

## TABLE OF CONTENTS

1. OVERVIEW .....	1
2. INSTALLATION .....	2
3. SPECIFICATIONS .....	3
3.1. ANALOG VIDEO INPUT .....	3
3.2. ANALOG VIDEO OUTPUTS .....	3
3.3. ELECTRICAL .....	3
3.4. PHYSICAL .....	3
4. STATUS LEDS .....	4
5. CIRCUIT DESCRIPTION .....	5
6. JUMPERS AND USER ADJUSTMENTS .....	6
6.1. SELECTING WHETHER LOCAL FAULTS WILL BE MONITORED BY THE GLOBAL FRAME STATUS .....	6
6.2. SELECTING THE INPUT TERMINATION .....	6
6.3. SELECTING THE INPUT AC/DC COUPLING .....	6
6.4. GAIN ADJUSTMENT .....	6

### Figures

Figure 1-1: 7700ADA7 Block Diagram .....	1
Figure 2-1: 7700ADA7 Rear Panel .....	2
Figure 6-1: LED and Jumper Locations .....	6

## **REVISION HISTORY**

<b><u>REVISION</u></b>	<b><u>DESCRIPTION</u></b>	<b><u>DATE</u></b>
1.0	Original Version	Jul 05
1.1	Updated block diagram	Oct 07
1.2	General format clean up	Sept 09

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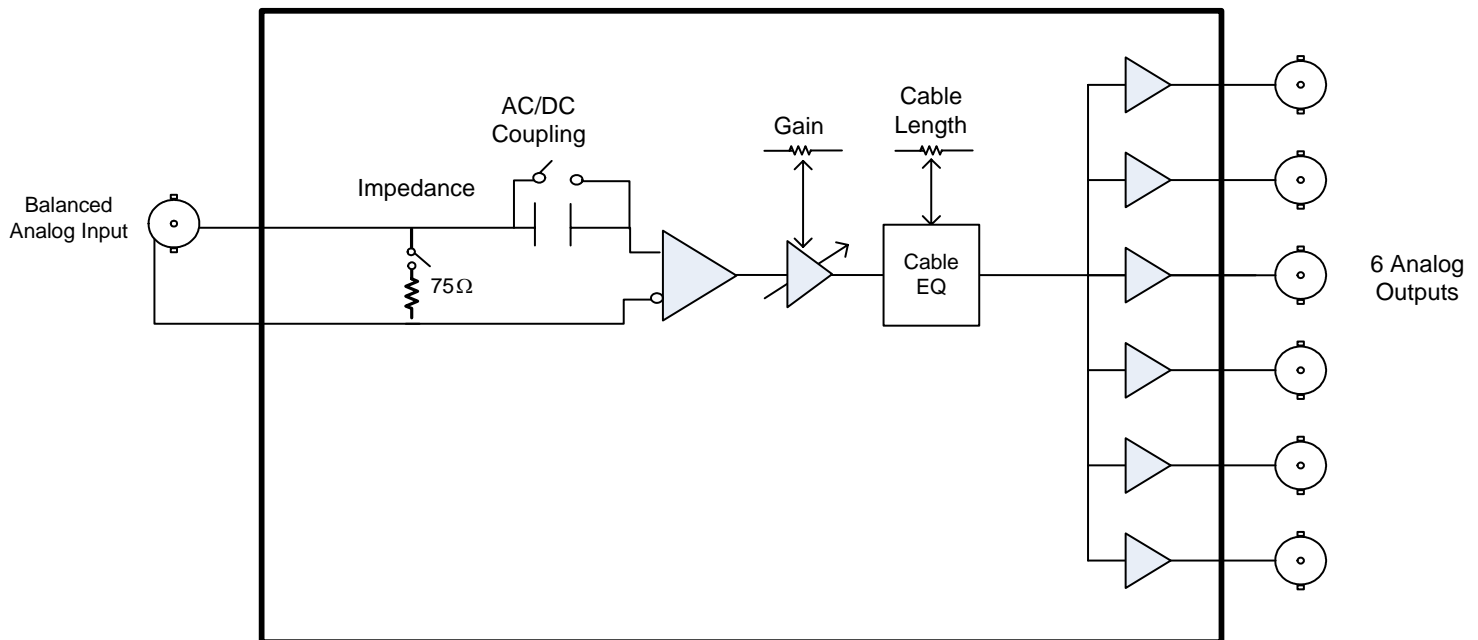
## 1. OVERVIEW

The 7700ADA7 Analog Distribution Amplifier is a general purpose amplifier for distributing analog video signals. The 7700ADA7 features one balanced input with seven outputs. The 7700ADA7 amplifier has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that are less than 2Vp-p.

The 7700ADA7 occupies one card slot and can be housed in a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, a 350FR portable frame which will hold up to 7 modules or a standalone enclosure that will hold 1 module.

### Features:

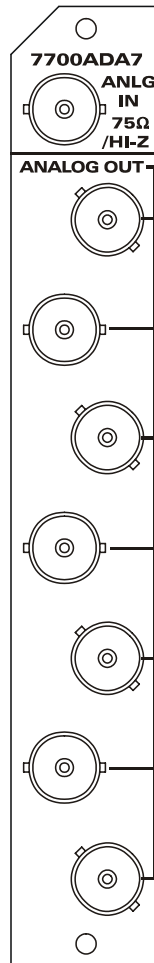
- 75 Ohm or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMMR)
- Gain control
- Jumper selectable AC or DC coupling
- Looping feature with external "T" connector and external termination
- Consistent input impedance if card power is lost



**Figure 1-1: 7700ADA7 Block Diagram**

## 2. INSTALLATION

The 7700ADA7 comes with a companion rear plate that has 8 BNC connectors. For information on mounting the rear plate and inserting the module into the frame see section 3 of the 7700FR chapter.



**Figure 2-1: 7700ADA7 Rear Panel**

**ANLG IN:** Input (isolated) BNC connector for analog video signals. The TERM jumper located on the module near the back determines whether the input signal will be high impedance or terminated with 75 ohms. (See section 6.2) The INPUT jumper located on the module near the back determines whether the input signal will be AC or DC coupled. (See section 6.3)

**ANALOG OUT:** There are seven BNC connectors with level adjusted copies of the input signal.

### 3. SPECIFICATIONS

Note: At the time of printing, this product has only been qualified for use with standard definition signals. It, however, has been designed to work with high definition signals. Frequency and phase response will not be optimized at the upper frequency range of high definition video bandwidths.

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

- 1 Vp-p video applied
- 75 Ohm card input terminated
- AC coupled
- Gain adjusted for unity operation into 75 Ohm load

#### 3.1. ANALOG VIDEO INPUT

<b>Standards:</b>	Any analog video format, up to 2Vp-p and 30MHz bandwidth
<b>Connector:</b>	BNC per IEC 61169-8 Annex A
<b>Common Mode Range:</b>	>6Vp-p
<b>CMRR:</b>	> 70dB to 1kHz
<b>Signal Amplitude:</b>	2.5Vp-p max
<b>Impedance:</b>	75Ohms terminated, 35kOhms Hi-Z (jumper selectable)
<b>Coupling:</b>	AC or DC (jumper selectable)
<b>Return Loss:</b>	>40dB to 10MHz, >30dB to 30MHz

#### 3.2. ANALOG VIDEO OUTPUTS

<b>Number of Outputs:</b>	7 Per Card
<b>Connector:</b>	BNC per IEC 61169-8 Annex A
<b>Output Impedance:</b>	75 Ohm
<b>Gain Control Range:</b>	+/- 5dB
<b>DC level (DC Coupling active)</b>	< +/- 100mV
<b>Freq. Response:</b>	<+/-0.05dB (to 5.5MHz)
<b>Differential Gain:</b>	<0.17 %
<b>Differential Phase:</b>	< 0.19 deg
<b>C/L Gain Inequality:</b>	<+/-0.1%
<b>C/L Delay:</b>	<+/-2nsec
<b>Output Isolation:</b>	42dB to 10MHz, 32 dB to 30MHz
<b>Output Return Loss:</b>	>40dB to 30MHz
<b>Noise Performance:</b>	<-78dB RMS NTC7 weighting, <-70dB RMS 15kHz to 5.5MHz

#### 3.3. ELECTRICAL

<b>Voltage:</b>	+ 12VDC
<b>Power:</b>	4.6 Watts

#### 3.4. PHYSICAL

<b>Number of Slots:</b>	1
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## **4. STATUS LEDS**

The 7700ADA7 has two LED Status indicators on the front card edge to show operational status of the card at a glance. Figure 6-1 shows the location of the 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 On if 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.

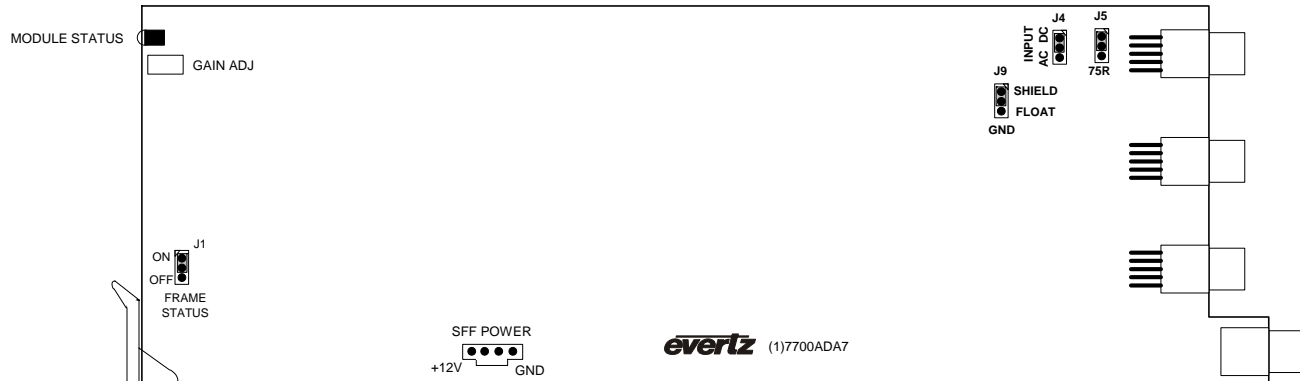
**MODULE OK:** This Green LED indicates good module health. It will be On when the board power is good.

## **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. On-board jumpers allow you to configure the input impedance and input coupling (AC/DC).

An adjustable gain stage feeds three separate OP-Amps and drive the seven output BNC's with 75-Ohm output impedance.

## 6. JUMPERS AND USER ADJUSTMENTS



**Figure 6-1: 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 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.

### 6.2. SELECTING THE INPUT TERMINATION

The input termination may be set via card jumper J5 to either 75 Ohms (default) or Hi-Z (34k Ohms). Set it to Hi-Z when using a "T" connector to loop the signal through several device inputs.

### 6.3. SELECTING THE INPUT AC/DC COUPLING

The input may be AC or DC (default) coupled into the input-circuitry using jumper J4. Use AC coupling in applications when the input signal has a large (>2V) DC level. 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.

### 6.4. 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.



**There is enough range on this control to counteract the video level error due to a missing or double terminated coaxial connection. This will hide a frequency response problem due to the mis-termination.**