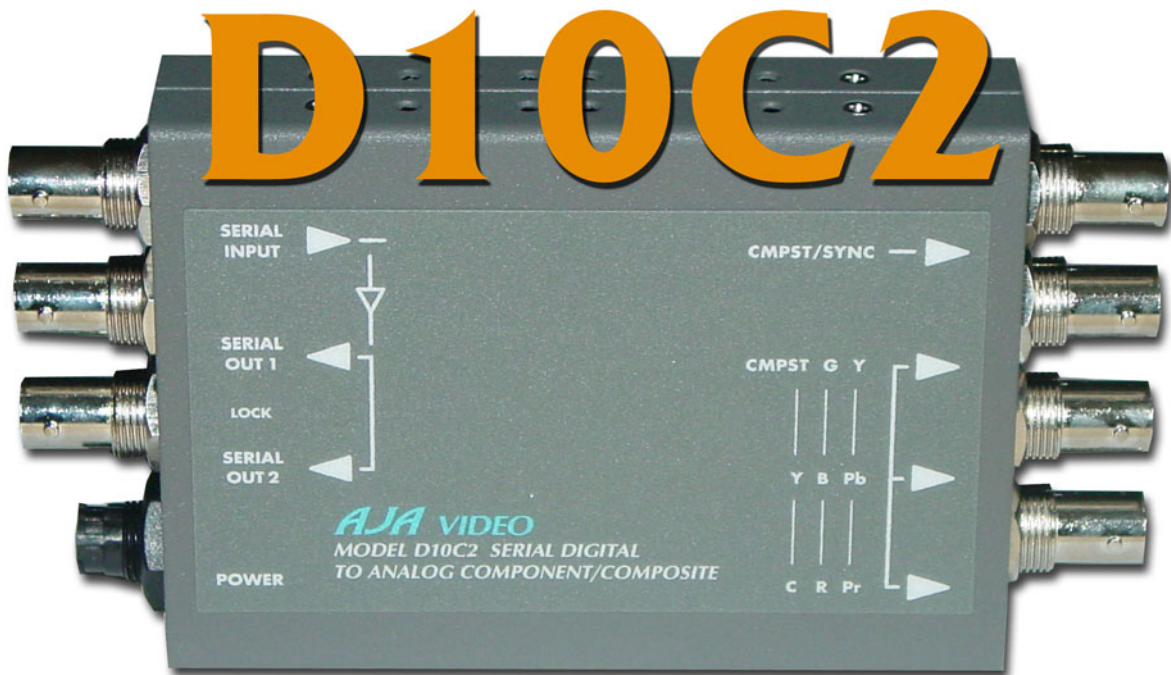


D10C2 10-bit Serial Digital to Composite/ Component Converter

User Manual



AJA
AJA VIDEO SYSTEMS INC

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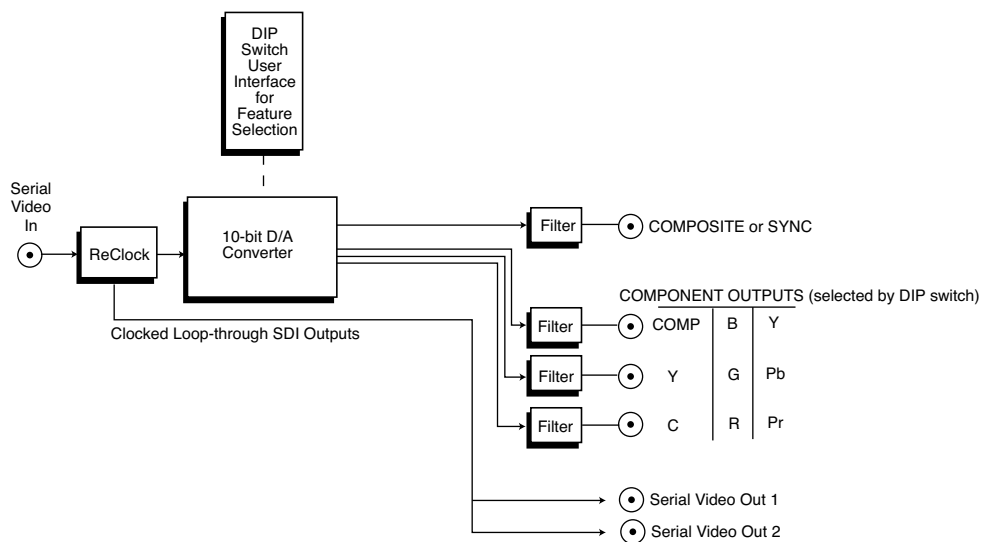
Introduction

The D10C2 converts Component Serial Digital (SDI) to analog Composite or Component formats. The D10C2 provides 4 analog outputs. In addition, two equalized and re-clocked SDI loop-through outputs are provided. The D10C2 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 D10C2 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 dip switch selection.

Features

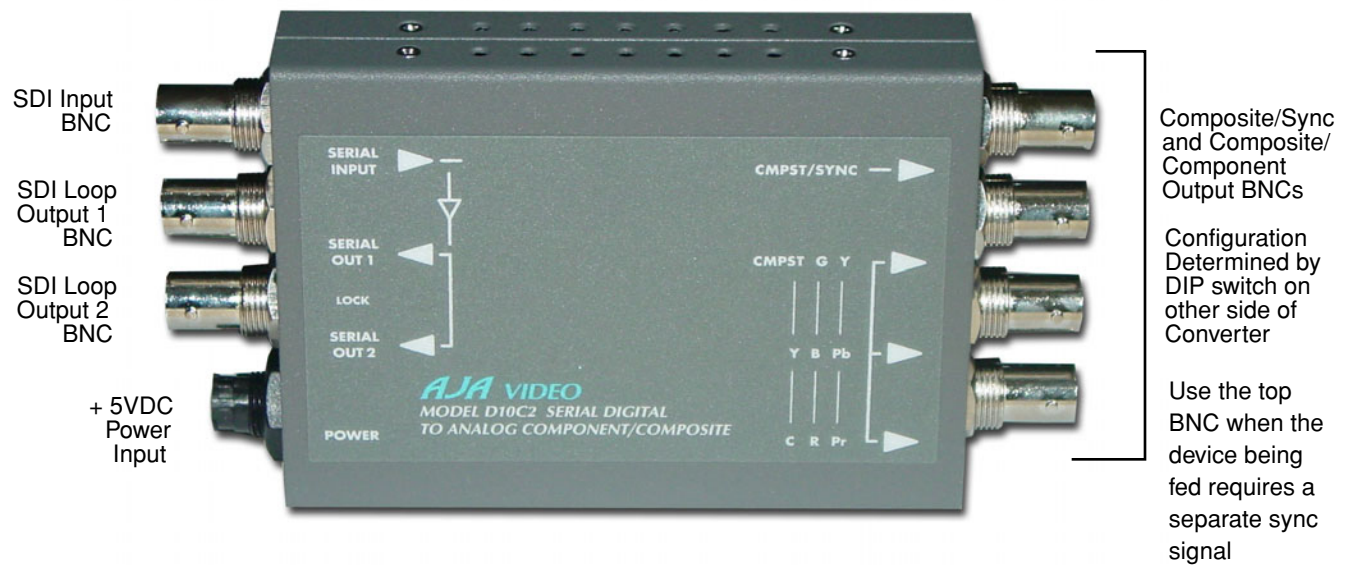
- High quality 10-bit encoding, 4 times oversampling
- SDI Input, SMPTE 259M 270MB
- Two loop-through SDI outputs (SMPTE 259M) (equalized and re-clocked copies of the SDI input)
- Component and Composite analog outputs
- RGB, YPbPr, or Betacam Component formats
- Composite NTSC or PAL
- Configurable pedestal and blanking
- Digital noise reduction
- External DIP switch user interface for configuration

Block Diagram



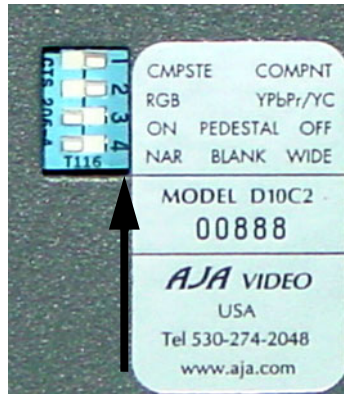
D10C2 10-bit SDI to Analog Component and Composite Converter, Block Diagram

I/O Connections



D10C2, Side View

User Controls



DIP Switches
OFF ←→ ON

The user interface for the D10C2 is a 4-switch DIP accessible through a cut-out in the bottom of the unit. Use the DIP switches to configure outputs, pedestal, and blanking.

Switch 1 selects the type of output. Switches 2 through 4 select the output video format, pedestal and blanking. The exact function of each DIP switch and what it controls is described on the following pages.

Switch 1 Selects Composite or Component Video Output

| ON | OFF |
|--------------------------------|-----------------------------|
| Selects component video output | Selects composite video out |

Switch 2 Select RGB Or YPbPr Output (3 BNCs)

| ON | OFF |
|---|---|
| Selects YPbPr output on the 3 BNCs when SW1 is set to COMPNT (ON) | Selects RGB output on the 3 BNCs when SW1 is set to COMPNT (ON) |

Switch 3 Set Pedestal and Levels for YPbPr

| ON | OFF |
|--|---|
| 7.5 IRE pedestal for NTSC (also selects BETA 525 levels for YPbPr) | No pedestal (also selects SMPTE levels for YPbPr) |

Note: This switch has no effect on 625 input

Switch 4 Configure Blanking For Component Output BNCs (3)

| ON | OFF |
|---|--|
| <p>WIDE Blanking:</p> <p>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)</p> <p>Horizontal— Active video line duration ITU-R/SMPTE (710 pixels NTSC, 702 pixels PAL)</p> | <p>NARROW (NAR) Blanking:</p> <p>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)</p> <p>Horizontal— Active video line duration's) ITU-R.470 (720 pixels PAUNTSC)~-</p> |

Output Selection Matrix For Output 2 (3 BNCs)

The following table shows the combinations of DIP switch settings required to configure the three BNCs below the COMPOSITE/SYNC BNC.

| Output Format | DIP Switch #1 | DIP Switch #2 | DIP Switch #3 |
|---------------------------------------|---------------|---------------|---------------|
| 1 Composite and 1 Y/C (Pedestal) | CMPSTE | N/A | ON |
| 1 Composite and 1 Y/C (no pedestal) | CMPSTE | N/A | OFF |
| RGB | COMPNT | RGB | OFF |
| RGB with pedestal | COMPNT | RGB | ON |
| SMPTE component (BETA625)/ EBU-N10 | COMPNT | YPbPr/YC | OFF |
| BETA 525 component | COMPNT | YPbPr/YC | ON |

Installation

Typically, D10C2 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 Input | SMPTE 259M 270MB, (SDI) |
| SDI Cable Equalization | 300 meter 8281 typical |
| Serial Outputs | Equalized, Re-clocked |
| Frequency Response | +/- .15dB to 5.5MHz (Y) +/- .15dB to 2.5MHz (Chroma - Component, RGB) +/- .15dB to 1.3MHz (Chroma - Composite) |
| 2T K factor | < 0.5% (Y) |
| Differential Gain | < 1 .5% |
| Differential Phase | < 1 .5 degree |
| Y/C delay | 10ns maximum |
| D/A Converters | 10 bits, 4X oversampling |
| Signal Path | 10 bits |
| Delay (input to output) | 1.5us |
| Output level adjustment | +/- 20% (internal) |
| Output level matching | 1 .5% or 10mv (All outputs are separately buffered) |
| Power (AJA power supply model DWP) | 5v DC regulated, 4 watt |
| Size | 147 x 79 x 25 mm |