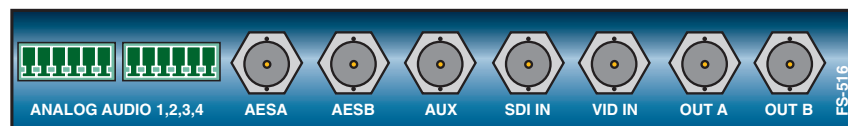


FS-516

Audio/Video Synchronizer & Embedder

Key Features

- Composite analog and SDI inputs and SDI outputs with audio embedding
- Composite analog synchronizing with zero decoding artifacts
- Clean, quiet composite analog to SDI decoding and SDI synchronizing with Auto-TBC
- Exceptional noise immunity to maintain lock to extremely noisy inputs without unwanted freezing or loss of video
- 12-bit processing for transparency and improved signal-to-noise
- Built-in test signal generator
- Built-in VITS Inserter
- Audio embedding to two groups from de-embedder, Dolby E input, discrete analog inputs and/or AES inputs
- Audio compressor/limiter
- Audio channel swapping, summing, phase inversion
- Audio embedding with assignable groups
- Assignable connectors—Configure AES input connectors as AES output connectors
- NTSC/PAL switchable



FS-516
Connector
View

Synchronizer. Decoder. Embedder. Single card solution for signal ingest.

The digital synchronizer/embedder accepts either an SDI input or uses Fortel DTV's proprietary 12-bit adaptive QuadraComb™ comb filter to decode the composite input and generate the SDI output. Integral to the card is an audio embedder, which embeds four channel pairs (two groups) into the SDI output. Audio may be sourced from any of the following: Four balanced analog audio inputs, two AES-3id inputs, embed groups from the SDI input, or from a separate Dolby E input.

QuadraComb decoding generates a cleaner, more accurate SDI signal by eliminating quantizing errors and unwanted comb artifacts. Dual Band Processing and Dynamic Threshold Modification preserve luminance detail and reduce chroma crawl and false chroma.

Video path features include proc amp controls, video and chroma AGC, video noise reduction, full-frame test signals, VITS insert, pass or strip input on lines 10-22 (NTSC/525) or 6-22 (PAL/625). On loss

of input, hot-switch to a captured frame, test pattern with text overlay, freeze, cut-to-black or timeout.

Audio features include automatic lip-sync correction (follow video synchronizer), manual offset delay of up to five seconds, audio compressor limiter, channel summing or swapping, manual channel phase invert, channel output group assignment, and Dolby E pass-through to the embedder.

Optionally, the FS-516 may be configured to substitute AES outputs for the AES inputs, which provides discrete digital audio outputs synced to the SDI video output.

The FS-516 is a modular card for Integrity system frames. Choose either a 1RU stand-alone frame or a 4RU high-density frame with optional redundant power supply.

FS-516 SPECIFICATIONS

Video Inputs

Composite Analog (BNC)	1V p-p into 75 Ω
Sampling & Processing	12 bits at 54 MHz
Analog return loss	>40 dB to 5.75 MHz
SDI (BNC)	SMPTE 259M-C
SDI return loss	>19 dB to 270 MHz

Video Outputs

SDI (2x BNC)	SMPTE 259M-C
Output SDI clock jitter	<740 pS p-p
SDI return loss	>19 dB to 270 MHz

External Genlock Reference

Composite analog (BNC)	1 V p-p into 75 Ω
Return loss	>40 dB to 5.75 MHz

Midplane genlock reference source may be selected instead of external.

Noise Handling

The input sync separator and clock generator will capture and maintain lock with noisy inputs that approach 0 dB S/N ratio.

Input Loss Modes

Pass bad video; Cut to black; Kill all outputs; Recall captured frame; Cut to test pattern with text overlay, Freeze last good field or Freeze last good field then timeout to black.

Performance

Signal to Noise Ratio	>64 dB (Unweighted luminance)
Luminance Freq. Response	\pm 0.1 dB to 5.5 MHz
LFR in TBC ON mode	+0.1/-0.5 dB to 4.5 MHz
Differential Gain	<0.5%
Differential Phase	<0.5°
K Factor (2T)	<0.3%
K Factor in TBC ON mode	<1%

Output Timing

SDI H Phase	0–1023 clocks
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Proc Amp Controls

Video Gain	\pm 6 dB
Black Level	\pm 200 mV (20 IRE)
Chroma Gain	\pm 6 dB
Hue (NTSC only)	0–360°

Audio Inputs

Analog Balanced (4x)	Detachable Phoenix Connector
Input Impedance	Hi-Z
Input Level	+0 to +28 dBu selectable
A/D Conversion	24-bit, 96 KHz
Dynamic Range	>106 dB
SNR	>110 dBfs A weighted
Distortion	< 0.001% (-96 dB)
Crosstalk	-96 dB
AES Unbalanced (BNC x3)	AES3-id 75 Ω unbalanced

AES #3 BNC jumper assignable as Dolby input or an analog video input.

Environmental & Mechanical

Power Consumption	12 W
Operating Temperature	0° C to +45° C
Humidity	10% to 95%, non condensing
Card Dimensions	6.0" x 9.4" (15.2 cm x 23.9 cm)
Cards require installation in Integrity system frames sold separately	
FRM-301 (1RU)	1.75" x 19.0" x 17.0"
FRM-304 (4RU)	7.0" x 19.0" x 21.0"

CAD drawings to aid system designers are available on request.