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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Original Version	June 99
1.1	Added Figure 3, 4, Cable Equalizer section	Nov 99
1.2	Added jumper locations for Rev B board (Figure 5 added)	July 00
1.3	Changed specificationfor SMPTE 310 handling	Jan 02
1.4	Added jumper information for LOCK Jumper	Dec 02
1.5	Added information for 7700DA-N version	Jul 05
1.6	Updated 7700DA-NR to 7700DA-N	Jul 06

1. OVERVIEW

The 7700DA Serial Digital Distribution Amplifier provides an economical method of distribution for your SMPTE 259M (143 ⇒ 540 Mb/s) serial digital signals. The DA's feature one auto-equalized input with four re-clocked outputs. The 7700DA has been designed to be used primarily as a reclocking SMPTE 259M distribution amplifier, however, it can also be for SMPTE 310M (19.4 Mb/s) or DVB-ASI signals.

The 7700DA-N is a lower cost non-reclocking version of the 7700DA and can be used as a distribution product for SMPTE 310M (19.4 Mb/s) and all rates up to 540 Mb/s.

The 7700DA and 7700DA-N occupy one card slot in the 3 RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

Features:

- Normal mode for SMPTE 259M (143 ⇒ 540 Mb/s) or DVB-ASI signals - autodetects correct bitrate
- Jumper selectable mode for SMPTE 310M (nominal 19.4 Mb/s)
- 7700DA-N version operates in non-reclock mode only for SMPTE 310M (19.4 Mb/s) and all rates up to 540 Mb/s
- Independent isolated output drivers to ensure no cross channel loading effects and maintain polarity from input to output for DVB-ASI applications.
- Tally output upon loss of input signal

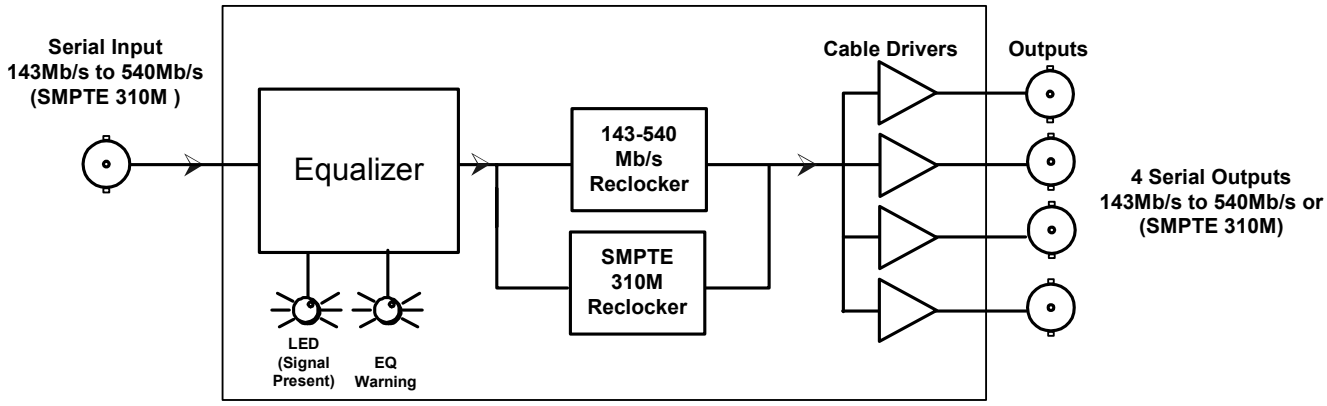

Figure 1: 7700DA Block Diagram

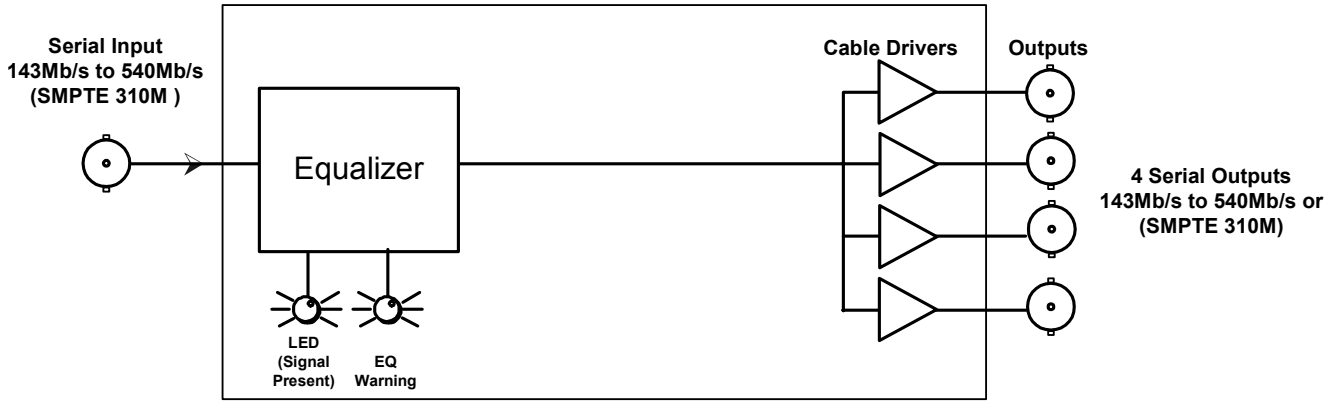

Figure 2: 7700DA-N Block Diagram

2. INSTALLATION

The 7700DA and 7700DA-N come with a companion rear plate that has 5 BNC connectors. For information on mounting the rear plate and inserting the module into the frame see the 7700FR chapter section 3.

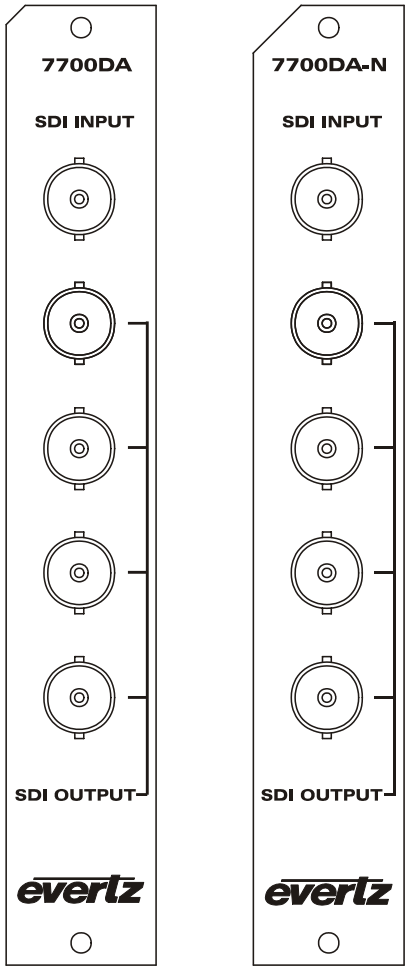

Figure 3: Rear Panels

SDI INPUT Input BNC connector for 10-bit serial digital video signals compatible with the SMPTE 259M / DVB-ASI or SMPTE 310M standard. See section 5.1 for information on choosing the correct video standard.

SDI OUTPUT There are four BNC connectors with reclocked serial component video outputs, compatible with the SMPTE 259M / DVB-ASI or SMPTE 310M standard. On the 7700DA-N the output signal;s are non-reclocked.

3. SPECIFICATIONS

3.1. SERIAL VIDEO INPUT

Standards:
- **Normal:** SMPTE 259M A, B, C, D (143 to 540 Mb/s) or DVB-ASI
- **Jumper Selectable:** SMPTE 310M (19.4 Mb/s)

Connector: 1 BNC input per IEC 60169-8 Amendment 2
Equalization: Automatic 300m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 540 Mb/s

3.2. SERIAL VIDEO OUTPUTS

Number of Outputs:
- **7700DA** 4 Per Card - reclocked.
- **7700DA-N** 4 Per Card – non-reclocked.

Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Wide Band Jitter: < 0.2 UI

3.3. ELECTRICAL

Voltage: + 12VDC
Power: 6 Watts.

3.4. PHYSICAL

7700 or 7701 frame mounting:
- **Number of slots:** 1

Stand Alone Enclosure:
- **Dimensions:** 14 " L x 4.5 " W x 1.9 " H
  (355 mm L x 114 mm W x 48 mm H)
- **Weight:** approx. 1.5 lbs. (0.7 Kg)

4. STATUS LED'S

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

LOCAL FAULT This Red LED will be On when the cable length warning is active 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 250 meters of Belden 8281 or equivalent cable). See section 5.3 for information on adjusting the cable equalizer warning threshold.

5. JUMPERS AND USER ADJUSTMENTS

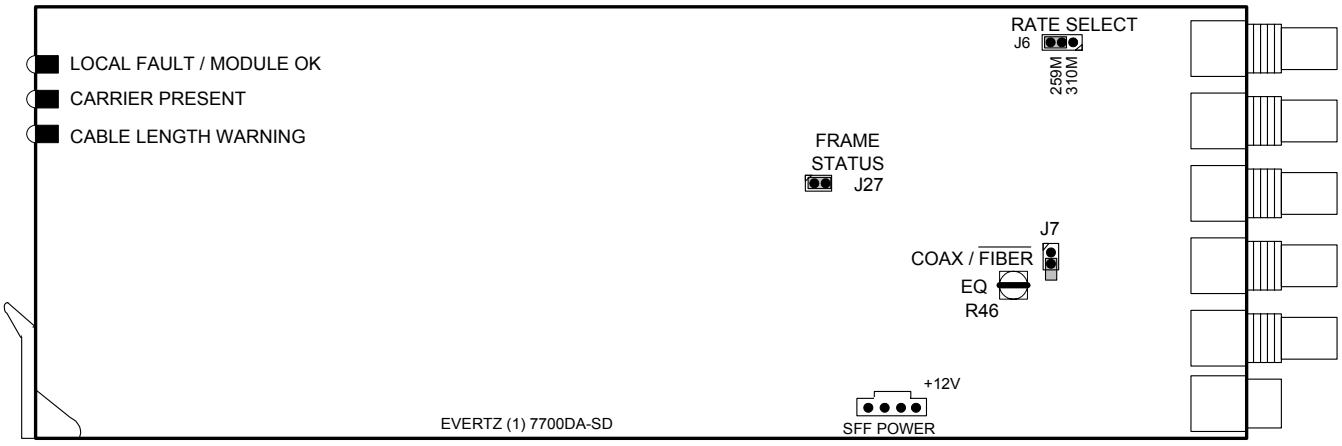

Figure 4: Jumper Locations for Rev 1 DA Cards

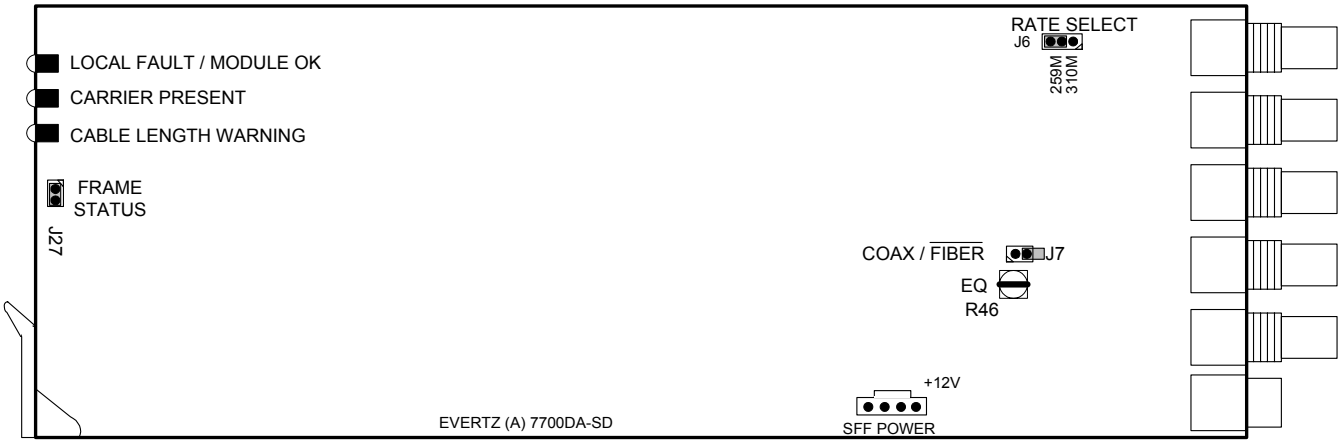

Figure 5: Jumper Locations for Rev A DA Cards

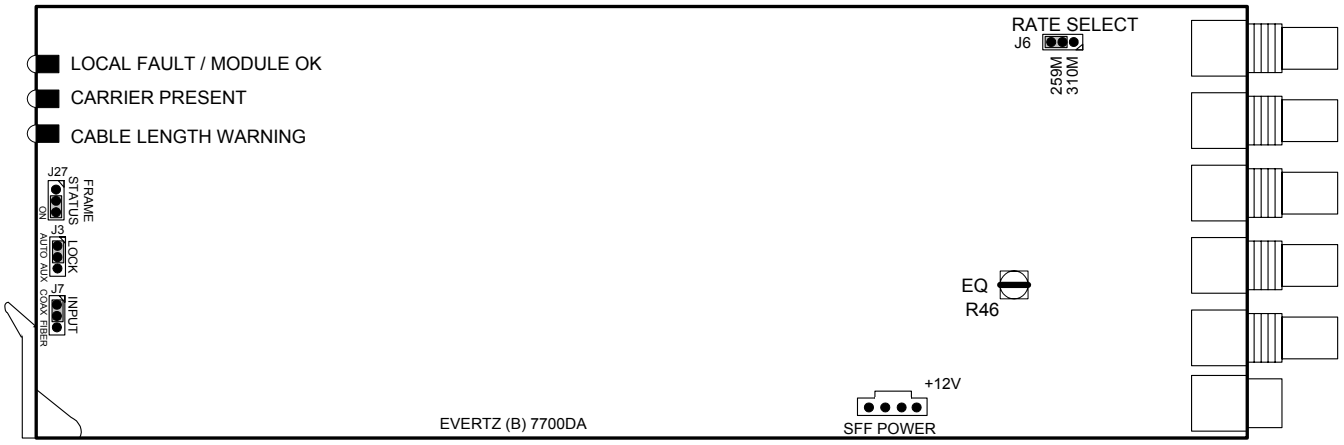

Figure 6: Jumper Locations for Rev B DA Cards

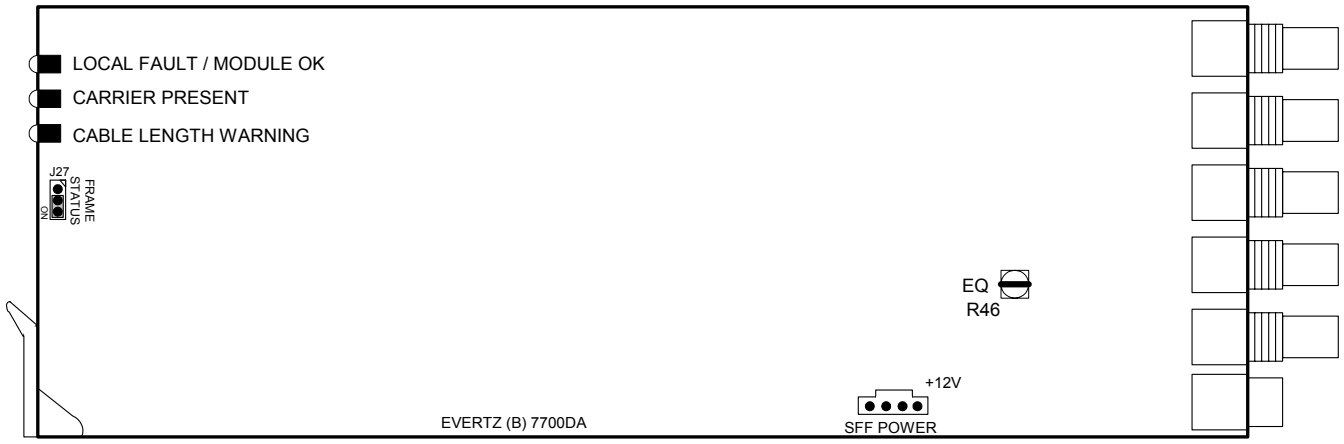

Figure 7: Jumper Locations for 7700DA-N Cards

5.1. SELECTING THE VIDEO STANDARD (NOT AVAILABLE ON 7700DA-N)

On the 7700DA version the RATE SELECT jumper J6, located ot the top rear of the module, determines whether the module will operate as a distribution amplifier with SMPTE 259M (143 to 540 Mb/s) or DVB-ASI video signals or with SMPTE 310M (19.4 Mb/s) signals. The LOCK jumper J3 located at the front of the module alsoneeds to be set correctly

RATE SELECT To set the module to operate with SMPTE 259M or DVB-ASI signals install the jumper in the 259M position.

To set module to operate with SMPTE 310M signals install the jumper in the 310M position.

LOCK To set the module to operate with SMPTE 259M or DVB-ASI signals install the jumper in the AUTO position.

To set module to operate with SMPTE 310M signals install the jumper in the AUX position.

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

The FRAME STATUS jumper J27, 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 1 and A 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 1 and A 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 R46 is used to set the threshold of the cable equalizer warning. The equalizer warning is factory set to 250 meters of Belden 8281 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.