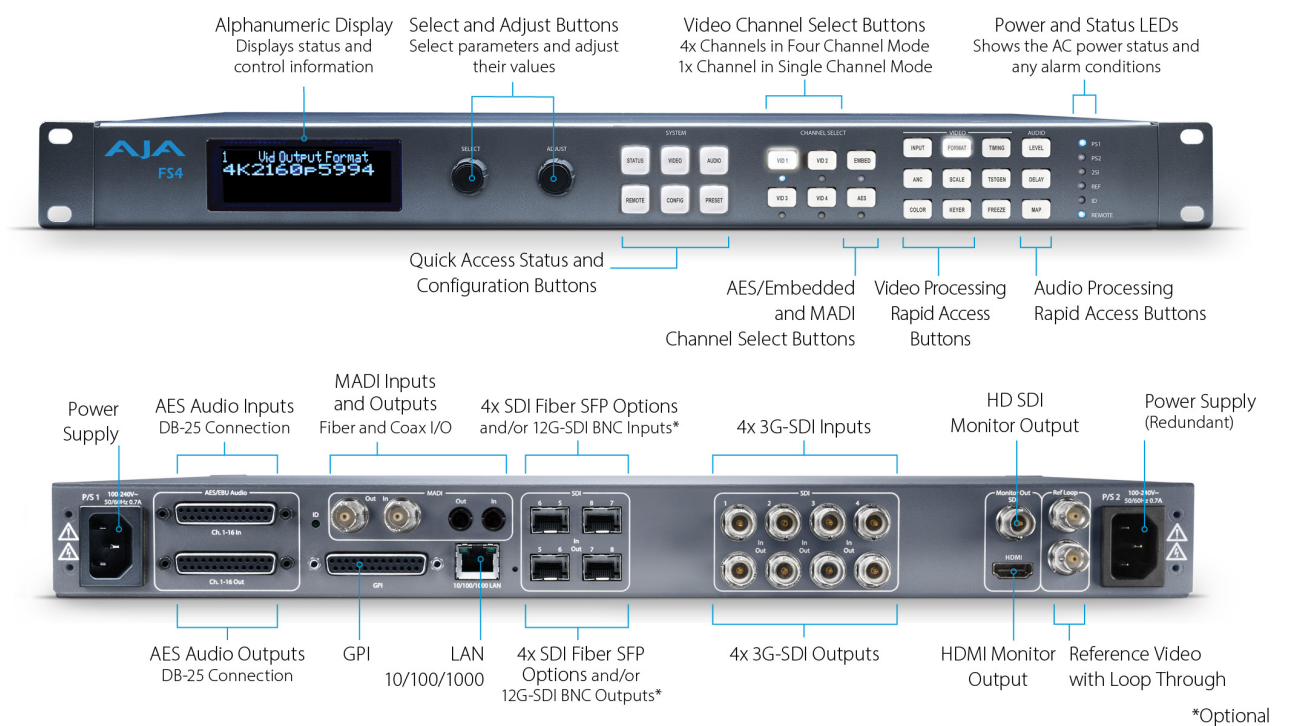




FS4

FS4 is a 4-channel 2K/HD/SD or 1-channel 4K/UltraHD frame synchronizer and up, down, cross-converter. AJA's flagship frame synchronizer and converter offers incredible versatility and connectivity in a sleek 1RU frame for all your 4K/UltraHD and 2K/HD/SD conversion needs, with a wealth of digital and optional 12G-SDI Fiber LC and 12G-SDI BNC SFP connectivity. Offering a wide range of connection options for both video and audio, FS4 can do the work of four separate devices in 2K/HD/SD or combine all processors and channels for maximum flexibility for 4K/UltraHD productivity.

<https://www.aja.com/products/fs4>



Modes of Operation

- Four Channel Mode - 4x Independent 2K, HD, or SD Video Processors
- Single Channel Mode - 1x 4K, UltraHD, 2K, HD, or SD Video Processor
- Enhanced Single Channel Mode - 1x 4K, UltraHD Video Processor with simultaneous 4K/UltraHD and 2K/HD/SD outputs

Video Formats

- (4K) 4096 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (4K) 4096 x 2160PsF 23.98, 24, 25, 29.97, 30
- (UltraHD) 3840 x 2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (UltraHD) 3840 x 2160PsF 23.98, 24, 25, 29.97, 30
- (2K) 2048 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920 x 1080PsF 23.98, 24, 25, 29.97, 30
- (HD) 1920 x 1080i 50, 59.94, 60
- (HD) 1280 x 720p 50, 59.94, 60
- (SD) 625i 50 • (SD) 525i 59.94
- YCbCr, 4:2:2, 10-bit

Video Input Digital

- 4x 3G-SDI inputs, 4x BNC
- 4x 12G-SDI inputs, 4x Fiber or HD-BNC (included SFP modules)
 - **SFP coax module, 12G/6G-SDI, dual HD-BNC**
 - SFP fiber module, 12G/6G-SDI, Single Mode, dual LC or single LC, SMPTE 297
 - SFP fiber module, 3G-SDI, Single Mode, dual LC, single LC, or single SC, SMPTE 297
 - SFP fiber module, 3G-SDI, Multi-Mode, dual LC or single LC, SMPTE 297
- 12G/6G/3G/HD/SD, SMPTE 259/292/424/2081/2082
 - Single Link 12G/6G-SDI (with included SFP module)
 - Quad Link 3G-SDI Level A or B DL (4x 3G), SMPTE 425-5
 - Dual Link 3G-SDI Level B DS (2x 3G), SMPTE 425-3 Single
 - Link 3G-SDI Level A, B DL, or B DS, SMPTE 425 Quad Link
 - HD-SDI (4x 1.5G)
 - Dual Link HD-SDI (2x 1.5G), SMPTE 372
 - Single Link HD/SD
- Quadrant (Square Division) or 2SI (Two Sample Interleave) 4K/UltraHD input pixel mapping
- 8x 1 selector feeds video processor(s)

Video Output Digital

- 4x 3G-SDI outputs, 4x BNC
- 4x 12G-SDI outputs, 4x fiber or HD-BNC (included SFP modules)
 - **SFP coax module, 12G/6G-SDI, dual HD-BNC**
 - SFP fiber module, 12G/6G-SDI, Single Mode, dual LC or single LC, SMPTE 297
 - SFP fiber module, 3G-SDI, Single Mode, dual LC, single LC, or single SC, SMPTE 297
 - SFP fiber module, 3G-SDI, Single Mode, dual LC, SMPTE 297
 - SFP fiber module, 3G-SDI, Multi-Mode, dual LC or single LC, SMPTE 297
- 12G/6G/3G/HD/SD, SMPTE 259/292/424/2081/2082
 - Single Link 12G/6G-SDI (with included SFP module)
 - Quad Link 3G-SDI Level A or B DL (4x 3G), SMPTE 425-5
 - Dual Link 3G-SDI Level B DS (2x 3G), SMPTE 425-3
 - Single Link 3G-SDI Level A, B DL, or B DS, SMPTE 425
 - Quad Link HD-SDI (4x 1.5G)
 - Dual Link HD-SDI (2x 1.5G), SMPTE 372
 - Single Link HD/SD
- Quadrant (Square Division) or 2SI (Two Sample Interleave) 4K/UltraHD output pixel mapping

Monitor Output Digital

- Monitor Output is a copy of the Main Output
- 1x BNC, 1x 3G-SDI output
 - 3G-SDI/HD/SD, SMPTE 259/292/424, 10-bits
 - 4K/UltraHD automatically down-converted to 2K/HD
 - SDI Monitor Output is configurable when FS4 is operating in Enhanced Single Channel Mode
 - Video Formats
 - (2K) 2048 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
 - (HD) 1920 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
 - (HD) 1920 x 1080PsF 23.98, 24, 25, 29.97, 30
 - (HD) 1920 x 1080i 50, 59.94, 60
 - (HD) 1280 x 720p 50, 59.94, 60
 - (SD) 625i 50
 - (SD) 525i 59.94
- 1x HDMI, 1x HD output
 - 2K/HD/SD, HDMI v1.4a
 - 4K/UltraHD automatically down-converted to 2K/HD
 - HDR Infoframe generation to support HDR displays per HDMI v2.0b and CTA-861-G
 - Crop control

Video Processing

- Motion adaptive deinterlacer
- Proc amp controls
- Color corrector
- Legalizer
- Frame rate conversion/film cadence removal/insertion (3:2, 1:2, 2:1, 2:3)
- Adjustable delay 0-20 frames with H and V timing controls in lines and pixels
- Freeze (manual or on input signal loss) to black or last good frame
- Matte generator for background fill
- Video test generator with SDR and HDR patterns
- Nominal video delay HD/SD, 2 frames (LFR), 4 frames (HFR)

Ancillary Data

- All embedded ANC packets pass-through when output format equals input format
- Ancillary Timecode (LTC, VITC1, VITC2) translation and pass-through for wide range of conversions
- SCTE-104 and Closed Captioning pass-through for wide range of conversions
- Closed Captioning conversion (CEA-608/CEA-708)
- AFD input detection, down-convert control, and output pass-through or overwrite
- Configurable SDI output VPID for Colorimetry and Transfer Characteristic

Format Conversion

- Convert any supported input format to any supported output format, within the same frame rate family. These three families are:
 - 59.94, 29.97, 23.98
 - 50, 25
 - 60, 30, 24

Scaling

- Supported in 2K/HD/SD formats
 - Zoom in and out
 - Reposition
 - Region of Interest (ROI)

Up-Conversion

- Hardware 10-bit
- 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 fullscreen
- Zoom Wide: results in a combination of zoom and horizontal stretch to fill a 16:9 screen; this setting will introduce a small aspect ratio change

Down-Conversion

- Hardware 10-bit
- Anamorphic: fullscreen
- Letterbox: image is reduced with black top and bottom added to image area with the aspect ratio preserved
- Crop: image is cropped to fit video output format

Aspect Ratio Conversion for SD to SD

- Letterbox: Transforms SD anamorphic material to a letterboxed image
- H Crop: Produces a horizontally stretched effect on the image; transforms anamorphic SD to full frame
- SD Pillarbox: Produces 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: Transforms SD letterbox material to an anamorphic image

Audio Input Digital

- 48 kHz sample rate
- 8x SDI embedded inputs (16-Channels each)
 - 128-channels, 24-bit (20-bit SD), SMPTE 272/299
- 8x balanced AES inputs (16-channels), 1x DB-25
 - 16-channels, 24-bit, AES-3
- 2x MADI inputs, 1x BNC, 1x ST Fiber
 - 128-channels, 24-bit, AES-10

Audio Output Digital

- 48 kHz sample rate
- 1x SDI embedded output per Video Processor (16-Channels each)
 - 16-channels (in single Video Processor mode), 24-bit (20-bit SD), SMPTE 272/299
 - 64-channels (in four Video Processor mode), 24-bit (20-bit SD), SMPTE 272/299
- 8x balanced AES outputs (16-channels), 1x DB-25
 - 16-channels, 24-bit, AES-3
- 2x MADI outputs, 1x BNC, 1x ST Fiber
 - 128-channels, 24-bit, AES-10

Audio Processing

- 277 x 208 mono audio matrix, route 1 to 1, 1 to many
 - Inputs: 128 embedded, 16 AES, 128 MADI, 2 stereo mixdowns, 3 tone generator
 - Outputs (Four Channel Mode): 16 AES, 128 MADI, 64 embedded
 - Outputs (Single Channel Mode): 16 AES, 128 MADI, 16 embedded
- Input adjustment controls for each channel
 - Gain +18 to -18 dB in 0.5 dB steps
 - Phase invert
- Input adjustment controls for each channel pair
 - Delay -16ms to +1sec in 20.8 us steps
- Audio delay can automatically follow video timing delay adjustments
- Two independent 5.1 or 7.1 to stereo mixdown processors with gain adjust
- High quality Sample Rate Conversion (SRC) supported on all audio inputs
- SRC bypass for non-PCM audio (e.g. Dolby E, AC-3, etc)
- Audio tone generator (mute, 400 Hz, 1 kHz)

Reference Input

- External, 2x BNC
 - Looping, nonterminating
 - Blackburst or tri-level sync

Genlock

- Lock to External Reference
- Lock to SDI input 1 thru 8
- Free run based on Temperature Compensated Crystal Oscillator

Network Interface

- 1x RJ-45, 10/100/1000 Ethernet
- Embedded web server for remote control
- REST Interface
- SNMP

Front Panel

- Display
- Keypad with status LEDs
- Two rotary/push knobs
- Comprehensive alarm indicators

Presets

- Four Channel and Single Channel Mode each support 40 system level Presets

GPI

- 1x 25-pin D-Connector
 - Four optically isolated GPI inputs
 - Four optically isolated GPO outputs

Size (w x d x h)

- 17.5" x 16.0" x 1.75" (1RU) (444.5 x 406.4 x 44.45 mm)

Weight

- 7.9 lb (3.6 kg)

Power

- 100-240 VAC 50/60 Hz (Dual, redundant power supplies), 55W typical; 70W max.

Environment

- Safe Operating Temperature: 0 to 40 C (32 to 104 F)
- Safe Storage Temperature (Power OFF): -40 to 60 C (-40 to 140 F)
- Operating Relative Humidity: 10-90% noncondensing
- Operating Altitude: <3,000 meters (<10,000 feet)