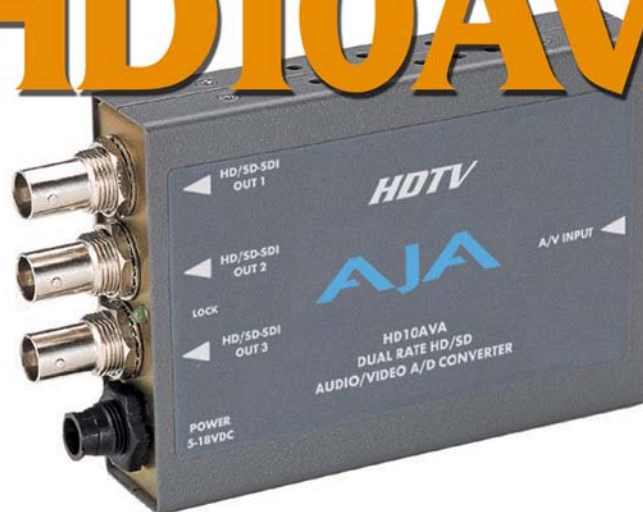


# **HD10AVA**

## **SD/HD Analog Composite or Component Video and 4 Ch Analog Audio to SD/HD-SDI w/Embedded Audio**

### **User Manual**

# HD10AVA



**AJA**  
AJA VIDEO SYSTEMS INC

August 3, 2006 P/N 101662-00

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## FCC Emission Information

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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

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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](mailto:support@aja.com)

Sales Email: [sales@aja.com](mailto:sales@aja.com)

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

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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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## Introduction

The HD10AVA is a miniature, high-quality, audio/video, HD/SD A/D converter. The HD10AVA automatically detects the video input format and embeds the audio inputs in the SDI/HD-SDI outputs. The HD10AVA is useful for adding an SDI/HD-SDI audio/video output to tape decks or any professional video equipment with analog outputs. The HD10AVA is especially useful for adding HD-SDI outputs to most HDV cameras or decks by using the component outputs of such devices. The HD10AVA uses a breakout cable for audio/video inputs and provides 3 SDI-HD-SDI on BNCs.

## Features

- High-Quality SD/HD Audio/Video A/D Converter
- SD Component, Composite or Y/C Video Input
- HD Analog Component Video Input
- Four Channel Balanced Analog Audio Input
- 3 SDI/HD-SDI w/embedded Audio Outputs
- 12 Bit Video, 24 Bit Audio A/Ds
- Automatic Multi-Standard
- External Dip Switch Configuration
- 5-18V Power

### Video

#### SD Input Modes Supported

- 480i component BETA US
- 480i component SMPTE US
- 480i S Video US
- 480i composite US
- 480i component BETA Japan
- 480i component SMPTE Japan
- 480i S Video Japan
- 480i composite Japan
- 576i component SMPTE
- 576i S Video
- 576i composite

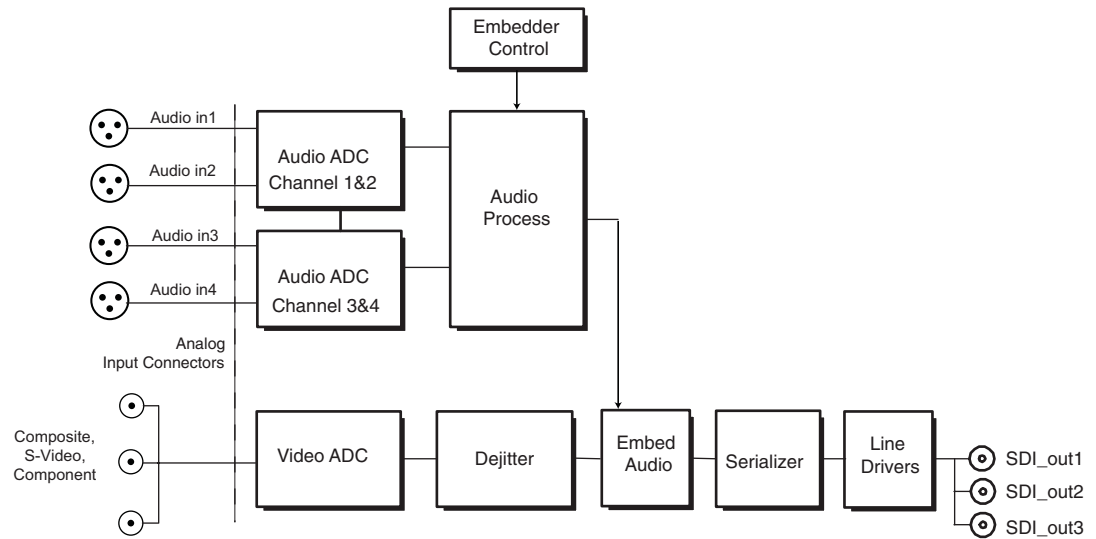
#### HD Input Modes Supported

- 1080p component 23.98psf/24psf
- 1080i component 50/59.94/60
- 720p component 50/59.94/60

### Audio

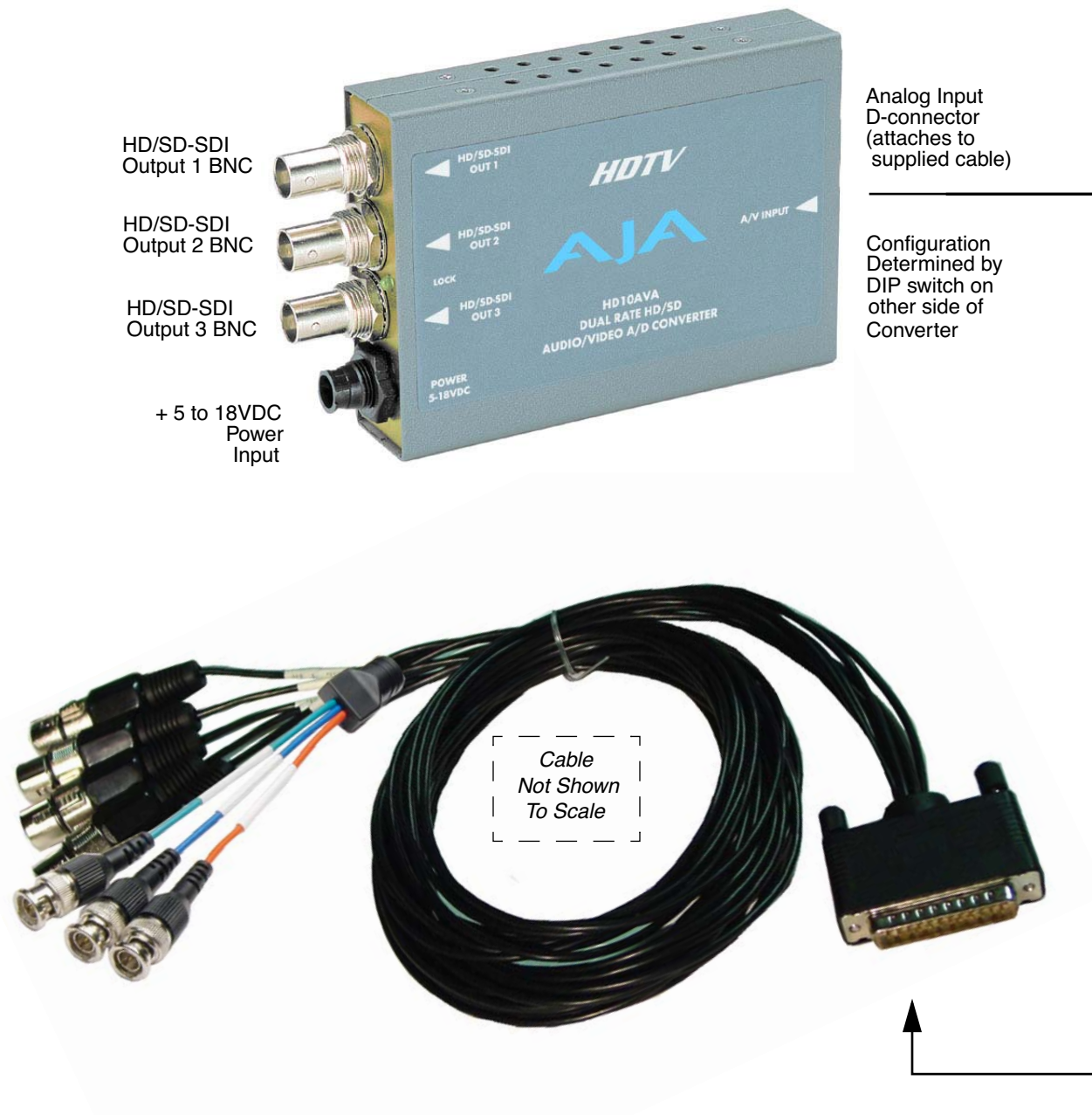
The HD10AVA supports 4 analog audio input channels (2 stereo pairs) at 48 KHz. These inputs are connected via a supplied cable that attaches to a D-connector on the converter. Connections are made via high quality XLRs.

## Block Diagram



***HD10AVA, Block Diagram***

## I/O Connections



*HD10AVA and Cable, Side View*

## User Controls

The user interface for the HD10AVA is an 8-switch DIP accessible through a cut-out in the bottom of the unit. Use the DIP switches to configure functions, formats and levels.

**Note:** The combination of switch settings determines the overall operation of the HD10AVA.

The exact purpose of each DIP switch and what it controls is described on the following pages.

DIP Switch Setting  
LEFT RIGHT



COMP	SD VIDEO	CMPST
OFF	S VIDEO	ON
ON	PEDESTAL	OFF
PRO	AUDIO LVL	CSMR
HI	AUDIO LVL	LOW
ON	AUDIO EMBD	OFF
OFF	AUX	ON
OFF	AUX	ON

MODEL HD10AVA



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### Switch 1 (SD VIDEO)—Selects Component or Composite Analog Input for Standard Definition (HD is component only)

LEFT (COMP)	RIGHT (CMPST)
Selects SD Component Analog Input	Selects SD Composite Input

### Switch 2 (S VIDEO)—Selects S-Video Input (Switch 1 must be in “CMPST” position to select “S-Video”)

LEFT (OFF)	RIGHT (ON)
Input BNC 1 (Green) is Composite	Input BNC 1 (Green) is S-Video “Y”, BNC 2 (Blue) is S-Video “C”

### Switch 3 (PEDESTAL)—Configures Pedestal Processing (Also Configures SD Component for SMPTE/BETA)

LEFT (ON)	RIGHT (OFF)
Pedestal is present in input video; also configures SD component for BETA	Pedestal is not present in input video; also configures SD component for SMPTE

### Format Selection Matrix For Switches 1, 2, 3 and 7

The following table shows the combinations of DIP switch settings required to configure various formats. *Note:* HD formats are auto-detected and configured for YPbPr component.

Format	DIP Switch #1 COMP-CMPST	DIP Switch #2 S-VIDEO	DIP Switch #3 PEDESTAL	DIP Switch #7 NTSC-J
SD NTSC Composite	RIGHT	LEFT	LEFT	LEFT
SD NTSC S-Video	RIGHT	RIGHT	LEFT	LEFT
SD NTSC/PAL/NTSC-J Component-SMPTE/N10	LEFT	n/a	RIGHT	LEFT
SD NTSC Component-BETA	LEFT	n/a	LEFT	LEFT
SD PAL Composite	RIGHT	LEFT	n/a	n/a
SD PAL S-Video	RIGHT	RIGHT	n/a	n/a
SD NTSC-J Composite	RIGHT	LEFT	n/a	RIGHT
SD NTSC-J S-Video	RIGHT	RIGHT	n/a	RIGHT
SD NTSC-J Component - BETA	LEFT	n/a	n/a	RIGHT

### Switch 4 (AUDIO LVL)—Selects Whether Audio Input Levels are Professional Or Consumer. Affects all 4 Inputs.

LEFT (PRO)	RIGHT (CSMR)
Professional Levels. (See Level Selection Matrix Table)	Consumer Levels. (See Level Selection Matrix Table)

**Note:** Professional audio equipment uses much higher levels than consumer equipment: nominal professional levels are +4/-6dBu, consumer levels are -8/-14dBu.

### Switch 5 (AUDIO LVL)—Control Whether Audio Levels are High or Low. Affects all 4 Inputs.

LEFT (HIGH)	RIGHT (LOW)
High Level (See Level Selection Matrix Table)	Low Level (See Level Selection Matrix Table)

### Input Level Selection Matrix For Switches 4 and 5

The following table shows the combinations of DIP switch settings required to configure the audio input levels shown.

Input Level Range	Nominal (-20dBFS)	Full Scale (0dBFS)	DIP Switch #4	DIP Switch #5
Professional US	+4dBu	+24dBu	LEFT	LEFT
Professional European	-2dBu	+18dBu	LEFT	RIGHT
Consumer High (IHF)	-8dBu	+12dBu	RIGHT	LEFT
Consumer Low	-14dBu	+6dBu	RIGHT	RIGHT

### Switch 6 (AUDIO EMBED)—Turns SDI audio embedding ON or OFF.

LEFT (ON)	RIGHT (OFF)
ON converts and embeds the input audio into the digital SDI outputs	OFF turns audio embedding off; input audio is not supplied with the SDI outputs.

### Switch 7 (AUX)—Switches Input Levels to NTSC-J

LEFT (OFF)	RIGHT (ON)
Normal operation (NTSC levels)	NTSC-J levels for Composite, S-Video, and BETA inputs

### Switch 8 (AUX)—currently unused

## Installation

Typically, HD10AVA installation consists of the following:

1. ensure +5VDC power is disconnected from the converter
2. configure the DIP switch for the desired equipment configuration and video/audio formats
3. connect video/audio equipment to the converter BNCs and XLRs
4. apply +5 to +18VDC power to the converter (AJA power supply model DWP)



## Specifications

Item	Specification
Formats	1080i 50/59.94/60 Hz 1080psf 23.98/24 Hz 1035i 50/59.94/60 Hz 720p 50/59.94/60 Hz
Video Inputs	HD component YPbPr, (SMPTE-274), 3 BNC SD component/composite/YC (S Video), 3 BNC
Video Outputs	SDI, HD-SDI, SMPTE-259/292/296, 3 BNC
Audio Inputs	4 Channel Balanced, 4 XLR
Video A/D	12 bits
Audio A/D	24 Bits, 48Khz
Audio levels	+10dBu, +12dBu, +18dBu, +24dBu, Full Scale Digital
User Controls	External Dipswitch: Component/Composite (SD) Composite/YC (SD) Pedestal Present (on/off) (SD) Audio Input Level Embed Audio on/off
Size	5.8" x 3.1" x 1 (147 x 79 x 25mm)
Power	5-18V, 5 watts. Requires power supply.

