Loss	> 15dB up to 1.5Gb/s
	> 10dB up to 3Gb/s

3.2 SERIAL VIDEO OUTPUTS

Number of Outputs	8 Reclocked
Connector	BNC per IEC 61169-8 Annex A
Signal Level	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time	150ps @ 3g/HD, 470ps SD
Wide Band Jitter:	< 0.2 UI

3.3 ELECTRICAL

Voltage	+12V DC
Power	5 Watts
EMI/RFI	Complies with FCC Part 15, Class A devices
	Complies with EU EMC Directive

3.4 PHYSICAL

Number of slots	1

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4. STATUS LEDS

The 7800DA8-12G has six LED Status indicators on the front card edge to show operational status of the card at a glance. Figure 5-1 shows the location of the LEDs.

Two large LEDs on the front of the board indicate the general health of the module.

LOCAL FAULT: This Red LED indicates poor module health and will be On during the absence of a valid input signal or if a local input power fault exists (i.e. a blown fuse). The LOCAL FAULT indication can also be reported to the frame through the FRAME STATUS jumper.

REMOTE: This LED will come On when the Control jumper J19 is installed in the Remote position.

MODULE OK: This Green LED indicates good module health. It will be On when a valid input signal is present, and board power is good.

RECLOCKER RATE: There are 3 LEDs that indicate the rate (143, 270Mb/s, and 1.5Gb/s) that the reclocker is currently using when the Rate jumper is set to the 259M/344M position.

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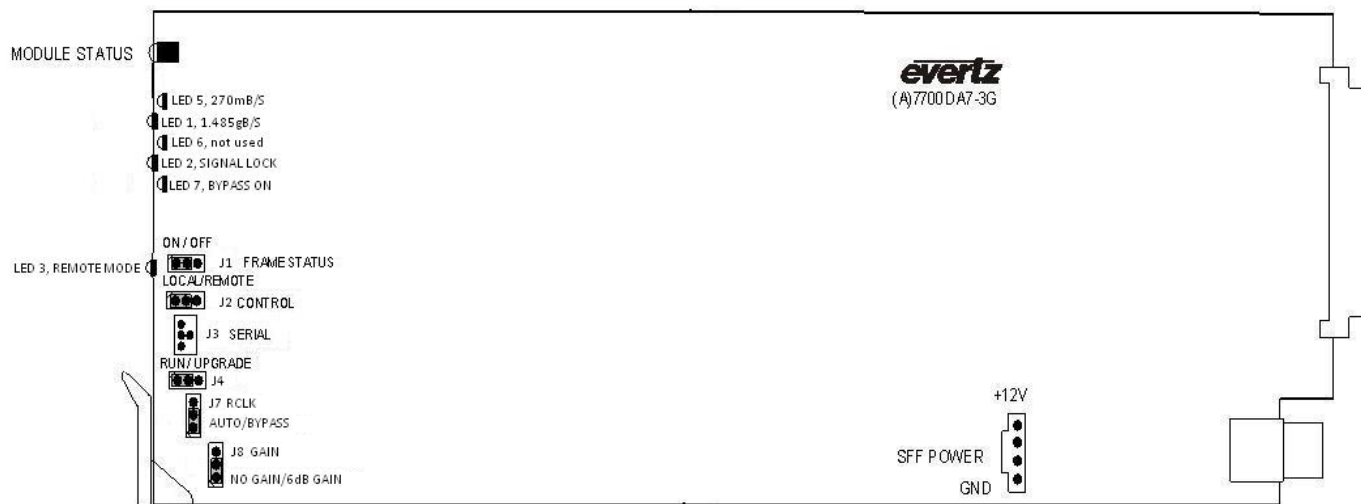
5. JUMPERS AND USER ADJUSTMENTS

Figure 5-1 : LED and Jumper Locations

5.1 SELECTING WHETHER LOCAL FAULTS WILL BE MONITORED BY THE GLOBAL FRAME STATUS

The FRAME STATUS jumper J1, located at the front of the module, determines whether local faults (as shown by the Local Fault indicator) will be connected to the 7700FR frame's global status bus.

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

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

5.2 SELECTING WHETHER MODULE WILL BE CONTROLLED FROM THE LOCAL CONTROLS OR THROUGH THE VISTALINK® INTERFACE

The CONTROL jumper J2 selects whether the module will be controlled from the local jumpers or through the VistaLINK® interface.

CONTROL: When this jumper is installed in the LOCAL position, the card functions are controlled through the local jumpers.

When this jumper is installed in the REMOTE position, the card functions are controlled through the VistaLINK® interface.

5.3   SELECTING THE RECLOCKING RATE

The RCLK jumper J7, located at the front of the module near the card ejector, determines whether the module will operate as a re-clocking distribution amplifier with SMPTE 292M, SMPTE 259M or 344M (143 to 540 Mb/s) or with SMPTE 310M (19.4 Mb/s) signals.

RATE SELECT: **Auto:** Re-clocking mode is set to auto based on sensed input signal.
                   Bypass: Re-clocking mode is bypassed.

5.4   CONFIGURING THE MODULE FOR FIRMWARE UPGRADES

UPGRADE: The UPGRADE jumper J4 located at the front of the module near the card ejector, 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* section in the front of the binder for more information.

To upgrade the firmware in the module unit pull it out of the frame. Move Jumper J4 into the *UPGRADE* position and then install the Upgrade cable provided (located in the vinyl pouch in the front of this manual) onto header J3. Then the module should be re-installed into the frame. Run the upgrade as described in the *Upgrading Firmware* section in the front of the binder. Once the upgrade is complete, remove the module from the frame, move J4 to the *RUN* position, remove the upgrade cable and re-install the module. The module is now ready for normal operation.

6. VISTALINK REMOTE CONTROL/MONITORING

This chapter assumes that the VistaLINK® PRO server and client are already configured for your network and you have basic knowledge of the VistaLINK® PRO interface. It also assumes that the user or network administrator has already added the appropriate jar file to the server, and both the client and server applications have been restarted. If you are the network administrator, refer to section 7 for information on updating the VistaLINK® PRO Server Jar File.

Open VistaLINK® PRO and click on the refresh tree icon. Expand the hardware tree by clicking on the "**+**" button. Your card should appear as a newly listed device under the IP address of the frame controller for the frame that the 7800DA8-12G is installed in.

Consult the network administrator if there is any problem connecting the card with VistaLINK® PRO; alternatively contact Evertz Microsystems Ltd. or the authorized reseller for technical support.

NOTE: When using VistaLINK® PRO it is important to ensure that the most recent 7800DA8-12G ".JAR" control file is installed.

6.1   VISTALINK® PRO INTERFACE

The 7800DA8 series products are controlled using VistaLINK® PRO. VistaLINK® PRO operates using Ethernet and SNMP control protocols. The 7800DA8 series modules do not have card edge controls. As a result, frame controller modules must be installed in all frames that house 7800DA8 modules.

Within VistaLINK® PRO the 7800DA8 series modules have system configuration controls which can be accessed by *right-clicking* on the module in the VistaLINK® PRO hardware tree, and selecting "*View Configuration…".*
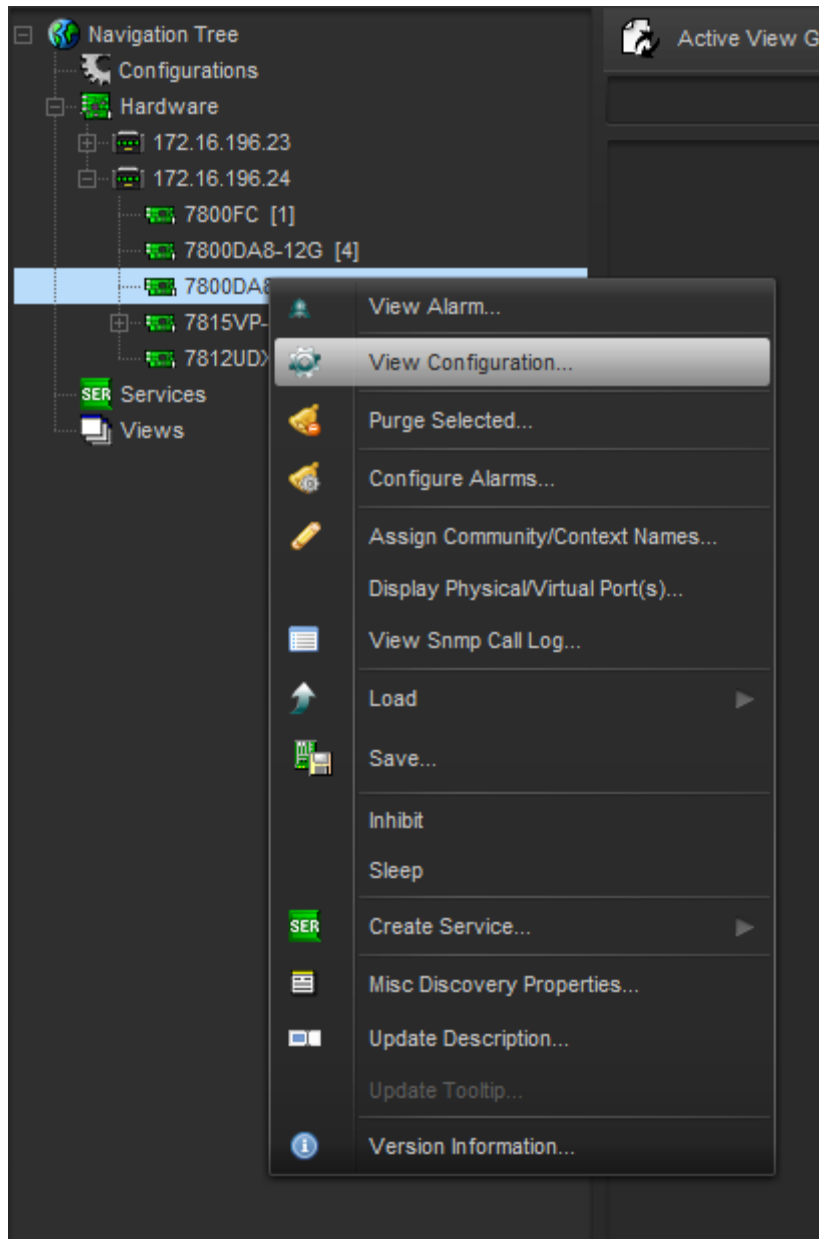
Figure 6-1 : VistaLINK®PRO – View Configuration

By selecting View configuration, the configuration page will be opened (Figure 6-2).
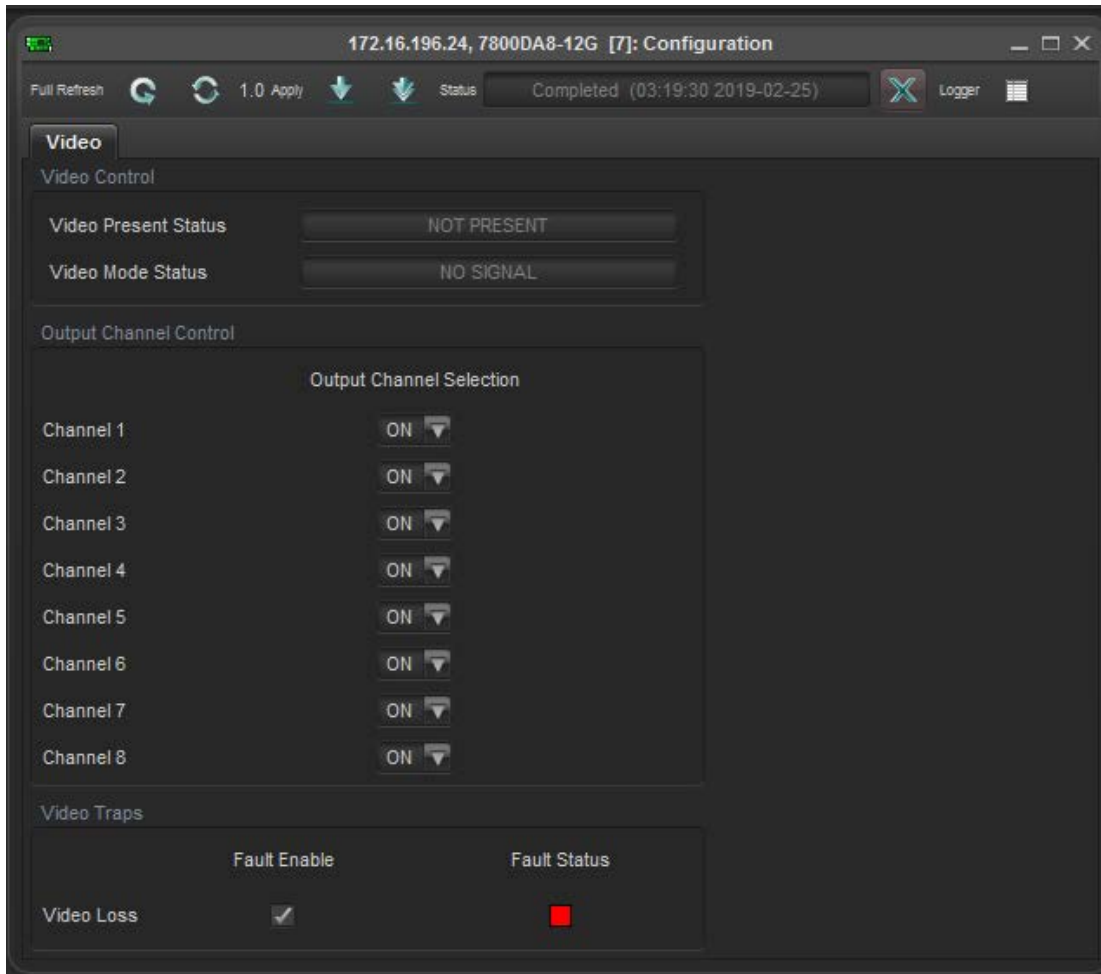
Figure 6-2 : VistaLINK®PRO – 7800DA8-12G Configuration

Video Control

Video Present Status: This parameter indicates if the video is present or not.

Video Mode Status: This parameter indicates video mode status of the card.

Output Channel Control

For Channel 1-8:
This section allows the user to select output channels.

Video Traps

The Fault control allows the user to enable or disable traps and view trap status. To enable a particular trap, simply click the box located beside each trap, so that check-mark appears. When a check-mark is present, the trap is enabled.

The Fault Status displays whether a fault is active or not. If the box is green then the corresponding trap is not active.

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7. UPGRADE PROCEDURES

7.1   UPGRADE FIRMWARE

A firmware upgrade can be accomplished through VistaLINK® PRO firmware upgrade facilities. All 7800DA8-12G modules within the same 7700FR/7800FR frame can be upgraded simultaneously or one-by-one. However, it is more convenient to upgrade them simultaneously.

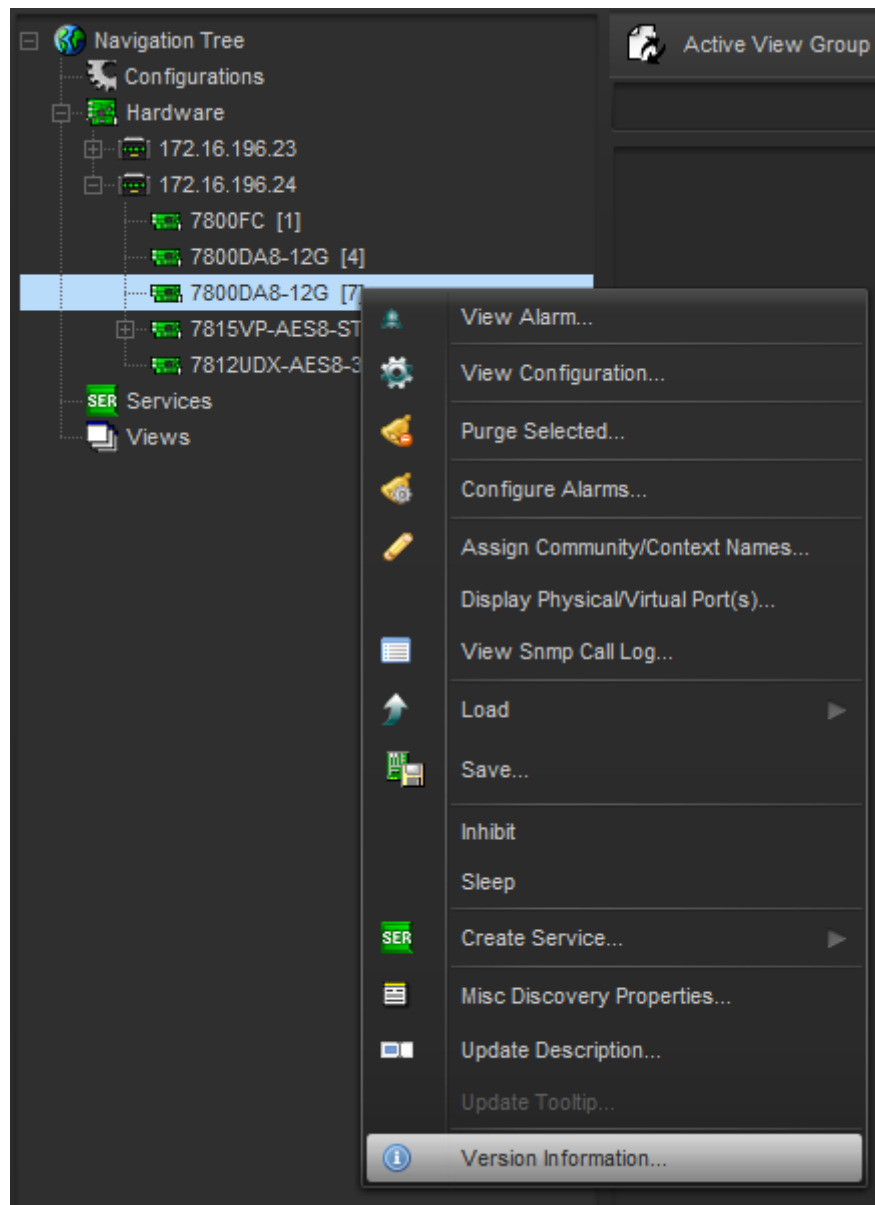Right click on 7700FR/7800FR frame that contains the 7800DA8 modules, and select *Version Information.*

Figure 7-1 : VistaLINK® PRO - Version information selection

Navigate the hardware tree on the left side of the version information window to select the 7800DA8-12G module listed. The list on the right side of the window should populate with all 7800DA8-12G modules present in the 7700FR/7800FR.Take note of the current firmware version installed on the 7800DA8-12G modules to confirm afterwards that the upgrade has completed successfully.
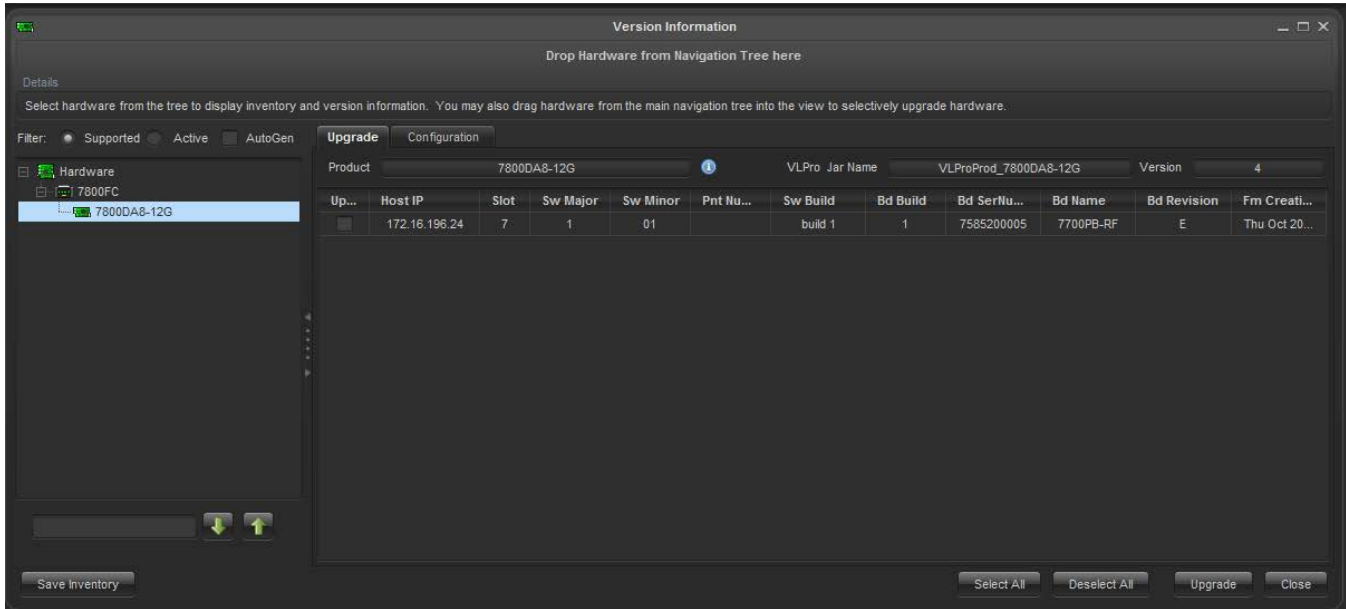

Figure 7-2 : VistaLINK® PRO - Version Information Window

Check the *Upgrade* checkbox for all modules that require the firmware upgrade. Press Upgrade button. This will open a new *Upgrade Firmware* window. Press the Browse button to navigate to the firmware archive provided for upgrading the 7800DA8-12G modules (**File extension is .bin**). Once the correct file has been selected, press the *Start* button to begin the upgrade process.
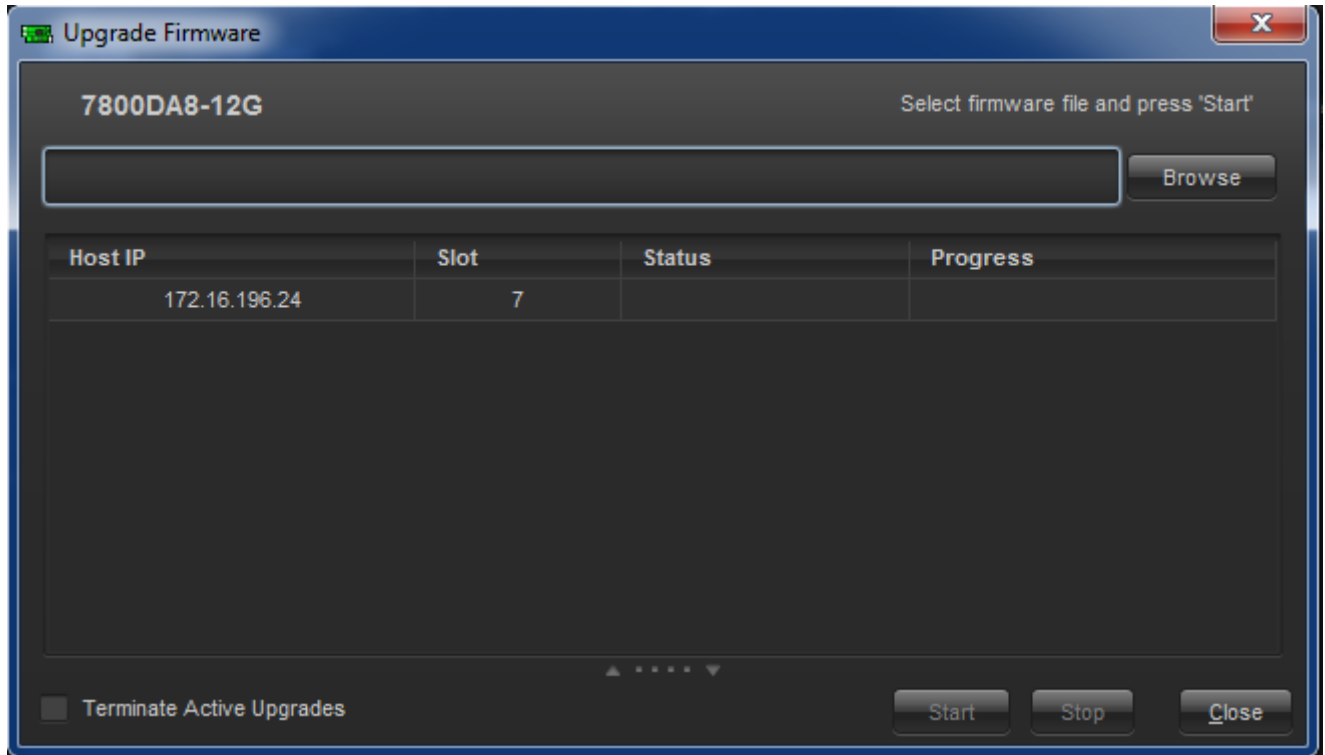
Figure 7-3 : VistaLINK® PRO - Upgrade Firmware Window

After the firmware has been transmitted to the 7800DA8-12G module successfully, the module will reboot to complete the firmware upgrade process. Close the *Upgrade Firmware* window and *Version Information* window.

Once the cards have rebooted, ensure all 7800DA8-12G modules are still present in the VistaLINK® PRO hardware tree. Right click on 7700FR/7800FR frame that contains the 7800DA8-12G modules and select *Version Information*. Navigate the hardware tree on the left side of the version information window to select the 7800DA8-12G module listed. The list on the right side of the window should populate with all 7800DA8-12G modules present in the 7700FR/7800FR.

> **NOTE:** If any of the 7800DA8-12G modules do not properly upgrade the firmware, please power-cycle those boards and retry the procedure exclusively on the failed boards. If the issue still persists, contact Evertz for further assistance.

7.2   UPDATING VLPRO SERVER JAR FILE

Products from Evertz are constantly evolving and new features are often added. It is therefore important to update the JAR files in use to provide access to all the latest features or enhancement. It is also necessary to add JAR files for new products.

To perform a JAR update, ensure that all VLPro clients are closed (those clients which are not closed will automatically be disconnected as soon as the VLPro server is restarted).

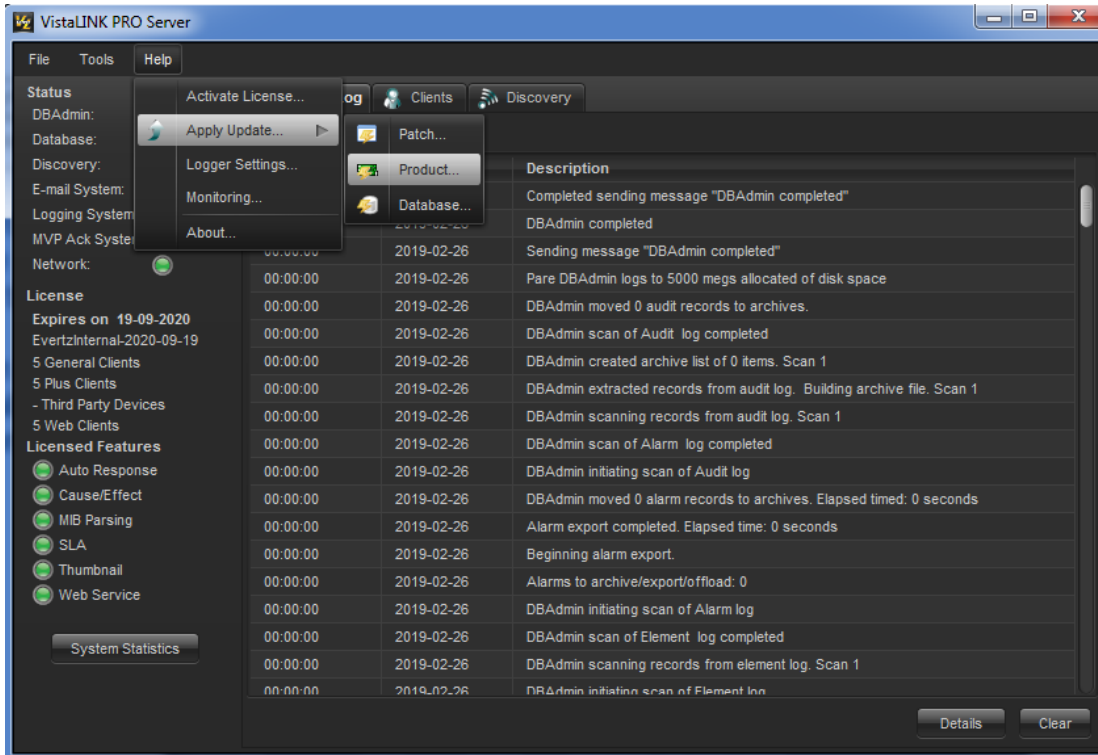Select *Help>Apply Update>Product* from the menu.

Figure 7-4 : VistaLINK® PRO Server - Apply Update

A window will appear as is shown in Figure 7-5. Navigate to the location of the new JAR file and double click to select the file. The window will automatically close and the update will be applied in the background.
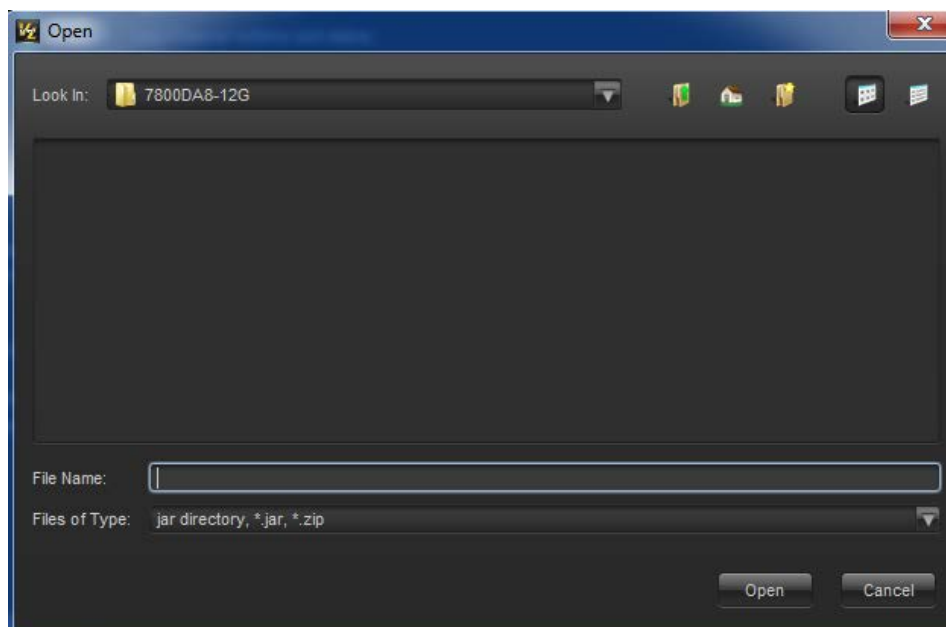

Figure 7-5 : VistaLINK® PRO Server – Applying JAR Updates

The user will be prompted to restart the server to enable the change to take effect. Apply as many JAR updates as required before restarting the server.

> **NOTE:** It can be confirmed that all updates have been successfully applied by selecting from the menu *Tools>View>Show/Hide Product* update log.

Shutdown the server by selecting from the menu: *File>Shutdown Server*. Now re-open the server, it is normal for the start up to take marginally longer while each individual update is being applied. Once complete, you may restart the VLPro Clients. As the Client restarts, a short delay may happen while the update is applied. A prompt will appear confirming that the updates have been applied.

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