



HD & SDI FRAME SYNCHRONIZER
MODEL HFS-975



FEATURES

- ◆ HD I/O
- ◆ SDI I/O
- ◆ CA I/O
- ◆ CAV I/O
- ◆ Y/C I/O
- ◆ Transcoding
- ◆ VFD Readout
- ◆ Timing Control
- ◆ AES Embedding
- ◆ AES Audio Delay
- ◆ Test Patterns
- ◆ Proc Controls

PRELIMINARY

The HFS-975 Multi-Format Converter and Frame Synchronizer is a standard and high-definition synchronizer and converter. It combines video and audio processing capabilities with the ability to up-convert, down-convert, and cross-convert from most input video formats to almost any output video format.

The HFS-975 is equally suited for analog, digital or hybrid facilities, and represents the ideal choice for the professional user, making the transition to digital television affordable. This single unit comes standard with composite analog, component video; Y/C, HD and SDI, as well as AES embed and de-embed. The HFS-975 multi converter synchronizer provides an ideal bridge between analog, digital and high definition systems with analog, digital and embedded audio.

Closed Captions are passed transparently from input to out, through all down, cross and aspect ratio conversion. The entire vertical interval is passed to the output without degradation.

A complement of SDI test signals are provided on the analog and digital outputs of the HFS-975. Audio test tones are selectable for embedding of AES on the SDI outputs.

Controlling and monitoring of the signals that are passing through the HFS-975 are displayed on a front panel VFD. Providing instant operator control from the local control panel which allows for easy manipulation of video and audio signals.

Operational modes for numerous applications are user-selected: The user has the choice of processing any input to any output, A to D, D to A, up, down or cross-conversion, and processing. Any input can be switched to all standard and high definition outputs.

Since analog video will be a requirement for awhile, the HFS-975 fulfills those requirements for all applications. Analog video CAV and Y/C are also supported. Firmware is easily updated as the requirements occurs. Ethernet is a future addition to the HFS-975.

ALL FORMATS SUPPORTED

Link Electronics is committed to customer service. Our goal is to provide the highest level of support by putting you, the customer, first. We take pride in helping our customers in need of our product support. Our support teams consist of qualified technicians who support all situations regarding product performance, integration and operational issues. We are adept at providing experienced proven solutions, to ensure the reliability of Link Electronics products. Our experienced and dedicated technical team stands ready to help meet your time schedules to meet your demanding requirements. Our motto is to provide you with Innovative products with the customer in mind.

The HFS-975 provides Up, down, cross and aspect ratio conversion with synchronization. Audio processing of the AES audio delay may require increased audio delay for proper lip sync. There are four channels of AES audio to accommodate the requirements for surround sound applications is one of the many features of the HFS-975. The ability to take legacy analog video signals into the digital domain using the highest quality conversions before up converting and compressing video signals is a natural for this professional frame sync. The HFS-975 will compensate for long cable runs up to 300ft, depending on signal output.

The HFS-975 provides conversion for almost any signal type for HDTV video. For the analog environment, it can time base correct any tape format, analog, SDI or HDTV to house master black. The HFS-975 can perform up-conversion for HD output, down-conversion for monitoring, and cross-conversion for programs that are recorded in other than the native format. The video-to-audio timing are adjustable to maintain lip sync. This makes the HFS-975 first choice the most demanding requirements. The integrity of Closed Captions are maintained.

OUTPUTS								
INPUTS	CV	CAV	Y/C	SDI	486i	720p	1080i	1080p
CV	X	X	X	X	X	X	X	X
CAV	X	X	X	X	X	X	X	X
Y/C	X	X	X	X	X	X	X	X
SDI	X	X	X	X				
486i	X	X	X		X			
720p	X	X	X			X		
1080i	X	X	X				X	
1080p	X	X	X					X



HFS-975 HIGH DEFINITION FRAME SYNCHRONIZER

HD/SDI VIDEO INPUTS

Standard: SMPTE 292M
Connector: BNC
Impedance: 75 Ohms
Return Loss: >18 dB, typical, from 5 MHz to 1485 MHz
Equalization: Equalization: Adaptive cable equalization for up to
400 ft, typical, of Belden 8281 co-axial cable or
500 ft, typical, of Belden 1694A co-axial cable
Level: 800 mV

SD-SDI Video Input

Standard: SMPTE259M-C, 270 Mbps, 525/625 component
Connector: BNC
Impedance: 75 Ohms
Return Loss: >18 dB from 5 MHz to 270 MHz
Equalization: >23 dB Belden 8281 cable
Luma: 10 bits
Chroma: 10 bits

S-Video Input

Standard: NTSC, PAL
Connector: 4 Pin DIN
Y/C gain error: < 0.1 dB
Y/C delay error: <10 ns

Composite Video Input

Standard: NTSC, PAL
Connector: BNC
Quantization: Normal
NTSC, PAL-B, PAL-M : 10 bits
Return Loss: >40 dB, 0.1 MHz to 6 MHz
Common Mode Range: 5.0 Volts
CMRR: 60 dB @ 50/60 Hz, 5 V pk-to-pk
Setup Level Range: ±7.5 IRE
Frequency Response: ±0.1 dB, 0.1 MHz to 6 MHz

Component Input

Format: BETA, MII, RGB or YUV
Connector: BNC
Impedance: 75 Ohms
Input Level: 1.0 V p-p
Quantization: Normal Level
CAV/Y: 10 bits
AV/Cb: 10 bits
CAV/Cr: 10 bits
Return Loss: >40 dB, 1 kHz to 6 MHz
Frequency Response Y: ±0.15 dB to 5.5 MHz
Pb: ±0.10 dB to 3.0 MHz
Pr: ±0.10 dB to 3.0 MHz
S/R: >60dB

GENLOCK

Signal Type: NTSC/PAL
Connector: BNC
Impedance: 75 Ohms
Return Loss: >40 dB, 0.1 MHz to 6 MHz
Input Level, CV: 1 V pk-to-pk, -5.0 dB to +6.0 dB for NTSC/PAL-B

HD/SDI Video Output

Standard: SMPTE292M
Connector: BNC
Impedance: 75 Ohms
Return Loss: >18 dB, typical, from 5 MHz to 1485 MHz

S/N: 800 mV ± 10%
DC offset 0.0 V ± 0.5 V
Rise/Fall Time: <270 ps
Overshoot: <10% of amplitude
Jitter: <135 ps pk-to-pk

SD-SDI Video Output

Standard: SMPTE259M-C, 270 Mbps, 525/625 component
Quantization: 10 bits
Connector: BNC
Impedance: 75 Ohms
Return loss: >18 dB from 5 MHz to 270 MHz
S/N: 800 mV ± 10%
DC Offset: 0.0 ± 0.5 V
Rise/Fall Time: 400 ps to 1500 ps (20% to 80%)
Overshoot: <10%
Jitter: <0.2 UI pk-to-pk

Composite Video Output

Standard: NTSC, PAL
Connector: BNC
Quantization: 10 bits
Impedance: 75 Ohms
Return Loss: >40 dB, 0.1 MHz to 6 MHz
Frequency Response: ±0.1 dB (0.1 MHz to 6 MHz)
DC Offset: ±0.1 dB (0.1 MHz to 6 MHz)
Differential Gain: <0.5%
Differential Phase: <0.5°
Y/C Delay: <1 ns
Transient Response: < 0.5% K Factor
S/R: >63 dB (0.1 MHz to 6 MHz)

Component Output

Format: BETA, MII, RGB & YUV
Connector: BNC
Impedance: 75 Ohms
Quantization, Y: 10 bits
Cb: 10 bits
Cr: 10 bits
RGB: 10 bits
Return Loss: >40 dB (1 kHz to 6 MHz)
Frequency response Y: ±0.1 dB to 5.5 MHz
Pb: ±0.10 dB to 3.0 MHz
Pr: ±0.10 dB to 3.0 MHz
DC Offset: <0.0 ± 5 mV
Relative Delay: <±1 ns
S/N: >63dB

AES Input

Standard: AES3, SMPTE276M
Type: Unbalanced, AC coupled
Connector: BNC
Signal Level: 800 mv
Impedance: 75 Ohms
Return Loss: >25 dB, 0.1MHz to 6 MHz
Input audio rate: 48 kHz to 196 kHz

AES Output

Standard: AES3
Type: Unbalanced, AC Coupled
Connector: BNC
Signal Level: 800mV
Impedance: 75 Ohms
Return Loss: >25 dB, 0.1 MHz to 6 MHz
Jitter: <± 4 ns, peak value
DC Offset: 0.0 ± 50 mV
Fall Time: 30 ns to 44 ns (10% to 90%)