

Kula AV

1 M/E HD Production Switcher



Kula AV is an “All in One” production switcher designed for the professional broadcast and AV markets. Along with a powerful production switcher feature set in a compact system, the Kula AV includes internal audio mixer functionality.

Kula AV from Grass Valley is available as a 1 M/E HD-SDI switcher in a compact 2 RU mainframe with a convenient 19”-wide rackable control surface suitable for fly-packs. Also included in the package is the Mav Audio Fader module.

Main Features

In addition to Kula’s recognized 1080p production switcher performance, the Kula AV is an all-in-one solution offering multiviewers, format conversion, audio mixing and a graphics interface within its 2 RU engine. Kula AV has been designed for the likes of Houses of Worship, regional news, sports, events, conferences and education. It is the perfect solution for each environment offering a huge range of features. Kula AV may be a compact production switcher but it packs a huge punch.

Supports Audio Mixer Functionality

Kula AV includes the audio-follow-video function where each video input can have a group of one or several audio sources linked to it. When Kula AV performs a transition on the video switcher, the audio mixer will follow with a cross-fade between the two audio inputs.

Kula AV also supports audio substitution allowing the audio from your video source to be replaced with a selected audio source.

RT Software® Swift (tOG 2D) Graphics

Swift broadcast graphics from RT Software are bundled with the Kula AV to provide an intuitive creative tool for text, clocks, tickers/crawls, tables and video/clip handling. Once created, graphics are automatically loaded directly into the Kula AV ClipStore for immediate use. The Swift graphics integration adds the flexibility needed for the most demanding productions.

Supports Mixed SD/HD & SDR/HDR Environments

Kula AV can output multiple standards simultaneously using Grass Valley’s unique FormatFusion3 internal conversion technology, opening up multi-standard production in HD, SD and 1080p. If legacy material is SD and your production is HD, Kula AV deals with both standards easily and effectively. Using FormatFusion3, Kula AV converts the standard automatically, freeing up precious time for your operator to focus on their creative production.

FormatFusion4 technology raises the bar again, bringing seamless HDR capabilities to Kula AV. Inputs and outputs can independently handle HLG, PQ and S-Log3 for color spaced BT709 SDR and BT2020 HDR. FormatFusion4 is completely transparent to a customer’s live production workflow and requires no additional engineering or external equipment.

Control Surface that Supports Direct Control and Macro Allocation

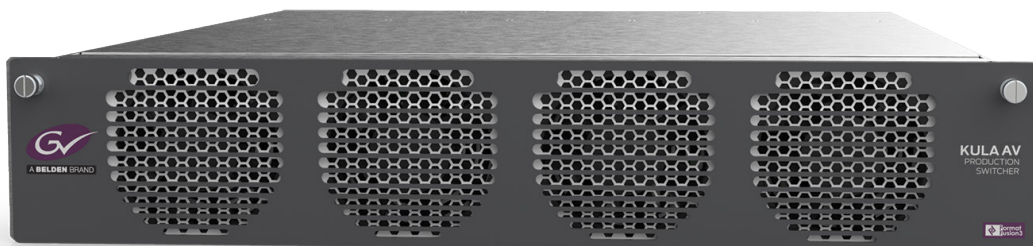
Kula AV has a 1 M/E 19” control panel. It offers 16 crosspoint buttons, separate key control and transition operations and assignable macro buttons with OLED displays for crystal clear identification. For complete control of the audio mixer channels Kula AV is supplied with a Mav Audio Fader module as standard.

Multiviewer Built on Kahuna’s High Performance

Kula AV’s internal multiviewer offers flexibility with four configurable heads and 12 tiles to build preview windows to prepare for professional live productions.

Large ClipStore

The Kula AV has a large internal ClipStore with ten ClipStore outputs supported by a 1 TB hard disk.



KEY FEATURES

- 2 rack units
- 40 video inputs
- 12 assignable video outputs
- 2 BNCs configurable as an input or output enables I/O range from 42x12 to 40x14
- Mix/Effect supports:
 - Four full effects keyers with lin/luma
 - Four assignable 2D DVE engines (will give eight independent boxes)
 - Chromakeys available on all keys
 - Transition keyer (Mav Trans) with dedicated ClipStores for key & fill
 - Mask generator per keyer
 - Separate wipe generator
 - Matte generator
- Large internal ClipStore with 10 outputs holding uncompressed video and audio content that is totally routable
- Eight channels of FormatFusion3 assignable to any input or output
- Optional FormatFusion4 upgrade enabling eight channels of FormatFusion4 assignable to any input or output
- Four floating resizable downstream keyers
- Internal multiviewer with four heads and 12 tiles available
- 1 M/E control panel with 16 crosspoints and clear OLEDs
- RGB pushbuttons and shaft encoders for quick and granular control, sophisticated macro recall and edit capability
- Clearly labeled control panel with separate mnemonics for source, key and macro names, instant delegation buttons for macros or key and aux bus control
- T-bar with direction strip indicators
- Swift broadcast graphics from RT Software are bundled with Kula AV to provide an intuitive creative tool for text, clocks, tickers/crawls, tables and video/clip handling
- 80 input x 56 output audio mixer. Audio functionality includes embed/de-embedding, routing with clean & quiet audio switching and audio-follow-video mode for simplified control
- 128 channels of MADI input across 2 BNC inputs, 2x 16 channels of MADI audio selectable at any one time
- Mav Audio Fader works with the internal audio mixer allowing control of audio channels with eight motorized faders; the Mav Audio Fader works with memories as well

SPECIFICATIONS

Kula Mainframe

TV Standards

- 2.97 Gb/s Video Standards (1080p):
- 1080p 59.94 Hz SMPTE ST 424
 - 1080p 59.94 Hz SMPTE ST 425/Level A
 - 1080p 59.94 Hz SMPTE ST 425/Level B
 - 1080p 50 Hz SMPTE ST 424
 - 1080p 50 Hz SMPTE ST 425/Level A
 - 1080p 50 Hz SMPTE ST 425/Level B
- 1.485 Gb/s Video Standards (HD):
- 1080i 60 Hz SMPTE ST 274(4)/292(D)
 - 1080i 59.94 Hz SMPTE ST 274(5)/292(E)
 - 1080i 50 Hz SMPTE ST 274(6)/292(F)
 - 1035i 60 Hz SMPTE ST 260/292(A)
 - 1035i 59.94 Hz SMPTE ST 260/292(B)
 - 1080p 30 Hz sF
 - 1080p 29.97 Hz sF
 - 1080p 25 Hz sF
 - 1080p 24 Hz sF
 - 1080p 23.976 Hz sF
 - 1080p 30 Hz SMPTE ST 274(7)/292(G)
 - 1080p 29.97 Hz SMPTE ST 274(8)/292(H)
 - 1080p 25 Hz SMPTE ST 274(9)/292(I)
 - 1080p 24 Hz SMPTE ST 274(10)/292(J)
 - 1080p 23.976 Hz SMPTE ST 274(11)/292(K)
 - 720p 60 Hz SMPTE ST 296(1)/292(L)
 - 720p 59.94 Hz SMPTE ST 296(2)/292(M)
 - 720p 50 Hz SMPTE ST 296(2)/292(M)
- 270 Mb/s Video Standards (SD):
- 576i 16:9
 - 576i 4:3
 - 480i 16:9
 - 480i 4:3

Audio Connections

- 4x AES stereo inputs
- 4x AES stereo outputs
- 128x MADI channels across 2x BNC inputs

Video Signal Inputs

- 40 inputs (270 Mb/s / 1.485 Gb/s / 2.97 Gb/s)
- 2 BNCs configurable as an input or output
- Serial digital interface as REC601/SMPTE ST 292/SMPTE ST 424 via BNC connectors

Video Signal Outputs

- 12 assignable outputs assignable via BNC connectors
- 2 BNCs configurable as an input or output

Reference

- Analog genlock high-definition tri-level syncs signal or SD 1V B and B
- Genlock reference 1 off analog sync via BNC connector

Control Interfaces

- 44 GPI Tally/GPO outputs assignable GPI/GPO isolated contact closures via 2x 25-way D-type. Assignable as GPI or GPO
- 1x 25-way D-type AES audio
- 10/100/1000base-T via 3x RJ45 Ethernet connectors
- 4 RS-422 control ports
- 2x USB 3

Power

- Kula AV mainframe: 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 13A
- IEC - 320-C14 socket
- Power consumption: <400W
- Temp range: 5 to 40°C (41 to 104°F) non-condensing operating

Mainframe Mechanics

- 2 rack units
- Height: 87 mm (3.42 in.)
- Depth: 604.8 mm (23.81 in.)
- Weight: Approx. 14 kg (30.3 lbs.)

Kula Control 1 M/E Panel (Surface or Rackmountable)

- Width: 482.6 mm (19 in.)
- Depth: 221.5 mm (8.72 in.)
- Height: 87.9 mm (3.46 in.) (146.5 mm (5.79 in.) total height including T-Bar)

Connectors

- Mainframe communications:
 - 2x 16 10/100/1000base-T
 - 3x RJ45 Ethernet connectors
- Internal panel connection: 2x RJ45 Ethernet connectors. Connection to other MAV modules
- NOTE: Ethernet connections, must be direct to MAV modules. Do not use network switches or hubs. CAT5 or above cables – crossover cables are not suitable
- 2x USB 2 ports
- 1x monitor connection to local touchscreen

PSU

- 2x fully independent external PSU modules with separate mains power feeds via 2x 10A IEC leads
- Output from each PSU 12V DC 100W via Kycon KPPX 4-pin or compatible connectors to the KPP control surface
- Two supplied as standard, one PSU provides dual redundancy

Mav Audio Fader

- Width: 160 mm (6.29 in.)
- Depth: 140 mm (5.15 in.)

Connectors

- 1x RJ45 Ethernet connectors
- Internal panel connection: 1x RJ45 Ethernet connectors. Connection to Kula Panel

NOTE: Ethernet connection, must be direct to Kula panel. Do not use network switches or hubs. CAT5 or above cables – crossover cables are not suitable

Power: (POME) Power over Maverik Ethernet

MavRowFrame

160 mm MavRowFrame Kit

- Width: 214 mm (8.41 in.)
- Depth: 140 mm (5.15 in.)
- Includes MAVROW Ears Pair
- Optional 19" rackmount kit available for MAV-AUDIO-FADER

Graphics

RT Software Connections

Customer-supplied PC requires network cable for connection to Kula AV

Note: PC supplied by customer, 1-year RT Software license included

ORDERING

KULA-AV-3G-1ME-SYS

1 M/E Kula AV 3G System

1 M/E 16 crosspoint 19" panel, 2 RU 3G-SDI mainframe with 1 M/E. Mav Audio Fader panel and RT Software license for Kula AV mainframe



DS-PUB-2-0840C-EN



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