

## HD Cross Converter

The 7930 module provides cross conversion between HD 1.5 Gb/s formats, processing all popular variations of 1080 and 720, making it simple for every facility to ingest any type of HD signal.

All popular variations of 720p, 1080i, 1080sF and 1080p are supported. The 7930 converts between any HD signals within the 59.94/23.98/29.97 family, within the 50/25 fps family, or within the 60/30 fps family. When converting from 59.94 to 23.98 formats, the 3:2 cadence of any existing film material in the input is automatically detected and backed out.

The 7930 can be configured to continually output your facility's preferred HD format. Just connect any HD signal to the input and the 7930 will cross convert it to the appropriate format for output. And, if the 8415 audio option is installed, the audio will automatically be processed as well.

The 7930 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 7930 converts this caption data transparently between video standards and formats.

### Automatic Aspect Ratio Conversion

The 7930 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

### Features

- » HD Cross Converter for 720p, 1080i, 1080sF and 1080p
- » 16 bit processing
- » All processing performed in progressive
- » Accepts asynchronous signals
- » Reference input, output is timeable
- » Auto detects input standard and frame rate
- » Proc Amp
- » Passes closed captioning
- » 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

and downconversion process to adapt automatically to material that is already in letterbox or pillarbox form in order to produce the most appropriate conversion.

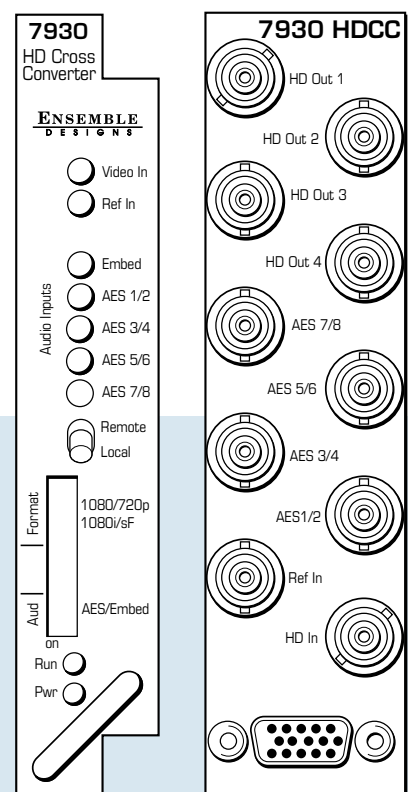
### Audio Options

When an audio sub module is installed, audio is automatically delayed as needed to compensate for the video processing in the 7930. For complete audio processing, choose from three different audio sub modules. Sub modules plug onto the 7930 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.



**Serial Digital Input**

Number One  
Signal Type HD Serial Digital 1.485 Gb/s  
SMPTE 274M, 292M or 296M  
Impedance 75 Ω  
Return Loss >15 dB  
Max Cable Length 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

**Serial Digital Output**

Number Four  
Signal Type HD Serial Digital 1.485 Gb/s  
SMPTE 274M or 296M  
Impedance 75 Ω  
Return Loss >15 dB  
Output DC None (AC coupled)

**Reference Input**

Number One external (modules 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**

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)  
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**

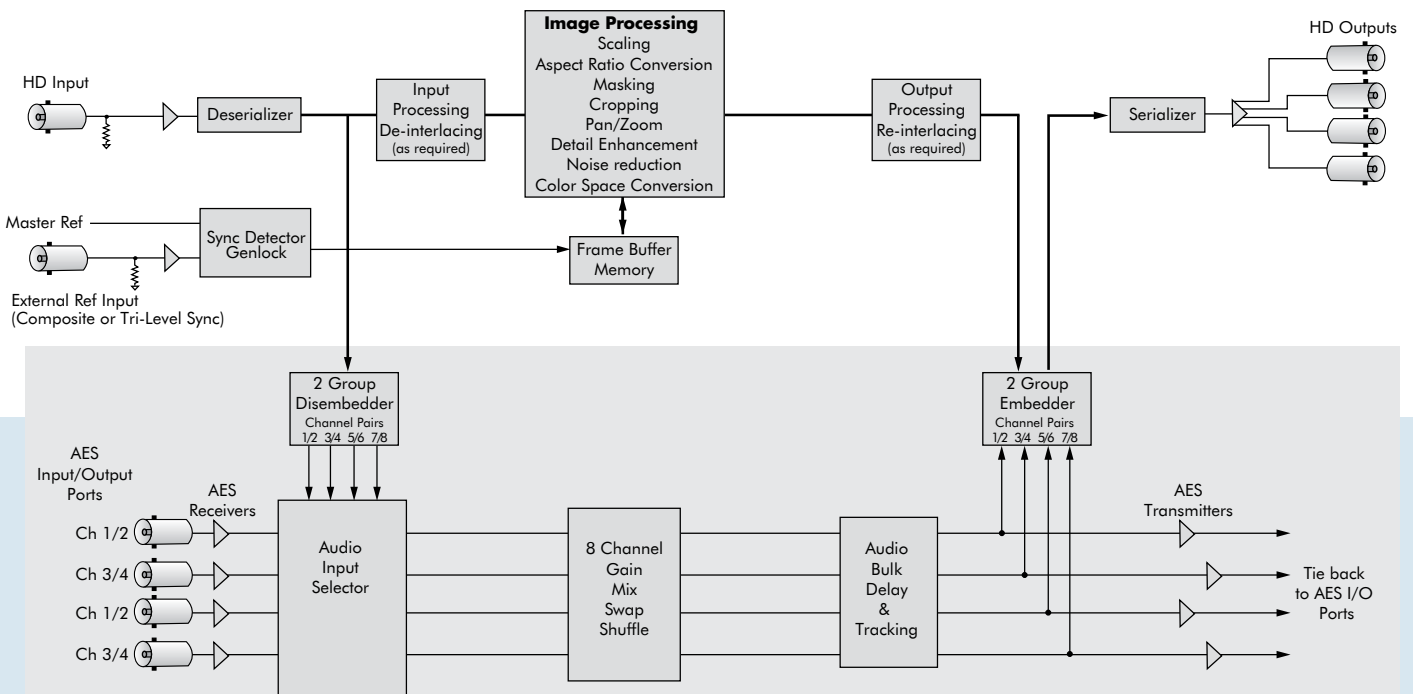
Number Four (total of 8 channels)  
Signal Type AES3id  
Connectorization Coaxial, 75 Ω  
Bit Depth 20 and 24 bit  
Sample Rate 48 kHz  
Reference Level Synchronous to Video output  
-18 or -20 dBFS (selectable)

**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