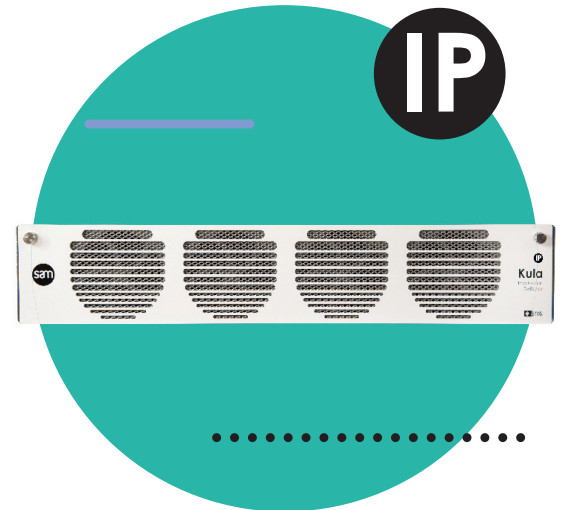


# Kula IP — Production Switcher

## Data Sheet

The move to IP, which is becoming a reality for broadcasters and media organizations, is a massive shift for our industry and also a huge opportunity.



We're seeing our customers' technology models changing: many of them are looking to work with real-time audio and video transport over 10GbE, 40GbE and 100GbE IP networks. This has led to the development of several real-time protocols such as uncompressed SMPTE2022-6, SMPTE2022-7 and VSF TR03 / SMPTE 2110 to stream and enable interoperability across equipment in the production chain.



Enter the **Kula IP**, which is a new smart production switcher from SAM that delivers massive amounts of power and seamlessly connects with today's IP network infrastructures. Kula IP supports these real-time protocols for streaming video on inputs and outputs and works with networks switches of up to 100GbE.

The Kula IP production switcher provides high-end effects and is available in 1 M/E, 2M/E and 3M/E models, as well as a 1 M/E UHD model.

### Features include:

- Up to 3 M/Es
- Up to 32 key layers
- Up to IP 50GbE interface + 50GbE packet redundancy
- Supports up to 36 inputs and 12 outputs over RTP streams SMPTE 2022-6, 220-7 & TR-03 uncompressed video
- 6 x SDI Bi direction assignable BNCs
- Supports 1080i/720p/ 1080p & UHD
- FormatFusion3™
- Internal clipstore
- Internal multiviewer up to 28 Tiles
- Easy operation

### Applications

The new Kula IP is perfect for a broad range of applications within the IP environment:

- Sports
- Regional news
- Magazine programs
- Internet feeds
- Outside/ remote broadcasts
- Flyaway

Kula IP is uniquely positioned for media companies that need full IP I/O yet want a more cost-effective route into the IP domain. Of course it's crucial that customers still benefit from a premium level of production capabilities in a smaller, more efficient form factor.

Kula IP offers flexible M/E functionality and aux outputs, main program and in-vision outputs. Productions have never been so easy in IP!

<b>Powerful M/E</b>	Kula IP offers the most powerful M/E on the market.	Each M/E has four keys with resize engines including split dual tile mode offering eight key layers, a dedicated animated clip transition called a Mav Trans and an A/B background.
<b>Additional sub M/E Functionality</b>	Kula IP provides additional M/Es to the standard M/E functionality.	It includes two keys that can be assigned to a 2.5D DVE resize engine offering an extra three key layers plus an A/B background for creative productions without burning m/e resources.
<b>Assignable Downstream Keys</b>	Four floating DSKs are available within the Kula IP.	They can be independently assigned to any output or used downstream of any M/E. They have resize engines and can create eight key layers.
<b>Capability of Delivering Multiple Outputs</b>	Kula IP can output multiple standards simultaneously using the Kahuna technology FormatFusion3*, opening up more functionality across the delivery of HD, SD, 1080p and 4K.	
<b>Multiviewer Matching Kahuna's High Performance</b>	Kula IP's internal multiviewer offers flexibility with configurable eight heads and 28 tiles to build preview windows to prepare for professional live productions.	
<b>Largest Clipstore</b>	The Kula production switcher has the largest internal clipstore in its class: it provides ten clipstore outputs with 16GB of RAM which gives up to two minutes of uncompressed HD video.	
<b>Large Input and Output</b>	With up to 36 IP inputs and 12 assignable IP outputs, the Kula IP is a practical production switcher.	For more flexibility, Kula IP has an extra six bi-directional ports assignable to any input or output.
<b>Control Surface that Supports Direct Control and Macro Allocation</b>	Kula IP has several panels in the one, two and three M/E range. It offers up to 16 or 24 crosspoint buttons, separate key control and transition operations and assignable macro buttons with OLED displays for crystal clear identification.	Kula IP can connect to up to eight extra modules to the panel from the Kahuna Maverik modular panel range.

**Input / Output Tables with SMPTE 2022-6, 2022-7 & VSF TR – 03 / SMPTE 2110**

Kula IP	3 M/E	2 M/E	1 M/E	1 M/E UHD
<b>Inputs</b>				
1080i / 720p	36	36	18	36
1080p	32	32	16	32
UHD	---	---	---	8
<b>Outputs</b>				
1080i / 720p	12	12	12	12
1080p	12	12	12	12
UHD	---	---	---	3

## Technical Specification

### TV Standards

#### 2.97Gbps Video Standards (1080p)

2.97Gbps Video Standards (1080p)  
1080p 59.94Hz SMPTE-424M  
1080p 59.94Hz SMPTE-425M/Level A  
1080p 59.94Hz SMPTE-425M/Level B  
1080p 50Hz SMPTE-424M  
1080p 50Hz SMPTE-425M/Level A  
1080p 50Hz SMPTE-425M/Level B

#### 1.485Gbps Video Standards (HD)

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 SMPTE- 296M(2), -292M(M)

#### 270Mbps Video Standards (SD)

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

### IP Connectivity

Duplex signals supported over RTP streams via 2 x SFP + 28 cages.

#### SMPTE 2022-6, SMPTE 2022-7, VSFTR-03 / SMPTE 2110

Up to 36 inputs - 1.485Gbps Format Sources

Up to 32 inputs - 2.970Gbps Format Sources

Up to 12 outputs -1.485Gbps Format Sources

Up to 12 outputs -2.970Gbps Format Sources

### Ethernet Signals

SFP + / SFP + 28 Optical x 2  
Conforms to IEEE 802.3ba – 100GbE

### SDI signals

6 x SDI Bi Directional BNC - 1.485Gbps Format Sources and 2.970Gbps Format Sources

### Genlock

Genlock reference 2 off Analog Sync via BNC Connectors

### Control Interfaces

66 GPI Tally/GPO Outputs Assignable  
GPI / GPO Isolated contact closures via 3 x 25 way D Type. Assignable as GPI or GPO.

16 10/100/1000baseT 3 x RJ45 Ethernet connectors fixings.  
2 RS422 control ports  
2 x USB

### Power

#### Kula IP 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 2 x 13A  
IEC - 320-C14 socket.  
Power Consumption <400W  
Temp range 41 to 104 ° F, 5 to 40° C  
Non-condensing operating

### Mainframe Mechanics

2 rack unit  
Height 87mm, 3.42"  
Depth 604.8mm, 23.81"  
Weight Approx 14Kg ~ 30.3lb



