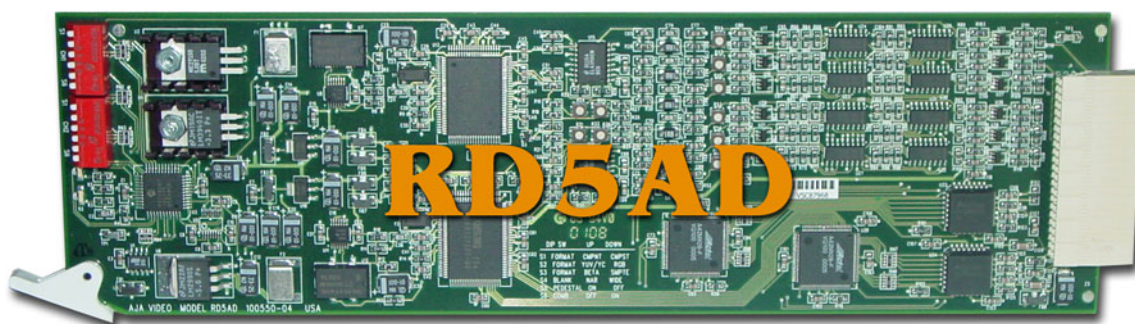


RD5AD **2-channel** **Component/Composite** **Analog to SDI Converter** **R-series Card Module** **User Manual**



AJA
AJA VIDEO SYSTEMS INC

October 25, 2003 P/N 101644-00

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by AJA Video can effect emission compliance and could void the user's authority to operate this equipment.

Contacting Support

To contact AJA Video for sales or support, use any of the following methods:

443 Crown Point Circle, Grass Valley, CA. 95945 USA

Telephone: +1.800.251.4224 or +1.530.274.2048

Fax: +1.530.274.9442

Web: <http://www.aja.com>

Support Email: support@aja.com

Sales Email: sales@aja.com

When calling for support, have all information on the product (serial number etc.) at hand prior to calling.

Limited Warranty

AJA Video warrants that this product will be free from defects in materials and workmanship for a period of five years from the date of purchase. If a product proves to be defective during this warranty period, AJA Video, at its option, will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, you the Customer, must notify AJA Video of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. The Customer shall be responsible for packaging and shipping the defective product to a designated service center nominated by AJA Video, with shipping charges prepaid. AJA Video shall pay for the return of the product to the Customer if the shipment is to a location within the country in which the AJA Video service center is located. Customer shall be responsible for paying all shipping charges, insurance, duties, taxes, and any other charges for products returned to any other locations.

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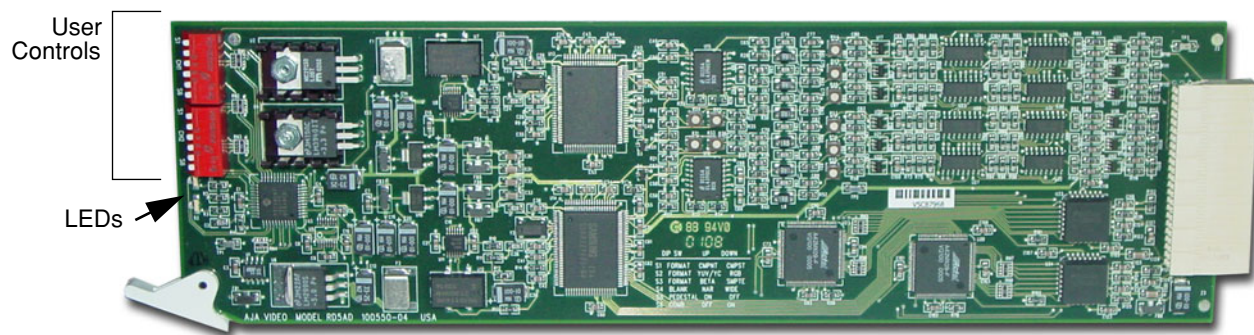
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Introduction

The AJA Video RDSAD is a dual-channel universal video A/D converter. The RD5AD supports 2 completely separate channels of analog to SDI conversion and is useful for video/key or video/video applications. Both channels can be independently configured for YPbPr (SMPTE, EBU-N10), Betacam, RGB, composite or Y/C (S-Video) inputs. The RDSAD automatically configures NTSC (525 line) or PAL (625 line) analog inputs to 525 or 625 line 4:2:2 component serial digital output on each channel. The full dynamic range of input video values below black and above white are not clipped. In the NTSC mode, the removal of the 7.5 IRE pedestal can be disabled by an external dipswitch selection.

Note: A Time Base Corrected (TBC) source is required on the RD5AD inputs. Operation without use of a TBC is not recommended for VTRs, laser disks, DVDs, etc.

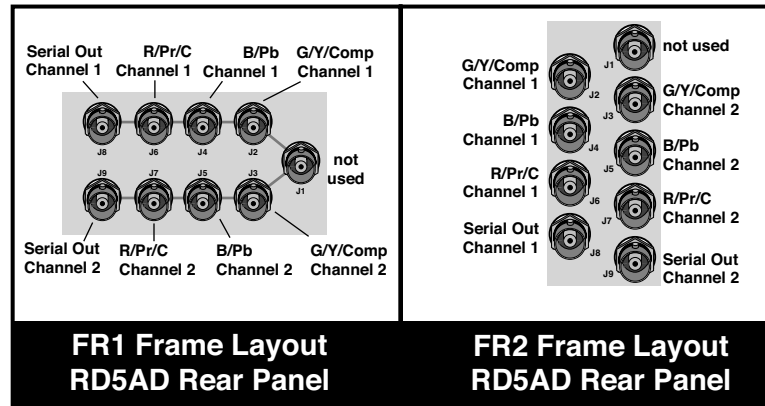
Features



RD5AD Card Module, Side View

- Low-Cost Universal A/D Conversion
- Two separate A/D channels
- Component or composite analog inputs: YPbPr, EBU-N10, Betacam, RGB, NTSC/PAL, or S-Video
- SDI outputs, SMPTE 259M
- Automatic NTSC/PAL selection
- Adaptive 3-line comb filter
- Separate User Controls for each channel
- Controls provided for format, pedestal, and H/V blanking
- +/- 0.25 db to 5 MHz frequency response, 2x oversampling
- Compatible with AJA FR1/FR2 and Leitch 6800 Series Frames

I/O Connections

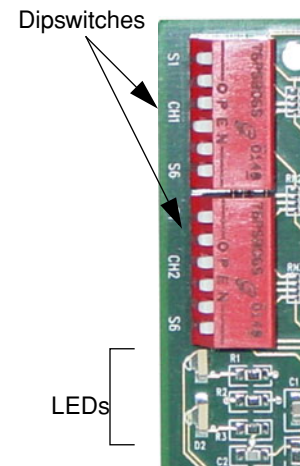


FR1 and FR2 BNC Connector Assignments, RD5AD Card Module

When the RD5AD module is installed in an AJA FR1 or FR2 frame, a corresponding group of 9 BNCs on the rear panel then provide I/O for the module. The illustration above shows the connector assignments for both the FR1 and FR2 when used with the RD5AD.

User Controls

The user interface for the RD5AD includes two dipswitches, a six-position for control of Channel 1 and another for control of Channel 2. Two LEDs provide status indication showing whether video is present at a respective channel. The following table under “*Control Functions*” shows what each of the dipswitch positions perform. Both dipswitches function identically for their respective channels. The channel number is marked on the front of the circuit card next to each dipswitch.



Control Functions

Switch Position	Functions (applies to dipswitches for both channels)
S1 Input Selection:	ON (Down) = Composite OFF (Up) = Component
S2 Input Selection:	ON (Down) = RGB— if SW1 is up the Input will be RGB if SW1 is down Input will be Composite OFF (Up) = YUV/YC—if SW1 is up Input will be YUV if SW1 is down Input will be YC
S3 Input Selection:	ON (Down) = SMPTE/EBU-N10 Levels OFF (Up) = BETACAM 525 levels
S4 Blanking:	ON (Down) = Wide: line 20, field 1; line 20, field 2 (525 line) line 23, field 1; line 336, field 2 (625 line) Horizontal (active video line duration) ITU-R/SMPTE (710 pixels NTSC, 702 pixels PAL) OFF (Up) = Narrow: 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)
S5 Pedestal:	ON (Down) = No Pedestal OFF (Up) = Remove Pedestal
S6 Comb Filter:	ON (Down) = Comb Filter On (enabled with composite input only) OFF (Up) = Comb filter Off (Notch filter used for composite input)

Installation

Typically, RD5AD installation consists of the following:

1. disconnect power from the frame (remove line cord)
2. remove the FR1/FR2 front panel
3. install RD5AD card module
4. apply power to the frame by connecting a north american-style power cord from the frame to mains power (90 to 260 VAC)

Instructions for removing the frame front door for module installation is discussed in the *FR1/FR2 User Manual*.

Specifications

Item	Specification
Input Format:	SMPTE, EBU N-10, RGB, BETACAM, NTSC, PAL, Y/C (S Video)
Output Return Loss:	15 db to 300 Mhz
Frequency Response:	+/-0.25 db to 5 Mhz (Y) +/-0.25 db to 2.5Mhz (Chroma - Component, RGB) +/-0.25 db to 1.3Mhz (Chroma- Composite)
Delay:	With Comb Filter OFF: 1.3 usec With Comb Filter ON: 1 line + 1.3usec
Digital Adjustments:	Output Gain: +/- 10% Offset: +/- 10% Saturation: +/- 10%
K factor:	<1% 2T (Y)
Diff. Gain:	<1.5%
Diff. Phase:	<1.5 degree
Y/C delay:	10 ns max
A/D Converters:	8 bits
Signal Path:	8 bits
Input level adjustment:	+/-10%
Power Consumption:	+6.5V 5.7W -6.5V 0.5 W