

# Model D5CE

## Serial Digital to NTSC/PAL, RGB/YUV Converter

**AJA VIDEO**

### Introduction

The D5CE converts Component Serial Digital (SDI) to analog Composite or Component. The D5CE is useful for monitoring, level/phase checking, dubs, or desktop video applications. The D5CE provides 3 analog outputs. In addition, an equalized and re-clocked SDI loop-through output is provided. The D5CE automatically configures to 525 or 625 line component digital inputs and outputs analog NTSC (525 line input), PAL (625 line input) or component as configured by the dip switches. The D5CE encodes the full dynamic range of input component video - values below black and above white are not clipped. In the NTSC mode, the 7.5 IRE pedestal can be disabled by external dip switch selection.

### Specifications

Serial Input	SMPTE 259M 270mb, (SDI)
SDI Cable Equalization	300 meter 8281 typical
Serial Output	Equalized, Re-clocked
Frequency Response	+/- .25db to 5.5Mhz (Y) +/- .25db to 2.0Mhz (Chroma - Component, RGB) +/- .25db to 1.3Mhz (Chroma - Composite) see Note 1
2T K factor	<1% (Y)
Diff. Gain	<1.5%
Diff. Phase	<1.5 degree
Y/C delay	10ns max
D/A Converters	10 bits
Signal Path	8 bits see Note 2
Delay (input to output)	1.5us
Output level adjustment	+/-20% (internal)
Output level matching	1.5% or 10mv (All outputs are separately buffered)
Power	5v DC regulated, 2.5 watt (AJA power supply model DWP)
Size	131 x 61 x 25 mm

**AJA VIDEO** Tel 530-274-2048 Fax 530-274-9442 [www.aja.com](http://www.aja.com)

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**Dip Switch Functions**

All dip switches are accessible through a cut-out in the bottom of the unit.

**SW 1 COMPSTE COMPNT (Output selection)**

COMPNT: Component output

COMPSTE: Composite output

**SW 2 RGB YUV/YC (Output selection)**

YUV/YC: Output Y, R-Y, B-Y if SW1 is COMPNT,  
Output 1 composite & 1 Y/C if SW1 is COMPSTE

RGB: Output RGB if SW1 is COMPNT,  
Output 3 composites If SW1 is COMPSTE

**SW 3 Pedestal**

ON: 7.5 IRE pedestal for NTSC (also selects BETA 525 levels for YUV)

OFF: No pedestal (also selects SMPTE levels for YUV)

NOTE: No effect with 625 input

**SW 4 Blank**

NAR: Vertical (line numbers indicate where video starts)  
line 13, field 1; line 12, field 2 (525 line)  
line 10, field 1; line 322, field 2 (625 line)  
Horizontal (active video line duration's)  
ITU-R.470 (720 pixels PAL/NTSC)

WIDE: Vertical (line numbers indicate where video starts)  
line 20, field 1; line 20, field 2 (525 line)  
line 23, field 1; line 336, field 2 (625 line)  
Horizontal (active video line duration)  
ITU-R/SMPTE (710 pixels NTSC, 702 pixels PAL)

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**OUTPUT SELECTION MATRIX**

<b>OUTPUT FORMAT</b>	<b>DIP SWITCH SETTING</b>		
	<b>SW1</b>	<b>SW2</b>	<b>SW3</b>
3 composite (setup)	CMPSTE	RGB	ON
3 composite (no setup)	CMPSTE	RGB	OFF
1 composite & 1 Y/C (setup)	CMPSTE	YUV/YC	ON
1 composite & 1 Y/C (no setup)	CMPSTE	YUV/YC	OFF
RGB	COMPNT	RGB	OFF
SMPTE component (BETA 625)	COMPNT	YUV/YC	OFF
BETA 525 component	COMPNT	YUV/YC	ON

**Note 1** The D5CE is programmed for a 1.3 MHz chroma bandwidth when in the composite video mode. This provides the best quality video when encoding component digital video. In certain situations with lower cost monitors, it may be desirable to reduce the composite chroma bandwidth to 650 KHz to reduce the effects of cross-color artifacts. This option is available from AJA Video as a special order.

**Note 2** The encoder / D to A chip used in the D5CE has an 8 bit input for component digital video and 10 bit D to A converters for the analog outputs. This situation is often described as an 8 bit “signal path” and 10 bit “Quantization”. Due to the internal processing of the encoder chip, it is advantageous to use 10 bit D to A converters at the output even though the input is 8 bits.