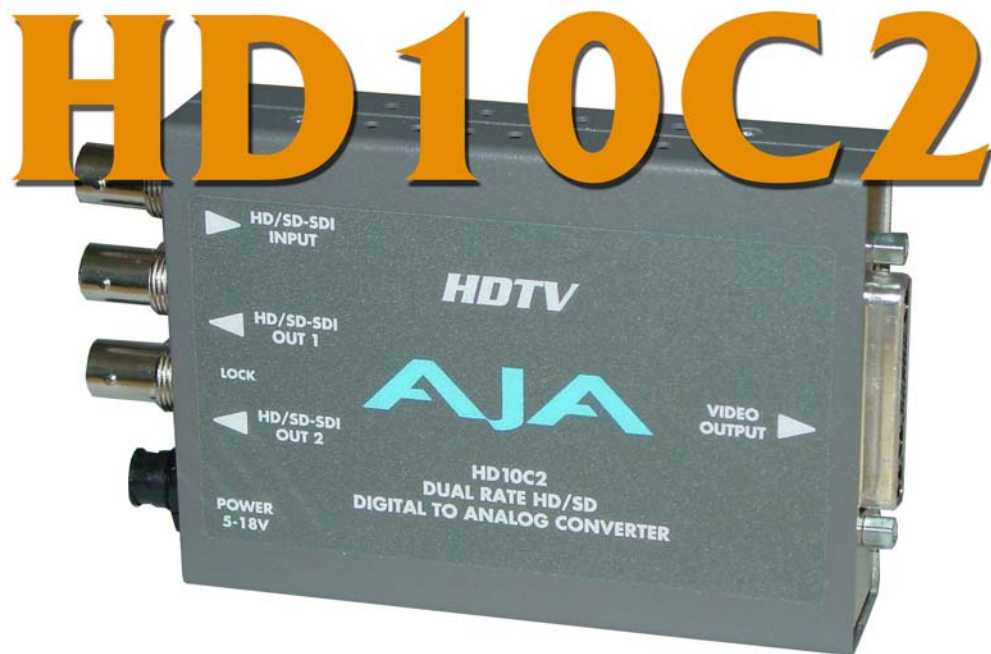


HD10C2 HDTV Serial Digital To Analog Converter

User Manual



AJA
AJA VIDEO SYSTEMS INC

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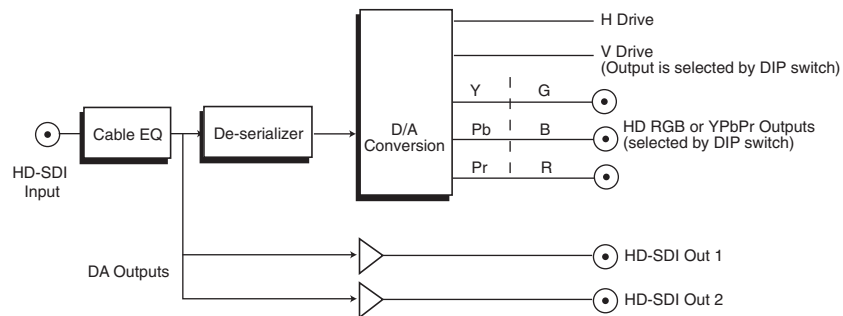
Introduction

The HD10C2 is a high-quality 10-bit HD converter that's "dual-rate"—and works with both HD-SDI and SDI inputs. For HD-SDI inputs, the HD10C2 outputs full bandwidth HD component or "VGA" style RGBHV video. For SDI inputs, component or composite SD outputs are supported. When connected to a multi-format monitor like the Sony 20L5, the HD10C2 will automatically provide an image from almost any HD or SD input format. The HD10C2 also features 2 equalized HD-SDI outputs.

Features

- High-Quality 10-bit Dual Rate HD/SD D/A Conversion
- Full Bandwidth HD Analog RGB or YPbPr Output (HD input)
- Component/Composite SD Output (SD input)
- 2 Equalized Loop-Thru HD-SDI/SDI Outputs
- 5 wire RGBHV VGA style HD output
- HD Sync Selectable Between Bi-level and Tri-Level
- 4:3 Safe Area Graticule (HD)
- 5-18VDC Power
- External Dip Switch Configuration

Block Diagram



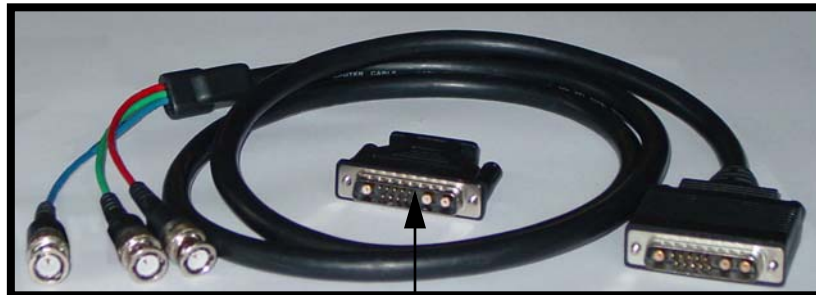
HD10C2 HD-SDI to Analog Converter, Simplified Block Diagram

I/O Connections



HD10C2 Converter

HD10C2 Cable and SVGA Adapter



BNCs for HD-RGB
or YPbPr equipment

Connects to Converter
Output Connector for
VGA Video

Connects to Converter
Output Connector for
HD-RGB or YPbPr
Video

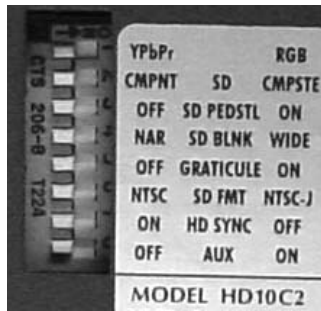
HD10C2 and Supplied Items: Component Video Cable and HD15 Adapter

Video Output Connector Pinout

The video output connector is a 13W3 D-sub. The pinout is listed below:

Pin	Description
1	no connection
2	V DRIVE
3	no connection
4	GROUND
5	H DRIVE
6 - 9	no connection
10	GROUND
A1	RED / Pr Video/C
A2	GREEN / Y Video?Composite
A3	BLUE/ Pb Video/Y

User Controls



DIP Switches

LEFT ↔ RIGHT

The user interface for the HD10C2 is an 8-switch DIP accessible through a cut-out in the bottom of the unit. Use the DIP switches to configure output formats, enable/disable video sync and graticule.

The exact function of each DIP switch and what it controls is described on this page.

Switch 1—Selects Component Video Output Format: RGB or YPbPr

LEFT	RIGHT
YPbPr: Selects YPbPr Component output	RGB: Selects RGB Component output

Switch 2—Selects Type of SD Output Format: Component or Composite

LEFT	RIGHT
COMPONENT: Selects Component output (SD Input)	COMPOSITE: Selects Composite output (SD Input)

Switch 3—Enable or Disable SD Pedestal

LEFT	RIGHT
OFF: Disable pedestal (SD Input)	ON: Enable pedestal (SD Input)

Switch 4—Selects SD Blanking

LEFT	RIGHT
NARROW: Select narrow blanking	WIDE: Selects wide blanking

Switch 5—Enable/Disable Graticule; in HD Mode Set 4:3 Safe Area

LEFT	RIGHT
OFF: Disable graticule	ON: Enable graticule

Switch 6—Set SD Format for NTSC or NTSCJ

LEFT	RIGHT
NTSC: Selects NTSC format (SD Input)	NTSCJ: Selects Japan's NTSCJ format (SD Input)

Switch 7—Enable or Disable HD Sync

LEFT	RIGHT
ON: Enable HD Sync	OFF: Disable HD Sync (remove sync on RGB)

Switch 8—Aux

LEFT	RIGHT
Not currently used	Not currently used

HD VGA MODE

For HD VGA mode use the supplied 15 pin D adapter and make the following DIP switch settings:

- S1 = RGB (right)
- S7 = HD SYNC OFF (right)—Note: only certain monitors require no sync on video

Internal Jumper— Select Tri- or Bi- level Sync

An internal jumper inside the HD10C2 case allows you to select between bi and tri level sync. To set the jumper, remove the four phillips screws securing the case cover (dipswitch side) and locate the jumper in the middle of the circuit board (see illustration below). Placing the internal jumper "S2" in the "0" position provides tri-level sync on the HD output; alternatively, placing it in the "1" position allows for bi-level sync on HD output. SD output is always bi-level. Note: jumper S1 is not used.



Installation

Typically, HD10C2 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 +5 to +18VDC power to the converter (AJA power supply model DWP)

Specifications

Item	Specification
Formats	1080i @ 50/59.94/60 Hz 1080p sf @ 23.98/24/25/29.97/30 Hz (displayed as interlaced) 1035i @ 59.94/60 Hz 720p @ 59.94/60 Hz 525i @ 59.94 Hz 625i @ 50 Hz
Input Selection	Automatic
Video Input	HD-SDI/SDI, SMPTE-259/292/296
Input Equalization	100/300 meter 1694 cable (SD/HD)
SDI Outputs	HD-SDI/SDI, active input loop, Equalizing
Video Output:	HD: YPbPr, RGB SD: YPbPr, RGB (component mode) Composite/YC (composite mode)
D/A converters:	12 bits
Sync	Bi-level, Tri-level, H/V drive
2T K factor	< 1% (Y)
Frequency Response	Y +/- .5db to 30 MHz C +/- .25db to 15 MHz
Y/C delay	< 2 ns
Power (AJA power supply model DWP)	+5 to +18v DC regulated, 4 watt
Size	147 x 79 x 25 mm

Horizontal Scan rates

Format	H ScanRate
1080i	59.94 / 60 Hz 33.75 KHz
1080i	50 28.125 KHz ¹
1080p sf	23.98 / 24 Hz 27.000 KHz ¹
720p	59.94 / 60 Hz 45.000 KHz

¹Most VGA monitors are not compatible with an Horizontal scan rate below 30 KHz (including the SONY GDM-W900, a popular HD monitor). The Sony 20L5 and 14L5 are compatible with all formats supported on the HD10C2.