DA3100
AUDIO AND VIDEO DISTRIBUTION AMPLIFIERS

(ADA3100 AND VDA3100)

VDA3100T Terminating Frame

VDA3100L Looping Frame

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About This Manual

DOCUMENTATION AND SAFETY OVERVIEW

This manual provides detailed instructions for the installation, operation, and maintenance of the PESA DA3100 Distribution Amplifier.

It is the responsibility of all personnel involved in the installation, operation, and maintenance of the equipment to know all the applicable safety regulations for the areas that they will be working in. ***Under no circumstances should any person perform any procedure or sequence in this manual if the procedural sequence will directly conflict with local Safe Practices. Local Safe Practices shall remain as the sole determining factor for performing any procedure or sequence outlined in this document.***

Additionally, only authorized and properly trained personnel are to install, operate, and/or perform maintenance on this equipment.

WARNINGS, CAUTIONS, AND NOTES

Throughout this manual, you should notice various *Warnings, Cautions,* and *Notes*. These addendum statements supply invaluable information pertaining to the text that they address. It is imperative that audiences read and understand the statements to avoid possible loss of life, personal injury, destruction/damage to the equipment, and/or added information that could enhance the operating characteristics of the equipment (i.e., Notes). The following subsection represents a description of the *Warnings, Cautions*, and *Notes* statements contained in this manual:

- **WARNING**

	**Warning statements identify conditions or practices that can result in loss of life or permanent personal injury if the instructions contained in the statement are not complied with.**

- **CAUTION**

	**Caution statements identify conditions or practices that can result in personal injury and/or damage to equipment if the instructions contained in the statement are not complied with.**

- **NOTE**

	**Notes are for information purposes only. However, they may contain invaluable information important to the correct installation, operation, and/or maintenance of the equipment.**

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Chapter 1 – Introduction

This manual provides detailed instructions for installing and operating the PESA DA3100 Distribution Amplifier.

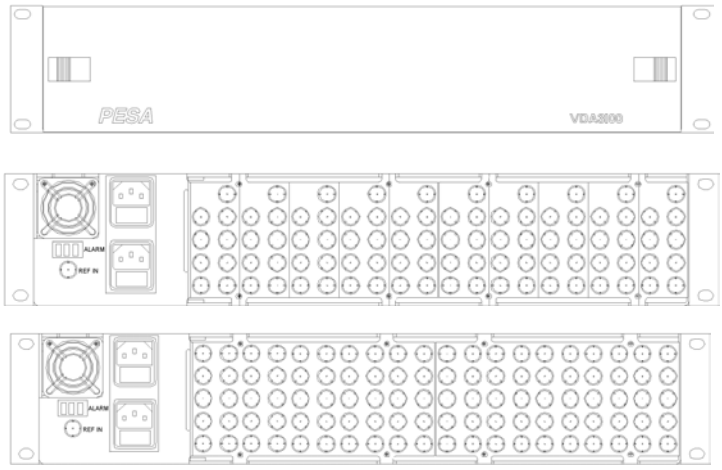
1.1 GENERAL DESCRIPTION

The DA3100 Mainframe is the heart of PESA's new line of low cost distribution amplifiers. The mainframe consists of the Video Distribution Amplifier Termination (VDA3100T), Video Distribution Amplifier Looping (VDA3100L), and Audio Distribution Amplifier (ADA3100) sub-frames.

1.1.1 VDA3100 Mainframe

The Video Distribution Amplifier VDA3100 frame is a 2RU chassis with ten video card slots, video, equalized video, and serial digital video signals can be distributed by selecting the appropriate plug-in cards. Up to two, power supply modules can be installed in the DA3100 Video Mainframe to allow single frame power redundancy. There is also one audio card (ADA3118 - the 75Ω, AES serial-digital audio distribution amplifier), which is used in the VDA3100 frame.

There are two versions of the VDA3100 frame (see Figure1) and both have ten card slots. In the VDA3100T (the non-looping version with terminating inputs), each card slot has a single input that is terminated by the plug-in card and eight outputs. This VDA3100T frame is required for use with all digital DAs, but can also be used with all analog video cards. The VDA3100L (the looping version - see Figure 1) has two input BNCs connected in parallel and eight outputs. The looping version cannot support the digital video cards since the digital cards provide a terminated input.



VDA3100 Front View

VDA3100T Rear View

VDA3100L Rear View

FIGURE 1: VDA3100T/L Frame Views

Developed as a low cost modular frame, the VDA3100 Video Mainframe is easily upgraded as requirements in the field change. All plug-in modules and power supplies are installed and removed from the front.

1.1.2 ADA3100 Mainframe

The Audio Distribution Amplifier (ADA3100) frame (see Figure 2) was developed as a low cost modular frame that is easily upgraded as requirements in the field change. All plug-in modules and power supplies are installed and removed from the front, which is identical to the VDA3100 front except for the ADA3100 labeling.

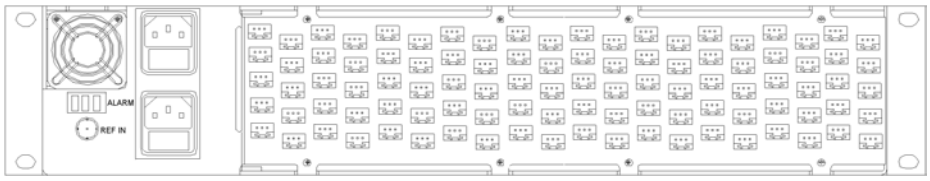


FIGURE 2: ADA3100 Frame Rear View

1.2 AVAILABLE DISTRIBUTION AND CONVERSION CARDS

There is a wide variety of cards compatible with the DA3100, both analog and digital, as listed below:

AVAILABLE MODELS	DESCRIPTION
VDA3101GP	Analog Video General Purpose DA up to 150MHz, 1x8
VDA3102	Analog Video DA with EQ, 1x8
VDA3103	Analog Video DA for wideband applications to 250MHz, 1x8
VDA3105	Analog Video DA with Auto EQ, non-re-clocking, 1x8
SVDA3101	SDI Video DA with Auto EQ, non-re-clocking, 1x8 VDA - 3100T Frame ONLY
SVDA3101R	SDI Video DA with Auto EQ, re-clocking, 1x8 - VDA3100T Frame ONLY
HDVDA3101R	HD Video DA with Auto EQ, re-clocking, 1x8 - VDA3100T Frame ONLY
VDAC3101	Video D to A analog output monitoring card, (NTSC/PAL/RGB out)
VADD3101-10	Video A to D for NTSC/PAL to SDI, 10 bit (SMPTE 259M out)
VDAE3101-10	Video D to A for SDI to NTSC/PAL, 10 bit (NTSC/PAL/YC/RGB/YpbPr out)
ADA3102	Analog Audio Distribution Amplifier – Dual 1x4
ADA3103	Analog Audio Distribution Amplifier – Single 1x8
ADA3124	Digital Audio Distribution Amplifier – Dual 1x4 or Single 1x8 (110 ohm)
ADA3118	Digital Audio Distribution Amplifier – Single 1x8 (75 ohm unbalanced)
ADAC3102	Audio D to A Conversion, 24 bit/96 KHz
AADC3102	Audio A to D Conversion, 24 bit/96 KHz (3 AES/EBU per input channel)

1.3 DA3100 MAINFRAME COMPATIBILITY WITH DISTRIBUTION AND CONVERSION CARDS

1.3.1 VDA3100T Frame and Card Compatibility

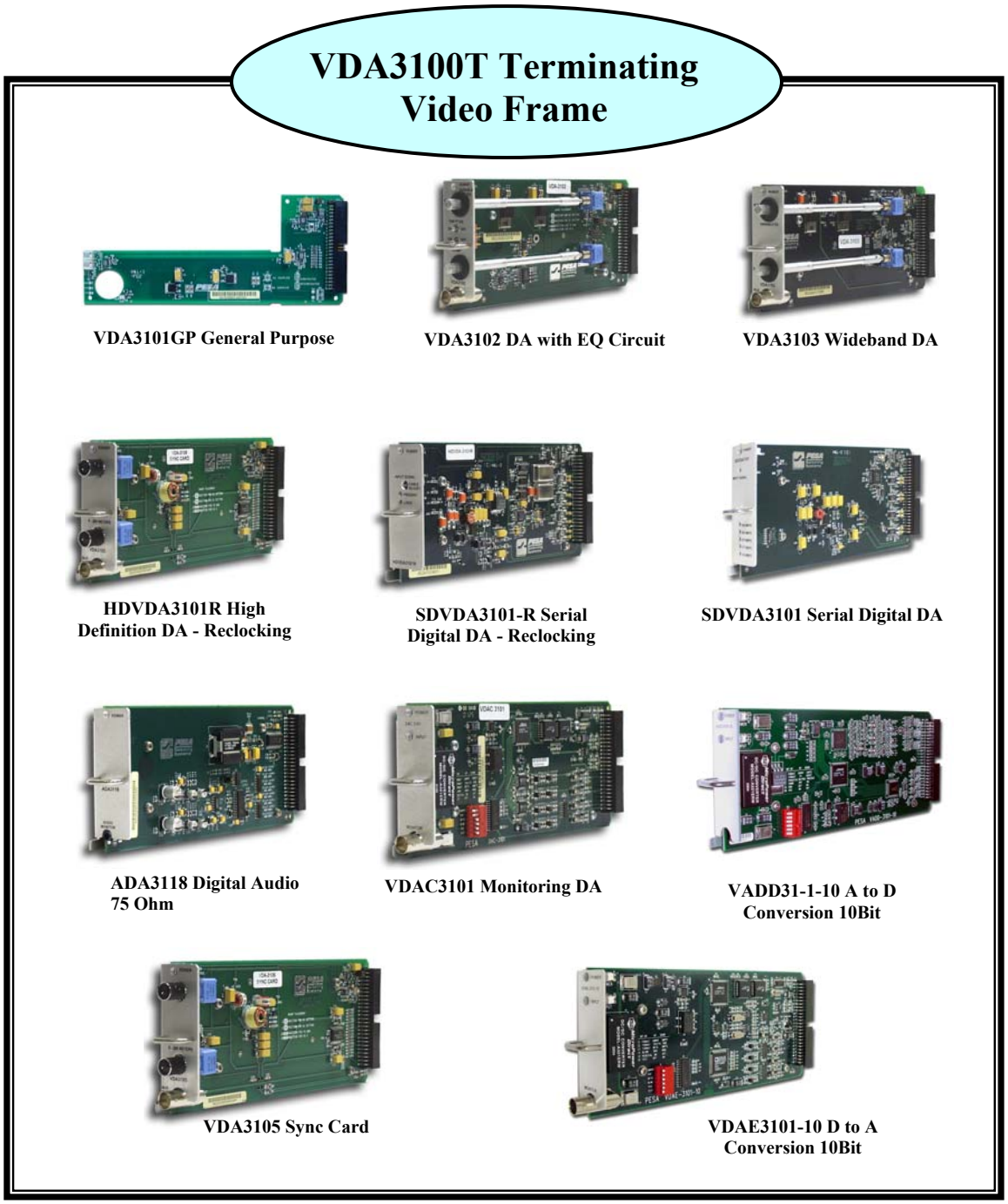


FIGURE 3: VDA3100T Frame and Card Compatibility Diagram

1.3.2 VDA3100L Frame and Card Compatibility

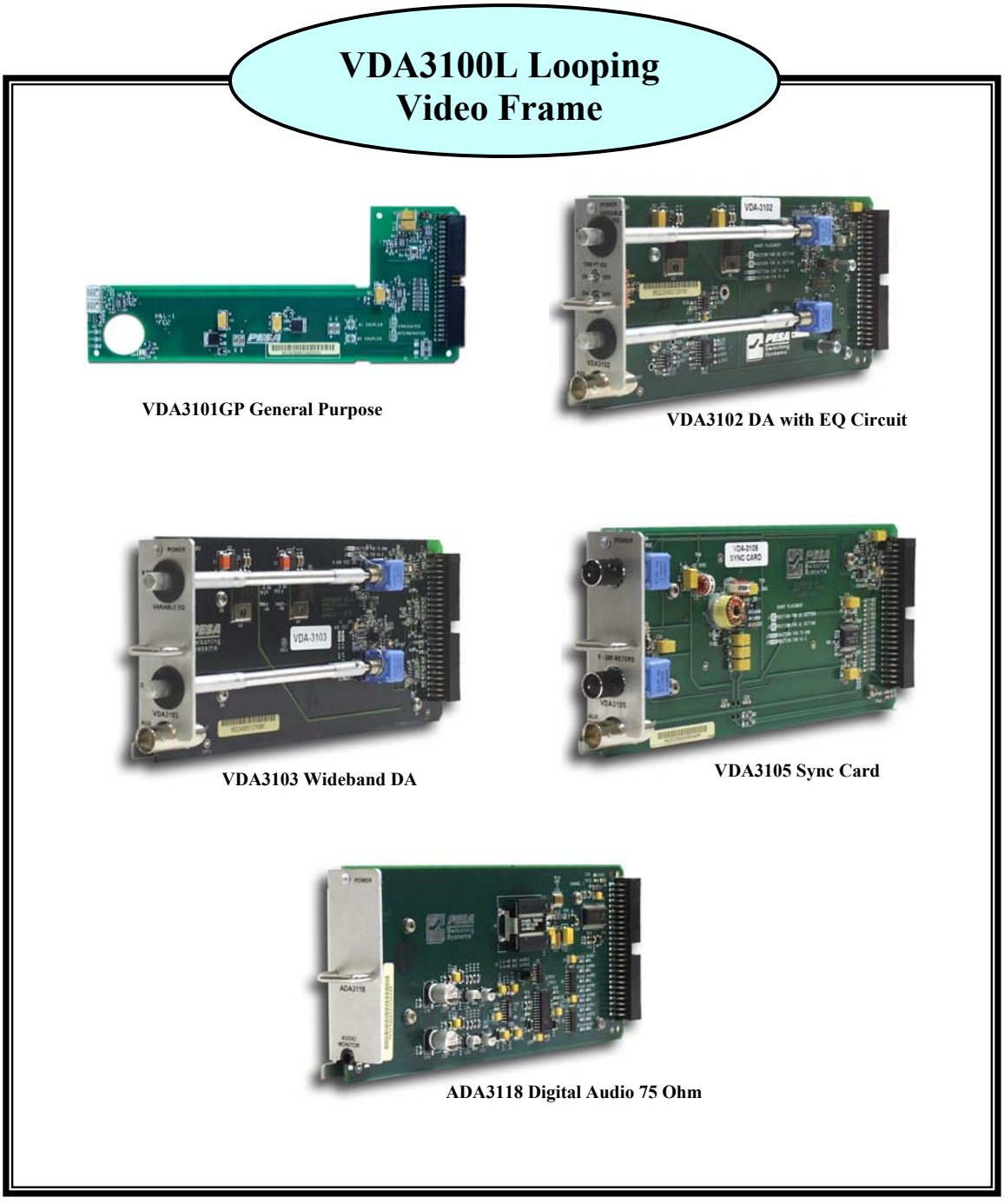


FIGURE 4: VDA3100L Frame and Card Compatibility Diagram

1.3.3 ADA3100 Frame and Card Compatibility

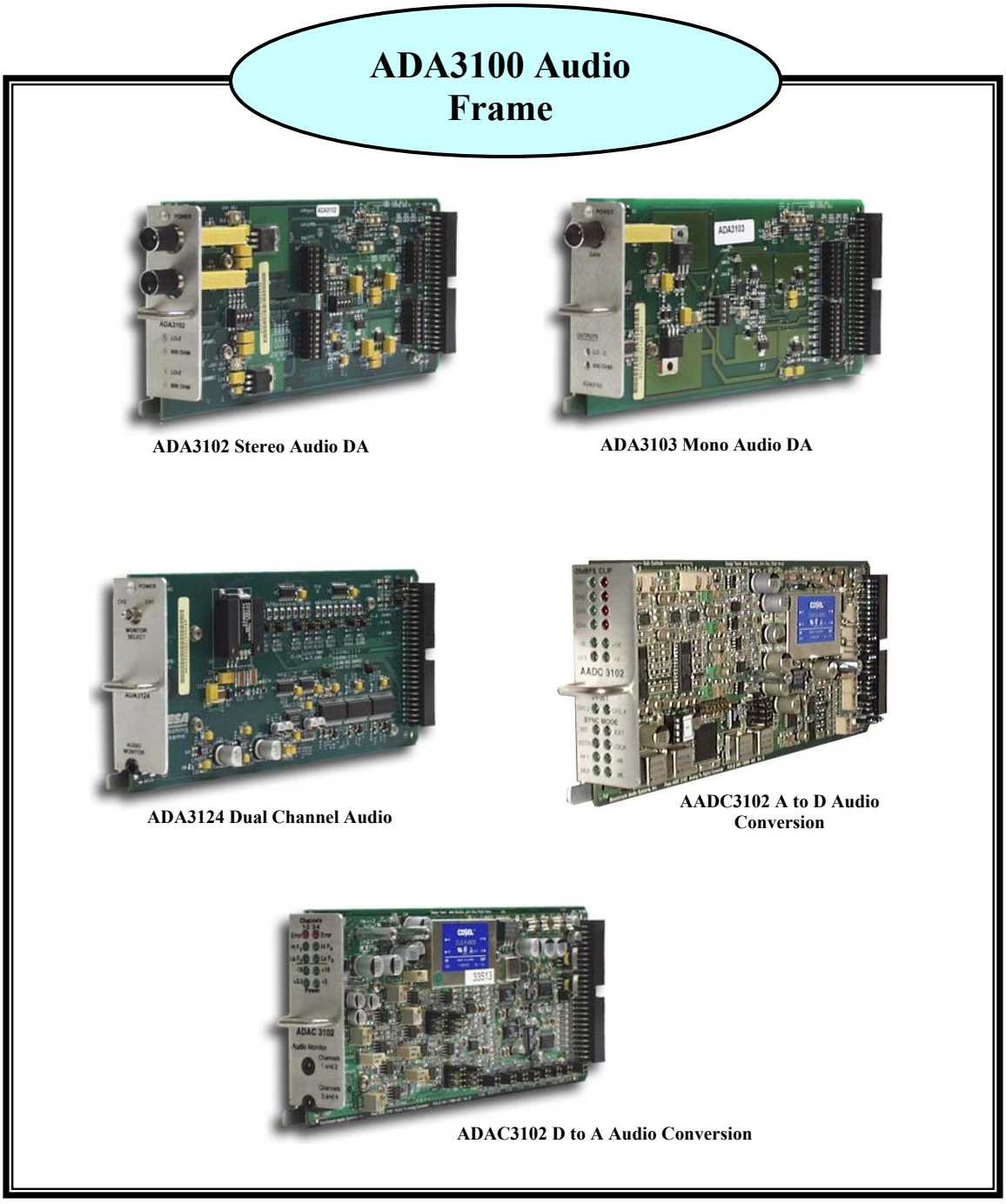


FIGURE 5: ADA3100 Frame and Card Compatibility Diagram

1.4 VDA3100 AND ADA3100 MAINFRAME VIEWS

FIGURE 6: VDA3100T/L Front View

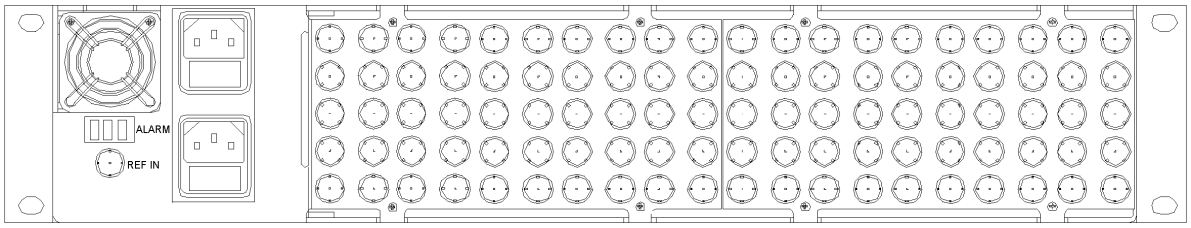


FIGURE 7: VDA3100L Looping Frame Rear View

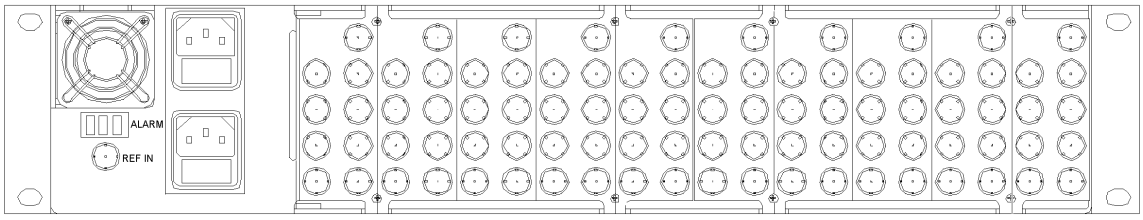


FIGURE 8: VDA3100T Terminating Frame Rear View

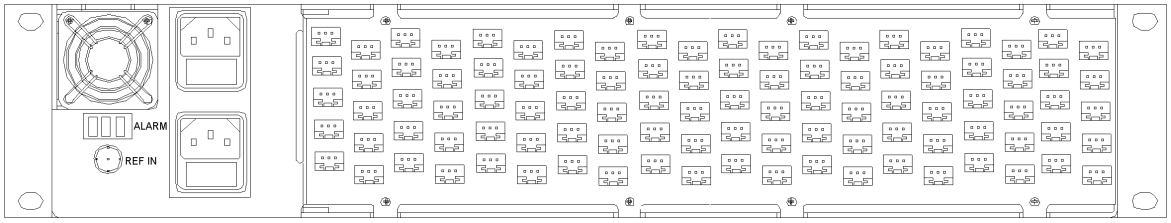


FIGURE 9: ADA3100 Audio Frame Rear View

1.5 VDA3100 VIDEO MAINFRAME SPECIFICATIONS

INPUT CHARACTERISTICS

VDA3100L:

Input Type.....Looping Inputs

VDA3100T:

Input Type..... Terminating Inputs

OUTPUT CHARACTERISTICS

Number .....8 Per Channel
Connector Type.....BNC

CARD SLOTS

Number .....10 Per Chassis

ENVIRONMENTAL - Operational

Temperature .....0°C to 40°C
Humidity ..... 10-90% Non-Condensing

POWER SUPPLIES

Number ..... 1 (Standard)
2 (Optional)

MECHANICAL

Dimensions .....2 RU
19" W X 10" D 3.5" H
(482.6mm X 254.1mm X 89mm)

POWER

AC Voltages..... 100-130V, 47-63Hz (US)
200-250V, 47-63Hz (OUS)
Power .....Max. 90VA

1.6 DISTRIBUTION/CONVERSION CARD SPECIFICATIONS

1.6.1 ADA3102

Analog Audio Distribution Amplifier - Dual 1x4

FIGURE 10: ADA3102 Card

Features:

- Hi-Z or 600 Ohm input impedance
- 66 Ohm/600 ohm output impedance
- 4 stereo outputs

Input Characteristics

- Level +30dBm Max
- Coupling DC
- Type Balanced
- Common mode level ±20V
- Impedance jumper on card Hi-Z or 600 ohms
- Common mode rejection >90dB @ 60 Hz; >60dB to 20KHz

Output Characteristics

- Level +30dBm @ 66/600 ohms
- Impedance jumper on card for selectable 66 or 600 ohms balanced
- Coupling DC
- DC on outputs <±20mV max
- Output isolation – module to module > 100dB 20 Hz to 20 KHz

1.6.2 ADA3103

Analog Audio Distribution Amplifier - Single 1x8

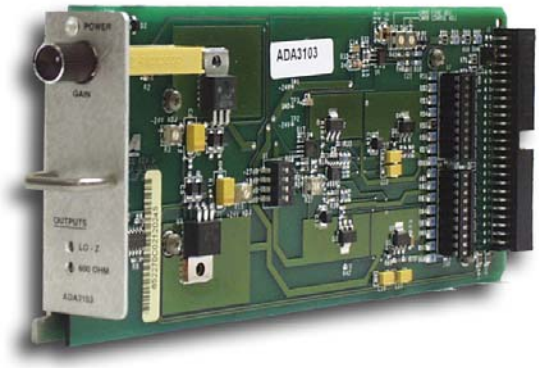


FIGURE 11: ADA3103 Card

Features

- Hi-Z or 600 ohm input impedance
- 66 ohm/600 ohm output impedance
- 8 mono outputs

Input Characteristics

- Level +30dBm max
- Impedance jumper on card
- Coupling DC
- Type Balanced Hi-Z at 600 ohms
- Common model level +20V
- Common mode rejection >90dB @ 60 Hz; >60dB to 20KHz

Output Characteristics

- Level +30dBm @ 66 ohms
- Impedance jumper on card 66 ohms balanced
- Coupling DC
- DC on outputs <±20mV max
- Output isolation – module to module > 100dB 20 Hz to 20 KHz

1.6.3 ADA3124

Digital Audio Distribution Amplifier - Dual 1x4 or Single 1x8 (110 Ω)

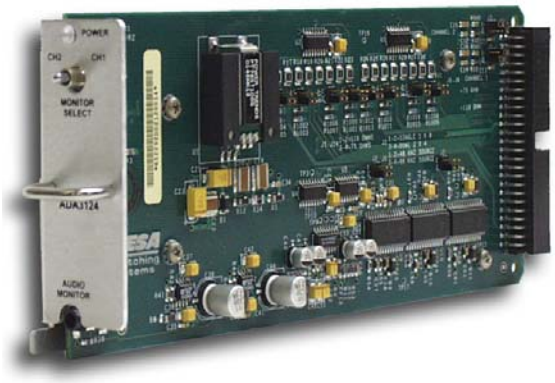


FIGURE 12: ADA 3124 Card

Features

- Re-clocked and equalized
- Dual 1x4 or Single 1x8 configuration
- Analog headphone monitoring

Digital Input Characteristics

- Input level 2-7V p-p
- Impedance 75 ohm unbalanced (uses the Video frame) or 110 ohm balanced (uses the Audio frame), selectable

Digital Output Characteristics

- Impedance 75 ohm unbalanced or 110 ohm balanced, selectable
- Jitter <20ns
- Standard AES-3

1.6.4 HDVDA3101-R

HD Video Distribution Amplifier with Auto EQ, Reclocking, 1x8

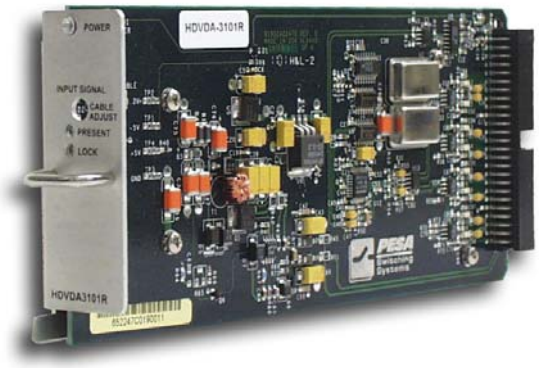


FIGURE 13: HDVDA3101-R Card

Features

- Conforms to SMPTE 259M
- Automatic input EQ
- 8 outputs/card

Input Characteristics

- Standard SMPTE 259M
- Impedance: 75 ohms internally terminated
- Return loss >15dB to 1.5 GHz
- Signal amplitude 800mV ±10%
- DC offset ±0.5V
- Rise and fall times <270pS

Output Characteristics

- Standard SMPTE 292M
- Impedance: 75 ohms internally terminated
- Return Loss >15dB to 1.5 GHz
- Signal amplitude 800mV ±10%
- DC offset ±0.5V
- Rise and fall times <270pS

1.6.5 SDVDA3101

Serial Digital Interface Standard Definition Video Distribution Amplifier with Auto EQ, non-reclocking, 1x8

FIGURE 14: SDVDA3101 Card

Features

- Conforms to SMPTE 259M
- Automatic input EQ
- 8 outputs/card

Input Characteristics

- Standard SMPTE 259M
- Impedance 75 ohms
- Return loss >15dB to clock frequency
- Signal level 800mV ±10%
- DC offset ±0.5V
- Equalization automatic

Output Characteristics

- Standard SMPTE 292M
- Impedance 75 ohms
- Return loss >25dB to clock frequency
- Signal level 800mV ±10%
- DC offset 0V ±0.5V
- Rise and fall times 400-700pS (20 to 80% amplitude)
- Overshoot <10% of amplitude (all outputs terminated)

1.6.6 SDVDA3101-R

Serial Digital Interface Standard Definition Video Distribution Amplifier with Auto EQ, reclocking, 1x8

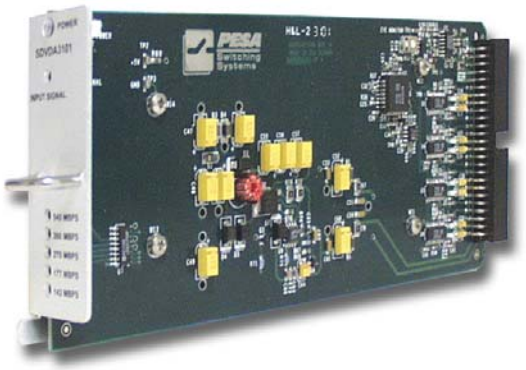


FIGURE 15: SDVDA3101-R Card

Features

- Conforms to SMPTE 259M
- Automatic input EQ
- Re-clocking
- 8 outputs/card

Input Characteristics

- Standard SMPTE 259M
- Impedance 75 ohms
- Return loss >15dB to clock frequency
- Signal level 800mV ±10%
- Equalization automatic

Output Characteristics

- Standard SMPTE 292M
- Impedance 75 ohms
- Return loss >25dB to clock frequency
- Signal level 800mV ±10%
- DC offset 0V ±0.5V
- Rise and fall times 400-700pS (20 to 80% amplitude)
- Overshoot <10% of amplitude (all outputs terminated)

1.6.7 VDA3101GP

Analog Video General Purpose Distribution Amplifier up to 150MHz. 1x8

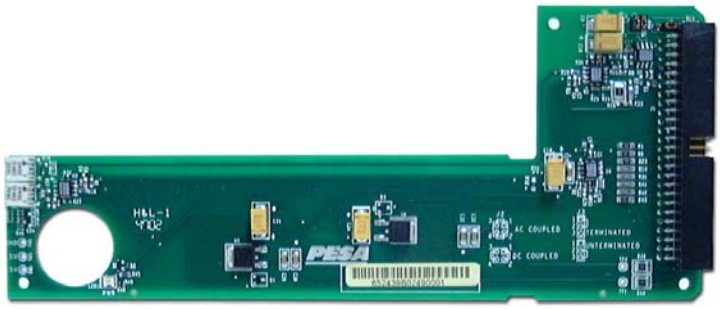


FIGURE 16: VDA3101GP Card

Features

- Bandwidth up to 1280X1024 @75Hz (about 150MHz)
- Handles inputs over 2V p-p to over 40 MHz
- 8 outputs

Input Characteristics

- Level 1V p-p nominal
- Type Differential
- Return loss >50dB to 10 MHz, >30dB to 150 MHz
- Impedance 75 ohms or High-Z
- Coupling DC or AC
- Common mode rejection > 55dB to 10 kHz @ 4V p-p

Output Characteristics

- Level 1V p-p nominal
- Impedance 75 ohms
- Return Loss >50dB to 10 MHz, >25dB to 150 MHz

1.6.8 VDA3102

Analog Video Distribution Amplifier with EQ, 1x8

FIGURE 17: VDA3102 Card

Features

- 1500' EQ min., 1700' EQ typical (Approx. –1dB to 25 MHz)
- 3000' EQ min. (VDA 3102E), 3400' typical (Approx. –1dB to 20 MHz)
- 8 outputs/card plus front panel BNC
- 650' pre-EQ
- Backporch Clamp - user selectable ON/OFF

Input Characteristics

- Level 1V p-p nominal; 2V p-p max (w/o obvious distortion)
- Common mode rejection >70dB @ 60 Hz; >40dB to 5 MHz
- Return Loss >-55dB to 5 MHz
- Coupling AC, DC, Selectable
- Type Differential
- Impedance Hi-Z or 75 ohms looping

Output Characteristics

- Impedance 75 ohms
- Return Loss >55dB to 5 MHz
- Coupling Direct DC
- Level 1V p-p nominal; 2V p-p max (w/o obvious distortion)
- DC on outputs <±20mV max (w/o clamp); <±10mV (with clamp)

1.6.9 VDA3103

Analog Video Distribution Amplifier for Wideband Applications to 250MHz, 1x8

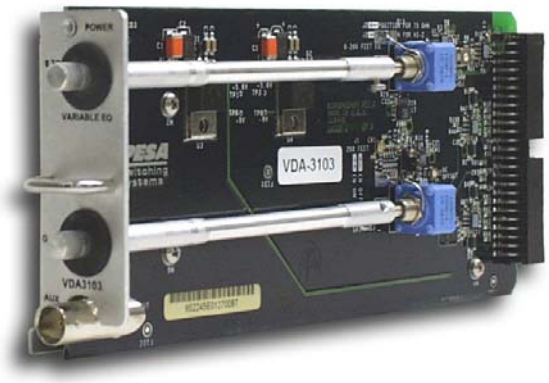


FIGURE 18: VDA3103 Card

Features

- 250 MHz bandwidth with EQ
- 275 MHz bandwidth without EQ
- 8 outputs/card with front panel BNC

Input Characteristics

- Level 1V p-p nominal
- Impedance 75 ohms looping
- Return Loss >45dB to 5 MHz
- Coupling DC (Direct)
- Type Balanced (Differential)
- Common mode rejection >65dB @ 60 Hz

Output Characteristics

- Level 1V p-p nominal
- Impedance 75 ohms
- Return Loss >50dB to 5 MHz
- Coupling DC (Direct)
- DC on outputs <±20mV max
- Isolation >50dB to 20 MHz
- Equalization 0 to 100 meters Belden 8281 or equivalent to 250 MHz

1.6.10 VDA3105

Analog Video Distribution Amplifier for High Level Sync or TTL, 1x8

FIGURE 19: VDA3105 Card

Features

- High level DA (0 to ±5V)
- H&V sync DA
- 8 outputs/card with front panel BNC
- Equalization 0 to 200 ft (Beldon® 8281)

Input Characteristics

- Level 10V p-p centered at 0V
- Impedance 75 ohms looping
- Coupling DC (Direct)
- Type balanced (differential)
- Common mode rejection 60dB
- Return loss >40dB to 5 MHz

Output Characteristics

- Level ±5.0V p-p centered at 0V
- Impedance 75 ohms
- Coupling direct DC
- DC on outputs <±20mV max
- Isolation >40dB to 5 MHz
- Equalization 0 to 200 ft. Belden 8281

1.6.11 VDAC3101

Video Digital to Analog Output Monitoring Card (NTSC/PAL/RGB out)

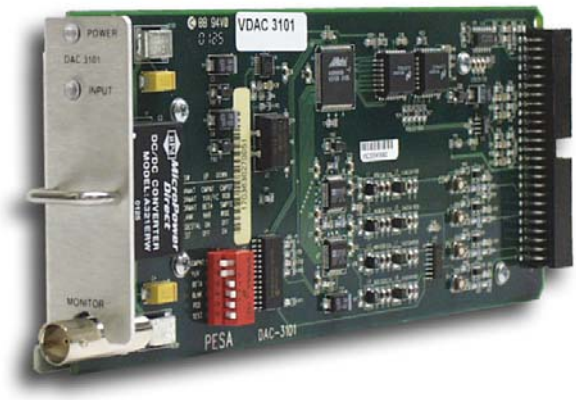


FIGURE 20: VDAC3101 Card

Features

- Converts 270 MB/s component SDI input into analog outputs
- Front card edge provides additional composite analog output
- Four rear panel analog outputs, configurable as all NTSC/PAL-B composite, two composite and one Y/C, or one composite and one component
- Built-in color bar generator for set-up
- Provides 4 re-clocked, buffered SDI outputs
- 10 bit D-A, 8 bit encoding

Performance

- Signal-to-noise >56dB (weighted luminance to 10 MHz)
- Luminance frequency response 12 bits at 27 MHz
- Differential Gain <1.5%
- Differential phase <1.5 degrees
- K factor (2T) <1.0%
- Output level adjustment (internal) ±20%

1.6.12 ADA3118

Digital Audio Distribution Amplifier - Single 1x8 (110Ω)

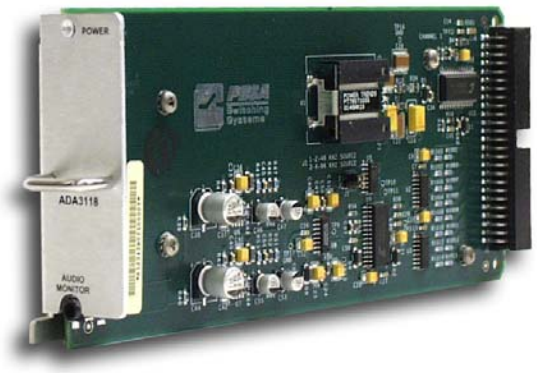


FIGURE 21: ADA3118 Card

Features

- Re-clock and equalized
- 8 output
- Analog headphone monitoring

Digital Input Characteristics

- Input level 2-7V p-p
- Impedance 75 ohm unbalanced

Digital Output Characteristics

- Impedance 75 ohm unbalanced
- Jitter <±20ns
- Standard AES-3

1.6.13 ADAC3102

Audio Digital to Analog Conversion, 24 bit/96kHz

FIGURE 22: ADAC3102 Card

Features

- Two AES/EBU transformer coupled inputs
- Two stereo analog outputs per AES/EBU input
- 24 bit/96 KHz D-A converters for superior performance
- Supports LR swap, invert, sum, and difference modes via jumper selection
- Selectable 66 or 600 ohm output impedance dual analog headphones

Analog Output Characteristics

- Level +30dBm @66 ohms; +24dBm @600 ohms
- Impedance selectable 66 or 600 ohms

Digital Input Characteristics

- Input level 2-7V p-p
- Impedance 75 ohm unbalanced or 110 balanced, selectable
- Type transformer coupled
- Supported sample rates 28 to 96 KH

1.6.14 VADD3101-10

Video Analog to Digital for NTSC/PAL to Serial Digital Interface, 10 bit (SMPTE 259M out)

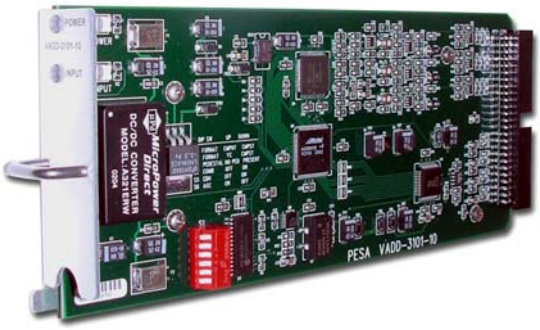


FIGURE 23: VADD3101-10 Card

Features

- Excellent quality 10-bit NTSC/PAL to SDI decoder
- Automatic NTSC/PAL selection
- Composite, and Y/C inputs

Input Characteristics

- NTSC/PAL composite BNC
- Y/C, 2X BNC
- RGB. 3X BNC

Output Characteristics

- 4 SDI, SMPTE 259M BNCs
- A/D Converters: 10-bit, 2X over-sampling
- Frequency: Resp. ±25dB to 5 MHz
- Size: Fits PESA VDA3100T frames
- Power: 7W

1.6.15 AADC3102

Audio Analog to Digital Conversion, 24 bit/96kHz (3 AES/EBU per input channel)

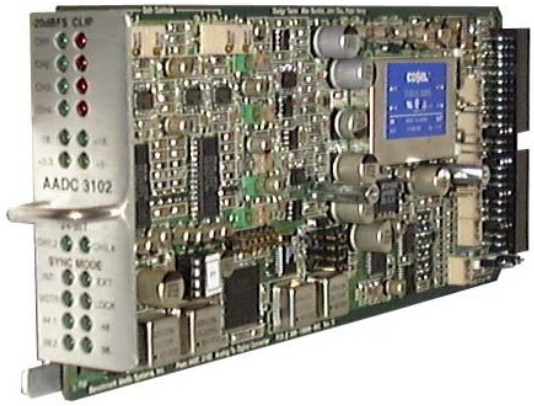


FIGURE 24: AADC3102 Card

Features

- Two stereo analog input channels
- Three AES/EBU outputs per input channel
- 24 bit/96 KHz A-D converters for superior performance
- Dual analog headphone
- Selectable 75 or 110 ohm output impedance
- Supports LR swap, invert, sum and different modes via jumper selection

Analog Input Characteristics

- Input level +30dBm max.
- Impedance 600 or 30k ohm, selectable
- Return loss >35dB to 5.75 MHz

Digital Output Characteristics

- Impedance 75 ohm unbalanced or 110 ohm balanced, selectable
- Standard AES-3
- Supported sample rates 28 to 96 KHz

1.6.16 VDAE3101-10

Video Digital to Analog for Serial Digital Interface to NTSC/PAL, 10 bit (NTSC/PAL/YPbPr out)

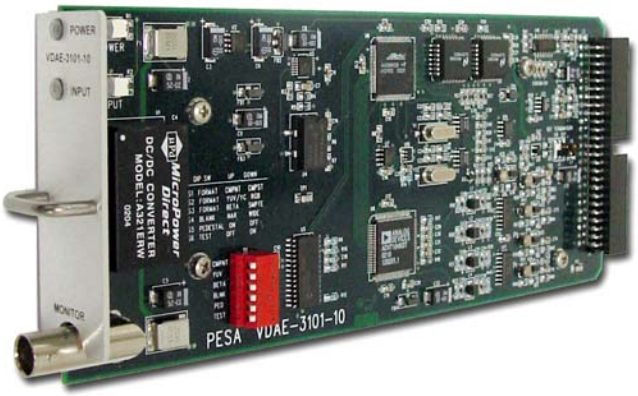


FIGURE 25: VDAE3101-10 Card

Features

- Excellent quality 10-bit Serial Digital to Analog conversion
- Full 10-bit data path, 4X over-sampling
- Simultaneous component and composite analog outputs
- Digital noise reduction

Input Characteristics

- SDI (SMPTE 259M), BNC

Output Characteristics

- YpbPr, Betacam, RGB (all with 3 BNCs) YC with 2 BNCs and NTSC/PAL with 1 BNC
- Size: Fits PESA VDA3100T frames
- Power: 7W

Chapter 2 - Installation

2.1 INTRODUCTION

This section details DA3100 Video Mainframe installation procedures. The following topics are discussed:

- Receipt Inspection
- Unpacking
- Location
- Mounting
- Cabling
- Plug-In Video Card Installation
- Power Supply Installation
- Front Panel Installation
- Rear Panel Connectors
- DA3100 Mainframe System Connections

NOTE	**The DA3100 contains static sensitive devices. Care should be used when it is necessary to handle the internal circuit cards. It is recommended that a ground wrist strap and grounding mat be used before attempting any equipment installations.**

2.2 RECEIPT INSPECTION

The DA3100 Mainframe was tested and inspected prior to leaving the factory. Upon receipt, inspect the equipment for shipping damage. If any damage is found, contact the carrier immediately and save all packing material.

2.3 UNPACKING

The DA3100 Mainframe is comprised of a frame, a backplane, up to two power supplies, and up to ten distribution boards. Prior to discarding packing material, compare the parts received against the packing list. Carefully inspect the layers of packing material for any components, which may have been overlooked during the initial unpacking.

2.4 LOCATION

The DA3100 Mainframe may be located anywhere power is available. However, units should be mounted as close as possible to their associated equipment to minimize cable runs. Installation should be in an area where the ambient temperature does not exceed 40°C (104°F) inside the equipment rack.

2.5 MOUNTING

The DA3100 Mainframe is rack mounted in a standard 19" equipment rack. Sufficient space must be provided behind the rack to allow for the video and power cables. All mounting holes should be utilized and mounting hardware tightened securely. As with all equipment installed in a rack, the bottom screw on each side should be installed before proceeding with the remainder of the screws. Then all screws should be securely tightened. Support the DA3100 Mainframe's bottom while installing it in the rack. Figure 26 illustrates chassis installation in the equipment rack.

To install a DA3100 Mainframe in an equipment rack, follow these steps:

1. Align the chassis with the slotted opening in the rack.
2. Install the bottom screws first.
3. Install the two top screws.
4. Tighten all four screws securely.

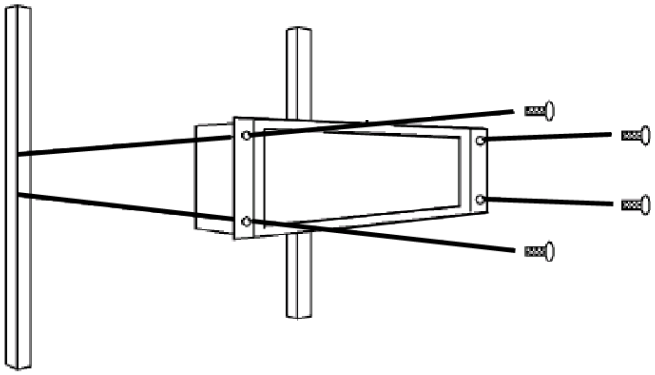


FIGURE 26: Chassis Installation

2.6 CABLING

Considerable weight will be added to the rear panel of the DA3100 Mainframe by the cables. Therefore, all cables should be strained relieved and secured to racks or other supporting structures (see Figure 27). Failure to provide adequate cable support can result in cables separating from connectors. If cable runs are to be stored under an elevated floor, they should be tied to the racks as a guide. If cables are run along the floor, do not allow them to lay in the work area behind the racks. Stepping or tripping on the cables may result in connections being pulled free or wire breakage inside the insulation. The DA3100 Mainframe should be installed in the equipment rack prior to attaching cables.

NOTE	**It is <u>strongly</u> recommended that you utilize Belden 8281 (or equal) 75Ω cable for all video cabling.**

NOTE	**Do not use 50Ω cable, as this will produce standing waves and oscillations.**

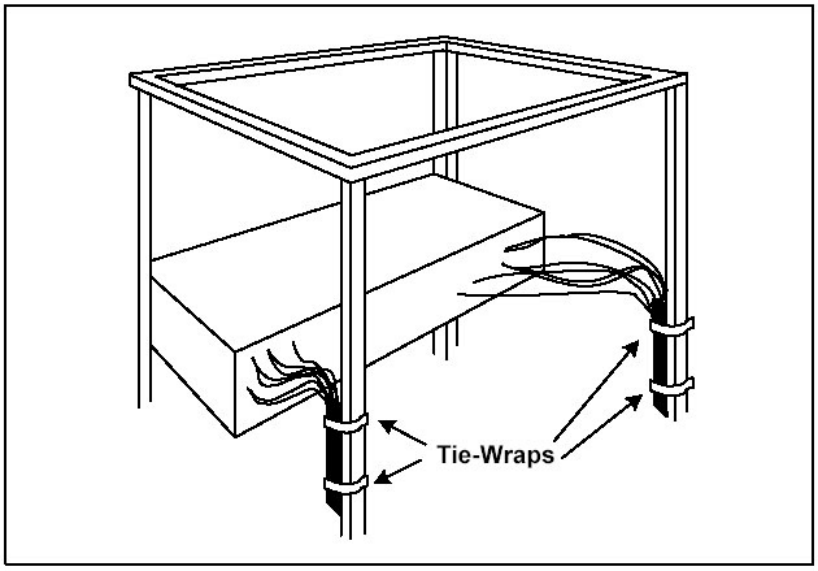


FIGURE 27: Cabling

Use the following rules when cabling the DA3100 Mainframe:

1. Lay all cables in their intended positions, separating audio and video from power cables where possible.
2. Provide proper support for each cable during the cabling process. The use of tie-wraps is recommended, as shown in Figure 27.

2.7 PLUG-IN CARD INSTALLATION

To install a card in the DA3100 Mainframe, perform the following steps.

1. Align the card with a set of circuit card guides in either the center or left-hand compartment of the frame.
2. Carefully, slide the card into the frame until the circuit card connector makes initial contact with the backplane connector. At this point, firmly but carefully, continue to slide the card into the frame while making sure the connectors are properly aligned. Continue pushing the card until it is in place and the connectors are firmly mated.
3. Repeat steps 1 and 2 for each card to be installed.

2.8 POWER SUPPLY INSTALLATION

Only authorized and properly trained personnel shall connect electrical supply source(s) to this equipment. Typically, the main electrical disconnect for this equipment is the branch circuit overcurrent protection device (e.g., fuse or circuit breaker) that controls the receptacle for the line-cord(s). Generally, the line-cord(s) act as a means of disconnecting the power source.

De-energize (Lockout/Tagout) the system when servicing this equipment. Additionally, there may be two power sources connected to this equipment. When de-energizing the equipment, verify that there are no line-cords connected to the equipment.

Power is supplied to the DA3100 series mainframes (video and audio frames) through an internally mounted power supply. Power can also be supplied by an internally mounted secondary power supply. Power supplies are hot-swappable (can be removed or added while the system is energized).

There are two power supplies available, which are the PS70 and the PS130. The PS70 is standard with the ADA3100 mainframe and the PS130 is standard with the VDA3100 mainframe.

The PS70 alternating current input voltage is manually set. The unit produces an output of +24VDC and –24VDC at 70Watts nominal.

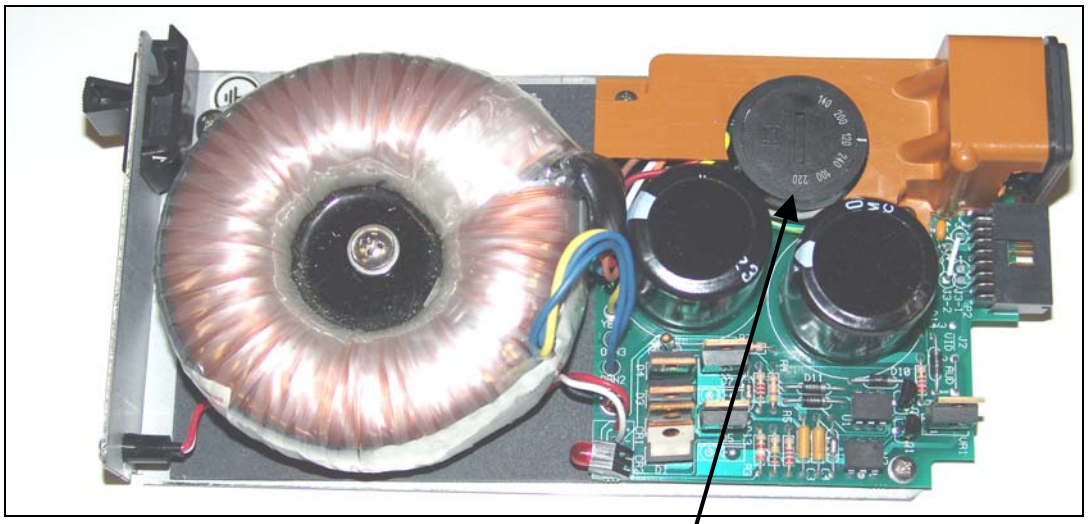
The PS130 alternating current input voltage is auto-ranging. The unit produces an output of +9VDC and –9VDC at 130Watts nominal.

In a redundant external power configuration, it should be noted that the DA3100 Mainframe does not differentiate between the supply intended as primary power and the supply intended as backup. Therefore, consideration should be given to avoid overloading the power supplies by having less than one supply per frame in multi-frame configurations.

2.8.1 ADA3100 Power Supply Installation

To install a PS70 power supply in the ADA3100 Mainframe, perform the following steps:

1. Verify the voltage setting for the PS70 is set to the value of the voltage that is supplying the unit (see Figure 28). If it isn't, use a flat-bladed screwdriver and adjust the setpoint to the correct supply voltage in accordance with the following table:



Source Voltage	*Setting*
90 - 100	**100**
101 - 120	**120**
121-200	**200**
201 - 220	**220**
221-240	**240**

FIGURE 28: ADA3100 PS70 Power Supply and Settings

2. Align the primary Power Supply with the upper set of circuit card guides in the right-hand side of the frame.

3. Carefully, push the Power Supply into the frame until the power supply connector makes initial contact with backplane power connector. At this point, firmly but carefully continue pushing the Power Supply into the frame while verifying the connectors are properly aligned. Continue pushing the Power Supply until it is in place and the connectors are firmly mated. Verify the front slide switch is seated (clicks in place).
4. If a redundant power supply is to be installed, align it with the lower set of circuit card guides in the right-hand side of the frame and repeat Step 2.

2.8.2 VDA3100 Power Supply Installation

The PS130 power supply (see Figure 29) is installed the same as the PS70 power supply (refer to section 2.8.1) except the input voltage is auto-ranging and does not require setting.

FIGURE 29: VDA3100 Mainframe PS130 Power Supply

2.9 FRONT PANEL INSTALLATION

To install the access door (front panel) of the DA3100 Mainframe (see Figure 30), follow these steps:

1. Align the front panel to the front of the DA3100 Mainframe.
2. Now, slide the front panel onto the mainframe assembly until the slide locks snap into place.

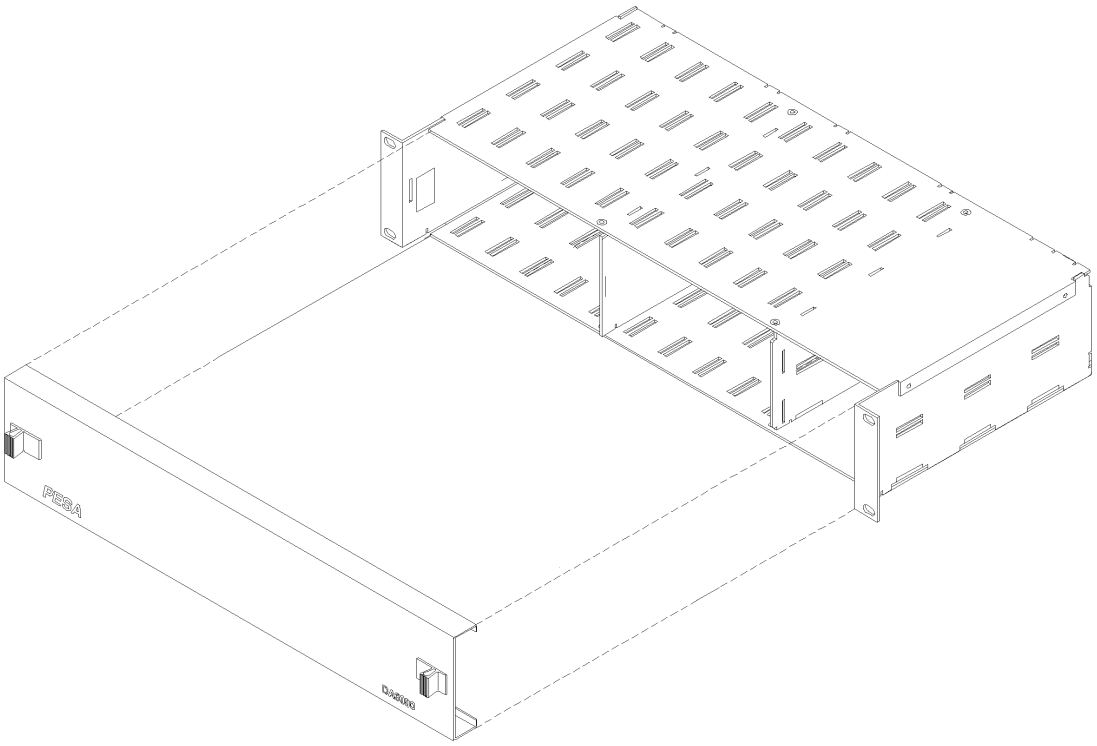


FIGURE 30: Front Panel Installation

2.10 REAR PANEL CONNECTORS

2.10.1 Alarm Connector

The alarm connector is shown in Figure 29. When power supplies are utilized to power the DA3100 Mainframe (optional configuration), the fan circuit is enabled and the alarm circuit, contained in power supply circuitry, acts as a switch to trigger an optional external alarm in the event of a failure in the power supply or of the external 110VAC (220VAC for the international version) source. The alarm circuits supply a contact closure but do not provide an operational voltage for the external alarm. The alarm connector, located on the backplane, allows connection of the external alarm.

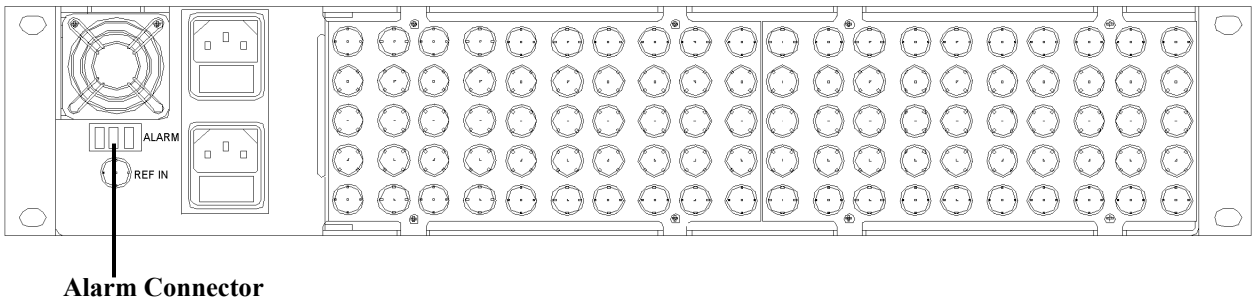


FIGURE 31: Alarm Connector

2.10.2 DA3100 Input and Output Connectors

The DA3100 system can include any or all of the available three frames. The specific configuration is solely dependent upon customer specifications. This section is divided into the following subsections:

- VDA3100L Frame I/O Connectors
- VDA3100T Frame I/O Connectors
- ADA3100 Frame I/O Connectors

2.10.2.1 VDA3100L Frame I/O Connectors

There are ten pairs of video input/loop-through connectors located on the rear panel of the VDA3100L Mainframe (see Figure 32). Additionally, there are ten groups of eight video output connectors located on the rear panel.

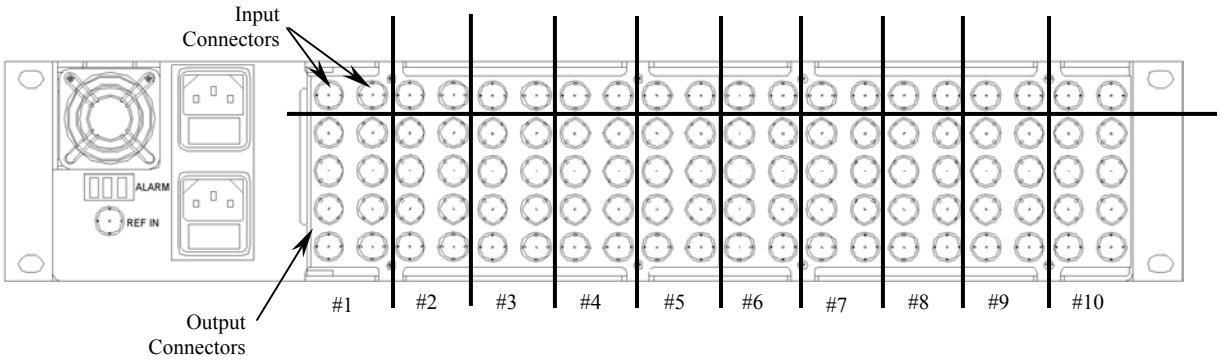


FIGURE 32: VDA3100L Frame Connector Layout

2.10.2.2 VDA3100T Frame I/O Connectors

There are ten video input connectors located on the rear panel of the VDA3100T Mainframe (see Figure 33). Additionally, there are ten groups of eight video output connectors located on the rear panel. The input is terminated by the placement of a specific card in that slot.

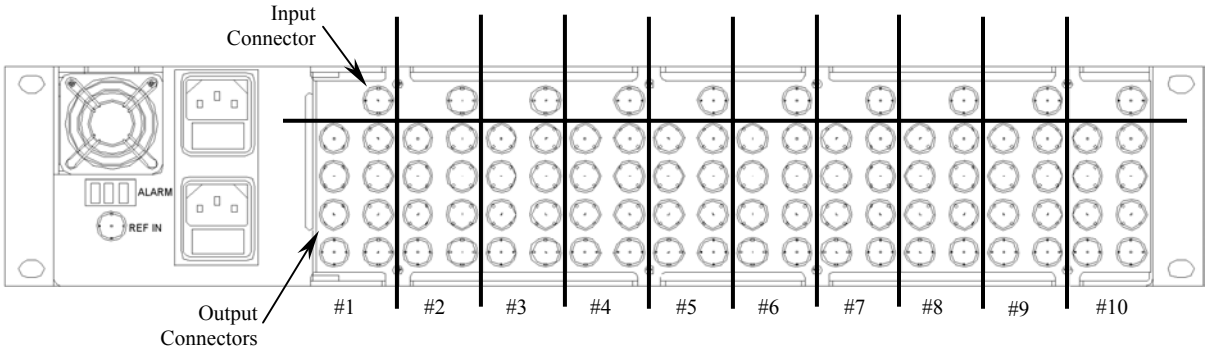


FIGURE 33: VDA3100T Frame I/O Connectors

2.10.2.3 ADA3100 Frame I/O Connectors

There are 20 audio input connectors located on the rear panel of the ADA3100 Mainframe (see Figure 34). Additionally, there are ten groups of eight video output connectors located on the rear panel.

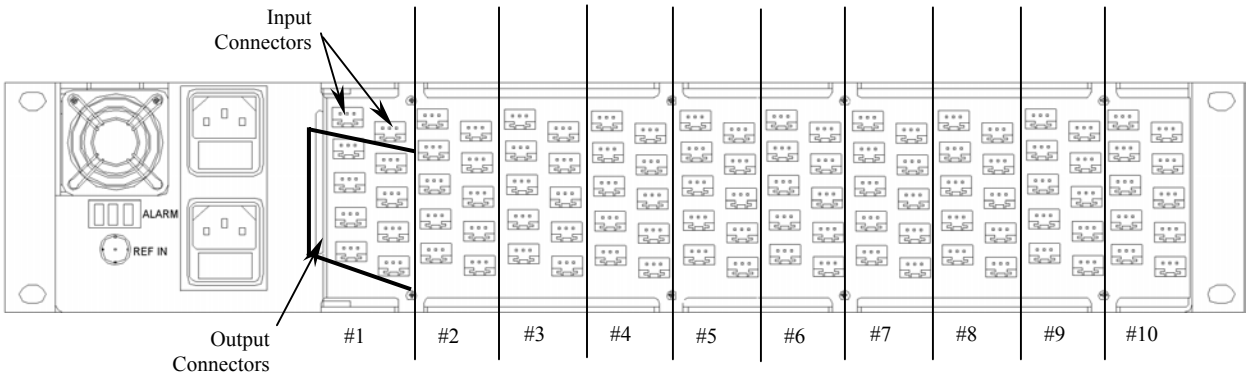


FIGURE 34: ADA3100 Frame I/O Connectors

2.11 DA3100 MAINFRAME SYSTEM CONNECTIONS

Once the DA3100 Mainframes are installed in the equipment racks, system connections can be made. Use the following guide and the sample system connection illustrations (see previous Figures 32 through 34) to insure that the DA3100 Mainframe system connections are connected correctly.

- ***Connection Guide***

1. Connect the audio or video sources to the inputs. The video inputs are either loop-through connectors, which can be daisy-chained, or terminated. The end of each video input daisy chain must be terminated with a 75Ω termination.
2. Connect the audio or video outputs to the audio or video destinations.

	**Only authorized and properly trained personnel shall connect electrical supply source(s) to this equipment. Typically, the main electrical disconnect for this equipment is the branch circuit overcurrent protection device (e.g., fuse or circuit breaker) that controls the receptacle for the line-cord(s). Generally, the line-cord(s) act as a quick means of disconnecting the power source.** **Additionally, there may be two power sources connected to this equipment. When de-energizing the equipment, verify that there are no line-cords connected to the equipment.**

3. Connect the primary power supply to the AC line.
4. If a redundant internal AC power supply is utilized, connect it to the AC line.

The DA3100 Mainframe should now be powered up and ready for operation.

Chapter 3 – Operation

This chapter provides operational information about the different cards that can be used with the DA3100 series distribution amplifiers.

3.1 VDA3101GP CARD

3.1.1 VDA3101GP Card Operational Description

The VDA3101GP general-purpose card (see Figure 35) is used with the VDA3100T and/or VDA3100L frames. The VDA3101GP's performance and features include EQ to 250ft, AC or DC coupling, and a gain range of -3 to +6dB. In addition to being a solution for the general-purpose market, the VDA3101GP offers the flexibility to support wideband applications up to 150MHz (1280X1024 @75Hz). Each card supports one input and eight outputs (1x8).

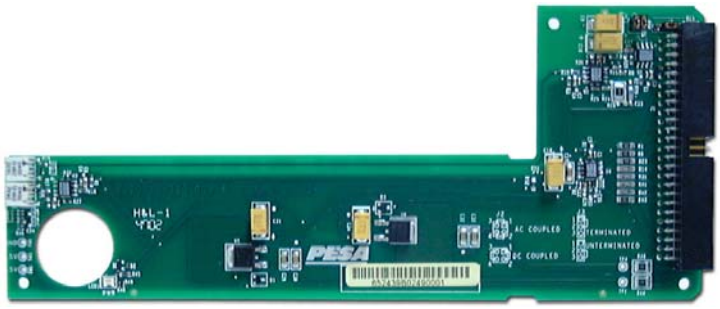


FIGURE 35: VDA3101GP Card

3.1.2 VDA3101GP Card Electronic Block Diagram

(See Figure 36 for a typical block diagram of the VDA3101GP card.)

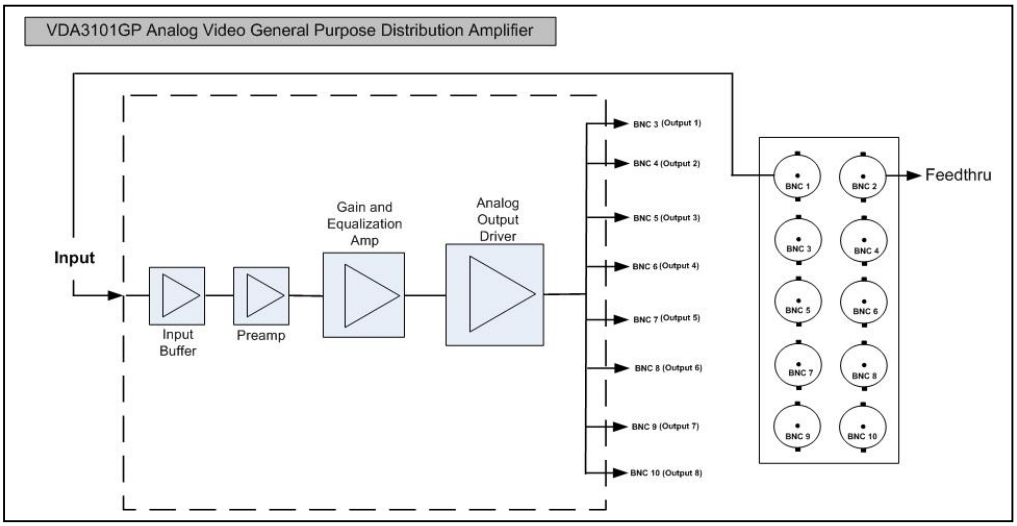


FIGURE 36: VDA3101GP Block Diagram

3.1.3 VDA3101GP Card Field- Adjustable/Programmable Overview

This card has two, multi-turn potentiometers (pots) that are used for adjusting output gain and line equalization for long line runs. Additionally, the card has jumper settings to control looping termination and AC/DC Coupling.

3.1.3.1 VDA3101GP Card Gain and Equalization Adjustment

Users can increase the output gain by turning the Gain pot (see Figure 37) clockwise and decrease the output gain by turning the Gain pot counterclockwise.

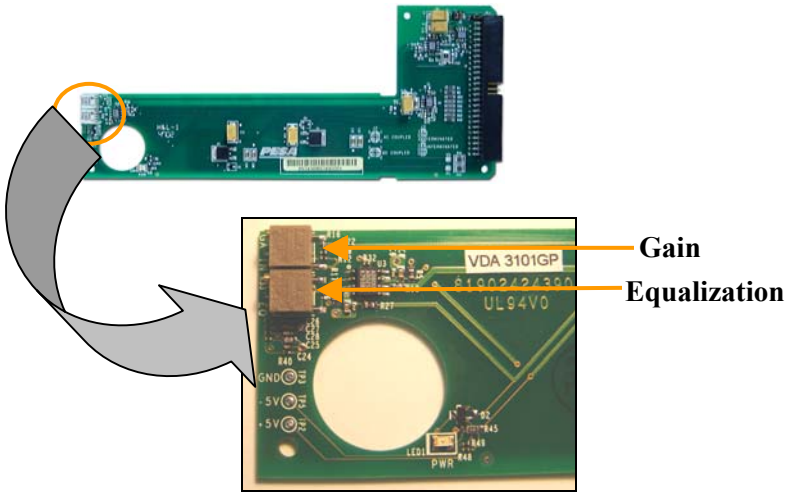


FIGURE 37: VDA3101GP Card Gain and Equalization Pots

Likewise, users can increase the line equalization (input lines) by turning the Equalization pot (see Figure 37) clockwise and decrease the line equalization by turning the Equalization pot counterclockwise.

3.1.3.2 VDA3101GP Card Looping Termination and AC/DC Coupling

The factory default settings for Jumper J2 (AC/DC Coupled) and Jumper J3 (Terminated/Un-terminated) are as follows (see Figure 38 - DC Coupled and Terminated):

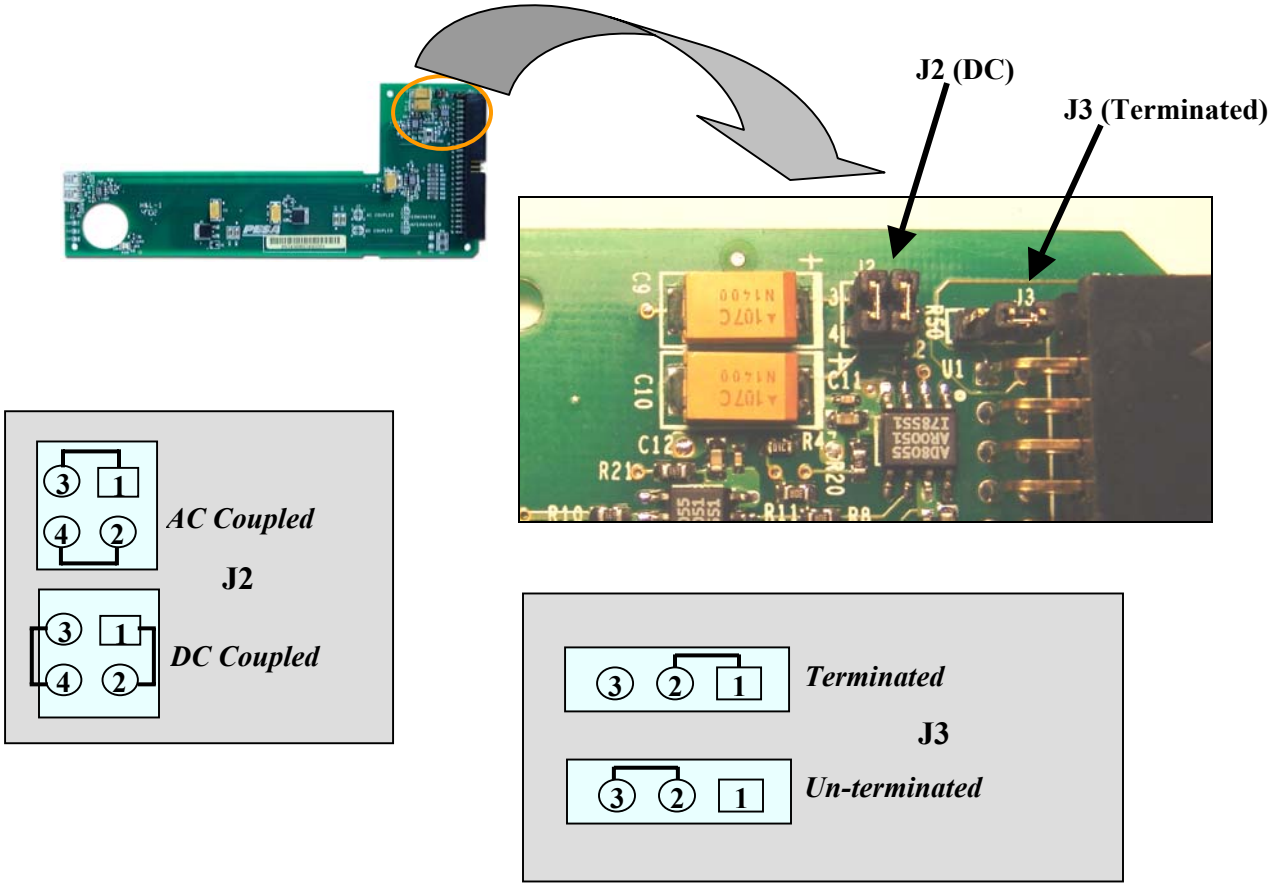


FIGURE 38: VDA3101GP Card Looping Termination and DC/AC Coupling Jumper Locations

AC Coupled position allows capacitive-coupled signals to pass (DC voltages blocked) and DC coupled allows signals with DC voltages to pass.

The Terminated position terminates the outputs internally while the un-terminated position allows for user-termination points. Place the jumpers as depicted.

3.1.3.3 VDA3101GP Card Test Points (TP)

Additionally, the card includes test points TP1 through TP5. These test points are used to check operational voltages. The checks are as follows (refer to Table 1):

TABLE 1: VDA3101GP Card Test Points

TEST POINTS	DESCRIPTION	INDICATION
TP1	TP1 to TP3	+9 VDC ±10% (Frame V+)
TP2	TP2 to TP3	+5 VDC ±10% (Card V+)
TP3	Card/System Ground	N/A
TP4	TP4 to TP3	-9 VDC ± 10% (Frame V-)
TP5	TP5 to TP3	-5 VDC ±10% (Card V-)

3.2 VDA3102 CARD

3.2.1 VDA3102 Operational Description

The VDA3102 card (see Figure 39) is used with the VDA3100T and/or VDA3100L frames. This card is an analog video distribution amplifier with equalization that supports one input and eight outputs (1x8). The VDA3102 card is used to equalize line losses, which can occur when using long distance input runs.

FIGURE 39: VDA3102 Card

The initial installation of the VDA3102 Video Distribution card includes inserting the card into a VDA3100T and/or VDA3100L mainframe connector slot, connecting the peripherals, and energizing the mainframe. The card's operation includes monitoring the power LED in addition to allowing the user to set the clamp and equalization switches to their desired positions to compensate for line losses.

3.2.2 VDA3102 Card Electronic Block Diagram

(See Figure 40 for a typical block diagram of the VDA3102 card.)

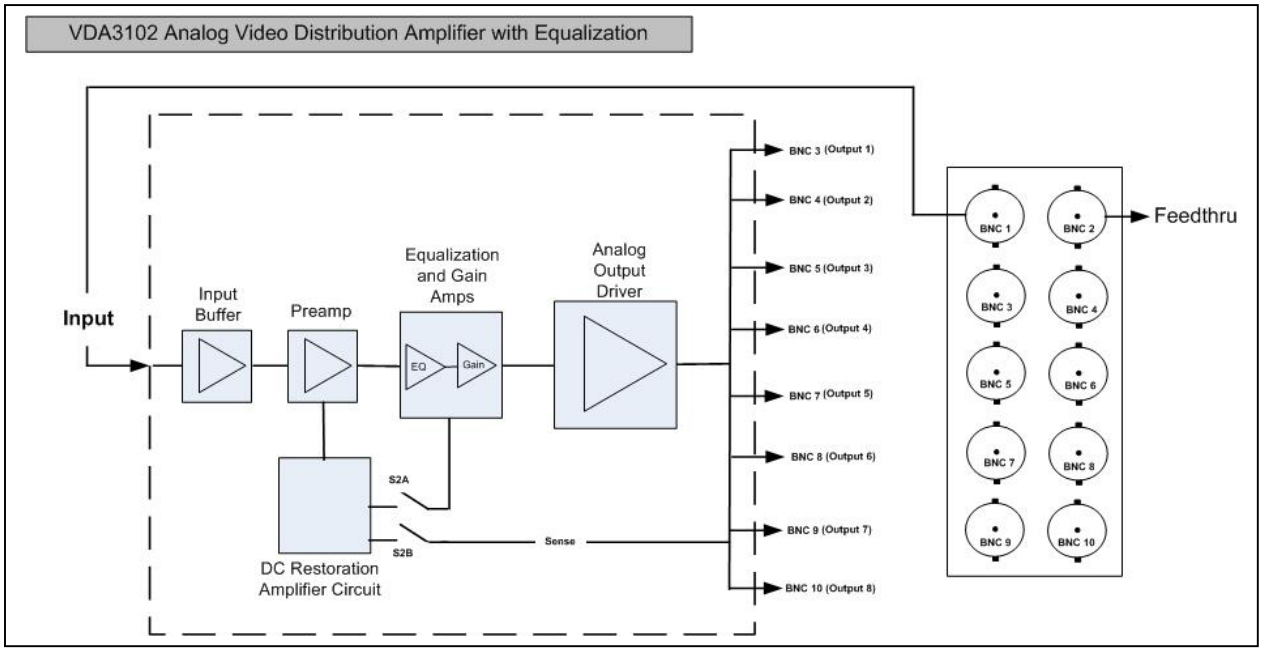


FIGURE 40: VDA3102 Card Block Diagram

3.2.3 VDA3102 Card Component Descriptions

This section describes the external user components (see Figure 41) and is subdivided into the following subsections:

- VDA3102 Power LED
- VDA3102 Clamp Switch
- VDA3102 HI-LO Switch
- VDA3102 Variable Equalizer Adjustment
- VDA3102 Gain Adjustment
- Auxiliary Output BNC Connection

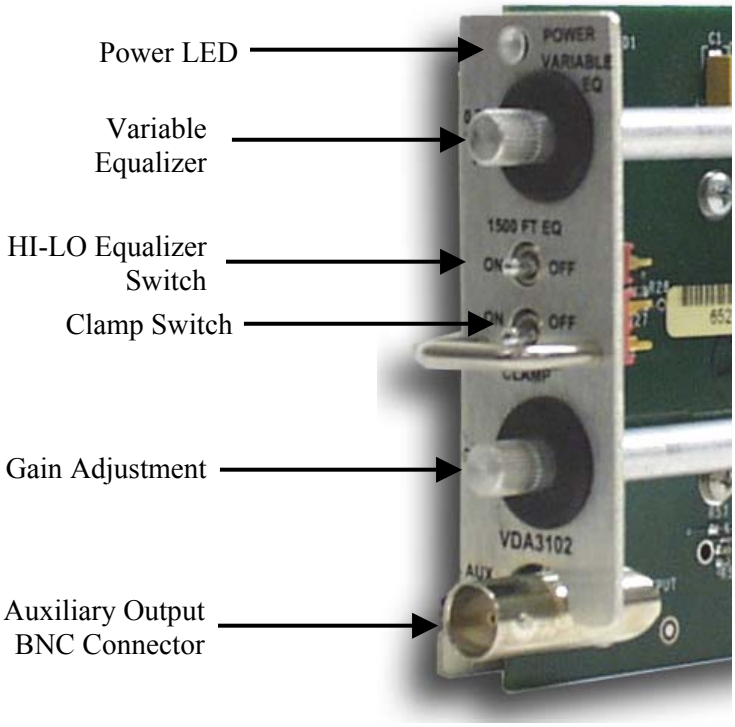


FIGURE 41: VDA3102 User Component Locations

3.2.3.1 VDA3102 Power LED

The function of the power LED (see previous Figure 41 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The power LED should be illuminated during normal operation. If the power LED dims or extinguishes during operation, check the operation of the VDA3100 mainframe's power supply or on-board regulators. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.2.3.2 VDA3102 Clamp Switch

The Clamp Switch (see previous Figure 41 for location) allows the user to activate or deactivate the VDA3102 cards "back-porch" clamp, which is dependant upon the user's requirement. Typically, clamping is used with AC coupling at the input.

3.2.3.3 VDA3102 HI-LO Switch

The HI-LO Switch (see previous Figure 41 for location) in the equalizer circuit allows the user to set the cable length equalization range. This switch adds in an additional 1500 feet of equalization (EQ). When the switch is in the OFF position, the adjustment knob allows for 0 to 1500 feet of EQ. When the switch is in the ON position, the adjustment knob allows for 1500 to 3000 feet of EQ.

The additional EQ is generated from a plug-on card, which attaches to the stand-offs and plugs into the post headers.

3.2.3.4 VDA3102 Variable Equalizer Adjustment

The Variable Equalizer adjustment potentiometer (see previous Figure 41 for location) allows the user to adjust the input and/or output line equalizations. This adjustment affects the input equalization to all outputs (0 to 1500 feet). Clockwise rotation increases the Gain and counterclockwise decreases the gain.

3.2.3.5 VDA3102 Gain Adjustment

The Gain (see previous Figure 41 for location) adjustment potentiometer allows the user to adjust the output signal gain. This adjustment affects all signal outputs. Clockwise rotation increases the Gain and counterclockwise decreases the gain.

3.2.3.6 Auxiliary Output BNC Connection

This BNC connection (see previous Figure 41 for location) allows the user to access and monitor an output signal that is consistent with all card output signals without having to disconnect and monitor individual outputs.

3.2.3.7 VDA3102 Jumper Settings

The VDA3102 Card has two, user-selectable jumper configurations (see Figure 42).

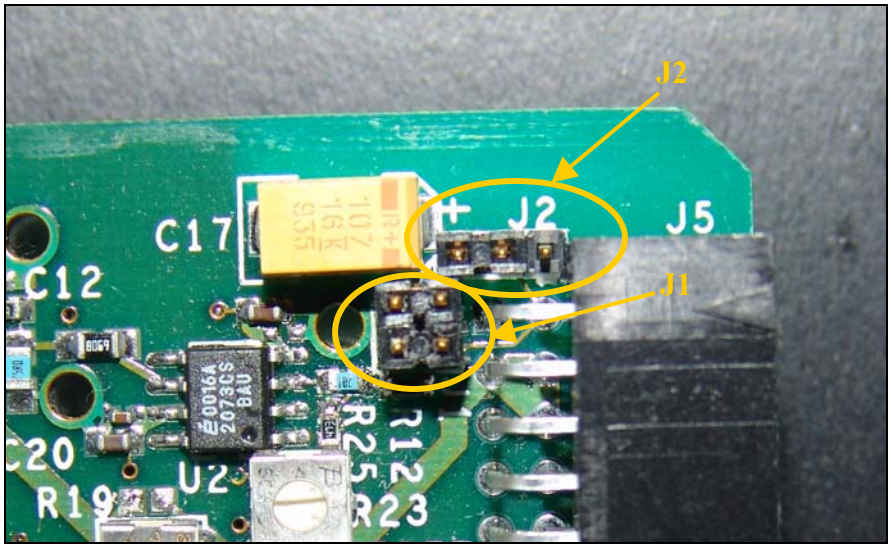
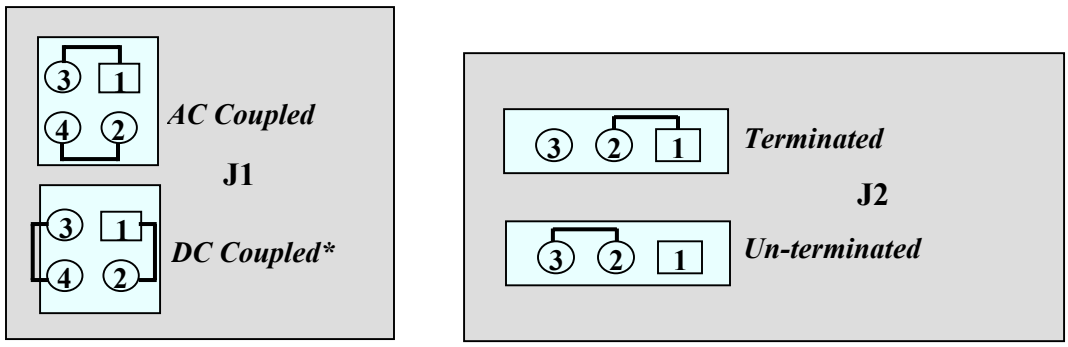


FIGURE 42: VDA3102 Jumper Locations

Jumper J1 is used to set the DC or AC Coupled configuration and J2 is used to set the Terminated or Un-terminated (75Ω) configuration. Factory default settings are *DC Coupled* and *Terminated*. Refer to the following figure (see Figure 43) for the applicable setting for your specific configuration.



NOTE	***When the *DC Coupled* option is selected (factory default), pins 3 and 4 are not in use. The jumper is in place so that it can be used for the AC Coupled selection, which requires both jumpers.**

FIGURE 43: VDA3102 Jumper Configurations

3.3 VDA3103 CARD

3.3.1 VDA3103 Operational Description

The VDA3103 card (see Figure 44) is used with the VDA3100T and/or VDA3100L frames. This card is an analog video distribution amplifier for ultra-wideband applications to 250MHz that supports one input and eight outputs (1x8).

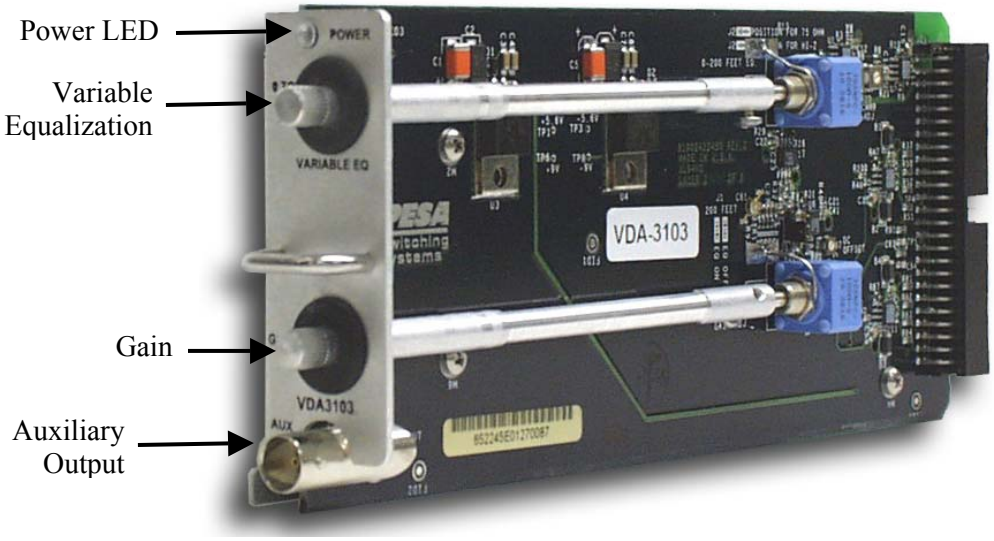


FIGURE 44: VDA3103 Card

The VDA3103 card includes up to 200 meters of cable equalization adjustability and is ideal for distribution of hi-resolution workstation signals.

The function of the VDA3103 Power LED (see Figure 44 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The power LED should be illuminated during normal operation. If the power LED dims or extinguishes during operation, check the operation of the VDA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.3.2 VDA3103 Card Electronic Block Diagram

(See Figure 45 for a typical block diagram of the VDA3103 card.)

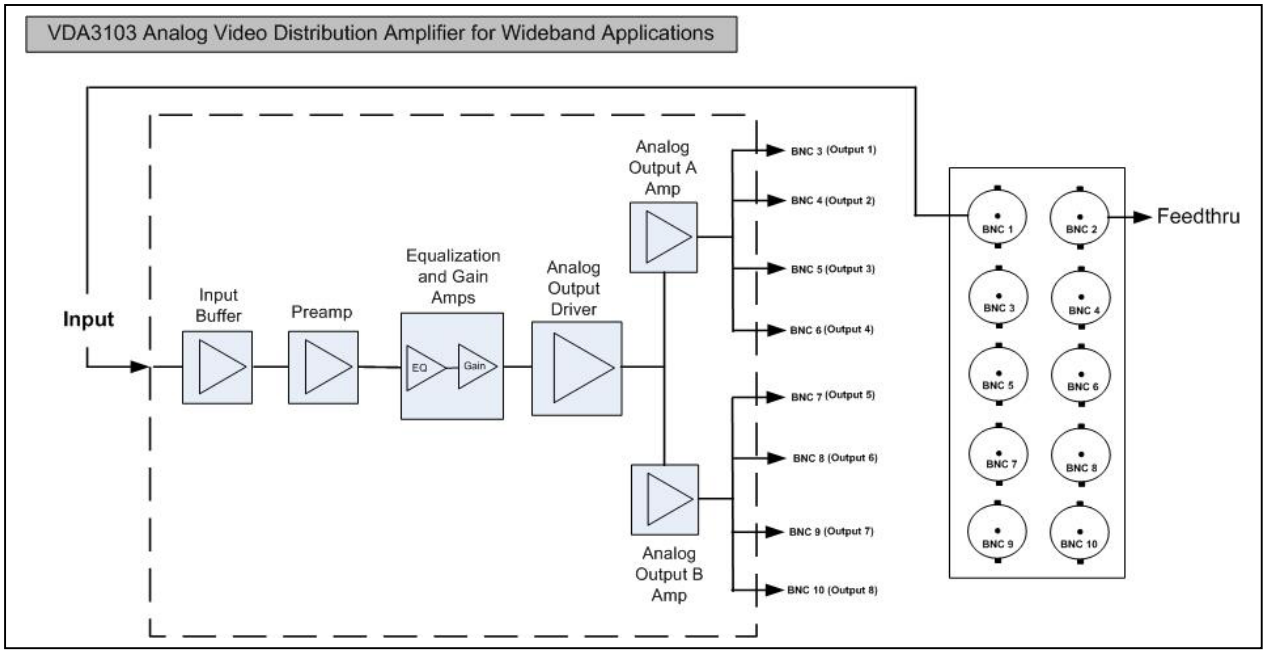


FIGURE 45: VDA3103 Card Block Diagram

3.3.3 VDA3103 Card Field-Adjustable/Programmable Overview

3.3.3.1 VDA3103 Card Gain Adjustment

NOTE	**The user should perform the VDA3103 card gain adjustment to align the card with the user's cable configuration requirements.**

- The gain adjustment allows the user to adjust the level of the VDA3103 card's distributed signals. Adjust the gain for overall unity using the Gain adjustment knob (see previous Figure 44 for location). Clockwise rotation increases the gain and counterclockwise decreases the gain.

3.3.3.2 VDA3103 Variable Equalization (EQ) Adjustment

NOTE	**The user should perform the VDA3103 card equalization adjustment to align the card with the user's cable configuration requirements. Additionally, when using the input cabling as the adjustment media, all other test connections must be input oriented. Vice-versa for output cabling adjustment media.**

1) Adjust the VDA3103 card for signal EQ for all input/output signals by using the Variable Equalization adjustment knob (see previous Figure 44 for location), adjust for the best signal quality. Clockwise rotation increases the EQ and counterclockwise decreases the EQ.

3.3.3.3 VDA3103 Jumper Configurations

The VDA3103 Card has two, user-selectable jumper configurations (see Figure 46).

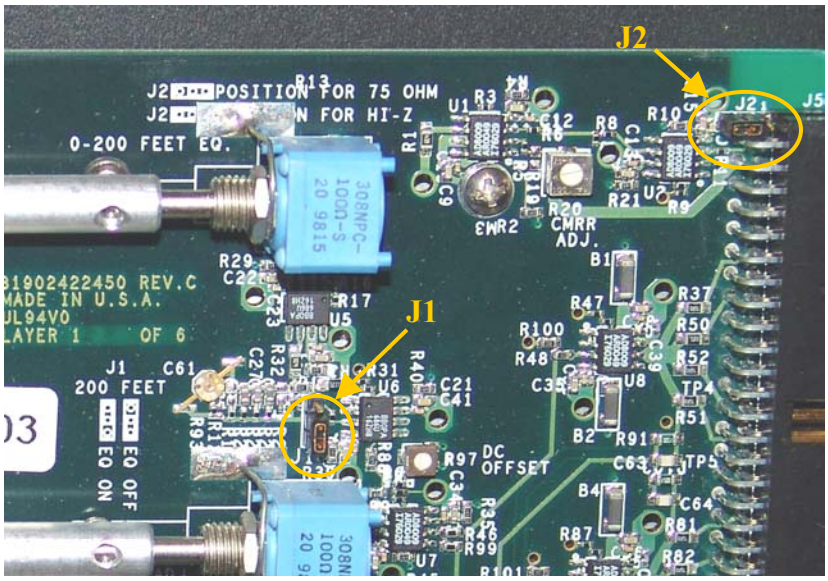


FIGURE 46: VDA3103 Jumper Locations

Jumper J1 is used to set the 200 feet equalization ON/OFF configuration and J2 is used to set the Terminated or Un-terminated (75Ω) configuration. Factory default settings are J1: *200 Feet EQ OFF* and J2: *Terminated*. Refer to the following (see Figure 47) for the applicable setting for your specific configuration.

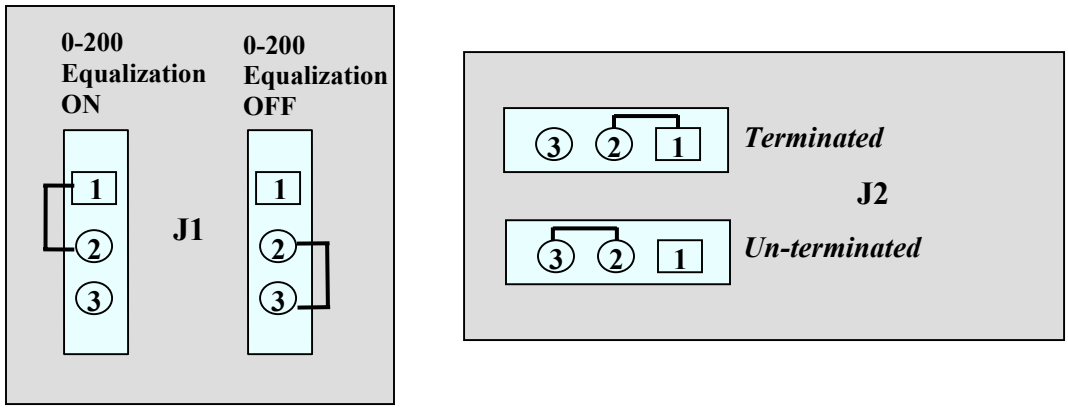


FIGURE 47: VDA3103 Jumper Position Settings

3.4 VDA3105 CARD

3.4.1 VDA3105 Operational Description

The VDA3105 card (see Figure 48) is used with the VDA3100T and/or VDA3100L frames. This card is an analog video distribution amplifier for high-level synchronization or transistor-transistor logic (TTL) that supports one input and eight outputs (1x8).

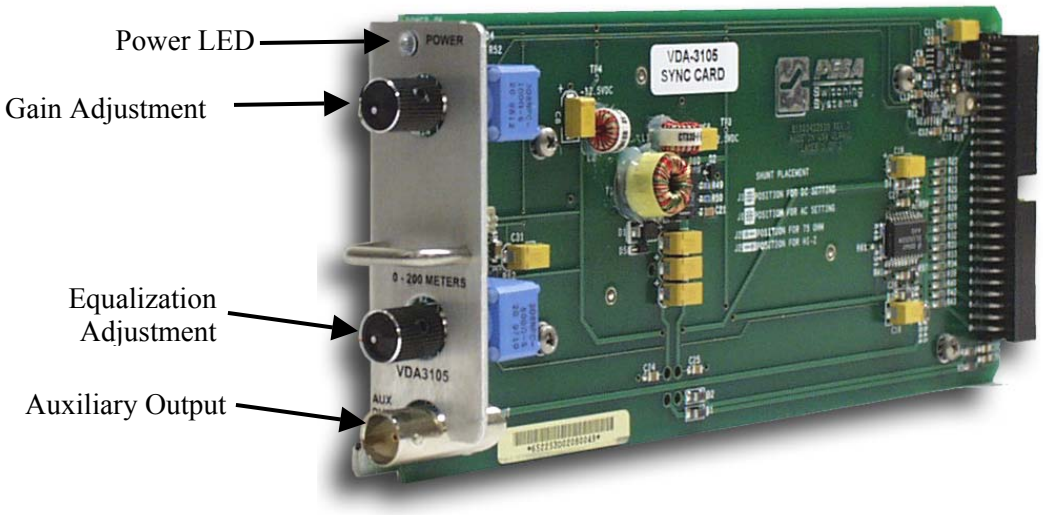


FIGURE 48: VDA3105 Card

The VDA3105 card distributes hi-level digital TTL horizontal and vertical sync signals from graphical workstations or signals that have their baseline at +5V and pulse to ground. In addition, analog or digital telemetry signals can be distributed to multiple destinations with complete transparency.

The function of the VDA3105 Power LED (see Figure 48 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The power LED should be illuminated during normal operation. If the power LED dims or extinguishes during operation, check the operation of the VDA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.4.2 VDA3105 Card Electronic Block Diagram

(See Figure 49 for a typical block diagram of the VDA3105 card.)

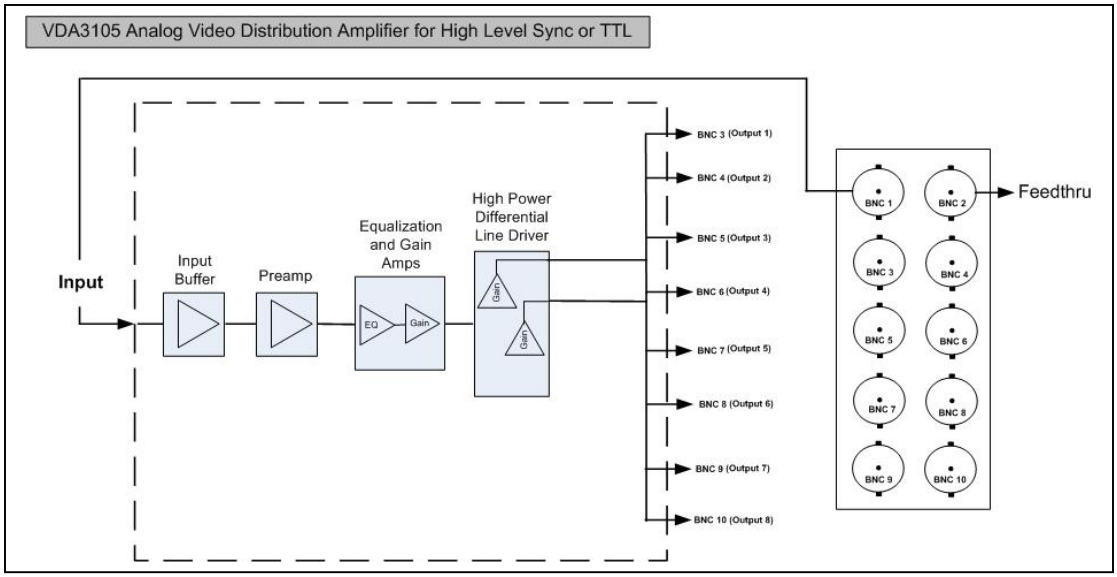


FIGURE 49: VDA3105 Card Electronic Block Diagram

3.4.3 VDA3105 Card Field-Adjustable/Programmable Overview

3.4.3.1 VDA3105 Card Gain Adjustment

NOTE	**The user should perform the VDA3105 card gain adjustment to align the card with the user's cable configuration requirements.**

The gain adjustment allows the user to adjust the level of the VDA3105 card's distributed signals. To adjust the gain for overall unity, use the Gain adjustment knob (see previous Figure 48 for location). Clockwise rotation increases the gain and counterclockwise decreases the gain.

3.4.3.2 VDA3105 Equalization (EQ) Adjustment

NOTE	**The user should perform the VDA3105 card equalization adjustment to align the card with the user's cable configuration requirements. Additionally, when using the input cabling as the adjustment media, all other test connections must be input oriented. Vice-versa for output cabling adjustment media.**

Adjust the VDA3105 card for signal EG for input/output signals by using the Equalization adjustment knob (see previous Figure 48 for location) to adjust for the best signal quality. Clockwise rotation increases the EQ and counterclockwise decreases the EQ.

3.4.3.3 VDA3105 Jumper Configurations

The VDA3105 Card has two, user-selectable jumper configurations (see Figure 50).

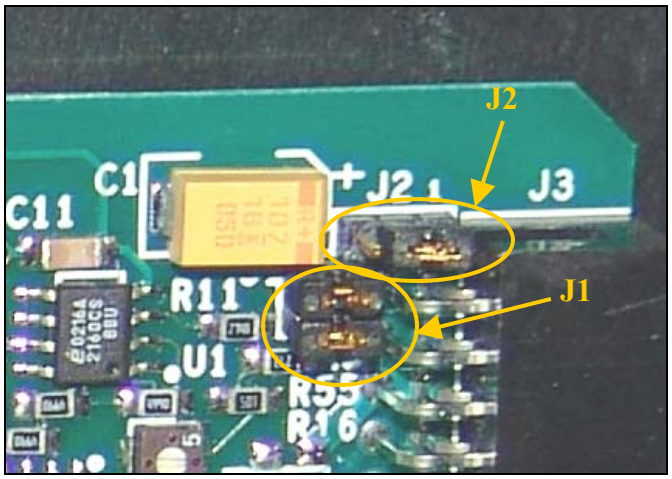
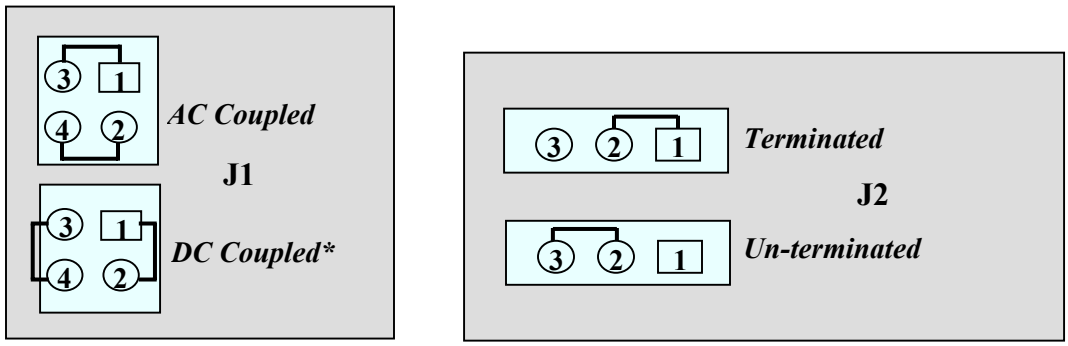


FIGURE 50: VDA3105 Jumper Configurations

Jumper J1 is used to set the DC or AC Coupled configuration and J2 is used to set the Terminated or Un-terminated (75Ω) configuration. Factory default settings are *DC Coupled* and *Terminated*. Refer to the following (see figure 51) for the applicable setting for your specific configuration.



NOTE	***When the *DC Coupled* option is selected (factory default), pins 3 and 4 are not in use. The jumper is in place so that it can be used for the AC Coupled selection, which requires both jumpers.**

FIGURE 51: VDA3105 Jumper Settings

3.5 SDVDA3101 CARD

3.5.1 SDVDA3101 Operational Description

The SDVDA3101 card (see Figure 52) is used with the VDA3100T frame only. This card is a serial-digital interface (SDI) video distribution amplifier with auto equalization and non-reclocking that supports one input and eight outputs (1x8).

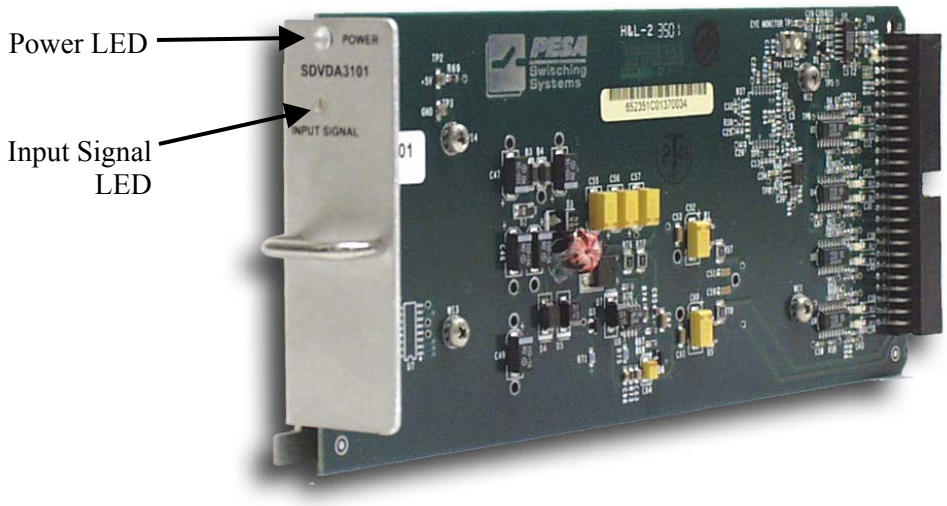


FIGURE 52: SDVDA3101 Card

The operation of the SDVDA3101 card includes monitoring the dual-element (red/green) Input Signal LED (see previous Figure 52 for location). The function of the green LED is to monitor the strength of the input signal. As the signal strength decreases, the LED dims and trips when a preset threshold is met or exceeded. Then, the LED illuminates red to indicate an alarm condition. An optional external alarm may be installed to provide additional support for alarm condition notification.

The function of the SDVDA3101 Power LED (see Figure 52 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The power LED should be illuminated during normal operation. If the power LED dims or extinguishes during operation, check the operation of the VDA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.5.2 SDVDA3101 Card Electronic Block Diagram

(See Figure 53 for a typical block diagram of the SDVDA3101 card.)

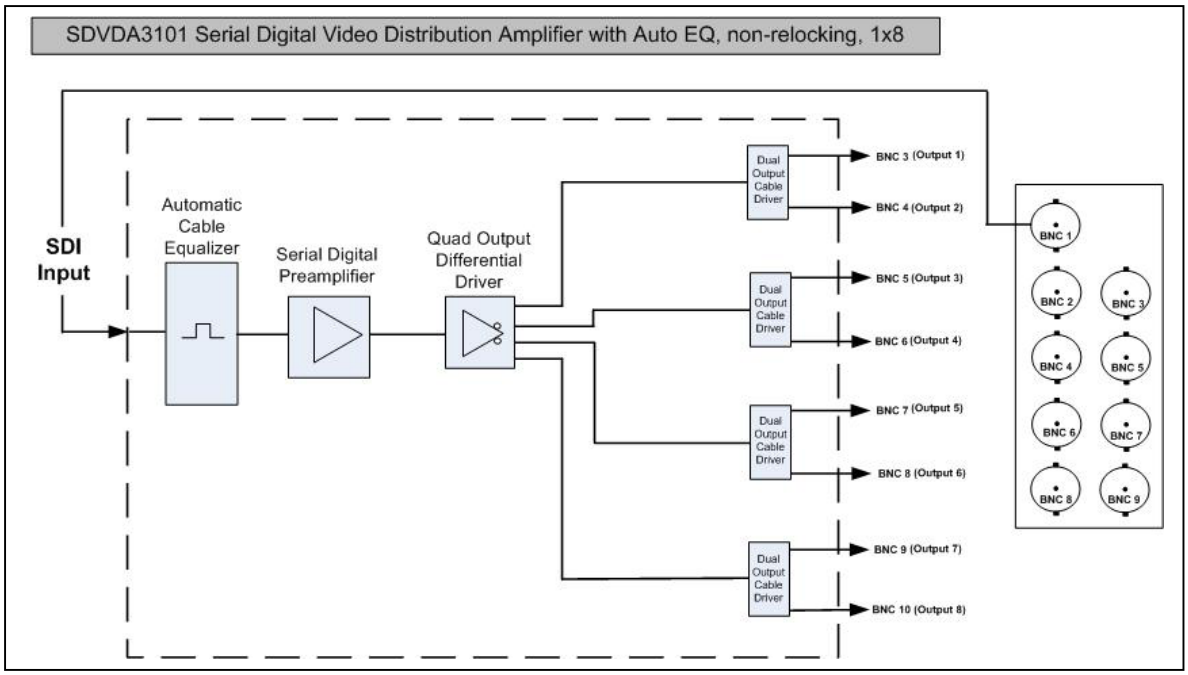


FIGURE 53: SDA3101 Card Electronic Block Diagram

3.5.3 SDVDA3101 Card Field-Adjustable/Programmable Overview

The SDVDA3101 card does not contain any user selectable or adjustable configurations. All configurations are set at the factory and must be returned to the factory in the event that re-adjustment is necessary.

3.6 SVDA3101R CARD

3.6.1 SVDA3101R Operational Description

The SVDA3101R card (see Figure 54) is used with the VDA3100T frame only. This card is a serial-digital interface (SDI) video distribution amplifier with auto equalization and reclocking that supports one input and eight outputs (1x8).

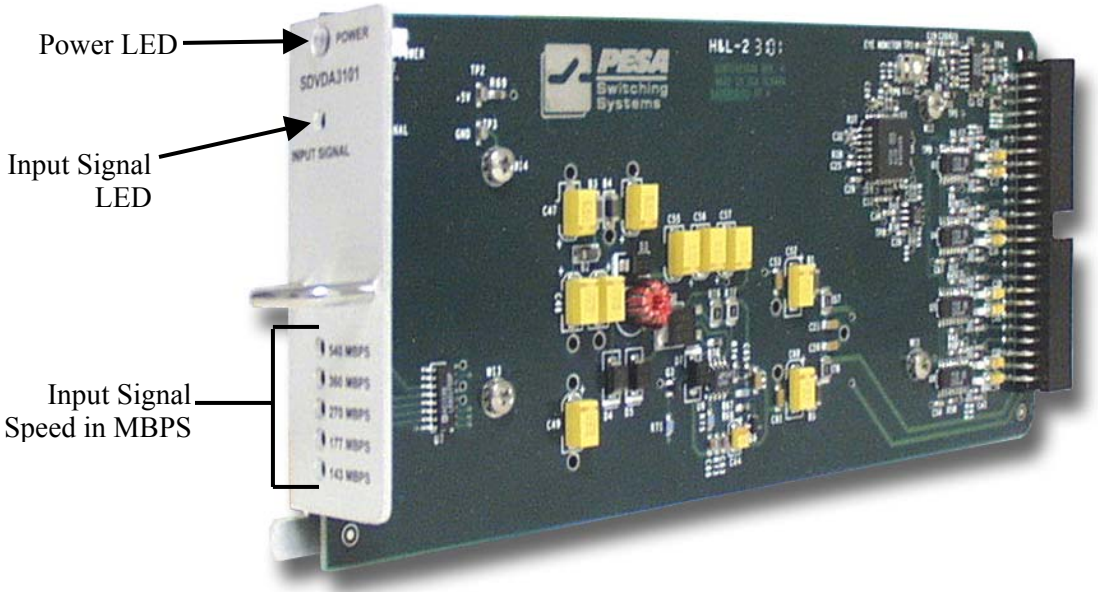


FIGURE 54: SVDA3101R Card

Similar to the SVDA3101 Card, the operation of the SVDA3101R Card includes monitoring the dual-element (red/green) Input Signal LED (see previous Figure 54 for location). The function of the green LED is to monitor the strength of the input signal. As the signal strength decreases, the LED dims and trips when a preset threshold is met or exceeded. Then, the LED illuminates red to indicate an alarm condition. An optional external alarm may be installed to provide additional support for alarm condition notification.

Additionally, the card monitors the input signal data transfer speed and the corresponding LED for the speed illuminates as the data is being distributed.

The function of the SVDA3101R Power LED (see Figure 54 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The power LED should be illuminated during normal operation. If the power LED dims or extinguishes during operation, check the operation of the VDA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.6.2 SDVDA3101R Card Electronic Block Diagram

(See Figure 55 for a typical block diagram of the SDVDA3101R card.)

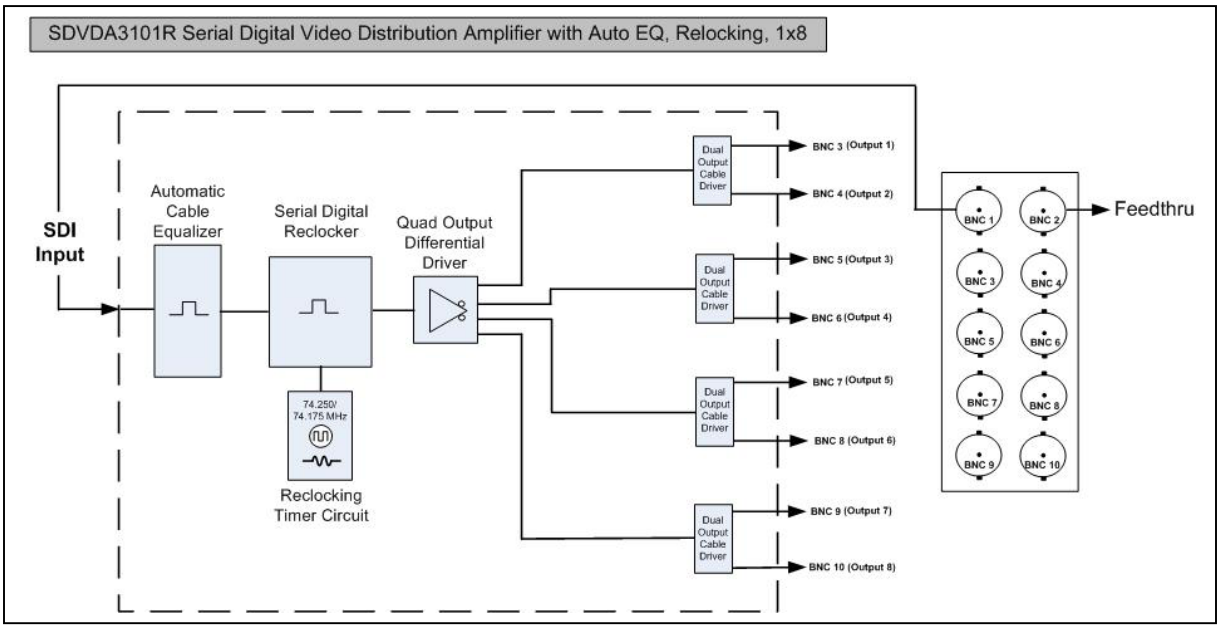


FIGURE 55: SDVDA3101R Card Electronic Block Diagram

3.6.3 SVDA3101R Card Field-Adjustable/Programmable Overview

The SVDA3101R card does not contain any user selectable or adjustable configurations. All configurations are preset at the factory and must be returned to the factory in the event that re-adjustment is necessary.

3.7 HDVDA3101R CARD

3.7.1 HDVDA3101R Operational Description

The HDVDA3101R card (see Figure 56) is used with the VDA3100T frame only. This is a high definition (HD), distribution amplifier with auto equalization and reclocking that supports one input and eight outputs (1x8).

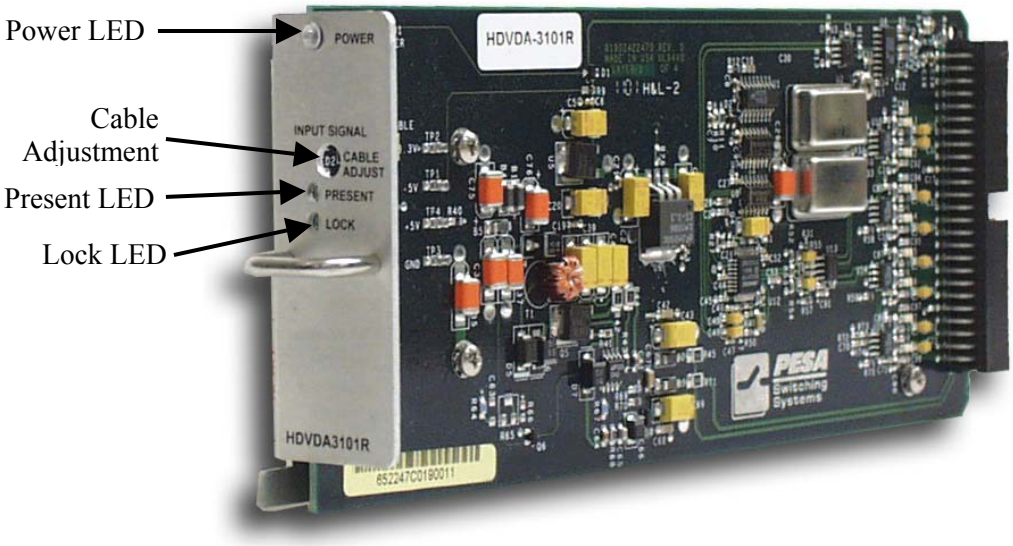


FIGURE 56: HDVDA3101R Card

The function of the HDVDA3101R Power LED (see Figure 56 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The power LED should be illuminated during normal operation. If the power LED dims or extinguishes during operation, check the operation of the VDA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.7.2 HDVDA3101R Card Electronic Block Diagram

(See Figure 57 for a typical block diagram of the HDVDA3101R card.)

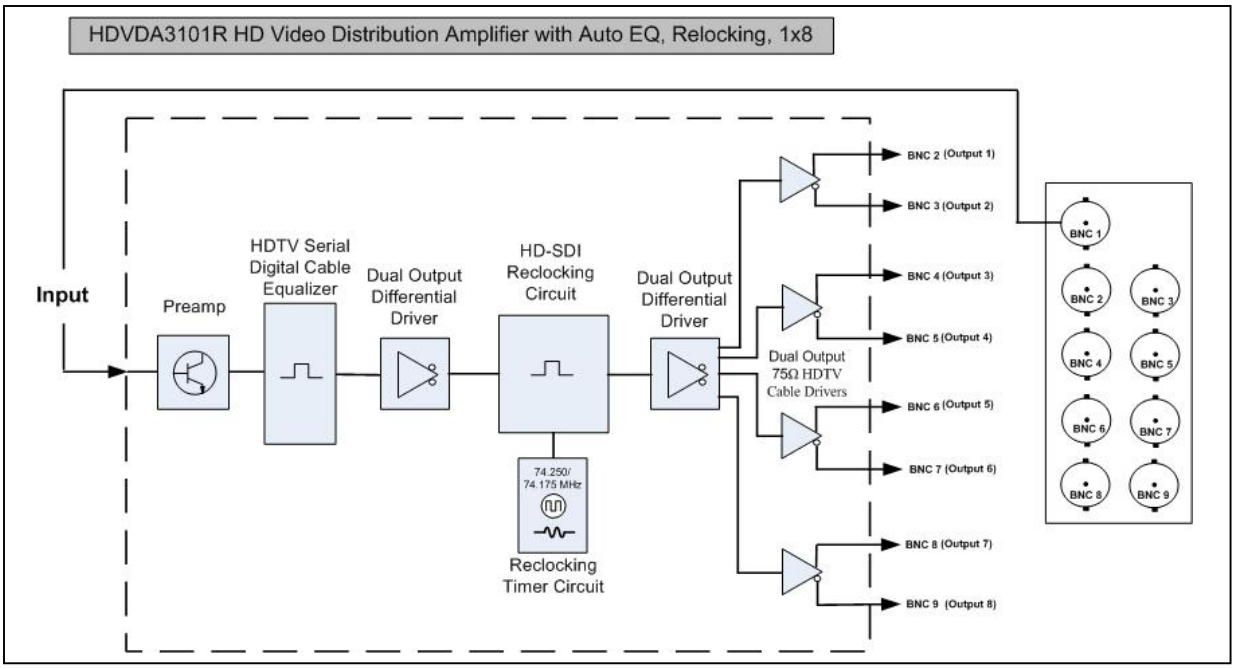


FIGURE 57: HDVDA3101R Card Electronic Block Diagram

3.7.3 HDVDA3101R Card Field-Adjustable/Programmable Overview

The HDVDA3101R card includes a Present and Lock LED visual indicators (see the previous Figure 56) along with the standard Power LED. Whenever data is being transferred, the Present LED will be illuminated and typically "blinking". Whenever the Lock LED is illuminated, a valid HD data stream is being distributed.

There is only one user adjustment for the HDVDA3101R card, which is for the correction of the input signal cable length. Using the Cable Adjust potentiometer (see previous Figure 56 for location) and a potentiometer-tuning tool, adjust (either clockwise or counterclockwise) for Present LED illumination (blinking or steady dependent upon the data steam).

3.8 VDAC3101 CARD

3.8.1 VDAC3101 Operational Description

The VDAC3101 card (see Figure 58) is used with the VDA3100T frame only. This is a video, 8-bit digital to analog output monitoring card for analog (NTSC/PAL/RGB out) signals.

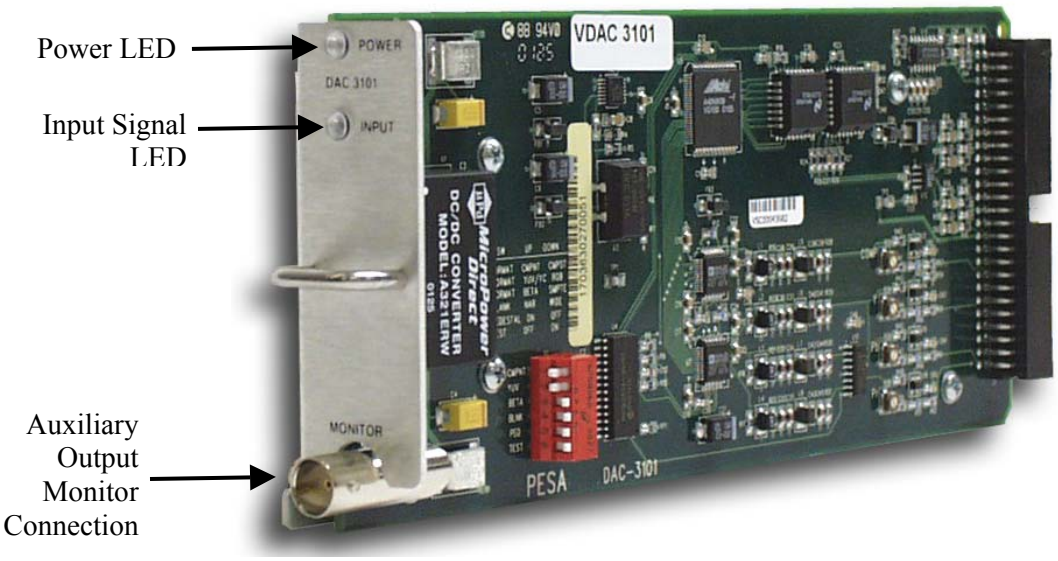


FIGURE 58: VDAC3101 Card

The VDAC3101 card does not contain any user adjustments or internal jumper settings. However, the card does include a field-programmable dipswitch for user preference settings. As with most of the DA3100 series cards, users can monitor the output using the Auxiliary output monitor connector. The Input signal LED is illuminated when an input signal is present.

The function of the VDAC3101 Power LED (see Figure 58 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The power LED should be illuminated during normal operation. If the power LED dims or extinguishes during operation, check the operation of the VDA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.8.2 VDAC3101 Card Electronic Block Diagram

(See Figure 59 for a typical block diagram of the HDVDA3101R card.)

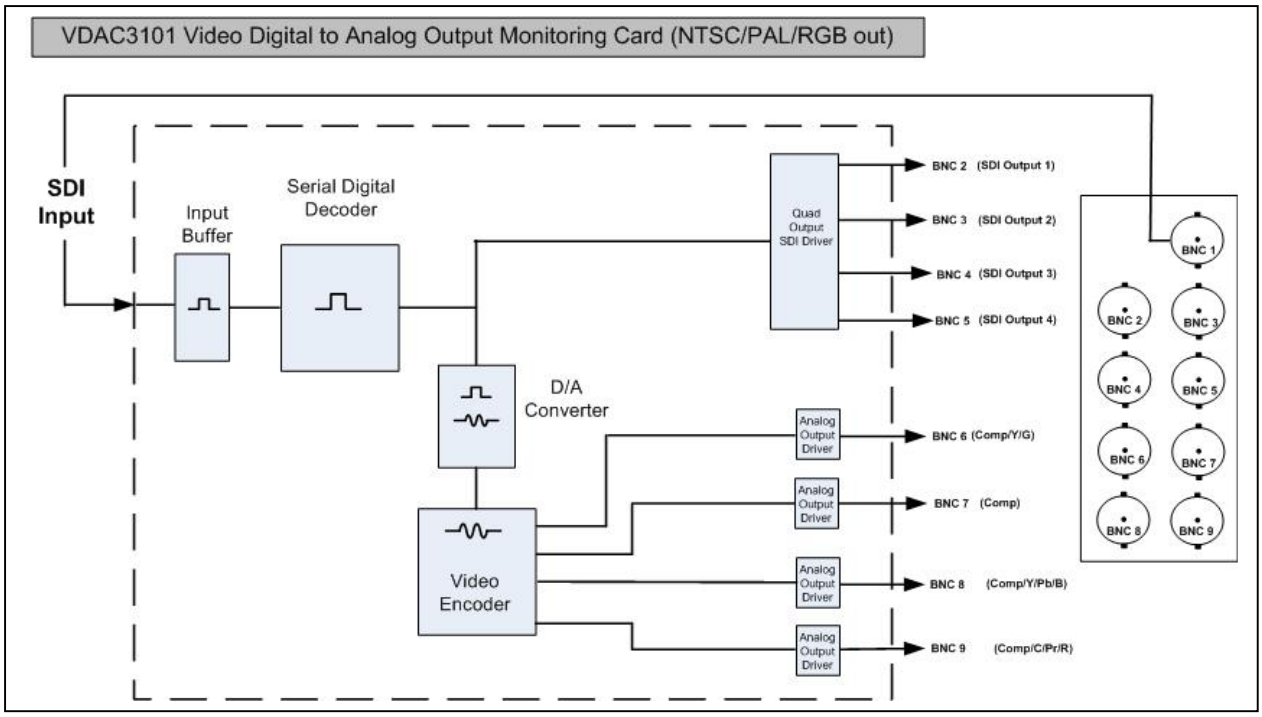


FIGURE 59: VDAC3101 Card Electronic Block Diagram

3.8.3 VDAC3101 Card Field-Adjustable/Programmable Overview

3.8.3.1 VDAC3101 User-programmable Dipswitch Settings

The VDAC3101 card (see Figure 60) contains only a user-programmable dipswitch that is used to set user preferences.

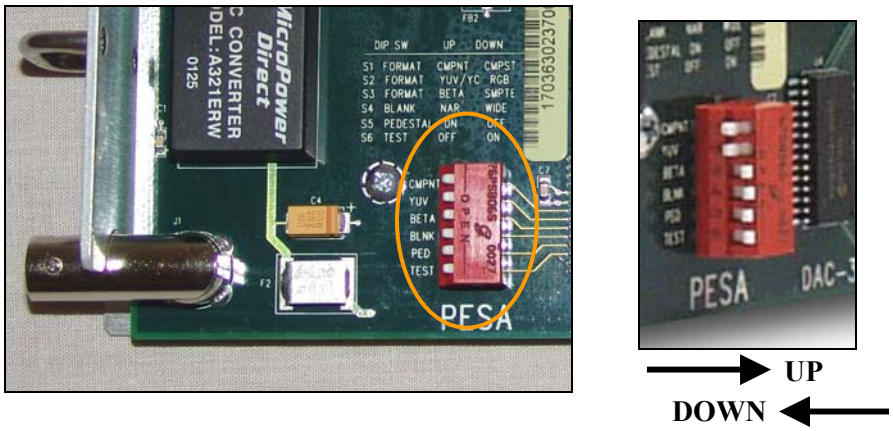


FIGURE 60: VDAC3101 Card Dipswitch Location

If required, use Table 2 to reset the dipswitch (S1):

TABLE 2: VDAC3101 Card S1 Dipswitch Settings

SWITCH	DESCRIPTION	SW POSITION/FUNCTION
SW 1	CMPNT (Output selection)	1) CMPNT (UP) = ***Component Output*** 2) CMPST (DOWN) = ***Composite Output***
SW 2	YUV (Luminance/Chrominance Output selection)	1) YUV/YC (UP) = ***Luminance/Chrominance Output*** 2) If SW1 is CMPNT (UP) then YUV/YC CMPST (DOWN) = ***RGB Output*** ★ NOT APPLICABLE IF SW1 IS IN CMPNT
SW 3	BETA	1) BETA (UP) = ***Beta Output*** 2) SMPTE (DOWN) = ***SMPTE Output***
SW 4	BLANK (blanking narrow/wide)	1) NAR (UP) = ***Narrow Blanking*** 2) WIDE (DOWN) = ***Wide Blanking***
SW 5	PED	1) ON (UP) = ***Pedestal is ON*** 2) OFF (DOWN) = ***Pedestal is OFF***
SW 6	TEST	1) ON (UP) = ***Test is ON*** 2) OFF (DOWN) = ***Test is OFF***

3.8.3.2 VDAC3101 Input/Output Descriptions and Connection Locations

(See Figure 61 for VDAC3101 input/output descriptions and connection locations.)

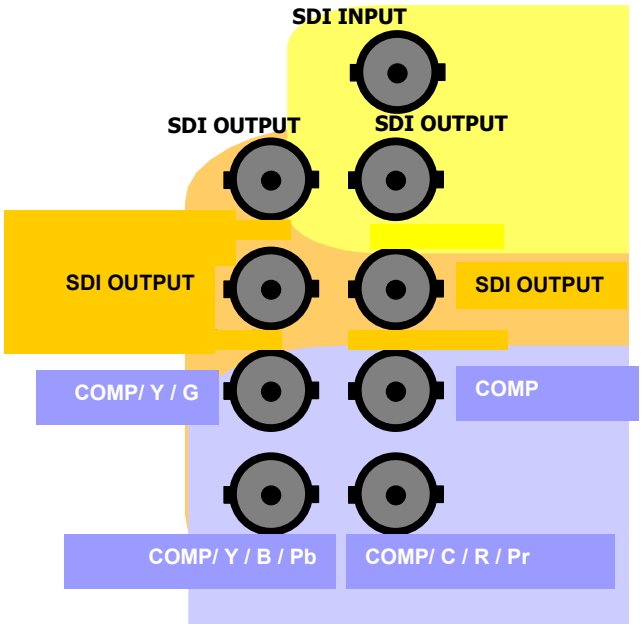


FIGURE 61: VDAC3101 Input/Output Descriptions and Connection Locations

3.9 VADD3101-10 CARD

3.9.1 VADD3101-10 Operational Description

The VADD3101-10 card (see Figure 62) is used with the VDA3100T frame only. The VADD3101-10 converts analog NTSC and PAL sources into excellent quality 10-bit Serial Digital Interface (SDI) video. The card utilizes a five-line adaptive comb filter to create the decoding of composite sources. The VADD3101-10 has one composite or Y/C input, four SDI outputs and a local reference loop. Allowing for full timing adjustments, the VADD-3101-10 was designed to satisfy the most demanding needs of analog to digital conversion requirements.

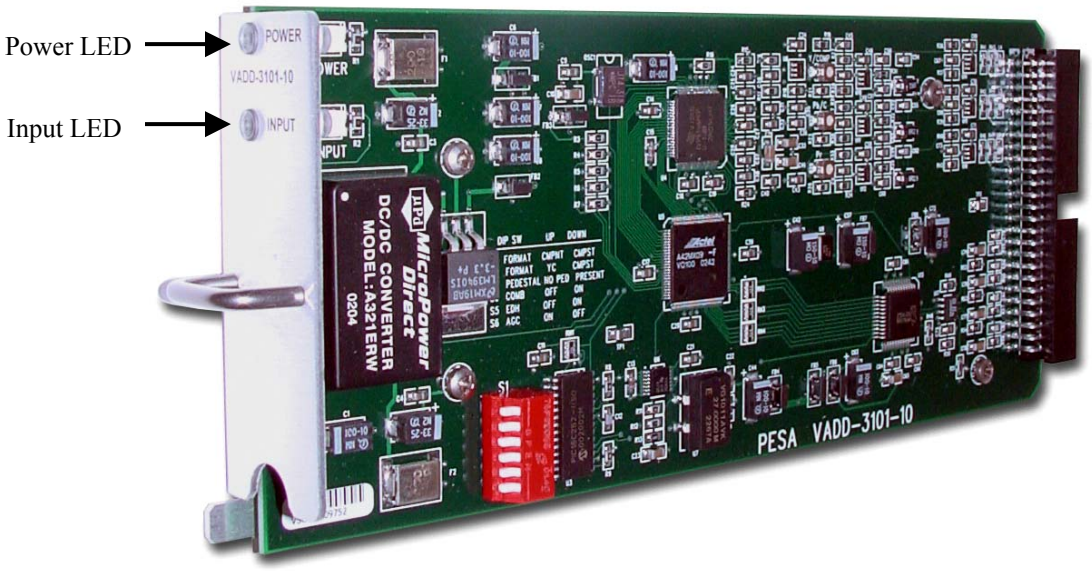


FIGURE 62: VADD3101-10 Card

The function of the VADD3101 Power LED (see Figure 62 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The Power LED should be illuminated during normal operation. If the Power LED dims or extinguishes during operation, check the operation of the VDA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

The Input LED illuminates when an input signal is present (typically, it is blinking).

3.9.2 VADD3101-10 Card Electronic Block Diagram

(See Figure 63 for a typical block diagram of the VADD3101-10 card.)

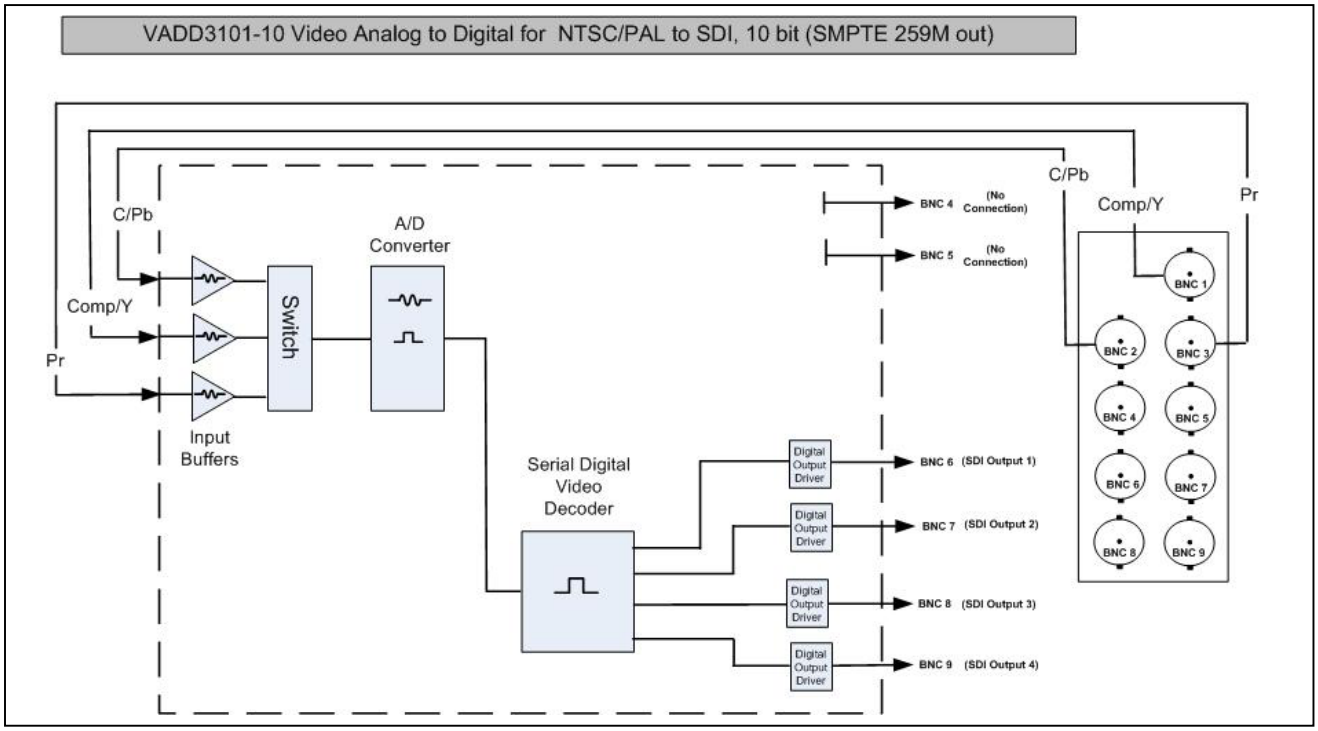


FIGURE 63: VADD3101-10 Card Electronic Block Diagram

3.9.3 VADD3101-10 Card Field-Adjustable/Programmable Overview

3.9.3.1 S1 Dip Switch and Output Connections for VADD3101-10 Card

(See Figure 64.)

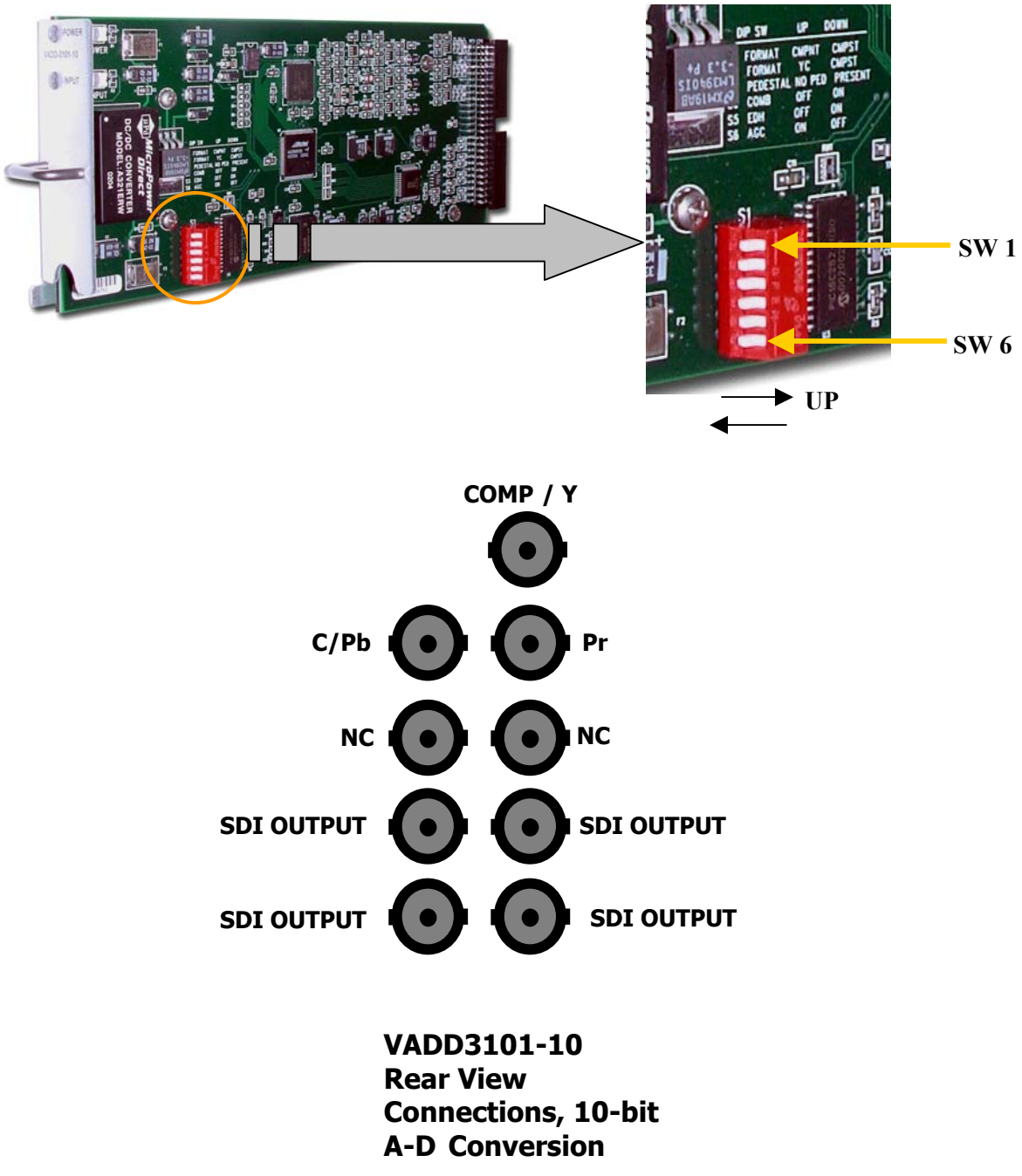


FIGURE 64: VADD3101-10 S1 Dip Switch and Output Connections

3.9.3.2 S1 Dip Switch Settings and Functions for VADD3101-10 Card

(Refer to Table 3.)

TABLE 3: S1 Dip Switch Settings and Functions for VADD3101-10 Card

SWITCH	DESCRIPTION	SW POSITION/FUNCTION
SW 1	CMPST - CMPNT (Output selection)	1) CMPNT (UP) = ***Component Output*** 2) CMPST (DOWN) = ***Composite Output***
SW 2	CMPST - Y/C (Luminance/Chrominance Output selection)	3) Y/C (UP) = ***Output*** 4) If SW1 is CMPNT (UP) then 1 Y/C CMPST (DOWN) = ***Composite Output*** ★ NOT APPLICABLE IF SW1 IS IN CMPNT
SW 3	PEDESTAL	1) NO PED (UP) = ***No Pedestal*** 2) PRESENT (DOWN) = ***Pedestal is Present***
SW 4	COMB	1) COMB OFF (UP) = ***COMB is OFF*** 2) COMB ON (DOWN) = ***COMB is ON***
SW 5	EDH	1) EDH OFF (UP) = ***EDH is OFF*** 2) EDH ON (DOWN) = ***EDH is ON***
SW 6	ACC	1) ACC ON (UP) = ***ACC is ON*** 2) ACC OFF (DOWN) = ***ACC is OFF***

3.10 VDAE3101-10 CARD

3.10.1 VDAE3101-10 Operational Description

The VDAE3101-10 card (see Figure 65) is used with the VDA3100T frame only. The VDAE3101-10 converts serial digital 10-bit Serial Digital Interface (SDI) video into component or composite video formats. The four analog outputs are user configurable to NTSC/PAL, Y/C, YPbPr, Betacam, or RGB. Component and composite outputs are completely independent. The VDAE3101-10 includes a precision 4X, over-sampled D/A filter that provides high quality analog outputs.

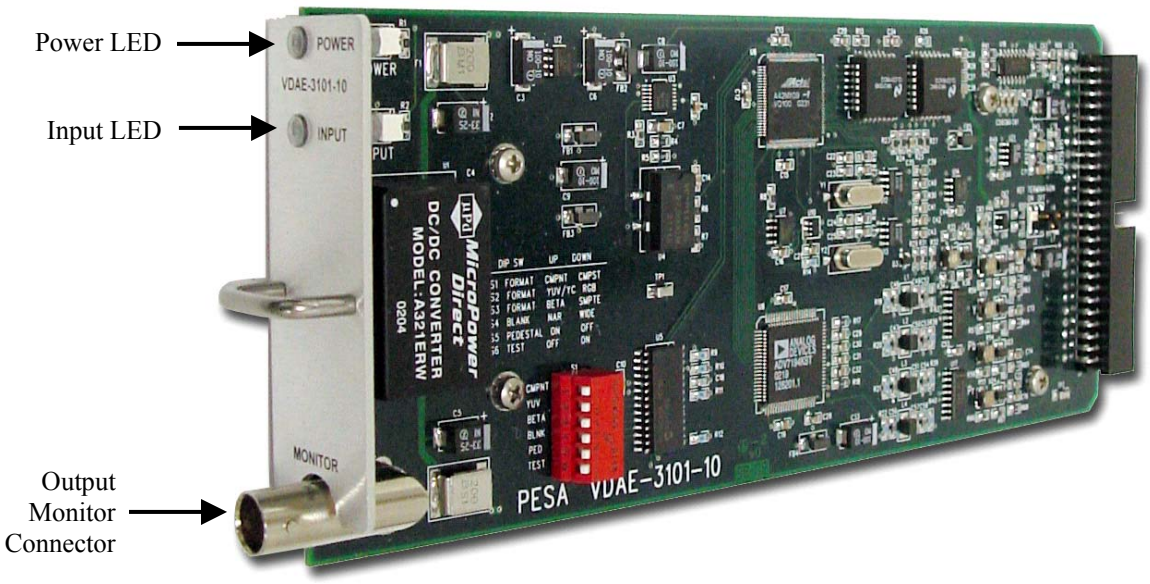


FIGURE 65: VDAE3101-10 Card

The function of the VDAE3101-10 Power LED (see Figure 65 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The Power LED should be illuminated during normal operation. If the Power LED dims or extinguishes during operation, check the operation of the VDA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

The Input LED illuminates when an input signal is present (typically, it is blinking).

3.10.2 VDAE3101-10 Card Electronic Block Diagram

(See Figure 66 for a typical block diagram of the VDAE3101-10 card.)

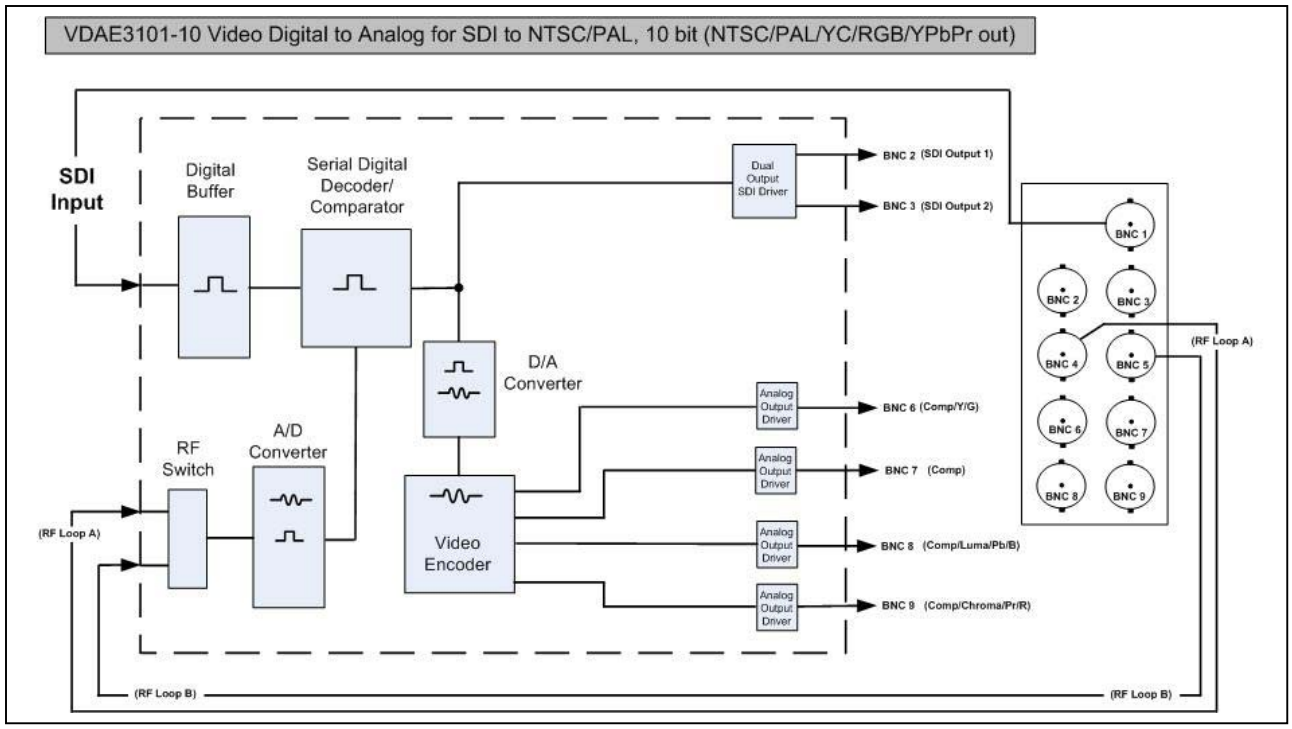


FIGURE 66: VDAE3101-10 Card Electronic Block Diagram

3.10.3 VDAE3101-10 Card Field-Adjustable/Programmable Overview

3.10.3.1 S1 Dip Switch and Output Connections for VDAE3101-10 Card
(See Figure 67.)

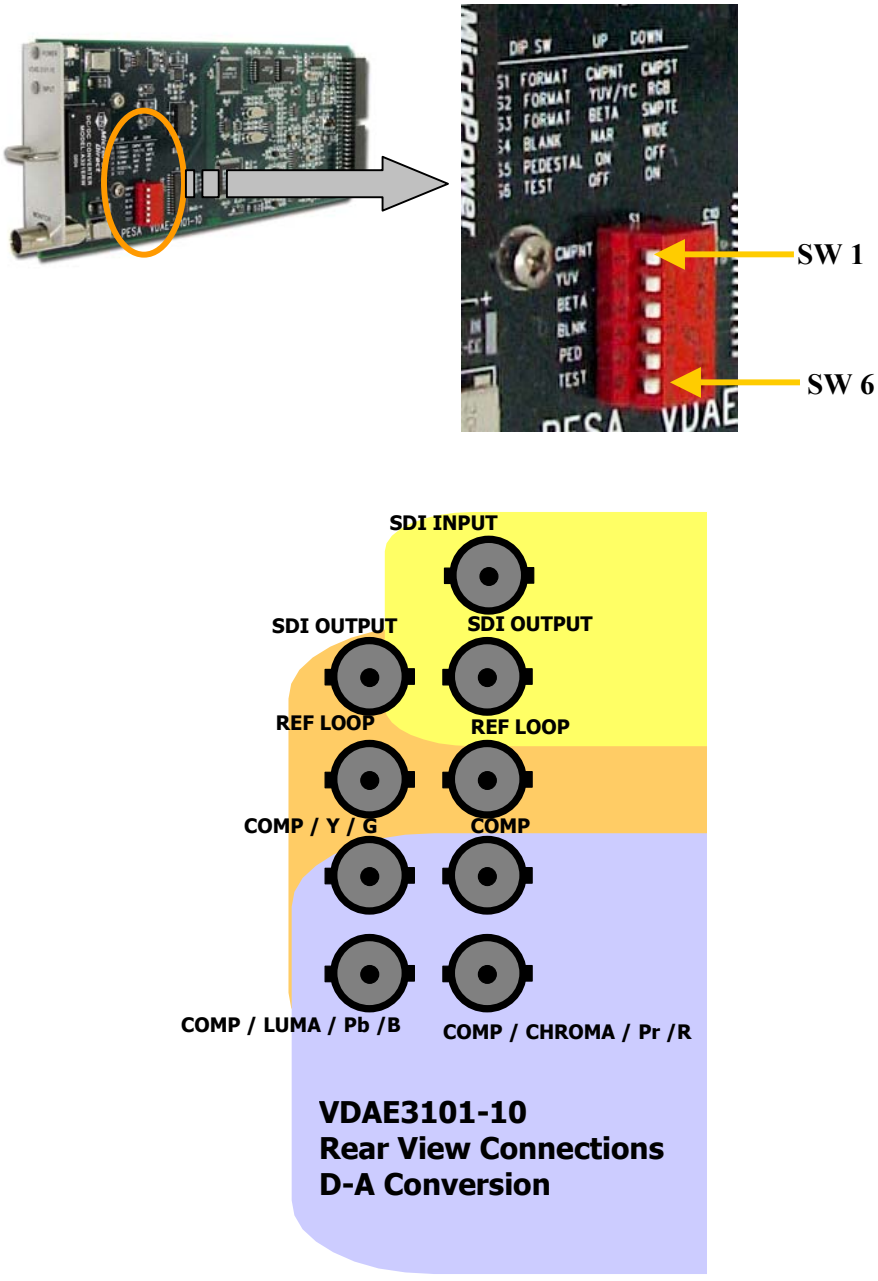


FIGURE 67: VDAE3101-10 S1 Dip Switch and Output Connections

3.10.3.2 S1 Dip Switch Settings and Functions for VDAE3101-10 Card

(Refer to Table 4.)

TABLE 4: S1 Dip Switch Settings and Functions for VDAE3101-10 Card

SWITCH	DESCRIPTION	SW POSITION/FUNCTION
SW 1	CMPST - CMPNT (Output selection)	1) CMPNT (UP) = ***Component Output*** 2) CMPST (DOWN) = ***Composite Output***
SW 2	RGB - YUV/YC (Output selection)	1) YUV/YC (UP) = ***Output Y, R-Y, B-Y if SW1 is COMPNT. If SW1 is CMPST, output 1 composite & 1 Y/C*** 2) RGB (DOWN) = ***Output RGB if SW1 is COMPNT. If SW1 is CMPSTE, output 3 composites.***
SW 3	BETA - SMPTE (Output selection)	1) BETA (UP) = ***Selects BETA 525 levels (if configured for Component output)*** 2) SMPTE (DOWN) - ***Selects SMPTE levels (if configured for Component output)*** ★ NO EFFECT WITH 625 INPUT
SW 4	Blank	1) NAR (UP) = ***Vertical (line numbers indicate where video starts) line 13, field 1; line 12, field 2 (525 line) line 10, field 1; line 322, field 2 (625 line) Horizontal (active video line durations) ITU-R.470 (720 pixels PAL/NTSC)*** 2) WIDE (DOWN) = ***Vertical (line numbers indicate where video starts) line 22, field 1; line 21, field 2 (525 line) line 23, field 1; line 335, field 2 (625 line) Horizontal (active video line durations) ITU-R/SMPTE (710 pixels NTSC, 702 pixels PAL)***
SW 5	PEDESTAL (Composite outputs only)	1) ON (UP) = ***7.5 IRE pedestal for NTSC*** *3)* OFF (DOWN) = ***No pedestal for NTSC-J*** ★ NO EFFECT WITH 625 INPUT
SW 6	TEST	1) OFF (UP) = ***Disables internal test signal*** 2) ON (DOWN) = ***Selects internal 75% Colors Bars test signal***

3.11 ADA3102 CARD

3.11.1 ADA3102 Operational Description

The ADA3102 card (see Figure 68) is used with the ADA3100 Audio frame. This card is an analog audio distribution amplifier (stereo) with dual inputs and dual-four outputs (2x1x4).

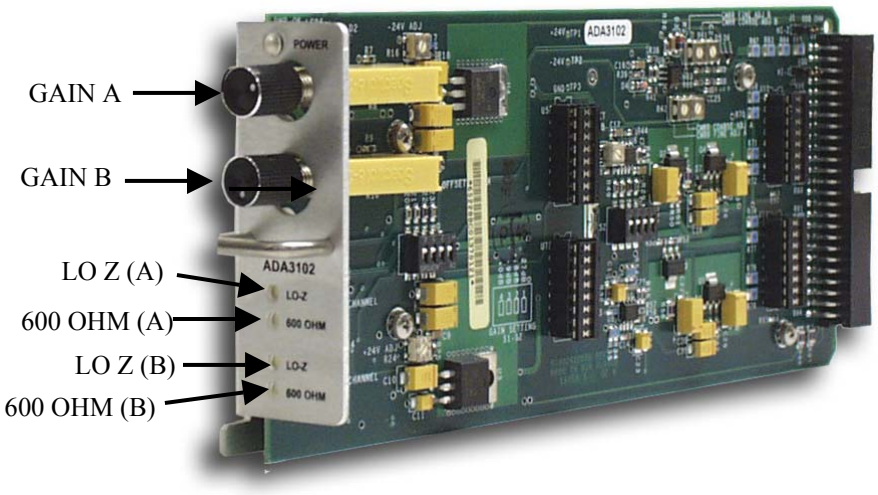


FIGURE 68: ADA3102 Card

The function of the ADA3102 Power LED (see Figure 68 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The power LED should be illuminated during normal operation. If the power LED dims or extinguishes during operation, check the operation of the ADA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.11.2 ADA3102 Card Electronic Block Diagram

(See Figure 69 for a typical block diagram of the ADA3102 card.)

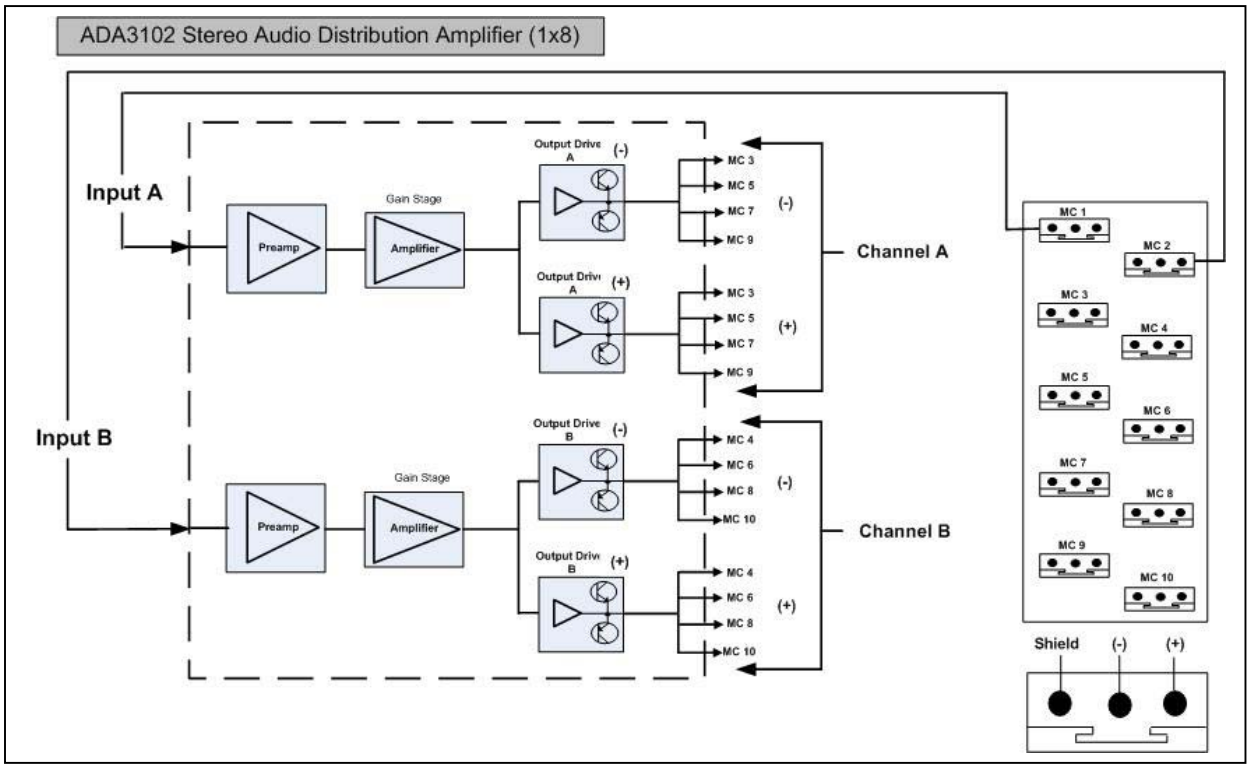


FIGURE 69: ADA3102 Card Electronic Block Diagram

3.11.3 ADA3102 Card Field-Adjustable/Programmable Overview

STOP	**The ADA3102 card contains no internal user potentiometer adjustments. All internal adjustments are preset at the factory prior to initial shipment. If readjustment becomes necessary, return the card to the factory for adjustments.**

The ADA3102 card includes a user gain adjustment, an internal jumper terminated/un-terminated selection, and monitoring LEDs to visually indicate which termination selection is applied to each channel.

3.11.3.1 ADA3102 Output Gain Adjustment

Output adjustments are typically performed while listening to a specific output channel. For instance, a specific channel output is selected and the other channel is disconnected. The Gain adjustment knob for the connected channel is rotated until the proper undistorted volume is obtained. Then, that channel is disconnected and the other channel is reconnected. The same sequence is repeated for the second channel.

3.11.3.2 ADA3102 Jumper Termination Selections

The ADA3102 card does contain jumper settings (see Figure 70) for the each of the two channels that affects their associated outputs (i.e., J1 jumper affects Channel B and J2 jumper affects Channel A). The jumpers are placed to indicate whether the channel outputs are terminated with either a high impedance (600Ω) or low impedance (66Ω).

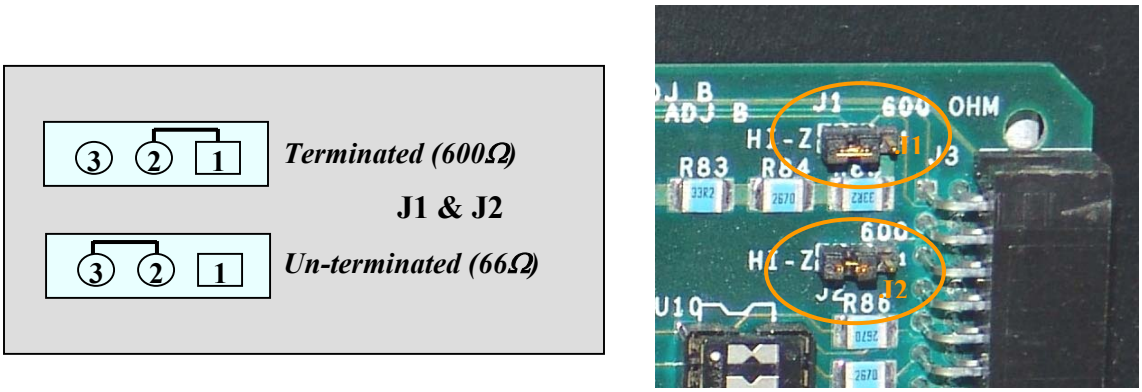


FIGURE 70: Jumper settings For the ADA3102 Card

After the jumpers have been properly placed, the card is then returned to service. When operational, the associated Channel LEDs (either LO-Z or 600 OHM) will illuminate when their corresponding output signals are being distributed (see Figure 71).

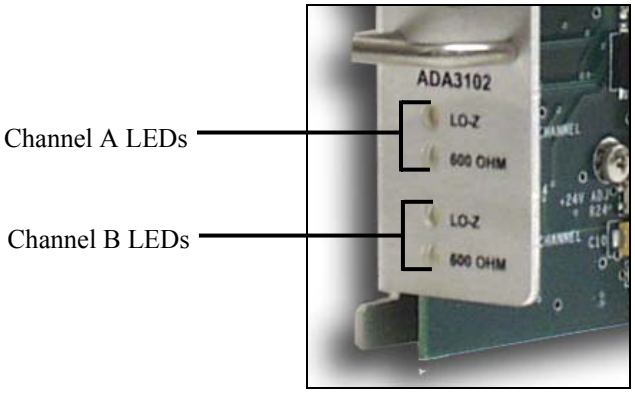


FIGURE 71: ADA3102 Stereo Amplifier Card Impedance LED indicators

3.12 ADA3103 CARD

3.12.1 ADA3103 Operational Description

The ADA3103 card (see Figure 72) is used with the ADA3100 Audio frame. This card is an analog audio distribution amplifier (monaural – also referred to as mono) with one input and eight outputs (1x8).

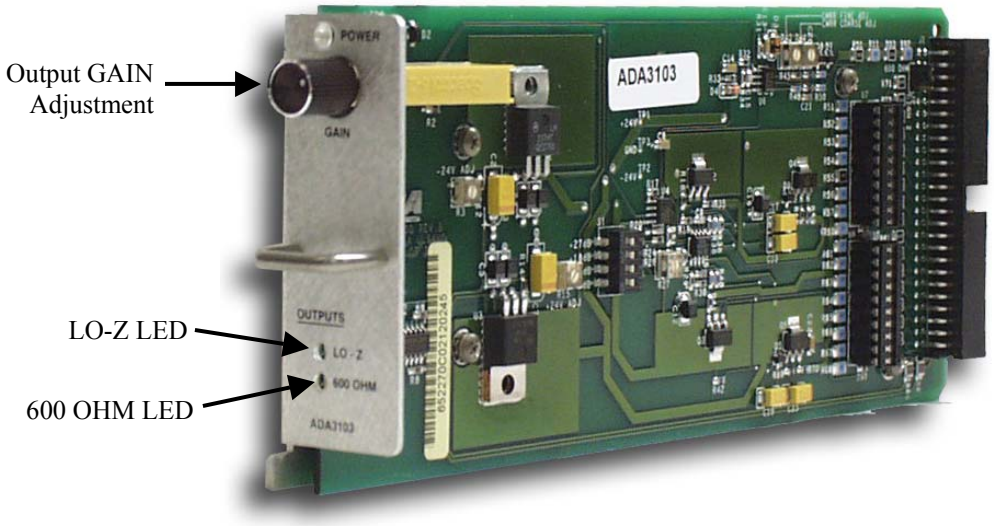


FIGURE 72: ADA3103 Card

The function of the ADA3103 Power LED (see Figure 72 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The power LED should be illuminated during normal operation. If the power LED dims or extinguishes during operation, check the operation of the ADA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.12.2 ADA3103 Card Electronic Block Diagram

(See Figure 73 for a typical block diagram of the ADA3103 card.)

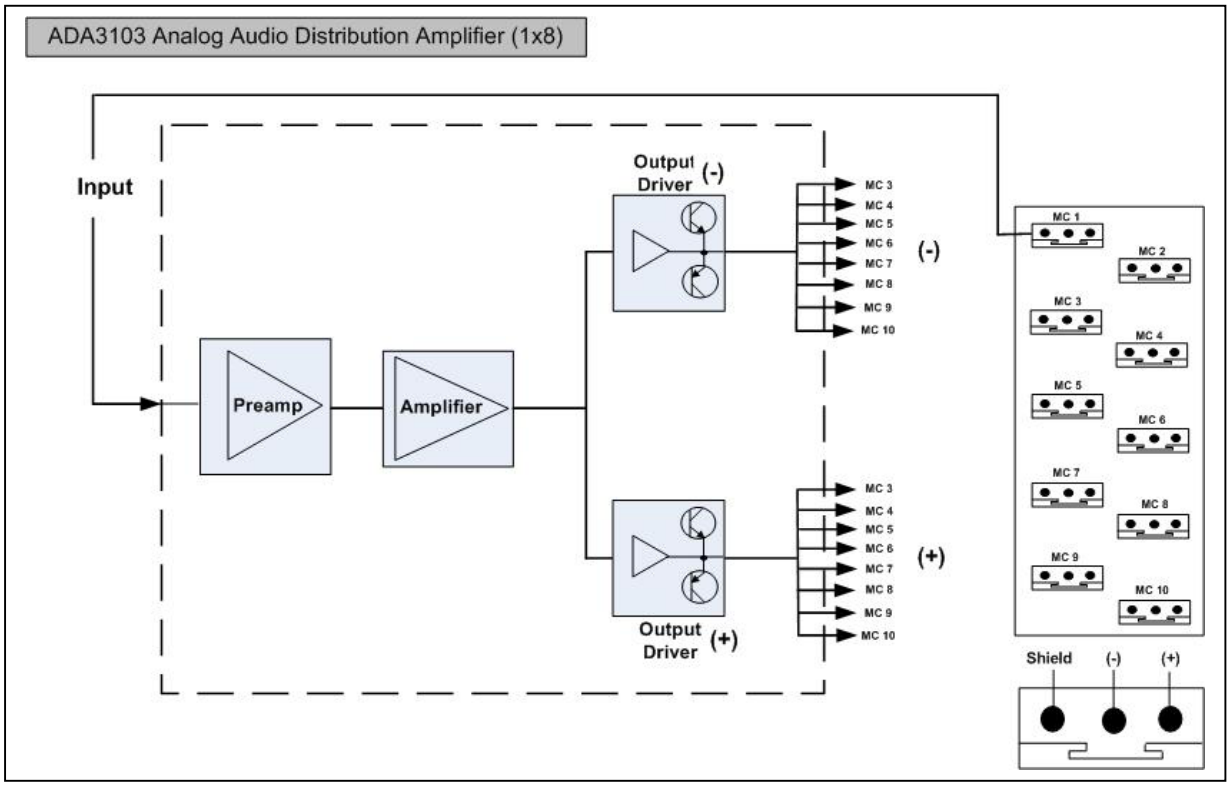


FIGURE 73: ADA3103 Card Electronic Block Diagram

3.12.3 ADA3103 Card Field-Adjustable/Programmable Overview

STOP	**The ADA3103 card contains no internal user potentiometer (pot) adjustments. All internal pot adjustments are preset at the factory prior to initial shipment. If readjustment becomes necessary, return the card to the factory for adjustments.**

The ADA3103 card includes a user gain adjustment, an internal, user-programmable dipswitch, an input terminated/un-terminated jumper selection, and termination selection LEDs.

3.12.3.1 ADA3103 Output Gain Adjustment

Output gain adjustments are typically performed while listening to a specific output. For instance, a specific output is selected and all other outputs are disconnected. The Gain adjustment knob is rotated until the proper undistorted volume is obtained.

3.12.3.2 ADA3103 Termination Jumper Settings

The ADA3103 card does contain jumper settings (see Figure 74) that affect the associated outputs. The jumper is placed to indicate whether the channel outputs are terminated with either a high impedance (600Ω) or low impedance (66Ω).

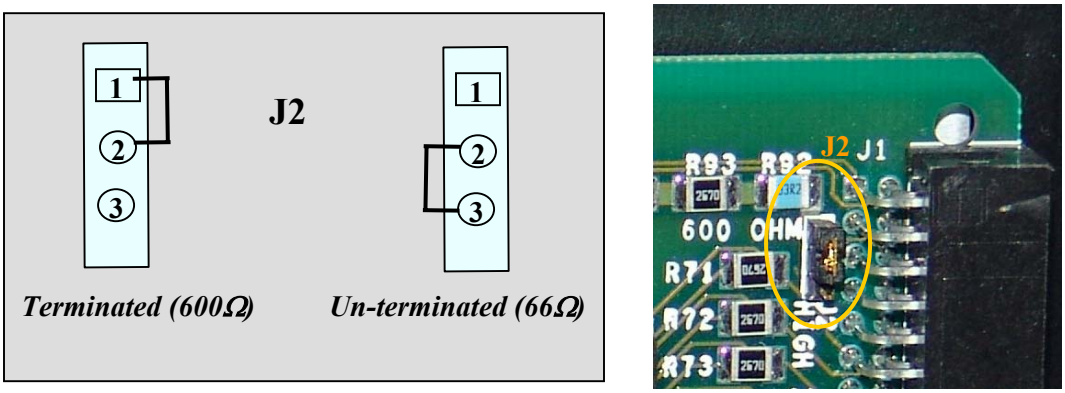


FIGURE 74: ADA3103 Card Jumper Settings and Location

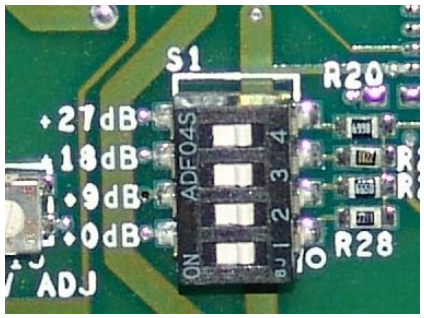
After the jumper has been properly placed, the card is then returned to service. When operational, the associated LEDs (either LO-Z or 600 OHM) will illuminate when their corresponding output signals are being distributed (see Figure 75).

FIGURE 75: ADA3103 Impedance LED Indicators

3.12.3.3 ADA3103 S1 Dipswitch Settings

Users can select the amount of gain in decibels (dB) that can be achieved when adjusting the output gain control by setting dipswitch S1 parameters. When selecting the individual S1 parameters, they are accumulative. That is, if you select SW3 and SW2, the amount of gain is 27 dB nominal (9dB plus 18dB). Dipswitch S1 contains slide-type selector switches instead of the common rocker-type selector switches. The selections are as follows (see Figure 76):

SWITCH	GAIN (NOMINAL)
SW1	0.0dB
SW2	+9dB
SW3	+18dB
SW4	+27dB



ON (selected) ←

→ **OFF (not selected)**

FIGURE 76: ADA3103 Card Dipswitch Selections

3.13 ADA3124 CARD

3.13.1 ADA3124 Operational Description

The ADA3124 card (see Figure 77) is used with the ADA3100 Audio frame. This card is a digital audio distribution amplifier that includes a dual, one input and four outputs (1x4 stereo) or a single, one input and eight outputs (1x8) at 110 Ohms.

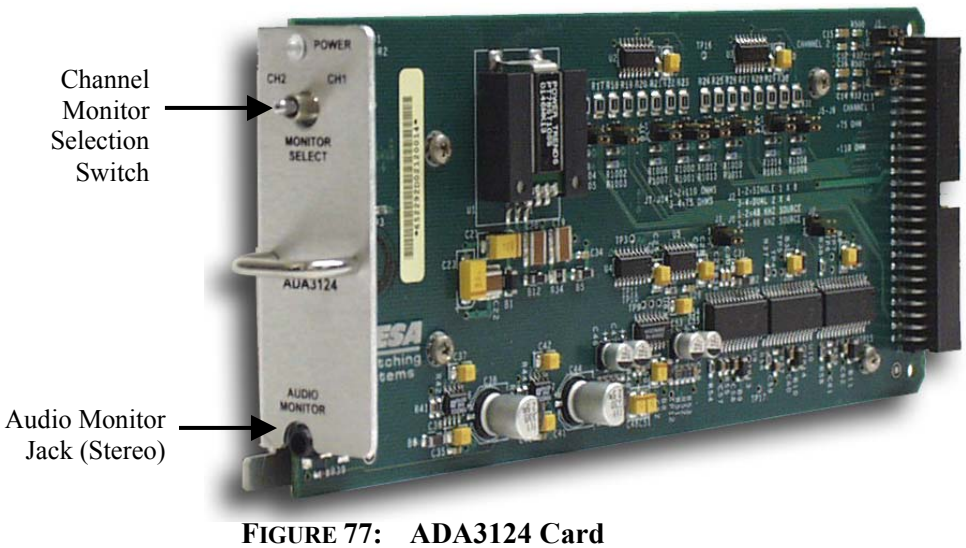


FIGURE 77: ADA3124 Card

The ADA3124 card audio output is user-selectable (1x8 or dual 1x4), which is jumper controlled. Audio output gain is fixed and cannot be adjusted. Output can be monitored from the face of the card via the stereo Audio Monitor jack after selecting the channel with the Channel Monitor Selection (Monitor Select) switch. The output from this jack is dependent upon the sampling rate of the incoming signal. Users must set the sampling rate to match the incoming signal (48K or 96K). Additionally, all output impedances are jumper controlled and user selectable.

The function of the ADA3124 Power LED (see previous Figure 77 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The Power LED should be illuminated during normal operation. If the Power LED dims or extinguishes during operation, check the operation of the ADA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.13.2 ADA3124 Card Electronic Block Diagram

(See Figure 78 for a typical block diagram of the ADA3124 card.)

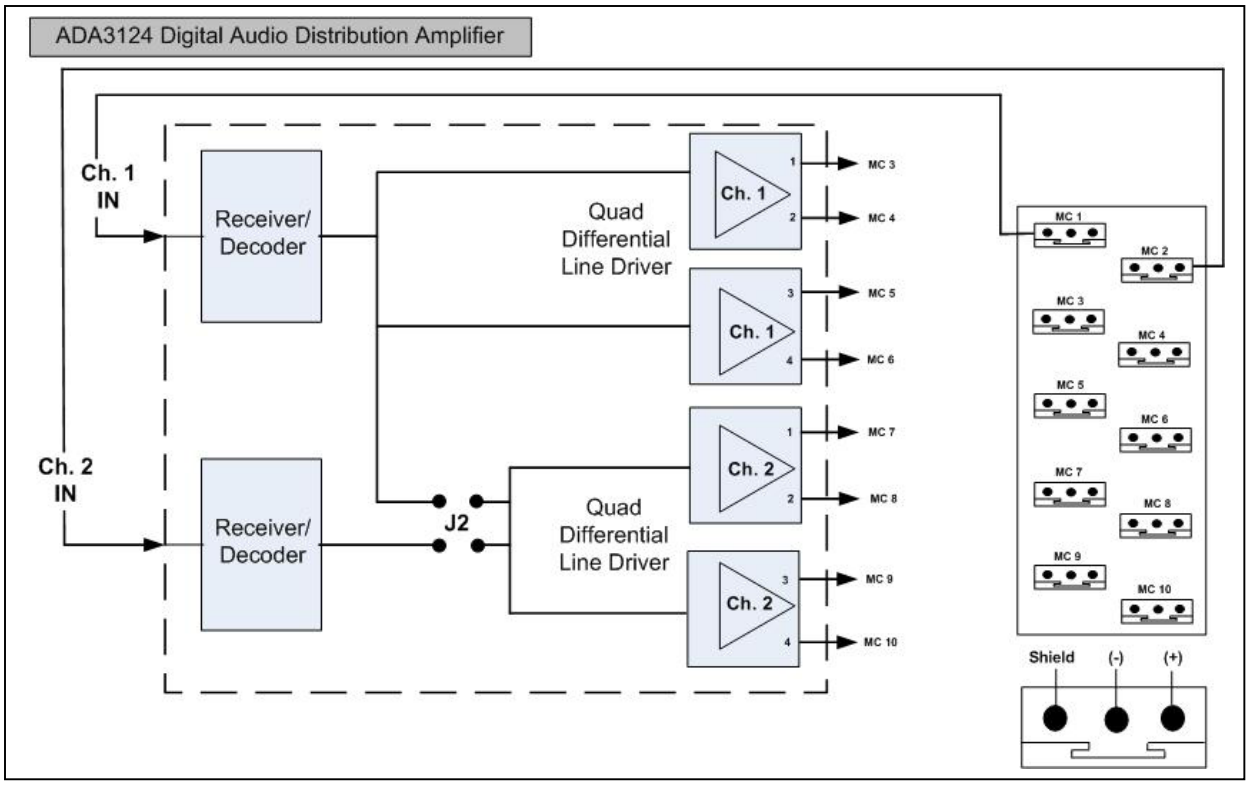


FIGURE 78: ADA3124 Card Electronic Block Diagram

3.13.3 ADA3124 Card Field-Adjustable/Programmable Overview

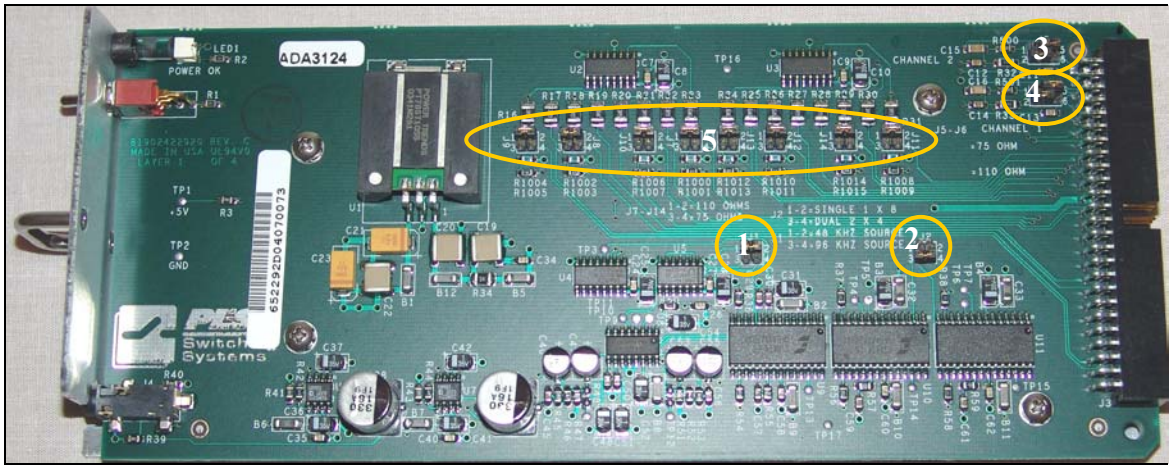
STOP	**The ADA3103 card contains no internal user potentiometer (pot) adjustments. All audio parameters are fixed or jumper-controlled. If card operation becomes questionable or unacceptable, return the card to the factory for repair/replacement.**

This section will be subdivided into the following subsections

- ADA3124 Card Jumper Locations And Descriptions
- ADA3124 Card Mode Selection
- ADA3124 Card Channel Input Impedance Selection
- ADA3124 Card Individual Channel Output Impedance Selection
- ADA3124 Card Output Monitor Source Frequency Selection

3.13.3.1 ADA3124 Card Jumper Locations and Descriptions

The following (see Figure 79) represents all of the ADA3124 card user-selectable jumper position locations:



POSITION	*JUMPER #*	*SELECTION DESCRIPTION*
1	J1	Output Monitor Source Frequency
2	J2	Card Mode (Single or Dual)
3	J5	Channel 2 Input Impedance
4	J6	Channel 1 Input Impedance
5	J7 through J14	Individual Channel Output Impedance

FIGURE 79: ADA3124 Jumper Locations and Descriptions

3.13.3.2 ADA3124 Card Mode Selection

The card's mode jumper (J2) position selects the operational condition of the entire card. Two selections are available (see Figure 80):

- Single – with one input and eight outputs
- Dual – with 2x4 inputs and four or dual 1x4 DA's

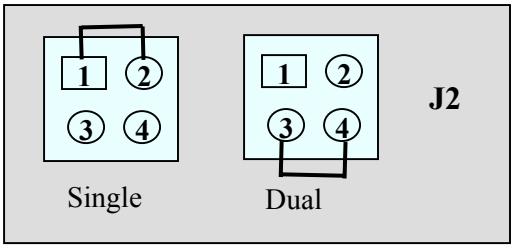


FIGURE 80: ADA3124 Card Mode Jumper Positions

3.13.3.3 ADA3124 Card Channel Input Impedance Selection

The card's channel input impedance jumpers (J5 and J6) position selects the impedance matching for the input signal(s). Two selections are available (see Figure 81):

NOTE	**For single channel operation (i.e., 1x8), ADA3124 jumper J6 is not required to be set.**

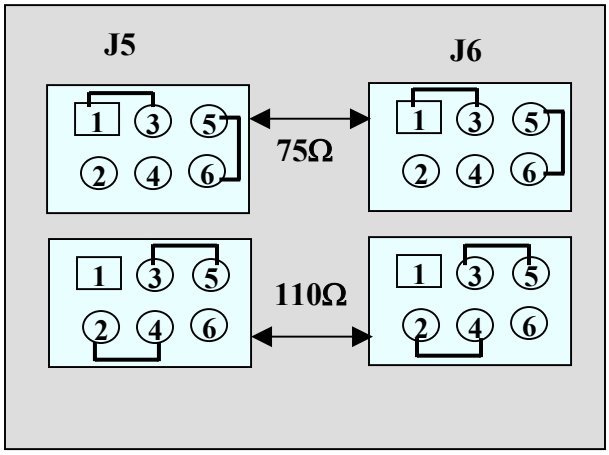


FIGURE 81: ADA3124 Card Channel Input Impedance Jumper Positions

3.13.3.4 ADA3124 Card Channel Individual Output Impedance Selection

The card's individual channel output impedance jumpers (J7 through J14) position selects the impedance matching for the output signal. Two selections are available for each output channel (refer to Table 5 and see Figure 82):

TABLE 5: ADA3124 Output Configurations

JUMPER #	*SINGLE (1X8)*	*DUAL (STEREO 1X4)*
J7	Output #2	Channel 2, Output #1
J8	Output #4	Channel 2, Output #2
J9	Output #6	Channel 2, Output #3
J10	Output #8	Channel 2, Output #4
J11	Output #1	Channel 1, Output #1
J12	Output #3	Channel 1, Output #2
J13	Output #5	Channel 1, Output #3
J14	Output #7	Channel 1, Output #4

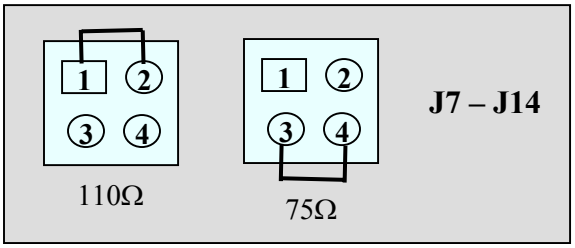


FIGURE 82: ADA3124 Card Channel Individual Output Impedance Jumper Positions

3.13.3.5 ADA3124 Card Source Sampling Rate Selection

The card's output monitor sampling rate selection jumper (J1) position selects the proper source frequency for the auxiliary monitor jack. This is based on the sampling rate of the incoming signal (i.e., if the source signal is 48KHz sampling rate, then the jumper is set for 48kHz). The following two selections are available (see Figure 83):

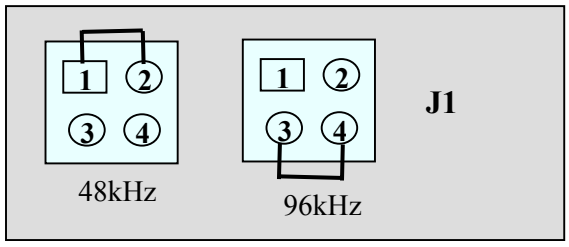


FIGURE 83: ADA3124 Card Output Monitor Source Frequency Jumper Positions

3.14 ADA3118 CARD

3.14.1 ADA3118 Operational Description

The ADA3118 card (see Figure 84) is used with the VDA3100T and VDA3100L frames only. This specifically designed card is a digital audio distribution amplifier that includes a single, one input and eight outputs (1x8) at 75 Ohms unbalanced.

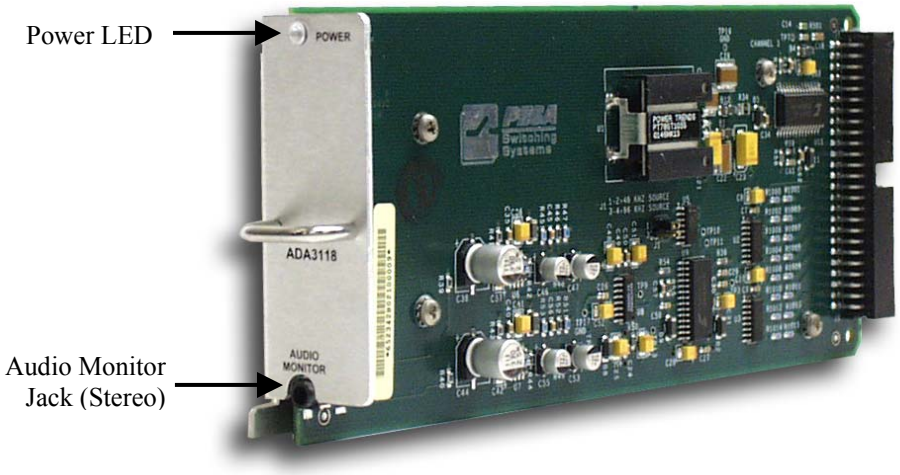


FIGURE 84: ADA3118 Card

This card was specifically designed to provide audio outputs for the VDA3100T frame only. Outputs are 75Ω unbalanced and provide BNC-type output connections to distribute the audio to the destination sound equipment. Users can monitor the output in stereo from the Audio Monitor jack that is accessible from the front of the card. The output from this jack is frequency-oriented and users must select the frequency that is compatible with their listening equipment.

The function of the ADA3118 Power LED (see previous Figure 84 for location) is to provide a visual indication to the user that the on-board voltage regulators are operational and the board is energized. The Power LED should be illuminated during normal operation. If the Power LED dims or extinguishes during operation, check the operation of the VDA3100 mainframe's power supply. If the mainframe's power system is operational and the other distribution cards appear operational, then the board should be suspected of malfunctioning and should be replaced.

3.14.2 ADA3118 Card Electronic Block Diagram

(See Figure 85 for a typical block diagram of the ADA3118 card.)

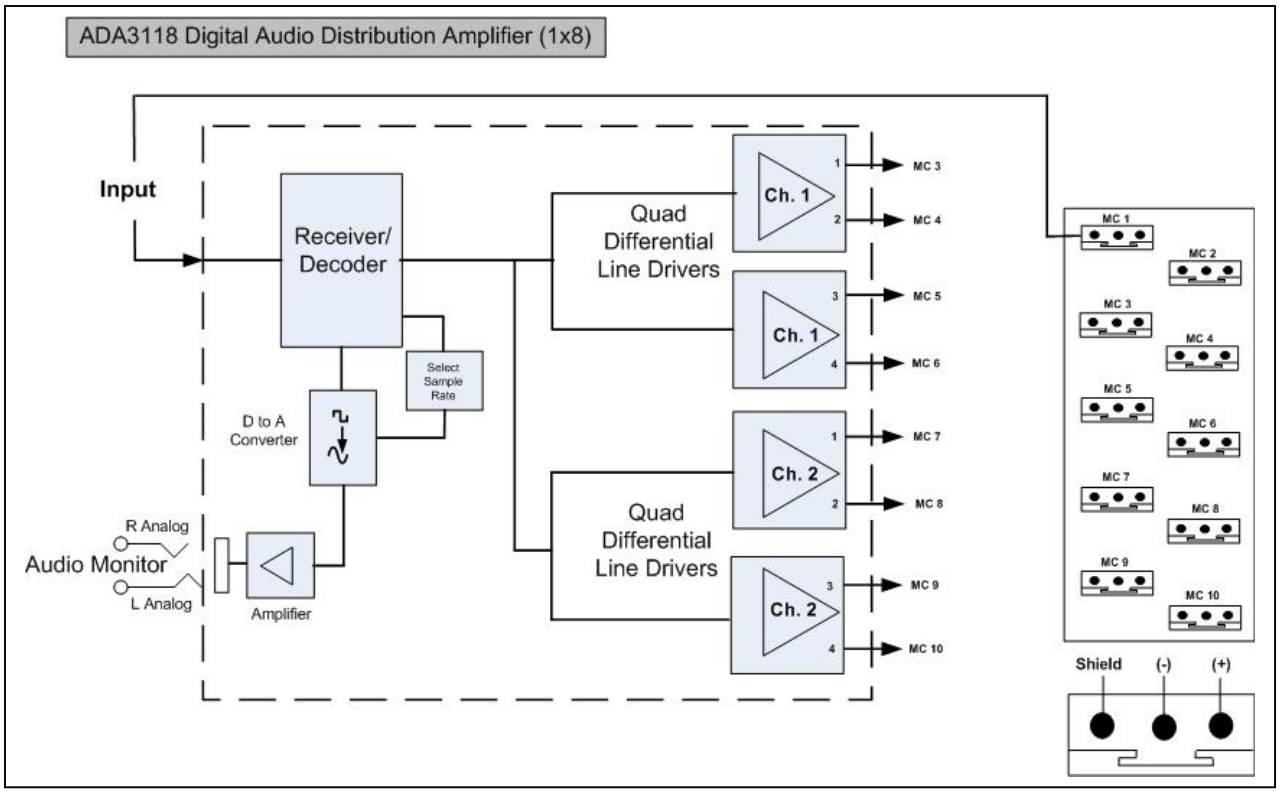


FIGURE 85: ADA3118 Card Electronic Block Diagram

3.14.3 ADA3118 Card Field-Adjustable/Programmable Overview

STOP	**The ADA3118 card contains no internal user potentiometer (pot) adjustments. All audio parameters are fixed or jumper-controlled. If card operation becomes questionable or unacceptable, return the card to the factory for repair/replacement.**

The ADA3118 card contains only one user jumper selection, which is for the front Audio Monitor jack's frequency selection.

The ADA3118 card's output monitor sampling rate selection jumper (J1) position selects the proper source sampling rate for the auxiliary monitor jack's output, which must be selected to be compatible with the incoming signal. The following two selections are available (see Figure 86):

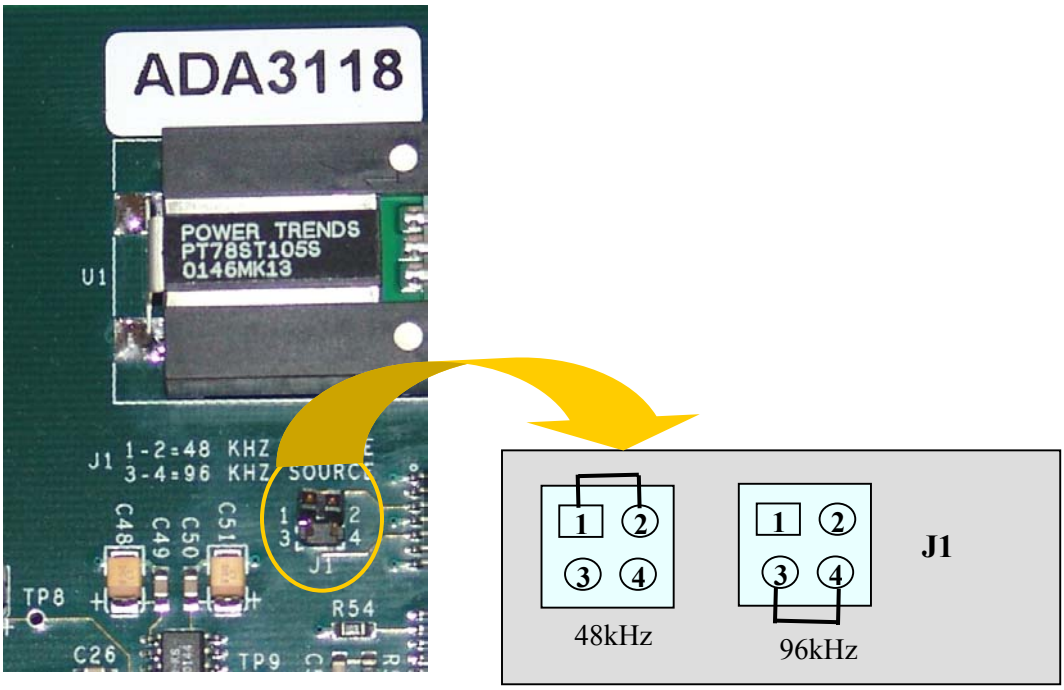


FIGURE 86: ADA3118 Card Output Monitor Source Frequency Jumper Positions

3.15 ADAC3102 CARD

3.15.1 ADAC3102 Operational Description

The ADAC3102 card (see Figure 87) is used with the ADA3100 Audio frame. This is a four channel, 24-bit, 96kHz, audio digital-to-analog conversion card.

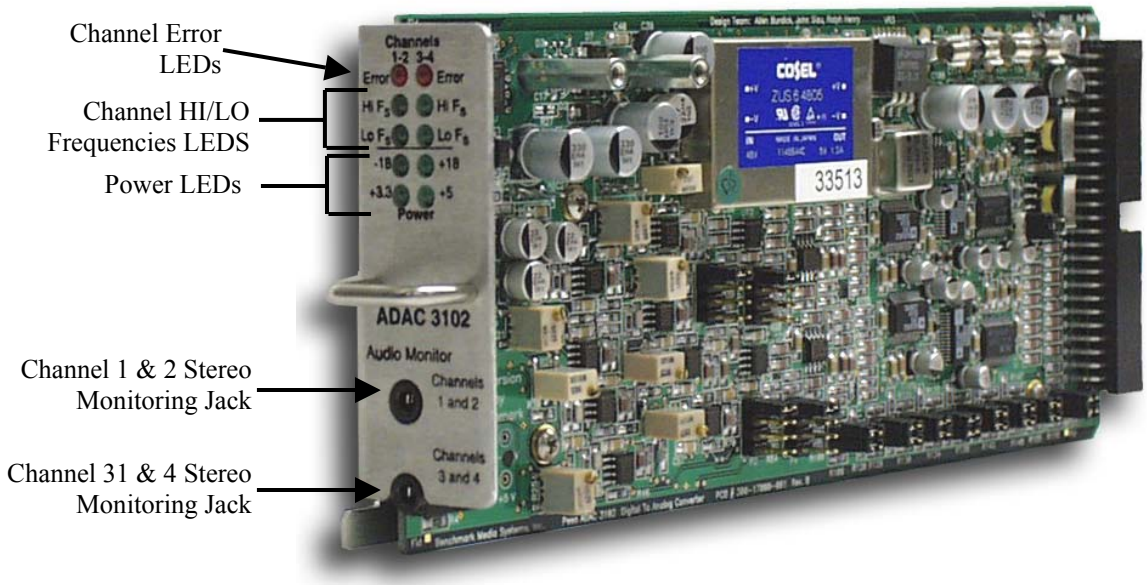


FIGURE 87: ADAC3102 Card

The ADA3102 card includes LEDs and stereo jacks (see Figure 87) to monitor the conversion parameters. The front panel display is divided into five basic sections:

- Channels 1 & 2 Frequency Monitoring LEDs
- Channels 3 - 4 Frequency Monitoring LEDs
- Power Monitoring LEDs
- Channels 1 & 2 Audio Monitoring Jacks
- Channels 3 & 4 Audio Monitoring Jacks

Each Channel frequency monitoring section has identical displays. The Error LEDs illuminate when an error is detected on the digital input with the Mute Enabled. The Hi Fs LEDs illuminate when frequencies that are greater than 54kHz are detected and the Lo Fs LEDs illuminate when frequencies are detected that are less than 54kHz.

The Power LEDS illuminate when the corresponding card voltages (-18.0VDC, +18.0VDC, +5.0VDC, and +3.3VDC) are present.

The Audio monitoring jacks are used to monitor the input 96kHz frequency (signal).

3.15.2 ADAC3102 Card Electronic Block Diagram

(See Figure 88 for a typical block diagram of the ADAC3102 card.)

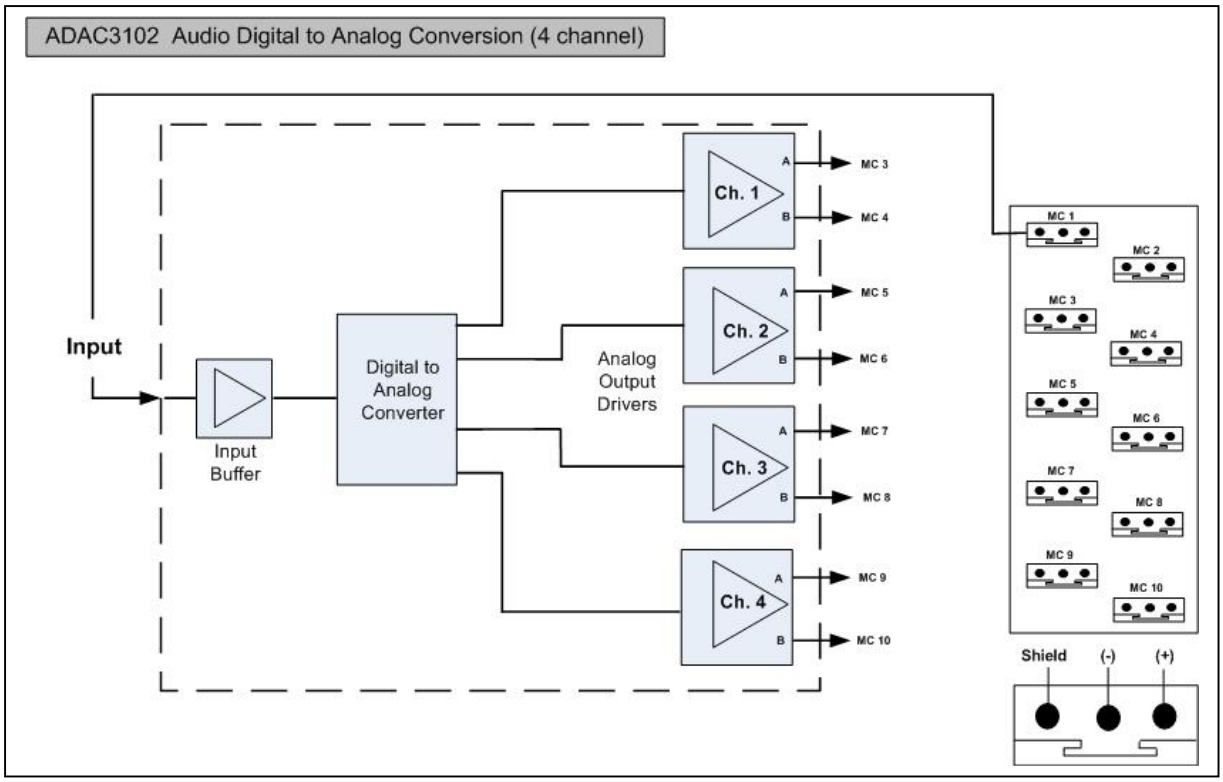


FIGURE 88: ADAC3102 Card Electronic Block Diagram

3.15.3 ADAC3102 Card Field-Adjustable/Programmable Overview

STOP	**The ADAC3102 card contains no internal user potentiometer (pot) adjustments. All audio parameters are fixed or jumper-controlled. If card operation becomes questionable or unacceptable, return the card to the factory for repair/replacement.**

The ADAC3102 card has several on board, user-programmable selections that are jumper controlled (see Figure 89 for locations; also, the locations are imprinted on the back of the card), which are as follows:

- JP1, JP2 (Input Impedance Termination)
- P1 through P4 (Output Assignment Selection)
- P5 through P12 (Output Impedance Selection)

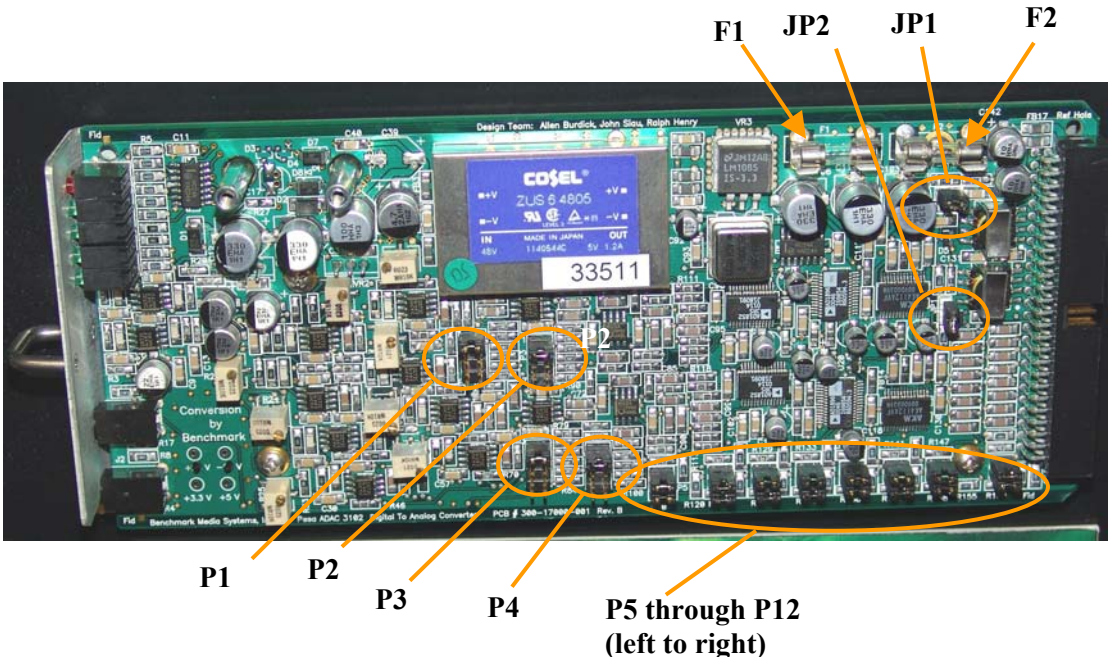


FIGURE 89: ADAC3102 Jumper and Fuse Locations

Additionally, the card contains two miniature (2AG), fast-blow fuses (F1 and F2) that are rated at 24VDC at 1.5 amps. The overcurrent fuse F1 protects Channels 1 and 2 for while overcurrent fuse F2 protects Channels 3 and 4. These fuses are field replaceable; however, if they open (blow), the reason for opening should be troubleshot immediately or a future result can include a catastrophic card failure.

3.15.3.1 ADAC3102 Input Impedance Termination Setting

The digital input channel impedance termination is set as follows (see Figure 90):

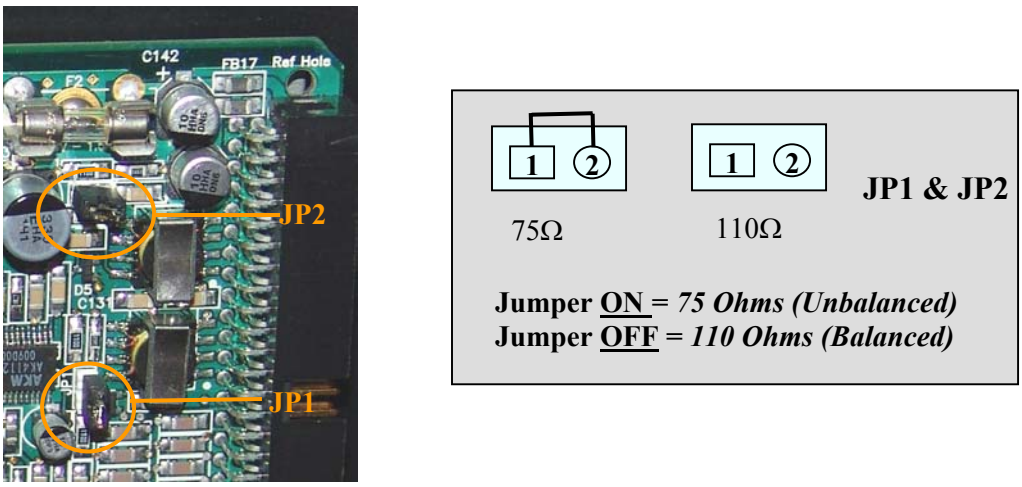


FIGURE 90: ADAC3102 Input Impedance Termination Setting

3.15.3.2 ADAC3102 Output Impedance Termination Setting

The analog output channel impedance termination is set as follows (see Figure 91):

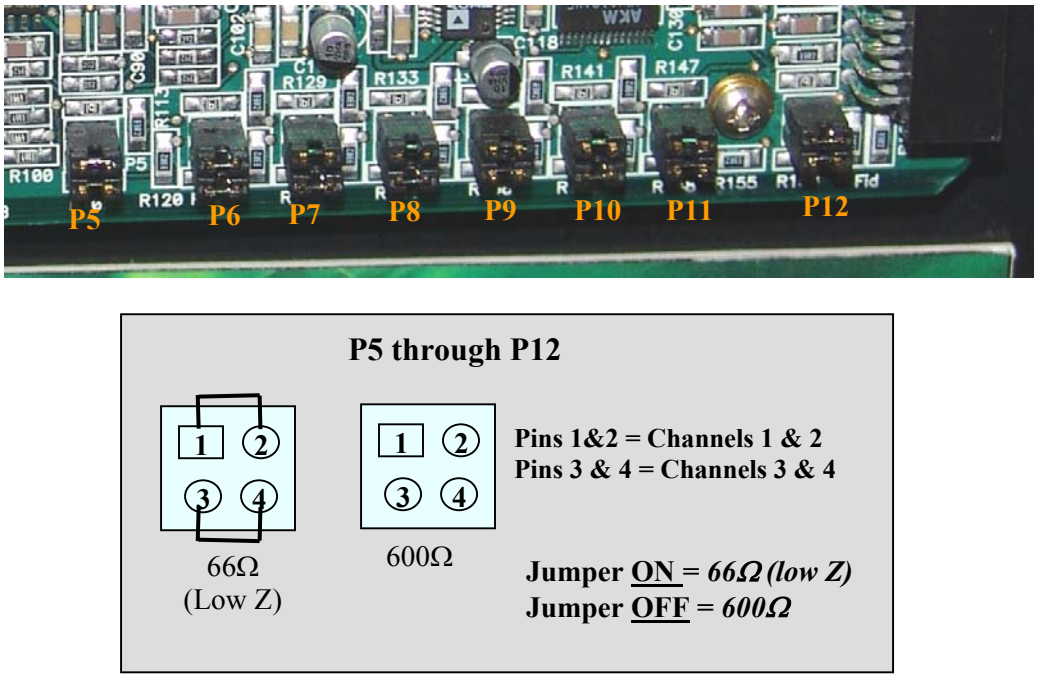


FIGURE 91: ADAC3102 Output Impedance Termination Settings

3.15.3.3 ADAC3102 Output Channel Assignment Configurations

The analog output channel assignment configurations are set as follows (see Figure 92):

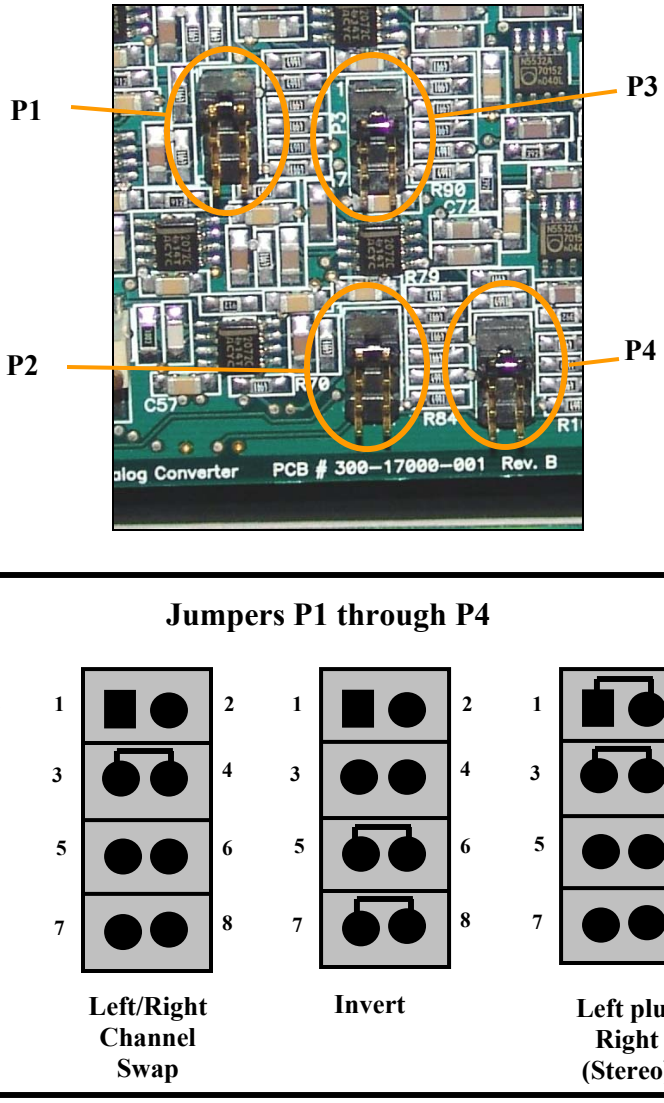


FIGURE 92: ADAC3102 Output Channel Assignment Configurations

There are five settings per jumper block, which are shown in Figure 92.

3.16 AADC3102 CARD

3.16.1 AADC3102 Operational Description

The AADC3102 card (see Figure 93) is used with the ADA3100 Audio frame and is an audio digital to analog conversion card for 24-bit, 96kHz (3 AES/EBU per input channel). The card contains four analog inputs and six AES/EBU balanced outputs.

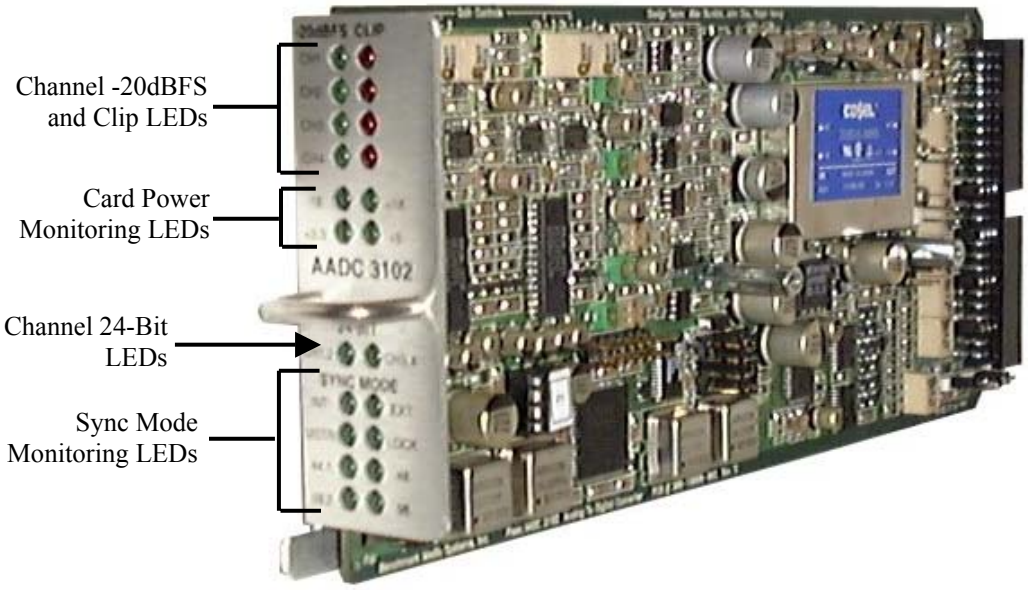


FIGURE 93: AADC3102 Card

The AADC3102 card includes numerous monitoring LEDs to indicate various operating conditions. The LED indicators are divided into four distinct functions, which are as follows:

- Channels 1 – 4 LEDs: -"20.0dB FS" (full Scale) green LED indicators and "Clip" red LED indicators. Monitors input signals.
- Card Power LEDs: +18.0, -18.0, +3.3, and +5.0 VDC (green).
- 24-Bit LEDS: Channels 1-2 and Channels 3-4 (green). Monitors output signals.
- Sync Mode: Internal, External, Master, Lock, 44.1kHz, 48.0kHz, 88.2kHz, and 96.0kHz (green LEDs).

An illuminated red LED or an extinguished power LED indicates a fault condition, either the signal is being clipped or a corresponding power value has failed, respectively. Troubleshooting should become necessary whenever a steady red LED is illuminated or a power parameter has failed.

3.16.2 AADC3102 Card Electronic Block Diagram

(See Figure 94 for a typical block diagram of the AADC3102 card.)

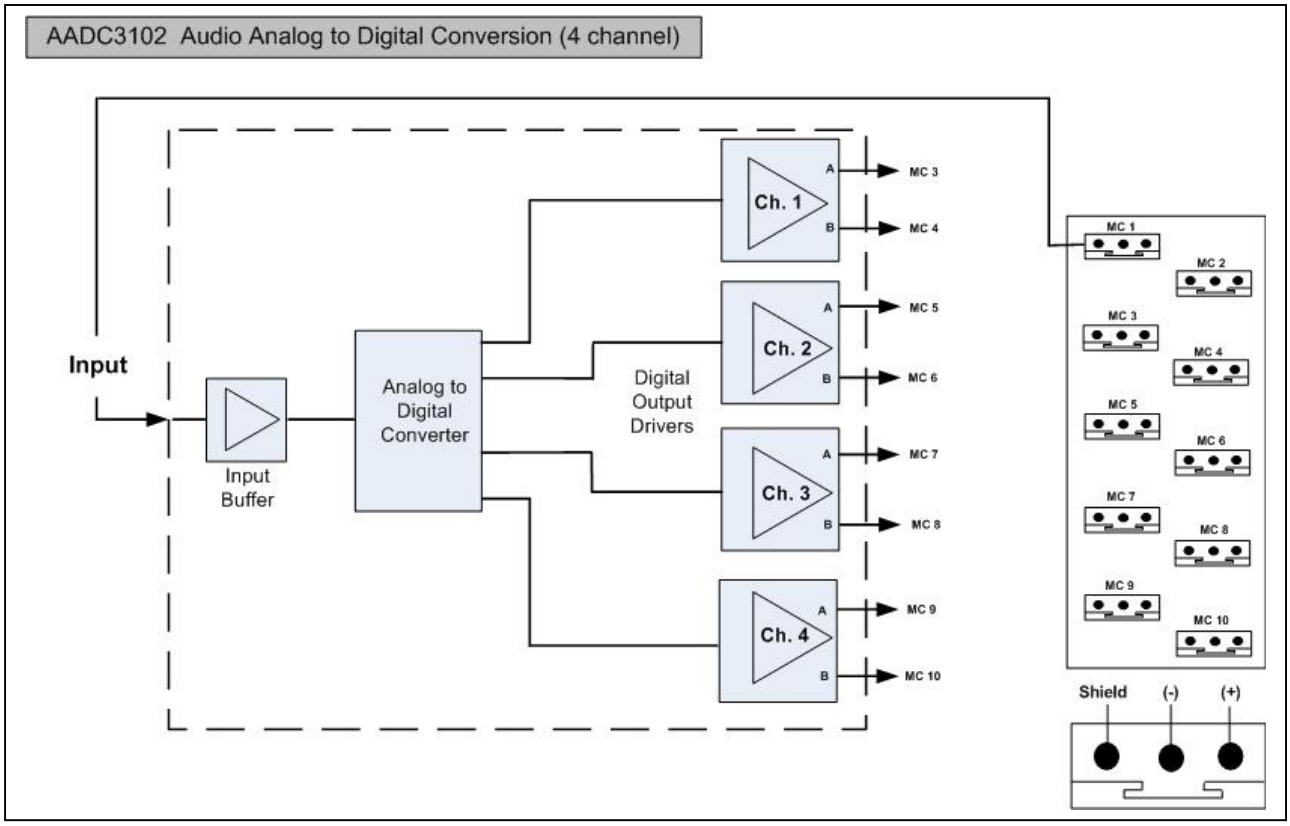


FIGURE 94: AADC3102 Card Electronic Block Diagram

3.16.3 AADC3102 Card Field-Adjustable/Programmable Overview

STOP	**The AADC3102 card contains no internal user potentiometer (pot) adjustments. All audio parameters are fixed or jumper-controlled. If card operation becomes questionable or unacceptable, return the card to the factory for repair/replacement.**

The AADC3102 card has several on board, user-programmable selections that are jumper controlled (see Figure 95 for locations; also, the locations are imprinted on the back of the card), which are as follows:

- JP1 through JP4 (Analog Input Impedance Termination)
- JP5 through JP10 (Digital Output Impedance Termination)
- P1 (Output Sample Rate Selection)
- P2 and P3 (Channel Word BIT-Length Selection)
- P4 (Digital Master/Slave Reference Selection)

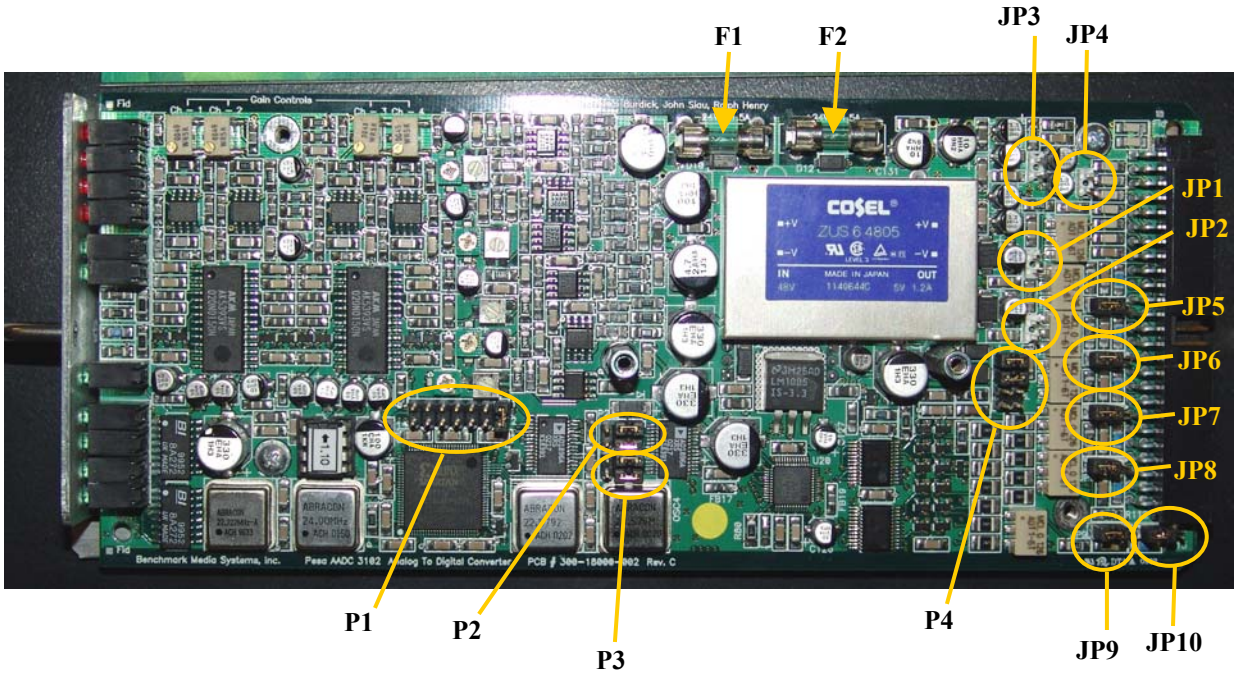


FIGURE 95: AADC3102 Jumper and Fuse Locations

Additionally, the card contains two miniature (2AG), fast-blow fuses (F1 and F2) that are rated at 24VDC at 1.5 amps. The overcurrent fuse F1 protects the positive input voltage (+24VDC) while overcurrent fuse F2 protects the negative input voltage (-24VDC). These fuses are field replaceable; however, if they open (blow), the reason for opening should be troubleshot immediately or a future result can include a catastrophic card failure.

3.16.3.1 AADC3102 Card Analog Input Impedance Termination

The four, analog input channel impedance terminations are set as follows (see Figure 96):

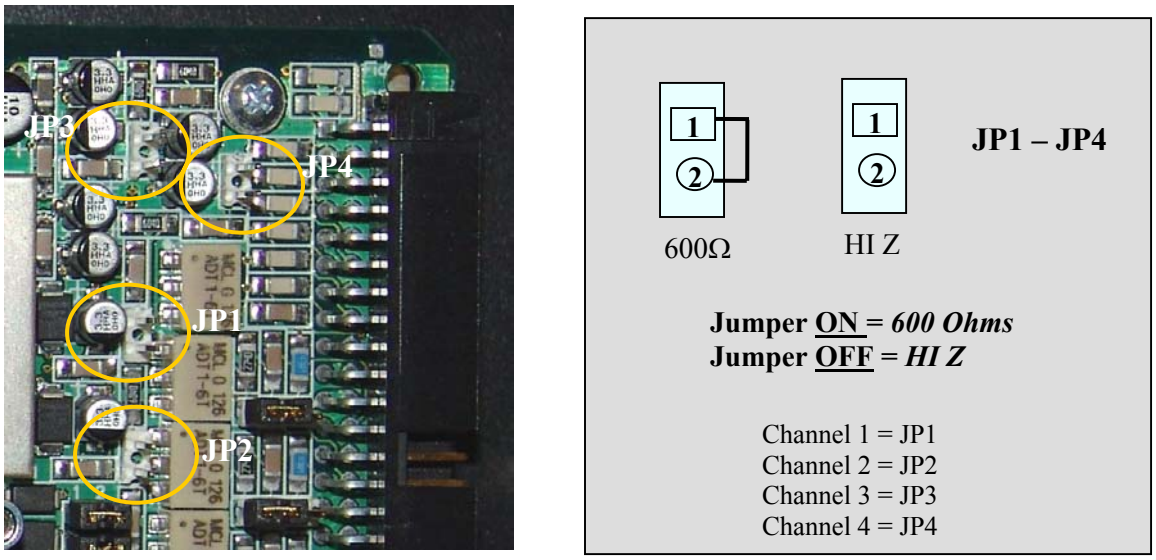


FIGURE 96: AADC3102 Card Analog Input Impedance Termination Settings

3.16.3.2 AADC3102 Card Digital Output Impedance Termination

The six, digital output impedance terminations are set as follows (see Figure 97):

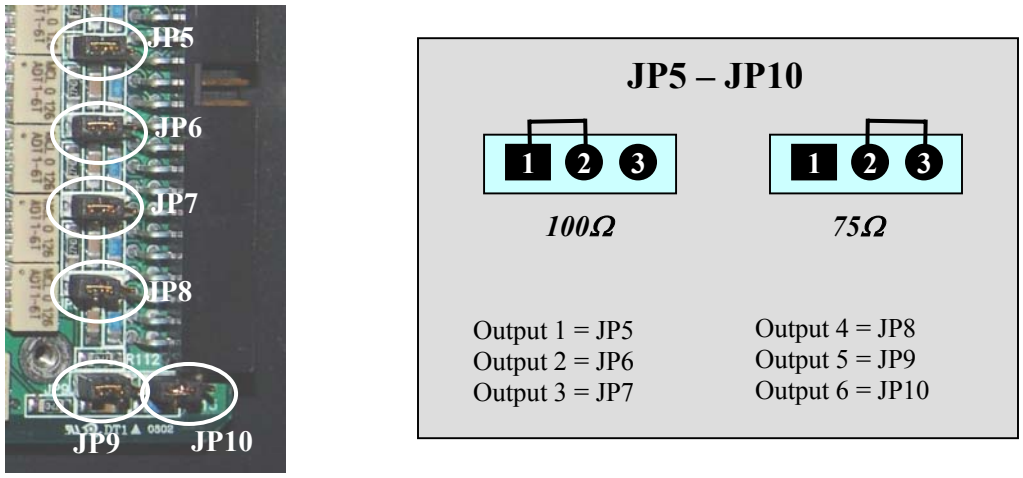


FIGURE 97: AADC3102 Card Digital Output Impedance Termination Settings

3.16.3.3 AADC3102 Card Output Sample Rate Selection

The output sample rate selection frequencies are set as follows (see Figure 98):

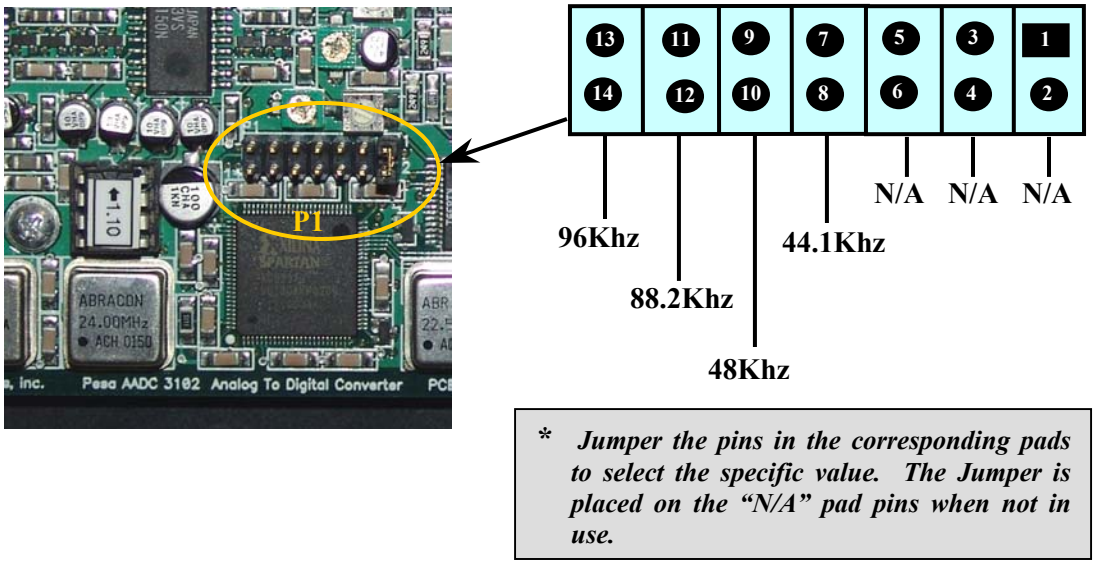


FIGURE 98: AADC3102 Card Output Sample Rate Selection Setting

3.16.3.4 AADC3102 Card Channel Word BIT-Length Selection

The output channel word BIT-length selections are set as follows (see Figure 99):

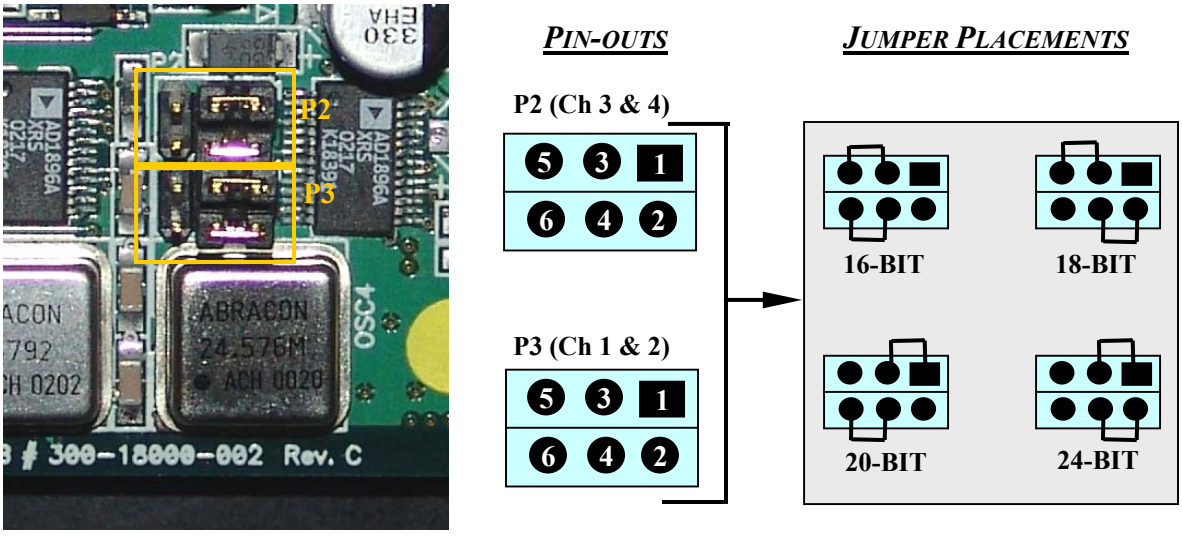


FIGURE 99: AADC3102 Card Channel Word BIT-Length Selection Settings

3.16.3.5 AADC3102 Card Digital Master/Slave Reference Selection

Jumper P4 (see Figure 100) controls direction, function, and impedance of the bi-directional Digital Reference I/O port.

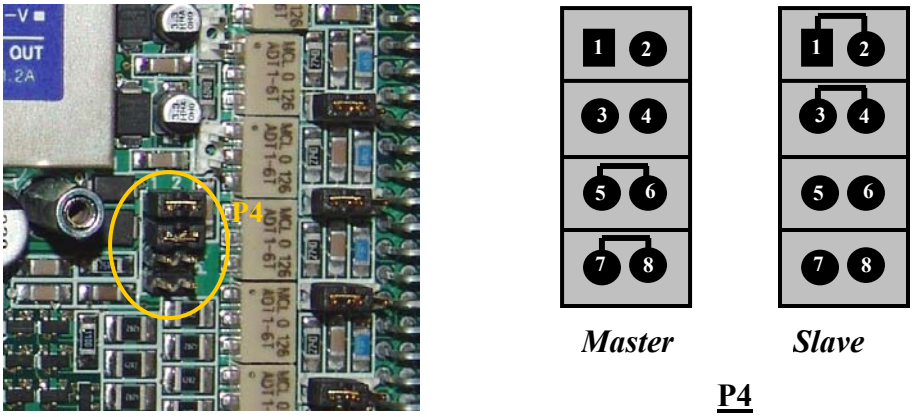


FIGURE 100: AADC3102 Card Digital Master/Slave Reference Selection Setting

In the Slave mode, the digital I/O port is configured as a high-impedance (Z), unbalanced input that provides phase and frequency to which the digital outputs will lock.

In the Master mode, the digital output provides a phase and frequency to which other devices can be locked. ***In any frame combination, only one card may be configured as Master.*** If a card is configured as Master, a 75Ω termination (or 75Ω Load) should be connected to the reference BNC jack on the rear of the frame.

Chapter 4 Maintenance

4.1 MAINTENANCE

The DA3100 Mainframe, the boards, and the Power Supplies are designed and manufactured to give long, trouble free service with minimum maintenance requirements. If problems do occur, follow the troubleshooting procedure provided in this section. If additional technical assistance is required, refer to the General Assistance and Service information in the front of the manual and in Chapter 5.

4.2 PREVENTIVE MAINTENANCE

Use the following guidelines for general preventive maintenance:

- Keep the inside of the frame clean, especially if your facility is subject to dust or dirt in the atmosphere. Use compressed air, an antistatic cloth, or an antistatic vacuum to clean the frame and internal components.
- Observe proper procedures for preventing electrostatic discharge when cleaning the unit, and when inserting and removing cards.
- Ensure that all tools and personnel handling individual components are properly grounded.
- If a problem is suspected with an individual Video Distribution Board/Card, first swap out the board and recheck the system for the problem.

4.3 CORRECTIVE MAINTENANCE

The following paragraphs provide information to assist the servicing technician in maintenance of the DA3100 Mainframe, the boards, and the power supplies.

4.4 TROUBLESHOOTING

Only authorized and properly trained personnel shall connect electrical supply source(s) to this equipment. Typically, the main electrical disconnect for this equipment is the branch circuit overcurrent protection device (e.g., fuse or circuit breaker) that controls the receptacle for the line-cord(s). Generally, the line-cord(s) act as a quick means of disconnecting the power source.

Unless an active (energized) troubleshooting sequence is required, always perform Lockout/Tagout whenever internal components are exposed and are required to be accessed. Only authorized and properly trained personnel shall perform maintenance on this equipment.

Additionally, there may be two power sources connected to this equipment. When de-energizing the equipment, verify that there are no line-cords connected to the equipment.

The best troubleshooting tool is familiarity with the equipment and a thorough understanding of its operation. If all of the video outputs from a DA3100 Video Mainframe are missing, check the power supply system and the power supply line fuses. If some of the video outputs from a DA3100 Video Mainframe are missing, check the operation and adjustment of the individual Video Distribution Board whose outputs are missing.

NOTE	**<u>Do not</u> attempt to repair equipment that is in warranty. If the equipment is in warranty, follow the outlines found in Chapter 5 under PESA Switching Systems, Inc., Warranty Statement and follow the return Material Authorization process (also in Chapter 5).**

Chapter 5 Equipment Returns, Warranty, and Support

5.1 RETURN MATERIAL AUTHORIZATION (RMA) POLICY

All items that are to be returned to PESA for warranty repair must have an RMA number assigned and the RMA number ***must be visible*** on the return-shipping label. Any goods returned without an RMA number **will be refused**. You may obtain the RMA number by calling the PESA technical support department at (256) 726-9222.

5.2 PESA SWITCHING SYSTEMS, INC., WARRANTY STATEMENT

PESA warrants the DA3100 (hereafter referred to as "PRODUCTS") against defective workmanship or materials for a period of three (3) years from the shipping date of the item by PESA.

During this warranty period, defective parts will be replaced at no charge. Factory labor to repair or replace defective parts will be performed at PESA Switching Systems, Inc. factory only at no charge during the warranty period.

This warranty includes factory labor and parts and does not include provisions for reimbursement for removal, inbound shipment, and reinstallation of the "products". During the warranty period, PESA will provide outbound warranty shipping via UPS GROUND for all defective Premiere units returned. All inbound freight charges must be prepaid and the product must be insured for its full value.

This warranty does not cover abuse, shipping damage, neglect, tampering by unauthorized personnel, acts of nature, damage inadvertently caused by the user, preventive maintenance, or any product in which the serial number is removed or defaced.

The sole responsibility of PESA shall be to repair or replace in accordance with this warranty. The seller's and manufacturer's only obligation shall be to repair or replace such quantity of the product proven defective.

NOTE	**Pack the equipment securely and label with the correct address. Proper packaging saves money. The small amount of extra care and time it takes to cushion a part or unit correctly may prevent costly damage while in transit. Make certain that the address is both legible and complete. Failure to do so often results in delay or even loss.**

PESA shall not be liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, the user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith.

The warranty and the obligations and liabilities hereunder shall replace all warranties, express or implied.

If service is required, please obtain an RMA number by contacting the PESA technical support department via telephone (256) 726-9222 or FAX (256) 726-9268 with the following information at hand:

1. The product model number
2. The product serial number
3. The date of purchase (warranty service only)
4. System information
5. A detailed description of the problem

5.3 NON-WARRANTY SUPPORT- ALL PRODUCTS

If an item is determined to be out of the defined warranty period, the item can be repaired as a non-warranty repair. If specifically requested, an estimate will be made on the repair cost of a non-warranty repair unit. This requirement should be clearly stated on the packing material included with the return unit. If an estimate is not requested, the returned device will be repaired and updated without further approval from the customer.

If an estimate is requested, a PESA service representative will contact the customer with the estimated cost for repair. If the customer approves the estimate, the unit will then be repaired and returned. If the customer does not approve the estimate, the unit will be returned.

5.3.1 Prepaid

After an estimate is given, a check or money order can be sent for the estimated amount plus the cost of return shipping. The PESA customer service representative will provide both repair and shipping cost.

5.3.2 On Account

A purchase notification must be issued by the customer in order for PESA to return the unit on account if an account has been established and is in good standing. All invoices are payable at NET 30. We reserve the right to add 1.5% per month (annual rate 18%) to any unpaid balance over 30 days old.

All repair shipments are to be addressed to:

PESA Switching Systems, Inc.
Attn: Customer Service
330A Wynn Drive
Huntsville, AL 35805
Phone: (256) 726-9222
Fax: (256) 726-9268

5.3.3 Telephone Support

Due to the technical nature of the DA3100 control system and the acknowledgment that, at times, telephone support will be required, PESA provides the following telephone support policy:

- Technical support includes troubleshooting a suspected system problem, and troubleshooting a known system problem.
- Technical support does not include on-site or off-site system configuration changes, software modifications, hardware modifications, software installation, hardware installation, report generation, report modification, or over-the-telephone system operation training.
- Telephone support is available weekdays, from 8:00 AM to 5:00 PM CST.
- An optional support program that includes toll-free telephone support as well as a dedicated 24-hour pager access is available.

5.3.4 Replacement Parts

Only parts of the highest quality have been used in the design and manufacture of the DA3100 Mainframe, the boards, and the power supplies. If the inherent stability and reliability are to be maintained, replacement parts must be of the same quality. When replacing parts, avoid using excessive solder on the printed circuit board. Always make sure that the solder does not short two circuits together. Be sure the replacement part is identical to the original, and is placed in exactly the same position with same lead lengths.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