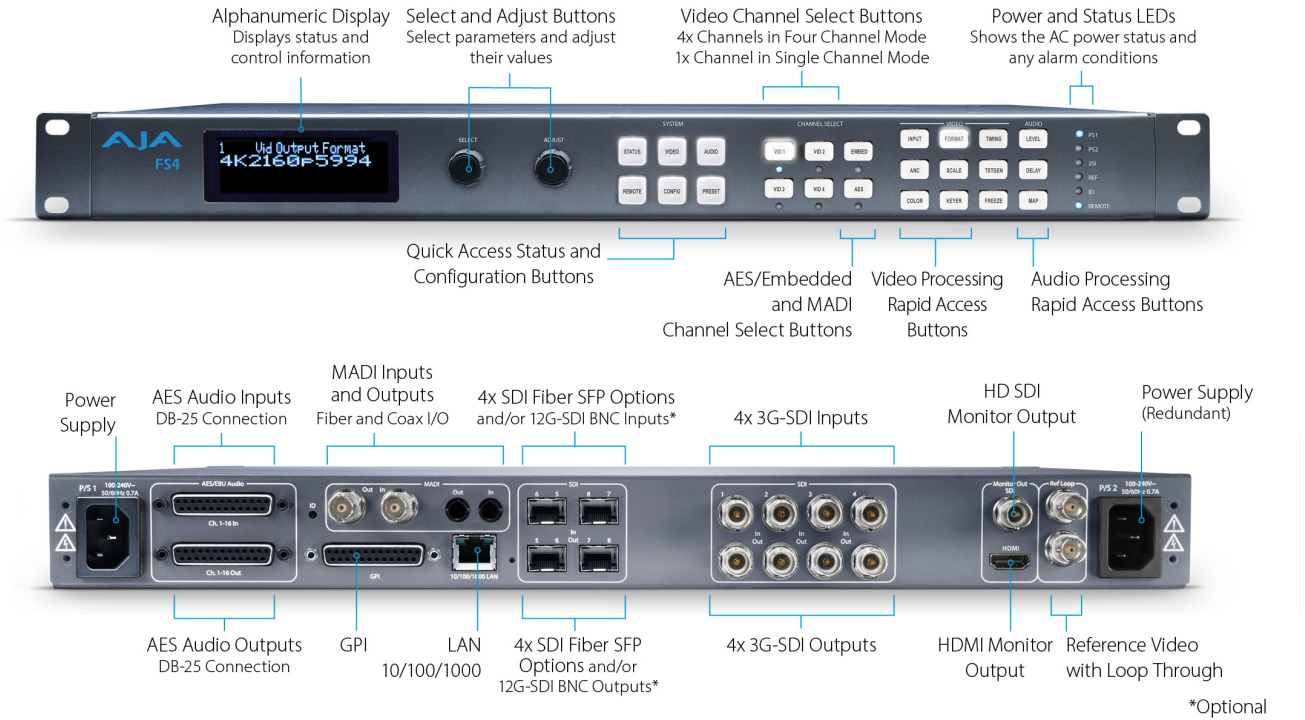




# FS4

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 together for maximum flexibility for 4K/UltraHD productivity.

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



## Modes of Operation

- Four Independent 2K, HD, or SD Video Processors
- One 4K, UltraHD, 2K, HD, or SD Video Processor

## 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 3G-SDI inputs, 4x Fiber or HD-BNC (optional 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 modules, 3G-SDI, Single Mode, dual LC, single LC, or single SC, SMPTE-297
  - SFP fiber modules, 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 optional 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 3G-SDI outputs, 4x fiber or HD-BNC (optional 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 modules, 3G-SDI, Single Mode, dual LC, single LC, or single SC, SMPTE-297
  - SFP fiber modules, 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 optional 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

- 1x BNC, 1x 3G-SDI output

- 3G-SDI/HD/SD, SMPTE-259/292/424, 10-bits
- 4K/UltraHD automatically down-converted to 2K/HD

1. 1x HDMI, 1x HD output
  - 2K/HD/SD, HDMI v1.4a
  - 4K/UltraHD automatically down-converted to 2K/HD

- Crop control on HDMI output

## 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 0-6 frames with H and V timing controls in lines and pixels
- Closed Captioning conversion (CEA-608/CEA-708)
- AFD input detection, down-convert control, and output pass through or overwrite
- Freeze (manual or on input signal loss) to black or last good frame
- Matte generator for background fill
- Video test generator
- Nominal video delay HD/SD, 2 frames (LFR), 4 frames (HFR)

## 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

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- 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, 1 BNC, 1x ST Fiber
  - 128-Channels, 24-bit, AES-10

## Audio Output Digital

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- 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, 1 BNC, 1x ST Fiber
  - 128-Channels, 24-bit, AES-10

## Audio Processing

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- 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 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

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

## Genlock

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

## Network Interface

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

## Front Panel

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

## Presets

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- Four Channel and Single Channel mode each support 40 Presets

## GPI

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

## Size (w x d x h)

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

## Weight

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- 7.0 lb (3.2 kg)

## Power

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

## Environment

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- 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)