

# D5D NTSC/PAL to Serial Decoder

## User Manual



**AJA**  
AJA VIDEO SYSTEMS INC

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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.

## Limited Warranty

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AJA Video warrants that this product will be free from defects in materials and workmanship for a period of three 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 D5D Serial Digital Decoder provides low-cost all-digital decoding of analog NTSC, PAL or Y/C (S-Video) to 4:2:2 component serial digital. When working in a serial digital environment, the D5D is useful for bringing in video from time-base corrected analog composite equipment.

The D5D provides three 4:2:2 component serial digital outputs. The D5D automatically configures NTSC (525 line) or PAL (625 line) analog inputs to 525 or 625 line 4:2:2 component serial digital outputs. To reduce jitter in the serial digital outputs, the D5D uses a crystal PLL jitter filter.

The D5D decodes 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 external dip switch selection.

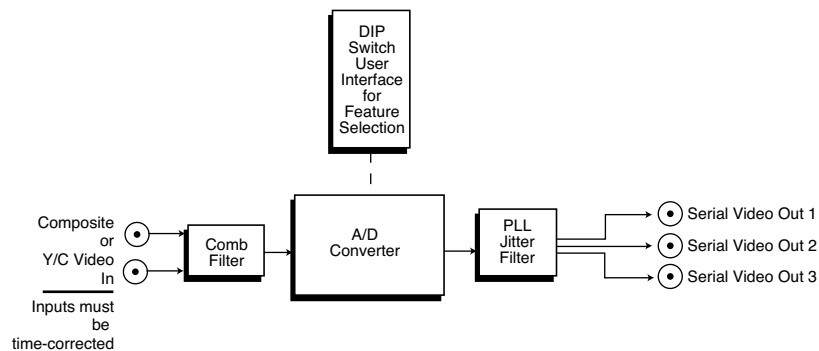
## Requirements

The D5D requires a Time Base Corrected (TBC) source. Operation from VTR's, laser disks, or other devices without TBCs is not recommended.

## Features

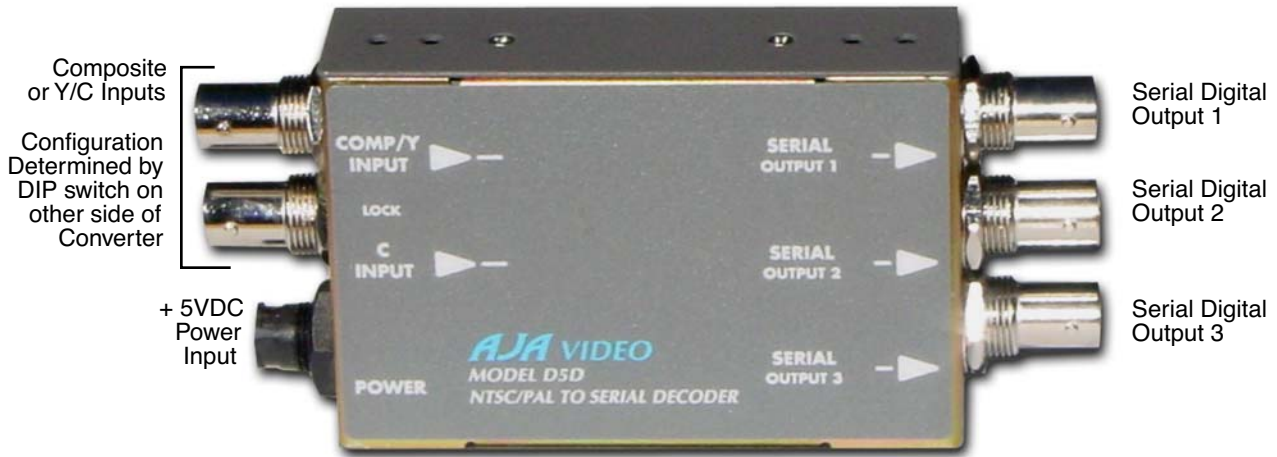
- Analog Composite-Y/C to SDI Conversion
- Selectable 2 or 3 Line Adaptive Comb Filter
- Three SDI Outputs
- All SDI outputs are separately buffered
- Crystal PLL Jitter Filter
- Automatically Configures to NTSC/PAL
- Configurable pedestal
- External DIP switch user interface for configuration

## Block Diagram



*D5D Serial Digital Decoder, Block Diagram*

## I/O Connections



*D5D, Side View*

## User Controls

The user interface for the D5D is a 4-position DIP switch accessible through a cut-out in the bottom of the unit. Use the DIP switches to configure inputs for Y/C or Composite, set blanking and pedestal, and configure the comb filter.

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



DIP Switches

OFF ↔ ON

### Switch 1—Select Y/C or Composite (CMPSTE) Inputs

ON	OFF
Y/C: Selects Y and C inputs (S-video)	CMPSTE: Selects composite video input (NTSC or PAL)

### Switch 2—Configure Vertical Blanking For Composite

ON	OFF
NARROW (NAR) Blanking: Vertical— Line numbers indicate where video starts line 13, field 1; line 12, field 2 (525 line)	WIDE Blanking: Vertical— Line numbers indicate where video starts) line 20, field 1; line 20, field 2 (525 line)

**Switch 3—Configure Pedestal For Composite/Sync BNC**

ON	OFF
7.5 IRE pedestal for NTSC	No pedestal (for inputs without Pedestal)

**Switch 4—Configure Comb Filter**

ON	OFF
Selects a three line adaptive comb filter (one line plus a 1.5us delay)	Selects a two line non-adaptive comb filter (1.5 us delay)

**Input Selection Matrix (2 BNCs)**

The following table shows the combinations of DIP switch settings required to configure the two input BNCs. Outputs are always Serial Digital.

Output Format	DIP Switch #1	DIP Switch #3
Y and C inputs selected (Pedestal)	Y/C ON	ON
Composite inputs (no pedestal)	Y/C OFF	OFF

**Installation**

Typically, D5D 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

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Item	Specification
Inputs	NTSC/PAL, or Y/C (S-Video), 2 BNCs
Outputs	SDI (SMPTE 259M), 3 BNCs All outputs are separately buffered
Frequency Response	+/- 0.25 dB to 5MHz
2T K factor	< 1.0% (Y)
Differential Gain	< 1 .5%
Differential Phase	< 1 .5 degree
Input level adjustment (internal)	+/-10%
User Controls	Externally accessed DIP switch
Power (AJA power supply model DWP)	5v DC regulated, 3.5 watt
Size	5.1" x 2.4" x 1" (131 x 61 x 25 mm)