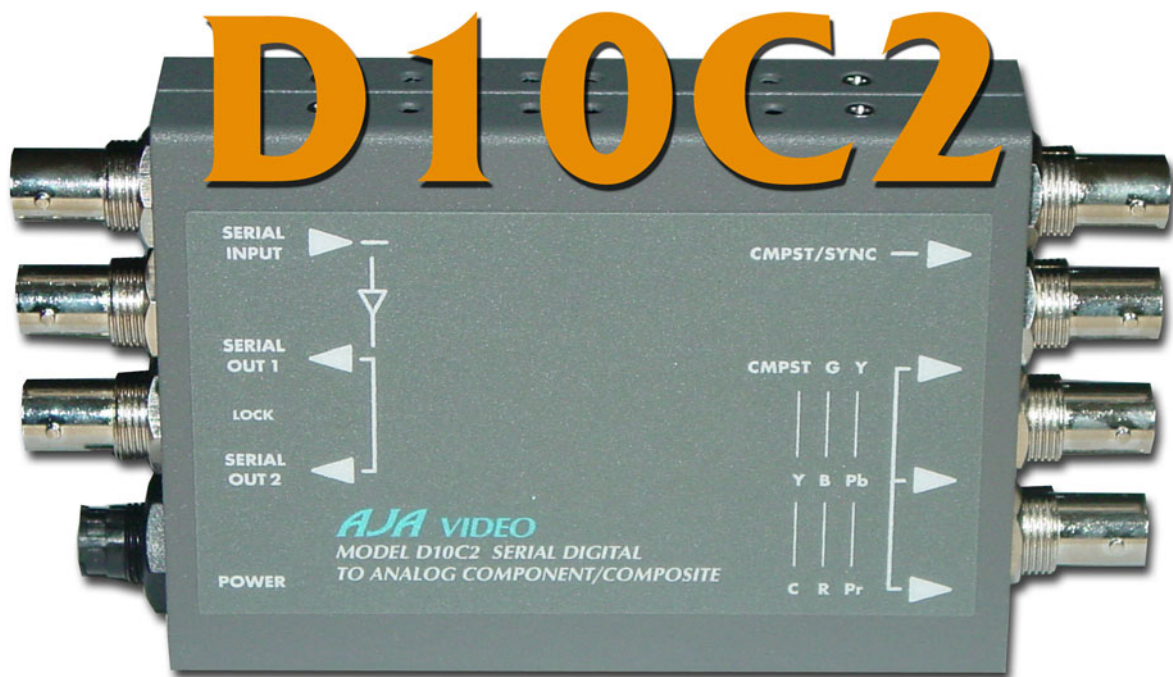


D10C2 10-bit Serial Digital to Composite/ Component Converter

User Manual



AJA
AJA VIDEO SYSTEMS INC

October 25, 2003 P/N 101640-00

Trademarks

AJA, Io, and Kona are trademarks of AJA Video, Inc. All other trademarks are the property of their respective holders.

Notice

Copyright © 2003 AJA Video, Inc. All rights reserved. All information in this manual is subject to change without notice. No part of the document may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopying or recording, without the express written permission of AJA Inc.

FCC Emission Information

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

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

Sales Email: sales@aja.com

When calling for support, have all information on the product (serial number etc.) at hand prior to calling.

Limited Warranty

AJA Video warrants that this product will be free from defects in materials and workmanship for a period of **five** 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.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. AJA Video shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than AJA Video representatives to install, repair or service the product, b) to repair damage resulting from improper use or connection to incompatible equipment, c) to repair any damage or malfunction caused by the use of non-AJA Video parts or supplies, or d) to service a product that has been modified or integrated with other products when the effect of such a modification or integration increases the time or difficulty of servicing the product.

THIS WARRANTY IS GIVEN BY AJA VIDEO IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. AJA VIDEO AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. AJA VIDEO'S RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE WHOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER AJA VIDEO OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

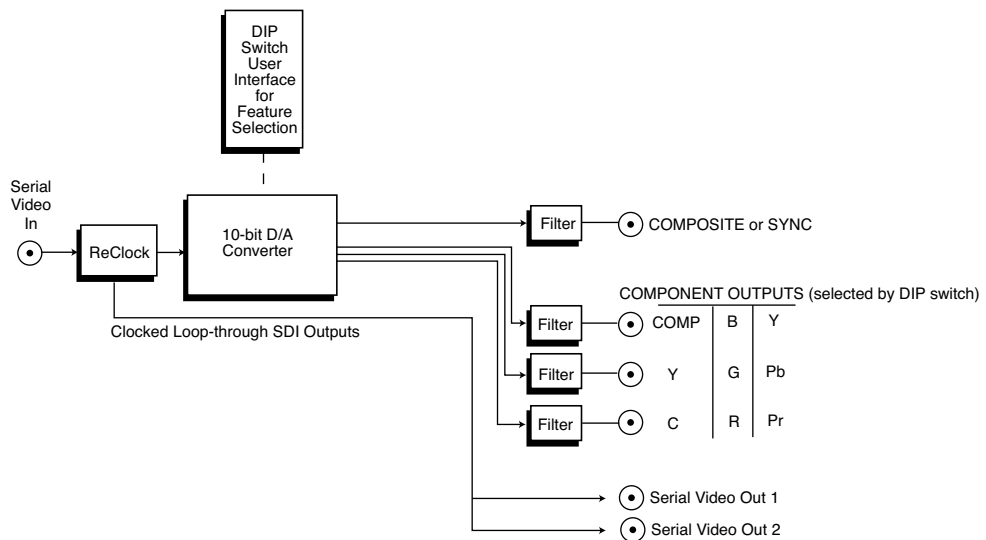
Introduction

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

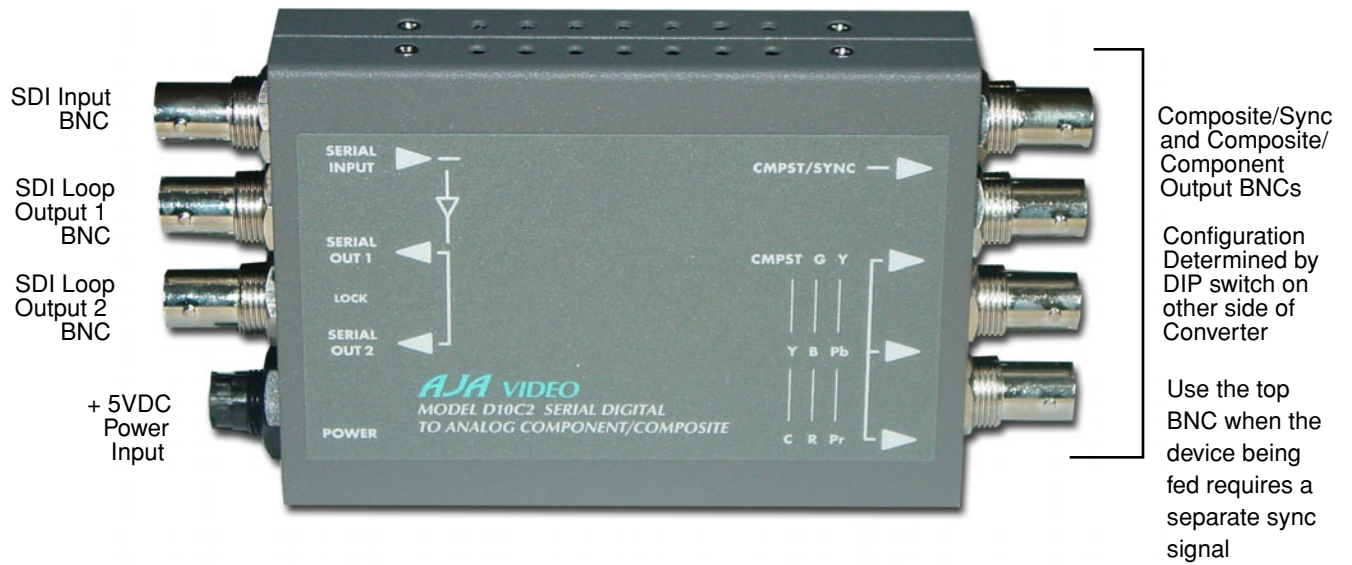
- High quality 10-bit encoding, 4 times oversampling
- SDI Input, SMPTE 259M 270MB
- Two loop-through SDI outputs (SMPTE 259M) (equalized and re-clocked copies of the SDI input)
- Component and Composite analog outputs
- RGB, YPbPr, or Betacam Component formats
- Composite NTSC or PAL
- Configurable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

Block Diagram



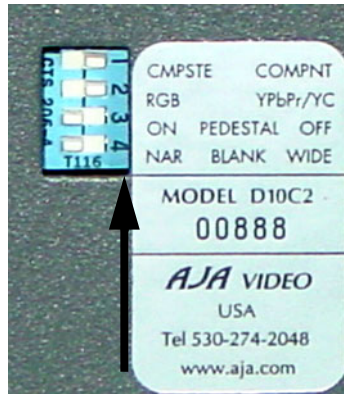
D10C2 10-bit SDI to Analog Component and Composite Converter, Block Diagram

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
WIDE Blanking: 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)	NARROW (NAR) Blanking: 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 PAUNTSC)~-

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