

Kahuna™ World Class Multiformat Production Switcher

Benefits At a Glance

- Future proof flexibility
- Flexible SD/HD operation
- Easy operational control
- Creativity in production
- Scalability
- Reliability

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

Powered by Snell & Wilcox's exclusive FormatFusion signal processing technology, 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. 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.

Kahuna offers you 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. It's as easy as a simple software upgrade. Kahuna allows a gradual, controlled transition to HDTV, putting the broadcast customer in total control of when to transition to the next generation of television technology.

MAINFRAMES

11RU



Size	11RU	
Height	19.2 inches	~ 488 mm.
Width	19 inches nominal	~ 485 mm including brackets.
Depth	21.9 inches nominal	~ 558.1 mm including connectors
Weight	105.8lbs	~ 48kg

6RU



Size	6RU	
Height	10.47 inches	~ 266 mm
Width	18.98 inches nominal	~ 482 mm including brackets.
Depth	22.19 inches nominal	~ 563.7 mm including connectors
Weight	72.7lbs	~ 33kg

CONTROL SURFACES

4 M/E Control Surface



Part Number: K_4ME_CP_MNEM **Order Code:** 96484A

Height 27.8 inches ~ 707.5 mm
 Width 57.8 inches ~ 1468.4 mm
 Depth 4.8 inches ~ 123.9 mm
 Weight 105.8lbs ~ 48kg

3 M/E Control Surface



Part Number: K_3ME_CP_MNEM **Order Code:** 9648300A

Height 27.8 inches ~ 707.5 mm
 Width 57.8 inches ~ 1468.4 mm
 Depth 4.8 inches ~ 123.9 mm
 Weight 105.8lbs ~ 48kg

3 M/E Compact Control Surface



Part Number: K_3M3_COMPACT **Order Code:** 9648400

Height 23.5 inches ~ 598 mm
 Width 45.2 inches ~ 1148 mm
 Depth 4.9 inches ~ 125 mm
 Weight 75.8lbs ~ 33.5kg

2 M/E Control Surface



Part Number: K_2ME_CP_MNEM **Order Code:** 9648200A

Height 22.0 inches ~ 560.6 mm
 Width 51.7 inches ~ 1315 mm
 Depth 5.4 inches ~ 138 mm
 Weight 77.1lbs ~ 35kg

CONTROL SURFACES

2 M/E Compact Control Surface



Part Number: K_2ME_COMPACT **Order Code:** 9648600A

Height 21.7 inches ~ 553 mm
 Width 39.2 inches ~ 997 mm
 Depth 5.4 inches ~ 138 mm
 Weight 62.8lbs ~ 28.5kg

2 M/E Compact Tracker-ball Control Surface



Part Number: K_2ME_COMPACT_TB **Order Code:** 9648860

Height 21.7 inches ~ 553 mm
 Width 39.2 inches ~ 997 mm
 Depth 5.4 inches ~ 138 mm
 Weight 62.8lbs ~ 28.5kg

1 M/E Control Surface



Part Number: K_1ME_CP_MNEM **Order Code:** 9648100A

Height 13.1 inches ~ 355 mm
 Width 25.5 inches ~ 648 mm
 Depth 6.4 inches ~ 163.7 mm
 Weight 16.7lbs ~ 7.6kg

Micropanel



Part Number: K_MICRO_CP **Order Code:** 9649100

Size 4RU
 Height 3.5 inches ~ 90.4 mm
 Width 18.9 inches ~ 482 mm
 Depth 6.9 inches ~ 177 mm
 Weight 7.5lbs ~ 3.4kg

ANCILLARY PANELS

GUI Panel



Part Number: K_GUI **Order Code:** 9648700A

Height	11.5 inches	~ 292.6 mm (including stand)
Width	16.9 inches	~ 430 mm
Depth	3.2 inches	~ 81.7 mm
Weight	13.8lbs	~ 6.3kg

Master Aux Panel



Part Number: K_MASTER_AUX **Order Code:** 9648900A

Size	4RU
Height	6.62 inches ~ 168.2 mm (including stand)
Width	19.8 inches ~ 504 mm
Depth	2.74 inches ~ 69.7 mm
Weight	8.1lbs ~ 3.7kg

ShotBox Panel



Part Number: K_SHOTBOX **Order Code:** 9649200

Height	2.54 inches	~ 64.5 mm
Width	10.2 inches	~ 272 mm
Depth	5.98 inches	~ 152 mm
Weight	3.3lbs	~ 1.5kg

Remote Aux Panel



Part Number: K_1U_AUX **Order Code:** 9648800A

Size	1RU
Height	1.7 inches ~ 44 mm (including stand)
Width	17.3 inches ~ 441.7 mm
Depth	5.8 inches ~ 148.8 mm
Weight	5.7lbs ~ 2.6kg

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.

Providing up to four twin-channel (key and fill), or eight video channels with 3D DVE effects, Impakt can be used in all TV formats, allowing both background and fill-and-key manipulation. Pre-made transition models include spheres, slabs, zooms, warps, tiling, ripples and rolls. Further enhancements include lighting, glows, trail-based effects, and non linear decays, trial textures, montages and tile stamping.

Control is integrated with Kahuna's main panel or when requiring dedicated DVE operation from an additional panel.

FormatFusion

FormatFusion enables Kahuna to offer total format freedom with any broadcast format for inputs and outputs. Any of the 80 inputs are free to be assigned to be HD or SD with no restriction. Working as a part of each M/E, this provides flexibility to create powerful compositions made up of SD and HD sources, plus provide SD and HD outputs.

FormatFusion completely eliminates the need for external conversion boxes. This not only reduces cost and complexity, but results in a low latency infrastructure with significantly fewer timing errors.

Illustrative Example of HD Output from a Single M/E Using Mixed SD/HD Inputs

POS	PLAYER	SCORING TO PAR		
		TODAY	THRU	TOTAL
1	Carter	-6	F	-19
2	O'Meara	-7	F	-15
3	Melia	-1	F	-13
4	Zeller	-7	F	-12
T5	Green	-6	F	-11
T6	Price	-5	F	-11
T7	Kenney	-2	F	-11
T8	Flees	E	F	-11
T9	Cross	-1	F	-10
T10	Forsyth	E	F	-10



Specifications 11RU and 6RU

TV Standards (Options)	
625/525	4:3
625/525	16:9
1080i	60Hz SMPTE-274M(4), -292M(D)
1080i	59.94Hz SMPTE-274M(5), -292M(E)
1080i	50Hz SMPTE-274M(6), -292M(F)
1035i	60Hz SMPTE -260M,-292M(A)
1035i	59.94Hz SMPTE-260M,-292M(B)
1080p	30Hz sF
1080p	29.97Hz sF
1080p	25Hz sF
1080p	24Hz sF
1080p	23.976Hz sF
1080p	30Hz SMPTE-274M(7) -292M(G)
1080p	29.97Hz SMPTE-274M(8) -292M(H)
1080p	25Hz SMPTE-274M(9) -292M(I)
1080p	24Hz SMPTE-274M(10) -292M(J)
1080p	23.976Hz SMPTE -274M(11) -292M(K)
720p	60Hz SMPTE-296M(1), -292M(L)
720p	59.94Hz SMPTE-296M(2), -292M(M)
720p	50Hz
Analog Genlock signal	High definition tri-level syncs or SD 1V B&B
Input Return Loss	>15 dB to 750 MHz >12 dB to 1500
Maximum Input Cable Length	Exceeds SMPTE292 recommendations >= 100 m of Belden 8281 cable
Video Signal Output Return Loss	>15 dB to 750 MHz >12 dB to 1500
Internal Processing	
Pb & Pr Data Rate	37.125/6.75 MHz or/(1.001) MHz (4:2:2) @12bit
Resolution	10 bits. Output
Luma & Key Data Rate	74.25/13.5 MHz or (74.25/1.001) MHz @12bit

Features 11RU Mainframe

Video Signal Inputs	
80 SD/HD Serial Digital	270Mbit/s/ 1.485Gbit/s serial digital interface as REC601/ SMPTE 292M via BNC connectors
Genlock Reference A&B	2 off Analog Sync (loop through)
Video Signal Outputs per ME	
4 Programmable HD/SD-SDI	4 via 8 BNC connectors (2 feeds per output)
4 Timed Aux HD/SD SDI	4 via 8 BNC connectors (2 feeds per output)
Analog Sync Out	Timing Adjustable Sync output

Control Interfaces Per M/E

Control Panel	10/100 base T-X via 1 x RJ45 connector using one of the six RJ45's below
External Interfaces	2 x freely-assignable RS422 each via 1 x 9-way D-type
Diagnostics	RS232 (DCE) via 1 x 9-way D-type connector

Control Interfaces Shared

GPI Inputs	48 x TTL-level inputs via 25-way D-type connectors
Tally/GPO Outputs	84 x isolated contact closures via 25-way D-type connectors
Six 10/100 Base T Ethernet connections	Six RJ45 connectors. Used for panel control, FTP, Offline download

Control Interfaces (Control Panel)

Mainframe	10/100 base T via 1 x RJ45 connector
GUI (Graphical user display) and main panel	25-way D-type connector
3 USB Ports	USB 1.1/2.0 Ports (2 on Rear 1 on front of GUI)
Aux Control Port	RJ45 Daisy chain for 1U AUX panels
Main Aux	15 Way Dtype on Main Panel and GUI (with Power 3m)
Spare Control	15 Way Dtype on GUI

Power

Kahuna Mainframe Power Supply	Auto sensing 100-250 VAC 50/60 Hz nominal Provision for two pairs of fully independent hot-plugable PSU modules, with separate mains power feeds via 4 x IEC socket. A pair of PSU's is standard. The second pair is an option (Giving Both Dual Redundant)
Kahuna Mainframe Power Consumption	1200 W Maximum with all options fitted

Control Panel Power Supply 2ME, 3ME, 4ME	Auto sensing 100-250 VAC 50/60 Hz nominal Provision for two fully independent hot-plugable PSU modules, with separate mains power feeds via 2 x IEC socket. A single PSU is standard; the second is an option.
Control Panel Power Consumption	100W Maximum
Control Panel Power Supply 1ME	50W Maximum. Auto sensing 100-250 VAC 50/60 Hz nominal Provision for two fully independent external PSU's giving dual redundant operation

Mainframe

Temperature Range	5 to 35° C non condensing operating
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Control Surfaces and Ancillary Panels

Temperature Range operating	5 to 35° C non condensing operating
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Features 6RU Mainframe

Video Signal Inputs

40 SD/HD Serial Digital	270Mbit/s/ 1.485Gbit/s serial digital interface as REC601/ SMPTE 292M via BNC connectors
Genlock Reference A&B	2 off Analog Sync (loop through)

Video Signal Outputs per ME 2 M/E Max

8 Programmable HD/SD SDI	4 BNC connectors (2 feeds per output)
8 Timed Aux HD/SD SDI	4 BNC connectors (2 feeds per output)
8 Source AUX HD/SD SDI	4 BNC connectors (2 feeds per output)
Analog Sync Out	Timing Adjustable Sync output

Control Interfaces Per ME 2 M/E Max

Control Panel	10/100 base T-X via 1 x RJ45 connector using one of the three RJ45's below
External Interfaces	2 x freely-assignable RS422 each via 1 x 9-way D-type
Diagnostics	RS232 (DCE) via 1 x 9-way D-type connector

Control Interfaces Shared

GPI Inputs	24 x TTL-level inputs via 25-way D-type connectors
Tally/GPO Outputs	48 x isolated contact closures via 25-way D-type connectors
Six 10/100 Base T Ethernet connections	3 x RJ45 connectors. Used for panel control, FTP, Offline download

Control Interfaces (Control Panel)

Mainframe	10/100 base T via 1 x RJ45 connector
GUI (Graphical user display) and main panel	25-way D-type connector
3 USB Ports	USB 1.1/2.0 Ports (2 on Rear 1 on front of GUI)
Aux Control Port	RJ45 Daisy chain for 1RU AUX panels
Main Aux	15 Way Dtype on Main Panel and GUI (with Power 3m)
Spare Control	15 Way Dtype on GUI

Power

Kahuna Mainframe Power Supply	Auto sensing 100-250 VAC 50/60 Hz nominal Provision for two pairs of fully independent hot-plugable PSU modules, with separate mains power feeds via 4 x IEC socket. A pair of PSU's is standard. The second pair is an option (Giving Both Dual Redundant).
Kahuna Mainframe Power Consumption	1000 W Maximum with all options fitted

Control Panel Power Supply 2ME, 3ME, 4ME	Auto sensing 100-250 VAC 50/60 Hz nominal Provision for two fully independent hot-plugable PSU modules, with separate mains power feeds via 2 x IEC socket. A single PSU is standard; the second is an option.
Control Panel Power Consumption	100W Maximum
Control Panel Power Supply 1ME	50W Maximum. Auto sensing 100-250 VAC 50/60 Hz nominal Provision for two fully independent external PSU's giving dual redundant operation

Control Panel Power Consumption	100W Maximum
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Control Panel Power Supply 1ME	50W Maximum. Auto sensing 100-250 VAC 50/60 Hz nominal Provision for two fully independent external PSU's giving dual redundant operation
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Mainframe

Temperature Range	5 to 35° C non condensing operating
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Control Surfaces and Ancillary Panels

Temperature Range	5 to 35° C non condensing operating
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