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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Original Version	Apr 2009
2.0	Updated for rev 2 hardware, added input 2 locked LED and corrected jumper labels	Jan 2011

1. OVERVIEW

The 500DA2Q-3G Dual 3G/HD/SD-SDI Reclocking Distribution Amplifier provides the highest density DA in the industry allowing up to 32-3Gb/s, HD-SDI or SD-SDI Distribution amplifiers in a 3RU rack space. This module provides inexpensive distribution of your SMPTE 424M (3Gb/s), SMPTE 292M (1.5Gb/s), SMPTE 259M (270Mb/s), DVB-ASI or SMPTE 310M (19.4Mb/s) or any other SDI signal within the 143Mb/s to 1.5Gb/s range.

The 500DA2Q-3G features two auto-equalized inputs and can be individually set via jumpers for either reclocking or non-reclocking.

The 500DA2Q-3G is housed in the 500FR exponent frame that will hold up to 16 modules.

Features:
- Normal reclocked mode for SMPTE 424M (3Gb/s), SMPTE 292M (1.5Gb/s) and SMPTE 259M (270Mb/s)
- Jumper selectable non-reclocked mode for all other SMPTE 344M, SMPTE 259M, SMPTE 310M and DVB-ASI data rates
- Fully hot-swappable from front of frame with no BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)
- Outputs maintain polarity from input to output for DVB-ASI applications
- Tally output on Frame Status bus upon loss of input signal for quality monitoring
- VistaLINK®-capable for remote monitoring via SNMP (using VistaLINK®PRO) when installed in 500FR frame with 500FC VistaLINK®Frame Controller

Input:
- 2 inputs
- SMPTE 424M (3Gb/s), SMPTE 292M (1.5Gb/s), SMPTE 259M (270Mb/s) when set to re-clocking mode.
- SMPTE 344M (540Mb/s), SMPTE 259 (360Mb/s, 143Mb/s), SMPTE 310M (19.4Mb/s), DVB-ASI when not re-clocking
- Return Loss > 15dB to 1.5GHz and > 10dB up to 3GHz
- Auto equalization to 80m at 3Gb/s, 140m @ 1.5Gb/s and 350m @ 270Mb/s

Outputs:
- 4 reclocked outputs per input
- Return Loss > 15dB to 1.5GHz
- Wideband jitter < 0.2 UI

Card Edge LEDs:
- Reclocker rate (3 LEDS)
- Reclocker locked
- Reclocker bypass
- Module Health Status
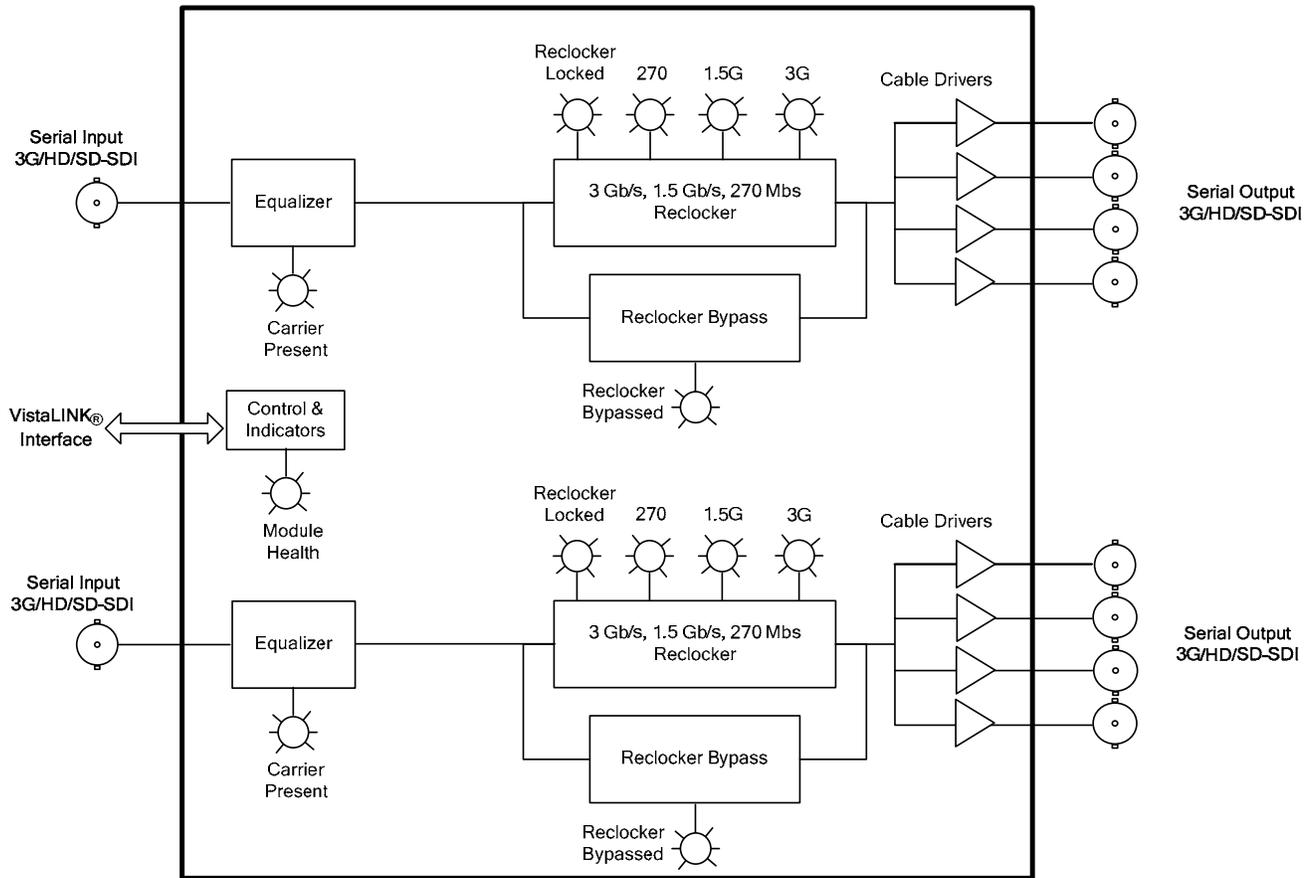
Figure 1-1: 500DA2Q-3G Block Diagram

2. INSTALLATION

The 500DA2Q-3G comes with a companion rear panel overlay that can be placed over the rear panel BNC connectors to identify their function. For information on inserting the module into the frame see section 3 of the 500FR chapter.
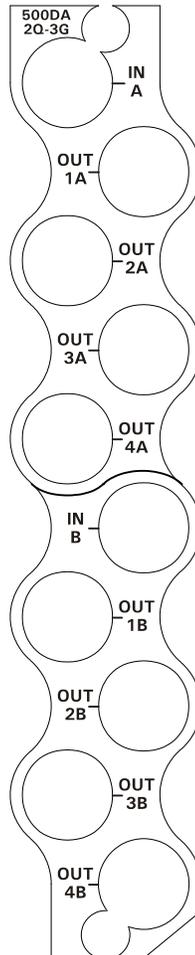
Figure 2-1: 500DA2Q-3G Rear Panel Overlay

IN A & IN B: Input BNC connectors for 10-bit serial digital video signals compatible with the SMPTE 292M, SMPTE 259M, SMPTE 344M and SMPTE 310M (19.4 Mb/s) standards or any SDI signal between the range of 143Mb/s to 1.5 Gb/s.

OUT 1A to 4A: These four BNC connectors are used to output reclocked serial component video from IN (A).

OUT 1B to 4B: These four BNC connectors are used to output reclocked serial component video from IN (B).

3. SPECIFICATIONS

3.1. SERIAL VIDEO INPUT

Standards:
Reclocked Mode: SMPTE 424M (3Gb/s), SMPTE 292M (1.5Gbs), SMPTE 259M (270Mb/s)
Non Reclocked Mode: SMPTE 344M (540Mb/s), SMPTE 259M (360Mb/s, 143Mb/s), SMPTE 310M (19.4Mb/s), DVB-ASI
Connector: 2 BNC per IEC 61169-8 Annex A
Equalization:
Input A: Automatic to 65m @ 3Gb/s, 125m @ 1.5Gb/s and 350m @ 270Mb/s with Belden 1694A or equivalent cable
Input B: Automatic to 80m @ 3Gb/s, 150m @ 1.5Gb/s and 350m @ 270Mb/s with Belden 1694A or equivalent cable
Return Loss: > 15dB up to 1.5GHz
> 10dB up to 3GHz

3.2. SERIAL VIDEO OUTPUTS

Number of Outputs:
2 x 4 Mode: 4 reclocked from each input
Reclockers can by bypassed separately for each input
Connector: BNC per IEC 61169-8 Annex A
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: >10 dB up to 1.5 GHz
Wideband Jitter: < 0.2 UI HD
< 0.3 UI 3G

3.3. ELECTRICAL

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

3.4. PHYSICAL

Number of slots: 1

4. STATUS LEDS

The 500DA2Q-3G has twelve 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:

STATUS: 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 STATUS indication can also be reported to the frame by setting the FRAME STATUS jumper J1 to the ON position.

MODULE OK: This Green LED indicates good module health. It will be On when a valid input signal is present at either reclocker (signal present on input 1 in 1x8 mode, signal present on input 1 or input 2 in dual 1x4 mode), and board power is good.

There are two small LEDs at the top of the module that indicate the status of the reclockers:

INPUT 1 RECLOCKER LOCKED:
This Green LED will be On when reclocker 1 is locked to a valid signal present at the module input 1.

INPUT 2 RECLOCKER LOCKED:
This Green LED will be On when reclocker 1 is locked to a valid signal present at the module input 1.

4.1. INPUT 1 INDICATORS

There are three small LEDs in the middle of the module that indicate the status of equalizer for input 1 and the reclocker 1 rate.

CARRIER PRESENT: This Green LED will be On when cable equalizer 1 detects that there is a signal present at input 1.

270 Mb/s: This Green LED will be On when reclocker 1 is locked to a valid SMPTE 259M-C (270 Mb/s) SDI signal.

1.5 Gb/s: This Green LED will be On when reclocker 1 is locked to a valid SMPTE 292M (1.5 Gb/s) HD SDI signal.

RECLOCKER BYPASS: This Green LED will be On when reclocker 1 is in the bypass (non-reclock) mode.

4.2. INPUT 2 INDICATORS

There are three small LEDs at the bottom of the module that indicate the status of equalizer for input 2 and the reclocker 2 rate.

CARRIER PRESENT: This Green LED will be On when cable equalizer 2 detects that there is a signal present at input 2.

270 Mb/s: This Green LED will be On when reclocker 2 is locked to a valid SMPTE 259M-C (270 Mb/s) SDI signal.

1.5 Gb/s: This Green LED will be On when reclocker 2 is locked to a valid SMPTE 292M (1.5 Gb/s) HD SDI signal.

RECLOCKER BYPASS: This Green LED will be On when reclocker 2 is in the bypass (non-reclock) mode.
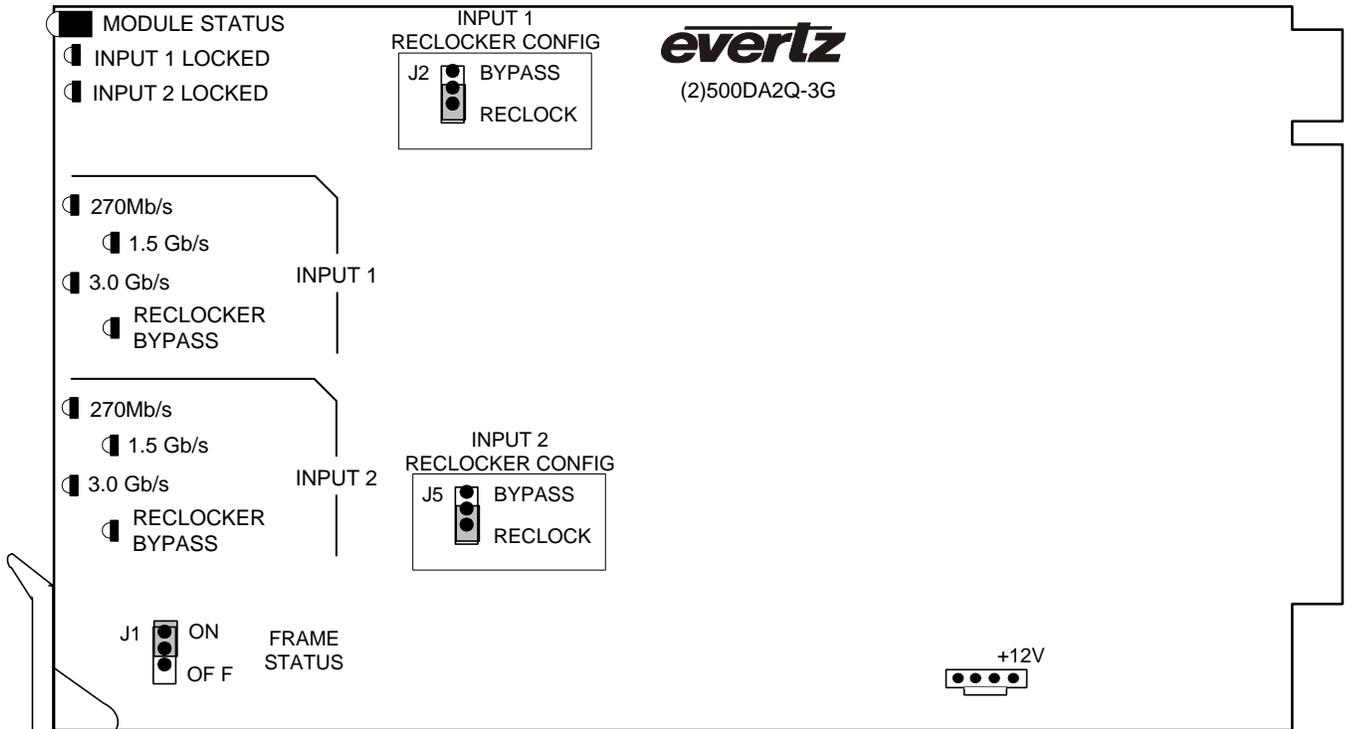
5. LOCATION OF LEDs AND JUMPERS

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 500FR 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 NON-RECLOCK MODE

Two jumpers, located near the front of the module, determine whether each half of the module will operate as a reclocking amplifier for SMPTE 292M (1.5 Gb/s), SMPTE 259M (143 to 360 Mb/s), SMPTE 344M (540 Mb/s) or DVB-ASI video signals or as a non-reclocking distribution amplifier with other data rates. J2 controls the bypass for reclocker 1 and J5 controls the bypass for reclocker 2.

BYPASS SELECT: To operate the module in reclocking mode, install the jumper in the RECLOCK position. The RATE jumper associated with the respective reclocker must be set to match the signal being reclocked.

To operate the module in non-reclocking mode, install the jumper in the BYPASS position.

6. VistaLINK® REMOTE MONITORING/CONTROL

6.1. WHAT IS VistaLINK®?

VistaLINK® is Evertz's remote monitoring and configuration platform which operates over an Ethernet network using Simple Network Management Protocol (SNMP). SNMP is a standard computer network protocol that enables different devices sharing the same network to communicate with each other. VistaLINK® provides centralized alarm management, which monitors, reports, and logs all incoming alarm events and dispatches alerts to all the VLPro Clients connected to the server. Card configuration through VistaLINK® PRO can be performed on an individual or multi-card basis using simple copy and paste routines, which reduces the time to configure each module separately. Finally, VistaLINK® enables the user to configure devices in the network from a central station and receive feedback that the configuration has been carried out.

There are 3 components of SNMP:

1. An SNMP manager, also known as a Network Management System (NMS), is a computer running special software that communicates with the devices in the network. Evertz VistaLINK® Pro Manager graphical user interface (GUI), third party or custom manager software may be used to monitor and control Evertz VistaLINK® enabled products.

2. Managed devices (such as 500DA2Q-3G), each with a unique address (OID), communicate with the NMS through an SNMP Agent. Evertz VistaLINK® enabled 500 series modules reside in the 3RU 500FR or 500FR-L-D *exponent* Frame and communicate with the manager via the 500FC VistaLINK® 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 VistaLINK® network, see the 500FC Frame Controller chapter.
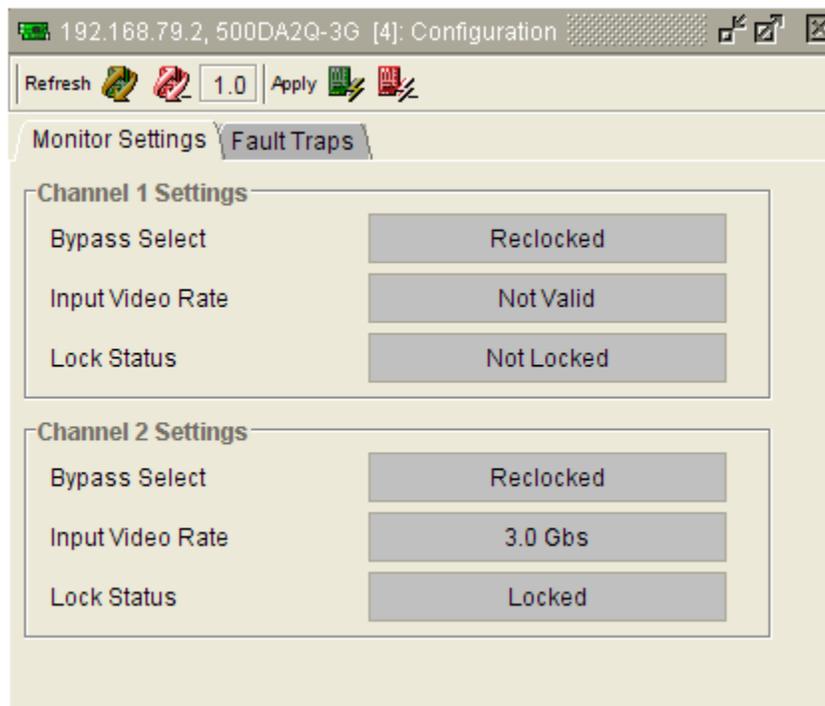
6.2. Monitor Settings Tab

Figure 6-1: VistaLINK® 500DA-3G Monitor Status Tab

6.2.1. Lock Status

Monitor Settings
Monitor Settings
Lock Status
Locked
Not Locked

Displays the current status of the video input reclocker.

6.2.2. Bypass Select

Monitor Settings
Monitor Settings
Bypass Select
Reclocked
Bypassed

Displays the operating state of the video input reclocker.

6.2.3. Input Video Rate

Monitor Settings
Monitor Settings
Input Video Rate
Not Valid
270M
1.5 Gbs
3.0 Gbs

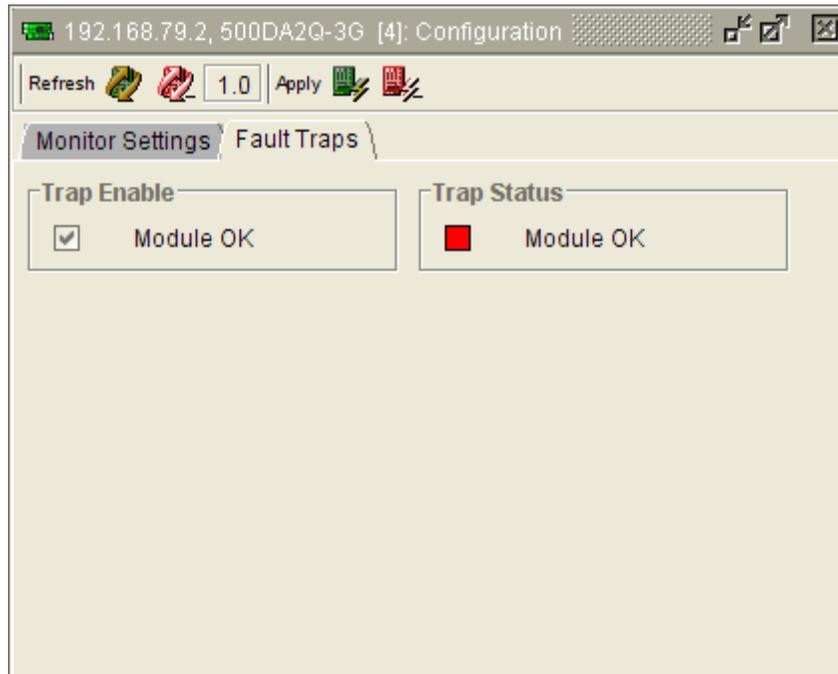Displays the detected input video rate.

6.3. Fault Traps Tab

Figure 6-2: VistaLINK® 500DA-3G Fault Traps Tab

6.3.1. Module OK Trap Status

Fault Traps
Trap Status
Module OK

Indicates the current status of the module (same state as Module Fault LED).

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