

Perfection
in Motion



Alchemist Live

Motion-compensated Framerate Conversion for Live Media Streams

Alchemist, now in its seventh generation, is recognized throughout the world as the undisputed gold standard of motion compensated frame rate standards conversion.

Alchemist Live from Grass Valley builds on this legacy and offers the very best motion-compensated framerate conversion, providing transparent, artifact-free conversion for seamless global distribution of live media.

Available in two operational modes: as a single channel for UHD-4K conversions or three channels for HD/3G conversions, Alchemist Live can also support either SDI workflows or IP SMPTE ST 2110 applications with 10/40 GbE or 25/100 GbE interfaces.

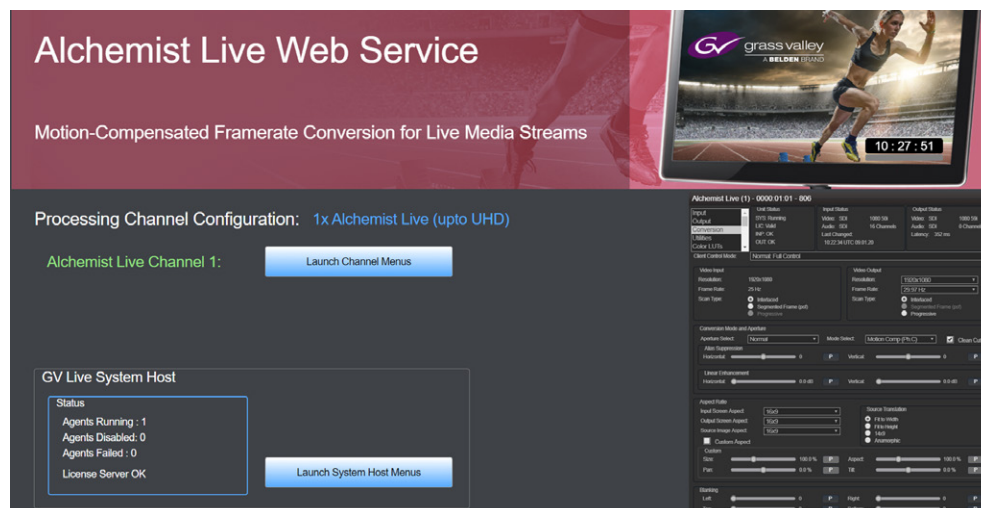
Along with 4K UHD, HDR mapping is also included with built-in HDR conversion algorithms supporting HLG, PQ and S-Log3 transfer functions and BT.709 and BT.2020 color gamuts, plus a custom LUT loading feature for using .cube tables, and a range of user-configurable gamma, SDR/HDR range, clip and gain controls.

Alchemist Live will also pass up to 16 channels of embedded audio (or SMPTE ST 2110-30) with a delay to match the processing, and gain, shuffling and extended delay controls. A Dolby® E Transcoding option is also available to handle embedded Dolby E streams ensuring that the guard band is maintained (SDI applications only).

Supplied as a certified COTS turnkey solution, Alchemist Live has a number of remote control and monitoring options from GV RollCall and GV Orbit, a built-in HTML5 web interface, and SNMP integration for third-party network management systems.

KEY FEATURES

- World-class motion-compensated framerate conversion — new technology optimized to deliver stunning image quality, however complex the source
- Supports live IP or SDI media streams, either 1x 4K UHD channel or 3x HD/3G channels
- SD, HD, 1080p, 4K UHD & 4K DCI native support
- HDR handling for HLG, PQ and S-Log3, including custom LUTs
- Video processing including frame synchronizer, ARC control, logo insertion, proc amp and legalizer
- Closed caption support and ancillary data bridge (Alchemist Live SDI only)
- 16-channel audio processing with gain, shuffling and delay
- Dolby E Transcoding option to maintain Dolby guard-band protection (Alchemist Live SDI only)
- HTML5 web control interface, along with native support for Grass Valley control and monitoring solutions including: RollCall, GV Orbit and GV Convergent
- Certified turnkey solution



HTML5 web interface for remote control of Alchemist Live

Get the Most from Alchemist Live with GV Care Prime

Built on 50 years of experience and service excellence, GV Care provides access to the worldwide technical and operational support that you need to help keep your products running smoothly so that you can focus on business

GV Care Prime provides a highly skilled 24x7 technical help desk, committed response times, knowledge base access, software maintenance support, and fast access to spare parts with our high-performance Advance Exchange service.

SPECIFICATIONS

Supported Video Formats

SD: 525, 625
 HD: 720 50/59.94/60p, 1080 25/29/30i
 3G: 1080/2160 (4K UHD-quad) 23/24/25/29/30/50/59.94/60p

Processing Channels

1 channel of 4K UHD conversion
 3 channels of 1080p conversion*

Conversion Modes

Motion Compensated Interpolation

Stream Inputs and Outputs (for IP Version)

Dual 100 GbE interface
 Video: SMPTE ST 2110-20, RFC 4175, TR-03
 Audio: SMPTE ST 2110-30, AES67, RFC 3190 (48 kHz, 24-bit PCM, up to 16 audio channels per video stream. Synchronization and timestamp realignment with video stream. Supported packet timing: 125 µs, 250 µs, 500 µs, 1 ms, 4 ms)
 SMPTE ST 2022-7 Packet redundancy and re-ordering

SDI Inputs and Outputs (for SDI version)

8 x 75Ω SD/HD serial digital interface with 16 channels of embedded audio
 3 Gb/s HD-SDI SMPTE ST 424/425
 Quad link / Square division / 2SI
 1.5 Gb/s HD-SDI SMPTE ST 292 / SMPTE ST 299
 270 Mb/s SD-SDI SMPTE ST 259

Supported Audio Format

16 PCM pass-through channels of audio (for IP version)
 16 PCM pass-through channels of embedded audio (for SDI version)
 Dolby E Transcoding, of up to 3 Dolby E streams (licensed option – Alchemist Live SDI only)

Control & Monitoring

Standard RollCall interface
 Standard RollCall logging and reporting
 GV Orbit or Convergent for IP version

Form Factor

4 RU
 2000W dual redundant PSU @240V AC (1000W @ 120 VAC)
 Power consumption: 850W

Connectivity

2 x RJ45 GbE LAN ports
 1 x RJ45 dedicated IPMI LAN port
 1 x VGA (console)

Video Utilities

Color space conversion (REC601 / BT709 / BT2020)
 Alias Suppression — Horizontal & vertical
 RGB Legalization (700 / 721 / 735 / Custom)
 Aperture — Sharp / Normal / Anti-alias
 VANC bypass (Alchemist Live SDI only)
 Pattern Generator
 Logo Inserter
 Caption overlay

HDR Processing

HDR (PQ / S-Log3 / HLG) to SDR
 HDR (PQ / S-Log3 / HLG) to HDR (PQ / S-Log3 / HLG)
 SDR to HDR (PQ / S-Log3 / HLG)
 Custom LUTs

Reference Input

SDI version: SD Bisync, HDTV Trisync
 IP version: Input locked

Latency

High framerate conversion, 210 ms – 320 ms (actual value depends on standards & genlock mode)
 Low framerate conversion, 420 ms – 630 ms (actual value depends on standards & genlock mode)

Mechanical

Temperature range: 0 to 35°C (32 to 95°F) operating
Cooling: Front to rear
Weight: Gross weight 28.1 kg (62 lbs.)
Case type: 4 RU freestanding or rackmount
Dimensions: 462 mm x 673 mm x 172 mm (18.2 x 26.5 x 6.8 in.)

* All three inputs must be the same framerate and all three outputs must be the same framerate.

ORDERING

IP Version

9822210
 Alchemist Live (IP) (Software licenses and hardware)
 Motion compensated framerate conversion for Live IP media streams. 1x 4K UHD channel or 3x 1080p channels

SDI Version

9822200
 Alchemist Live (SDI) (Software licenses and hardware)
 Motion compensated framerate conversion for SDI media streams. 1x 4K UHD channel or 3x 1080p channels

SDI Option

ALCLIVE-DBE
 Alchemist Live single-channel Dolby E transcoding license – enables 1 channel of Dolby E transcoding in UHD mode, or in a single SD/HD/3G video channel in HD mode (assignable 1 per video channel). Note: maximum of three Dolby E transcodes permitted per Turnkey unit

IP Upgrade

9822250
 Alchemist Live (SDI to IP upgrade) (Software licenses and hardware changes)
 Motion compensated framerate conversion for live IP media streams. 1x 4K UHD channel or 3x 1080p channels

IP Options

FCQ-100GE-SR4
 100GBASE-SR short range QSFP for MMF (Note: Single QSFP support only)

FCQ-40GE-SR
 40GBASE-SR short range QSFP for MMF.

FGAN FCQ-ADPT-10
 Ethernet adapter 40 Gb/s to 10 Gb/s QSFP to SFP+

FGAN FCQ-ADPT-25
 Ethernet adapter 100 Gb/s to 25 Gb/s QSFP28 to SFP28

Mandatory Maintenance

Conver-Prime
 Mandatory 1-year annual maintenance — includes hardware and software support and in-version software updates

DS-PUB-2-0701D-EN



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