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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Original Version	Dec 02
1.1	Updated Block Diagram	Feb 03
1.1.1	Fixed jumper position names in section 5.3	Oct 03
1.1.2	Fixed formatting and typos	Jul 07

1. OVERVIEW

The Evertz 500DA2Q Reclocking Distribution Amplifier provides the highest density DA in the industry allowing up to 32 SDI distribution amplifiers in a 3RU space. It provides inexpensive distribution of your SMPTE 259M (143 to 360 Mb/s), SMPTE 344M (540Mb/s), or SMPTE 310M (19.4 Mb/s) signals. The 500DA2Q features two auto-equalized inputs and can be configured either as a single DA with eight reclocked outputs or as two separate DAs with four outputs each. In the case of dual operation, each DA can be individually set via jumpers for either SMPTE 259M/344M or SMPTE 310M reclocking.

The 500DA2Q is housed in the 500FR exponent Frame that will hold up to 16 modules.

Features:

- Normal mode for SMPTE 259M (143-360 Mb/s), SMPTE 344M (540Mb/s) or DVB-ASI signals - autodetects correct bit rate
- Jumper selectable mode for SMPTE 310M (19.4 Mb/s) signals
- Configurable as 1 DA with 8 outputs or 2 DAs with 4 outputs each
- 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)
- Module health and 2 x 4 Mode status LEDs
- Reclocker(s) Locked, Cable Length Warning and Video Standard LEDs for each DA channel
- Tally output on Frame Status bus upon loss of input signal

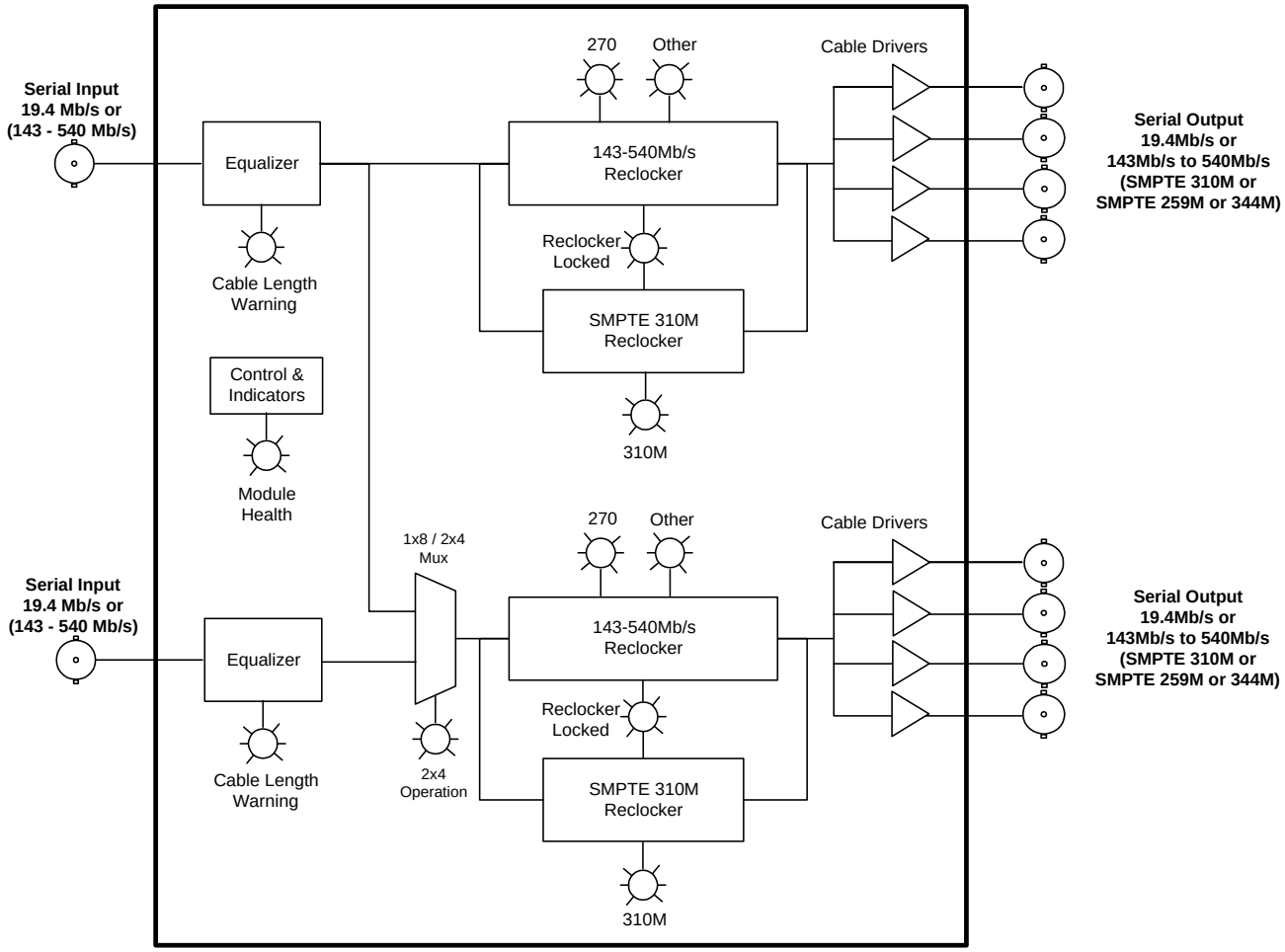

Figure 1-1: 500DA2Q Block Diagram

2. INSTALLATION

The 500DA2Q 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.

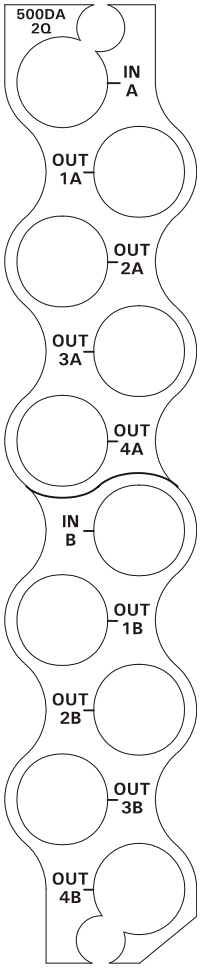

Figure 2-1: 500DA2Q Rear Panel Overlay

IN A & IN B Input BNC connectors for 10-bit serial digital video signals compatible with the SMPTE 259M, SMPTE 344M and SMPTE 310M (19.4 Mb/s) standards or any SDI signal between the range of 143Mb/s to 540 Mb/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 can be configured to output reclocked serial component video from IN (A) when jumper J7 is set to SINGLE 1x8 mode. When jumper J7 is set to DUAL 1x4 mode, these connectors output reclocked serial component video from IN (B). See Figure 5-1 for the location of J7.

3. SPECIFICATIONS

3.1. SERIAL VIDEO INPUT

Standards:

Reclocked:	SMPTE 259M (143 to 270 Mb/s). SMPTE 344M (540 Mb/s) DVB-ASI SMPTE 310M (19.4 Mb/s)
Non-reclocked:	Any SDI signal in the143Mb/s to 540 Mb/s range
Connectors:	2 BNC per IEC 169-8
Equalization:	Automatic to 400m @ 270 Mb/s with Belden 1694A or equivalent cable (325m with HD-SDI modules within 500 FR frame)
Return Loss:	> 15 dB up to 270 Mb/s

3.2. SERIAL VIDEO OUTPUTS

Number of Outputs:	(mode set by J7)
2 x 4 Mode:	4 reclocked from each input
1 x 8 Mode:	8 reclocked from Input A (1)
Connector:	BNC per IEC 169-8
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	740ps nominal
Overshoot:	< 10% of amplitude
Return Loss:	> 15 dB up to 270 Mb/s
Jitter:	< 0.2 UI

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 has thirteen 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 to 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 three small LEDs at the top of the module that indicate the status of the reclocker and the mode of the DA.

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

CH 2 LOCKED: This Green LED will be On when reclocker 2 is locked to a valid signal present at the module input 2 when the module is in Dual 1x4 mode. It will be on when reclocker 2 is locked to a valid signal present at the module input 1 when the module is in Dual 1x4 mode.

DUAL 1x4 MODE: This Green LED will be On when the DUAL 1x4 mode is set via J7.

4.1. INPUT 1 INDICATORS

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

CABLE LEN WARNING: This Yellow LED will be On when cable equalizer 1 detects that the cable length is greater than a preset threshold (factory set for 325 meters of Belden 1694A or equivalent cable).

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.

OTHER: This Green LED will be On when when reclocker 1 is locked to a valid SMPTE 344M or any other SDI signal in the 143 Mb/s to 540 Mb/s range (except for 270Mb/s).

310M: This Green LED will be On when reclocker 1 is locked to a valid SMPTE 310 (19.4 Mb/s) signal.

4.2. INPUT 2 INDICATORS

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

CABLE LEN WARNING: This Yellow LED will be On when cable equalizer 2 detects that the cable length is greater than a preset threshold (factory set for 325 meters of Belden 1694A or equivalent cable).

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.

OTHER: This Green LED will be On when when reclocker 2 is locked to a valid SMPTE 344M or any other SDI signal in the 143 Mb/s to 540 Mb/s range (except for 270Mb/s).

310M: This Green LED will be On when reclocker 2 is locked to a valid SMPTE 310 (19.4 Mb/s) signal.

5. LOCATION OF LEDs AND JUMPERS

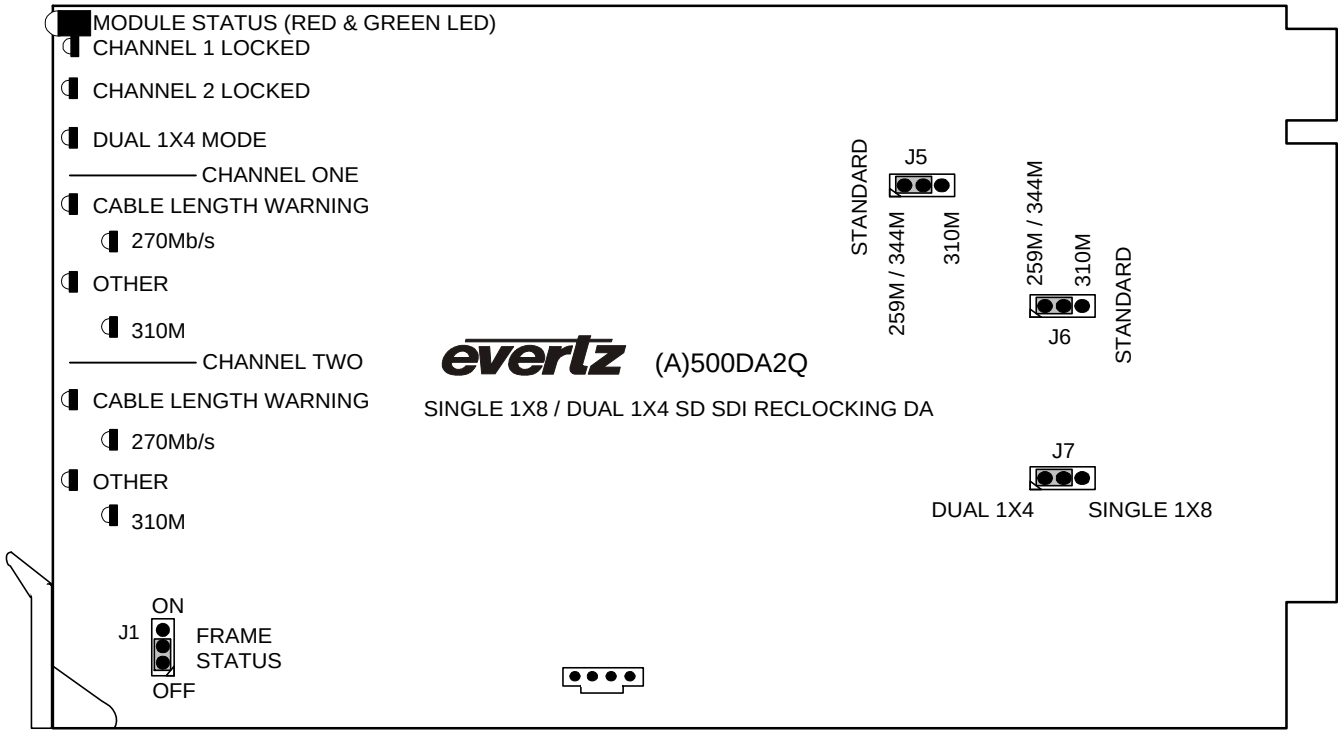

Figure 5-1: LED and Jumper Locations

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 THE OPERATING MODE

OUTPUT SELECT: To configure the 500DA2Q for four outputs from Input 1 and four outputs from Input 2, move the jumper J7 to the DUAL 1x4 position. The DUAL 1x4 LED will be On. This is the factory default condition.

To configure the 500DA2Q for eight outputs from Input 1, move the jumper J7 to the SINGLE 1x8 position. The DUAL 1x4 LED will be Off.

When the module is operated in the single 1 x 8 mode, both of the reclocker rate jumpers (J5 and J6) should be set to the same rate.

5.3. SELECTING THE RECLOCKING RATE

Two jumpers located near the center of the module, determine whether each half of the module will operate as a reclocking distribution amplifier with SMPTE 259M (143 to 360 Mb/s), SMPTE 344M (540 Mb/s) or DVB-ASI video signals, or for SMPTE 310M (19.4 Mb/s). J5 controls the rate for reclocker 1 and J6 controls the rate for reclocker 2.

When the module is operated in the single 1 x 8 mode, both of these jumpers should be set to the same rate.

STANDARD: To set the reclocker to operate with SMPTE 259M, SMPTE 344M or DVB-ASI signals install the jumper in the 259M/344M position. The reclocker will automatically detect the correct rate in the range of 143 to 540 Mb/s. This is the factory default condition.

To set the reclocker to operate with SMPTE 310M (19.4 Mb/s) signals install the jumper in the 310M position.