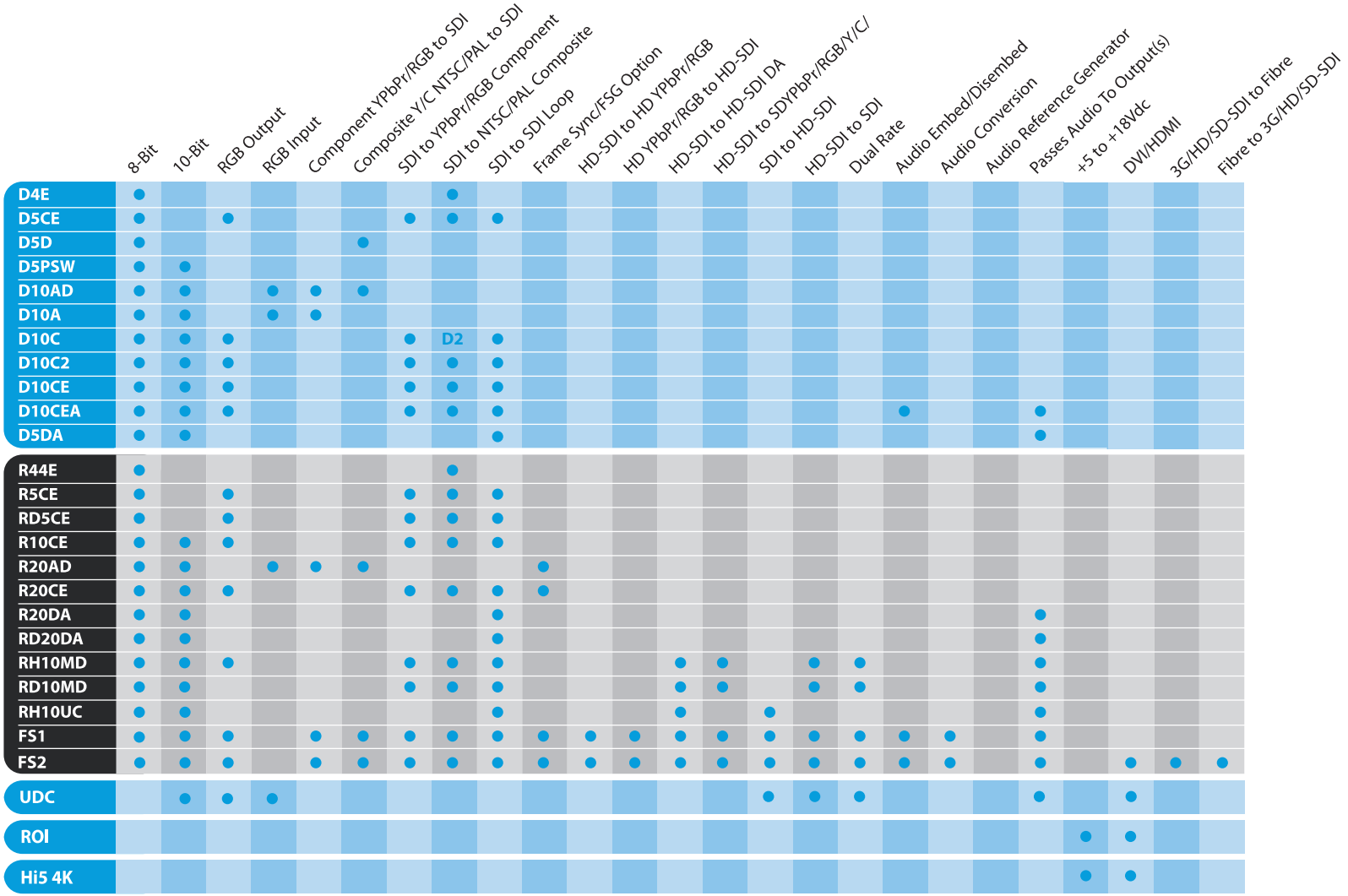
Converter Catalog
Spring 2013

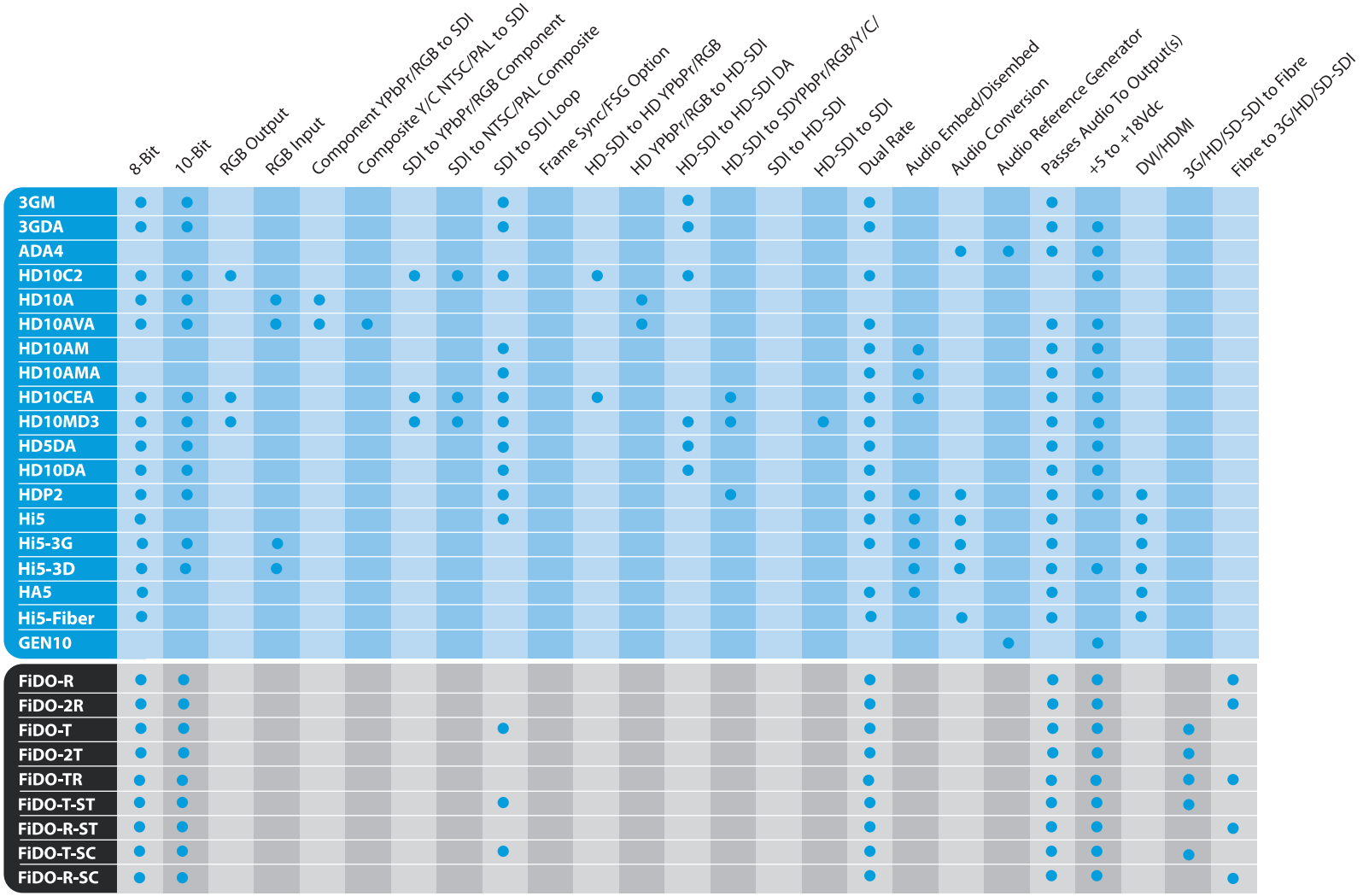
AJA®
VIDEO SYSTEMS

Because it matters.™

Product Breakout Chart



Product Breakout Chart



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FS

AJA's FS family of frame synchronizing converters deliver power and flexibility for up/down/cross conversion in just 1RU of space. Align mismatched signal types, including computer DVI signals, to establish a consistent format for post production or broadcast.

The Power to Convert

With support of all broadcast video formats, the FS family make matching up disparate video and audio systems simple with comprehensive analog and digital I/O, up/down/cross conversion and frame synchronization.

AJA's FS family brings the full power of our hardware conversion expertise in compact 1RU rack units that offer unrivaled flexibility.

Delivering AJA's industry standard up/down/cross conversion technology for the highest quality images, FS units are ideal for high-density applications such as mobile trucks and packed machine rooms, able to replace multiple hardware units in a single rack slot. The widest range of conversion possibilities makes them perfect for converting disparate sources to a common format, or handling whatever formats the production environment might throw at you. Easy to use and fully networkable via buit in 10/100/1000MB Ethernet ports, FS1 and FS2 are easily integrated into a facility and can be rapidly configured by any computer on the network via a standard web browser. FS units also accept automation control from external GPI commands.

With flexible I/O support, FS1 can simultaneously work with SD and HD video - as well as converting between both. FS2 adds the ability to process two independent streams of 3G/HD/SD 10-bit broadcast-quality video, including high-quality image scaling capabilities and two independent groups of 16-channel AES audio, opening a new world of conversion possibilities.

Built to the exacting standards of all AJA hardware, FS frame synchronizers are backed by our world-class support network, 5-year international warranty and advanced exchange service.

FS

Digital and analog I/O flexibility

FS frame synchronizers are loaded with comprehensive I/O that lets them handle the widest range of analog and digital signals - and convert between them.

Perfect for use in all broadcast and post production environments, FS units feature Dual HD/SD-SDI inputs and outputs, comprehensive multi-channel audio connections and I/O for analog video equipment, including HD and SD component. FS2 also features HDMI I/O with support for 3D output, and a Fiber connectivity option.

AJA hardware conversion technology

AJA's hardware conversion technology ensures the highest image quality for your productions. Key conversion features include:

- SD/HD up/down-conversion
- SD/SD aspect ratio conversion
- HD/HD cross-conversion (720p/1080i)
- Up/down/cross-conversion with both the input and converted formats on SD/HD SDI outputs (both synchronized)
- HD cross-conversion with simultaneous down-converted SDI output
- Closed Caption conversion (CEA-608/CEA-708 standards)
- AFD conversion or pass-through (user-selectable)

Remote configuration and control

FS units are network ready and support SNMP monitoring and web-based remote control. Units can be connected to any Ethernet network via the built-in 10/100/1000MB Ethernet port, allowing control and configuration of multiple FS units from any web browser on a connected computer. Configurations can be saved and applied to multiple units, ensuring consistency and quick configuration in large installs.

To integrate smoothly with the existing automation of a facility, both FS1 and FS2 can also receive external GPI commands to trigger a variety of functions, from freezing an input source to switching between saved presets.

FS1

FS1 is a powerful and flexible frame synchronizer and high quality converter that helps you work with mismatched signal types to establish a consistent format for post production or broadcast.

Universal Frame Synchronizer/Converter

Powerful functionality in a compact, easy-to-use package.

Featuring a flexible input, output, and control architecture, the FS1 Universal SD/HD Audio/Video Frame Synchronizer and Converter can simultaneously work with both HD and SD video all in full 10-bit broadcast quality video and 24-bit audio.

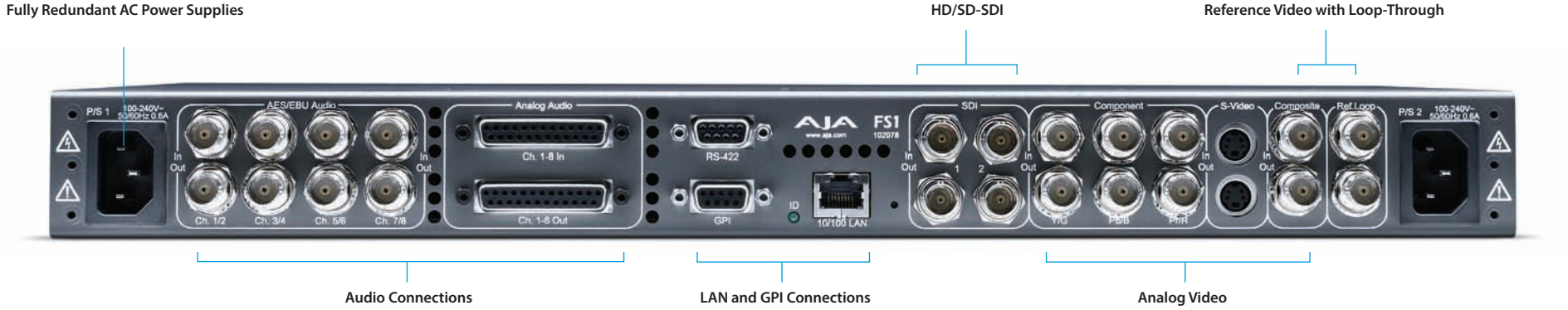
Supporting virtually any input or output, analog or digital, HD or SD, FS1 can up-or down-convert between SD and HD, and provide simultaneous HD and SD outputs. Up, down, cross conversion between HD formats is also supported, with simultaneous output of both formats.

For audio, FS1 supports 8-channel AES, balanced analog, or 16-channel embedded audio with full flexibility and audio processing controls. You can choose from any of the 4 groups of embedded audio for 8-channel output via AES or analog audio.

FS1 also supports closed captioning and the conversion of closed captioning between SD and HD formats—including full conversion of CEA-608 captions to the CEA-708 standard.

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Connections



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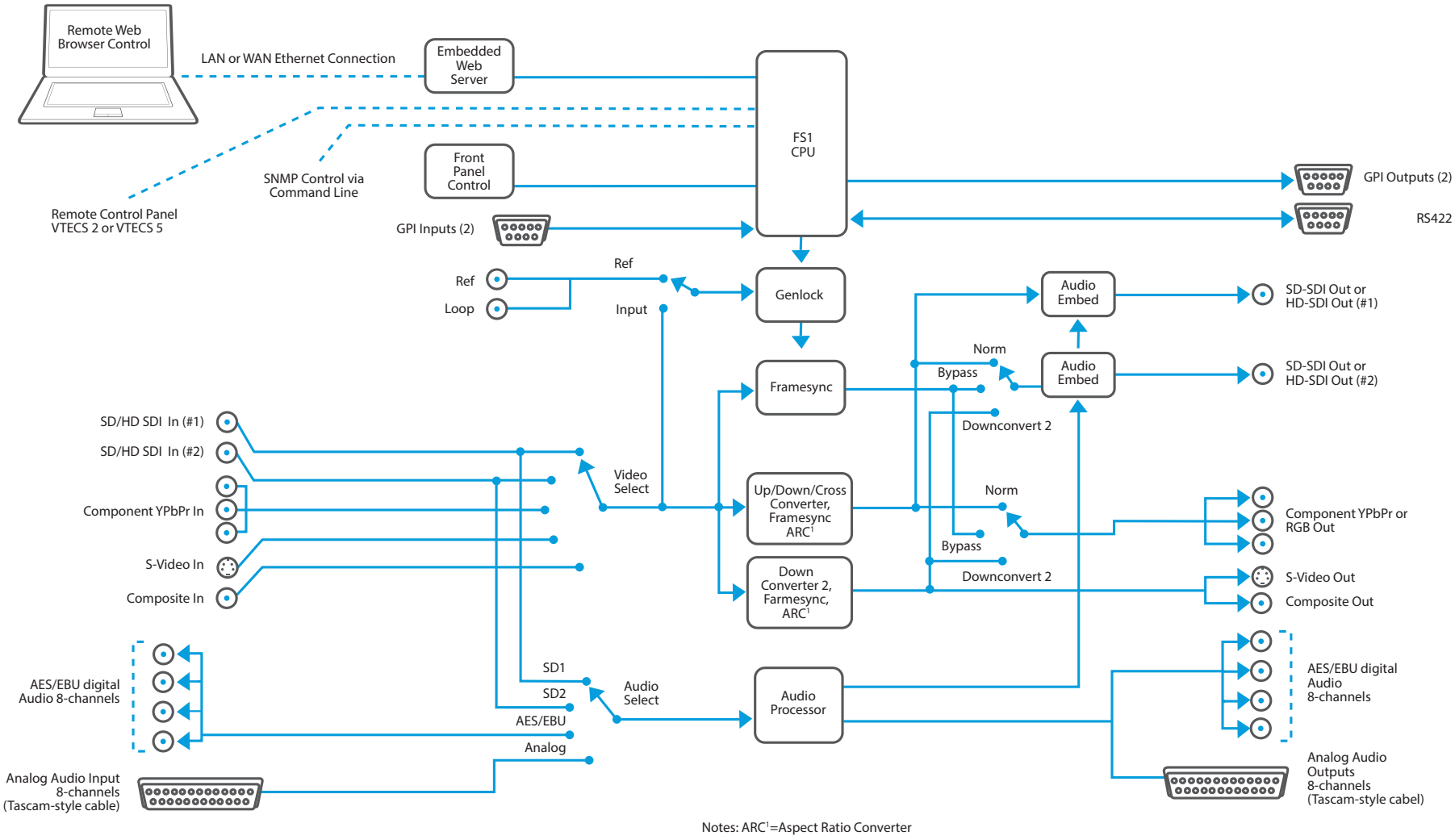
Architecture



Notes: ARC[1]=Aspect Ratio Converter

FS1

Tech Specs

Video Formats

- 525i 29.97
- 625i 25
- 720p 50, 59.94, 60
- 1080i 25, 29.97, 30
- 1080PsF 23.98, 24
- 1080p 24, 25, 30

Video Input Digital

- Dual SD/HD SDI, SMPTE-259/292/296, 8- or 10-bits
- Single Link 4:2:2 (1 x BNC each)

Video Input Analog

- HD component YPbPr, SMPTE-274 (3 x BNC)
- 12-bit A/D, 2x oversampling
- SD Component (3 x BNC)
- SMPTE/EBU N10, Betacam 525 line, Betacam 525J
- 12-bit A/D, 4x oversampling
- +/- .25 dB to 5.5 MHz Y Frequency Response
- +/- .25 dB to 2.5 MHz C Frequency Response
- .5% 2T pulse response
- <2 ns Y/C delay inequity
- SD Composite/YC (S-Video)
- 12-bit A/D, 4x oversampling

Video Output Digital

- Dual SD/HD SDI, SMPTE-259/292/296, 8- or 10-bits
- Single Link 4:2:2 (1 x BNC each)

Video Output Analog

- HD component YPbPr/RGB, SMPTE-274 (3 x BNC)
- 12-bit D/A, 2x oversampling
- SD Component (3 x BNC)
- SMPTE/EBU N10, Betacam 525 line, Betacam 525J
- 12-bit D/A, 4x oversampling
- +/- .25 dB to 5.5 MHz Y Frequency Response
- +/- .25 dB to 2.5 MHz C Frequency Response
- .5% 2T pulse response
- <2 ns Y/C delay inequity
- SD Composite/YC (S-Video)
- 12-bit D/A, 4x oversampling

Audio Input Digital

- 16-channel, 24-bit SDI embedded audio, 48kHz sample rate, Synchronous
- 8-channel, 24-bit AES/EBU audio, 48kHz sample rate, Synchronous or Non-synchronous, Internal sample rate conversion (4 x BNC)
- +12 dBu, +15 dBU, +18 dBu, +24 dBu (Full Scale Digital)
- +/- 0.2 dB 20Hz to 20kHz Frequency Response

Audio Input Analog

- 8-channel, 24-bit A/D analog audio, 48kHz sample rate, balanced (8 x XLR via 25-pin breakout cable)
- +12 dBu, +15 dBU, +18 dBu, +24 dBu (Full Scale Digital)
- +/- 0.2 dB 20Hz to 20kHz Frequency Response

Audio Ouput Digital

- 16-channel, 24-bit SDI embedded audio, 48kHz sample rate, Synchronous
- 8-channel, 24-bit AES/EBU audio, 48kHz sample rate, Synchronous or Non-synchronous, Internal sample rate conversion (4 x BNC)

Audio Ouput Analog

- 8-channel, 24-bit D/A analog audio, 48kHz sample rate, balanced (8 x XLR via 25-pin breakout cable)
- +12 dBu, +15 dBU, +18 dBu, +24 dBu (Full Scale Digital)
- +/- 0.2 dB 20Hz to 20kHz Frequency Response

Up-Conversion

- Hardware 10-bit
- Anamorphic: full-screen
- Pillar box 4:3: results in a 4:3 image in center of screen with black sidebars
- Zoom 14:9: results in a 4:3 image zoomed slightly to fill a 14:9 image with black side bars
- Zoom Letterbox: results in image zoomed to fill full screen
- Zoom Wide: results in a combination of zoom and horizontal stretch to fill a 16:9 screen; this setting can introduce a small aspect ratio change

Down-Conversion

- Hardware 10-bit
- Anamorphic: full-screen
- Letterbox: image is reduced with black top and bottom added to image area with the aspect ratio preserved
- Crop: image is cropped to fit new screen size

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(Continued on Next Page)

Tech Specs *(Continued)*

Cross-Conversion

- Hardware 10-bit
- 1080i to 720p
- 720p to 1080i
- 720p to 1080PsF

SD to SD Aspect Ratio Conversion

- Letterbox: This transforms SD anamorphic material to a letterboxed image.
- H Crop: Will produce a horizontally stretched effect on the image; transforms anamorphic SD to full frame
- SD Pillarbox: Will produce an image in the center of the screen with black borders on the left and right sides and an anamorphized image in the center
- V Crop: Will transform SD letterbox material to an anamorphic image.

Timecode

- SDI RP188 via SDI BNC

Reference Input

- Analog Color Black (1V) or Composite Sync (2 or 4V)
- Looping, non-terminating.

Network Interface

- 10/100 Ethernet (RJ-45)
- Embedded web server for remote control
- VTECS™ protocol for Remote Control Panel

User Interface

- Alphanumeric display, with dedicated buttons

Control

- GPI in/out, 9-pin D-connector
- Pinout is as follows:

1	GPI IN 1
2	GPI IN 2-
3	GPI OUT 1
4	GPI OUT 2
5	Chassis ground
6	I/O GROUND 1
7	I/O GROUND 2
8	I/O GROUND 1-
9	I/O GROUND 1

- RS-422, Sony 9-pin protocol (reserved for future use)
- 9-pin D-connector pinout is as follows:

1	GND
2	RX-
3	TX+
4	GND
5	No Connection
6	GND
7	RX+
8	TX-
9	GND
Shell	GND

Physical

- Width: 17.25" (43.81cm)
- Depth: 12.5" (31.75cm)
- Height: 1RU, 1.75" (4.44cm)
- Weight: 6.5lb (2.94kg)
- Power: 100-240 VAC 50/60Hz (Dual, redundant power supplies), 25W typical; 30W max. 15A max.
- Operating temperature: 0 to 40 degrees C
- Relative humidity: 0 to 90%, non-condensing

Input/Output Combinations

Input	Possible Output Formats		
525i59.94	525i59.94	720p59.94	1080i59.94
720p59.94	525i59.94	720p59.94	1080i59.94
1080i59.94	525i59.94	720p59.94	1080i59.94
1080pSF23.98	1080pSF23.98	1080i59.94	525i59.94
625i50	625i50	1080i50	720p50
720p50	625i50	1080i50	720p50
1080i50	625i50	1080i50	720p50
1080pSF24	1080pSF24	1080i60	Input
1080i60	1080i60	720p60	Input
720p60	720p60	1080i60	

Notes:

1. In the case of 1080pSF/23.98 input - and when 1080i59.94 (or 525) is selected as an output format, the FS1 automatically does 3:2 pulldown to get the correct frame rate.
2. When passing 24 or 60 framerate video, output is high definition.

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FS2

With dual-channel conversion and frame synchronizing in a slim 1RU space, FS2 can do the work of two separate devices or combine both processors together for maximum flexibility.

A World of Conversion Possibilities

Double your conversion capacity and still have room to spare.

Offering huge flexibility and the power to adapt to meet the needs of rapidly changing environments, FS2 offers unprecedented conversion and frame synchronization power in a 1RU space.

Capable of simultaneously working with two independent streams of 3G/HD/SD 10-bit broadcast-quality video and two independent groups of 16-channel AES audio, each FS2 video channel supports virtually any input or output: analog component or composite, 3G/HD/SD-SDI, Dual Link (1.485 Gb), Fiber and HDMI I/O. A Fiber I/O option allows fiber cable runs of up to 10 kilometers to be connected directly to the FS2 without the need for separate fiber to SDI conversion. Each video processing channel can be individually cropped and resized using AJA's image scaling technology for the best possible quality when incorporating non-standard image sizes.

FS2 can be used as two separate Frame Synchronizers/Format Converters, or the two channels can be linked with the internal FS2 keyer to do the work of three or more devices - for example HD sidebar keying where both the video and background graphics are upconverted and combined.

FS2 can up or down convert between SD, HD, and 3G HD (1080p50/60), and cross convert between HD formats including 3G HD. Additionally, FS2 has full input and output signal routing, allowing any I/O port to be assigned to either processing channel.

For audio, FS2 has two audio processors, each supporting 16-channel AES/EBU digital audio, 16-channel embedded audio, and 8-channel balanced analog audio with a variety of controls for maximum flexibility. The output of each processor can be embedded in its respective video processor output (SDI, Fiber, or HDMI), or sent to the AES or balanced outputs. For 3G and Dual Link inputs, the audio processors can have access to all 32 channels. A Dolby decoding option adds the ability to extract encoded Dolby audio as part of the signal path without the need for specialized equipment.

FS2 supports closed captioning and the conversion of closed captioning between SD and HD formats - including full conversion between CEA-608 and CEA-708 caption standards.

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FS2

Connections

Status
Displays current machine status and/or error conditions.

Alphanumeric Display
Displays status information and Control information

Power and Status LEDs
Shows the AC power status and any alarm conditions.

Remote
Displays remote control menu.

Video and Audio select Buttons

Select and Adjust Buttons
Select Parameters and adjust their values.

Activity LEDs
Displays at-a-glance the settings and current FS1 conditions.

Fully Redundant AC Power

Digital Video Connections: Fiber, SDI, and HDMI

Reference
Passive Reference Loop –
Color Black or Tri-Level Sync

Audio Connections

LAN and Control Connections

Analog Video Connections

Click here

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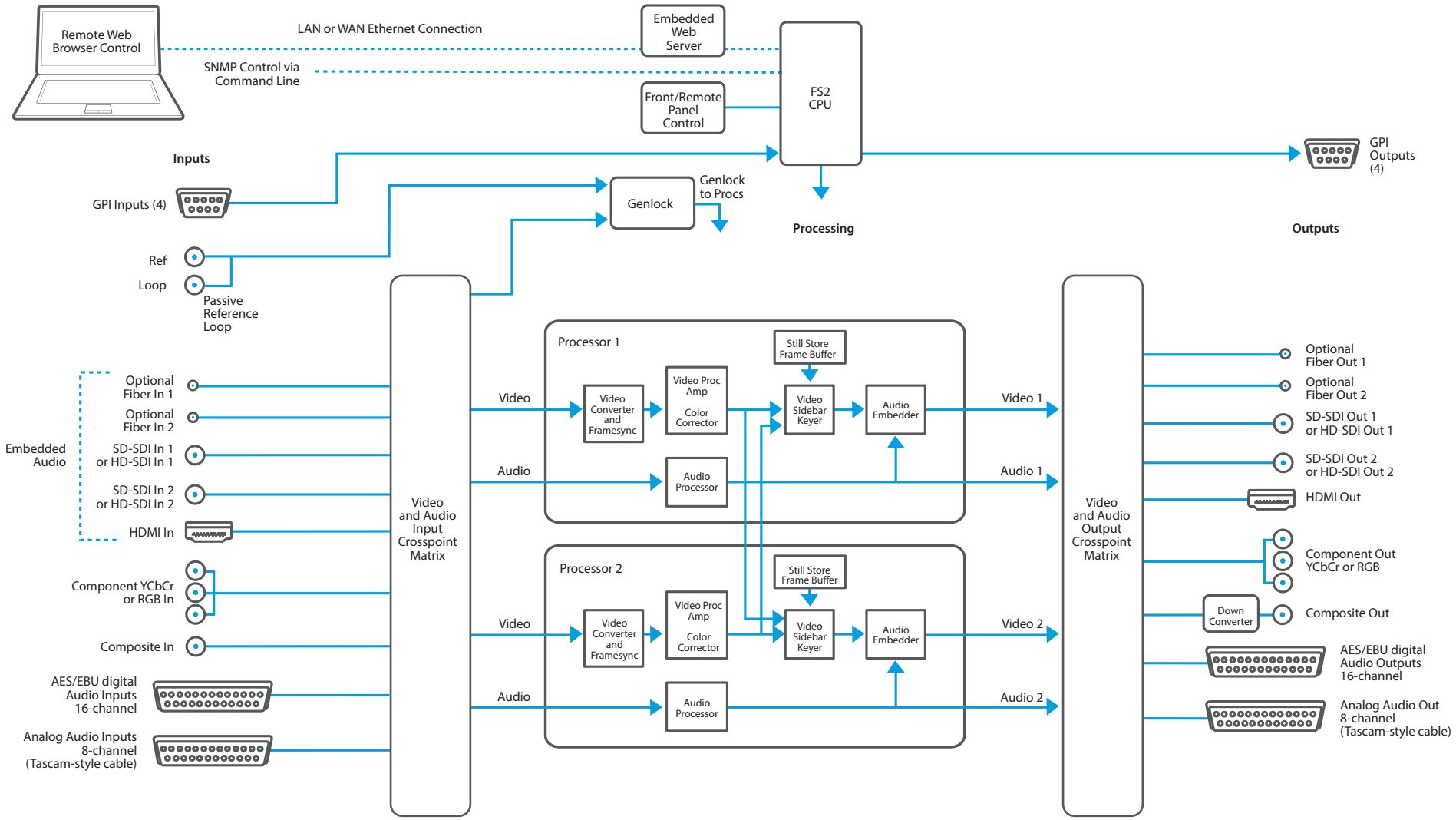
FS2

Architecture



FS2

Tech Specs

Video Formats

- 525i 29.97
- 625i 25
- 720p 50, 59.94, 60
- 1080i 25, 29.97, 30
- 1080PsF 23.98, 24
- 1080p 24, 25, 30

Video Input Digital

- Dual SD/HD/3G SDI, SMPTE-259/292/296, 8- or 10-bits
- Single Link 4:2:2 (1 x BNC each)
- Dual Fiber (SC or LC) SD/HD/3G SDI, SMPTE-259/292/296, 8- or 10-bits (optional)
- HDMI v1.3 30 bits/pixel, RGB or YUV, 2.25 Gbps, SD, HD, 1080p-50/60

Video Input Analog

- HD component YPbPr, SMPTE-274 (3 x BNC)
- 12-bit A/D, 2x oversampling
- SD Component (3 x BNC)
- SMPTE/EBU N10, Betacam 525 line, Betacam 525J
- 12-bit A/D, 4x oversampling
- +/- .25 dB to 5.5 MHz Y Frequency Response
- +/- .25 dB to 2.5 MHz C Frequency Response
- .5% 2T pulse response
- <2 ns Y/C delay inequity
- SD Composite
- 12-bit A/D, 4x oversampling

Video Output Digital

- Dual SD/HD/3G SDI, SMPTE-259/292/296, 8- or 10-bits
- Single Link 4:2:2 (1 x BNC each)
- Dual Fiber (SC or LC) SD/HD/3G SDI, SMPTE-259/292/296, 8- or 10-bits (optional)
- HDMI v1.3 30 bits/pixel, RGB or YUV, 2.25 Gbps, SD, HD, 1080p-50/60

Video Output Analog

- HD component YPbPr, SMPTE-274 (3 x BNC)
- 12-bit D/A, 2x oversampling
- SD Component (3 x BNC)
- SMPTE/EBU N10, Betacam 525 line, Betacam 525J
- 12-bit D/A, 4x oversampling
- +/- .25 dB to 5.5 MHz Y Frequency Response
- +/- .25 dB to 2.5 MHz C Frequency Response
- .5% 2T pulse response
- <2 ns Y/C delay inequity
- SD Composite
- 12-bit D/A, 4x oversampling

Audio Input Digital

- 16-channel, 24-bit SDI embedded audio, 48kHz sample rate, Synchronous
- 16-channel, 24-bit AES/EBU audio, 48kHz sample rate, Synchronous or Non-synchronous, Internal sample rate conversion (8 x XLR via 25-pin breakout cable)
- Optional Dolby E Decoding

Audio Input Analog

- 8-channel, 24-bit A/D analog audio, 48kHz sample rate, balanced (8 x XLR via 25-pin breakout cable)
- +12 dBu, +15 dBU, +18 dBu, +24 dBu (Full Scale Digital)
- +/- 0.2 dB 20Hz to 20kHz Frequency Response

Audio Ouput Digital

- 16-channel, 24-bit SDI embedded audio, 48kHz sample rate, Synchronous
- 16-channel, 24-bit AES/EBU audio, 48kHz sample rate, Synchronous or Non-synchronous, Internal sample rate conversion (8 x XLR via 25-pin breakout cable)
- Optional Dolby E Encoding (future option)

Audio Ouput Analog

- 8-channel, 24-bit D/A analog audio, 48kHz sample rate, balanced (8 x XLR via 25-pin breakout cable)
- +12 dBu, +15 dBU, +18 dBu, +24 dBu (Full Scale Digital)
- +/- 0.2 dB 20Hz to 20kHz Frequency Response

Up-Conversion

- Hardware 10-bit
- Anamorphic: full-screen
- Pillar box 4:3: results in a 4:3 image in center of screen with black sidebars
- Zoom 14:9: results in a 4:3 image zoomed slightly to fill a 14:9 image with black side bars
- Zoom Letterbox: results in image zoomed to fill full screen
- Zoom Wide: results in a combination of zoom and horizontal stretch to fill a 16:9 screen; this setting can introduce a small aspect ratio change

Down-Conversion

- Hardware 10-bit
- Anamorphic: full-screen
- Letterbox: image is reduced with black top and bottom added to image area with the aspect ratio preserved
- Crop: image is cropped to fit new screen size

Cross-Conversion

- Hardware 10-bit
- 1080i to 720p
- 720p to 1080i
- 720p to 1080PsF

Click here For the most recent product specifications visit www.aja.com/fs2/techspecs

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Tech Specs *(Continued)*

SD to SD Aspect Ratio Conversion

- Letterbox: This transforms SD anamorphic material to a letterboxed image.
- H Crop: Will produce a horizontally stretched effect on the image; transforms anamorphic SD to full frame
- SD Pillarbox: Will produce an image in the center of the screen with black borders on the left and right sides and an anamorphized image in the center
- V Crop: Will transform SD letterbox material to an anamorphic image.

Timecode

- SDI RP188 via SDI BNC

Reference Input

- Analog Color Black (1V) or Composite Sync (2 or 4V)
- Looping, non-terminating.

Network Interface

- 10/100 Ethernet (RJ-45)
- Embedded web server for remote control
- VTECS™ protocol for Remote Control Panel

User Interface

- Alphanumeric display, with dedicated buttons

Control

- GPI in/out, 15-pin D-connector
- Pinout is as follows:

1	GROUND	9	GPI OUT 2
2	GPI IN 1	10	GPI I/O GND 3
3	GPI IN 2	11	GPI I/O GND 4
4	GPI IN 3	12	GPI OUT 3
5	GPI I/O GND 1	13	GPI OUT 4
6	GPI I/O GND 2	14	NC
7	GPIN 4	15	GROUND
8	GPI OUT 1		

- RS-422, Sony 9-pin protocol (reserved for future use)
- 9-pin D-connector pinout is as follows:

1	NC	9	RS-485 Dolby Metadata Output -
2	RS-422 Machine Control Output +	10	NC
3	RS-422 Machine Control Output -	11	GROUND
4	RS-485 Dolby Metadata Output -	12	RS-485 Dolby Metadata Output -
5	GROUND	13	RS-485 Dolby Metadata Output +
6	NC	14	NC
7	RS-422 Machine Control Output -	15	GROUND
8	RS-422 Machine Control Output +		

Physical

- Width: 17.25" (43.81cm)
- Depth: 12.5" (31.75cm)
- Height: 1RU, 1.75" (4.44cm)
- Weight: 7.85lb (3.56kg)
- Power: 100-240 VAC 50/60Hz (Dual, redundant power supplies), 55W typical; 80W max. 15A max.
- Operating temperature: 0 to 40 degrees C
- Relative humidity: 0 to 90%, non-condensing

Input/Output Combinations

Input	Possible Output Formats		
525i59.94	525i59.94	720p59.94	1080i59.94
720p59.94	525i59.94	720p59.94	1080i59.94
1080i59.94	525i59.94	720p59.94	1080i59.94
1080pSF23.98	1080pSF23.98	1080i59.94	525i59.94
625i50	625i50	1080i50	720p50
720p50	625i50	1080i50	720p50
1080i50	625i50	1080i50	720p50
1080pSF24	1080pSF24	1080i60	Input
1080i60	1080i60	720p60	Input
720p60	720p60	1080i60	

Notes:

1. In the case of 1080pSF/23.98 input - and when 1080i59.94 (or 525) is selected as an output format, the FS2 automatically does 3:2 pulldown to get the correct frame rate. Similarly, in the case of 1080pSF/24 input, FS2 automatically does 3:2 pulldown to get the correct frame rate.
2. When passing 24 or 60 framerate video, output is high definition.

Click here For the most recent product specifications visit www.aja.com/fs2/techspecs

KUMO

AJA's KUMO family of compact SDI routers provide high quality signal control that is ideal for small facilities or space-sensitive locations.

Compact SDI Routers

Compact, robust and built for critical environments, KUMO SDI routers offer flexibility and quality that exceeds SMPTE specifications at an unprecedented price.

Cost-effective, without compromising power or flexibility, KUMO compact SDI routers provide powerful signal control and support full broadcast specifications over SDI, HD-SDI, and 3G SDI, with quality that exceeds SMPTE specifications. The super-compact 1RU and 2RU formats are just a few inches deep, making them a perfect fit for any broadcast, production, or post production environment, from mobile sports trucks and edit suites, through to corporate video installations or live event A/V rigs.

Running Embedded Linux, KUMO routers are network-ready and support full HTTP control and monitoring. KUMO's internal webserver allows immediate installation, configuration, and operation with standard web browsers - so there's no need to purchase or install any additional software. The optional 1RU networkable control panel (KUMO CP) can be used in standalone or networked configurations to enable comprehensive control without the need of a computer.

KUMO routers are easily integrated with existing infrastructure utilizing the industry-standard Grass Valley Native Protocol over RS-422 or even Ethernet. Ethernet network connectivity also allows you to control all KUMO routers from any web browser on a network-connected device, ensuring you have the control you need from any location.

KUMO SDI routers are available in three configurations: KUMO 3232 supports 32 3G SDI inputs and outputs, KUMO 1616 supports 16 3G SDI inputs and outputs, and KUMO 1604 supporting 16 3G SDI inputs and 4 3G SDI outputs.

KUMO compact SDI routers offer AJA reliability, flexibility and uncompromising signal quality, all at an unprecedented price. Built to the exacting standards of all AJA hardware, KUMO products are backed by our world-class support network, 5-year international warranty and advanced exchange service.

KUMO

Compact routing

Just 1RU or 2RU high and less than 2" deep, KUMO fits in the most space-constrained locations, offering flexible routing with support for SD, HD and 3G SDI I/O that exceeds SMPTE specifications.

The powerful cross-point routing matrix allows the mapping of any input to any output. Signals can also be sent to multiple outputs without the need for additional patch panels or distribution amplifiers.

Designed for critical broadcast, production and post environments, KUMO hardware uses premium components coupled with dual redundant power supplies to ensure uptime in the unlikely event of a power supply failure.

Simple configuration

Running Embedded Linux, KUMO routers are network-ready and support powerful HTTP control and monitoring via a web browser without the need for any additional software.

KUMO's auto-detect Bonjour™/Zeroconf protocols mean that network configuration is automatic, just connect KUMO to your network and the system will self-configure, ready for use. Alternatively, standard network configuration allows access to each KUMO via its assigned IP address. Once connected to KUMO using a web browser, you can configure the full TCP/IP settings, select and name KUMO routers, name sources and destinations, and perform all operational functions.

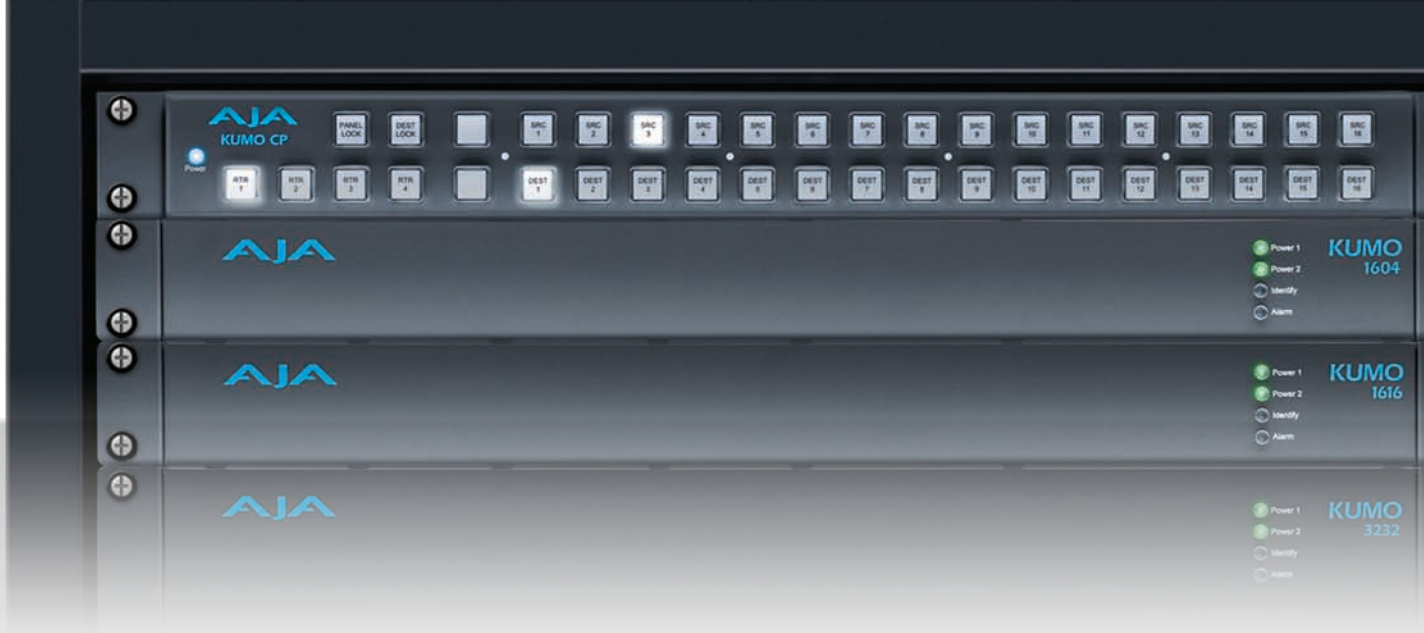
KUMO Control Panel

KUMO CP is an optional 1RU control panel that can be used in standalone or networked configurations.

Connecting via Ethernet to the same network as the KUMO routers, KUMO CP enables full control from any location without the need for a computer. Up to four KUMO routers can be controlled from a single control panel.

For standalone configurations with KUMO CP, all KUMO hardware units can be connected together directly using standard RJ45 cables or a switch, if required. KUMO software automatically assigns routers to control panel delegations so you're ready to use the system immediately.

KUMO



KUMO Control Panel

KUMO CP is an optional 1RU control panel that's compatible with all KUMO routers. Each KUMO CP enables full control of up to four KUMO routers from any location without the need for a computer.

KUMO 1604

KUMO 1604 is the right size for typical AV setups or corporate meetings where several different cameras, computers or other video devices need to be routed to a few monitors or projectors.

KUMO 1616

For medium-sized facilities and mobile trucks, KUMO 1616 is just the right size for combining multiple cameras, monitors, editing systems, tape decks and file-based recorders into a seamless workflow.

KUMO 3232

As your routing needs grow, KUMO 3232 has the additional capacity you require, making it perfect for larger environments and high-density applications.

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Connections

KUMO Control Panel

Click here For full product specifications visit www.aja.com/kumo/techspecs

Connections

KUMO 1604

RS-422
RS-422 remote control via 9-pin dB9 connector with Grass Valley Native Protocol support.

LAN Connection
RJ45 10/100/1000 LAN Connector - internal webserver, Bonjour support

Fully Redundant AC Power Supplies
Two independent 12Vdc inputs provide safe operations. Power status can be checked from a LAN attached browser.

Reference Input with Loop-Through
The reference Input synchronizes the Router switching point per SMPTE specifications. The Reference Input supports Blackburst for SD and Tri-Level sync for HD.

3G/HD/SD-SDI Inputs and Outputs
All inputs and outputs, 3G, HD-SDI, or SD-SDI (SMPTE 259M/292M/424M)

Click here For full product specifications visit www.aja.com/kumo/techspecs

Connections

KUMO 1616

RS-422
RS-422 remote control via 9-pin dB9 connector with Grass Valley Native Protocol support.

LAN Connection
RJ45 10/100/1000 LAN Connector - internal webserver, Bonjour support

Fully Redundant AC Power Supplies
Two independent 12Vdc inputs provide safe operations. Power status can be checked from a LAN attached browser.

Reference Input with Loop-Through
The reference Input synchronizes the Router switching point per SMPTE specifications. The Reference Input supports Blackburst for SD and Tri-Level sync for HD.

3G/HD/SD-SDI Inputs and Outputs
All inputs and outputs, 3G, HD-SDI, or SD-SDI (SMPTE 259M/292M/424M)

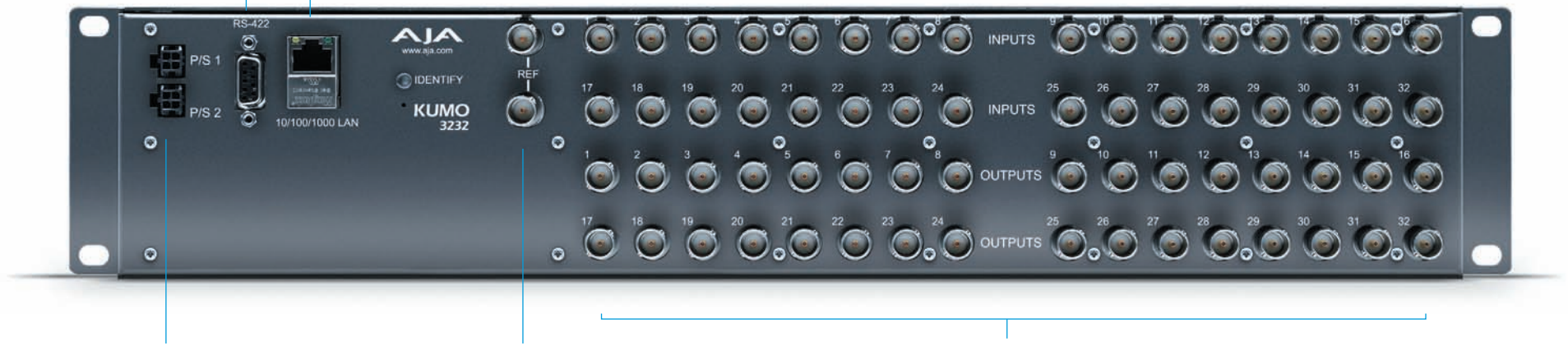
Click here For full product specifications visit www.aja.com/kumo/techspecs

Connections

KUMO 3232

RS-422
RS-422 remote control via 9-pin dB9 connector with Grass Valley Native Protocol support.

LAN Connection
RJ45 10/100/1000 LAN Connector - internal webserver, Bonjour support



Fully Redundant AC Power Supplies
Two independent 12Vdc inputs provide safe operations. Power status can be checked from a LAN attached browser.

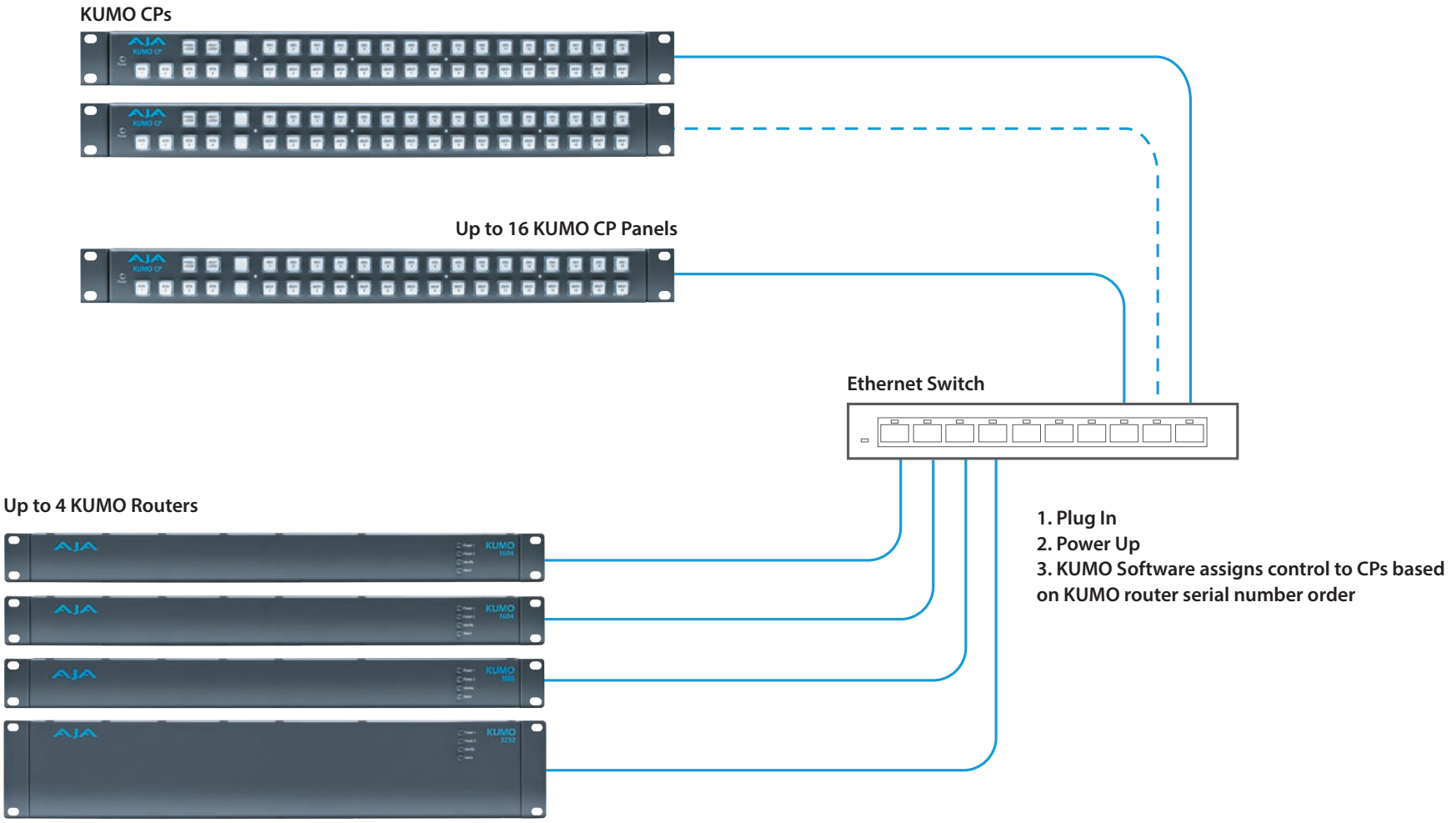
Reference Input with Loop-Through
The reference Input synchronizes the Router switching point per SMPTE specifications. The Reference Input supports Blackburst for SD and Tri-Level sync for HD.

3G/HD/SD-SDI Inputs and Outputs
All inputs and outputs, 3G, HD-SDI, or SD-SDI (SMPTE 259M/292M/424M)

Click here For full product specifications visit www.aja.com/kumo/techspecs

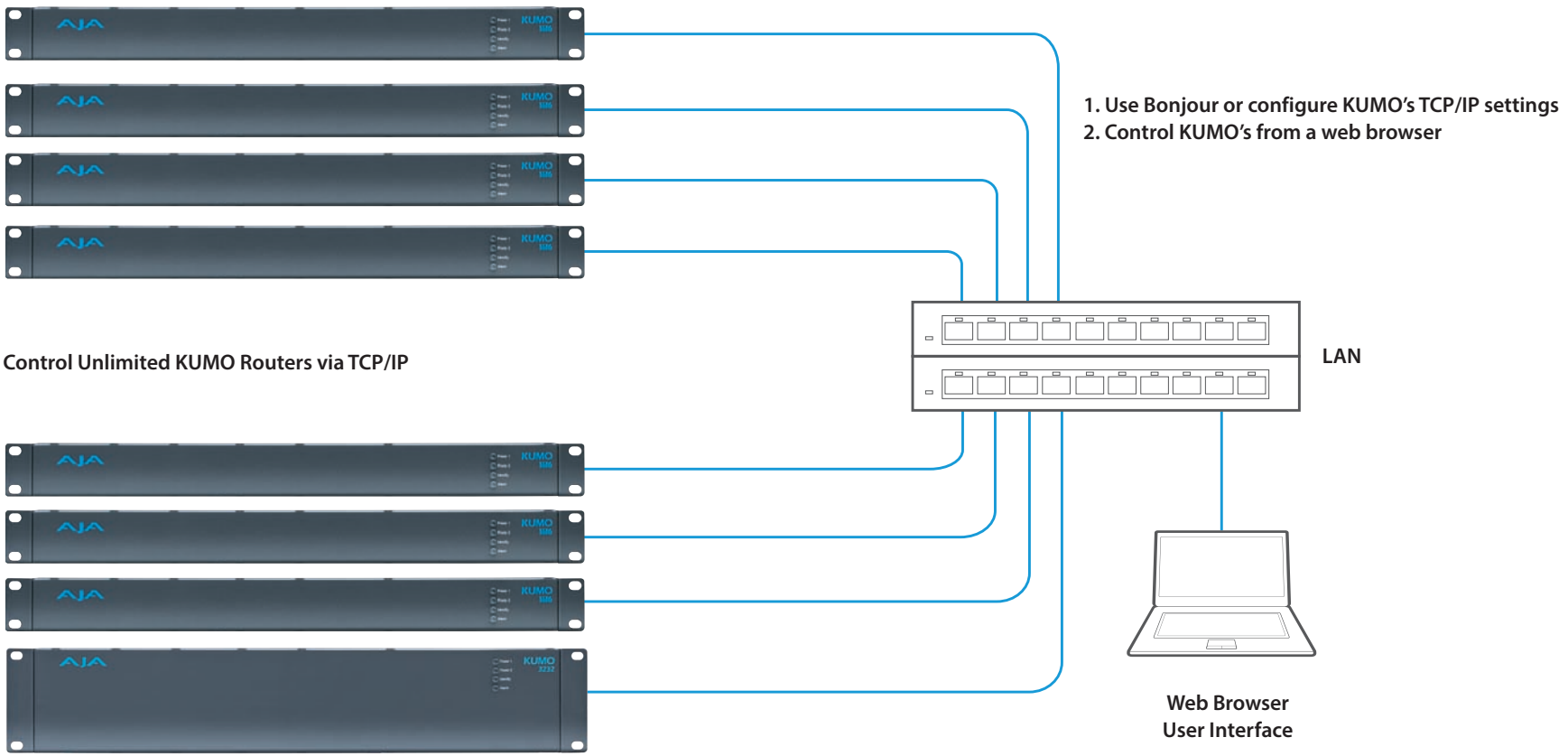
Configurations

Standalone routing system - zero configuration, just plug, power, and play



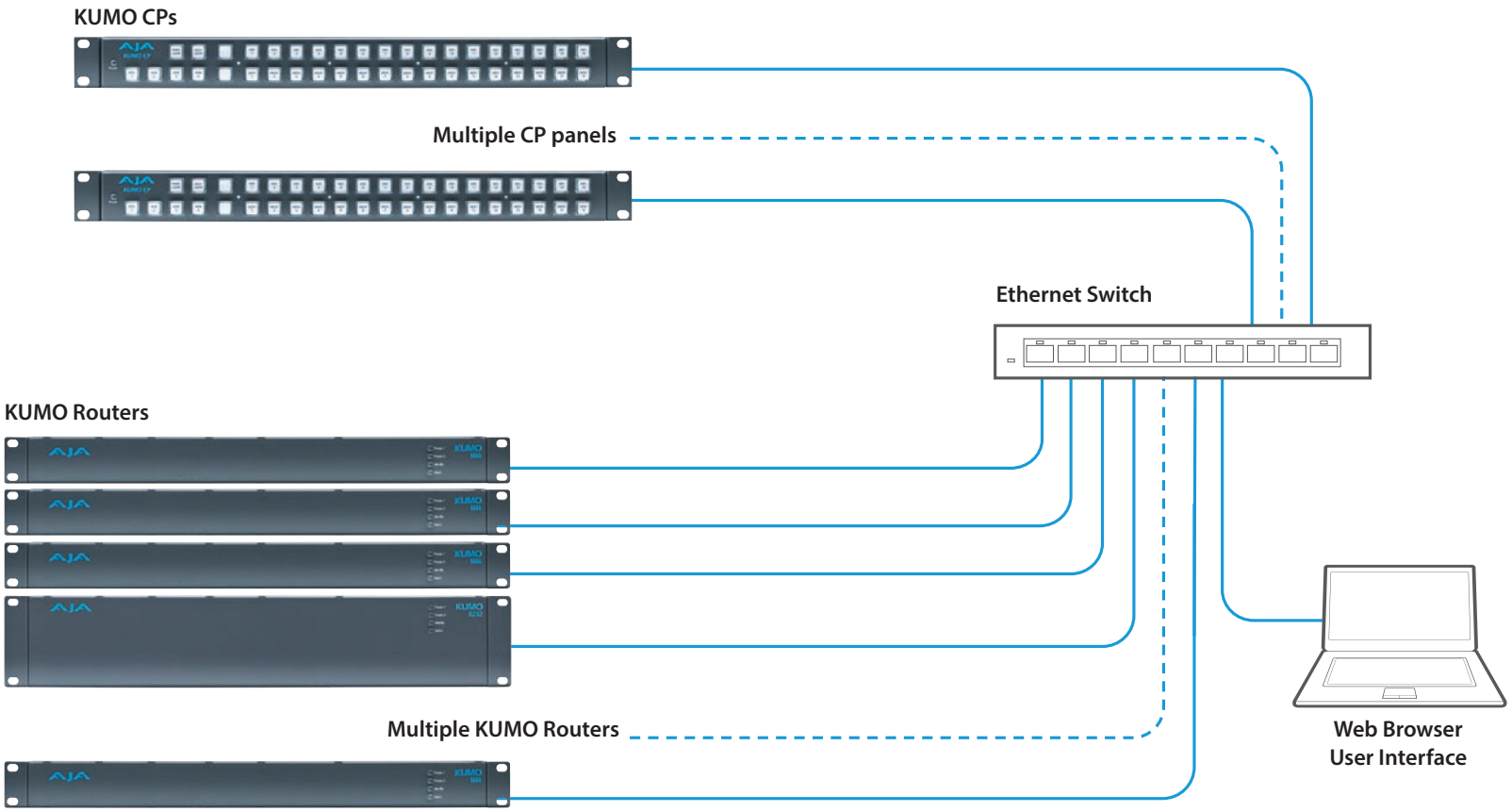
Configurations

LAN-only system - use TCP/IP to configure routers and devices



Configurations

Hybrid system - KUMO's controlled by KUMO CPs and web browsers



Each KUMO CP can control up to 4 KUMO routers at a time

KUMO

Tech Specs

Video Formats

- 525i 29.97
- 625i 25
- 720p 50, 59.94, 60
- 1080i 25, 29.97, 30
- 1080PsF 23.98, 24, 25, 29.97, 30
- 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60

Video Input Digital

- SD/HD/3G SDI, SMPTE-259/292/296, 8- or 10-bits
- Single Link 4:2:2 (1 x BNC per input)

Video Output Digital

- SD/HD/3G SDI, SMPTE-259/292/296, 8- or 10-bits
- Single Link 4:2:2 (1 x BNC per output)

Audio Input Digital

- 8-channel, 24-bit SMPTE-259 SDI embedded audio, 48kHz sample rate, Synchronous

Audio Output Digital

- 8-channel, 24-bit SMPTE-259 SDI embedded audio, 48kHz sample rate, Synchronous

Timecode

- SDI RP188 preserved from inputs to outputs

Reference Input

- Analog Color Black (1V) or Composite Sync (2 or 4V)
- Looping, non-terminating.

Network Interface

- 10/100/1000 Ethernet (RJ-45)
- Embedded web server for remote control

Machine Control

- RS-422, Grass Valley Native Protocol
- 9-pin D-connector pinout is as follows:

1	GND
2	RX-
3	TX+
4	GND
5	No Connection
6	GND
7	RX+
8	TX-
9	GND
Shell	GND

Physical

Width: 19" (48.26cm)
Depth:
- KUMO 3232, 1616 & 1604: 1.5" (3.81cm)
- KUMO CP: 1.3" (3.3cm)

Height:
- KUMO 3232: 3.5" (8.90cm)
- KUMO 1616, 1604 & CP: 1.75" (4.45cm)
- Power: +12 VDC nominal, 9 - 18 VDC range, optional redundant power
- KUMO 3232: 26.4 Watts, 2.2A at 12VDC
- KUMO 1616: 20 Watts, 1.8A (1,8A) at 12VDC
- KUMO 1604: 7.5 Watts, 0.8A (0,8A) at 12VDC
- KUMO CP: 4W; 1.0A

Weight:
- KUMO 3232: 4.58 lbs. (2.1 kg)
- KUMO 1616: 1.4 lb. (.64 kg)
- KUMO 1604: 1.2 lb. (.55 kg)
- KUMO CP: 1.2lb (.55kg)

Environment:
- Operating temperature: 0 to 40 degrees C
- Relative humidity: 0 to 90%, non-condensing

Click here For full product specifications visit www.aja.com/kumo/techspecs

Mini-Converters

UDC
Up/Down/Cross Converter

Features at a glance

- Converts between SD, HD, and 3G HD formats
- Supports 1080p50/60
- Very high quality conversions
- 8 channel embedded audio
- HDMI output with 8 channel audio
- 2 channel RCA analog audio output
- Reference Input
- Configure via Dipswitch or USB port and supplied MiniConfig software
- Uses 5-20V power (universal power supply included)
- 5-year warranty

The UDC is a broadcast quality Up/Down/Cross Mini-Converter which can convert between SD, HD, and 3G video formats. Borrowing from AJA's industry leading conversion technology used in the FS2, the UDC provides very high quality conversions at a low price. The UDC also supports embedded audio, 8-channels via HDMI or 16-channels via SDI. I/O's include SD/HD/3G SDI Input and Output, HDMI output, and 2-channel RCA style audio output for monitoring. The UDC can be controlled by local dipswitches with additional control available via USB and AJA's MiniConfig application. A Reference Input allows the video output to be timed to a local reference.

Tech specs

SDI I/O:
• SD/HD-SDI (auto-selected), SMPTE-292/296/424, 1x BNC
SMPTE-292/296/424, 1x BNC525i, 625i
Formats:
• 525i59.94, 625i50
• 1080i 50/59.94
• 720p 23.98/24/25/29.97/30/50/59.94/60
• 1080p 23.98/24/25/29.97/30/59.94/60
• 1080psf 23.98/24/25/29.97/30
Reference Input:
• Color Black
• Tri-Level sync
HDMI Output:
• 10-bit HDMI v1.4a
Formats:
• 525i29.97, 625i50
• 1080i 50/59.94/60
• 720p 23.98/24/25/29.97/30/50/59.94/60
• 1080p 23.98/24/25/29.97/30/59.94/60
Note: HDMI monitors may not properly support all frame rates or "pSF" formats.
Audio I/O:
• 16-channel embedded SDI audio input
• 16-channel embedded SDI audio output
• 8-channel HDMI audio output
• 2 RCA-style analog outputs at -10 dBV (nominal)
HDCP:
The UDC does not encode the HDMI output with HDCP encryption. By definition, HD-SDI inputs to the UDC are unencrypted. The HDMI specification requires HDMI monitors to support unencrypted inputs.
User Controls:
USB port used with supplied cable and MiniConfig software application to configure device via PC/Mac.
Physical:
5.8" x 3.1" x 1" (147mm x 79mm x 25mm)
Power:
+5 to +20 VDC regulated, 6 watts

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

ROI
DVI/HDMI to SDI Converter

Features at a glance

- DVI to SDI conversion
- Region of Interest scaling
- DVI loop through
- Audio embedding
- Aspect ratio conversion
- Genlock input
- Configure via USB port and supplied MiniConfig software
- Uses 5-18VDC power (universal power supply included)
- 5-year warranty

AJA's ROI Mini-Converter allows exceptionally high quality conversion of computer DVI and HDMI outputs to baseband video over SDI at an affordable price and a very portable size. With extensive audio functionality, incredible image scaling as well as aspect and frame rate conversion, ROI fulfills the growing need to properly incorporate computer signals into the video world without sacrificing budget or space.

Tech specs

Input Formats
DVI:
- VGA (640x480) minimum
- WUXGA (1920x1200) 60 Hz max
  Note: Frame rates limited by the 165Mhz max rate of the DVI Rx

HDMI:
- 525i/625i
- 480p/580p (DSLR cameras)
- 720p 23.98/24/25/29.97/30/50/59.94/60
- 1080i 50/59.94
- 1080p 23.98/24/25/29.97/30

Video Input:
- DVI-D connector
- Genlock input

Input Data Range Control:
- 1-255 (default – 8 bit nomenclature)
- 16-235

Video Outputs:
- DVI-D loop through
- SD/HD-SDI, SMPTE-259/292/296 SDI/HD-SDI, 1 x BNC

Audio Inputs:
- Analog 3.5mm TRS, 2-channel
- HDMI embedded audio, 24-bit, 8-channel

Audio Outputs:
SDI embedded audio, 24-bit, 2-channel or 8-channel

Power:
+5VDC Regulated, 3 Watts, Power Supply Required (included with purchase)

Size
5.76" x 4.02" x .90"

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

Hi-5 4K
4K SDI to 4K HDMI Converter

Features at a glance

- 4 3G-SDI inputs
- HDMI 1.4 output
- HD conversion supported
- Embedded audio support
- Configure via USB port and supplied MiniConfig software
- Uses 5-20V power (universal power supply included)
- 5-year warranty

AJA's Hi5-4K Mini-Converter provides a simple monitoting connection from professional 4K devices using 4 SDI outputs to new and upcoming 4K displays with 4K-capable 1.4 HDMI inputs. Previously, conversion from 4 3G-SDI to a single 4K HDMI was not possible but Hi5-4K enables this functionality in a single, highly-portable device.

Tech specs

Input Formats
4K Inputs supported:
4 x 1.5Ghz SDI:
• 4 x 1920x1080 p, 4:2:2, 23.98, 24, 25, 29.97, 30
• 4 x 1920x1080 psf, 4:2:2, 23.98, 24, 25, 29.97, 30
• 4 x 2048x1080 p, 4:2:2, 23.98, 24
• 4 x 2048x1080 psf, 4:2:2, 23.98, 24
2 x dual-stream 3GHz SDI (level B):
• 2 x 2 x 1920x1080 p, 4:2:2, 23.98, 24, 25, 29.97, 30
• 2 x 2 x 1920x1080 psf, 4:2:2, 23.98, 24, 25, 29.97, 30
• 2 x 2 x 2048x1080 p, 4:2:2, 23.98, 24
• 2 x 2 x 2048x1080 psf, 4:2:2, 23.98, 24
4 x 3Ghz SDI:
• 4 x 1920x1080 p, 4:4:4, 23.98, 24, 25, 29.97, 30
• 4 x 1920x1080 psf, 4:4:4, 23.98, 24, 25, 29.97, 30
• 4 x 2048x1080 p, 4:4:4, 23.98, 24
• 4 x 2048x1080 psf, 4:4:4, 23.98, 24
HD Inputs supported (4:2:2 if Single Link or 4:4:4 if Dual Link)
• 720p 50, 59.94
• 720p 23.98, 24, 25, 29.97, 30, 50, 59.94
• 1080i 25, 29.97, 30
• 1080p 23.98, 24, 25, 29.97, 50, 59.94, 60
• 1080psf 23.98, 24, 25, 29.97, 50, 59.94, 60
SD Inputs Supported:
• 525i
• 625i
Video Inputs
3G, HD, and SD-SDI (auto-selected), 4x BNC
Video Output
HDMI v1.4, 30/36 bits per pixel, RGB or YUV, HDMI Standard Type A connector
Audio Inputs
SDI embedded audio, 24-bit, 8-channel
Audio Outputs
HDMI embedded audio, 24-bit, 8-channel
Power
+5VDC Regulated, 3 Watts, Power Supply Required (included with purchase)
Size
5.76" x 4.02" x .90"

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

FiDO

Family of SDI/Optical Fiber Converters

FiDO is a family of SDI/Optical Fiber converters. FiDO allows the transport of SDI, HD-SDI, and 3G SDI over distances up to 10km using standard single-mode fiber optic cable with LC, ST or SC connectors. FiDO converters meet all relevant SMPTE specifications and are rugged, versatile, and suitable for indoor or outdoor use.

With 9 models, FiDO offers unmatched flexibility and cost efficiency. FiDO dual channel models allow the conversion of 2 channels—perfect for 3D, dual-link SDI, or 2 completely independent SDI channels (for example, SD, HD, and 3G can be mixed in any combination). Also, FiDO converters offer electrical isolation useful for eliminating ground loop problems.

FiDO converters come in a compact, low-profile enclosure for use in tight spaces around and behind equipment racks, trucks and crowded facilities.

FiDO Models

• FiDO-R:	Single channel LC Fiber to SDI converter, with dual SDI outputs
• FiDO-2R:	Dual channel LC Fiber to SDI converter
• FiDO-T:	Single channel SDI to LC Fiber converter, with looping SDI output
• FiDO-2T:	Dual channel SDI to LC Fiber converter
• FiDO-TR:	SDI/LC Fiber transceiver
• FiDO-T-ST:	Single channel SDI to ST Fiber converter, with looping SDI output
• FiDO-R-ST:	Single channel ST Fiber to SDI converter, with dual SDI outputs
• FiDO-T-SC:	Single channel SDI to SC Fiber converter, with looping SDI output
• FiDO-R-SC:	Single channel SC Fiber to SDI converter, with dual SDI outputs

Accessories

• DWP-U-R1	Universal power supply (included)

Features at a glance

- Transport of SDI, HD-SDI, and 3G HD-SDI over single mode optical fiber
- Auto-detection of video format
- All SDI Ancillary data including embedded audio is passed
- LC, ST OR SC fiber connectors
- Simplex or duplex models available
- All inputs, either SDI or fiber, are equalized and re-clocked
- ASI compatible
- Useful for eliminating ground loop problems
- 5-20VDC power supply (sold separately)
- 5-year warranty

Tech specs

Formats:
- 3Gb, 1.5Gb, 270Mb, Auto Select

Video Inputs/Outputs:
- SDI (SMPTE 259/292/296/424), 2x BNC
- 1x Single mode optical fiber, LC connector (FiDO-R, FiDO-T)
- 1x Single mode optical fiber, ST connector (FiDO-T-ST, FiDO-R-ST)
- 1x Single mode optical fiber, SC connector (FiDO-T-ST, FiDO-R-ST)
- 2x Single mode optical fiber, LC connectors (FiDO-2R, FiDO-2T, FiDO-TR)

Cable Equalization (BNC inputs, 1694 coax):
- 270mb, 400m
- 1.5Gb, 200m
- 3Gb, 140m

Input/Output Return Loss (BNC):
- >15db, 270Mb - 3Gb

Optical Outputs:
- Wavelength: 13 10 nm
- Output Power: -2dBm typical

Physical:
- 4.6" x 1.71" x .85" (117 x 43.5 x 21.6mm)

Power:
- +5-20 VDC
- 1.5 watts (FiDO-T, FiDO-R, FiDO-T-ST FiDO-R-ST, FiDO-T-SC, and FiDO-R-SC)
- 2.5 watts (FiDO-2R, FiDO-2T, FiDO-TR)
- Requires Power Supply (AJA power supply model DWP or DWP-U recommended)

Mini-Converters

FiDO
Series of SDI/Optical Fiber Converters

FiDO-T

Single Channel SDI to Fiber with Looping SDI Output

simplex connection (LC connector)

SDI, HD-SDI or 3G Input

Reclocked loop-thru of SDI input

FiDO-2R

Dual Channel LC Fiber to SDI

2 simplex or 1 duplex connection (LC connector)

2 Independent Channels of SDI, HD-SDI or 3G

FiDO-2T

Dual Channel SDI to LC Fiber

2 simplex or 1 duplex connection (LC connector)

2 Independent Channels of SDI, HD-SDI or 3G

FiDO-TR

SDI/Fiber Transceiver

2 simplex or 1 duplex connection (LC connector)

2 Independent Channels of SDI, HD-SDI or 3G

FiDO-R

Single Channel LC Fiber to SDI with Dual SDI Outputs

simplex connection (LC connector)

SDI, HD-SDI or 3G OUTPUT

Second SDI output (DA:same signal)

FiDO-T-ST

Single Channel SDI to ST Fiber with Looping SDI Output

simplex connection (ST connector)

SDI, HD-SDI or 3G Input

Reclocked loop-thru of SDI input

* Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.

Mini-Converters

FiDO
Series of SDI/Optical Fiber Converters

FiDO-R-ST

Single Channel ST Fiber to SDI with Dual SDI Outputs

simplex connection (ST connector)

SDI, HD-SDI or 3G OUTPUT

Second SDI output (DA:same signal)

FiDO-T-SC

Single Channel SDI to SC Fiber with Looping SDI Output

simplex connection (SC connector)

SDI, HD-SDI or 3G Input

Reclocked loop-thru of SDI input

FiDO-R-SC

Single Channel SC Fiber to SDI with Dual SDI Outputs

2 simplex or 1 duplex connection (SC connector)

SDI, HD-SDI or 3G OUTPUT

Second SDI output (DA:same signal)

Mini-Converters

3GM
3G/1.5G HD-SDI Multiplexer

Features at a glance

- Compact 3G to/from 1.5G conversion
- SMPTE425M-AB inputs, 3G outputs configurable to A or B
- Converts SMPTE425M A to/from SMPTE425M B
- Provides SMPTE292 monitor output for dual 1.5G or 3G inputs
- Fully equalizing and re-clocking with jitter attenuation
- If SMPTE 292M is input, all outputs are 1.5G SMPTE 292M
- DWP-U-R1 is included with the purchase of any AJA Mini-Converter
- 5-year Warranty

Tech specs

Formats:
• 3Gb, 1.5Gb, 270Mb Auto Select
Video Inputs:
• 2 HD-SDI, SDI (SMPTE 259/292/296/424), 2x BNC
Video Outputs:
• 3G HD-SDI, HD-SDI, SDI, 3x BNC
Return Loss:
>15 dB to 3Gb
Physical:
• 4.6" x 2.4" x 1" (117 x 61 x 25mm)
Power:
• +5VDC Regulated, 4 Watts

The 3GM is a versatile and economical tool for interconnecting dual-link 1.5G SMPTE372M and 3G SMPTE425M. 3GM is bi-directional - allowing dual 1.5G to 3G or 3G to dual 1.5G conversion. Additionally, 3GM's 3G HD-SDI output is configurable for SMPTE425M type A or B. The 3GM can even convert 3G from/to type A or B. 3GM also provides a monitor output which is a single link SMPTE292M 1.5G HD-SDI. The 3GM is also compatible with SMPTE259M 270Mb SDI.

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

3GDA

1x6 3G/HD/SD Reclocking Distribution Amplifier

Features at a glance

- Compact SD/HD Distribution
- Six Separately Buffered Outputs
- Miniature Size
- 3G cable equalization (1694 coax)
- SD: 270mb, 350m, HD: 1.5Gb, 200m
- 3G/HD/SD-SDI input, auto sensing
- Passes all ancillary data
- DWP-U-R1 is included with the purchase of any AJA Mini-Converter
- 5-year Warranty

The 3GDA is a miniature, low-cost 1x6 3G/HD/SD-SDI input, re-clocking distribution amplifier. Featuring six separately buffered SDI outputs, the 3GDA provides automatic input detection, re-clocking and cable equalization.

Tech specs

Formats:
• 3Gb, 1.5Gb, 270Mb Auto Select
Video Inputs:
• 1 HD-SDI, SDI (SMPTE 259/292/296/424), 1x BNC
Video Outputs:
• 3G/HD/SD-SDI input, 6x BNC Equalizing and re-clocking
Return Loss:
>15 dB to 3Gb
Power:
• +5-18VDC Regulated, 4 Watts
Physical:
• 5.8" x 3.1" x 1" (131 x 79 x 25mm)

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

GEN 10
HD/SD Sync Generator

Features at a glance

- HD Bi-Level/Tri-level sync generation
- SD Color Black or Color Bars
- Two groups of independently switchable outputs allows simultaneous HD and SD sync generation
- AES-11 output switchable between silence and tone
- Multiple outputs can synchronize entire systems without requiring a Sync DA
- DWP-U-R1 is included with the purchase of any AJA Mini-Converter
- External Dip Switch Configuration
- 5-year Warranty

The GEN10 is a cost effective and flexible SD/HD/AES sync generator. The GEN10 features 7 outputs including 2 groups of independently controlled SD/HD sync outputs and 1 AES-11 output. The SD outputs can be switched between Color Black or Color Bars. HD tri-level sync can be switched between 19 different HD formats including all that are in use today. The AES-11 output can be switched between SILENCE and TONE. All outputs are in sync with each-other and are sourced from an accurate master time base.

Tech specs

Trilevel
- Color Black
- 75% Color Bars

AES-11, 48KHz, Silent or 1KHz Tone
(-20 dBFS for NTSC, -18 dBFS for PAL)

3 ppm
525i, 625i, 720p23.98/24/25/29.97/30/60
1080i50/59.94/60 1080psF23.98/24/25/29.97/30
1080p23.98/24/25/29.97/30

User Controls:
(External Dipswitch)

Physical:
5.8" x 3.1" x 1" (147 x 79 x 25 mm)

Power:
+5-18VDC, 2 watts

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

HD10C2
HD-SDI and SDI Digital

Features at a glance

- Low Cost, 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
- RGBHV VGA style HD output using supplied adapter
- HD Sync Selectable Between Bi-level and Tri-Level
- 4:3 Safe Area Graticule (HD)
- 5-18VDC Power
- External Dipswitch Configuration
- 5-year warranty

The HD10C2, AJA's second generation HD D/A converter, brings exciting new features. In addition to being a high-quality 10-bit HD converter, the HD10C2 is "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. A 3BNC breakout cable and SVGA adapter are included. Optional 5 BNC cable available for seperate H & V for HD only.

Tech specs

Formats:
- HD: 1080i 50/59.94/60 Hz
  1080psf 23.98/24/25/29.97/30 Hz
  720p 59.94/60 Hz
- SD: 525 59.94Hz, 625 50Hz
  (Automatic Configuration)

Input:
- HD/SD-SDI or SDI SMPTE 259/292/296, 10-bit, BNC

Input Equalization:
- Belden 1694 Cable. HD; 100 meters, SD: 100 meters

Outputs:
- HD: YPbPr • RGB (SMPTE-274) •SD: YPbPr (SMPTE/N10
- Beta® RGB • Y/C
- NTSC/PAL®) • 13W3 wideband analog output connector (cable supplied)

Sync:
- HD: Tri-level or Bi-level, H/V Drive
- SD: normal SD sync

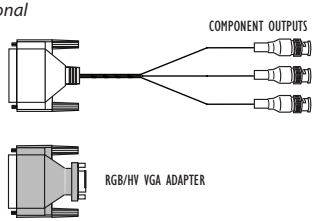
Frequency Response:
- HD: Y +0, -.5 dB to 30 MHz, C +/- .25 dB to 13 MHz
- SD: Y +/- .25 dB to 5.5 MHz, C +/- .25 dB to 2.5 MHz

User Controls:
- (External Dipswitch)
- YPbPr/RGB
- Component/Composite (SD)
- SD Pedestal
- SD Blanking
- HD 4:3 Graticule
- SD NTSC/NTSC-J
- Sync on Video on/off

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

Power:
- +5-18VDC

Supplied Breakout Cable
Optional



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Mini-Converters

HD10MD3

HD/SD-SDI to SDI/Analog Downconverter

Features at a glance

- Low-Cost Broadcast-Quality 10-bit HD to SD Downconverter
- Multi-Standard HD-SDI or SDI Input
- 2 Equalized Loop-Thru HD/SD-SDI Outputs
- SDI and Component/Composite Analog Outputs
- 3/2 Pulldown for 23.98/24 Hz p/psf inputs
- Full 10-bit Data Path, Multi-point Interpolation
- Configurable for 16:9 or 4:3 Monitors
- Letterbox and Crop Modes
- 4:3 Safe-Zone Graticule
- Passes 8 Ch embedded Audio, 4 Ch on Downconvert
- DWP-U-R1 is included with the purchase of any AJA Mini-Converter
- External Dip Switch Configuration
- 5-year Warranty

The HD10MD3 is a miniature digital downconverter for converting HD-SDI video to broadcast-quality standard definition SDI and analog component/composite video. The HD10MD3 uses a full 10-bit data path and multi-point interpolation to produce excellent quality down-converted video. In addition, the HD10MD3 converts 23.98/24Hz 1080psf/p to 59.94Hz output video using the standard 3:2 pulldown technique. If present, the HD10MD3 will use RP-188 timecode to set the 3:2 pulldown cadence. The output can be formatted for either 4:3 or 16:9 standard definition monitors. For 4:3 monitors both Letterbox and Crop modes are supported. 8 Ch embedded audio is passed to the SDI output. The HD10MD3 is also dual-rate in that SDI inputs will also pass to the SDI and analog outputs.

Tech specs

Formats:
- 1080i 50/59.94/60 Hz
- 1080p/psf 23.98/24/25/29.97/30 Hz
- 720p 50/59.94/60 Hz (Automatic Configuration)

Inputs:
- HD/SD-SDI SMPTE 259/292/296
- 10-bit
- BNC

Outputs:
- SDI
- SMPTE 259M
- 10-bit
- BNC YPbPr - SMPTE
- EBU-N10 • Betacam
- RGB
- NTSC
- PAL
- YC (S-Video)
- 10-bit 3 x BNC

Downconversion:
- Multi-point interpolation, 10-bit processing 3:2 conversion for 23.98/24p/psf inputs

Frequency Response:
- Y +0, -.5 dB to 5.5MHz
- C +/- .25 dB to 2.5MHz

User Controls:
- (External Dipswitch)
- Output Video Format
- 4:3/16:9 Monitor Select
- Letterbox/Crop
- Pedestal (Output)
- 4:3 Safe-Zone Graticule Overlay

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

Power:
- 5-18VDC, 5 watts

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Mini-Converters

HD10A
HD Analog to HD-SDI Converter

Features at a glance

- High-Quality 10-bit HDTV A/D Conversion
- Full Bandwidth Component HD RGB or YPbPr Input
- 3 HD-SDI Outputs
- Multi-Standard
- Internal or External Sync
- External Dip Switch Configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The HD10A is a miniature, high-quality, 10-bit analog to digital converter for HDTV. A companion to the popular HD10C2 D/A converter, the HD10A can add an HD-SDI output to cameras, computers with HD RGB, VTRs, or other analog-only high definition equipment. The HD10A accepts RGB or YPbPr analog HD and outputs three duplicate HD-SDI signals. Works in 1080/1035i and 720p with internal or external sync (tri-level).

Tech specs

Formats:
- 1080i 50/59.94/60 Hz
- 1080psf 23.98/24
- 1035i 50/59.94/60 Hz
- 720p 23.98/24/29.97/30/59.94/60 Hz

Inputs:
- HD-SDI, SMPTE-292/296 3 x BNC

Outputs:
- YPbPr, RGB (SMPTE-274) 3 x BNC External Sync, 1 x BNC

Frequency Response:
- Y +0, -.5 dB to 30 MHz
- C +/- .25 dB to 15 MHz

User Controls:
- (External Dipswitch)
- RGB/YPbPr input
- 1.00/1.001 clock
- Internal/External Sync

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

Power:
- +5 VDC, 4 watts

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

HD10CEA
HD/SD-SDI to Analog Audio/Video

Features at a glance

- Digital to Analog Audio and Video Converter
- HD/SD-SDI with Embedded Audio Input
- SD Component or Composite Video Outputs (SD Input)
- HD Component Video Outputs (HD Input)
- 4 Channel Balanced Audio Output
- 2 Equalized, Loop-Thru SD/HD-SDI Outputs
- Selectable Audio Channel Pair/Group
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The HD10CEA converts HD/SD-SDI video with embedded audio to analog video and 4 channel balanced analog audio. SD video outputs can be configured as YPbPr (Betacam or SMPTE/EBU-N10), RGB, composite or YC (S-Video). HD video outputs can be configured as YPbPr or RGB. The analog audio outputs can be wired in a balanced or unbalanced configuration. The 4 audio channels can be selected from group 1-4. Audio and video output connections are available on a 25 pin "D" subminiature connector (3x BNC 4x XLR breakout cable supplied). All video/audio configuration is done by external dipswitch selection. This versatile, low-cost, miniature monitoring solution also outputs two loop-thru HD/SD-SDI outputs. Note: The HD10CEA does not up or down convert between HD and SD.

Tech specs

Inputs:
- HD/SD-SDI w/Embedded Audio
- 1x BNC

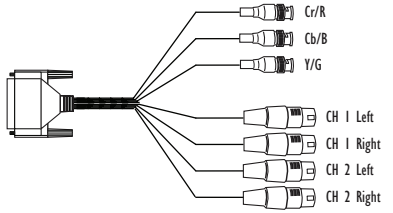
Outputs:
- SD Video: YPbPr - SMPTE
- EBU-N10
- Betacam
- RGB
- NTSC
- PAL
- YC (S-Video)
- YPbPr
- 4-channel Balanced/Unbalanced
- Video/Audio Outputs on 25 Pin D Connector
- 2 SDI/HD-SDI Equalized Loop-Thru
- 2x BNC

User Controls:
External Dipswitch
- Video Format
- Pedestal
- H/V Blanking
- Audio Group 1 - 4
- Audio Level (adjustable via switch selection): +24, +18, +15, +12 dBu
- Full Scale Digital

Physical:
5.8" x 3.1" x 1" (147 x 79 x 25mm)

Power:
- +5-18VDC, 4 watts

Supplied Breakout Cable



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Mini-Converters

HD10AVA

HD/SD Analog Composite or Component Video and 4 Ch Analog Audio to SD/HD-SDI w/Embedded Audio

Features at a glance

- High-Quality HD/SD Audio/Video A/D Converter
- SD Component, Composite or Y/C Video Input
- HD Analog Component Video Input
- Four Channel Balanced Analog Audio Input
- 3 SDI/HD-SDI w/embedded Audio Outputs
- 12 Bit Video, 24 Bit Audio A/Ds
- Automatic Multi-Standard
- External Dip Switch Configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The HD10AVA is a miniature, high-quality, audio/video, HD/SD A/D converter. The HD10AVA automatically detects the video input format and embeds the audio inputs in the HD/SD-SDI outputs. The HD10AVA is useful for adding an HD/SD-SDI audio/video output to tape decks or any professional video equipment with analog outputs. The HD10AVA is especially useful for adding HD-SDI outputs to most HDV cameras or decks by using the component outputs of such devices. The HD10AVA uses a 3x BNC, 4x XLR breakout cable (included) for audio/video inputs and provides 3 HD/SD-SDI on BNCs.
Note: The HD10AVA does not up or down convert between HD and SD.

Tech specs

Formats:
- 525i/625i, 1080i 50/59.94/60 Hz
- 1080psf 23.98/24/25 Hz
- 1035i 50/59.94/60 Hz
- 720p 50/59.94/60 Hz

Inputs:
- HD component YPbPr, (SMPTE-274), BNC
- SD component/composite/YC (S Video), BNC
- 4-channel Balanced, XLR

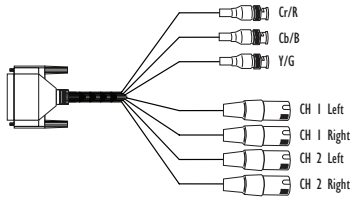
Outputs:
- SDI, HD-SDI, SMPTE-259/292/296
- 3 x BNC
- 12 bits
- 24 Bits, 48Khz
- +24, +18, +15, +12 dBu • Full Scale Digital

User Controls:
External Dipswitch
- Component/Composite (SD)
- Composite/YC (SD)
- Pedestal Present (on/off) (SD)
- Audio Input Level
- Embed Audio on/off

Physical:
5.8" x 3.1" x 1" (147 x 79 x 25 mm)

Power:
+5-18VDC, 5 watts

Supplied Breakout Cable



AES Input Channels 1 &
AES Output Channels 1 &

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Mini-Converters

HD10DA

1x6 HD/SD-SDI Distribution Amplifier

Features at a glance

- Compact HD/SD-SDI Distribution
- Six Separately Buffered Outputs
- Miniature Size
- Cable equalization (1694 coax). HD 125m, SD 300m
- HD-SDI or SDI input, auto sensing
- Bi-color LED indication of input lock and rate
- Passes all ancillary data
- DWP-U-R1 Power Supply Included
- No dip switches or configuration required
- 5-year Warranty

The HD10DA is a miniature, low-cost 1x6 HD/SD-SDI (dual-rate) re-clocking distribution amplifier. Featuring six separately buffered HD/SD-SDI outputs, the HD10DA provides automatic input HD cable EQ to 125 meters.

Tech specs

Formats:
- 1.5Gb, 143, 177, 270, 360 Mb (Auto Select)

Inputs:
- 1 HD/SD-SDI
- SDI (SMPTE 259/292/296)
- 1x BNC

Outputs:
- HD/SD-SDI
- 6x BNC Equalizing and re-clocking

Power:
- 5 to 18VDC Regulated
- 2.5 Watts
- DWP-U-R1 Power Supply Included

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

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Mini-Converters

HD5DA

1x4 HD/SD-SDI Distribution Amplifier/Repeater

Features at a glance

- Compact HD-SDI/SDI Distribution
- Four Separately Buffered HD-SDI/SDI Outputs
- Auto Equalization
- Beldon 1694 cable. HD 125m, SD 300m
- Acts As Low-Cost Repeater
- Automatic Multi-Standard 143/177/ 270 Mb, 1.5Gb
- Miniature Size
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The HD5DA is a miniature, low-cost 1x4 HD/SD-SDI distribution amplifier/ repeater. Featuring four separately buffered HD/SD-SDI outputs, the HD5DA provides automatic HD cable equalization to 125 meters and automatically adapts to 143, 177, 270, 360 Mb, and 1.5Gb SDI.

Tech specs

Formats:
• 1.5Gb, 143, 177, 270, 360 Mb Auto select
Inputs:
• 1 HD-SDI, SDI (SMPTE 259/292/296
• 1 x BNC
Outputs:
• 4 HD-SDI
• SDI
• 4 x BNC Equalizing
Physical:
• 5.1" x 2.4" x 1" (131 x 61 x 25 mm)
Power:
• +5VDC Regulated • 2.5 Watts

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

HD10AMA

HD/SD-SDI 4 Channel Analog Audio Embedder/Disembedder

Features at a glance

- Dual rate HD/SD-SDI Embedder/Disembedder
- 4 Channel Balanced Analog Audio I/O
- Supplied XLR breakout cable
- HD-SDI/SDI input, 2 HD/SD-SDI outputs
- Dipswitch configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The HD10AMA is a dual rate 4 channel analog audio Embedder/Disembedder. The Disembedder is always functional providing 4 outputs. The Embedder is user selectable, on a channel pair basis, to either "pass" input audio or embed input audio from the breakout cable. Analog audio levels are selectable. The HD10AMA automatically detects and configures to the input video standard. 8 x XLR breakout cable included.

Tech specs

Formats:
- HD SMPTE 292/296M
- SD SMPTE 259M
- Automatic Configuration

Video Input:
- HD/SD-SDI BNC

Video Outputs:
- Follows input, 2 x BNC

Audio Inputs:
- 4 x Balanced Analog Audio
- XLR
- Outputs: 4 x Balanced Analog Audio
- XLR • Audio Levels (Full Scale Digital): +24 dBu, +18 dBu, +12 dBu, +6 dBu
- Audio Converters: 24 bit

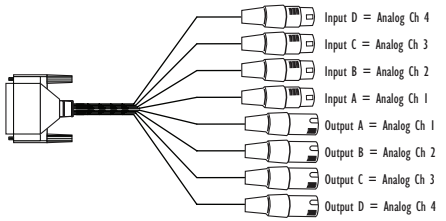
Embedded Audio:
- SMPTE 272M/299M, 24 bit, 48KHz synchronous

User Controls:
- (External Dipswitch)
- Embedder on/off
- Ch pairs 1/2 - 3/4
- Input group select 1-4
- Output Group Select 1-4
- Audio Level: Pro/Consumer

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

Power:
- +5-18VDC • 5 watts

Supplied Breakout Cable



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Mini-Converters

HD10AM

HD/SD-SDI 8 Channel AES Embedder/Disembedder

Features at a glance

- Dual rate HD/SD-SDI Embedder/Disembedder
- 8 Channel AES I/O
- Supplied breakout cable for balanced AES - XLR connectors
- HD-SDI/SDI input, 2 HD-SDI/SDI outputs
- Dipswitch configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The HD10AM is a dual rate 8 channel AES audio Embedder/Disembedder. The Disembedder is always functional providing 4 AES outputs. The Embedder is user selectable, on a channel pair basis, to either "pass" SDI input audio or embed input AES audio from the breakout cable. AES inputs are sample rate converted to a 48KHz rate synchronous to the video input. The HD10AM automatically detects and configures to the input video standard. 8 x XLR breakout cable included.

Tech specs

Formats:
- HD SMPTE 292/296M
- SD SMPTE 259M
  (Automatic Configuration)

Video Inputs:
- HD/SD-SDI BNC

Video Outputs:
- follows input, 2 x HD/SD-SDI BNC

Audio Inputs:
- 4 x AES 110 ohm XLR

Audio Outputs:
- 4 x AES 110 ohm XLR

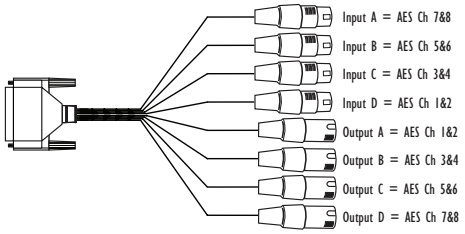
AES audio:
- SMPTE 272M/299M, 24 bit, 48KHz synchronous

User Controls: :
External Dipswitch
- Embedder on/off, Ch pairs 1/2 - 7/8
- Input group select, 1/2, 3/4
- Output Group Select, 1/2, 3/4
- SRC Bypass

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

Power:
- +5-18VDC, 5 watts

Supplied Breakout Cable



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Mini-Converters

ADA4

4-Channel Bi-directional Audio A/D and D/A Converter

Features at a glance

- 4 Simultaneous A/D and D/A, or AES Synchronizer
- Full-time AES11 low jitter reference output
- Up to 4 channels of balanced analog to AES/EBU audio
- Up to 4 channels of AES/EBU to balanced analog audio
- Supplied XLR breakout cable AES11/Wordclock/Tri-level Sync/
- Color Black Reference Loop
- Adjustable Audio Levels
- Sample Rate Conversion Between 96KHz and 48KHz Dipswitch configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

Tech specs

Analog Audio I/O:
- Balanced, XLR, one channel per XLR connector

AES Audio I/O:
- Balanced 110 ohm, XLR, two channels per XLR connector

Analog Audio Levels:
- +24 dBu (SMPTE RP155)
- +18 dBu (EBU R68)
- +15 dBu
- +12 dBu (consumer +10 dBv)

Audio Converters:
- 24 bit, 48/96 KHz

User Controls:
- (External Dipswitch)
- Channel 1/2: A/D, D/A
- Channel 3/4: A/D, D/A
- Audio Level 1
- Audio Level 2

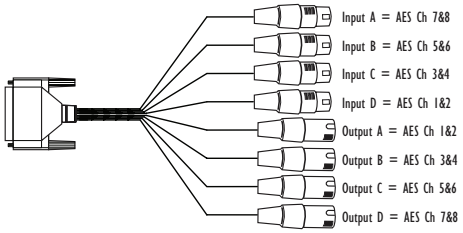
Reference Loop:
75 Ohm (unterminated). HD/SD Sync, AES-11, or Wordclock (48/96 KHz)

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

Power:
- +5-18VDC, 3 watts

The ADA4 is a 4 channel bi-directional converter which can be configured as a 4 channel A/D, a 4 channel D/A, 2 channel A/D and 2 channel D/A, or an AES synchronizer. The ADA4 can accept an AES11, wordclock, or video sync/color black reference input for synchronization. Reference input and synchronization is automatic. Audio levels are configurable via dipswitch control.

Supplied Breakout Cable



** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

HDP2

HD-SDI/SDI to DVI-D and Audio Converter

Features at a glance

- HD-SDI/SDI to DVI-D
- HDMI 1.3a support (via DVI-D connector), including:
  - Deep Color 30-bit video (24-bit also supported)
  - 2 or 8 channels of embedded audio
- Automatically adapts to popular LCD/DLP/Plasma monitors (and projectors) up to 1920x1200 and 1080p
- High quality scaling engine for proper display of 4:3 or 16:9 content
- 1 to 1 scaling for appropriate monitor configurations
- 2 channel RCA analog audio output (user-assignable channels)
- HD-SDI/SDI looping output
- Setup via PC/Mac using USB port and supplied USB cable (USB configuration software application supplied on CD)
- DWP-U-R1 Power Supply Included
- 5-year warranty

The HDP2 is a miniature HD-SDI/SDI to DVI-D converter for digital display devices, such as LCD, DLP, and Plasma monitors or projectors. Using a very high quality scaling engine and de-interlacer, the HDP2 will automatically size 4:3 or 16:9 inputs to many DVI-D monitors. For appropriate monitor configurations, scaling is automatically 1 to 1—for example, displaying 1920x1080 video on a WUXGA (1920x1200) monitor. The HDP2 will also automatically adapt the input frame rate for monitor compatibility. In addition, the HDP2 provides 2 channel audio monitoring and a looping output of the SDI input. The HDP2 is designed for general monitoring, perfect for use in applications such as: General post-production reference monitoring, Client monitoring, Presentation, Projection, Corporate displays, Kiosk applications ...and much more The HDP2 also supports HDMI v1.3a Deep Color (with a DVI to HDMI cable). In the HDMI mode, Deep Color is supported at 30 bits per pixel with 8 channel audio.
USB connectivity allows for easy PC/Mac setup and field upgrades.

Tech specs

Inputs:
- 525i, 625i, 720p 50/59.94/60, 1080i 50/59.94/60,
- 1080p 23.98/24/25/29.9/30
- 1080psF 23.98/24/25, YCbCr 10-bit

Video Inputs:
- HD, and SD-SDI (auto-selected), SMPTE-259/274/292/296, BNC connector

Video Outputs:
- DVI v1.0 / HDMI v1.3a, 4:2:2 YCbCr, 4:4:4 YCbCr/RGB 24/30-bit, DVI-D standard male connector

Audio Outputs:
- RCA-style analog outputs at -10 dBV (nominal), 2-channels embedded audio (HDMI mode only), 24 bit, 2 or 8 channels, User assignable channels

Power:
- +5-18 VDC regulated, 5 watts

Physical:
- 5.8" x 3.1" x 1" (147mm x 79mm x 25mm)

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Mini-Converters

HA5

HDMI to HD/SD-SDI Video and Audio Converter

Features at a glance

- HDMI to HD/SD-SDI
- Full HDMI support including embedded audio
- Equalized HDMI input supports long HDMI cables up to 30m, 24 gauge
- PLL clock filtering for low jitter HD/SD-SDI outputs
- Lock LED shows type of input source, SD (green) or HD (red)
- HDMI V1.2 standard
- 1m HDMI cable included
- DWP-U-R1 Power Supply Included
- 5-year warranty

The HA5 converts HDMI to SDI or HD-SDI. Two channels of HDMI audio are embedded into the HD/SD-SDI output allowing a convenient single cable audio/video connection. The HA5 provides two SDI/HD-SDI outputs and supports long HDMI cables on the input. The HA5 is useful for connecting HDMI cameras to HD/SD-SDI equipment.

Tech specs

Input:
• HDMI with embedded audio
Input Formats:
• 525i
• 625i
• 720p 50/59.94/60
• 1080i 50/59.94/60
• 1080p23.98
• 1080p24, 1080p25
• 1080p29.97
• 1080p30
Outputs:
• SMPTE-259/292/296 SDI/HD-SDI
• 2 x BNC
Power:
• +5VDC Regulated • 4 watts
Physical:
• 4.6" x 2.4" x 1" (117 x 61 x 25mm)

Note: HDCP content not supported

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

Hi5

HD/SD-SDI to HDMI Video and Audio Converter

Features at a glance

- HD/SD-SDI to HDMI
- Full HDMI support including embedded audio
- Additional 2 Channel RCA jack audio output
- Equalized looping HD/SD-SDI output
- No configuration necessary
- HDMI V1.2 standard
- 1m HDMI cable included
- DWP-U-R1 Power Supply Included
- 5-year warranty

The Hi5 converts HD/SD-SDI to HDMI for driving HDMI monitors. Embedded 8-channel HD/SD-SDI audio is supported in the HDMI output allowing a convenient single cable audio/video connection. The Hi5 provides 2 Channel RCA style audio outputsfor separate audio monitoring if needed. The Hi5 also provides a looping HD/SD-SDI output useful for connecting additional equipment, or for "daisy chaining" multiple monitors to the same HD/SD-SDI source.

Tech specs

Inputs:
- SMPTE-259/292/296 HD/SD-SDI

Input Formats:
- 525i
- 625i
- 720p 50/59.94/60
- 1080i 50/59.94/60
- 1080p23.98
- 1080p24
- 1080p25
- 1080p29.97
- 1080p30

Outputs:
- HDMI with embedded audio
- Audio (2-channel RCA-style outputs)
- 1 equalized looping SDI/HD-SDI output

Power:
- +5VDC, 3 watts

Physical:
- 4.6" x 2.4" x 1" (117 x 61 x 25mm)

Note: HDCP content not supported.

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

Hi5-3D

3G/HD-SDI Multiplexer To HDMI 1.4a and SDI Video and Audio Converter

Features at a glance

- 3G/HD-SDI to HDMI 1.4a with additional SDI output
- 10-bit HDMI 1.4a support including 3D and embedded audio
- Additional 2 Channel RCA jack audio output
- Setup via Dipswitch or PC/Mac using USB port and supplied USB cable (USB configuration software application supplied on CD)
- DWP-U-R1 Power Supply Included
- 5-year warranty

Tech specs

Input Formats:
- 720p 50/59.94/60
- 1080i 50/59.94/60
- 1080p23.98
- 1080p24
- 1080p25

Video Inputs:
- Dual 3G and HD-SDI (auto-selected), SMPTE-292/296/424, 2x BNC
- 1 SDI for left eye input (10-bit)
- 1 SDI for right eye input (10-bit)

Video output:
- 10-bit HDMI v1.4a
- 1 3G/HD-SDI output, 10-bit

Audio Outputs:
- HDMI embedded audio, 2 or 8 channels
- 2 RCA-style analog outputs at -10 dBV (nominal), User assignable channels

Physical:
- 5.8" x 3.1" x 1 (147mm x 79mm x 25mm)

Power:
- +5-20 VDC regulated, 5 watts

NOTE: The Hi5-3D does not encode the HDMI output with HDCP encryption. By definition, SDI inputs to the Hi5-3D are unencrypted.

The Hi5-3D is a 3D video multiplexer that combines two 3G or HD-SDI Inputs into various multiplexed 3D formats for output on HDMI 1.4a and HD-SDI. The HDMI 1.4a output supports EDID transactions that allow automatic 2D/3D configuration per the HDMI monitor's capabilities. Input SDI 2 will be frame synchronized to input SDI 1 in 3D Modes. Embedded SDI input audio is embedded in both the HDMI and SDI outputs. 2 channel RCA audio output is also supported with user control of channel selection. The Hi5-3D supports AJA's MiniConfig application for user configuration and firmware download.

3D Modes Supported

The Hi5-3D supports, depending on the video format, "side-by-side", "top-bottom", and "frame-packing" 3D modes. The "side-by-side" and "top-bottom" modes involve compressing, either horizontally or vertically, each input for combining into a single video stream at the same rate of the inputs. The "frame-packing" mode stacks two full resolution inputs into a "tall" frame (at twice the clock and line rates). When selected, "frame-packing" can only be used with 23.98/24Hz input frame rates. Each input, in addition to 3D processing, can be flipped either horizontally, vertically, or both. This control is provided by 4 switches that can be engaged in any combination.

Format support

The Hi5-3D works with both 2D and 3D inputs. When in the 2D mode, the input is simply passed to the output unmodified. In the 3D mode, the Hi5-3D supports the minimum required 3D modes as defined by the CEA for HDMI 1.4a televisions.

CEA Required 3D modes:

2xSDI	1.5gb	720p50/59.94/60	T/B
2xSDI	1.5gb	1080p23.98/24	T/B, FP
2xSDI	1.5gb	1080psf23.98/24	T/B, FP
2xSDI	1.5gb	1080i50/59.94	S/S

Notes:

"psf" inputs are converted to "p" for HDMI output. The SDI output can support S/S and T/B formats only. Future software versions may add other frame rates.

User Control

The Hi5-3D supports both dipswitch control and host control via the MiniConfig application. One of the dipswitches is a "Local/Remote" switch. When in the "Local" mode, the remaining dipswitches support a subset of the user controls. When in the "Remote" mode, AJA's MiniConfig application controls the unit (or control as last set).

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Hi5-3D *(Continued)*

3G/HD-SDI Multiplexer To HDMI 1.4a and SDI Video and Audio Converter

Application Example

3 D-Camera Rig Left/Right inputs Driving HDMI 3D Monitor

Mini-Converters

Hi5-Fiber

HD/SD-SDI over Fiber To HDMI Video and Audio Converter

Features at a glance

- Fiber optic HD/SD-SDI to HDMI
- Supports single mode 1310 nm fiber optic cable with ST receiver
- Full HDMI support including embedded audio
- Additional 2 Channel RCA jack audio output
- No configuration necessary
- HDMI V1.2 standard
- 1m HDMI cable included
- DWP-U-R1 Power Supply Included
- 5-year warranty

The Hi5 Fiber converts HD/SD-SDI over single mode 1310 nm Fiber optic cable (ST-style Fiber connector) to HDMI for driving HDMI monitors. Embedded 8-channel HD/SD-SDI audio is supported in the HDMI output allowing a convenient single cable audio/video connection. The Hi5 provides 2-channel RCA style audio outputs for separate audio monitoring if needed.

Tech specs

Inputs:
- Fiber optic ST connector supporting SMPTE-259/292/296 HD/SD-SDI

Input Formats:
- 525i
- 625i
- 720p 50/59.94/60
- 1080i 50/59.94/60
- 1080p23.98
- 1080p24
- 1080p25
- 1080p29.97
- 1080p30

Outputs:
- HDMI with embedded audio
- Audio (2-channel RCA-style outputs)

Power:
- +5VDC, 3 watts

Physical:
- 4.6" x 2.4" x 1" (117 x 61 x 25mm)

Note: HDCP content not supported.

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

Hi5-3G

3G/Dual-link/HD/SD-SDI To HDMI 1.3a Video and Audio Converter

Features at a glance

- 3G/HD/SD-SDI to HDMI
- SMPTE425M-AB input
- Full HDMI 1.3a support including:
  - Deep Color 30- and 36-bit video per pixel (24-bit also supported)
  - 2 or 8 channels of embedded audio
- Additional 2 channel RCA analog audio output (User assignable channels)
- Setup via PC/Mac using USB port and supplied USB cable (USB configuration software application supplied on CD)
- 1m HDMI cable supplied
- DWP-U-R1 Power Supply Included
- 5-year warranty

The Hi5-3G converts 3G-SDI, dual or single link HD-SDI, or SD-SDI to HDMI v1.3a for driving HDMI monitors. HDMI v1.3a capability at 30 bits per pixel allows full support of the latest 10 bit monitors. Audio is supported in the HDMI output allowing a convenient single cable audio/video connection. The Hi5-3G provides 2 Channel RCA style audio outputs for separate audio monitoring if needed. USB connectivity allows for easy PC/Mac setup and field upgrades.

Tech specs

Input Formats:
- 525i, 625i, 720p 50/59.94/60, 1080i 50/59.94/60, 1080p
- 23.98/24/25/29.9/30/50/59.94/60
- 1080psF 23.98/24/25/29.97/30
- YCbCr/RGB/XYZ 10/12-bit

Video Inputs:
- 3G, HD, and SD-SDI (auto-selected), SMPTE-259/274/292/296/372/424/425, 2x BNC

Video output:
- HDMI v1.3a, 30/36 bits per pixel, RGB or YUV, 2.25Gbs, SD, HD, 1080p50/60, HDMI Standard Type A connector

Audio Outputs:
- HDMI embedded audio, 24 bit, 2 or 8 channels RCA-style analog outputs at -10 dBV (nominal), User assignable channels

Physical:
- 5.8" x 3.1" x 1" (147mm x 79mm x 25mm)

Power:
- +5 VDC regulated, 5 watts

NOTE:
The Hi5-3G does not encode the HDMI output with HDCP encryption. By definition, SDI/HD-SDI inputs to the Hi5-3G are unencrypted.

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Mini-Converters

D10CE

SD-SDI to Component and Composite Analog Converter, 10-bit

Features at a glance

- Excellent-Quality 10-bit Universal D/A Conversion
- Full 10-bit Data path, 4x Oversampling
- SD-SDI Input, 2 Re-clocked, Loop-Thru SDI Outputs
- Simultaneous Component and Composite Analog Outputs
- YPbPr, Betacam, or RGB Component Formats
- NTSC or PAL Composite Formats
- Precision PLL Jitter Filter for Stable Composite Outputs
- Digital Noise Reduction
- External Dip Switch Configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The D10CE SDI to Analog Video Converter provides excellent-quality 10-bit conversion of SD-SDI to both component and composite video formats simultaneously. The component outputs are user configurable to YPbPr (SMPTE, EBU-N10), Betacam, or RGB (or composite and Y/C). The composite output is configurable to composite video or sync. The component and composite outputs are completely independent including optimum chroma filtering for each and independent pedestal configuration. The D10CE also features an exclusive PLL jitter filter/memory to reduce the effects of SDI jitter on the output analog video. This feature, along with the precision 4x oversampled D/A filters, provides the highest quality analog outputs - including very low phase noise in composite outputs. The D10CE also provides two re-clocked, loop-thru SDI outputs. All functions are user configurable via dip switches.

Tech specs

Input:
- SD-SDI (SMPTE 259M)
- 1 x BNC

Outputs:
- (Simultaneous Component and Composite output)
- YPbPr - SMPTE, EBU-N10, Betacam
- RGB
- NTSC
- PAL
- YC (S-Video) 3 x BNC
- NTSC/PAL or Sync
- 1 x BNC
- Re-clocked loop-thru SD
- 2 x BNC

D/A Converters:
- 10-bits, 4x oversampling
- Clock Jitter Filtering to 2.5Hz

Frequency Response:
- Y +/- .15 dB to 5.5MHz
- C +/- .15 dB to 2.5MHz (Component)
- C +/- .15 dB to 1.3MHz (Composite)
- Less than .5% K Factor (2T)

User Controls:
- (External Dip Switch)
- Output Video Format
- Pedestal On/Off
- Narrow/Wide Blanking
- Digital Noise Reduction

Power:
- +5VDC Regulated, 4 watts

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

D10C2

SD-SDI to Component or Composite Analog Converter, 10-bit

Features at a glance

- Excellent-Quality 10-bit Universal D/A Conversion
- Full 10-bit Data path, 4x Oversampling
- SD-SDI Input, 2 Re-clocked, Loop-Thru SDI Outputs
- Component or Composite Analog Output
- YPbPr, Betacam, or RGB Component Formats
- NTSC or PAL Composite Formats
- Digital Noise Reduction
- External Dip Switch Configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The D10C2 SD-SDI to Analog Video Converter provides excellent-quality 10-bit conversion of SD-SDI to analog component or composite video at low cost. In the Component mode the D10C2 outputs are user configurable to YPbPr (SMPTE, EBU-N10), Betacam, or RGB. In the Composite mode, the D10C2 provides 2 composite outputs and a Y/C (S-Video) output. The D10C2 also provides two re-clocked, loop-thru SDI outputs and a composite sync output (Component mode). All functions are user configurable via dip switches.

Tech specs

Input:
- SD-SDI (SMPTE 259M)
- 1 x BNC

Outputs:
- Component Mode: YPbPr - SMPTE
- EBU-N10, Betacam
- RGB, 3 x BNC
- Sync
- 1 x BNC
- Composite Mode: NTSC/PAL 2 x BNC
- YC (S Video) 2 x BNC
- Re-clocked loop-thru SDI, 2 x BNC

D/A Converters:
- 10-bits, 4x oversampling

Frequency Response:
- Y +/- .15 dB to 5.5MHz
- C +/- .15 dB to 2.5MHz (Component)
- C +/- .15 dB to 1.3MHz (Composite)
- Less than .5% K Factor (2T)

User Controls:
External Dip Switch
- Output Video Format
- Pedestal On/Off
- Narrow/Wide Blanking
- Digital Noise Reduction

Power:
- +5VDC Regulated
- 4 watts

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

D10CEA

SD-SDI to Analog Audio and Video Converter, 10-bit

Features at a glance

- SD-SDI to Analog Audio and Video Converter
- SDI with Embedded Audio Input
- 2 Re-clocked, Loop-Thru SDI Outputs
- 10-bit Component or Composite Analog Video Outputs
- 4 ch Balanced Analog Audio Output
- Selectable Audio level
- Selectable Audio Channel Group
- External Dip Switch Configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The D10CEA converts SD-SDI video with embedded audio to 10-bit component or composite analog video and 4 channel balanced analog audio. The video outputs can be configured as YPbPr (Betacam or SMPTE/EBU N10), RGB, 1 composite or 1 Y/C (S-Video). The 4 ch analog audio outputs can be wired in a balanced or unbalanced configuration. The 4 audio output channels can be selected as group 1-4 from SMPTE embedded audio. Audio level has 4 settings. Audio and video output connections are available on a 25 pin "D" subminiature connector – a break-out cable is supplied. All video/audio configuration is done by external dipswitch selection. This versatile, low-cost, miniature monitoring solution also outputs two re-clocked loop-thru SDI outputs.

Tech specs

Input:
- SD-SDI (SMPTE 259M) w/embedded audio
- 1 x BNC

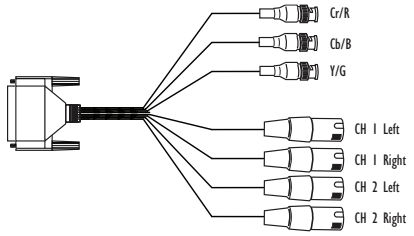
Outputs:
Video: YPbPr - SMPTE
- Betacam
- RGB
- NTSC
- PAL
- YC (S-Video)
- 10-bits
- Audio: 4-channel Balanced/Unbalanced
- Video/Audio outputs on 25-pin D connector 2 SDI
- Re-clocked loop-thru
- 2 x BNC
- Video, +/-.25 dB to 5.5 Mhz Y
- Audio, +/-.5 dB to 20Khz

User Controls:
- (External Dip Switch)
- Video format Pedestal
- H&V blanking
- Audio group 1,2,3,4
- Audio Level, adjustable via switch selection:+24, +18, +15, +12 dBu
- Full Scale Digital

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

Power:
- +5VDC Regulated, 4 watts

Supplied Breakout Cable



** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

D10C

Composite Serial Digital (D2, D3) to Composite Analog, or SD-SDI to YPbPr or RGB Converter, 10-bit

Features at a glance

- Excellent Quality 10-bit D/A Conversion
- SD-SDI Input, 2 Re-clocked, Loop-Thru SDI Outputs
- Accepts Component or Composite SDI Inputs (D1, D2, D3)
- YPbPr, Betacam, or RGB Component Formats
- NTSC or PAL Composite Formats (with D2/3 input)
- DWP-U-R1 Power Supply Included
- 5-year Warranty

Tech specs

Input:
- SD-SDI (SMPTE 259M), 1 x BNC

Outputs:
- For Component Input Only (270Mb): YPbPr - SMPTE
- EBU-N10
- Betacam
- RGB, 3 x BNC
- Sync
- 1 x BNC
- For Composite Input Only (143/177Mb): NTSC/PAL 1 x BNC
- Re-clocked loop-thru SDI
- 2 x BNC

D/A Converters:
- 10-bits

Frequency Response:
- Y +/- .25 dB to 5.2MHz
- C +/- .25 dB to 2.5MHz
- Less than 1% K Factor (2T)

Power:
- +5VDC Regulated
- 5 watts

Physical:
5.8" x 3.1" x 1" (147 x 79 x 25 mm

The D10C SDI to Analog Converter provides excellent quality 10-bit digital to analog conversion at low cost. The D10C is useful for D/A conversion, high-quality monitoring, or adding an SDI input to VTRs, workstations, or other analog video equipment. The D10C automatically works with component or composite SDI inputs in 625 or 525 line formats. Featuring one SDI input with two re-clocked, loop-thru SDI outputs, the D10C also acts as a distribution amplifier/repeater. The D10C provides a component analog output for component SDI inputs (D1), a NTSC output for 525 line composite SDI inputs (D2, D3), and a PAL output for 625 line composite inputs SDI (D2, D3). Note: the D10C is set to the proper format at the factory.

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

D10AD

Component or Composite Analog to SD-SDI Converter, 10-bit

Features at a glance

- Excellent-Quality 10-bit Universal A/D Conversion
- Component, Composite or Y/C Analog Input
- 4 Line Adaptive Comb Filter
- Full 10-bit Data path, 2x Oversampling
- YPbPr, Betacam, or RGB Component Formats
- NTSC or PAL Composite Formats
- AGC Mode
- 4 SDI Outputs with EDH
- Color Bar Generator
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The D10AD provides excellent-quality 10-bit conversion of component or composite analog video to SDI with EDH. The D10AD accepts YPbPr (SMPTE, EBU-N10), Betacam, or RGB component inputs or NTSC/PAL or Y/C (S-Video) composite inputs. The D10AD features a 4 Line Adaptive Comb Filter for high-quality decoding of composite sources. The comb filter can be switched to 2 line or notch modes for minimum delay requirements. NTSC/PAL configuration is automatic. Video format, AGC, and pedestal are all user configurable via dip switches.

Tech specs

Inputs:
- YPbPr - SMPTE
- EBU-N10
- Betacam
- RGB
- NTSC
- PAL
- Y/C (S-Video) 3 x BNC

Outputs:
- SDI (SMPTE 259M) w/EDH 4 x BNC

A/D Converters:
10-bits
- 2x oversampling

Frequency Response:
- Y +/- .15 dB to 5.5MHz
- C +/- .15 dB to 2.5MHz
- Less than .5% K Factor (2T)

User Controls:
- External Dip Switch
- Input Video Format
- Pedestal Present/Not Present
- AGC On/Off
- EDH On/Off
- Test Pattern

Power:
- +5VDC Regulated
- 4 watts

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

D10A

Component to SD-SDI Converter (with Separate Sync Input)

Features at a glance

- Excellent-Quality 10-bit A/D Conversion
- Component Analog to SDI
- Full 10-bit signal path
- 3 serial outputs
- Multi-Format
- Normal/Wide V-blanking
- 2 loop-through serial outputs
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The D10A provides exceptional quality component-only analog to 10-bit S D-SDI. The superior quality of this 10-bit A/D converter has made it a favorite of the professional video engineer. The D10A is pre-set at the factory to accept either YPbPr (SMPTE, EBU/N10), Betacam, or RGB in 525 or 625 line formats, converting the analog component signal to 10-bit SDI. The D10A has three BNC's for one component input, one external sync input, and three SDI outputs. Input formats can be reset by internal jumpers and level/gain controls.

Tech specs

Inputs:
- YPbPr (SMPTE • EBU/N10)
- Betacam or RGB
- 3 x BNC
- External Sync, 1 x BNC

Outputs:
- 3 SDI, 3 x BNC

A/D Converters:
- 10-bits

Frequency Response:
- Y +/- .25 dB to 5.5MHz
- C +/- .25 dB to 2.5 MHz

Power:
- +5VDC Regulated
- 3 watts

Physical:
- 5.8" x 3.1" x 1" (147 x 79 x 25 mm)

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

D5D

Composite and S-Video Analog to SD-SDI Converter

Features at a glance

- Analog Composite-Y/C to SDI Conversion
- Selectable 2 or 3 Line Adaptive Comb Filter
- Three SD-SDI Outputs
- Crystal PLL Jitter Filter
- Automatically Configures to NTSC/PAL
- Selectable Pedestal
- External Dip Switch Configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

Tech specs

Inputs:
- NTSC/PAL
- Y/C (S-Video)
- 2 x BNC

Outputs:
- SD-SDI (SMPTE 259M)
- 3 x BNC

Frequency Response:
+/- 0.25 dB to 5MHz
- <1% 2t K Factor (Y)
- < 1.5% Differential Gain
- < 1.5 Degree Differential Phase

User Controls:
(External Dip switch)
- Composite/YC
- Pedestal in NTSC Mode
- Narrow/Wide Blanking • 2 or 3 Line Comb

Power:
- +5VDC regulated
- 5 watts

Physical:
- 5.1" x 2.4" x 1" (131 x 61 x 25 mm)

The D5D Decoder provides low-cost, all digital decoding of analog NTSC/PAL or Y/C (S-Video) to SDI. The D5D is useful for bringing video from time-base corrected analog composite equipment into a serial digital environment. The D5D features a crystal PLL jitter filter/memory to reduce jitter in the SDI outputs. 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 enabled by external dip switch selection.

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

D5CE

SD-SDI to Component or Composite Analog Converter

Features at a glance

- Low Cost SD-SDI to Component or Composite Analog
- User Selectable Component or Composite/YC Outputs
- YPbPr, Betacam, or RGB Component Formats
- Re-clocked Loop-Thru SDI Output
- Automatic NTSC/PAL Selection
- User Selectable Vertical/Horizontal Blanking
- External Dip Switch Configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

Tech specs

Inputs:
- SD-SDI (SMPTE 259M)
- 1 x BNC

Outputs:
- YPbPr - SMPTE, EBU-N10
- Betacam
- RGB
- 3 x BNC Or NTSC
- PAL
- 3 x BNC Or NTSC/PAL and Y/C
- 3 x BNC
- Loop-thru SDI
- re-clocking
- 1x BNC

User Controls:
- (External Dip switch)
- Video Format
- Vertical/Horizontal Blanking
- Pedestal

Physical:
- 5.1" x 2.4" x 1" (131 x 61 x 25 mm)

Power:
- +5V DC regulated power • 2 watts

The D5CE provides low cost, all digital conversion of SDI to either composite or component analog video. Three analog BNC outputs are user configurable to cover a wide range of format combinations including 3 composite, 1 composite and Y/C, YPbPr (SMPTE, EBU-N10), Betacam, or RGB. The D5CE also features a re-clocked, loop-thru SDI output. The D5CE automatically adapts to NTSC or PAL video standards. Pedestal and narrow/wide H/V blanking are user configurable via dipswitches.

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

D4E

SD-SDI to Composite Analog Converter

Features at a glance

- Lowest-Cost SD-SDI to NTSC/PAL Available
- 1 SDI Input, 2 Composite-Y/C Analog Outputs
- Automatic NTSC/PAL Selection
- Built-In Test Pattern
- Ultra-Miniature Size Mounts Anywhere
- External Dip Switch Configuration
- DWP-U-R1 Power Supply Included
- 5-year Warranty

Tech specs

Inputs:
- SD-SDI (SMPTE 259M), 1 x BNC

Outputs:
- NTSC, PAL, 2 x BNC Or NTSC/PAL Y/C
- 2 x BNC

User Controls:
- (External Dip switch)
- Video Format
- Vertical/Horizontal Blanking
- Pedestal
- Test Pattern (requires valid SDI input)

Physical:
- 5.1" x 1.8" x 1" (131 x 44 x 25 mm)

Power:
- +5V DC regulated power
- 2 watts

The D4E SD-SDI Encoder provides a low cost all-digital conversion of SDI to analog NTSC or PAL. The D4E is useful for monitoring, level and phase checking, dubbing, etc. The D4E automatically adapts to NTSC or PAL video standards and outputs analog NTSC (525 line input) or PAL (625 line input). Pedestal and narrow/wide H/V blanking are user configurable via dipswitches. The D4E encodes the full dynamic range of input video: levels below black and above white are not clipped.

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

D5DA

1x4 SD-SDI Distribution Amplifier, Multi-format

Features at a glance

- Compact 1x4 Equalizing SDI Distribution Amplifier
- Low Cost
- Automatic Multi-Standard, 143/177/270 Mb
- Cable EQ to 300 Meters
- Useful as a repeater
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The D5DA is a multi-format, 1x4, SD-SDI Distribution Amplifier. The D5DA can be used as a low-cost SDI DA or repeater. The SDI input is equalized for up to 300 meters of cable. In addition, the multi-standard feature allows the D5DA to automatically adapt to 143, 177, 270, or 360 Mb SDI inputs automatically.

Tech specs

Formats:
- 143
- 177
- 270
- 360 Mb
- auto select

Input:
- 1 SDI (SMPTE 259M)
- 1xBNC

Outputs:
- 4 SDI (SMPTE 259M)
- 4x BNC
- Equalizing

Return Loss:
- >15 dB-270 MHz (Input and Output)

Physical:
- 5.1" x 2.4" x 1" (131 x 61 x 25 mm)

Power:
- +5V DC regulated power
- 2 watt

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

Mini-Converters

D5PSW
SD-SDI Protection Switch

Features at a glance

- Dual SD-SDI input protection switch
- 3 SDI outputs
- Low Cost
- Cable EQ to 300 Meters
- Useful as a repeater and/or DA
- Multi color LED status
- DWP-U-R1 Power Supply Included
- 5-year Warranty

The D5PSW accepts 2 SD-SDI inputs, Primary and Secondary, and automatically switches to the Secondary input if the Primary input is not present or is not a valid SDI signal. An SDI input is considered valid if a proper SMPTE 259 stream is present. A LED indicator is Green if both Primary and Secondary are present, flashing green if the Primary is present but the Secondary is not present, and Orange if the Secondary is present but the Primary is not. The D5PSW has 3 SDI outputs.

Tech specs

Formats:
- 143
- 177
- 270
- 360 Mb SMPTE 259
- auto select

Inputs:
- 2 SDI (SMPTE 259M)
- 2xBNC

Outputs:
- 3 SDI (SMPTE 259M)
- 3x BNC Equalizing
- Re-Clocking

Physical:
5.1" x 2.4" x 1" (131 x 61 x 25 mm)

Power:
- +5V DC regulated power
- 4 watts

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

D-Series Miniature Converters

Power Supply for D- and H-Series Converters

DWP-U-R1

The DWP-U-R1 is an internationally-compatible universal power supply **included free of charge with all AJA Mini-Converters**. With four interchangeable plug adapters, the DWP-U-R1 can be used virtually anywhere in the world. A molded, latching, circular connector with gold pins ensures the DWP meets the high reliability requirements of the professional video industry.

Tech specs

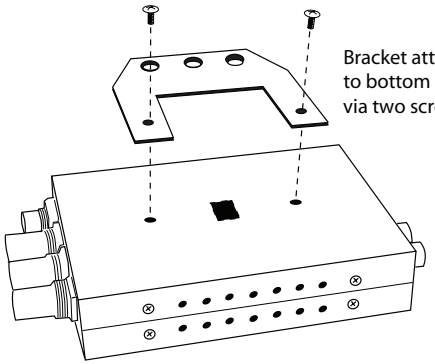
- 100-240v, 50/60Hz Universal input
- 5 volt regulated output

RMB and RMB-10 Rack Mounting Brackets for D- and H-series Converters

RMB

One Bracket with Mounting screws

RMB-10



Package of Ten Brackets with Mounting Screw

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

R-Series Rackmount Cards and Frames

FR1

1 RU Rack Mount Frame & Power Supply, 4 Slot

The FR1 and FR2 mounting frames provide high density rack-mount solutions for AJA's R series modules. The FR1 is a 1 RU frame with 4 slots; the FR2 is a 2 RU frame with 10 slots. Both frames feature high capacity power supplies with no power restrictions for any module combination. Also, both frames feature multiple fan forced air cooling which provides ample cooling capacity without the need for empty rack space above or below the units. Both frames feature optional redundant power supplies - the FR2's power supplies are easily changed from the front of the unit. The FR2 features a reference Distribution amplifier which distributes a color black reference to all slots from one input BNC. The FR1 also features a frame reference input with a passive distribution to all 4 slots.

Features at a glance

- 1 Rack Unit Mounting Frame
- 4 Module Capacity
- Multiple Fan Forced Air Cooling
- Optional Redundant Power Supplies
- Power Supply Monitoring
- Frame Reference Input BNC
- UL, CSE, CE Certification
- Universal Input 90-240 VAC 50 Watt Power Supply
- 5-year Warranty

Tech specs

Capacity:
- 4 Slots
- 1 Rack Unit

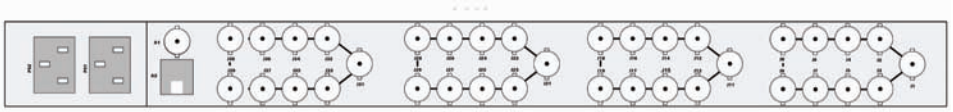
Inputs:
- Power Supply Monitoring
- Reference Input
- BNC

Power:
- 40 Watt Capacity
- Universal Input 90-240 VAC Power Supply
- Optional Redundant Power Supply
- Diode Isolated

Cooling:
- Multiple Fan Forced Air

Physical:
- 19" x 1.75" x 14.75", (1RU)

Leitch™ 6800 Series Compatible



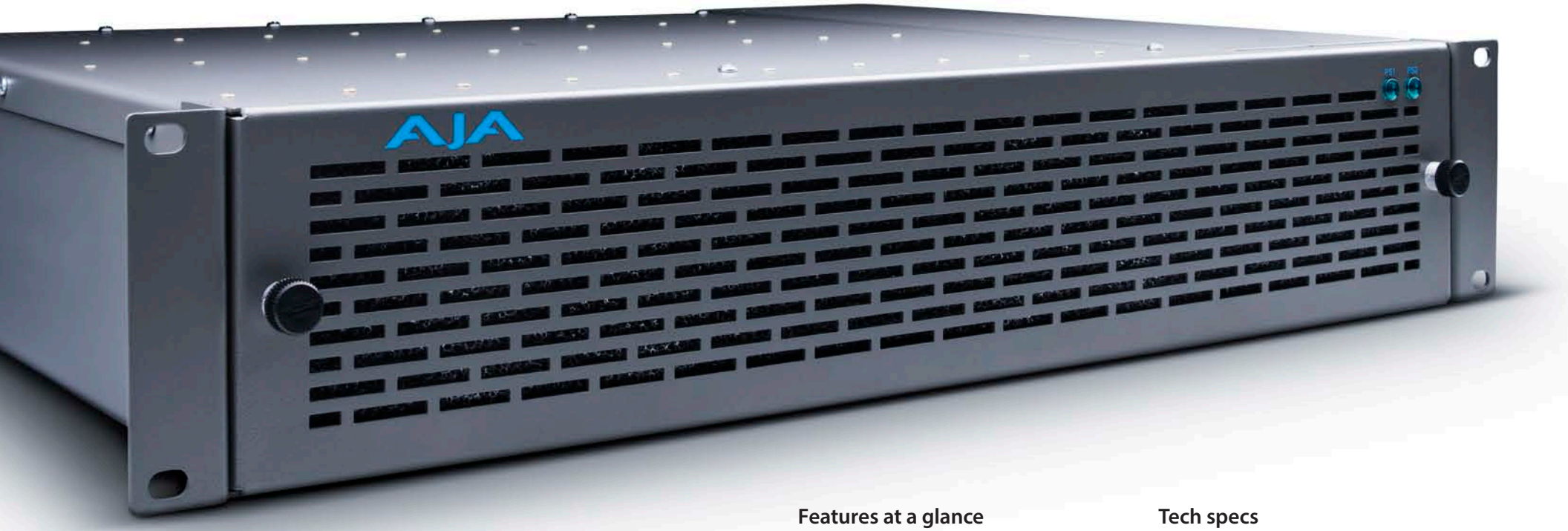
FR1	FR1 Frame with One FR1-PS Power Supply
FR1-D	FR1 Frame with Dual FR1-PS (Redundant) Power Supplies Installed
FR1-PS	Power Supply Module for FR1 Frame

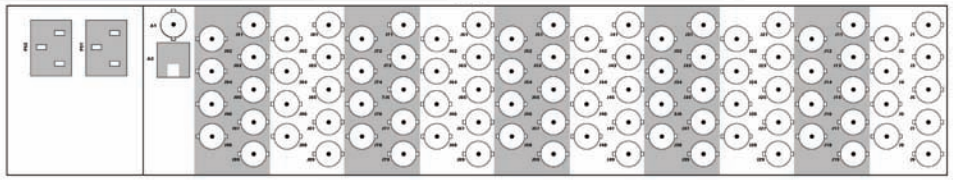
** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

R-Series Rackmount Cards and Frames

FR2

Two RU Rack Mount Frame & Power Supply, 10 Slot





FR2	FR2 Frame with One FR2-PS Power Supply Installed
FR2-D	FR2 Frame with Dual FR2-PS (Redundant) Power Supplies Installed
FR2-PS	Power Supply Module for FR2 Frame

Features at a glance

- 2 Rack Unit Mounting Frame
- 10 Module Capacity
- Multiple Fan Forced Air Cooling
- Optional Redundant Power Supplies
- Reference DA sends color black to all slots
- Power Supply Monitoring
- UL, CSE, CE Certification
- Universal Input 90-240 VAC 100 Watt Power Supply
- 5-year Warranty

Tech specs

Capacity:
10 Slots, 2 Rack Unit
Inputs:
Power Supply Monitoring
- Reference Input
- BNC – Active DA to all slots

Power:
100 Watt Capacity
- Universal Input 90-240 VAC Power Supply
- Optional Redundant Power Supply
- Diode Isolated

Cooling:
Multiple Fan Forced Air
Physical:
19" x 3.5" x 13", (2RU)
Leitch™ 6800 Series Compatible

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

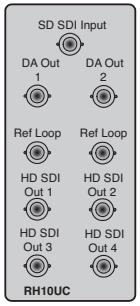
R-Series Rackmount Cards and Frames

RH10UC

SD-SDI to HD-SDI Upconverter or HD Frame Synchronizer

Features at a glance

- Broadcast-Quality 10-bit SD to HD Upconverter
- Motion-adaptive de-interlacing
- Frame Synchronizer function with Genlock input
- Selectable aspect ratio conversion
- Selectable HD output format
- HD-SDI stand-alone Frame synchronizer mode
- Passed embedded audio from SD-SDI to HD-SDI
- 5-year Warranty



The RH10UC is a 10-bit SD to HD up-converter or HD Frame Synchronizer. Using motion-adaptive de-interlacing and high quality digital scalers, the RH10UC provides excellent Broadcast quality HD video from SD sources. Output HD video is selectable between 720p and 1080I formats. 4:3 to 16:9 aspect ratio conversion is selectable between 4:3 pillarbox, 14:9 crop, 16:9 anamorphic, and 16:9 zoom. Input SD ITU Rec. 601 color space is converted to ITU Rec. 709. Additionally, the RH10UC can operate as a standalone HD-SDI Frame Synchronizer. The RH10UC is compatible with AJA's FR1 or FR2 frames.

Tech specs

Input Formats:
- 525/59.94
- 625/50
- SMPTE 259M
- 292M

Output Formats:
- 1080i 50/59.94
- 720p 59.94 Hz
- (50Hz input requires 50 Hz output)

Upconversion:
- Motion adaptive
- Multi-point interpolation
- 10-bit processing

Inputs:
- HD/SD SDI
- BNC

Reference:
- 2 x BNC
- looping

Outputs:
- Input Loop
- 2 x BNC
- Equalized HD-SDI
- 4 x BNC

User Controls:
- Mode: Upconvert
- HD Frame Synchronizer
- Output Format
- Aspect Ratio Convert Select
- Output Timing

Physical:
- Fits AJA R-Series Frames

Power:
6 watts

* Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.

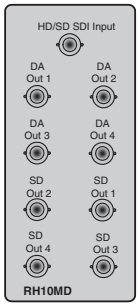
R-Series Rackmount Cards and Frames

RH10MD2

High Definition Downconverter and DA

Features at a glance

- Broadcast-Quality 10-bit HD Downconverter
- Re-clocking 1x4 HD/SD-SDI DA
- Multi-Standard HD-SDI or SDI Input
- SDI and Component/Composite Analog Outputs
- 3/2 Pulldown for 23.98/24 Hz p/psf inputs
- Full 10-bit Data Path, Multi-point Interpolation
- Configurable for 16:9 or 4:3 Monitors
- Letterbox and Crop Modes
- 4:3 Safe-Zone Graticule
- Passes embedded audio from HD-SDI to SD-SDI
- 5-year Warranty



The RH10MD2 is a 10-bit broadcast-quality HD downconverter and HD/SD-SDI distribution amplifier. There are 4 re-clocked HD/SD-SDI outputs and four down-converted SD outputs. The SD outputs can be individually configured as analog or SDI - analog can be component or composite. All HD formats are supported including 24p/psf with 3:2 pulldown. The SD output can be formatted for either 4:3 or 16:9 monitors. For 4:3 monitors both Letterbox and Crop modes are supported. The RH10MD2 is also dual-rate (HD/SD) and will support SDI inputs. 4 Ch AES embedded audio is passed through to the SDI outputs. The RH10MD2 is compatible with AJA's FR1 or FR2 frames.

Tech specs

Formats:
- HD: 1080i 50/59.94/60 Hz
- 1080p/psf 23.98/24/25/29.97/30 Hz
- 720p
- 23.98/24/25/29.97/30/50/60 Hz

Inputs:
- HD-SDI or SDI SMPTE 259/292/296
- 10-bit
- BNC

Outputs:
- SDI • SMPTE 259M
- 10-bit
- BNC
- YPbPr - SMPTE
- EBU-N10
- Betacam RGB
- NTSC
- PAL
- Y/C (S-Video)
- 10-bit
- 3 x BNC

Downconversion:
- Multi-point interpolation
- 10-bit processing
- 3:2 conversion for 23.98/24p/psf inputs

User Controls:
- (External Dipswitch)
- Output Video Format
- 4:3/16:9 Monitor Select
- Letterbox/Crop
- Pedestal (Output)
- 4:3 Safe-Zone Graticule Overlay

Physical:
- Fits AJA R-Series Frames

Power:
- 5 watts

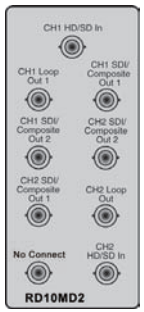
** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

R-Series Rackmount Cards and Frames

RD10MD2
Dual HD To SD Downconverter

Features at a glance

- Dual Independent channel HD to SD down conversion
- Re-clocking HD/SD-SDI input loop outputs
- Multi-Standard HD-SDI or SDI Input
- SDI and Composite Analog Outputs
- 3/2 Pulldown for 23.98/24 Hz p/psf inputs
- Full 10-bit Data Path, Multi-point Interpolation
- Configurable for 16:9 or 4:3 Monitors
- Letterbox and Crop Modes
- 4:3 Safe-Zone Graticule
- 5-year Warranty



The RD10MD2 is a 10-bit broadcast-quality Dual HD down converter. Channels 1 and 2 are fully independent. Channel 1 has 2 re-clocked HD/SD SDI outputs and channel 2 has 1. Both Channel 1 and 2 have 2 down converted outputs, which can be independently configured as SDI or composite analog. All HD formats are supported including 24p/psf with 3:2 pulldown. The SD output can be formatted for either 4:3 or 16:9 monitors. For 4:3 monitors both Letterbox and Crop modes are supported. The RD10MD2 is also dual-rate (HD/SD) and will support SDI inputs. The RD10MD2 is compatible with AJA's FR1 or FR2 frames.

Tech specs

Formats:
- HD: 1080i 50/59.94/60 Hz
- 1080p/psf 23.98/24/25/29.97/30 Hz
- 720p
- 23.98/24/25/29.97/30/50/60 Hz

Inputs:
- HD-SDI or SDI SMPTE 259/292/296
- 10-bit • BNC

Outputs:
- Each Channel has two outputs configurable for either SDI SMPTE 259M
- (10-bit) or analog composite NTSC/PAL
- 2x BNC Channel 1 has two reclocked loop-through outputs
- 2x BNC
- Channel 2 has one reclocked loop-through output
- 1 BNC

Downconversion:
- Multi-point interpolation
- 10-bit processing 3:2 conversion for 23.98/24p/psf inputs

User Controls:
- External Dipswitch
- Output Video Format
- 4:3/16:9 Monitor Select
- Letterbox/Crop
- Pedestal (Output)
- 4:3 Safe-Zone Graticule Overlay

Physical:
- Fits AJA R-Series Frames

Power:
- 7 watts

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

R-Series Rackmount Cards and Frames

R20DA

1x8 SD-SDI Distribution Amplifier, Multi-format

Features at a glance

- Re-clocking, Equalizing SDI Distribution Amplifier
- SD-SDI Input
- 8 SDI Outputs
- Multi-Standard: 143/177/270/360 Mb
- Passes embedded audio
- 5-year Warranty

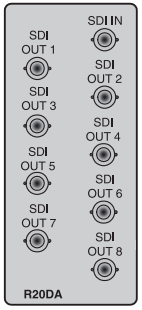
Tech specs

Input:
- SD-SDI (SMPTE 259M)
- BNC 143
- 177
- 270
- 360 Mb, auto select

Outputs:
- SD-SDI (SMPTE 259M)
- 8 x BNC
- Re-Clocked
- Equalized

Physical:
- Fits AJA R-Series Frames
- Compatible with Leitch 6800 Series Frames

Power:
- 3 watts



The R20DA is a multi-standard, 1x8 SD-SDI Distribution Amplifier. The SDI input is re-clocked and equalized to 300 meters of cable. In addition, the multi-standard feature allows the R20DA to automatically adapt to 143, 177, 270, or 360 Mb SDI inputs.

* Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.

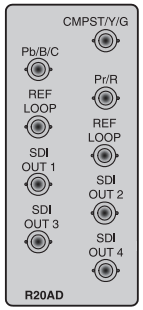
R-Series Rackmount Cards and Frames

R20AD

Component or Composite Analog to SD-SDI Converter, 10-bit

Features at a glance

- Excellent-Quality 10-bit Universal A/D Conversion
- Component, Composite or Y/C Analog Input
- 4 Line Adaptive Comb Filter
- Full 10-bit Data path, 2x Oversampling
- YPbPr, Betacam, or RGB Component Formats
- NTSC or PAL Composite Formats
- AGC Mode
- 4 SDI Outputs with EDH
- Color Bar Generator
- Optional Frame Synchronizer
- 5-year Warranty



The R20AD provides excellent-quality 10-bit conversion of component or composite analog video to SD-SDI with EDH. The R20AD accepts YPbPr (SMPTE, EBU-N10), Betacam, or RGB component inputs and NTSC/PAL or Y/C (S-Video) composite inputs. The R20AD features a 4 Line Adaptive Comb Filter for high quality decoding of composite sources. The comb filter can be switched to 2 line, or notch modes for minimum delay requirements. The R20AD also accommodates the optional FSG card (Frame Sync) for synchronizing the output video relative to an external reference. NTSC/PAL configuration is automatic. Video format, AGC, H/V blanking, and pedestal are all user configurable.

Tech specs

Inputs:
- YPbPr - SMPTE
- EBU-N10
- Betacam
- RGB
- NTSC
- PAL
- Y/C (S-Video)
- 3 x BNC

Reference:
- Passive Loop
- 2 x BNC

Outputs:
- SD-SDI (SMPTE 259M) w/EDH
- 4 x BNC

A/D Converters:
10-bits • 2x oversampling

Frequency Response:
Y +/- .15 dB to 5.5MHz
- C +/- .15 dB to 2.5MHz
- Less than .5% K Factor (2T)

User Controls:
Input Video Format
- Pedestal Present/Not Present
- Narrow/Wide Blanking
- AGC On/Off
- EDH On/Off
- Test Pattern
- Output Timing adj. (w/Frame Sync option)

Physical:
- Fits AJA R-Series Frames
- Compatible with Leitch 6800 Series Frames

Power:
7 watts (8 watts w/Frame Sync option)

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

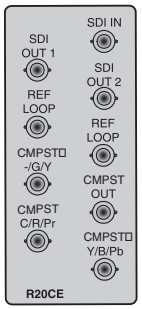
R-Series Rackmount Cards and Frames

R20CE

SD-SDI to Component and Composite Analog Converter, 10-bit

Features at a glance

- Excellent-Quality 10-bit Universal D/A Conversion
- Full 10-bit Data path, 4x Oversampling
- SD-SDI Input, 2 Re-clocked, Loop-Thru SDI Outputs
- Simultaneous Component and Composite Analog Outputs
- YPbPr, Betacam, or RGB Component Formats
- NTSC or PAL Composite Formats
- Digital Noise Reduction
- Optional Frame Synchronizer Allows Genlock to Reference, Full Timing Adjustment



The R20CE SD-SDI to Analog Video Converter provides excellent-quality 10-bit conversion of SD-SDI to both component and composite video formats simultaneously. The 4 analog outputs are user configurable to NTSC/PAL, Y/C (S-Video), YPbPr (SMPTE, EBU-N10), Betacam, or RGB. The component and composite outputs are completely independent including optimum chroma filtering for each and independent pedestal configuration. The R20CE also features an exclusive PLL jitter filter/memory to reduce the effects of SDI jitter on the output analog video. This feature, along with the precision 4x oversampled D/A filters, provides the highest-quality analog outputs - including very low phase noise in composite outputs. The optional FSG (Frame Sync/Genlock) Module allows genlock to an external reference with full timing adjustment. Without the FSG Module, the reference input provides color frame timing.

Tech specs

Input:
- SD-SDI (SMPTE 259M), 1 x BNC

Reference:
- Passive loop, 2 x BNC

Outputs:
- (Simultaneous Componentand Composite output)
- YPbPr - SMPTE
- EBU-N10
- Betacam
- RGB
- NTSC
- PAL
- Y/C (S-Video)
- 3 x BNC
- NTSC/PAL or Sync
- 1 x BNC
- Re-clocked loop-thru SDI
- 2 x BNC

D/A Converters:
- 10-bits
- 4x oversampling
- Clock Jitter Filtering to 2.5Hz

Frequency Response:
- Y +/- .15 dB to 5.5MHz
- C +/- .15 dB to 2.5MHz (Component)
- C +/- .15 dB to 1.3MHz (Composite)
- Less than .5% K Factor (2T)

User Controls:
- Output Video Format
- Pedestal On/Off
- Narrow/Wide Blanking
- Digital Noise Reduction
- Output Timing Adj.
- (w/Frame Sync option)

Physical:
- Fits AJA R-Series Frames
- Compatible with Leitch 6800 Series Frames

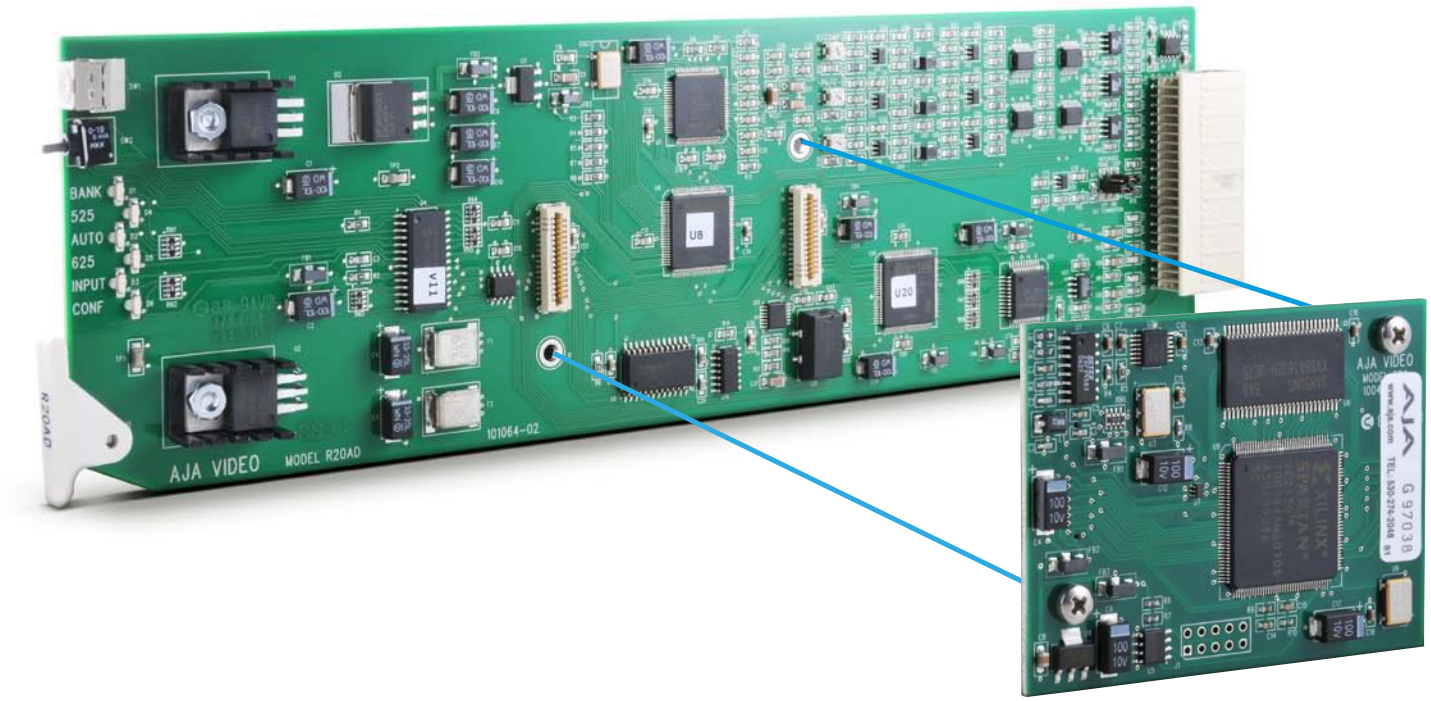
Power:
- 7 watts (8 watts w/Frame Sync option)

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

R-Series Rackmount Cards and Frames

FSG

Frame Sync/Genlock Module



The FSG Frame Sync/Genlock Module is an optional upgrade to AJA's R20 series encoders and decoders. The FSG Module provides user adjustable output timing relative to an external sync reference. Also, a delay mode provides adjustable delay with respect to the video input. In addition to the frame sync and delay functions, when installed on AJA R20 series encoders, the FSG Module allows the encoder to genlock to an external reference.

Features at a glance

- Optional Frame Sync R20CE, R20D, and R20AD
- External or Input Timing Reference
- Full Output Timing Adjustment
- Passes Vertical Interval Data
- 10-bit Data Path

Tech specs

Formats:
- 525/625 Line Component Digital

Data Path:
- 10-bits

Power:
- 2 watts

* Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.

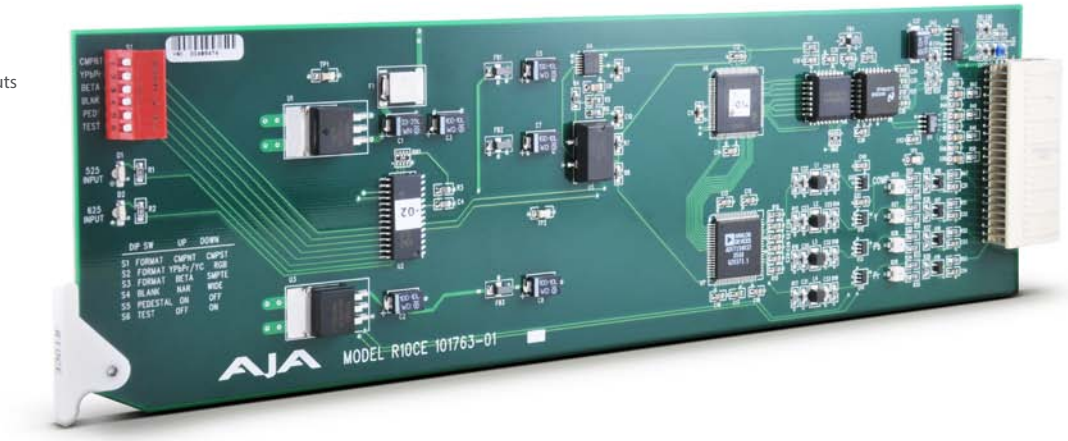
R-Series Rackmount Cards and Frames

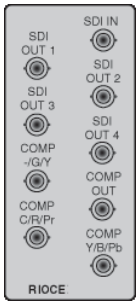
R10CE

1x4 SD-SDI DA and 10-bit Component/Composite Analog Converter

Features at a glance

- Universal Monitoring SDI DA
- SD-SDI Input
- 4 Re-Clocked SD-SDI Outputs
- 4 10-bit Component/Composite Analog Outputs
- YPbPr, Betacam, or RGB Component Formats
- PLL Jitter Filter
- Built-In Test Pattern





The R10CE is a SD-SDI distribution amplifier and universal monitoring D/A converter. The R10CE provides four equalized and re-clocked SDI outputs along with fouranalog monitoring outputs. The four analog outputs can be configured to a wide variety of formats including NTSC/PAL, YC (S-Video), YPbPr (SMPTE, EBU-N10),Betacam or RGB. A PLL jitter filter/memory reduces the effects of SD jitter on the analog outputs. The R10CE fits the AJA R-Series Rack Mount Frames, and iscompatible with other standard racks.

Tech specs

Inputs:
- SD-SDI (SMPTE 259M)
- 1x BNC

Outputs:
- YPbPr - SMPTE
- EBU-N10
- Betacam
- RGB • 3x BNC
- Or NTSC
- PAL
- 3x BNC Or NTSC/PAL and YC
- 3x BNC
- SDI
- Re-Clocking
- 4x BNC

User Controls:
- External Dipswitch
- Video Format
- Pedestal
- Vertical/Horizontal Blanking

Power:
- 4 watts

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

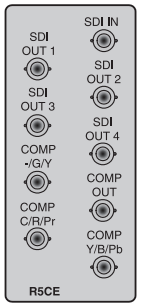
R-Series Rackmount Cards and Frames

R5CE

1x4 SD-SDI DA and Component/Composite Analog Converter

Features at a glance

- Universal Monitoring SD-SDI DA
- SD-SDI Input
- 4 Re-clocked SD-SDI Outputs
- 4 Component/Composite Analog Outputs
- YPbPr, Betacam, or RGB Component Formats
- 10-bit to 8-bit Dithering
- PLL Jitter Filter
- Built-in Test Pattern



The R5CE is a SD-SDI distribution amplifier and universal monitoring D/A converter. The R5CE provides four equalized and re-clocked SDI outputs along with four analog monitoring outputs. The four analog outputs can be configured to a wide variety of formats including NTSC/PAL, Y/C (S-Video), YPbPr (SMPTE, EBU-N10), Betacam or RGB. A PLL jitter filter/memory reduces the effects of SDI jitter on the analog outputs. An exclusive feature of the R5CE is a 10- to 8-bit dithering circuit which removes contouring in the analog outputs. Additionally, the R5CE features user selectable pedestal and H&V blanking.

Tech specs

Input:
- SD-SDI (SMPTE 259M
- BNC

Outputs:
- SD-SDI (SMPTE 259M
- 4 x BNC
- Re-Clocked
- Equalized
- NTSC/PAL Analog
- 1 x BNC
- YPbPr – SMPTE
- EBU-N10
- Betacam
- RGB
- 3 x NTSC/PAL
- 1 NTSC/PAL and Y/C (S Video)
- 3 x BNC
- Jitter Filtering to 2.5 Hz

User Controls:
- External Dipswitch
- Video Format
- Pedestal
- H/V Blanking

Frequency Response:
- +/- .25 dB to 5 MHz

Physical:
- Fits AJA R-Series Frames
- Compatible with Leitch 6800 Series Frames

Power:
- 6 watts

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

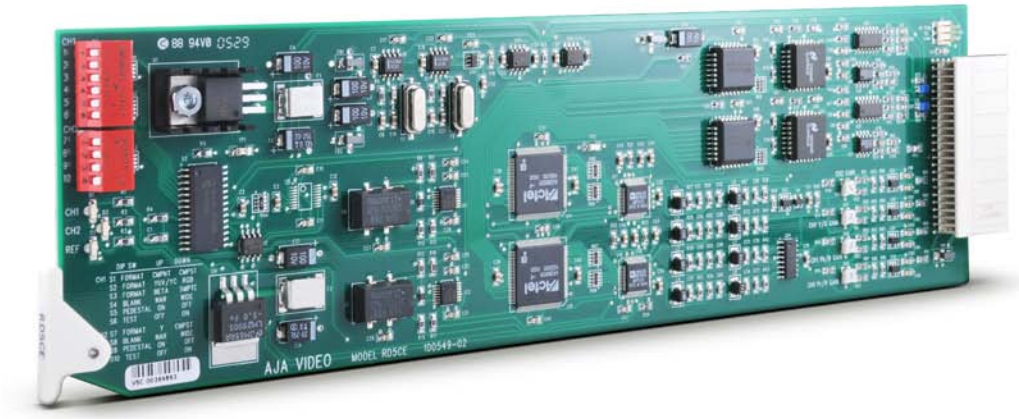
R-Series Rackmount Cards and Frames

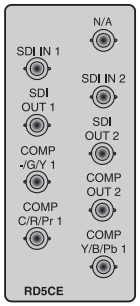
RD5CE

Two Channel SD-SDI to Component/Composite Analog Converter

Features at a glance

- Low-Cost Universal D/A Conversion
- Two Separate Channels
- SD-SDI Inputs, Re-clocked Loop-thru SDI outputs
- CH 1 outputs Component or Composite
- CH 2 outputs Composite or Y





The RD5CE is a low-cost, dual-channel, universal video D/A converter. The RD5CE supports 2 completely separate channels of SD-SDI to analog conversion. Channel 1 can output component or composite analog video including YPbPr (SMPTE, EBU-N10), Betacam, RGB, composite or YC (S-Video). Channel 2 can output composite or Y. Both SDI inputs have a re-clocked SDI loop-thru output.

Tech specs

Inputs:
- 2 Channels SD-SDI (SMPTE 259M)
- 2 x BNC

Outputs:
- CH 1 Output: YPbPr-SMPTE
- EBU-N10
- Betacam
- RGB
- NTSC/PAL
- Y/C (S-Video)
- 3 x BNC
- CH 2 Output: NTSC/PAL Y
- 1xBNC
- SDI Looping Output
- 2 x BNC

User Controls:
- Dipswitch (Separate control for each channel)
- Video Format
- Pedestal
- H/V Blanking

Frequency Response:
- +/- .25 dB to 5 Mhz Y
- +/- .25 dB to 2.5 MHz C (component)
- +/- .25 dB to 1.3 MHz C (composite)
- <1.5% Differential Gain
- <1.5 Degree Differential Phase

Physical:
- Fits AJA R-Series Frames
- Compatible with Leitch 6800 Series Frames

Power:
- 7.5 watts

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

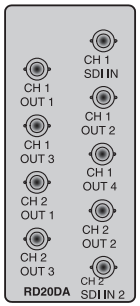
R-Series Rackmount Cards and Frames

RD20DA

Dual Channel SD-SDI Distribution Amplifier

Features at a glance

- 2 Channel Re-Clocking, Equalizing SDI Distribution Amplifier
- 2 Separate SDI Inputs,
- 1x3, 1x4 SDI Outputs
- Multi-Standard: 143/177/270/360 M2



The RD20DA is a multi-standard, 2-channel, 1x4 and 1x3 SD-SDI Distribution Amplifier. The SDI input is re-clocked and equalized to 300 meters of cable. In addition, the multi-standard feature allows the RD20DA to automatically adapt to 143, 177, 270, or 360 Mb SDI inputs.

Tech specs

Input:
- 2 Separate SD-SDI (SMPTE 259M)
- BNC
- 143
- 177
- 270
- 360 Mb
- Auto select

Outputs:
- Ch 1: 4 SDI (SMPTE 259M)
- Ch 2: 3 SDI (SMPTE 259M)
- Re-Clocked
- Equalized

Physical:
- Fits AJA R-Series Frames
- Compatible with Leitch 6800 Series Frames

Power:
- 3 watts

** Pricing is for US only. International pricing will vary. Please contact a local AJA Reseller for pricing details.*

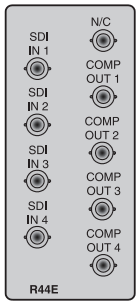
R-Series Rackmount Cards and Frames

R44E

Four Channel SD-SDI to Composite Analog Converter

Features at a glance

- 4 Channel SD-SDI to NTSC/PAL Converter
- 4 Separate SD-SDI Inputs
- 4 Separate Composite Analog Outputs
- Built In Test Pattern
- Configurable Pedestal
- R44E allows 40 Channels of Conversion in 2 RU



The AJA Video R44E provides four composite analog monitoring outputs from four separate SD-SDI inputs. Each channel has a separate D/A converter with a 10-bit DAC and 8-bit broadcast encoding. Values below black and above white are not clipped. Each channel has a test pattern generator with separate user selectable blanking controls. The R44E also features automatic NTSC or PAL configuration.

Tech specs

Inputs:
- 4 CH SD-SDI (SMPTE 259M) Inputs
- 4 x BNC

Outputs:
- 4 NTSC/PAL, 4 x BNC

User Controls:
- Dipswitch (Separate control for each channel)
- Composite/Y
- Pedestal
- H/V Blanking

Frequency Response:
- +/- .25 dB to 5 MHz

Physical:
- Fits AJA R-Series Frames
- Compatible with Leitch 6800 Series Frames

Power:
- 8 watts

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Incredible 5-year warranty

AJA Video warrants that Converter products will be free from defects in materials and workmanship for a period of five years from the date of purchase.

About AJA Video Systems, Inc.

Since 1993, AJA Video has been a leading manufacturer of video interface and conversion solutions, bringing high-quality, cost-effective digital video products to the professional broadcast and post-production markets. AJA offers the Io and KONA desktop video products, Ki Pro family of recorders, miniature standalone converters, and a complete line of rack mount interface and conversion cards and frames. With a headquarters and design center located in Grass Valley, California, AJA Video offers its products through an extensive sales channel of dealers and systems integrators around the world. For further information, please see our website at **www.aja.com**

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Because it matters.™

AJA® VIDEO SYSTEMS