

ALCHEMIST Ph.C™ - HD The world's finest motion compensated high-definition standards converter

The **Alchemist Ph.C**, now in its sixth generation, is recognized throughout the world as the undisputed gold standard of motion compensated frame rate standards conversion. Now Snell & Wilcox is bringing Alchemist Ph.C quality to the HD domain with the introduction of Alchemist Ph.C - HD, the world's finest motion compensated high-definition standards converter.

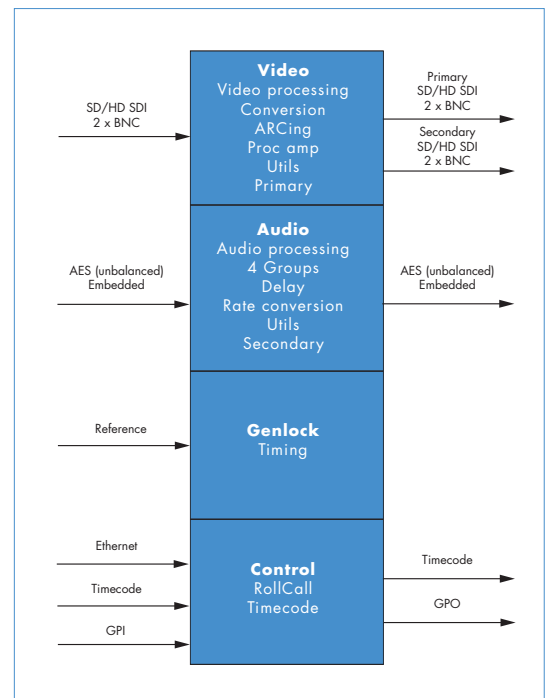
The result of an extensive research into the exacting demands of HD frame-rate conversion, Alchemist Ph.C - HD is designed to produce converted HD outputs that are virtually indistinguishable from the input.



The system's conversion quality is guaranteed through the utilization of the company's Emmy® award-winning Ph.C motion measurement technology. Ph.C algorithms, which have been continuously refined since the introduction of the first Alchemist Ph.C in 1992, have been optimized to prevent motion-related artifacts in high-definition video. The resulting output images are clear, sharp and free from the motion artifacts commonly associated with standards conversion.

With Alchemist Ph.C - HD, high-definition content including news, sports, live events and entertainment programming can now be broadcast around the globe in multiple high-definition standards and formats without degradation of image quality. Alchemist Ph.C - HD automatically processes image movement to produce clear, smooth motion with the widest range of input material on the largest HD video displays.

Alchemist Ph.C - HD provides a complete one-box system solution that can easily integrate into any broadcast facility. It features the ability to convert between all commonly used HD broadcast standards and formats and has been architected to accommodate new standards as they emerge, thus future-proofing the investment of customers. Alchemist Ph.C - HD is also capable of cross conversion, upconversion and downconversion of the same and different frame rates, making it a truly universal conversion platform.





Ph.C is a proprietary Snell & Wilcox technology that utilizes phase correlation-based motion estimation, the most powerful and accurate method of motion measurement, to produce stunningly sharp and detailed converted outputs that are virtually indistinguishable from the input. Because Ph.C operates in the frequency rather than spatial domain, it is highly tolerant to noise and rapid changes in luminance levels that are commonly found in many types of content.

Alchemist Ph.C – HD is designed to meet the challenges of today's multichannel audio world, handling embedded audio and providing 8 AES inputs and outputs. In addition to handling 16 channels of PCM audio, Alchemist Ph.C - HD is Dolby E ready using the optional Dolby E transcoder card. In order to eliminate lipsync issues, all audio that asses through the system is time compensated via an integral audio delay.

Also included is CleanCut™ technology, a Snell & Wilcox technique that ensures that video cuts at the input appear as identical cuts at the output. Accurate cut detection and processing is an important factor in maintaining quality control of converted video and with Alchemist Ph.C - HD this is done automatically.

The Alchemist Ph.C - HD platform includes optional capability for handling timecode, using VITC and LTC. For added flexibility XLR connectors are provided. This option provides timecode gearbox functionality greatly simplifying production of deliverables with correct timecode when standards converting.

In addition, noise reduction will be available to further aid in applications where compression preprocessing is needed. The tight integration of motion compensated conversion, CleanCut and noise reduction combine to make the Alchemist Ph.C - HD a very compression-friendly device.

Adding to its operational flexibility, the Alchemist Ph.C - HD provides two independent video outputs, a feature that provides expansion capability for two simultaneous program feeds of different standards. For example, if the input is 1080/25i, the outputs could be 1080/29i and 525/29i. This removes the need for an outboard downconverter or a second standards converter. A Gamut legalization circuit also ensures that even if the input is out of spec, the output of the unit will be compliant.

As with all Snell & Wilcox "smart" infrastructure products, the Alchemist Ph.C - HD can easily be integrated with the Snell & Wilcox RollCall® networked control and management system and monitored via Rollcall. Set-up is as simple as plugging in a single cable. The converter self configures automatically on the network in minutes.

Alchemist Ph.C set the industry standard for the finest SD frame-rate conversion. With the Alchemist Ph.C - HD, Snell & Wilcox has once again engineered a conversion platform without compromise or peer, thereby extending its franchise into the high-definition domain.

Alchemist Ph.C - HD Conversions				OUTPUT					
				HD SDI				SD SDI	
				1080i		720p		576i	480i
				25	29.97	50	59.94	25	29.97
INPUT	HD SDI	1080i	25	Pass Thru	Cross Frame	Cross	Cross Frame	Down	Down Frame
			29.97	Cross Frame	Pass Thru	Cross Frame	Cross	Down Frame	Down
		720p	50	Cross	Cross Frame	Pass Thru	Cross Frame	Down	Down Frame
			59.94	Cross Frame	Cross	Cross Frame	Pass Thru	Down Frame	Down
	SD SDI	576i	25	Up	Up Frame	Up	Up Frame	Pass Thru	Frame
		480i	29.97	Up Frame	Up	Up Frame	Up	Frame	Pass Thru

Base Model

Alchemist Ph.C - HD Motion-Compensated Standards Conversion Platform with SD SDI I/O, SD standards conversion, CleanCuts™, ARC, embedded & AES Audio, redundant PSU, intuitive touch screen control, RollCall control, 3 RU frame (5048500)

Alchemist Ph.C - HD as above with SD & HD SDI I/O, SD & HD standards conversion with up down and cross conversion (5048000)

Option

HD Upgrade – Upgrade from SD only platform to SD & HD Platform (5045000)

Timecode - adds LTC and VITC timecode processing (5045001)

Dolby E (1 channel) - Adds Dolby E transcoding and Dolby E decode function (5045002)

Dolby E (2 channels) - Adds Dolby E transcoding and Dolby E decode function (5045012)

Film - adds frame based processing capability (CSO)

The Home screen provides instant status information about the condition and configuration of the unit. At a glance the output standard and reference status can be determined. The screen also acts as the control interface providing easy visual access to the major system control functions. The touch sensitive screen provides an easy intuitive way to navigate and control the unit.

The Aspect Control screen provides a simple interface to allow users to perform the desired aspect ratio conversion for a particular job or feed. Commonly used ARC settings are pre-configured, alternatively custom settings may be selected using industry recognised controls Size, Pan, Asp and Tilt. Separate ARC controls are provided for the Primary output (Channel A) and the Secondary output (Channel B), this provides capability for an HD 16:9 output and an SD output at 4:3, 14:9 or 16:9 as desired by the user. To simplify operation the Secondary output ARC may be locked to the Primary output.

With the Alchemist Ph.C - HD control of audio functionality is not overlooked. The Alchemist Ph.C - HD has capability for 8 AES & 4 Groups of embedded audio inputs and outputs and provides a simple way to configure and view the status of the internal audio processing. The delay for each of the internal audio channels may be adjusted as required to, and any of the inputs (embedded and AES) may be routed to the output.



As with all Snell & Wilcox "smart" infrastructure products, Alchemist Ph.C - HD is "self aware" and ready for centralized set up and monitoring through the RollCall network management system.

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Company policy is one of continuous product improvement. Specifications are therefore provisional and subject to change without notice.

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Signal Inputs

Serial Digital 2 x 75 Ohm SD/HD Serial Digital with embedded audio (4 Groups)
Input Standards:
1.5 Gbit/s HD-SDI SMPTE292M/SMPTE299M
270M Mbit/s SD-SDI SMPTE259M

Reference 2 x loop-through HDTV Trisync/SD Bi-sync (Black & Burst) SMPTE 240M/274M ,with auto selection dependant on output standard

Audio AES 8 channels unbalanced AES-3 via BNC connectors (75 Ohm)

Signal Outputs

Serial Digital Primary (Output A) 2 x 75 Ohm SD/HD Serial Digital with embedded audio (4 Groups)
Output Standards:
1.5 Gbit/s HD-SDI SMPTE292M/SMPTE299M
270M Mbit/s SD-SDI SMPTE259M

Serial Digital Secondary (Output B) 2 x 75 Ohm SD/HD Serial Digital with embedded audio (4 Groups)
Output Standards:
1.5 Gbit/s HD-SDI SMPTE292M/SMPTE299M
270M Mbit/s SD-SDI SMPTE259M

Audio AES 8 channels unbalanced AES-3 via BNC connectors (75 Ohm)

Control Functions

Input Select Input A, Input B
Input Blanking Left, Right, Top, Bottom
Input Loss Input, Freeze, Black
Input Standard Auto
SD 525, 625
SD & HD 525, 625, 720P50, 720P59, 1080i50, 1080i59

Output Standard Auto
Primary SD 525, 625
Primary SD & HD 525, 625, 720P50, 720P59, 1080i50, 1080i59
Colorimetry

Output Standard Auto
Secondary SD 525, 625
Secondary SD & HD 525, 625, 720P50, 720P59, 1080i50, 1080i59
Colorimetry

Output Blanking Left, Right, Top, Bottom
Output Blanking Color Red, Green, Blue

Conversion Functions

Convert Ph.C™ Motion Compensation CleanCut™
De-Enhance Horizontal & Vertical aperture adjustment
Modes SD Standard Conversion SD & HD Standards, Up, Down & Cross Conversion
PhC Area 5 user definable keys with overlays to define active and inactive areas
Aspect Ratio Conversion Preset Input and Output ARC Settings 4:3, 16:9, 14:9LB, 16:9LB, 4:3PB, Anamorphic, No Change User (Pan, Size, Asp, Tilt)
CleanCut™ On/Off F1/F2/Any

Audio Functions

Audio Select Embedded, AES
Audio Channel Selection Group 1 pair 1, Group 1 pair 2 Group 2 pair 1, Group 2 pair 2 Group 3 pair 1, Group 3 pair 2 Group 4 pair 1, Group 4 pair 2 AES1, AES2 AES3, AES4 AES5, AES6, AES7, AES8 PCM, Data

Audio Type

Power

Input Voltage Range 100 V to 240 V rms., 50/60 Hz
Mains Fuse Rating T 8 AH 250 V. (Each Power supply)
Maximum Input Current 7 - 3 A (Each Power supply)
Power Consumption 500 W

Mechanical

Temperature Range 0 to 35° C operating
Cooling Axial fan, front-to-rear airflow
Weight Approximately 20 kg
Case Type 3 RU Rack Mounting
Dimensions 483 mm x 563 mm x 132 mm (w, d, h)



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