

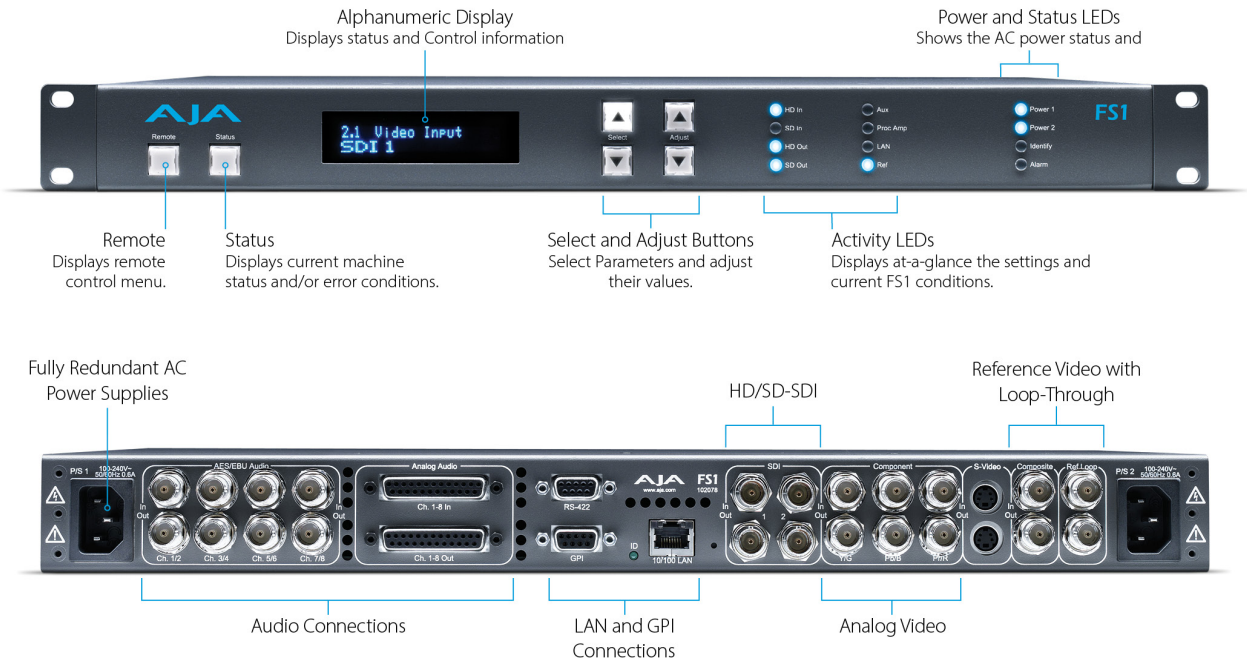


# FS1

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.

**\$3399 US MSRP**

<https://www.aja.com/products/fs1>



## Video Formats

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

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	
1080i60	1080i60	720p60	
720p60	720p60	1080i60	

### Notes:

- In the case of 1080pSF 23.98 input - and when 1080i 59.94 (or 525) is selected as an output format, the FS1 automatically does 3:2 pulldown to get the correct frame rate.
- When passing 24 or 60 frame rate video, output is high definition.

## 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, 2 x oversampling
- SD Component (3 x BNC)
  - SMPTE/EBU N10, Betacam 525 line, Betacam 525J
  - 12-bit A/D, 4 x 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, 4 x 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, 2 x oversampling
- SD Component (3 x BNC)
  - SMPTE/EBU N10, Betacam 525 line, Betacam 525J
  - 12-bit D/A, 4 x 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, 4 x oversampling

## Audio Input Digital

- 16-Channel, 24-bit SMPTE-259 SDI embedded audio, 48 kHz sample rate, synchronous
- 8-Channel, 24-bit AES/EBU audio, 48 kHz sample rate, synchronous or nonsynchronous, internal sample rate conversion (4 x BNC)

## Audio Input Analog

- 8-Channel, 24-bit A/D analog audio, 48 kHz sample rate, balanced (8 x XLR via 25-pin breakout cable)
  - +12dBu, +15dBu, +18dBu, +24dBu (Full Scale Digital)
  - +/- 0.2db 20 to 20 kHz frequency response

## Audio Output Digital

- 16-Channel, 24-bit SMPTE-259 SDI embedded audio, 48 kHz sample rate, synchronous
- 8-Channel, 24-bit AES/EBU audio, 48 kHz sample rate, synchronous or nonsynchronous, internal sample rate conversion (4 x BNC)

## Audio Output Analog

- 8-Channel, 24-bit D/A analog audio, 48 kHz sample rate, balanced (8 x XLR via 25-pin breakout cable)
  - +12dBu, +15dBu, +18dBu, +24dBu (Full Scale Digital)
  - +/- 0.2db 20 to 20 kHz frequency response

## Up-Conversion

- Hardware 10-bit
- Anamorphic: fullscreen
- Pillarbox 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: 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 new screen size

## 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

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- Analog Color Black (1V) or Composite Sync (2 or 4V)
- Looping, nonterminating

## Network Interface

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

## User Interface

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- Alphanumeric display, with dedicated buttons

## Machine Control

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- 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

## Size (w x d x h)

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17.25" x 12.5" x 1.75" iRU (438.1mm x 317.5mm x 44.4mm)

## Weight

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- 6.5 lb (2.94 kg)

## Power

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- 100-240 VAC 50/60 Hz (Dual, redundant power supplies), 25W typical; 30W max.

## Environment

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