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REVISION HISTORY

| <u>REVISION</u>	<u>DESCRIPTION</u>	<u>DATE</u>
1.0	Original Version	June 99
1.1	Added drawings to show location of jumpers	Aug 99
1.2	Added section on adjusting the EQ threshold, Bypass mode now called non-reclock mode, Figures 1,3,4 updated	Sept 99
1.3	Added information on 7700DA8-HD 8 output DA, Added jumper locations for Rev C board (Figure 5 added) Specifications updated	July 00

1. OVERVIEW

The 7700DA-HD Distribution Amplifier provides an economical method of distribution for your SMPTE 292M (1.5 Gb/s) HDTV serial digital signals. The 7700DA-HD has been designed to be used primarily as a reclocking 1.5Gb/s distribution amplifier, however, it can also be used as a non-reclocking SMPTE 292M, SMPTE 310M (19.4 Mb/s, or 45 Mb/s), DVB-ASI, or SMPTE 259M(143 to 540 Mb/s) distribution product. The DA's come in two versions.

Model	Total Outputs	DVB-ASI Compatible Outputs	Slots
7700DA-HD	4	4	1
7700DA8-HD	8	6	2

Features:
- Reclocking mode for SMPTE 292M (1.5 Gb/s) signals
- Non-reclock mode for SMPTE 292M, SMPTE 310M (nominal 19.4 Mb/s), SMPTE 259M (143 to 540 Mb/s) or DVB-ASI, or any other bit rate less than 1.5 Gb/s
- Fully hot-swappable from front of frame with no BNC disconnect required
- Polarity maintained from input to output for DVB-ASI applications (only outputs 1,2,3,4,5 and 7 on 7700DA8-HD)
- Automatic cable equalization to 130 m
- Tally output on Frame Status bus upon loss of input signal
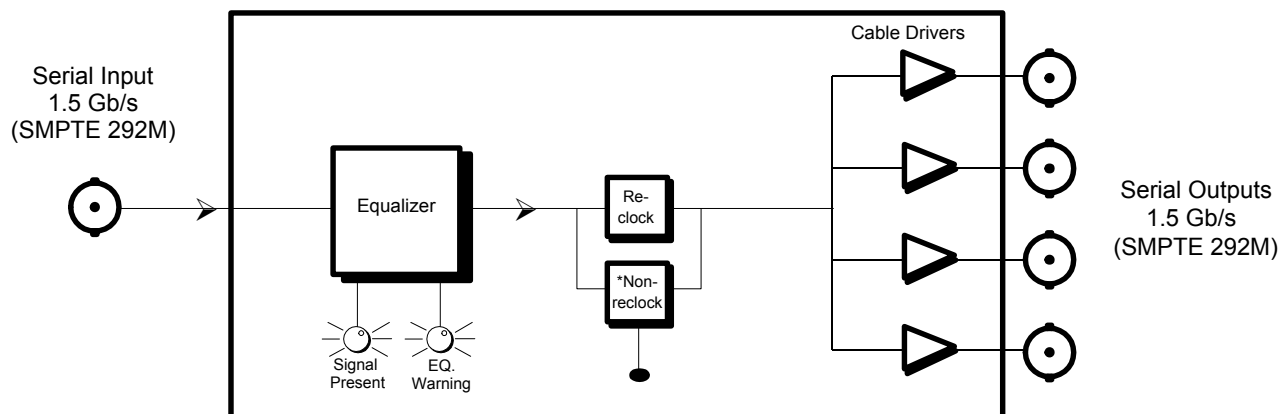
*Note: Non-reclock Mode will operate 19.4 Mb/s to 1.5 Gb/s.

Figure 1: 7700DA-HD Block Diagram

2.   INSTALLATION

The 7700DA-HD comes with a companion rear plate that has 5 BNC connectors. The 7700A10-HD comes with a companion rear plate that has 9 BNC connectors and occupies two slots in the frame. For information on mounting the rear plate and inserting the module into the frame see the 7700FR chapter section 3.
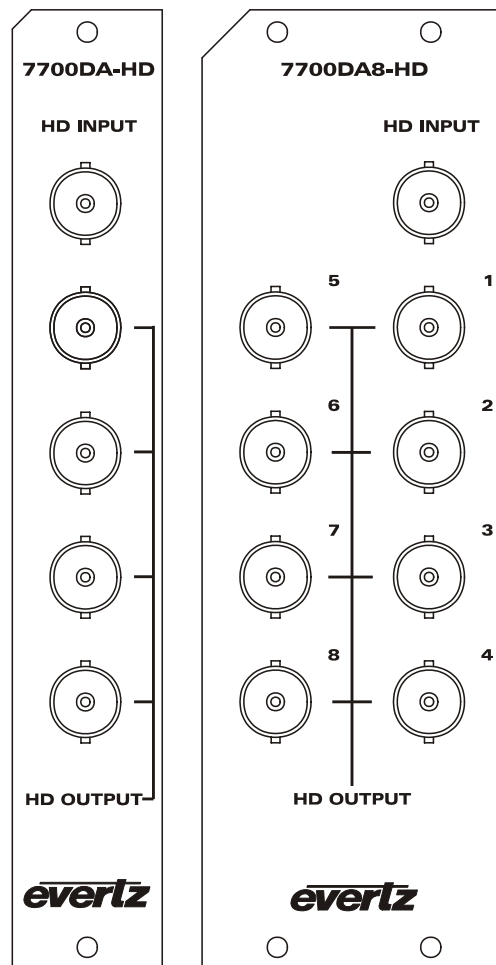
Figure 2: Rear Panels

HD INPUT Input BNC connector for 10-bit serial digital video signals compatible with the SMPTE 292M standard.

HD OUTPUT 7700DA-HD: There are four BNC connectors with reclocked serial component video outputs, compatible with the SMPTE 292M standard. All outputs maintain the same polarity as the input and are DVB-ASI compliant in non-reclock mode.

7700DA8-HD: There are eight BNC connectors with reclocked serial component video outputs, compatible with the SMPTE 292M standard. Outputs 1, 2, 3, 4, 5 and 7 maintain the same polarity as the input and are DVB-ASI compliant in non-reclock mode.

3. SPECIFICATIONS

3.1. SERIAL VIDEO INPUT:

Standards:
   Normal: SMPTE 292M
   Non-Reclock Mode: SMPTE 292M, SMPTE 310M (MPEGTX 19.4 & 40Mb/s) or
                       SMPTE 259M A, B, C, D,
                       DVB-ASI or any other bit rate less than 1.5 Gb/s
Connector: 1 BNC per IEC 169-8
Equalization: Automatic 130m @ 1.5Gb/s with Belden 1694 or equivalent cable
Return Loss: > 15 dB up to 1 Gb/s, > 12 dB up to 1.5 Gb/s

3.2. SERIAL VIDEO OUTPUTS:

Number of Outputs: 4 Per Card. (7700DA-HD, all outputs 1, 2, 3, 4, 5 and 7 are DVB-ASI compliant
                     8 per card (7700DA8-HD) outputs 1, 2, 3, 4, 5 and 7 are DVB-ASI compliant
Standards: same as input
Connectors: BNC per IEC 169-8
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 1 Gb/s, > 12 dB up to 1.5 Gb/s
Wide Band Jitter: < 0.2 UI (reclocked)

3.3. ELECTRICAL

Voltage: + 12VDC
Power: 5 Watts.
EMI/RFI: Complies with FCC regulations for class A devices.
                     Complies with EU EMC directive.

4. STATUS LEDS

MODULE OK   This Green LED will be On when the module is operating properly

LOCAL FAULT   This Red LED will be On when input video is lost or when there is a fault in the module power supply.

CARRIER PRESENT: This Green LED will be On when there is a valid signal present at the module input.

CABLE LENGTH WARNING: This Yellow LED will be On when the cable equalizer detects that the cable length is greater than a preset threshold. (factory set for 125 meters of Belden 1694 or equivalent cable). See section 5.3 for information on adjusting the cable equalizer warning threshold.
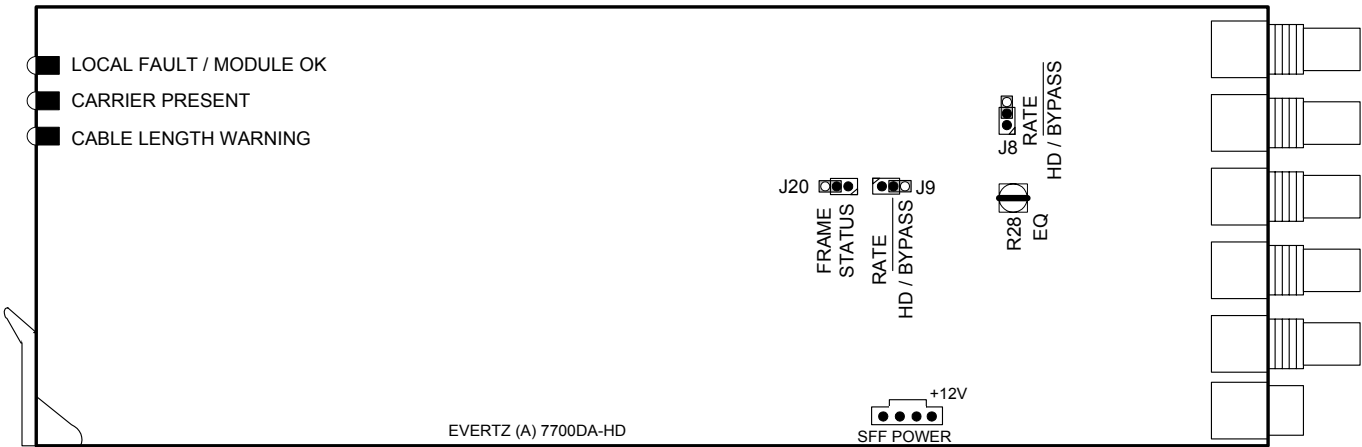
5. JUMPERS AND USER ADJUSTMENTS

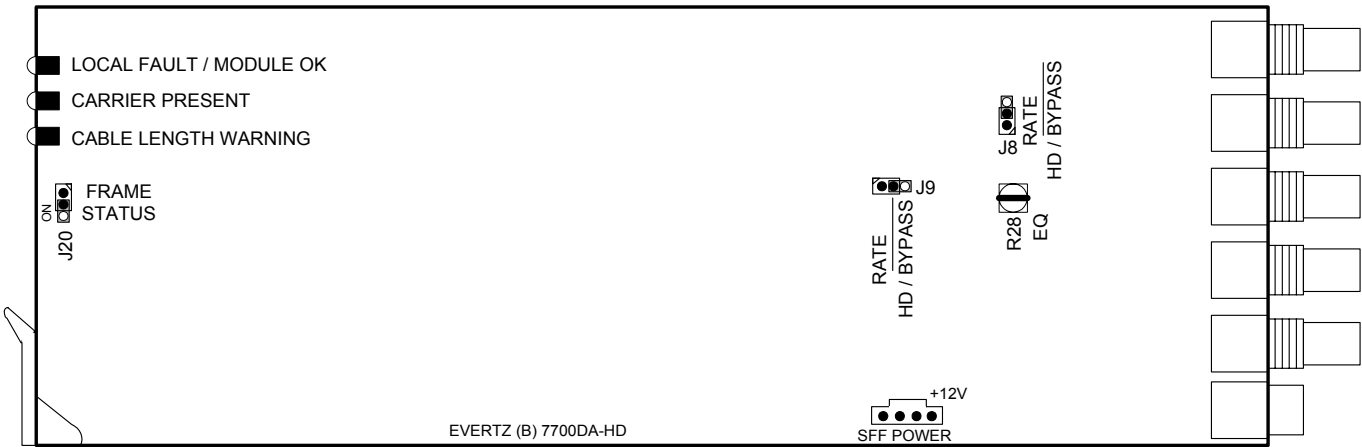**Figure 3: Jumper Locations for Rev A and Rev 1 DA Cards**

Figure 4: Jumper Locations for Rev B DA Cards
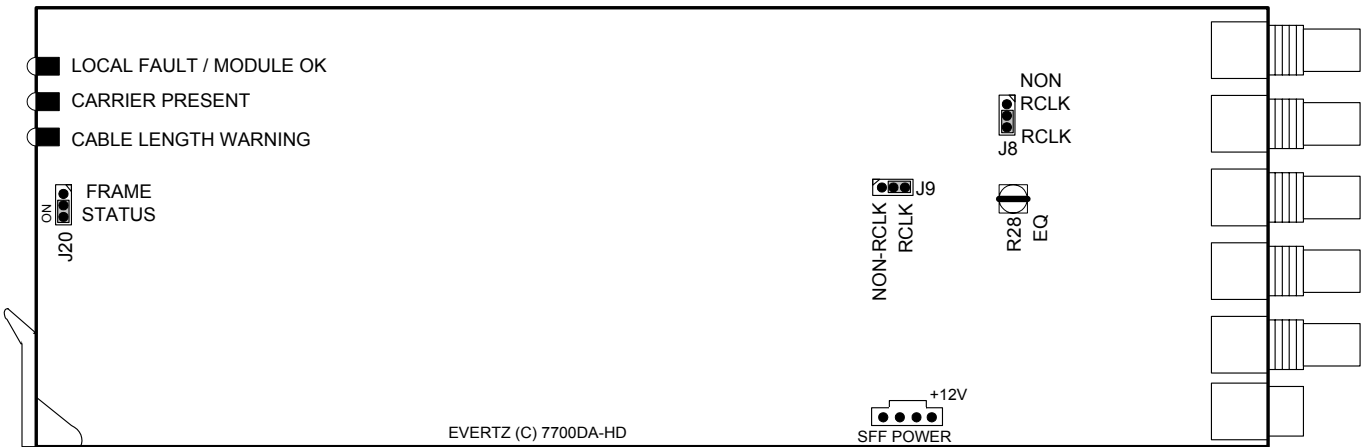
Figure 5: Jumper Locations for Rev C DA Cards

Note: On 7700DA8-HD jumpers J8 and J9 are installed on the rear of the main card

5.1.   SELECTING RECLOCK OR NON-RECLOCK MODE

There are two jumpers J8 and J9 that determine whether the module will operate as a reclocking distribution amplifier with SMPTE 292M (1.5 Gb/s) video signals or as a non-reclocking distribution amplifier with other data rates.

For the A and B revision of the board:

HD / BYPASS To select the normal reclocking mode remove both of these jumpers. For convenience you may re-install the jumper so that only one side is connected.

To select the non-reclocking mode install both of these jumpers.

For the C revision and later of the board:

RCLK/NON-RCLK   To select the normal reclocking mode put both of these jumpers in the *RCLK* position. To select the non-reclocking mode install both of these jumpers in the *NON-RCLK* position.

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

The FRAME STATUS jumper 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 PS FRAME STATUS LED's and on the Frame's Fault Tally output) install this jumper in the On position. On Rev A and B boards install the jumper. (default)

When this jumper is installed in the Off position local faults on this module will not be monitored. On rev Rev A and B boards remove the jumper and re-install it so that only one side is connected.

5.3.   SETTING THE EQUALIZER WARNING THRESHOLD

The EQ trimpot R28 located near jumper J8 is used to set the threshold of the cable equalizer warning. The equalizer warning is factory set to 125 meters of Belden 1684 cable, but may be adjusted for other cable types or cable lengths. To adjust the cable equalizer warning threshold, connect a signal to the input of the DA using the required length of cable. Adjust the trimpot slowly until the Equalizer warning LED comes on. You can verify that the equalizer warning is operating correctly by removing a few meters of cable from the input. The LED should go off.

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