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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Original Version	Nov 06

1. OVERVIEW

The 7700ADA-ETSI High Amplitude Distribution Amplifier is a general purpose amplifier with an equalizing function for distributing a wide range of digital and analog signals. It has been designed to distribute pulses and signals up to ±3.5V amplitude as well as analog video signals. The 7700ADA-ETSI can transport ITU-T G.703 E12 (Physical/electrical characteristics of hierarchical digital interface at 2048kbit/s) signals. The 7700ADA-ETSI features one balanced equalized input with four outputs.

The 7700ADA-ETSI is housed in the 7700FR Frame that will hold up to 15 modules.

Features:

- 75 Ohm input impedance
- Distribute signals up to ±3.5V to 30MHz
- High common mode range and common mode rejection ratio (CMRR)
- ±5.5dB Gain control range
- Jumper selectable AC or DC coupling
- Cable equalizer adjustment range: 0 to 300m of Belden 8281 or 1694A
- Consistent input impedance if card power is lost

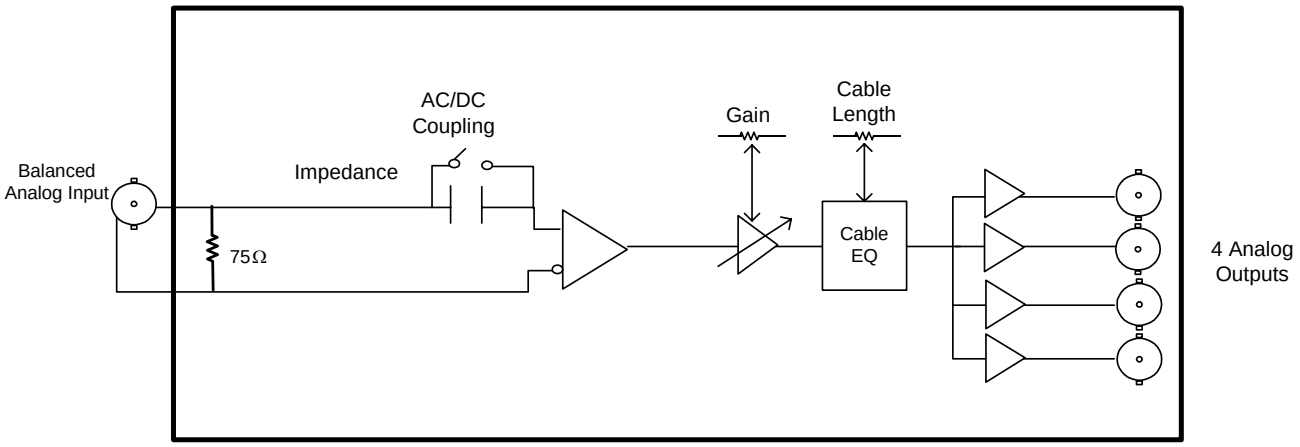

Figure 1: 7700ADA-ETSI Block Diagram

2. INSTALLATION

The 7700ADA-ETSI comes with a companion rear panel and occupies one slot in the 7700FR frame. Figure 2 shows a diagram of the rear pannel. For information on inserting the module into the frame see the 7700FR manual section 3.

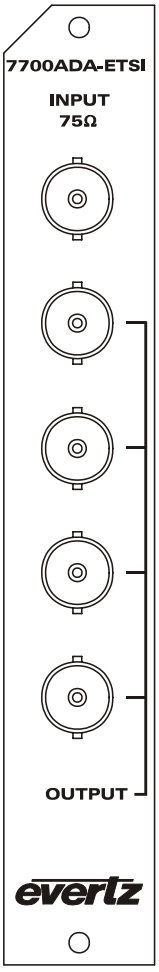

Figure 2: Rear Panel

IN Isolated BNC connector for input signal. The input signal is terminated with 75 ohms. The INPUT jumper located on the module near the back determines whether the input signal will be AC or DC coupled. (See section 6.2)

OUT 1 to 4 There are four BNC connectors with equalized and level adjusted copies of the input signal.

3. SPECIFICATIONS

All specifications, unless otherwise indicated, are measured under the following conditions:

- 1 Vp-p video applied
- 75 Ohm source impedance signal
- DC coupled
- Gain adjusted for unity operation into 75 Ohm load
- Cable equalizer set to 0 length

3.1. INPUT

Standards: Any analog waveform up to ±3.5V and 30MHz bandwidth
Connector: 1 BNC input per IEC 169-8
Common mode range: >6Vp-p
CMRR: >60dB to 1kHz
Signal amplitude: up to ±3.5V
Cable equalizer: 0 to 300m of Belden 8281 or 1694 cable
Impedance: 75Ohms
Coupling: AC or DC (jumper selectable)
Return loss: > 40dB to 10MHz, >25dB to 30MHz

3.2. OUTPUTS

Number of Outputs: 4 Per Card
Connector: BNC per IEC 169-8
Output impedance: 75 Ohm
Gain control range: ± 6dB
Freq. Response: < ±0.05dB no equalization (to 5.5MHz)
< ±0.09dB for 5 to 100m Belden 8281 or 1694A (to 5.5Mhz)
< ±0.15dB for 100 to 300m Belden 8281 or 1694A (to 5.5Mhz)
Differential Gain: <0.25 % 0 to 300m (for single load)
Differential Phase: < 0.19 deg 0 to 300m
C/L gain inequality: <+/-0.1% for all cable lengths
C/L Delay: <+/-2nsec
Output isolation: >42dB to 10MHz, >32 dB to 30MHz
Output return loss: >40dB to 30MHz
Noise performance: <-68dB RMS NTC7 weighting,
<-60dB RMS 15kHz to 5.5MHz

3.3. ELECTRICAL

Voltage: + 12VDC
Power: 2.5 Watts.

3.4. PHYSICAL

Number of slots: 1

4. STATUS 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 illuminated when 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.

MODULE OK: This Green LED indicates good module health. It will be On when the board power is good.

5. Circuit Description

The input signal enters the board through a BNC with isolated ground so that balanced input processing may be done to remove any common mode hum that may have been added to the signal and ground shield. The input coupling (AC/DC) can be selecting using an on-board jumper (J4).

An adjustable gain stage feeds the cable equalizer that can adjust the frequency response to match the attenuation of up to 300m of coaxial cable. One OP-Amp drives the four output BNC's with 75-Ohm output impedance.

6. JUMPERS AND USER ADJUSTMENTS

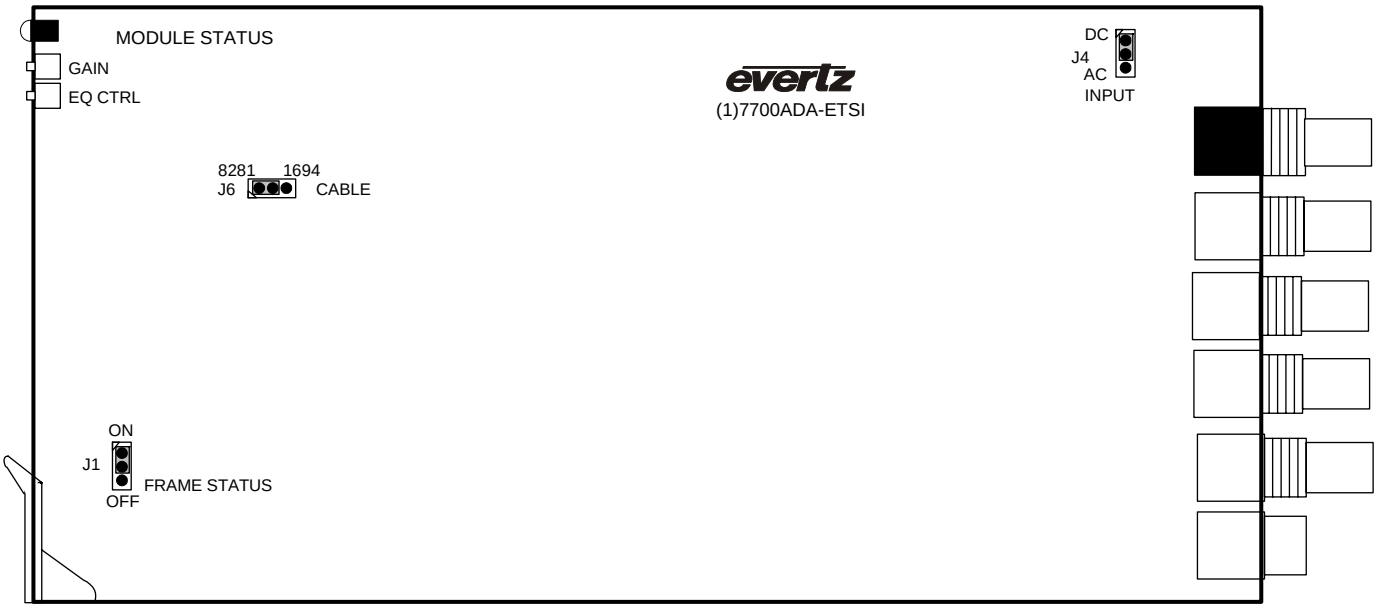

Figure 3: LED and Jumper Locations

6.1. 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 LEDs 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.

6.2. SELECTING THE INPUT AC/DC COUPLING

The input may be AC or DC (default) coupled into the input-circuitry using jumper J4. In some non-video applications that do not have DC information (i.e. digital AES audio), AC coupling can be used to remove any DC level that may have built up in its transmission.

6.3. GAIN ADJUSTMENT

The **GAIN** POT on the cards front edge allows you to adjust the input signal level. Turning the POT clockwise will increase the gain.

6.4. CABLE EQUALIZATION OPERATION

With the cable equalizer **EQCTRL** POT set fully counter-clockwise, the cable equalizer will be set to the "zero length". As you turn the POT clockwise, more cable equalization is added. To set the POT to the correct position, perform the following calibration:

1. Supply the cable being equalized with a frequency response test signal.
2. Make sure the driving level from the test generator is calibrated to unity.
3. Set the cable type jumper (J6) to the type of cable you are using (either 8281 or 1694). If you are using a different type, then use either setting.
4. Make sure the test gear is terminated properly.
5. Calibrate the GAIN level POT for unity output at low frequencies.
6. Adjust the "EQCTRL" POT until the 7700ADA-ETSI output signal has flat frequency response.

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