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REVISION HISTORY

REVISION	DESCRIPTION	DATE
1.0	Original Version	Oct 02
1.1	Spec Updated to Rev A PCB	Nov 02
1.2	Fixed formatting and typos	Jul 07

1. OVERVIEW

The 500ADA Analog Distribution Amplifier is a general purpose amplifier for distributing analog video signals. The 500ADA features one balanced input with nine outputs. The 500ADA 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 500ADA is housed in the 500FR exponent Frame that will hold up to 16 modules.

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
- Consistent input impedance if card power is lost

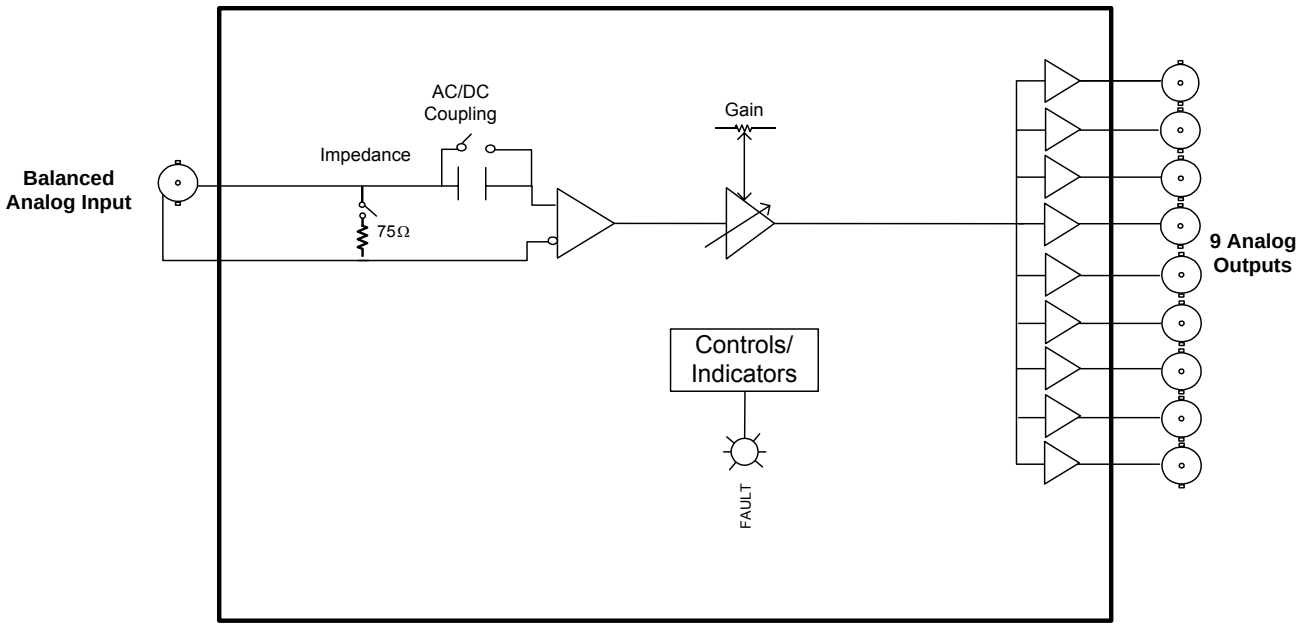

Figure 1-1: 500ADA Block Diagram

2. INSTALLATION

The 500ADA 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.

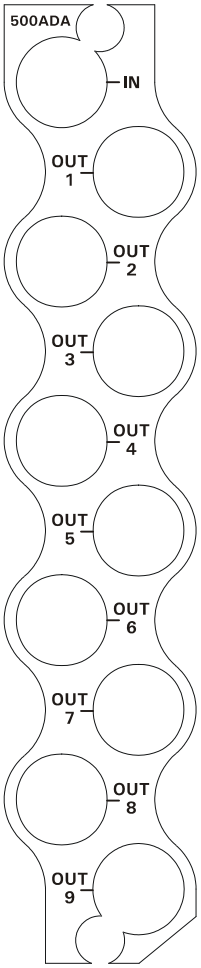

Figure 2-1: 500ADA Rear Panel Overlay

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)

OUT 1 to 9 There are nine 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

Standards: Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector: 1 BNC input per IEC 169-8
Common mode range: >6Vp-p
CMRR: > 70dB to 1kHz
Signal amplitude: 2.5Vp-p max
Impedance: 75Ohms terminated, 35kOhms Hi-Z (jumper selectable)
Coupling: AC or DC (jumper selectable)
Return loss: >40dB to 10MHz, >30dB to 30MHz

3.2. ANALOG VIDEO OUTPUTS

Number of Outputs: 9 Per Card
Connector: BNC per IEC 169-8
Output impedance: 75 Ohm
Gain control range: ± 5dB
DC level (DC Coupling active) < +/- 100mV
Freq. Response: <+/-0.05dB (to 5.5MHz)
Differential Gain: <0.17 %
Differential Phase: < 0.19 deg
C/L gain inequality: <+/-0.1%
C/L Delay: <+/-2nsec
Output isolation: 42dB to 10MHz, 32 dB to 30MHz
Output return loss: >40dB to 30MHz
Noise performance: <-78dB RMS NTC7 weighting,
<-70dB RMS 15kHz to 5.5MHz

3.3. ELECTRICAL

Voltage: + 12VDC
Power: 1.2 Watts

3.4. PHYSICAL

Number of slots: 1

4. STATUS LEDS

The 500ADA 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 drive the nine output BNC's with 75-Ohm output impedance.

6. JUMPERS AND USER ADJUSTMENTS

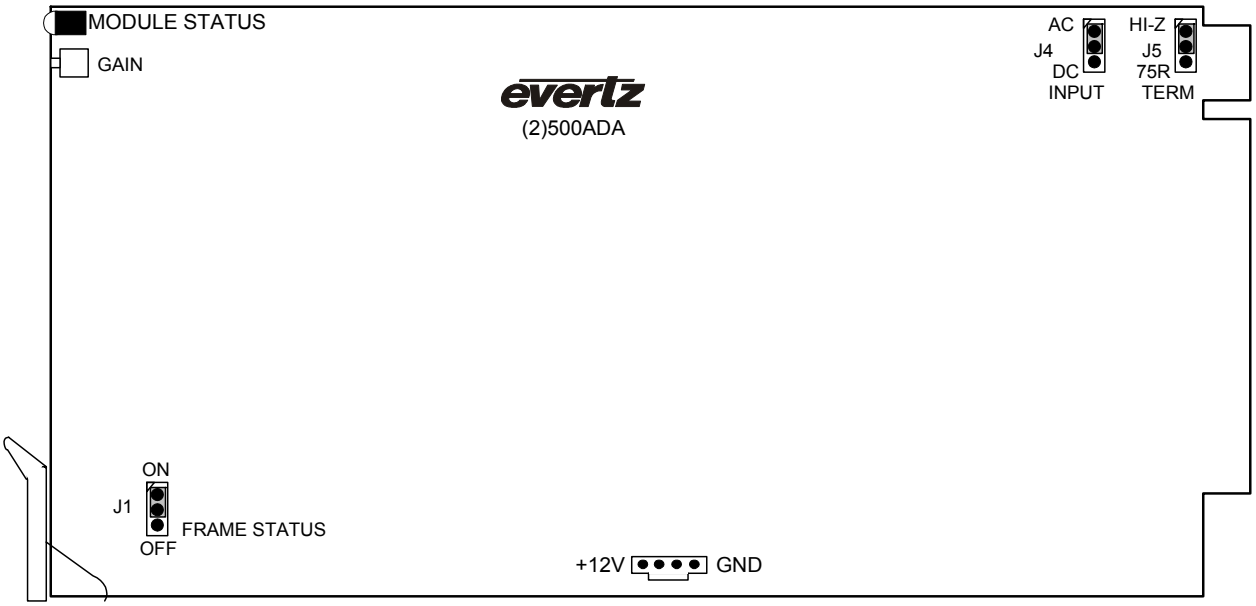

Figure 6-1: LED and Jumper Locations

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 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.

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.

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