

CONVERT

# FS2

Dual Channel Universal HD/SD Audio/Video  
Frame Synchronizer and Format Converter



Because it matters.



# FS2

## Dual Independent 3G/HD/SD Up/Down/Cross Video Frame Synchronizers, along with Dual 16 Channel Audio Processors, Equal a World of Possibility

The FS2 can simultaneously work 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 and HDMI I/O. You can use the FS2 as two separate Frame Synchronizers/Format Converters, or combine the channels in a variety of powerful ways—for example HD sidebar keying where both the video and background graphics are upconverted and combined. To expand your possibilities further, each channel possesses its own still-store, keyer, and video proc amp/color corrector. The FS2 can up- or down-convert between SD and HD, and cross-convert between HD formats—including 3G 1080p50/60 formats. Additionally, the FS2 has full input and output signal routing, allowing any I/O port to be assigned to either processing channel.

For audio, the FS2 has two audio processors—each processor 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 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. The FS2 is also network ready, supporting SNMP monitoring and web-based remote control. A 3rd-party Remote Control Panel is available (contact your AJA dealer—or AJA directly, for more information).

Options available on the FS2 include Dolby® E Encoding, Dolby® E Decoding, and 3G/HD/SD Optical Fiber I/O.

With support of all broadcast video formats the FS2 makes matching up disparate video and audio systems simple —one converter box does it all. The FS2 is ideally suited for broadcast facilities, production trucks and other rapidly changing environments.



### Typical Applications

The FS2 can be used for a wide variety of video and audio signal conversion, adaptation, timing, and processing applications:

- Up/Down/Cross convert between various SD and HD formats including 1080p50/60.
- General purpose video frame synchronization.
- Analog-to-Digital and Digital-to-Analog audio/video conversion.
- Mux or Demux two separate HD signals from one 3G SDI signal.
- Convert 3G/HD/SD video over fiber to/from SDI (BNC).
- Use the built-in video processing amplifiers to adjust and/or color correct.
- Synchronize the timing of key and fill signals by putting both through the parallel FS2 video channels and adjusting their timing independently. Then key them using one of the two FS2 keyers or an external keyer.
- Use the HDMI input and a DVI to HDMI cable to scan-convert popular computer video formats to SD or HD, including full proc-amp functionality and aspect ratio adjustment (future firmware release).
- HD Sidebar keying including using both SD video and SD sidebar graphics (analog or digital), upconverting both, and combining—all inside the FS2.
- Dolby® E encoding and decoding with full channel mapping (optional).



## Ease of Control...

- Built-in front panel control via scrolling alphanumeric and graphical menu system
- Buttons and Rotary Knobs for quick setting changes
- Front panel LED status indicators for at-a-glance system monitoring
- Web-based remote control over 10/100/1000 Ethernet via an internal web server
- Four isolated TTL GPI inputs and outputs for contact closure control.
- Optional Remote Control Panel



## Incredible I/O and Format Support

The FS2 can generally convert any input format to any output format, as long as the frame rates are of the same "family." (The three families are 59.94/29.97/23.98, 50/25, and 60/30/24.) Whenever an incompatible I/O format is detected, the operator is notified (alarms/status-messages). Connector sources and destinations are controlled via crosspoint matrix selections on the input and output of both FS2 channels (select from web UI or front panel).



**Audio Connections**

- 8-channel balanced, 25 pin D
- 16-channel AES/EBU, 25 pin D
- 16-channel HD/SD-SDI embedded
- Audio A/D, D/A: 24 Bits, 48Khz
- Audio Levels: +12dBu, +15dBu, +18dBu, +24dBu, (Full Scale Digital)
- Optional Dolby E Encoding
- Optional Dolby E Decoding



**LAN and Control Connections**

- 4x GPI inputs/outputs, TTL, isolated.
- RJ45 10/100/1000 LAN connector—offers DHCP, SNMP and embedded Web Server Remote Control
- RS-422 (future)



**Digital Video Connections: Fiber, SDI, and HDMI**

- 2x 3G/HD/SD SDI Inputs and Outputs with embedded audio
- 2x Fiber 3G/HD/SD SDI Inputs and Outputs with embedded audio (optional)
- 1 HDMI Input and 1 HDMI Output, with 3D output support



**Analog Video Connections**

- Component Analog Video Inputs and Outputs, YPbPr/RGB (RGB output only)
- Composite Analog Video Inputs and Outputs



**Reference**

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



**Fully Redundant AC Power**

Two independent AC power supplies with independent power connectors. The power supplies autosense from 100 to 240VAC, 50/60Hz. Only one has to be connected for operation; connect both for redundancy. Alarm monitoring alerts locally and remotely if a power supply fails.

**Video Features**

- Dual Video format converters each featuring SD/HD (up/down), SD-to-SD (aspect ratio), and HD-to-HD (720/1080 cross) conversions
- Dual Video processors supporting proc amp and color correction
- Dual Frame Synchronizers
- Dual video/key framestores downloadable from the local area network
- User-specified custom format conversion settings with variable crop, size, aspect, and position parameters
- Dual flexible Keyers for video/key overlays or sidebar keying from the two Video processors, the two internal video/key framestores, or internal matte generators.
- Closed captioning support featuring true conversion between EIA 608 and 708 (SD and HD) CC formats
- Active Format Description (AFD) support
- Scan convert computer formats via a DVI to HDMI cable (future firmware release)
- Dual 3G/HD/SD SDI I/O with embedded audio
- Dual 3G/HD/SD Optical Fiber I/O (optional)
- HDMI I/O supporting 3D HDMI output
- Component/Composite analog HD/SD video I/O, 12 bit
- Looping reference input with flexible genlock

**Audio Features**

- Dual audio processors each supporting 16 channel audio with full channel mapping
- 16-channel AES/EBU, 8-channel balanced analog I/O
- 16-channel embedded audio I/O with full mapping
- AFV (audio follows video) support
- Optional Dolby E encoding and decoding

**Other**

- Built-in front panel control via scrolling alphanumeric and graphical menu
- Front panel LED status indicators for at-a-glance system monitoring
- Web-based remote control over 10/100/1000 Ethernet via an internal web server
- Four isolated TTL GPI inputs and outputs for contact closure control.
- Two fully redundant power supplies standard
- Optional remote control panel
- 5 Year Warranty with unlimited technical support

## Specifications

### Video Inputs and Outputs:

- Dual SDI inputs and outputs:  
Dual-link 1080p60, 1080p59.94,  
1080p50, YCbCr (4:2:2),  
3G/HD/SD-SDI,  
SMPTE 259-C/274/292/372/425-A/425-B
- HDMI Input (RGB or YCbCr 4:2:2)
- HDMI Output (YCbCr 4:2:2)
- HD component YPbPr/RGB (RGB is output  
only), SMPTE-274
- SD component/composite
- Reference Input (color black or tri-level)
- Optional: 2 fiber inputs and  
2 fiber outputs via SFP modules/LC  
connectors available from AJA

### Video A/D, D/A:

- 12-bit
- 2x oversampled (HD)
- 4x oversampled (SD)

### Audio Inputs and Outputs:

- 8 Channel Balanced, 25 pin D (Tascam  
pinout)
- 16 Channel AES/EBU 25 pin D
- 32 Input Channel Mapping
- 16 Channel 3G/HD/SD-SDI Embedded

### Audio A/D, D/A:

- 24-bit, 48Khz
- ### Audio levels:
- +12dBu, +15dBu, +18dBu, +24dBu  
(Full Scale Digital)

### LAN:

- 10/100/1000 Ethernet
- Embedded Webserver
- HTTP v1.1

### GPI:

- 4x GPI input, TTL, isolated
- 4x GPI output, TTL, isolated

### Physical:

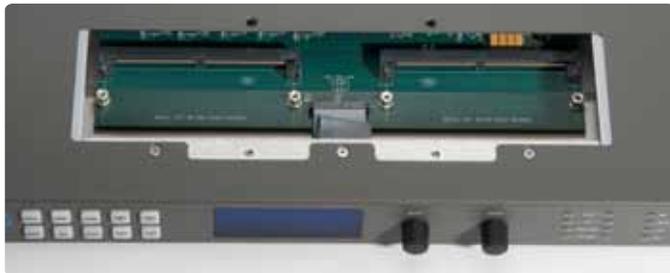
- 1 RU
- Depth: 15.5 inches (39.37 cm)  
(front panel to the back of the deepest  
connector)
- Fan cooled

### Power:

- 100-240 VAC, 50/60Hz
- 40 watts
- Fully Redundant
- Diode isolated

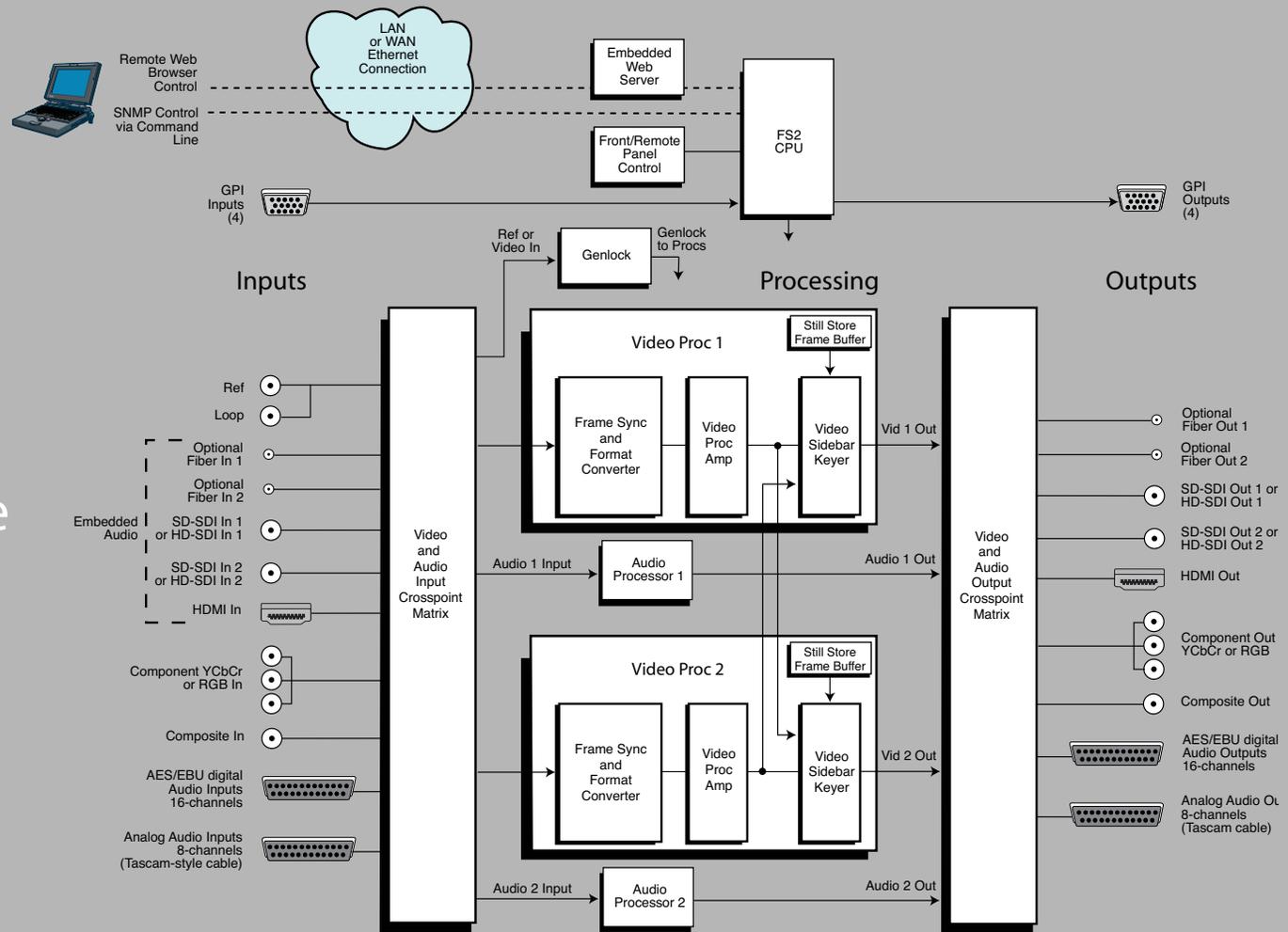
### Options:

- Dolby® E Encoding
- Dolby® E Decoding
- Optical Fiber I/O
- Remote Control Panel (3rd Party)



FS2 Expansion Bay for Option Modules

# Dual Channels ... Infinite Uses FS2 Architecture



#### **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 stand-alone 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](http://www.aja.com)

**B e c a u s e   i t   m a t t e r s .**



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