

HD10AVA

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

Published: 1/3/11

Installation and Operation Guide

Because it matters.

AJA[®]
VIDEO SYSTEMS

Trademarks

AJA®, KONA®, Ki Pro® and XENA® are registered trademarks of AJA Video, Inc. Io HD™ and Io™ are trademarks of AJA Video, Inc. HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC. DVI is a registered trademark of DDWG. All other trademarks are the property of their respective holders.

Notice

Copyright © 2011 AJA Video, Inc. All rights reserved. All information in this manual is subject to change without notice. No part of the document may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopying or recording, without the express written permission of AJA Inc.

FCC Emission Information

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:

180 Litton Drive, 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.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. AJA Video shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than AJA Video representatives to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non-AJA Video parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product.

THIS WARRANTY IS GIVEN BY AJA VIDEO IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. AJA VIDEO AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. AJA VIDEO'S RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE WHOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER AJA VIDEO OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

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
- LOCK LED indicates type of input source (SD-Green or HD-Red)
- 5-18V Power

Video

SD Input Modes Supported

- 525i 29.97 and 625i 25

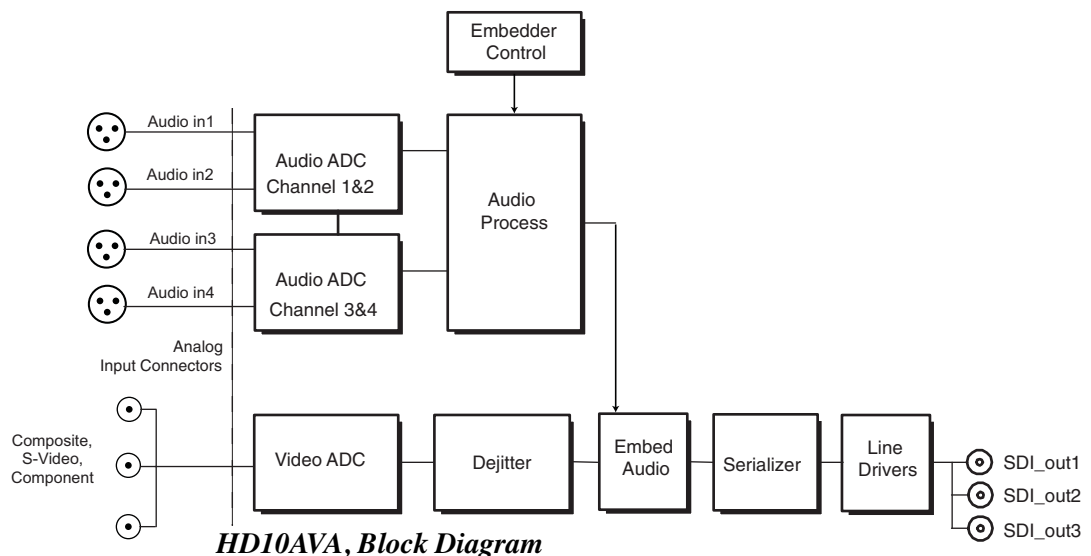
HD Input Modes Supported

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

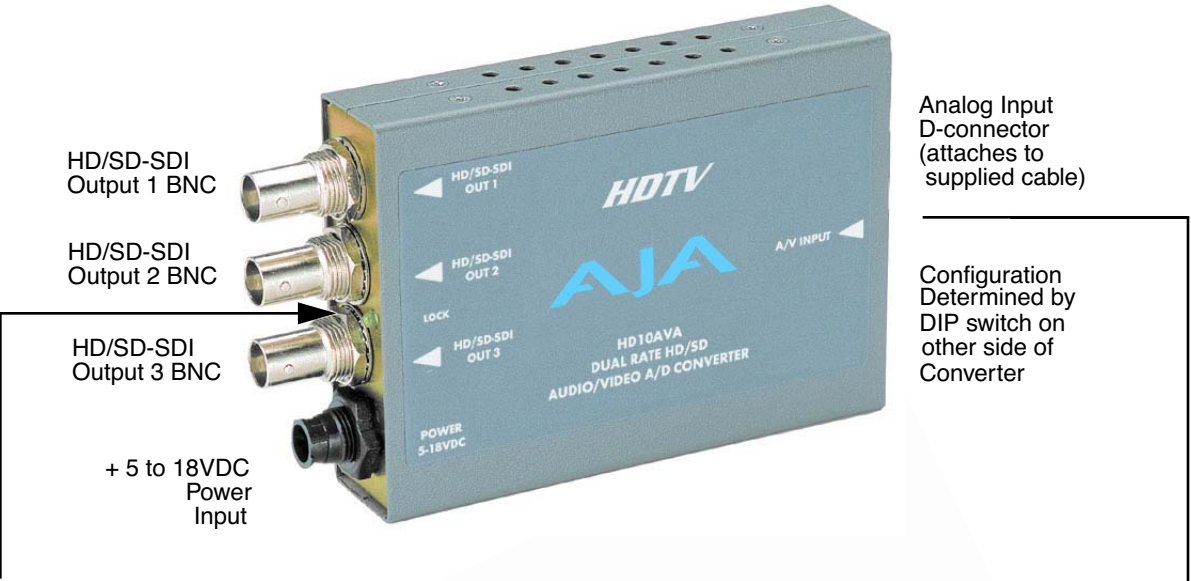
Audio

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



I/O Connections



LOCK LED: When Green, this LED indicates the HD10AVA is locked to an SD input source. When Red, the LED indicates the HD10AVA is locked to an HD input source.



HD10AVA and Cable, Side View

User Controls

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

AJA

USA

Tel 530-274-2048
www.aja.com

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.

Switch 1 (SD VIDEO)—Selects Component or Composite Analog Input for Standard Definition

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

Note: Switches 1 through 3 do not affect HD. HD inputs must be YPbPr.

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.

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

Note: HD formats are auto-detected and configured for YPbPr component.

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	Full Scale (0dBFS)	DIP Switch #4	DIP Switch #5
Professional US	+24dBu	LEFT	LEFT
Professional European	+18dBu	LEFT	RIGHT
Consumer High (IHF)	+12dBu	RIGHT	LEFT
Consumer Low	+15dBu	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)—Controls Wide/Narrow blanking for SD formats; it does not apply to HD formats

The operation of switch 8 is independent of all other switches. It affects the output of SD video during vertical blanking lines.

LEFT (OFF)	RIGHT (ON)
All data during vertical blanking is replaced with black (Y = 0x40, C = 0x200) Only active lines are digitized.	<p>If input video is NTSC, HD10AVA also digitizes the luminance data present on lines 10-20 and lines 272-283, in addition to normal active video lines.</p> <p>If input video is PAL, HD10AVA also digitizes the luminance data present on lines 6-22 and lines 318-335 in addition to normal active video lines.</p>

Installation

Typically, HD10AVA installation consists of the following:

1. configure the DIP switch for the desired equipment configuration and video/audio formats—power to the converter may be on or off when this is done (the converter will respond to DIP switch changes at the time they are made so power cycling is not necessary)
2. ensure video/audio equipment is properly connected to the converter—check all converter BNC and XLR connections
3. ensure the converter has a proper power supply source: +5 to +18VDC power (we recommend 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	+12dBu, +15dBu, +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.