D10AD
10-bit Analog to SDI Converter

User Manual

AJA VIDEO SYSTEMS INC

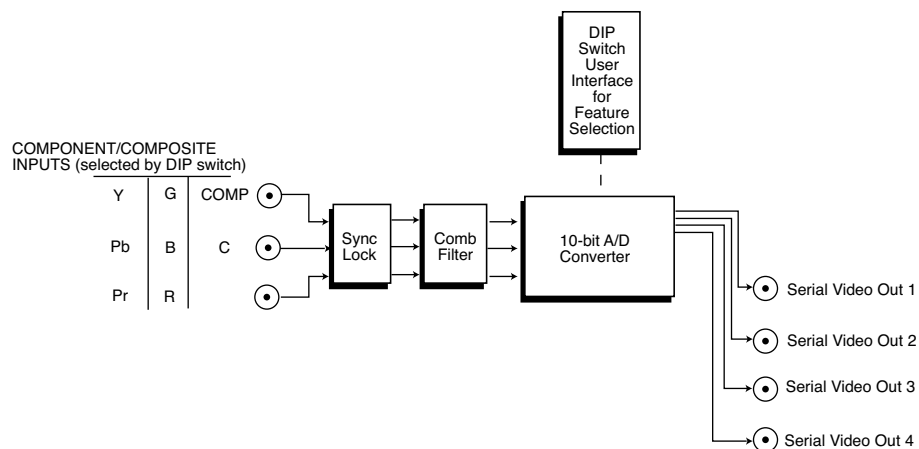September 2, 2005   P/N 101639-00

Introduction

The D10AD provides excellent quality 10-bit conversion of component or composite analog video to SDI—with EDH. The D10AD accepts YPbPr (SMPTE, EBU-N10), Betacam, or RGB component inputs and NTSC/PAL or YC (S-Video) composite inputs. When using composite sources, the D10AD offers a 4-Line Adaptive Comb Filter for high quality decoding. The comb filter can be switched to 2-line or notch modes for minimum delay requirements. NTSC/PAL configuration is automatic. Video format, AGC, H/V blanking, and pedestal are all user configurable via dipswitches.

Note: The D10AD requires a Time Base Correct source. Operation is not recommended from VTRs, laser disks, etc., without Time Base Correction (TBC).

Features

- Excellent-Quality 10-bit Universal A/D Conversion
- Component, Composite or Y/C Analog Input
- 4-Line Adaptive Comb Filter
- Full 10-bit Data path, 2x Oversampling
- YPbPr, Betacam, or RGB Component Formats
- Composite NTSC or PAL
- AGC mode
- 4 SDI outputs with EDH
- Color Bar Generator
- External DIP switch user interface for configuration

Block Diagram

D10AD 10-bit Analog Component and Composite to SDI Converter, Block Diagram

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I/O Connections

Composite/
Component
Inputs

Configuration
determined by
DIP switch on
other side of
Converter

+ 5VDC
Power
Input

Serial
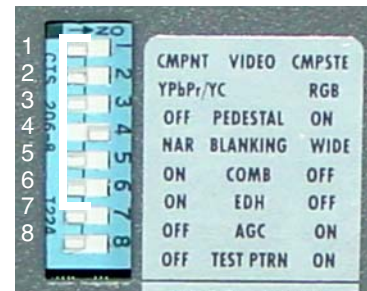Digital
Outputs
4 BNCs

D10AD, Side View

User Controls

The user interface for the D10AD is an 8-switch DIP accessible through a cut-out in the bottom of the unit. Use the DIP switches to configure outputs, pedestal, blanking, and enable or disable comb filter, EDH, AGC, and test pattern.

Switches 1 and 2 select composite or component input and the type of component input. Switches 3 through 8 set configuration features. The exact function of each DIP switch and what it controls is described on the following pages.

CMPNT	VIDEO	CMPSTE
YPbPr/YC		RGB
OFF	PEDESTAL	ON
NAR	BLANKING	WIDE
ON	COMB	OFF
ON	EDH	OFF
OFF	AGC	ON
OFF	TEST PTRN	ON

DIP Switches
OFF ◄──► ON

Note: Changing input format (SW1, SW2, or SW3) causes a reset to occur that takes about 10 seconds to complete.

Switch 1—Selects Component or Composite input from the Composite/Component BNCs

ON	OFF
Selects Composite input.	Selects Component input.

Switch 2—Configure Type of Component input from the Composite/Component BNCs

ON	OFF
RGB Input (If SW1 is OFF) or Composite Input (If SW 1 is ON).	YPbPr Input (If SW1 is OFF) or Y/C (S-VIDEO) (If SW1 is ON().

Switch 3—Configure Pedestal For Output BNCs (disabled in PAL)

Switch 3 Settings for Standard Version of D10AD

ON	OFF
If set for COMPOSITE Input: Pedestal is removed on inputs with 7.5 IRE Pedestal If set for COMPONENT Y/Pb/Pr Input: Sets BETACAM levels	If set for COMPOSITE Input For inputs without Pedestal If set for COMPONENT Y/Pb/Pr: Sets SMPTE/EBU-N10 levels

Switch 3 Settings for BETAJ Version of D10AD

If set for COMPOSITE Input: Pedestal is removed on inputs with 7.5 IRE Pedestal If set for COMPONENT Y/Pb/Pr Input: Sets Japan BETACAM levels	If set for COMPOSITE Input For inputs without Pedestal If set for COMPONENT Y/Pb/Pr: Sets SMPTE/EBU-N10 levels

Switch 4—Configure Blanking—Not Currently Implemented

The convertor defaults to narrow blanking.

Switch 5—Turn Comb Filter ON or OFF

ON	OFF
Notch Filter on (Comb Filter off)	Comb Filter on (Notch Filter off)

Switch 6—Configure EDH Insertion

ON	OFF
EDH not inserted	EDH inserted

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Switch 7—Configure Automatic Gain Control (AGC)

ON	OFF
Automatic Gain ON	Automatic Gain Off (Unity Gain)

Switch 8—Turn Test Pattern Output ON/OFF

ON	OFF
Internal color bars are output	Disables test pattern output (normal video operation)

Installation

Typically, D10AD installation consists of the following:

1. disconnect +5VDC from the convertor
2. configure the DIP switch for the desired equipment configuration and video formats
3. connect video equipment to the convertor BNCs
4. apply +5VDC power to the converter (AJA power supply model DWP)

Specifications

Item	Specification
Serial Outputs	SDI (SMPTE 259M) w/EDH All outputs are separately buffered 4 x BNC
Frequency Response	Y +/-0.15db to 5.5 Mhz C +/-0.15db to 2.5 Mhz
2T K factor	Less than .5% K Factor (2T)
Differential Gain	< 1%
Differential Phase	< 1 degree
A/D Converters	10 bits, 2X oversampling
User Controls	Selectable By External Dip Switch: Input Video Format Pedestal Present/Not Present Narrow/Wide Blanking AGC On/Off EDH On/Off Test Pattern
Power (AJA power supply model DWP)	5v DC regulated, 4 watt
Size	147 x 79 x 25 mm (5.8" x 3.1" x 1")