Kahuna™ The Production Switcher that Defies Definition™

**Benefits at a Glance**

- Future-proof functionality for SD or HD facilities
- Flexible SD/HD operation with seamless integration of SD sources into HD productions and HD material into SD productions without additional upconversion or downconversion
- Familiar operation with features from earlier control panels
- Versatile features which provide a wide range of creative functionality including 3D DVE effects
- Easy expansion as business needs change. Add extra inputs, DVE capabilities, M/E power and multiple control services as required

Putting Pictures to Work
Offering breakthrough multiformat performance, Kahuna is the world’s first production switcher to enable simultaneous standard and high definition operations in the same mainframe and on the same control surface.

Powered by exclusive FormatFusion signal processing technology from Snell & Wilcox, Kahuna breaks the video format barrier enabling seamless real-time mixing of SD and HD video, in any format, without compromise or loss of quality.

Kahuna integrates any SD source material including handheld camera feeds, graphics, captions or archives into HD productions without the need for complex and costly outboard upconversion. It also allows HD material to be incorporated into SD productions without downconversion.

Designed for live mobile, studio and news production, Kahuna offers a familiar user interface while delivering superior multiformat picture quality in busy, fast-paced, live production environments. Never before has such advanced and innovative signal processing technology been combined in a single, versatile production switcher.

In addition to its flexibility during live production, Kahuna offers a clear and planned transition path in upgrading to new media technologies. The switcher can be installed initially with SD only capability and later updated for multiformat operation through a simple software upgrade.

Kahuna allows a gradual, controlled transition to HDTV, putting the broadcast customer in total control of when to move to the next generation of television technology.
Kahuna offers a wide range of practical benefits whether for operators and engineers who use, install and maintain the production switcher, or for broadcasters who want to maximize their return on technology investments.

Outstanding performance and unmatched integrated capabilities result in lower cost and reduced complexity of set up and operation. In addition to daily use, Kahuna is compact, lightweight and low power consumption.

**Kahuna delivers:**
- **Future-proof flexibility**
  - a perfect solution for either SD or HD facilities
  - easy drop-in replacement that works with legacy broadcast system
  - single software upgrade path to multi-format SD/HD operation
- **Flexible SD/HD operation**
  - FormatFusion enables seamless integration of SD sources into HD productions and HD materials into SD productions
  - all without reducing performance or de-synchronization
  - latency issues are minimized in comparison to external upconverters
  - simultaneously delivers multiple SD and HD outputs
- **Familiar operational control**
  - intuitive, ergonomically designed control panel for a quick learning curve
- **Creativity in production**
  - versatile features provide a wide range of creative functionality
  - fully loaded DVE options for 3D effects
  - mix effects architecture with four keyers
  - unrestricted placement of graphics
  - optional Cliptrax™ feature removes the need to slave an external audio device for audio effects
- **Scalability**
  - expands as business needs change - inputs, DVE capability, M/E power and multiple control surfaces can be added as required
  - start with SD or HD only - upgrade to multi-format functionality with a simple software upgrade
- **Reliability**
  - Snell & Wilcox engineering delivers reliable performance time after time
By itself, Kahuna is a powerful production switcher with an extraordinary range of integrated capabilities for vision control, effects, routing and program branding.

With the addition of exclusive FormatFusion signal processing technology from Snell & Wilcox, the switcher acquires unprecedented multiformat capabilities that bridge the gap between legacy standard definition broadcasting and the high-definition future.

Kahuna shines when on-air requirements are most demanding—such as in news and sports productions requiring multiple graphics placements or elegant animated transitions with sound to multiple sources. The switcher's power and control cover virtually any production process, including animated transitions, splitting M/E banks, and even color correcting in house studio monitors. All this while simultaneously outputting separate SD and HD feeds.

A choice of control surfaces and mainframes are available for Kahuna. The 11RU chassis supports two to four M/Es and up to four twin-channels of DVE. The compact 6RU mainframe will support two M/Es and two twin-channels of DVE.

**M/E Power**

The Kahuna range offers two, three, and four M/E models. All M/E banks are identical with each providing a most comprehensive set of integrated, easy-to-use capabilities. Every M/E provides multiple output control when the requirement is necessary for different language graphics and substituted backgrounds. The Kahuna’s M/E power is unmatched.

Each M/E features:

- Four full effects keyers including:
  - linear, luma and self-key functionality
  - high quality chroma keying capability
  - clip store for animated transitions
  - independent resize engine
  - resize engine ‘DVE’ effects
  - key border with drop shadow
  - independent transition engine per keyer
  - RGB and YUV color correction tool-set
  - multi-matte generators for fills
  - pre-set wipe/mask generators

- Resize engine per keyer:
  - much larger key area when required
  - control any type of graphics or character. The 32-3DVE channels can be used for more demanding tasks
  - 3DVE output for high-end: provides better results for character effects, such as depth

- Four utility layers:
  - extra flexibility for compositing and routing tasks

- Split M/Es:
  - supports a mixed HD/SX format for flexibility

- Programmable output providing different outputs for different audiences

- Input and line-based RGB color correction

**Dynamic M/E allocation**

**Impakt™ 3D DVE**

Impakt is Kahuna’s built-in, fully integrated suite of 3D DVE effects. It allows operators to create their own 3D transitions, or use pre-made transition models with minimal set-up time.

Kahuna provides up to four twin-channels of 3D DVE. They can be used either as a single 8-channels pack or 4 in 1 only (Impakt can be used in 16:9 format, allowing both broadcast and 16:9 non-linear applications). Pre-made transition models include spheres, slabs, zooms, tiling, ripples, rolls. For additional flexibility, impakt has the ability to add 2D video as a texture, full screen, or image into the composition.

Control is integrated within Kahuna’s main surface or, when requiring dedicated DVE operation, from an additional panel.

**FormatFusion**

FormatFusion enables Kahuna to offer total format freedom for inputs and outputs. Any of the 80 inputs can be assigned to be SD or HD with no restriction. Working on a pack of four M/Es, this provides flexibility to create powerful compositions made up of SD and HD sources, plus provide SD and HD output.

Format Fusion completely eliminates the need for external conversion boxes. The low risk solution and completely fail safe results in a live labor intensive infrastructure with significantly lower time-waste.
Advanced Memory Systems
The traditional layout of Kahuna’s control surfaces are instantly familiar to technical directors who must work in high-pressure, live production environments. However, behind the switcher’s simple controls is an advanced memory system that enables fast and accurate operation of the switcher’s most sophisticated functions.

• **DMEM**
  A single memory snapshot instantly stores or recalls all M/E bank settings.

• **GMEM**
  Globally stores all switcher panel settings for an instant set-up of repeated shows such as news, sports and talk shows.

• **DVE-MEM**
  Stores and recalls DVE states including transitional or keyframed effects.

• **Macros**
  Records sequences in real time for instant replay. This exceptionally powerful feature is a significant time saver.

• **Timeline**
  Records and plays sequences of keyframed effects.

On-Board Clip/Still Store
Kahuna has a built-in store that is capable of providing 16 outputs with 16 outputs. The store can hold 16 clips and 16 stills, offering the ability to instantly play animations and stills for any requirement. The store also maintains an index of all files that are available in the case of an index fail or a technical issue. The clips that are loaded can be linked together, looped, or added as required.

Cliptrax
Cliptrax provides over 20 minutes per M/E of audio accompaniment to animated transitions, looping backgrounds and digital video effects. There is no reduction in the store’s video capacity when using this feature.

Shadow Switcher
Allows linking of M/E’s across multiple mainframes for different formats.

Third Party Device Control
Designed to be at the heart of any production system, Kahuna integrates with external equipment including routing switchers, servers, VTRs, auto-announcer, audio mixers and tally systems.
Every source has its own colored user-configurable mnemonic identification.

Dynamic user-affordable timelines allow you to choose the order of M/E’s to suit your own preference.

Assignable over-function buttons are also for Macros, Timelines and DMEMs.

Each M/E has a dedicated frame control frame for more intuitive operation.

PSU status indicators.

Joystick for control and positioning of DVE and adjustment of parameters.

GMEM and DMEM snapshot store and recall.

Tracker ball for control of parameters and DVEs.

M/E background and key layer enable assignment pushbuttons.

Each of the four comprehensive M/E banks has:

• Four keyers able to perform luma, linear and chroma keying
• Each keyer has its own resize capability with effects
• Five transition wipe generators
• Still store and clipstore
• RGB color correction
• Four utility buses
• Kineo, DVE and Macro capability

3D DVE send-and-return architecture enables images to be manipulated on all key and background buses.

Integration of SD and HD sources is carried out by four fully-featured engines (two per M/E).  
• Conversion between 480i and 720p
• Background-Background, background-A/B buses and A/B buses

Dynamic mix effects allocation allows you to choose the order of M/E’s to suit your own preference.

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The most advanced production switcher deserves the best support. Snell & Wilcox matches the flexibility of the Kahuna switcher with a choice of support plans tailored for any type of user. Different packages ensure that the right support is available for each Kahuna to ensure it always meets the owner’s operational requirements.

Kahuna switchers are manufactured to the most rigorous quality standards for rock solid reliability. Yet, Snell & Wilcox recognizes that customers have different needs when it comes to preventative maintenance and protection against unforeseen circumstances. For this reason, Kahuna Care is an integral part of each Kahuna switcher we deliver.

All new Kahuna switchers come with a manufacturer’s 1-year warranty. Standard Care is available to customers, after the period. Fee of charge, this package includes on-site diagnostics and a repair product return. It’s a more comprehensive support package, covering consumables, software, support, remote diagnostics, and other Kahuna Care services at any time.

**Comfort Care** is available free of charge for the first 12 months and can be extended after this period. It provides the ongoing reassurance of phone diagnostics (24/7) and troubleshooting, hot-swap spares, software maintenance and product alerts.

**Complete Care** offers the same level of care as the Comfort package, but in addition provides customers with regular on-site health checks and spares, as well as training on major software releases.

To ensure that customers experience the full benefits of their switcher, Snell & Wilcox is committed to providing the highest levels of training for Kahuna owners, operators and engineers.

Training

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Kahuna Club

Kahuna Club has been launched to create a Kahuna community, where information and ideas can be shared between owners and users, and where Snell & Wilcox can easily communicate with valued Kahuna customers.

The Kahuna Club web site provides all Kahuna customer contacts with a 24-hour, 365-day a year, one-stop resource, featuring customer support, information on the latest product releases, training and support offers, a discussion forum, a photo gallery of installed sites and PR stories.

Customer Support

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Company

Snell & Wilcox
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Americas

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All other trademarks mentioned herein are duly acknowledged.

For further information please contact one of our international sales offices:

Americas

New York
Snell & Wilcox Inc.
274 Madison Avenue Suite 17
New York City
NY 10016
Tel: +1 212 481 1830
Fax: +1 212 481 2642
americas@snellwilcox.com

Burbank
Snell & Wilcox Inc.
3519 Pacific Ave.
Burbank, CA 91505
Tel: +1 818 556 2616
Fax: +1 818 556 2626
americas@snellwilcox.com

Asia Pacific

Hong Kong
Snell & Wilcox (Hong Kong) Ltd.
Room 603, Tai Tung Building
No.8 Fleming Road
Wanchai
Hong Kong
Tel: +852 2356 1660
Fax: +852 2575 1690
swhk@snellwilcox.com.hk

China

Snell & Wilcox China
Unit 17
12th Floor of Tower B
Beijing COFCO Plaza
No.8 Jianguomennei Dajie
Dongcheng District
Beijing 100005
China
Tel: +86 10 6528 2761
Fax: +86 10 6528 7635
swchina@snellwilcox.com

India

Snell & Wilcox (India Liaison Office)
I.B. Centre
N-6 Greater Kailash-1 (Market)
New Delhi 110 048
India
Tel: +91 (0) 11 641 2609
Fax:+91 (0) 11 621 8777
swindia@snellwilcox.com

Japan

Snell & Wilcox Japan KK
3-1-3 Ebisu
Shibuya-ku
Tokyo
150-0013
Japan
Tel: +81 (0) 33 446 3996
Fax: +81 (0) 3 5449 7392
swjapan@snellwilcox.com

South East Asia

Snell & Wilcox South East Asia Sdn. Bhd.
Suite 9-09
Plaza 138
Jalan Ampang
50450 Kuala Lumpur
Malaysia
Tel: +60 (0) 3 2732 5557
Fax: +60 (0) 3 2732 8669
swmalaysia@snellwilcox.com

Europe, Middle East & Africa

UK
Snell & Wilcox Ltd.
Southleigh Park House
Eastleigh Road
Havant
Hampshire
PO9 2PE
United Kingdom
Tel: +44 (0)23 9248 9000
Fax: +44 (0)23 9245 1411
info@snellwilcox.com

France

Snell & Wilcox France
2 Rue du Parc
92400 Courbevoie
France
Tel: +33 (0) 1 46 44 5959
Fax: +33 (0) 1 46 47 0077
info@snellwilcox.com

Germany

Snell & Wilcox GmbH
Senefelderstrasse 3a
65205 Wiesbaden
Germany
Tel: +49 (0) 6122 98430
Fax: +49 (0) 6122 9843 55
swgermany@snellwilcox.de

Russia

Snell & Wilcox ZAO
Room 214
35 Arbat str.
Moscow 121835
Russia
Tel: +7 095 248 3443
Fax:+7 095 248 1104
swrussia@snellwilcox.com

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