

HD10CEA

SDI/HD-SDI to Analog Audio/Video Converter

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Installation and Operation Guide

Because it matters.

AJA[®]
VIDEO SYSTEMS

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Support Email: support@aja.com

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Introduction

The HD10CEA converts SDI/HD-SDI video with embedded audio to analog video and 4 channel balanced analog audio. SD video outputs can be configured as YPbPr (Betacam or SMPTE/EBU-N10), RGB, composite or YC (S-Video). HD video outputs can be configured as YPbPr or RGB. The 4 audio channels can be selected from group 1-4. Audio and video output connections are available on a 25 pin "D" subminiature connector (breakout cable supplied). All video/audio configuration is done by external dipswitch selection. This versatile, low-cost, miniature monitoring solution also outputs two loop-thru SDI/HD-SDI outputs.

Features

- Digital to Analog Audio and Video Converter
- SDI/HD-SDI with Embedded Audio Input
- SD Component or Composite Video Outputs (SD Input)
- HD Component Video Outputs (HD Input)
- 4 Channel Balanced Audio Output
- 2 Equalized, Loop-Thru SD/HD-SDI Outputs
- Selectable Audio Channel Pair/Group
- Audio/Video Configurable via Dipswitch
- Uses 5-18Vdc power (supply sold separately)

Input Formats

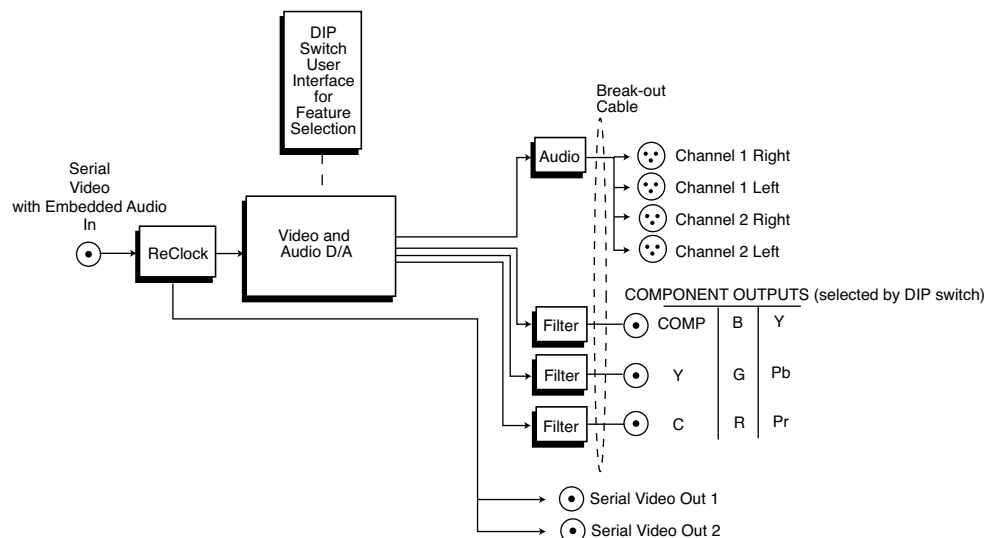
Standard Definition inputs supported:

- 525i 29.97 and 625i 25

High Definition inputs supported:

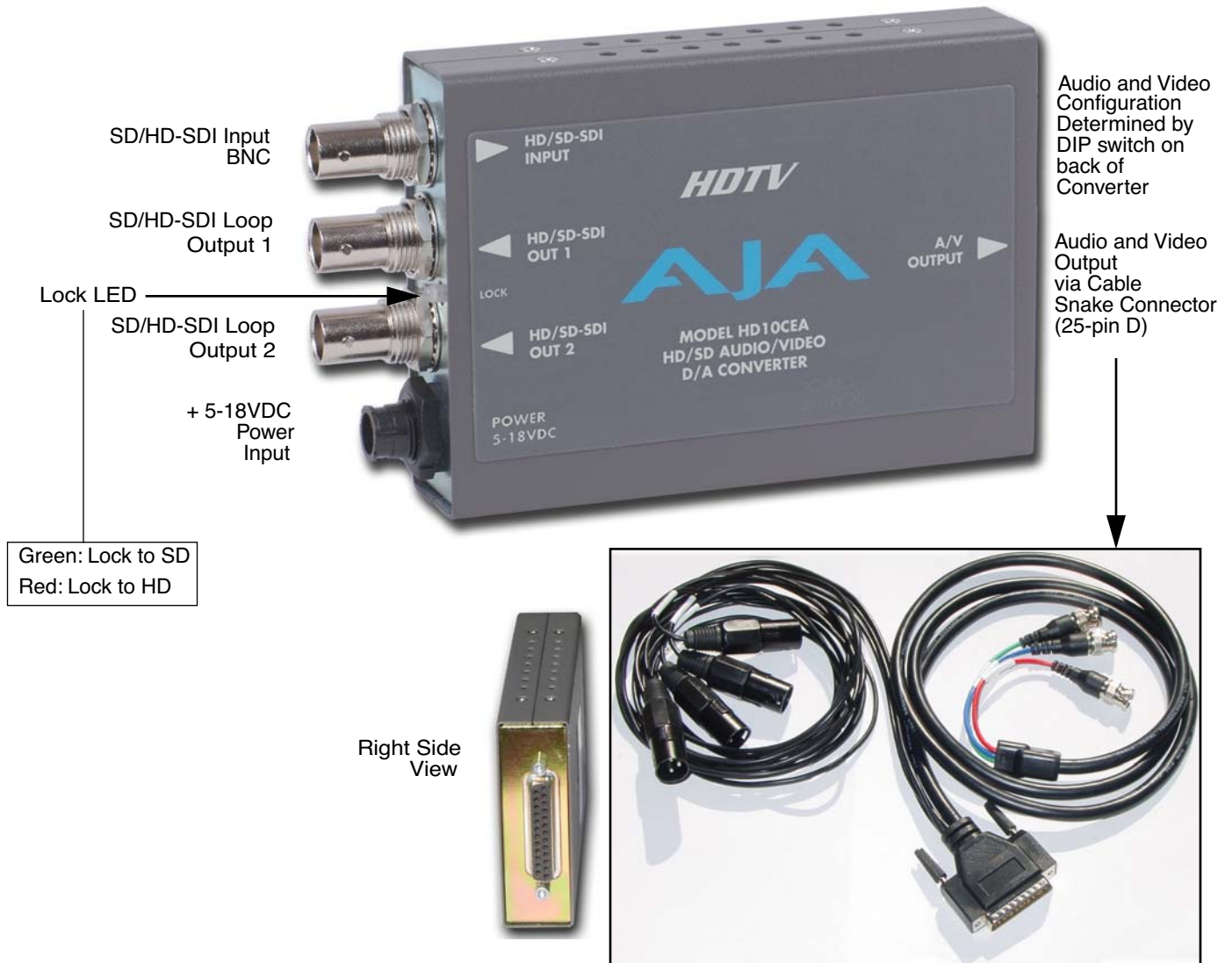
- 1080p component 23.98psf/24psf
- 1080i component 50/59.94/60
- 720p component 50/59.94/60

Block Diagram



HD10CEA Converter, Simplified Block Diagram

I/O Connections



Green: Lock to SD
Red: Lock to HD

Right Side View



HD10CEA Converter

User Controls

The user interface for the HD10CEA is an 8-switch DIP accessible through a cut-out in the bottom of the unit. Use the DIP switches to configure video outputs, pedestal, select audio channel groups, and set audio level.

Switches 1 through 3 configure video output format. Switches 4 through 7 select the audio channel group and audio level. The exact function of each DIP switch and what it controls is described on the following pages.



YPbPr	FORMAT	RGB
CMPNT	SD	CMPSTE
ON	SD PEDSTL	OFF
0	CH GRP 0	1
0	CH GRP 1	1
0	AUD LVL 0	1
0	AUD LVL 1	1
OFF	AUX	ON

DIP Switches
LEFT ↔ RIGHT
OFF ↔ ON

Note: The composite, S-video, component beta and pedestal switches (Switches 1 through 3) only function when the input is Standard Definition SDI. When supplied with HD-SDI, only component SMPTE or RGB video output is possible from the HD10CEA.

Switch 1—Selects YPbPr/YC or RGB Component Outputs

RIGHT	LEFT (default)
RGB: Selects RGB	YPbPr/YC: Selects YPbPr/YC component video out

Switch 2—Select Component (COMPNT) or Composite (CMPSTE) Out

RIGHT	LEFT (default)
CMPSTE: Selects composite video output	COMPNT: Selects component video output

Switch 3—Configure Pedestal For Composite

RIGHT	LEFT (default)
7.5 IRE pedestal for NTSC (also selects BETA 525 levels for YPbPr)	No pedestal (also selects SMPTE levels for YPbPr)

Note: There is no effect with 625 input.

Switches 4 and 5—Select an Audio Channel Group for Output

Together these two switches select the group of audio channels that will be routed to the XLR connectors on the break-out cable. Each audio group has four channels, corresponding to the four connectors. The following table shows the group and channel assignments selected by each switch position for the two DIP switches.

Group and Channels	S4	S5
Group 0 (default): Channels 1 to 4	Off (Left)	Off (Left)
Group 1: Channels 5 to 8	On (Right)	Off (Left)
Group 2: Channels 9 to 12	Off (Left)	On (Right)
Group 3: Channels 13 to 16	On (Right)	On (Right)

Switches 6 and 7—Select Audio Levels for Output

Together these two switches select audio output levels at the XLR outputs. The following table shows the level selected by each switch position for the two DIP switches.

Audio Level (dbu)	S6	S7
+24.00 dBu (default)	Off (Left)	Off (Left)
+18.00 dBu	On (Right)	Off (Left)
+15.00 dBu	Off (Left)	On (Right)
+12.00 dBu	On (Right)	On (Right)

Switch 8 (AUX)—Switches Component Levels to BETACAM-Japan

RIGHT	LEFT (default)
Select NTSC-J levels for Component BETACAM outputs	Normal operation (NTSC level outputs)

Format Selection

The table below shows how to configure dipswitches 1, 2, 3 and 8 for many popular formats.

Format	SW#1	SW#2	SW#3	SW#8
SD NTSC Composite and S-Video	N/A	Right	Left	N/A
SD NTSC Composite and S-Video-Japan	N/A	Right	Right	N/A
SD 60 Component SMPTE	Left	Left	Right	N/A
SD 60 Component BETACAM	Left	Left	Left	N/A
SD 60 Component BETACAM-Japan	Left	Left	Left	Right
SD 60 RGB with Pedestal	Right	Left	Left	N/A
SD 60 RGB without Pedestal	Right	Left	Right	N/A
HD 60/50 Component SMPTE	Left	N/A	N/A	N/A
HD 60/50 Component RGB	Right	N/A	N/A	N/A
SD PAL Composite and S-Video	N/A	Right	N/A	N/A
SD 50 Component N-10	Left	Left	N/A	N/A

Installation

Typically, HD10CEA installation consists of the following steps:

1. Ensure the HD10CEA is disconnected from power.
2. Connect equipment to the converter BNCs and cable snake BNCs/XLRs.
3. Apply +5-18VDC power to the converter (AJA power supply model DWP or DWP-U).

Specifications

Item	Specification
Inputs	SDI/HD-SDI w/Embedded Audio, 1x BNC
Formats	Standard Definition inputs supported: 525i 29.97 and 625i 25 High Definition inputs supported: 1080p component 23.98psf/24psf 1080i component 50/59.94/60 720p component 50/59.94/60
Outputs	SD Video: YPbPr - SMPTE, EBU-N10, Betacam, RGB, NTSC, PAL, YC (S-Video) HD Video: YPbPr, RGB Audio: 4 Channel Balanced Video/Audio Outputs on 25 Pin D Connector 2 SDI/HD-SDI Equalized Loop-Thru, 2x BNC
User Controls	External Dipswitch Video Format Pedestal H/V Blanking Audio Group 1 - 4 Audio Level (adjustable via switch selection): +24, +18, +15, +12 dBu, Full Scale Digital
Size	5.8" x 3.1" x 1" (147 x 79 x 25mm)
Power	+5-18VDC, Regulated, 4 Watts Requires Power Supply (AJA power supply model DWP or DWP-U recommended)

