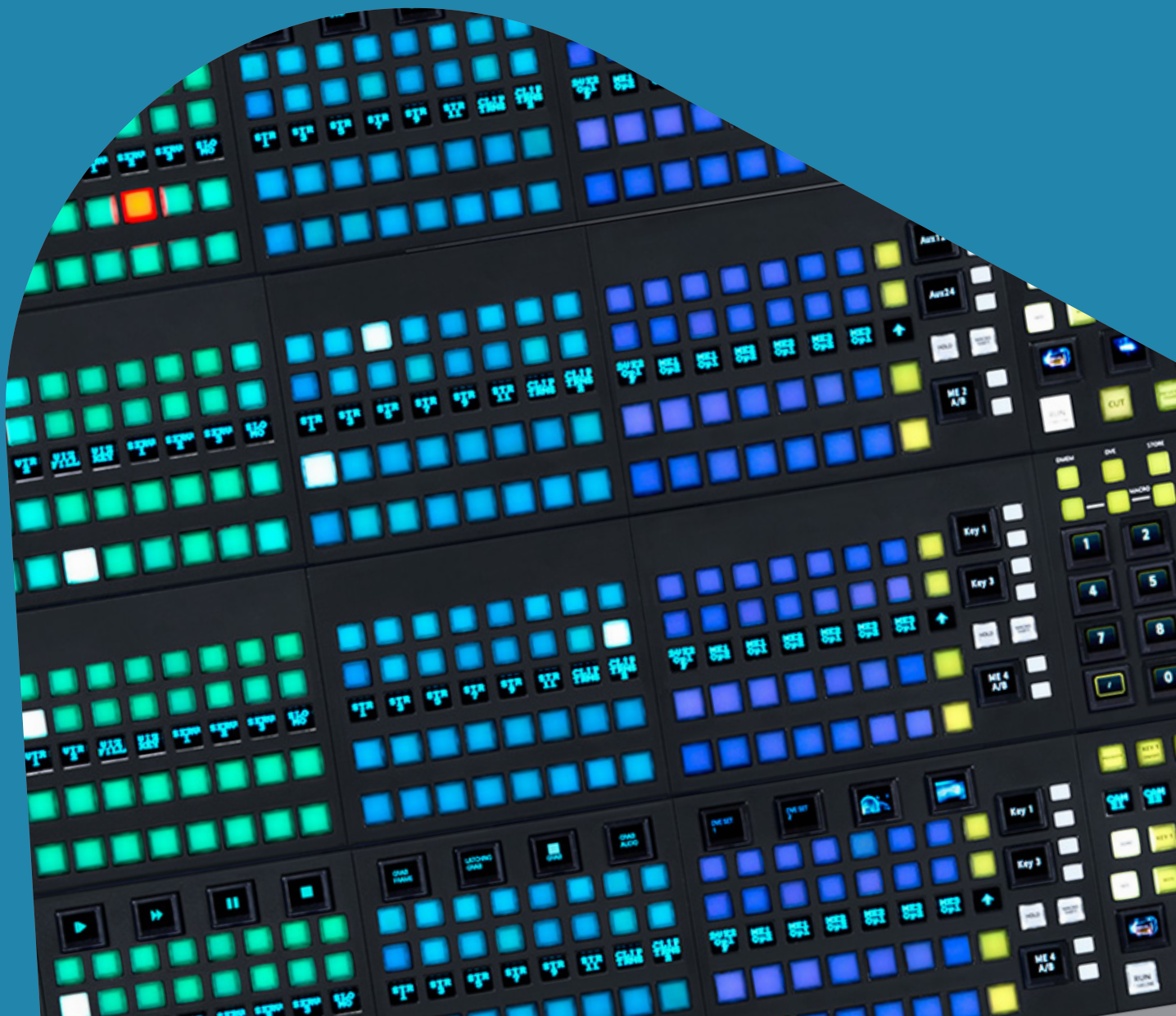


DATASHEET

Kahuna Production Switcher Family

Multiformat Switchers with Maverik Control Surface



KAHUNA PRODUCTION SWITCHER FAMILY

Multiformat Switchers with Maverik Control Surface

Fully-featured live production at 4K UHD, HD and SD – for both IP and SDI operations.



With a worldwide heritage in live production switchers – from designing the first true multiformat switcher to the creative power and flexibility of switchers that offer all formats from SD to 4K UHD, and connectivity allowing you to mix traditional SDI and IP – Grass Valley brings you the Kahuna family of production switchers.

The Kahuna 6400 and Kahuna 9600 offer more firepower and flexibility in the Kahuna family than ever before, including 4K UHD and HDR capabilities across all Kahuna switchers.

Paired with the Maverik control surface, the Kahuna family provides user-friendly tactile control of a large feature set, including more power for M/E functionality and enhanced DVE resize engines.

Whatever your live television application, be it sports, news, light entertainment, music or house of worship, the Kahuna family provides the ultimate power, creativity, flexibility and built-in Grass Valley reliability so you can create your productions, your way.

Kahuna 9600

- Up to 6 MXS boards
- Up to 24 M/Es with Make M/E
- 48 keyers

The most powerful switcher in the Kahuna family, the Kahuna 9600 is an enterprise-class switcher offering an unmatched feature set to meet the needs of the highest caliber of productions.

Kahuna 6400

- Up to 3 MXS boards
- Up to 12 M/Es with Make M/E
- 24 keyers

The Kahuna 6400 delivers huge power and flexibility to the widest range of applications including regional news, sports production, houses of worship and magazine programs.

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Key Features

Creativity

- Freedom in combining mixers, keyers and DVE effects to create any on-air style
- Built-in intelligence allows the switcher to handle the mundane, freeing you to create great productions

Productivity

- Dramatically reduce the overhead of show setup times
- Advanced file workflow tools enable you to turn around content in seconds

Reliability

- Designed for mission critical operations with a hot-swappable architecture
- Innovative automated features provide even greater on-air confidence

Flexibility

- Unique Make M/E technology allows users to select available switcher resources to create a tailor-made M/E for specific requirements
- FormatFusion3 enables true multiformat operations, supporting any combination of SD, HD, 1080p (Level A & B) and 4K UHD. This eliminates the need for external conversion, reducing capital outlay, removing system timing issues and saving engineering setup time
- FormatFusion4 technology raises the bar again, bringing seamless HDR capabilities to Kahuna. All inputs and outputs can independently handle HLG, PQ and S-Log3 for color spaced BT709 SDR and BT2020 HDR for workflows in 4K UHD and HD. The core of the switcher can also be set to the desired EOTF and WCG setting

- The new 3D LUT Translator works with 3D LUT files enabling Kahuna to match the HDR look for any production requirements
- Kahuna supports HD SDI, IP and 12 Gb/s SDI single-link across the entire range. For productions from 4K UHD through to HD, Kahuna has an unmatched feature set. Now all that switcher power can be deployed in the new and emerging IP workflows or 12 Gb/s SDI single link plants without any creative compromise

The creative power of Kahuna, including 2.5D and 3D DVEs, chromakey and key layer capabilities ensures you have all the tools to create the very best live TV.

The unbeatable power of a Kahuna M/E — Each Kahuna 9600 and Kahuna 6400 M/E has 12 key layers. These are divided into SuperKeyers and eKeys — 4 of each.

The four full SuperKeyers perform linear, luma and chromakeying and all come with their own 2.5D resize engine. The four eKeys are downstream of the SuperKeyers and have been designed to bring even more graphics to an M/E.

SuperKeyers

- Lin/luma/chroma key border generator
- 2x mask generators
- 2.5D resize engine (2 per SuperKeyer)
- Dual Tile mode

eKeys

- (DSK) lin/luma/chroma key

Compositing power of a Kahuna M/E

Labels in the image:

- eKey 1080i bug
- 1080p background
- eKey 1080i
- eKey chromakey
- eKey 1080i lower-third

Text in the lower-third graphic:

St. Lucia Package Last 4 remaining! \$1,399pp

Next to drop: City break to London 10 day African Safari Great Barrier Reef Australia

Price Drop LIVE

4 SuperKeyers providing 8 key layers with 2.5D resize engines (all independently controlled)

More creativity for your live productions. The 3D DVE provides an unmatched level of performance, offering unique show branding and world leading creativity.

The technical director/operator has the flexibility to assign powerful channels of 3D DVE to any M/E. All programming setups are fast, efficient and easy to store and recall. All DVE parameters can be included in a timeline and seamlessly transferred between multiple Kahuna systems.

One board provides source-based and bus-based modes

- 4 channels of 3D DVE effects (4:2:2:4)
- Combiner section combining all channels
- Intersecting planes
- Produces single key and fill output
- Large model library

Linear effects

- Nonlinear effects
- Surface effects



Examples of just some of the 3D DVE effects available with the Kahuna family of switchers

The Kahuna family feature set at a glance – perfect for every sports, news, light entertainment, music or house of worship application.

	Kahuna 6400	Kahuna 9600
Number of M/Es & keyers	2*-3 full M/Es each with 8 keyers	3-6 full M/Es each with 8 keyers
Max number of M/Es with Make M/E	12	24
Number of inputs	Up to 60	Up to 120
Number of SuperKeyers	12	24
Number of eKeys (all with chromakey functionality)	12	24
Number of key layers	36	72
Number of outputs	Up to 32	Up to 64
3D DVE (Up to 4 channels per board)	✓	✓
Internal ClipStore	10 outputs – 5 V&K pairs	20 outputs – 10 V&K pairs
FormatFusion3 on all inputs	✓	✓
FormatFusion3 on all outputs (in groups of 16)	✓	✓
FormatFusion4 on all inputs	✓	✓
FormatFusion4 on all outputs (groups of 16)	✓	✓
Programmable outputs	8 per M/E	8 per M/E
RGB Color correction (input and all outputs)	✓	✓
Multipanel operation	Unlimited	Unlimited
Third-party integration	✓	✓
4K UHD ready	✓	✓

* 1 M/E Kahuna 6400 available on request.

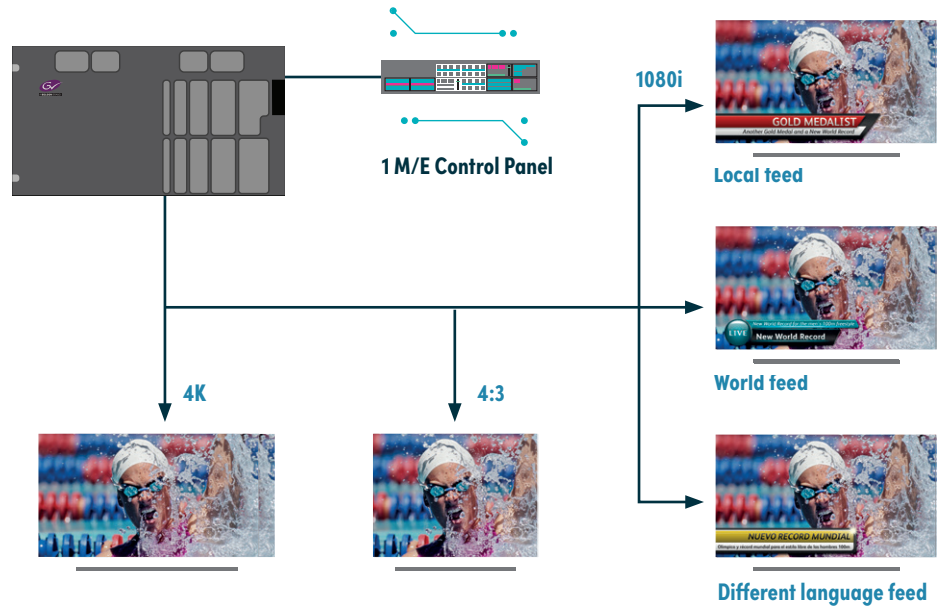
Multiple formats and productions

Multiformat outputs from a single M/E

Kahuna M/Es, combined with FormatFusion3 technology is unique in the switcher world, giving you more capability to provide effects and branding for multiple audiences.

- User selected backgrounds
- User selected key buses
- Each output with dedicated FormatFusion3 engine for different outputs

The example on the right shows a 1 M/E switcher driving five outputs, all with different needs, all timed together.

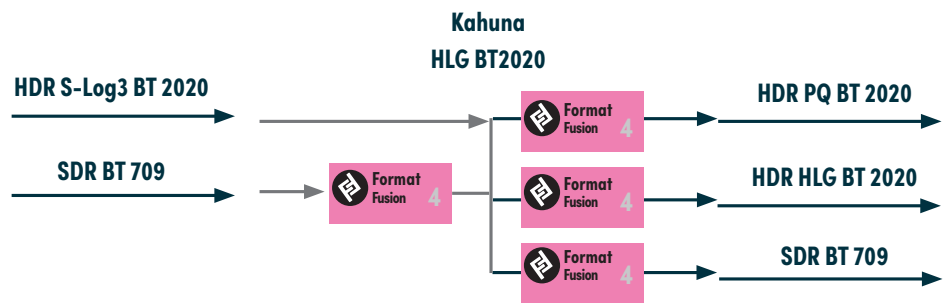


Seamless HDR productions (4K UHD and HD) with FormatFusion4

FormatFusion4 brings HDR capabilities to all inputs and outputs on Grass Valley's Kahuna production switchers. The technology seamlessly handles SDR and HDR in parallel for sports, news and light entertainment productions. FormatFusion4 supports the Electrical Optical Transfer Functions (EOTF) for:

- Real-time control of Perceptual Quantizer (PQ)
- Real-time control of Hybrid Log Gamma (HLG)
- Sony S-Log3 profile

FormatFusion4 also includes color space support for Wide Color Gamut (BT.709 and BT.2020) in all formats (1080i, 1080p and 4K UHD).

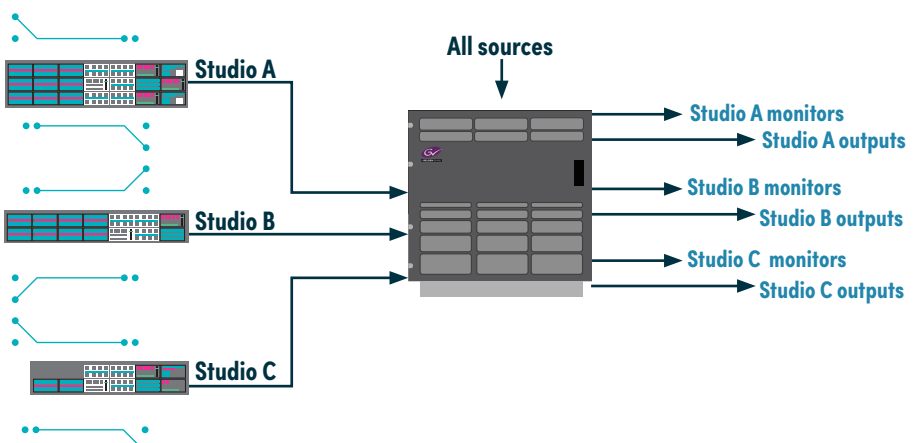


FormatFusion4 is completely transparent to a customer's live production workflow and requires no additional engineering or external equipment, even in 4K UHD.

Multiple productions made easy

Multiple productions can be handled simultaneously from a single frame. Each production output can be controlled by a separate switcher panel, with each of these having up to 120 inputs, transition effects, keyers and allocated DVE effects.

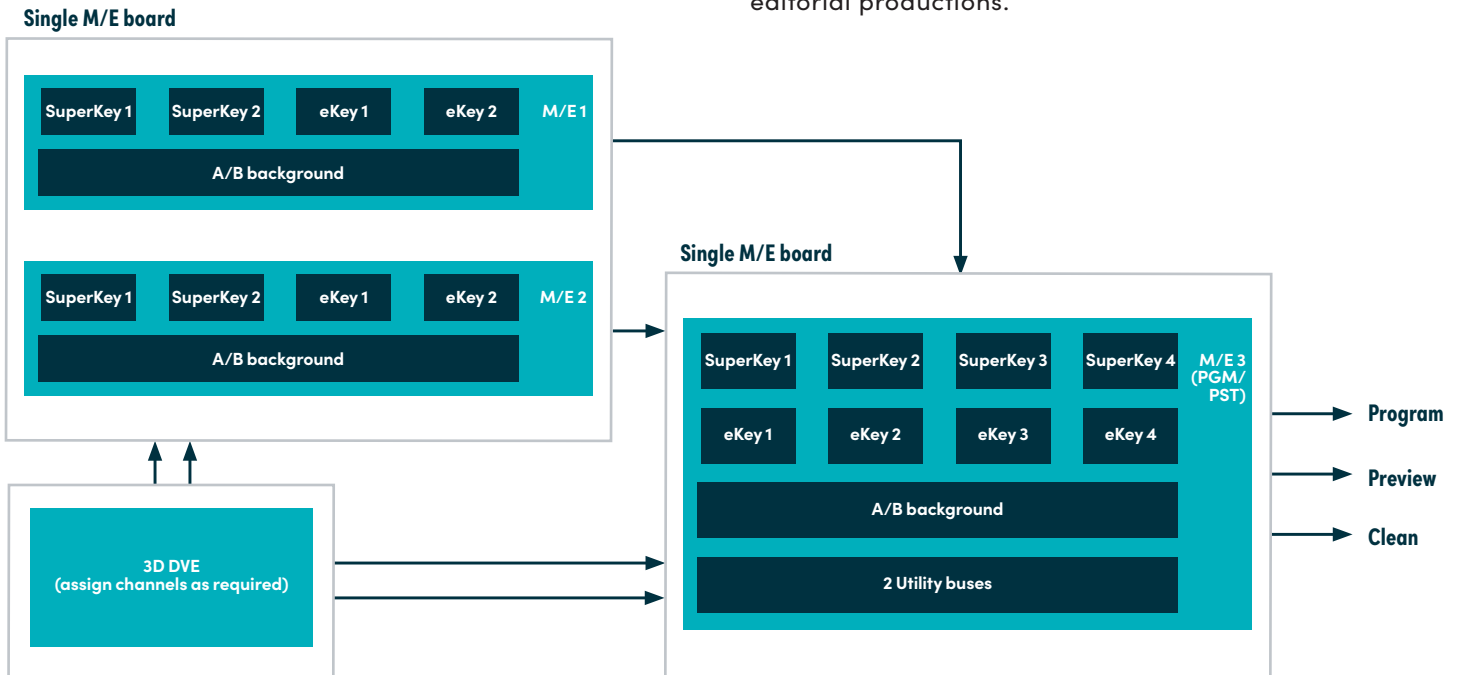
The diagram shows three studios all using the same Kahuna frame for all of their outputs and studio/on-set monitors, saving space and costs.



Unique Make M/E technology

Share resources to get even more from your switcher.
Unique Make M/E technology provides the ultimate flexibility for any live TV requirement.

The example below shows how a powerful 3 M/E switcher can be created from a 2 M/E Kahuna 6400 with Make M/E, maximizing switcher resources for additional space and cost savings.



This powerful approach allows operators to custom build their own M/E feature set as well as run multiple productions simultaneously from a single mainframe for both HD and 4K UHD.

In today's dynamic environments, requirements can change in an instant, making flexibility essential. The Kahuna family offers a powerful feature set with a unique adaptability that lets the operator support multiple simultaneous productions for a range of delivery platforms.

Unique Make M/E technology in the Kahuna 9600 and Kahuna 6400 allows users to select available switcher power to create a tailor-made M/E for specific requirements – i.e., select inputs, keyers, stores, DVE and outputs – freeing up resources for other creative/editorial productions.

- Produce multiple feeds from any M/E
- Group up backgrounds, key and output buses to create multiple M/Es – Up to 4 M/Es from a single full M/E board
- Assign any M/E output to any aux bus
- Full keyer and background transitions on any aux output saving resource

Innovative software tools extend control capabilities, streamline workflows and save valuable set-up time.

Third-party integration

The Kahuna family features an extensive protocol list enabling the control of a large number of third-party external devices and single-person gallery/control room operation for efficient production. Third-party devices include:

- Production Servers
- Audio Mixers
- Robotic Camera Control
- Graphics Engines
- Tally Systems
- Multiviewers
- News Automation Systems

On-air confidence for every operator

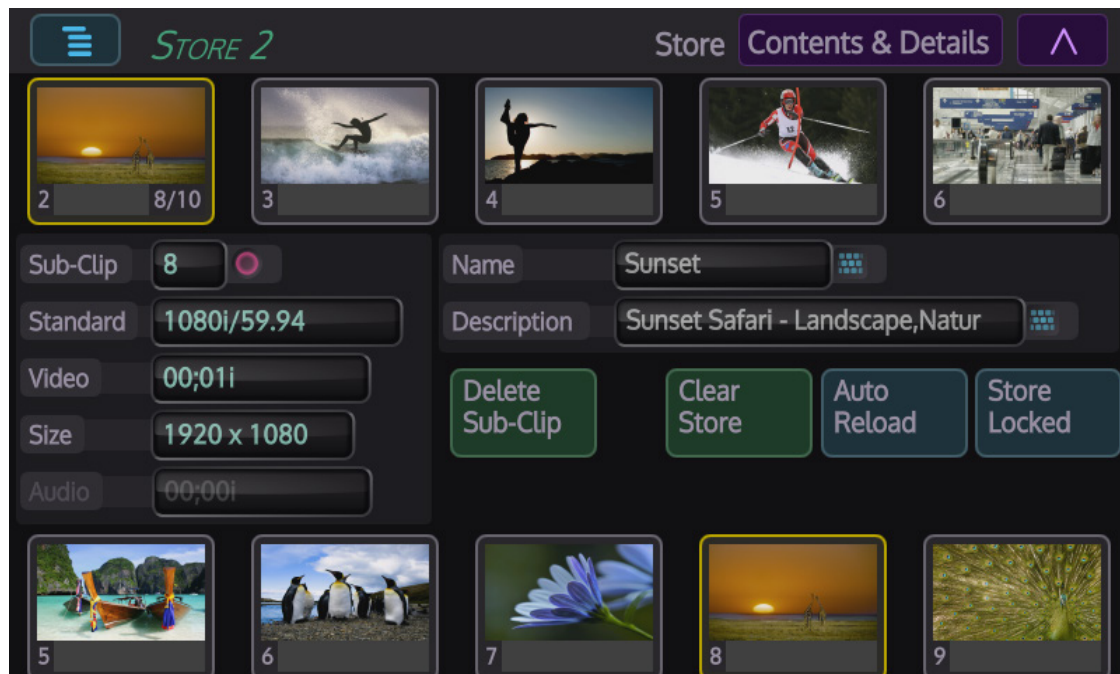
Among the many innovations in the Kahuna family is Source Safe. This clever technology senses a signal on an input and sets up the correct processing for that signal – without the need for operator intervention. With this capability, the system can detect the source format of signals coming through the plant to production and ensure that they can be brought smoothly into the workflow.

Yet another Grass Valley innovation is EPP (Enhanced Progressive Processing), which provides unparalleled video processing quality. The Kahuna family does not simply support 1080p high definition – it ensures that this super high quality remains uncompromised at every stage of the production process and is reflected in every output form, irrespective of delivery mechanism to the end viewer.

On-board ClipStore with 20 outputs

- Up to 128 GB RAM – (16 minutes of HD)
- Instant access to any content and selected on any bus
- Holds both audio and video
- Used for animated clip transitions
- On-board clip editor
- Use in any memory or macro recall
- Easy management and export with K-Watch
- Grab live incoming video or file via USB or network
- Backed up with RAID 2 TB HDD

Internal ClipStore holds up to 123,500 frames/80 minutes of uncompressed SD, 16 minutes of HD or 8 minutes of 1080p



Screenshot showing ClipStore.

Format-independent multiviewer included as standard

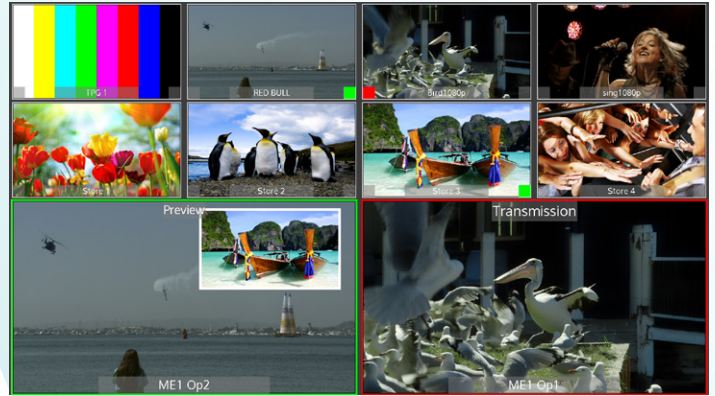
Kahuna Multiviewer

The format-independent multiviewer provides great flexibility with preselected, user-defined layouts and is ideal for small to mid-size productions. It's also an excellent choice to supplement larger scale production monitoring requirements.

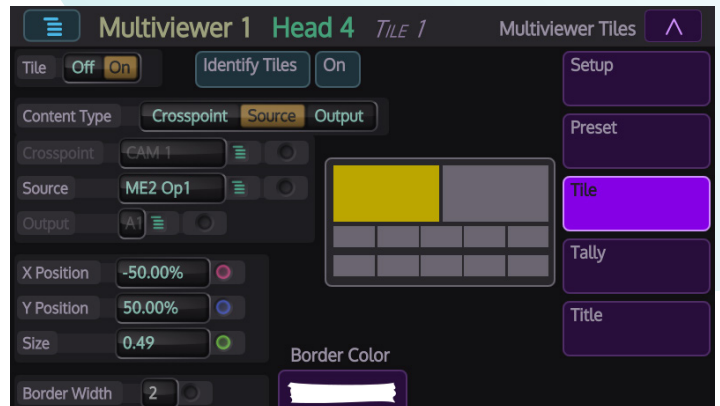
The format independent multiviewer is a standard feature with the Kahuna 6400 and Kahuna 9600 production switchers.

Features

- Up to 8 flexible output heads
- Up to 24 windows
- All external and internal sources selectable to all heads and all windows
- Instant preselect layouts
- Clear and follow-through labeling
- Red and green tallies
- Assign to any output
- Format independent
- Memorize and recall layouts as part of a show setup



Typical multiviewer output layout.



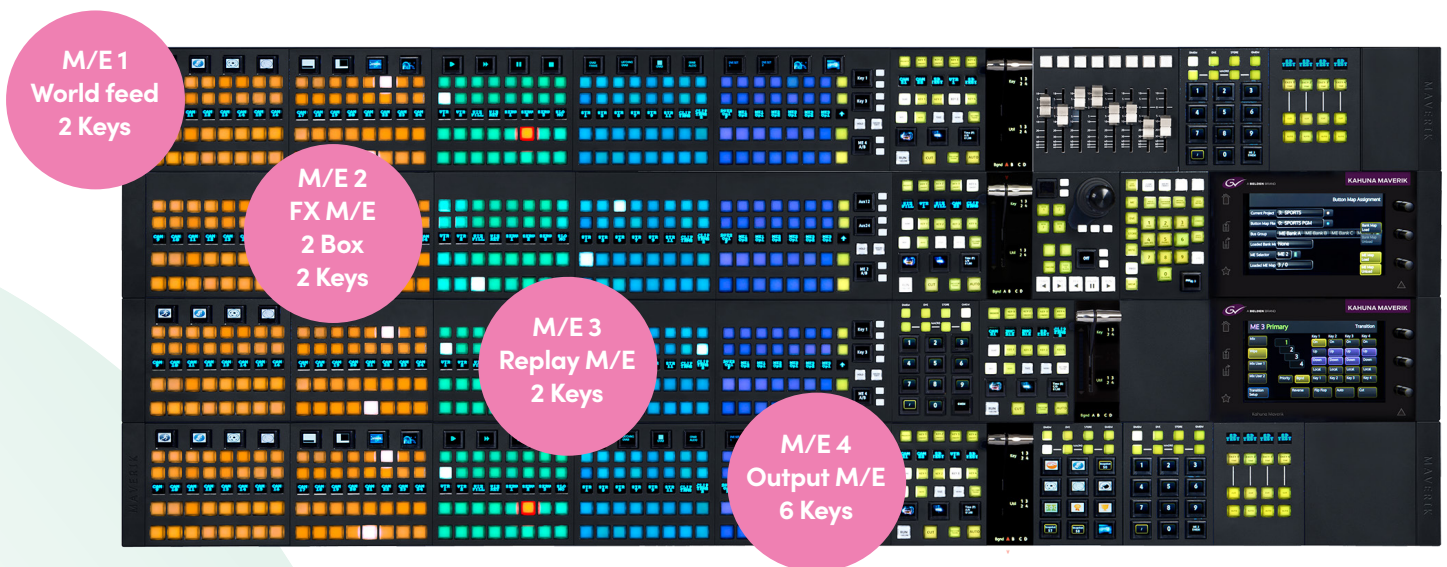
Kahuna multiviewer GUI.

Preset Layout Types Available



The switcher control surface that doesn't conform to the norm.

A totally new innovation in switcher control for the world-leading Kahuna range. Maverik is perfect for every studio and mobile TV production. It allows unprecedented freedom in panel design so you can throw away the rule book and create your productions in exactly the way you want.



Maverik control surface panel.

Live production you can rely on

Built to Grass Valley's exacting engineering standards and backed up by 24x7 customer support, Grass Valley Kahuna live production switchers can be relied upon in even the most demanding of live TV environments.

- Redundant power supplies
- Hot-swappable boards
- Completely integrated hardware solution incorporating all DVEs, ClipStores and interfaces for third-party control within the mainframe

Flexible, modular architecture

The financial realities of today can often place constraints on a business' capital investment. The Kahuna 9600 and Kahuna 6400 switchers help to alleviate this pressure with their modular architecture. This lets you buy what you need today and expand over time as and when requirements grow.

4K UHD-capable throughout the Kahuna family

4K UHD productions are occurring globally and the Kahuna has been utilized on hundreds of these events, including major global events such as the Winter and Summer Games.

The Kahuna family is already 4K UHD capable and can process 4K – 2SI or QSD – derived from 1080p 3G to match any television production.

HD and 4K UHD can be mixed together as backgrounds and key layers on the M/E. The output can also be in 4K UHD or scaled down to HD.

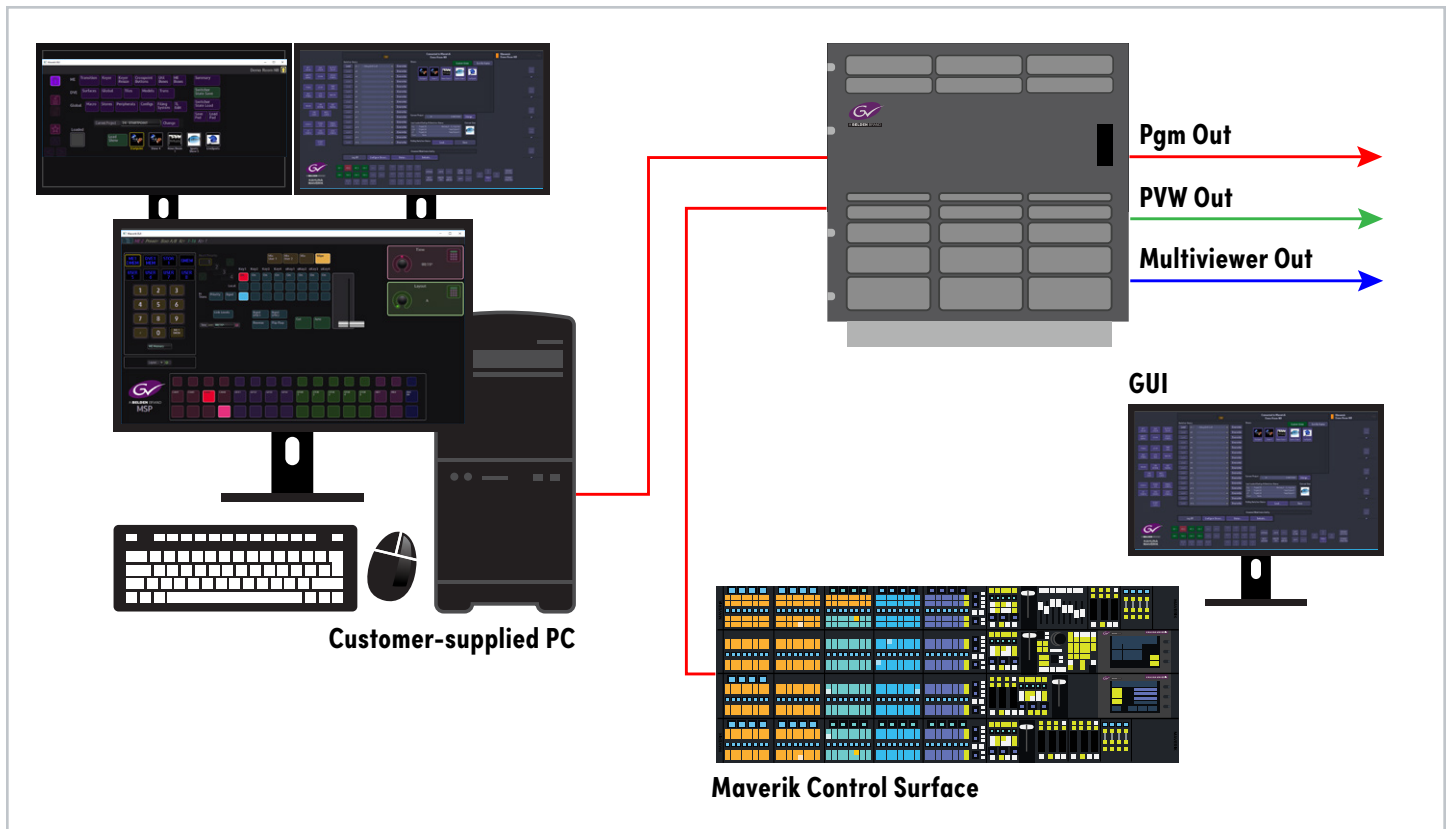
- Up to 3 full M/Es in 4K UHD with 4x 4K UHD keyers
- 30x 4K UHD inputs and 16x 4K UHD outputs
- 4K UHD 12G single stream I/O available on IP and SDI
- Supports wipes on all 4K UHD M/Es
- Native internal ClipStore for 4K UHD animations
- Transparent operation for TD/operator

MSP Overview

The MSP is an optional 1 M/E Soft Panel GUI with an integrated version of the Grass Valley Kahuna switcher menu application that provides direct control of switching crosspoints and the ability to recall effects and macros. An optional customized PC keyboard is available that can be included for users who like quick cut and mix action from a hard-button interface. The MSP can be used as a standalone control panel, an adjunct to a main panel providing a second control surface in a suite, or as the only control surface for a second suite.

- Control any Virtual M/E of an attached switcher frame, regardless of frame size
- The Make M/E feature allows MSP to control its own show or collaborate with the main switcher on a single production
- Familiar interface and easy transition to MSP software, which runs on a user-supplied standard PC
- The MSP software is included with the switcher application software
- Purchasing the option provides a software license that enables the interface in the video processor frame
- A license file enables users to access an unlimited number of applications associated with a video processor frame

Example of MSP Used in a Studio or OB



MSP can be used as in conjunction with a physical control surface or as standalone GUIs and control surfaces.

MSP Software Tools

K-Watch

K-Watch is an application that runs on the MSP platform and will be included with every MSP application. K-Watch is a powerful conversion tool based on the FFMPEG library, enabling graphics of almost any commonly used file type to be converted to the Kahuna file format. As a standalone PC application, K-Watch allows the user to convert clips and stills to Kahuna's .SWS file type and then manually transfer them to the required Kahuna frame.

K-Manager Pro

With the K-Manager Pro option on a Kahuna frame, these converted files can be automatically uploaded to your frame via the network, completely automating the graphics loading process. The graphics can simply be loaded into multiple watch folders on your networked PC and the converted files will be uploaded to the required Kahuna frames on the network.

Clip Preview

The Clip Preview application is part of the K-Manager Pro option and enables any video file (including .SWS files) to be previewed on the local PC before they are sent to the Kahuna frames using one of the Watch services. The preview tool not only allows preview of clips with audio, it also enables trimming of in and out points before the clip is uploaded.

K-Mirror

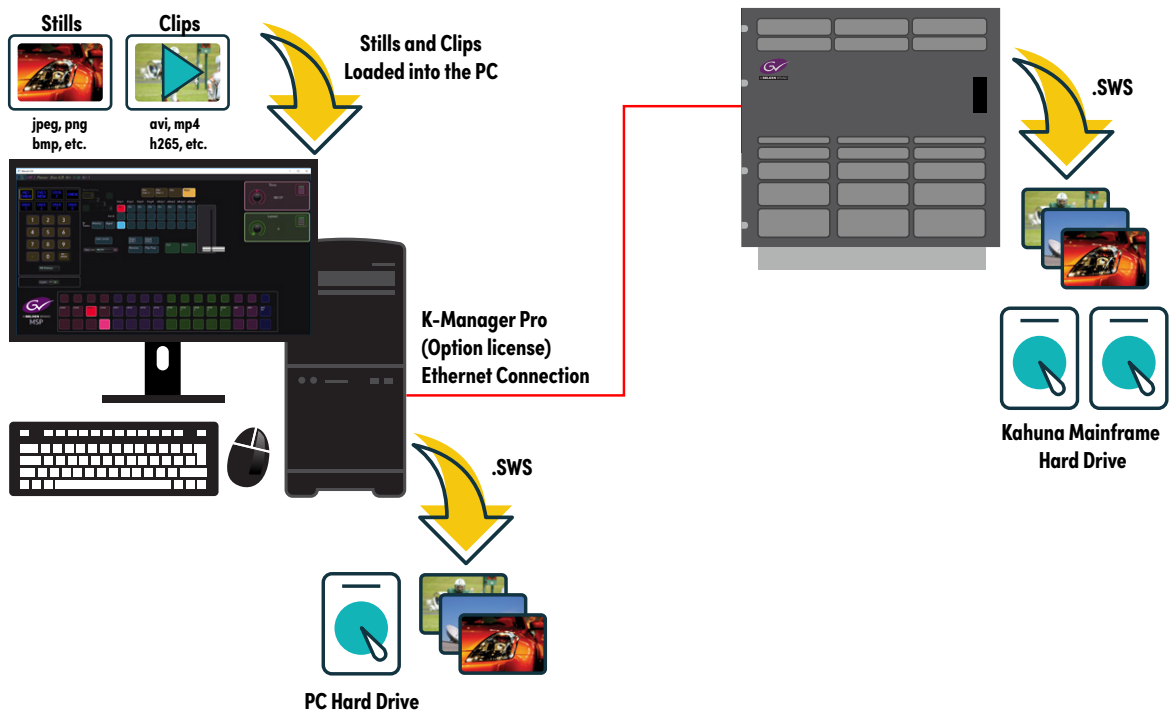
K-Mirror is an optional application that runs on the MSP platform and offers the ability to keep multiple frames on the same network in sync with each other. Customers can specify how much or little they sync between their networked frames, allowing them to keep their Kahuna frames up to date with the latest changes and making sure the production has the look and feel they require. Mirrored projects can also be stored within the PC's file system.

Mirror includes a Backup and Restore feature for individual mainframes.

HDR 3D LUT Translator

In addition to FormatFusion4, the new optional HDR 3D LUT Translator opens up 3D LUT workflows to Kahuna. 3D LUT files are used heavily in HDR conversion and are used to produce the same HDR look and feel from all your HDR enabled equipment. The 3D LUT files are set to a customer's exact requirement and then disseminated out to all HDR capable production equipment. The 3D LUT Translator application receives the 3D LUT file and translates this to the color space information that the Kahuna uses internally. Working with the K-Manager Pro option, the new translated file can be transferred automatically across the network to your Kahuna frame. Using the FormatFusion4 option on Kahuna enables the new 3D LUT file to be implemented allowing a single Kahuna frame to operate with a mix of SDR and HDR formats on all inputs and outputs, converting standards where necessary.

The new 3D LUT translator option is an additional license and requires the MSP license and K-Manager pro license.



Kahuna supports HD-SDI, IP and 12 Gb/s IP or SDI single link across the entire range. The uniquely flexible input/output architecture ensures a smooth transition from HD-SDI to IP or 12 Gb/s infrastructures.

Hybrid solution future

Today the latest generation of the Kahuna 9600 range is globally installed and working with 3 Gb/s, 1.5 Gb/s and 270 Mb/s productions. The flexible input and output approach allows mixed configurations of all board types with new and installed Kahuna systems.

HD-SDI, IP and 12 Gb/s can all coexist in the one frame without losing any functionality or purchasing outboard equipment.

Professional productions over IP

IP connectivity is available over interchangeable rear boards that will support uncompressed and compressed video formats.

Kahuna inputs and outputs stages are compliant with the latest developments in video over IP.

SMPTE ST 2110-10/20/30, SMPTE ST 2022-6, SMPTE ST 2022-7, TR03 and TR04 are supported along with SMPTE ST 2042 (VC-2).

Kahuna IP boards are available as 50 GbE IP and support single stream 4K UHD sources.

Kahuna, like any edge device, is connected directly to the switch at the heart of the IP plant. Kahuna can receive up to 120 IP inputs and broadcasts the switcher outputs on to the video network.

12 Gb/s SDI single-link connectivity (SMPTE ST 2082-10)

4K UHD production is increasing, especially in sports, and Kahuna is found in the control room/gallery and truck. As the move into 4K UHD is underway, a means of 12 Gb/s SDI over a single coaxial cable or fiber is required. Similar to the IP approach, the 12 Gb/s SDI inputs and outputs are supported by an interchangeable board.



Input 50 GbE board order code KAH-INPUT-IP-50G



Output 50 GbE board order code KAH-OUTPUT-IP-50G



Input 12 Gb/s board order code KAH-INPUT-SDI-12G



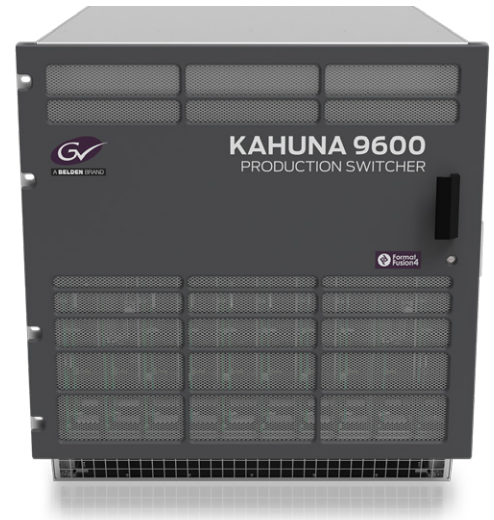
Output 12 Gb/s board order code KAH-OUTPUT-SDI-12G

Kahuna Benefits

- Easy connectivity management for single stream 4K UHD 12 Gb/s IP or SDI environments
- Future proofed for transitions to single stream 4K UHD 12 Gb/s IP or SDI environments
- Hybrid configuration in the same frame
- Evolves with standards

KAHUNA 9600

Production Switcher with up to 24 M/Es and 48 Keyers



The most powerful switcher in the Kahuna range, the Kahuna 9600 is an enterprise-class switcher offering an unmatched feature set to meet the needs of the highest caliber of productions.

Suited for larger scale 4K UHD and 1080p environments, Kahuna 9600 supports the most complex productions including multiple studio operations. Along with the advanced 3D DVE, the Kahuna 9600 features new 2.5D resize engines, giving more power at the M/E level. The Kahuna 9600 provides up to 24 M/Es, 48 keyers and 72 key layers, which can be shared across multiple studios.

Powered by Grass Valley innovation, Kahuna 9600 has a feature set that has never been possible until now and offers a completely scalable path to all functionality and format requirements.

For sporting events, light entertainment shows, news production and presentations – either in the studio control room,

mobile vehicle or flyaways – the Kahuna 9600 possesses the flexibility, adaptability and creativity to differentiate your program output.

Key Features

- Up to 6 full M/Es
- Make M/E for creating up to 24 M/Es for main or aux outputs
- Every M/E has 8 keyers per M/E regardless of format
 - SuperKeyers with linear, luminance, chroma key
 - 8 resize engines with 2.5D DVE manipulation
 - eKeys with linear, luminance and chroma key
- Up to 120 inputs (upgrade in groups of 12)
- Up to 64 fully assignable outputs (upgrade in groups of 16)
- Internal multiviewer
- FormatFusion3 and FormatFusion4 available on all inputs and outputs
- 3D DVE suite of effects with flexible combiners
- Large internal ClipStore with 20 outputs supporting 16 minutes of uncompressed HD video
- RGB color correction available on all inputs and outputs
- Programmable outputs
- Large external integration capacity with third-party equipment such as servers, routers, multiviewers, audio mixers, robotic cameras and graphics devices
- Supports fiber inputs and outputs
- Controlled with Maverik panel or Kula Panels
- MSP K-Manager Pro application software also available
- FormatFusion4 technology bringing seamless HDR/SDR capabilities to all inputs and outputs
- 3D LUT translator allowing custom HDR 3D LUTS to be easily handled

Specifications

TV Standards

2.97 Gb/s Video Standards (1080p)

1080p60 SMPTE ST 424
 1080p60 SMPTE ST 425/Level A
 1080p60 SMPTE ST 425/Level B
 1080p59.94 SMPTE ST 424
 1080p59.94 SMPTE ST 425/Level A
 1080p59.94 SMPTE ST 425/Level B
 1080p50 SMPTE ST 424
 1080p50 SMPTE ST 425/Level A
 1080p50 SMPTE ST 425/Level B

1.485 Gb/s Video Standards (HD)

1080i60 SMPTE ST 274(4), SMPTE ST 292(D)
 1080i59.94 SMPTE ST 274(5), SMPTE ST 292(E)
 1080i50 SMPTE ST 274(6), SMPTE ST 292(F)
 1035i60 SMPTE ST 260, SMPTE ST 292(A)
 1035i59.94 SMPTE ST 260, SMPTE ST 292(B)
 1080PsF30
 1080PsF29.97
 1080PsF25
 1080PsF24
 1080PsF23.976
 1080p30 SMPTE ST 274(7), SMPTE ST 292(G)
 1080p29.97 SMPTE ST 274(8), SMPTE ST 292(H)
 1080p25 SMPTE ST 274(9) SMPTE ST 292(I)
 1080p24 SMPTE ST 274(10), SMPTE ST 292(J)
 1080p23.976 SMPTE ST 274(11), SMPTE ST 292(K)
 720p60 SMPTE ST 296(1), SMPTE ST 292(L)
 720p59.94 SMPTE ST 296(2), SMPTE ST 292(M)
 720p50 SMPTE ST 296(2), SMPTE ST 292(M)

270 Mb/s Video Standards (SD)

576i 16:9
 576i 4:3
 480i 16:9
 480i 4:3

Reference

Analog genlock high-definition tri-level sync signal or SD 1V blackburst

Frame

Video Signal Inputs

Up to 120, HD/SD-SDI: Grouped in 12 off SD/HD/1080p (270 Mb/s / 1.485 Gb/s / 2.97 Gb/s)

Serial digital interface: As REC601/ SMPTE ST 292/ SMPTE ST 424 via BNC connectors. Genlock reference 4 off analog sync (loop A and B through)

Video Signal Outputs

Up to 64 HD/SD-SDI: Grouped in 16 off, programmable via BNC connectors

2 independent sync O/P: With adjustable phase off set per reference fin (4 in total)

Control Interfaces

120 tally/GPO outputs:

Isolated contact closures via 25-way D-type (12 per input fin)

96 GPI TTL-level I/P

Via 25-way D-type connectors (2 x 48) per reference fin

120 GPO tally/GPO O/P: Isolated contact closures via 25-way D-type (12 per input fin)

16 10/100/1000base-T: With additional XLR security RJ45 Ethernet connectors fixings (2 x 8) per network fin

12 RS-422 control ports: (2 x 6) per RTR card

2x USB

Power

Kahuna Frame: Auto sensing 100-250 VAC power supply 50/60 Hz nominal. Two fully independent hot swappable PSU modules, with separate mains power feeds via 2x 16A IEC-C20 socket. Dual redundant requires two more fully independent PSU modules; with separate mains power feeds via 2x 16A IEC socket

3 kW maximum with all power consumption options fitted

Temp range: 5 to 40°C (41 to 104°F) noncondensing operating.

Mechanical

11 RU

Height: 488 mm (19.21 in.)

Depth: 647 mm (25.57 in.)

Weight: 70 kg (154.3 lbs.)

18 input/output and control fin slots

10x 12 input fin slots

4x 16 output fin slots

2x control fin slots

Front fitting processing PCBs & PSUs

Ordering

Base Frames with Options

Frame	Kahuna 9600M
Frame Order Code	KAH-FRM-9600-3ME
Optional MXS or DVE Slot License (does not include additional MXS or DVE boards)	KAH-9600-4TH-SLT KAH-9600-5TH-SLT KAH-9600-6TH-SLT
Additional MXS boards capable of 1 full M/E (add up to 3)	KAH-MXS-1ME plus required Slot license
Additional 3D DVE Effects board capable of 2 or 4 channels of 3D DVE	KAH-3D-DVE-2CH plus required Slot license KAH-3D-DVE-4CH plus required Slot license

Includes:

RGB input and output color correction
 Programmable outputs
 External control

Redundant frame power supplies
 Internal multiviewer
 64 GB ClipStore

Frame Options

M/Es of FormatFusion3 (all inputs)	Order Code
6	KAH-LIC-FF3-6ME
5	KAH-LIC-FF3-5ME
4	KAH-LIC-FF3-4ME
3	KAH-LIC-FF3-3ME
Outputs FormatFusion3	Order Code
16	KAH-LIC-FF3-OUT-16
32	KAH-LIC-FF3-OUT-16
48	KAH-LIC-FF3-OUT-48
64	KAH-LIC-FF3-OUT-64

Ordering (cont.)

FormatFusion4 Order Codes and Upgrades

Input FormatFusion3 Upgrade to FormatFusion4 with HDR	Order Code
6 M/E FormatFusion3 to FormatFusion4 with HDR	KAH-UPG-FF4-6ME
5 M/E FormatFusion3 to FormatFusion4 with HDR	KAH-UPG-FF4-5ME
4 M/E FormatFusion3 to FormatFusion4 with HDR	KAH-UPG-FF4-4ME
3 M/E FormatFusion3 to FormatFusion4 with HDR	KAH-UPG-FF4-3ME

Input FormatFusion4 with HDR	Order Code
6 M/E FormatFusion4 with HDR	KAH-LIC-FF4-6ME
5 M/E FormatFusion4 with HDR	KAH-LIC-FF4-5ME
4 M/E FormatFusion4 with HDR	KAH-LIC-FF4-4ME
3 M/E FormatFusion4 with HDR	KAH-LIC-FF4-3ME

Output FormatFusion3 Upgrade to FormatFusion4 with HDR	Order Code
16 O/Ps FormatFusion3 to 16 O/Ps FormatFusion4 with HDR	KAH-UPG-FF4-OUT-16
32 O/Ps FormatFusion3 to 32 O/Ps FormatFusion4 with HDR	KAH-UPG-FF4-OUT-32
48 O/Ps FormatFusion3 to 48 O/Ps FormatFusion4 with HDR	KAH-UPG-FF4-OUT-48
64 O/Ps FormatFusion3 to 64 O/Ps FormatFusion4 with HDR	KAH-UPG-FF4-OUT-64

Output FormatFusion4 with HDR	Order Code
16 Output FormatFusion4 with HDR	KAH-LIC-FF4-OUT-16
32 Output FormatFusion4 with HDR	KAH-LIC-FF4-OUT-32
48 Output FormatFusion4 with HDR	KAH-LIC-FF4-OUT-48
64 Output FormatFusion4 with HDR	KAH-LIC-FF4-OUT-64

Inputs (10 max. for 120 inputs, any combination)

Input (SDI)

KAH-INPUT-SDI SD/HD/3G-SDI input fin. Supports 12 inputs

KAH-INPUT-SDI-12G 4K UHD 12G-SDI input fin. Supports 3x12 Gb/s inputs

Inputs (IP)

KAH-INPUT-IP-50G 50 GbE IP input fin. Supports 12 inputs: SMPTE ST 2110, 2022-6/7, TR-03 + VC-2

Output Fins (4 max. for 64 outputs, any combination)

Outputs (SDI)

KAH-OUTPUT-SDI SD/HD/3G-SDI output fin. Supports 16 outputs

KAH-OUTPUT-SDI-12G 4K UHD 12G output fin. Supports 4x12 Gb/s outputs

Outputs (IP)

KAH-OUTPUT-IP-50G 50 GbE IP output fin. Supports 12 outputs: SMPTE ST 2110, 2022-6/7, TR-03 + VC-2

Other Options

KAH-UPG-3DDVE-3CH Upgrade DVE to 3 channels

KAH-UPG-3DDVE-4CH Upgrade DVE to 4 channels

KAH-LIC-CAM Camera interface

KAH-LIC-AUD Audio mixer interface

KAH-LIC-NEWS News production interface

KAH-LIC-CLIPTRAX Cliptrax

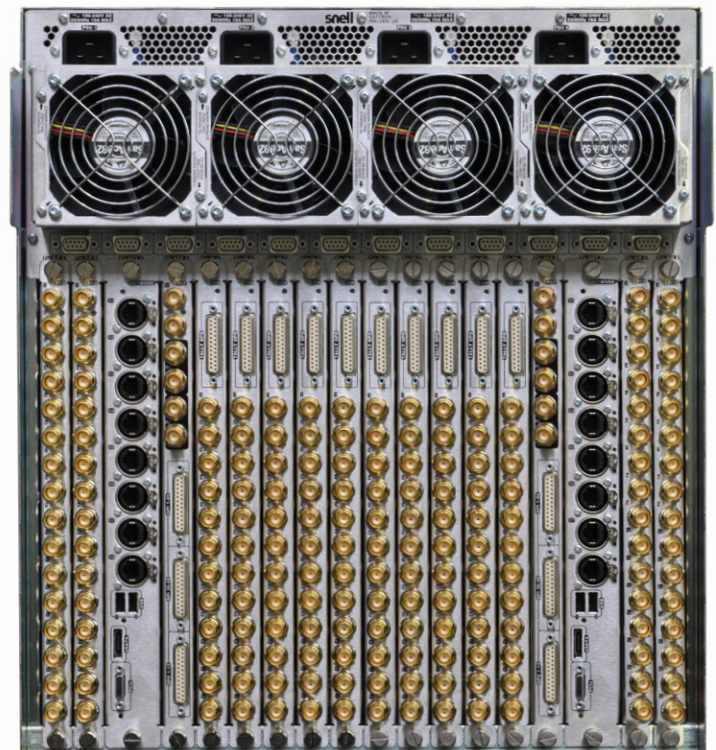
KAH-LIC-STOR-128GB 20 output ClipStore – 128 GB for RTR2B

Application Software

MSP-LIC-1ME-SW MSP license for control of Kahuna 9600 and 6400 frames with the 1 M/E soft panel GUI on a customer supplied PC

K-MGR-PRO-SW K-Manager PRO software application that enables FTP transfer to Kahuna frames

KAH-LIC-3DLUT-XLTR 3D LUT Translator for Kahuna



Kahuna 9600

KAHUNA 6400

Production Switcher with up to 12 M/Es and 24 Keyers



The Kahuna 6400 delivers huge power to the widest range of applications including regional news, sports production, houses of worship and magazine programs. With the ability to work in all environments including 4K UHD, Kahuna 6400 redefines what's possible in the mid-size production arena.

Along with the advanced 3D DVE, the Kahuna 6400 features new 2.5D resize engines, giving more power at the M/E level. The Kahuna 6400 provides up to 12 M/Es, 24 keyers and 36 key layers, shared across multiple productions.

For sporting events, light entertainment shows, news production and presentations either in the studio control room, mobile vehicle or flyaways, the Kahuna 6400 offers an elegant, reliable solution in a well engineered package that is understood the world over.

Key Features

- Up to 3 full M/Es
- Make M/E for creating up to 12 M/Es for main or aux outputs
- Every M/E has 8 keyers per M/E, regardless of format:
 - 4 SuperKeyers with linear, luminance, chroma key
 - 8 resize engines with 2.5D DVE manipulation
 - 4 eKeys with linear, luminance and chroma key
- Up to 60 inputs (upgrade in groups of 12)
- Up to 32 fully assignable outputs (upgrade in groups of 16)
- Internal multiviewer
- FormatFusion3 and FormatFusion4 available on all inputs and outputs
- 3D DVE suite of effects with flexible combiners
- Large internal ClipStore with 10 outputs supporting 8 minutes of uncompressed HD video
- RGB color correction available on all inputs and outputs
- Programmable outputs
- Large external integration capacity with third-party equipment such as servers, routers, multiviewers, audio mixers, robotic cameras and graphics devices
- Supports fiber inputs and outputs
- Controlled with Maverik panel or Kula panel
- MSP K-Manager Pro application software also available
- FormatFusion4 technology bringing seamless HDR/SDR capabilities to all inputs and outputs
- 3D LUT translator allowing custom HDR 3D LUTS to be easily handled

Specifications

TV Standards

2.97 Gb/s Video Standards (1080p)

1080p60 SMPTE ST 424
 1080p60 SMPTE ST 425/Level A
 1080p60 SMPTE ST 425/Level B
 1080p59.94 SMPTE ST 424
 1080p59.94 SMPTE ST 425/Level A
 1080p59.94 SMPTE ST 425M/Level B
 1080p50 SMPTE ST 424
 1080p50 SMPTE ST 425/Level A
 1080p50 SMPTE ST 425/Level B

1.485 Gb/s Video Standards (HD)

1080i60 SMPTE ST 274(4), SMPTE ST 292(D)
 1080i59.94 SMPTE ST 274(5), SMPTE ST 292(E)
 1080i50 SMPTE ST 274(6), SMPTE ST 292(F)
 1035i60 SMPTE ST 260, SMPTE ST 292(A)
 1035i59.94 SMPTE ST 260, SMPTE ST 292(B)
 1080PsF30
 1080PsF29.97
 1080PsF25
 1080PsF24
 1080PsF23.976
 1080p30 SMPTE ST 274(7), SMPTE ST 292(G)
 1080p29.97 SMPTE ST 274(8), SMPTE ST 292(H)
 1080p25 SMPTE ST 274(9), SMPTE ST 292(I)
 1080p24 SMPTE ST 274(10), SMPTE ST 292(J)
 1080p23.976 SMPTE ST 274(11), SMPTE ST 292(K)
 720p60 SMPTE ST 296(1), SMPTE ST 292(L)
 720p59.94 SMPTE ST 296(2), SMPTE ST 292(M)
 720p50 SMPTE ST 296(2), SMPTE ST 292(M)

270 Mb/s Video Standards (SD)

576i 16:9
 576i 4:3
 480i 16:9
 480i 4:3

Reference

Analog genlock high-definition tri-level syncs signal or SD 1V blackburst

Frame

Video Signal Inputs

Up to 60x HD/SD-SD: Grouped in 12 off SD/HD/1080p (270 Mb/s / 1.485 Gb/s / 2.97 Gb/s)

Serial digital interface: As REC60/SMPTE ST 292/SMPTE ST 424 via BNC connectors. Genlock reference 4 off analog sync (loop A and B through)

Video Signal Outputs

Up to 32 HD/SD-SDI: Grouped in 16 off, programmable via BNC connectors

2 independent sync O/P: With adjustable phase offset

Control Interfaces

60 tally/GPO outputs: Isolated contact closures via 25-way D-type (12 per input fin)

48x GPI TTL-level I/P: Via 25-way D-type connectors

8x 10/100/1000base-T: With additional XLR security RJ45 Ethernet connectors fixings (2x8) per network fin

6x RS-422 control ports on the RTR card

2x USB

Power

Kahuna Frame: Auto sensing 100-250 VAC power supply 50/60 Hz nominal. Two fully independent hot swappable PSU modules, with separate mains power feeds via 2x 16A IEC-C20 socket. Dual redundancy supplied by the second PSU

Temp range: 5 to 40°C (41 to 104°F) noncondensing operating

Mechanical

6 RU

Height: 266 mm (10.47 in.)

Width: 484.5 mm (19.07 in.)

Depth: 630.1 mm (24.81 in.) (incl. door)

Weight: 40 kg (88.2 lbs.)

Ordering

Base Frames

Frame	Kahuna 6400M
Frame Order Code	KAH-FRM-6400-2ME*
Optional MXS or DVE Slot License	KAH-LIC-6400-SLT3
Additional MXS Boards capable of 1 Full M/E (add up to 3)	KAH-MXS-1ME plus Slot license above
Additional 3D DVE Effects board capable of 2 or 4 channels of 3D DVE	KAH-3D-DVE-2CH plus Slot license above KAH-3D-DVE-4CH plus Slot license above

Includes:

RGB input and output color correction	Redundant frame power supplies
Programmable outputs	Internal multiviewer
External control	32 GB ClipStore

Mainframe Options

M/Es of FormatFusion3 (all inputs)	Order Code
3	KAH-LIC-FF3-3ME
2	KAH-LIC-FF3-2ME
Outputs FormatFusion3	Order Code
16	KAH-LIC-FF3-OUT-16
32	KAH-LIC-FF3-OUT-32

* 1 M/E system available on request

Ordering (cont.)

FormatFusion4 Order Codes and Upgrades

Input FormatFusion3 Upgrade to FormatFusion4 with HDR	Order Code
3 M/E FormatFusion3 to FormatFusion4 with HDR	KAH-UPG-FF4-3ME
2 M/E FormatFusion3 to FormatFusion4 with HDR	KAH-UPG-FF4-2ME

Input FormatFusion4 with HDR	Order Code
3 M/E FormatFusion4 with HDR	KAH-LIC-FF4-3ME
2 M/E FormatFusion4 with HDR	KAH-LIC-FF4-2ME

Output FormatFusion3 Upgrade to FormatFusion4 with HDR	Order Code
16 O/Ps FormatFusion3 to 16 O/Ps FormatFusion4 with HDR	KAH-UPG-FF4-OUT-16
32 O/Ps FormatFusion3 to 32 O/Ps FormatFusion4 with HDR	KAH-UPG-FF4-OUT-32

Output FormatFusion4 with HDR	Order Code
16 Output FormatFusion4 with HDR	KAH-LIC-FF4-OUT-16
32 Output FormatFusion4 with HDR	KAH-LIC-FF4-OUT-32

Inputs (5 max. for 60 inputs, any combination)

Input (SDI)

- KAH-INPUT-SDI** SD/HD/3G-SDI input fin. Supports 12 inputs
- KAH-INPUT-SDI-12G** 4K UHD 12G input fin. Supports 3x12 Gb/s inputs

Inputs (IP)

- KAH-INPUT-IP-50G** 50 GbE IP input fin. Supports 12 inputs: SMPTE ST 2110, 2022-6/7, TR-03 + VC-2

Outputs Fins (2 max. for 32 outputs, any combination)

Outputs (SDI)

- KAH-OUTPUT-SDI** SD/HD/3G-SDI output fin. Supports 16 outputs
- KAH-OUTPUT-SDI-12G** 4K UHD 12G output fin. Supports 4x12 Gb/s outputs

Outputs (IP)

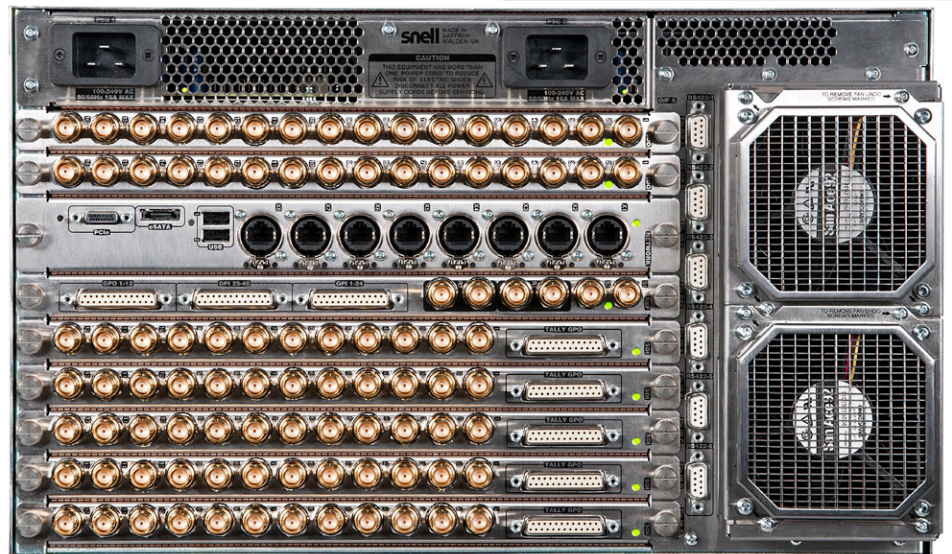
- KAH-OUTPUT-IP-50G** 50 GbE IP output fin. Supports 12 outputs: SMPTE ST 2110, 2022-6/7, TR-03 + VC-2

Other Options

- KAH-UPG-3DDVE-3CH** Upgrade DVE to 3 channels
- KAH-UPG-3DDVE-4CH** Upgrade DVE to 4 channels
- KAH-LIC-CAM** Camera interface
- KAH-LIC-AUD** Audio mixer interface
- KAH-LIC-NEWS** News production interface
- KAH-LIC-CLIPTRAX** Cliptrax
- KAH-LIC-STOR-128GB** 20 output ClipStore – 128 GB for RTR2B

Application Software

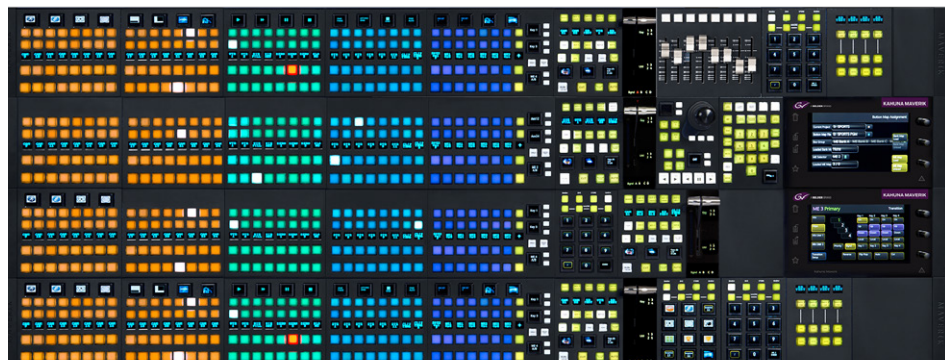
- MSP-LIC-1ME-SW** MSP License for control of the Kahuna 9600 and 6400 frames with the 1 M/E soft panel GUI on a customer supplied PC
- K-MGR-PRO-SW** K-Manager PRO software application that enables FTP transfer to Kahuna frames
- KAH-LIC-3DLUT-XLTR** 3D LUT Translator for Kahuna



Kahuna 6400

MAVERIK

Production Switcher Control Surface



Maverik offers a new way of thinking for switcher control and the first control surface to allow total customization on a huge scale. It has been designed with the Director and Technical Director in mind and for producing any television genre or event with outstanding results.

Whether it's news, sports, light entertainment, music, events or house of worship programming, Maverik from Grass Valley can be set out exactly the way you need – for effortless productions and maximum functionality in minimal space.

The Maverik operates and controls all switchers in the Kahuna, Kula and Masterpiece range with the ability to connect MAV modules to Grass Valley's cloud-based applications through AMPP.

MAV modules can be connected to GV Media Universe giving users broadcast quality control panels that interface directly with AMPP applications such as the new Live Producer from GV. Live Producer can be operated with either a touch screen GUI or the tactile MAV modules.

MAV Modules

A wide range of Mav modules are available, allowing you to design a Maverik panel specifically tailored to your requirements.



MAV-GUI

Configure your entire panel with easy touchscreen navigation and selectable preferences to create your complex effects fast and with ease. Choose your own shortcut hotkeys for even faster operations.

Mav Designation	MAV-GUI	
Order Code	MAV-GUI	
Dimensions	Width 220 mm (8.66 inches)	Depth 140 mm (5.15 inches)
Connection	10 x RJ45	
Power	2 x external DC blocks auto sensing 100 – 250 VAC 50/60 Hz	

MAV Modules

A wide range of Mav modules are available, allowing you to design a Maverik panel specifically tailored to your requirements.



MAV TRANS

The Mav Trans module gives you easy smooth transitions of backgrounds with identification direction light. Take your keys to air with the T-bar or use the independent key transitions or simply use your hot keys to add or remove key layers promptly. The Mav Trans also gives you three OLED buttons to assign any effect you need.

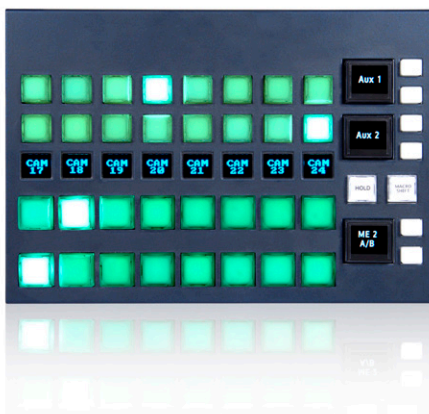
Mav Designation	MAV-TRANS	
Order Code	MAV-TRANS	
Dimensions	Width 160 mm (6.29 inches)	Depth 140 mm (5.15 inches)
Connection	2x RJ45	
Power	(POME) Power over Maverik Ethernet	



MAV 8Xpt DEL OB

The same crosspoint Mav module as the Mav 8Xpt del FS but with the additional OLED buttons, to give you full control of macros, memory recall and effects. High-quality crystal OLED displays for bespoke graphical identification.

Mav Designation	MAV-8Xpt-DEL-OB	
Order Code	MAV-8Xpt-DEL-OB	
Dimensions	Width 200 mm (7.87 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	



MAV 8Xpt DEL FS

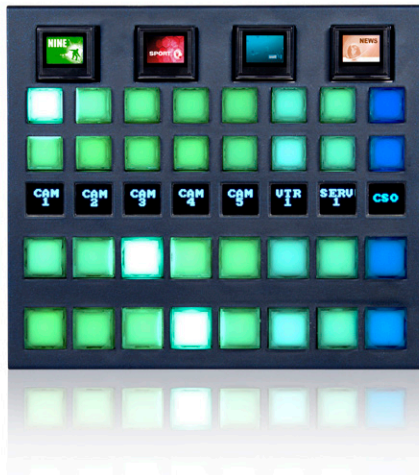
A crosspoint Mav module built in 8 button sets for ergonomic operations. Select any backgrounds, keyers or auxes via the push buttons to access all your resources quickly.

A powerful Mav module that gives you access to all of your M/Es which gives you the possibility of designing any size panel.

Mav Designation	MAV-8Xpt-DEL-FS	
Order Code	MAV-8Xpt-DEL-FS	
Dimensions	Width 200 mm (7.87 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	

MAV Modules

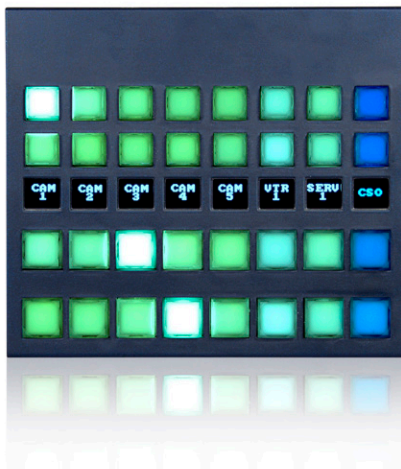
A wide range of Mav modules are available, allowing you to design a Maverik panel specifically tailored to your requirements.



MAV 8xpt OB

8 crosspoint Mav module select as above but with the addition of the crystal clear OLED buttons across the top of each Mav for instant access to macros, memories and effects.

Mav Designation	MAV-8Xpt-OB	
Order Code	MAV-8Xpt-OB	
Dimensions	Width 160 mm (6.29 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	



MAV 8xpt FS

8 crosspoint Mav module selector, to access any of your sources and feeds with confidence. Identify each source with up to 4 lines of characters. Connect as many Mav 8xpt FS modules as you desire, there are no limits.

Mav Designation	MAV-8Xpt-FS	
Order Code	MAV-8Xpt-FS	
Dimensions	Width 160 mm (6.29 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	



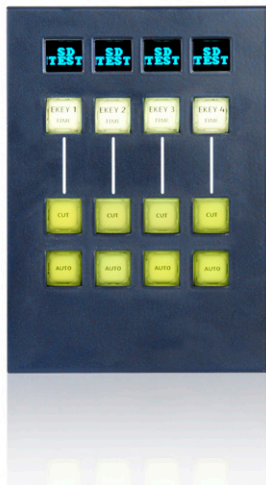
MAV AUX

Include a Mav Aux module to your Maverik for dedicated & confident control of aux bus switching with three levels of mnemonics showing source name, aux bus name and the switched source, perfect for in-vision productions.

Mav Designation	MAV-AUX	
Order Code	MAV-AUX	
Dimensions	Width 160 mm (6.29 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	

MAV Modules

A wide range of Mav modules are available, allowing you to design a Maverik panel specifically tailored to your requirements.



MAV DSK

The Mav DSK module gives operators instant access to the DSKs on the assigned M/E. It allows for fast operations to take and remove keys off and on air.

Mav Designation	MAV-DSK	
Order Code	MAV-DSK	
Dimensions	Width 100 mm (3.93 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	



MAV KEYSER

Design and manipulate effects on key layers fast with the Mav Keyer module. Resize your keys, build effects, change their priority layers with an easy to reach selection Mav tool.

It is the perfect direct and accurate key parameter control for any M/E keyer delegated to the keyer Mav.

Mav Designation	MAV-KEYER	
Order Code	MAV-KEYER	
Dimensions	Width 160 mm (6.29 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	



MAV JOY

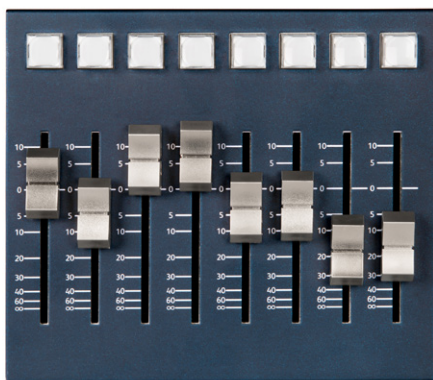
The Mav Joystick can be used for multiple functions, whether you're resizing key effects, moving keys, creating timelines, or even adjusting camera heads.

The Mav Joy can be used across the Maverik panel for any M/E, giving the operator easy access for simple operations.

Mav Designation	MAV-JOY	
Order Code	MAV-JOY	
Dimensions	Width 100 mm (3.93 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	

MAV Modules

A wide range of Mav modules are available, allowing you to design a Maverik panel specifically tailored to your requirements.



MAV KEYPAD

Whether you need to save memories such as Dmems and Gmems or recall them, manipulate resize parameters for key layers, the Mav Keypad is an easy to access number pad, making operations fast and effective.

Mav Designation	MAV-KEYPAD	
Order Code	MAV-KEYPAD	
Dimensions	Width 100 mm (3.93 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	

MAV UFBPAD

A powerful module giving you multiple layers of macros for any type of memory recall, macro activation, clip/store load, or even operational commands.

The User Function Pad Mav module can be assigned and designated any way you want for your production.

Mav Designation	MAV-UFBPAD	
Order Code	MAV-UFBPAD	
Dimensions	Width 100 mm (3.93 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	

MAV AUDIO FADER

Extend the control of the Audio Mixer to a single control point with the production switcher in the control room using the Mav Audio Fader.

This Mav module can be placed anywhere within a desired Maverik control surface. Fitted with motorized faders, the Mav Audio Fader works with memories as well as normal audio operation control.

Mav Designation	MAV-AUDIO-FADER	
Order Code	MAV-AUDIO-FADER	
Dimensions	Width 160 mm (6.29 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	

MAV Modules

A wide range of Mav modules are available, allowing you to design a Maverik panel specifically tailored to your requirements.

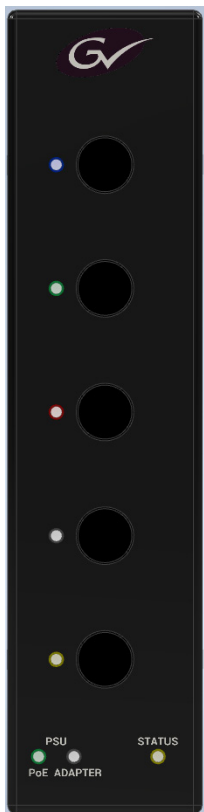


MAV AUTO

Customize your production easily and take your visuals to air fast and immediate with the MAV-AUTO module. It has been designed to make operations easy and fast with customizable full color OLED macro buttons and a source selection row.

The MAV-AUTO module is the perfect solution for automated productions or even as a large shotbox function to trigger any combination of effects when you need them.

Mav Designation	MAV-AUTO	
Order Code	MAV-AUTO	
Dimensions	Width 160 mm (6.29 inches)	Depth 140 mm (5.15 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet	



Maverik Encoder GUI (MEG)

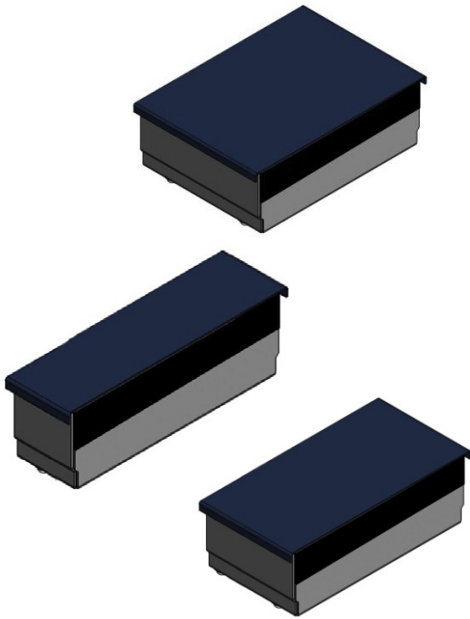
Maverik Encoder GUI (MEG) is an option available to any Maverik control surface. MEG offers the operator five physical rotary encoder knobs to provide the physical granular adjustment needed to achieve a precise look for any production.

A Kula/Masterpiece MEG is also available with three rotary encoder knobs.

Mav Designation	KAH-MEG-5 or KULA-MP-MEG-3	
Order Code	KAH-MEG-5 or KULA-MP-MEG-3	
Dimensions	Width 44 mm (1.73 inches)	Depth 182 mm (7.16 inches)
Connection	2 x RJ45	
Power	(POME) Power over Maverik Ethernet or external GV power supply	

MAV Modules

A wide range of Mav modules are available, allowing you to design a Maverik panel specifically tailored to your requirements.



BLANK MAV MODULES

Blank Mav modules are used in all panel designs to use space to its maximum while designing any layout. Mav Blanks are deployed like any Maverik Module, anywhere.

MAV Blank Size	Order Code
MAV - Blank - 20	MAV-BP-20
MAV - Blank - 40	MAV-BP-40
MAV - Blank - 60	MAV-BP-60
MAV - Blank - 80	MAV-BP-80
MAV - Blank - 100	MAV-BP-100
MAV - Blank - 120	MAV-BP-120
MAV - Blank - 140	MAV-BP-140
MAV - Blank - 160	MAV-BP-160
MAV - Blank - 180	MAV-BP-180
MAV - Blank - 200	MAV-BP-200
MAV - Blank - 220	MAV-BP-220



MAV – ROW FRAME

MavRowFrame Racking system for all Maverik Mav Modules are available in various lengths from 160 mm to 1560 mm.

Multiple MavRowFrames can be connected together and increase the depth of a panel that provides the basis of any Maverik panel layout.

For flyaway kits and other rack-mounted applications, a 19"/420 mm MavRowFrame with rack ears is also available.

Pre-Configured Maverik Control Panels

MAV-PNL-100-16

Maverik 1 M/E panel – 16 buttons – 1 MAV-GUI

- 1x 9678250 MAV-GUI Graphical user interface
- 1x 9678220 MAV-8Xpt-DEL-FS Delegation Mav module with 8 crosspoints
- 1x 9678200 MAV-8Xpt-FS 8 crosspoint Mav module
- 1x 9678240 MAV-TRANS Transition module
- 1x 9678370 MAV-KEYER
- 1x 9678260 MAV-UFBPAD User function button pad
- 1x 9678280 MAV-JOY Joystick Mav module
- 1x 9678340 MAV-KEYPAD Keypad Mav module
- 1x 9678410 MAV-Blank-40 40 mm blanking Mav

Note: must order separately: 2x MAV-PNL-ROW-620 Single MavRowFrame, 620 mm width



MAV-PNL-200-24

Maverik 2 M/E panel – 24 buttons – 1 MAV-GUI

- 1x 9678250 MAV-GUI Graphical user interface
- 2x 9678220 MAV-8Xpt-DEL-FS Delegation Mav module with 8 crosspoints
- 4x 9678200 MAV-8Xpt-FS 8 Crosspoint Mav module
- 2x 9678240 MAV-TRANS Transition module
- 1x 9678370 MAV-KEYER
- 1x 9678260 MAV-UFBPAD User function button pad
- 1x 9678270 MAV-DSK Downstream keying Mav module
- 1x 9678280 MAV-JOY Joystick Mav module
- 1x 9678340 MAV-KEYPAD Keypad Mav module
- 1x 9678410 MAV-Blank-40 40 mm blanking Mav
- 1x 9678470 MAV-Blank-160 160 mm blanking Mav

Note: must order separately: 3x MAV-PNL-ROW-780 Single MavRowFrame, 780 mm width

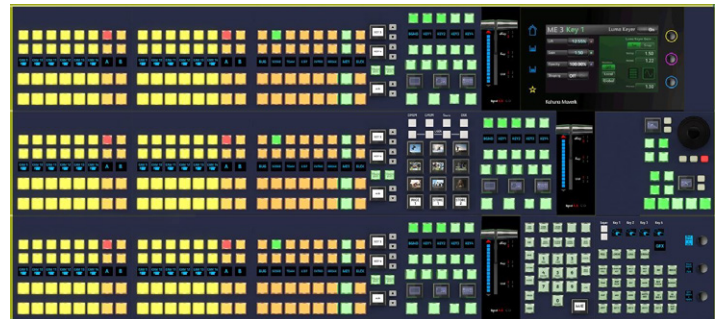


MAV-PNL-300-24-1G

Maverik 3 M/E panel – 24 buttons – 1 MAV-GUI

- 1x 9678250 MAV-GUI Graphical user interface
- 3x 9678220 MAV-8Xpt-DEL-FS Delegation Mav module with 8 crosspoints
- 6x 9678200 MAV-8Xpt-FS 8 Crosspoint Mav module
- 3x 9678240 MAV-TRANS Transition module
- 1x 9678370 MAV-KEYER
- 1x 9678260 MAV-UFBPAD User function button pad
- 1x 9678280 MAV-JOY Joystick Mav module
- 1x 9678340 MAV-KEYPAD Keypad Mav module
- 1x 9678410 MAV-Blank-40 40 mm blanking Mav
- 1x 9678420 MAV-Blank-60 60 mm blanking Mav

Note: must order separately: 3x MAV-PNL-ROW-940 Single MavRowFrame, 940 mm width

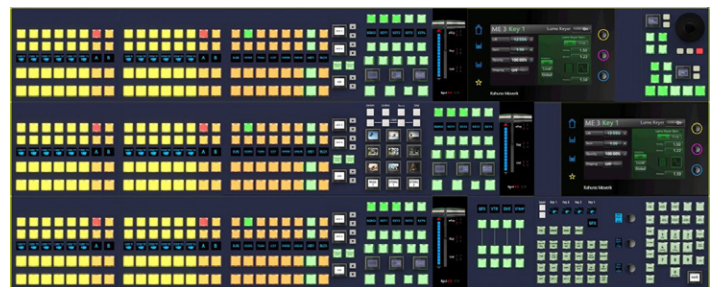


MAV-PNL-300-24-2G

Maverik 3 M/E panel – 24 buttons – 2 MAV-GUIs

- 2x 9678250 MAV-GUI Graphical user interface
- 3x 9678220 MAV-8Xpt-DEL-FS Delegation Mav module with 8 crosspoints
- 6x 9678200 MAV-8Xpt-FS 8 Crosspoint Mav module
- 3x 9678240 MAV-TRANS Transition module
- 1x 9678370 MAV-KEYER
- 1x 9678260 MAV-UFBPAD User function button pad
- 1x 9678280 MAV-JOY Joystick Mav module
- 1x 9678340 MAV-KEYPAD Keypad Mav Module.
- 1x 9678270 MAV-DSK Downstream keying Mav module
- 2x 9678410 MAV-Blank-40 40 mm blanking Mav

Note: must order separately: 3x MAV-PNL-ROW-1040 Single MavRowFrame, 1040 mm width

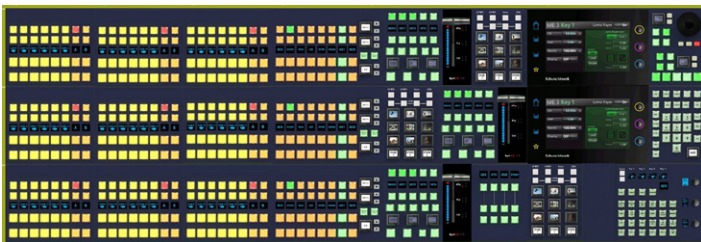


Pre-Configured Maverik Control Panels

MAV-PNL-300-32

Maverik 3 M/E panel – 32 buttons – 2 MAV-GUIs

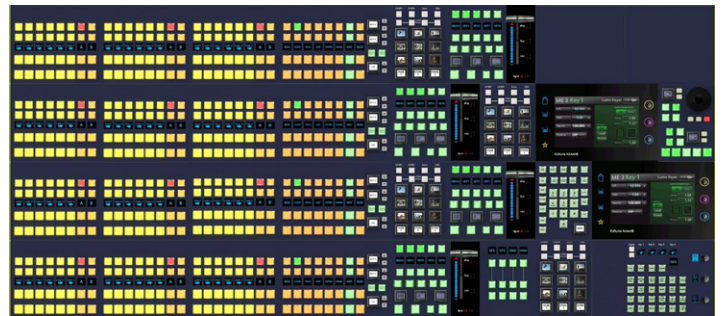
- 2x 9678250 MAV-GUI Graphical user interface
 - 3x 9678220 MAV-8Xpt-DEL-FS Delegation Mav module with 8 crosspoints
 - 9x 9678200 MAV-8Xpt-FS 8 Crosspoint Mav module
 - 3x 9678240 MAV-TRANS Transition module
 - 1x 9678370 MAV-KEYER
 - 3x 9678260 MAV-UFBPAD User function button pad
 - 1x 9678280 MAV-JOY Joystick Mav module
 - 1x 9678340 MAV-KEYPAD Keypad Mav module
 - 1x 9678270 MAV-DSK Downstream keying Mav module
 - 1x 9678420 MAV-Blank-60 60 mm blanking Mav
- Note: must order separately: 3x MAV-PNL-ROW-1260 Single MavRowFrame, 1260 mm width



MAV-PNL-400-32

Maverik 4 M/E panel – 32 buttons – 2 MAV-GUIs

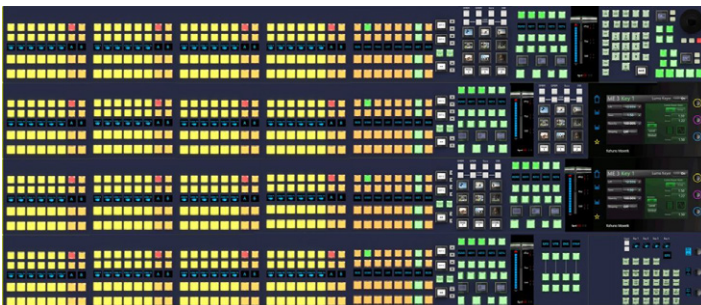
- 2x 9678250 MAV-GUI Graphical user interface
 - 4x 9678220 MAV-8Xpt-DEL-FS Delegation Mav module with 8 crosspoints
 - 12x 9678200 MAV-8Xpt-FS 8 crosspoint Mav module
 - 4x 9678240 MAV-TRANS Transition module
 - 1x 9678370 MAV-KEYER
 - 4x 9678260 MAV-UFBPAD User function button pad
 - 1x 9678280 MAV-JOY Joystick Mav module
 - 1x 9678340 MAV-KEYPAD Keypad Mav module
 - 1x 9678270 MAV-DSK Downstream keying Mav module
 - 1x 9678420 MAV-Blank-60 60 mm blanking Mav
 - 2x 9678470 MAV-Blank-160 160 mm blanking Mav
- Note: must order separately: 4x MAV-PNL-ROW-1260 Single MavRowFrame, 1260 mm width



MAV-PNL-400-40

Maverik 4 M/E panel – 40 buttons – 2 MAV-GUIs

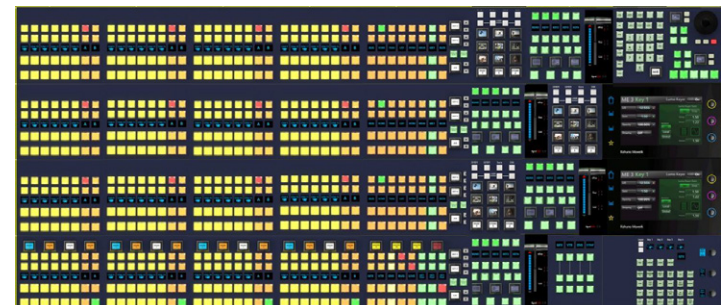
- 2x 9678250 MAV-GUI Graphical user interface
 - 4x 9678220 MAV-8Xpt-DEL-FS Delegation Mav module with 8 crosspoints
 - 16x 9678200 MAV-8Xpt-FS 8 Crosspoint Mav module
 - 4x 9678240 MAV-TRANS Transition module
 - 1x 9678370 MAV-KEYER
 - 3x 9678260 MAV-UFBPAD User function button pad
 - 1x 9678280 MAV-JOY Joystick Mav module
 - 1x 9678340 MAV-KEYPAD Keypad Mav module
 - 1x 9678270 MAV-DSK Downstream keying Mav module
 - 1x 9678420 MAV-Blank-60 60 mm blanking Mav
 - 1x 9678400 MAV-Blank-20 20 mm blanking Mav
- Note: must order separately: 4x MAV-PNL-ROW-1320 Single MavRowFrame, 1320 mm width



MAV-PNL-400-40-OL

Maverik 4 M/E panel – 40 buttons + OLED – 2 MAV-GUIs

- 2x 9678250 MAV-GUI Graphical user interface
 - 3x 9678220 MAV-8Xpt-DEL-FS Delegation Mav module with 8 crosspoints
 - 1x 9678230 MAV-8Xpt-DEL-OB Delegation Mav module with 8 crosspoints with OLED macro buttons
 - 12x 9678200 MAV-8Xpt-FS 8 Crosspoint Mav module
 - 4x 9678210 MAV-8Xpt-OB 8 Crosspoint Mav module with OLED macro buttons
 - 4x 9678240 MAV-TRANS Transition module
 - 1x 9678370 MAV-KEYER
 - 3x 9678260 MAV-UFBPAD User function button pad
 - 1x 9678280 MAV-JOY Joystick Mav module
 - 1x 9678340 MAV-KEYPAD Keypad Mav module
 - 1x 9678270 MAV-DSK Downstream keying Mav module
 - 1x 9678420 MAV-Blank-60 60 mm blanking Mav
 - 1x 9678400 MAV-Blank-20 20 mm blanking Mav
- Note: must order separately: 4x MAV-PNL-ROW-1320 Single MavRowFrame, 1320 mm width



Extensive training & support

Extensive training and support services ensure you get the very best out of your Grass Valley Kahuna live production switcher.

GV Care Service

Grass Valley’s customer service offers first class solutions for optimizing your operations, through world-leading technical support and fast responsiveness during the life of your product.

GV Care is a premium support package that offers professional services 24 hours a day all year round. Benefiting from advance parts replacement service, your mission critical system will always be maintained to the highest standard both quickly and effectively.

Grass Valley also offers health checks, repair services, training and spare parts packages, giving you total peace of mind throughout the life of your product.

Grass Valley’s customer services are here to help and support you. For further information about GV Care contact your Grass Valley sales representative.

Training

Training before and after a system purchase is available worldwide at customer premises, Grass Valley offices or an alternative third-party location. The duration of these training sessions will depend on user requirements.

Courses are available for basic as well as advanced operations, technical support, maintenance and familiarization. They can be custom-designed to meet specific requirements.

Kahuna customer services at a glance

	In Warranty	Out of Warranty (without GV Care)	Out of Warranty (with GV Care)
9-to-5 phone support	✓	✓	✓
Online support resources	✓	✓	✓
Advanced part replacement (next-day service)	✓	✗	✓
24x7x365 phone support	✓	✗	✓
Repair service	not required	✓	not required
Health check	as needed	as needed	as needed

This product may be protected by one or more patents. For further information, please visit: www.grassvalley.com/patents

DS-PUB-3-0703A-EN

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