

9950

3G Up/Down/Cross Converter and Frame Sync

The 9950 is a frame synchronizer and an up, down and cross converter that supports 3 Gb/s, HD and SD SDI signals. Excellent for on-air use, the 9950 is equally at home in a 3G island, in an HD signal ingest installation, or in a production application. Embedded audio will have automatic delay compensation, dutifully retaining lip sync.

Upconversion

When configured as an upconverter the 9950 outputs 1.5 HD or 3 Gb/s HD video. All processing is performed on progressive signals at full bandwidth 4:4:4 for optimum signal quality. Aspect ratio conversion choices include: Letterbox, Anamorphic, Crop and Zoom.

Downconversion

When used as a downconverter, the 9950 has a 3G/HD SDI input and four outputs. The Aspect Ratio Conversion process offers Resizing and Repositioning with choices for: Letterbox, Anamorphic, Crop and Zoom. The 9950 automatically adjusts between 3G/HD and SD color space.

Cross Conversion

The 9950 provides cross conversion between formats, processing all popular variations of 1080 and 720, making it simple for every facility to ingest any type of 3G, HD or SD signal.

Aspect Ratio Conversion

The 9950 incorporates an aspect ratio converter for standard definition signals. Resizing and Repositioning includes choices for: Letterbox, Anamorphic, Crop and Zoom.

The 9950 supports AFD (Active Format Description) to mark or identify the aspect ratio of the video content. These flags are generated at the output of the module, and they are read at the input. This allows the up and downconversion process to adapt automatically to material that is already in letterbox or pillarbox form in order to produce the most appropriate conversion.

Picture Correction Controls

Input standard and frame rate are auto-detected. The 9950 automatically performs color space conversion. The built-in Proc Amp provides adjustment of signal parameters with controls for video, chroma, setup, hue. Vertical interval data is faithfully preserved and is passed from input to output. The output is timeable with respect to the reference input.

Features

- **High-quality upconverter, downconverter, cross converter, aspect ratio converter**
 - **3G, HD and SD SDI I/O**
 - **Smart auto-config – set output, then feed any input**
 - **Proc amp with video, chroma, setup and hue adjustments**
 - **Built in bars, black and tone**
 - **Passes embedded audio with proper delay compensation and lip sync preservation**
 - **Supports four groups of embedded audio**
 - **Full frame sync – accepts asynchronous signals**
 - **Reference input – output is timeable**
 - **Automatically adjusts between SD/HD color space**
 - **AFD detection and insertion**
 - **16 bit processing**
 - **Built-in noise reduction**
 - **Passes closed captioning**
 - **3:2 pulldown**
 - **Local and remote control**
 - **Memory registers**
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Flexible Synchronization

An infinitely adjustable timing system genlocks to your house reference. The 9950 genlocks to either composite video (PAL or NTSC) or to Tri-Level Sync. The module can lock to the frame's master reference or reference can be connected directly to the module's external reference BNC. The serial output timing can be set anywhere within a frame of the selected input reference.

Upon loss of signal, the 9950 provides freeze frame or black until the signal is recovered. In freeze mode, audio can be muted or passed as desired.

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Audio Support

The 9950 supports four groups (16 channels) of audio embedded into the SDI stream. The internal processing disembeds the audio so that it can be processed independently of the video. When the video input and output are not synchronous to each other and the 9950 acts as a frame synchronizer; the audio content is appropriately sample rate converted to the new output sample rate. There is a compensating delay in the audio path to maintain lip sync with the video content. Additionally, delay is adjustable up to one second.

The 9950 includes a full-featured, sixteen-channel audio mixer. The channel swap and shuffle capability allows you to completely rearrange and remix audio channels. It can take embedded content, adjust levels and remap channels, and deliver it to the output as an embedded signal. It provides precise control over audio level, with up to 12 dB of gain to compensate for low level sources.

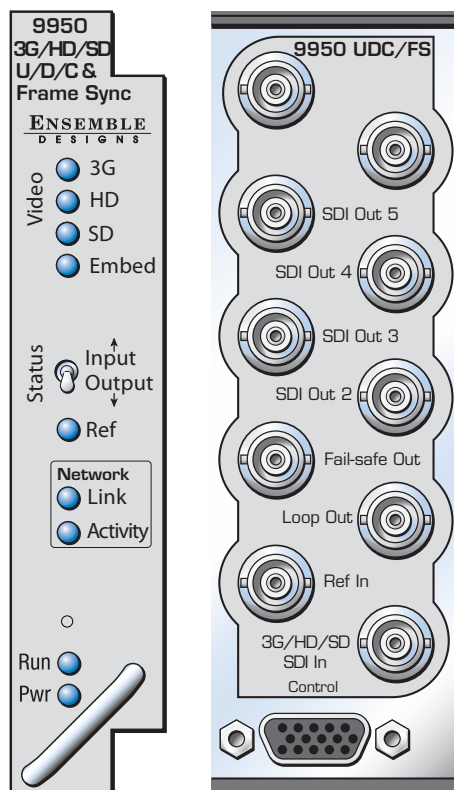
For discrete AES I/O, analog audio I/O, Dolby encoding, Dolby decoding and automatic gain control, pair the 9950 with the 9600 3G Embedder, Disembedder and Data Inserter. With this 9600 module you can use Dolby encoding and decoding submodules, as well as 9670 Level Track Loudness Control AGC software.

Automatic Aspect Ratio Conversion

The 9950 supports AFD (Active Format Description) to mark or identify the aspect ratio of the video content. These flags are generated at the output of the module, and they are read at the input. This allows the up and downconversion process to adapt automatically to material that is already in letter or pillarbox form in order to produce the most appropriate conversion.

Complete Control System

The 9950 can be used locally or controlled and configured remotely with Avenue Touch Screens, Express Panels, or Avenue PC Software. Alarm generation, configurable user levels, module lock out, and customizable menus are just some of the tools included in the Avenue Control System. SNMP support is provided.



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Input

Number	One
Signal Type	HD Serial Digital 2.97 Gb/s SMPTE 424M, 425M HD Serial Digital 1.485 Gb/s SMPTE 274M, 292M or 296M SD Serial Digital 270 Mb/s, SMPTE 259M Both 525 and 625 standards
Impedance	75 Ω
Return Loss	>15dB to 1.485 GHz
Max Cable Length	270 Mb/s 300 meters Belden 1694A 1.485 Gb/s 100 meters Belden 1694A 2.97 Gb/s 70 meters Belden 1694A

Automatic Cable Input Equalization

Standards Supported

1080p 50, 59.94 Hz, SMPTE 424M, 425M, Level A
 1080i 50, 59.94 or 60 Hz, SMPTE 274M -4,5,6
 1080p 23.98, 24 or 25 Hz, SMPTE 274M -9,10,11
 1080sF 23.98, 24 or 25 Hz, RP211 -14,15,16
 720p 50, 59.94 or 60 Hz, SMPTE 296M -1,2,3
 525i 59.94, 625i 50, SMPTE 259M

Format Conversion

HD 50, 59.94 or 60 Hz to/from HD 50, 59.94 or 60 Hz
 HD 23.98, 24 or 25 Hz to/from HD 23.98, 24 or 25 Hz
 HD 23.98, 24 Hz to/from HD 59.94 or 60 Hz
 HD 25 Hz to/from HD 50 Hz
 SD 50, 59.94 or 60 Hz to/from HD 50, 59.94 or 60 Hz

Serial Digital Output

Number	Four (one fail-safe bypass)
Signal Type	HD Serial Digital 2.97 Gb/s SMPTE 424M, 425M HD Serial Digital 1.485 Gb/s SMPTE 274M, 292M or 296M SD Serial Digital 270 Mb/s, SMPTE 259M Both 525 and 625 standards
Impedance	75 Ω
Delay	Up to 8 frames
Return Loss	>15dB to 1.485 GHz

Reference Input

Number	One external (modules BNC) One internal (frame master ref BNC)
Signal Type	PAL or NTSC composite video or Tri-Level Sync
Return Loss	>40 dB (applies to external ref input)

Embedded Output (In SDI Outputs)

Channels	Sixteen
Bit Depth	24 Bit

General Specifications

Power Consumption	10 watts
Temperature Range	0 to 40°C ambient (all specs met)
Relative Humidity	0 to 95%, noncondensing
Altitude	0 to 10,000 ft