Model 7910

HD Upconverter and Cross Converter

The 7910 module accepts an SD or HD SDI input and has four HD SDI outputs. Excellent for on-air use, the 7910 is equally at home in an HD island, in a signal ingest installation, or in a production application. Since the 7910 functions as either an Upconverter or Cross Converter, it's useful on the output of a server when material may switch between HD programming and SD commercials. It's also convenient in a dual-rate master control environment.

Sophisticated Adaptive Noise Reduction ensures delivery of a pristine output that is excellent for use in broadcast. Additionally, Picture Detail Enhancement is used to recover information that has been lost due to poor frequency response upstream. Aspect ratio conversion choices include: Letterbox, Anamorphic, Crop and Manual Zoom.

Input standard and frame rate are auto-detected. The 7910 automatically adjusts from SD to HD color space and gamma. The built-in Proc Amp provides adjustment of signal parameters with controls for Video, Chroma and Pedestal. The upconverted output is timeable with respect to the reference input. When converting to film rate (1080sF/23.98) formats, 3:2 pulldown cadence is automatically detected and backed out when present in the input.

The 7910 can be configured 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.

Metadata

HD closed captioning is carried in data packets in the vertical interval ancillary data space. The 7910 properly translates between traditional SD captioning (line 21 or 23) and HD caption data so that closed-captioning content is converted transparently between video standards and formats.

Features

- Upconverter and Cross Converter
- Proc Amp and Frame Sync
- 16 bit processing
- Accepts asynchronous signals
- Reference input – output is timeable
- Automatically adjusts between SD/HD color space and gamma
- Adaptive Noise Reduction and Picture Detail Enhancement
- All processing performed in progressive
- Auto-detection of input standard and frame rate
- Built-in test pattern and tone
- Audio Mux/Demux optional
- Audio Automatic Gain Control optional
- Add audio sub module for delay and processing
- Occupies one slot in frame, even with audio option

Automatic Aspect Ratio Conversion

The 7910 supports WSS (Wide Screen Signaling), and 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.

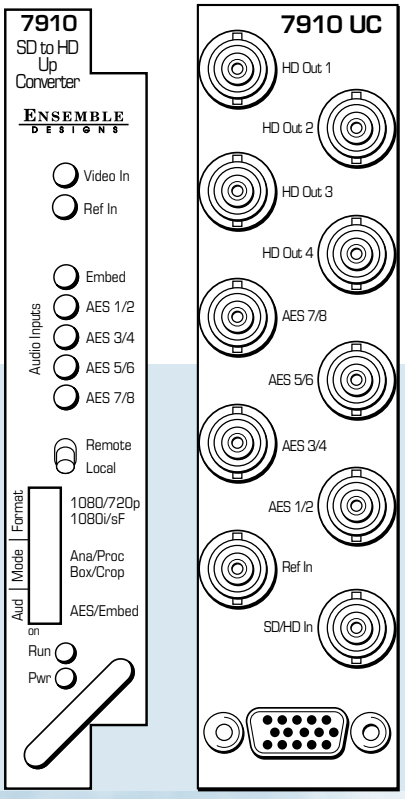
Audio Options

When an audio sub module is installed, audio is automatically delayed as needed to compensate for the video processing in the 7910. For complete audio processing, choose from three different audio sub modules. Sub modules plug onto the 7910 board and do not take up a slot in the frame.

The 8415 is an eight-channel audio sub module with AES I/O that provides management of embedded audio in the processing path, or supports audio embedding/disembedding alongside the video processing elements. Embedded audio is safely bypassed around the video frame store with the lip sync preserved. Level adjustments and channel shuffling are accessed through the built-in audio mixer. The 9670 Automatic Gain Control option can be added to the 8415. All audio processing is performed at full 24 bit resolution.

The 7610 provides carriage of up to eight channels of embedded audio through the format conversion process. Embedded audio in the input signal is delayed to match the video delay and preserve lip sync. The delayed content is reinserted in the video output. No level adjustment or channel swapping is provided.

The 7615 also provides processing for signals with eight channels of embedded audio. It offers the same processing and AES I/O as the 8415 plus the ability to decode Dolby E signals.



www.ensembledesigns.com
tel 530.478.1830

Serial Digital Input

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

Automatic Cable Input Equalization

HD Standards Supported
1080i (SMPTE 274M -4,5,6) 50, 59.94 or 60 Hz
720p (SMPTE 296M -1,2,3) 50, 59.94 or 60 Hz
1080p (SMPTE 274M -9,10,11) 23.98, 24, 25 Hz
1080sF (RP211 -14,15,16) 23.98, 24, 25 Hz
525i 59.94, 625i 50

Reference Input

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

Conversion Directions

Upconversion from
525 (NTSC) to 1080i/59.94, 720p/59.94, 1080p/23.98, 1080sF/23.98, and
625 (PAL) to 1080i/50, 720p/50, 1080p/25, 1080sF/25

Cross Conversion within frame rate families
525 Derived Family: 1080i/59.94, 720p/59.94, 1080p/23.98, and 1080sF/23.98
625 Derived Family: 1080i/50, 720p/50, 1080p/25, 1080sF/25

AES/EBU Digital Inputs (with 8415 sub module option)

Number	Four (total of eight channels)
Signal Type	AES3id
Connectorization	Coaxial, 75 Ω
Bit Depth	20 and 24 bit
Sample Rate	30 kHz to 100 kHz (sample rate converted internally to 48 kHz)
Crosstalk	<144 dB
Dynamic Range	>144 dB
Reference Level	-18 or -20 dBFS (selectable)
AC-3, Dolby E	Supported when inputs are synchronous

Embedded Inputs

Number	Four AES Streams (from video input) Eight channels from any two of four groups Selectable to any of four groups
Channels	Eight
Bit Depth	20 and 24 bit

AES/EBU Digital Outputs

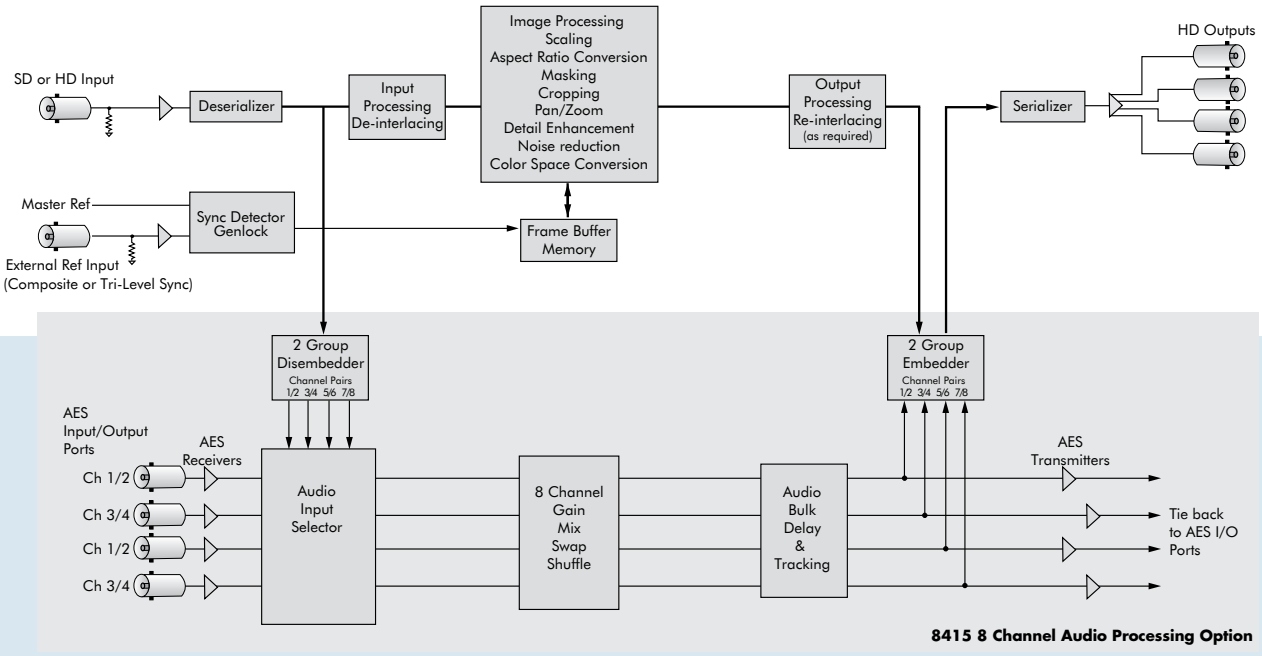
Number	Four (total of eight channels)
Signal Type	AES3id
Connectorization	Coaxial, 75 Ω
Bit Depth	20 and 24 bit
Sample Rate	48 kHz Synchronous to video output
Reference Level	-18 or -20 dBFS (selectable)

Embedded Output

Number	Four or two depending on configuration
Group Assign	Cascade, or Replace any two of four groups
Channels	Eight
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



8415 8 Channel Audio Processing Option