MAV REMOTE

MAV REMOTE SOLUTIONS FOR KAHUNA, KULA, MASTERPIECE AND AMPP

Installation Manual

Issue 2 Rev 1

2021-07-21

FCC Compliance

In order to comply with FCC/CFR47: Part 15 regulations, it is necessary to use high-quality, triple-screened Media or Monitor cable assemblies with integrated ferrite suppression at both ends.

Patent Information

This product may be protected by one or more patents.

For further information, please visit: www.grassvalley.com/patents/

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Specifications are subject to change without notice.

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Please read the following terms and conditions carefully. By using MAV Remote documentation, you agree to the following terms and conditions.

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A Grass Valley manual may have been revised to reflect changes made to the product during its manufacturing life. Thus, different versions of a manual may exist for any given product. Care should be taken to ensure that one obtains the proper manual version for a specific product serial number.

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Warranty information is available from the Legal Terms and Conditions section of Grass Valley's website (www.grassvalley.com).

Title	MAV Remote Installation Manual
Revision	2021-07-21, 16:33

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About this Manual

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Thank you for purchasing your new Mav Remote control unit.
This installation manual will help you through each stage of the physical installation and advise you of all relevant safety aspects. For user setup and configuration please consult the User Instruction Manual.

MAV Remote provides a cost-effective way of managing multiple outputs derived from a Kahuna or Kula mainframe.

Mav Remote offers a control solution for Grass Valley's Kahuna and Kula production switchers when a full-blown panel is not required. The Mav Remote control mechanism is ideal for Remote Production applications, forms part of a wider switcher control strategy within any production facility and can be deployed with any Grass Valley switcher solution. Mav Remote is a cost-effective, dedicated hardware solution that delivers the solid and reliable operational benefits of the Maverik or Kula Control surface. Eliminating the need to be in the same location as the video processing equipment, the Mav Remote is simply connected to the Kahuna or Kula Video Processing mainframe across a network connection. It provides full control of the mainframe and the outputs you need from it in HD, UHD, SDR and HDR.

If you have any questions regarding the installation of your product, please refer to the contact details listed at the rear of this manual.

☞ **Note**

Please note *that all diagrams are for illustration purposes only and may differ slightly from the purchased product. Grass Valley operates a policy of continuous improvement and development. Grass Valley reserves the right to make changes and improvements to any of the products described in this document without prior notice.*

Warnings and Precautions
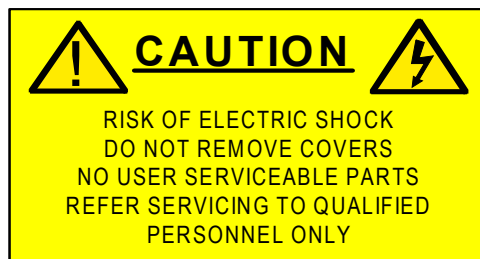
Explanation of Safety Symbols

This symbol refers the user to important information contained in the accompanying literature. Refer to installation manual.

This symbol indicates that hazardous voltages are present inside. No user serviceable parts inside. This unit should only be serviced by trained personnel.

Safety Warnings

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVERS
NO USER SERVICEABLE PARTS
REFER SERVICING TO QUALIFIED
PERSONNEL ONLY

Servicing instructions, where given, are for use by qualified personnel only. To reduce risk of electric shock do not perform any actions on this equipment other than contained in the operating instructions, unless you are qualified to do so. Refer all servicing to qualified personnel.

WARNING

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO WATER OR MOISTURE.

- Always ensure that the unit is properly earthed and power connections correctly made.
- This equipment must be supplied from a power system providing a PROTECTIVE EARTH connection and having a neutral connection which can be reliably identified.
- The power outlet supplying power to the unit should be close to the unit and easily accessible.

Safety and EMC Standards

This equipment complies with the following standards:

Safety Standards

$C\!\!\in$

EN60950-1: 2006

Safety of information Technology Equipment Including Electrical Business Equipment.

UL1419 (3rd Edition)

Standard for Safety – Professional Video and Audio equipment
UL file number E193966

EMC Standards

This unit conforms to the following standards:

EN 55032:2012 (Class A)

Electromagnetic Compatibility of Multimedia Equipment - Emission Requirements

EN 55103-2:2009

Electromagnetic compatibility. Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use. Immunity

EN 61000-3-2:2014 (Class A)

Limits for Harmonic Current Emissions

EN 61000-3-3:2013

Limitation of Voltage Changes, Voltage Fluctuations and Flicker in Public Low-Voltage Supply Systems

FCC / CFR 47:Part 15, Class A

Federal Communications Commission Rules Part 15, Class A

EMC Performance of Cables and Connectors

Grass Valley products are designed to meet or exceed the requirements of the appropriate European EMC standards. In order to achieve this performance in real installations it is essential to use cables and connectors with good EMC characteristics.

All signal connections (including remote control connections) shall be made with screened cables terminated in connectors having a metal shell. The cable screen shall have a large-area contact with the metal shell.

COAXIAL CABLES

Coaxial cables connections (particularly serial digital video connections) shall be made with high-quality double-screened coaxial cables such as Belden 8281 or BBC type PSF1/2M and Belden 1694A (for 3Gbps).

D-TYPE CONNECTORS

D-type connectors shall have metal shells making good RF contact with the cable screen. Connectors having "dimples" which improve the contact between the plug and socket shells, are recommended.

⚠ **WARNING**

This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

On Receipt of the Mav Remote

The equipment is supplied in dedicated packaging provided by the manufacturer and should not be accepted if delivered in inferior or unauthorized materials.

- Carefully unpack the system components and check them against the packing list. If there is anything incorrect notify your Grass Valley Partner, or Grass Valley, at once.

- Check that the equipment has not been damaged in transit. If any damage has occurred notify your Grass Valley Partner (or Grass Valley directly) and the carrier immediately.

- Always retain the original packing materials if possible, they could prove useful should it ever be necessary to transport or ship the system units.

- Always read the installation guide and the user instructions (separate manual) carefully, it will provide you with helpful hints and tips about care and maintenance and help you get the most out of your Mav Remote.

In the unlikely event of an equipment failure, contact your Grass Valley Partner, or Grass Valley, at once, contact details are at the rear of this manual.

What is supplied with Kahuna Maverik

The Mav Remote box will contain the following:

- 1x Mav Remote Unit.
- 2x External Power Supplies
- 1x HDMI Cable with cable tie to attach to Mav Remote body.
- USB memory device with all relevant documentation.

☞ **Note**

Installation and User Manuals are supplied regardless of system components purchased.

Environment and Location

Environmental Considerations

The ambient temperature for all the supplied equipment should not exceed the limits of 5 and 40°C (41 to 104°F) at a relative humidity of 10 to 90% (non-condensing).

Installing the equipment in a clean environment with moderate temperature and humidity will promote a long and trouble-free equipment life.

Mounting the Mav Remote

There are three ways to mount the Mav Remote:

- Desk Mount
- Half Rack Mount (with rack mount tray as support)
- Rack Mount using 2x Mav Remote units with a joining plate

Desk Mount

The rack mount ear mounting brackets can be set to two different positions, horizontal with the mounting holes facing upwards, and vertically (for Rack Mount as described in the 19" Rack Mount description), this will allow the unit to be secured to the underside of a desk.


Mounting the unit to the underside of a desk
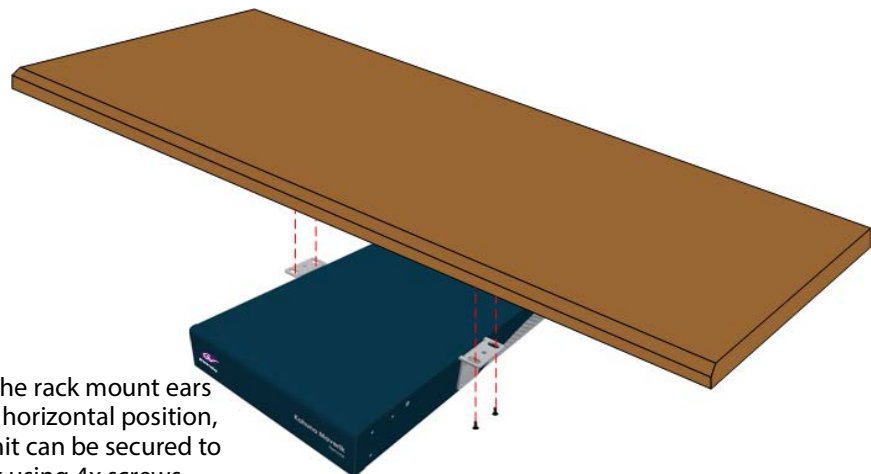
With the rack mount ears in the horizontal position, the unit can be secured to a desk using 4x screws

Half 19" Rack Mount

The mounting brackets may also be set to a vertical position to fit the unit into a 19" rack, the unit is 1RU high and only half 19" wide, so will need to have support from below using a rack mount tray, as only one side of the unit can be secured to the rack sides.

Support for the unit with a rack tray

The unit is secured to the rack on one side only.
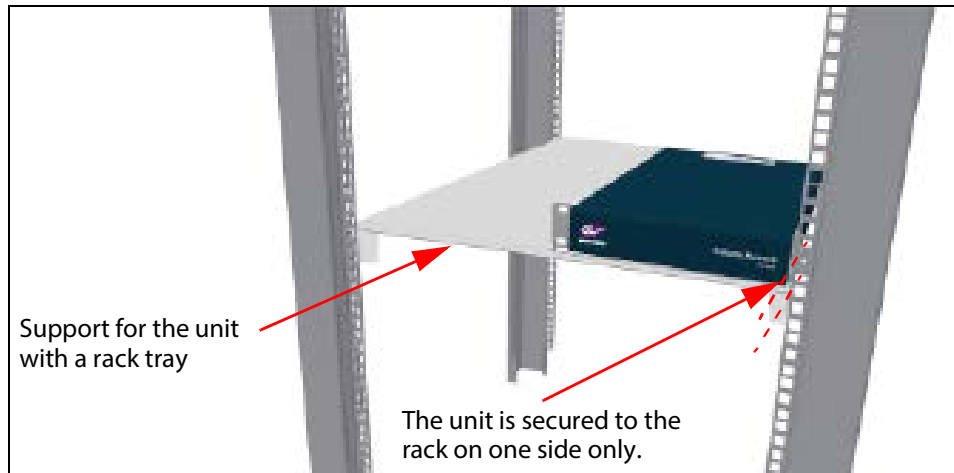
19" Rack Mount using two Mav Remote units with a Joining Plate

Two Mav Remote units can be joined together using a joining plate, which allows the units to span across the full width of the rack and fasten to the rack without the support of a rack tray.

The units are joined using a "Joining Plate"
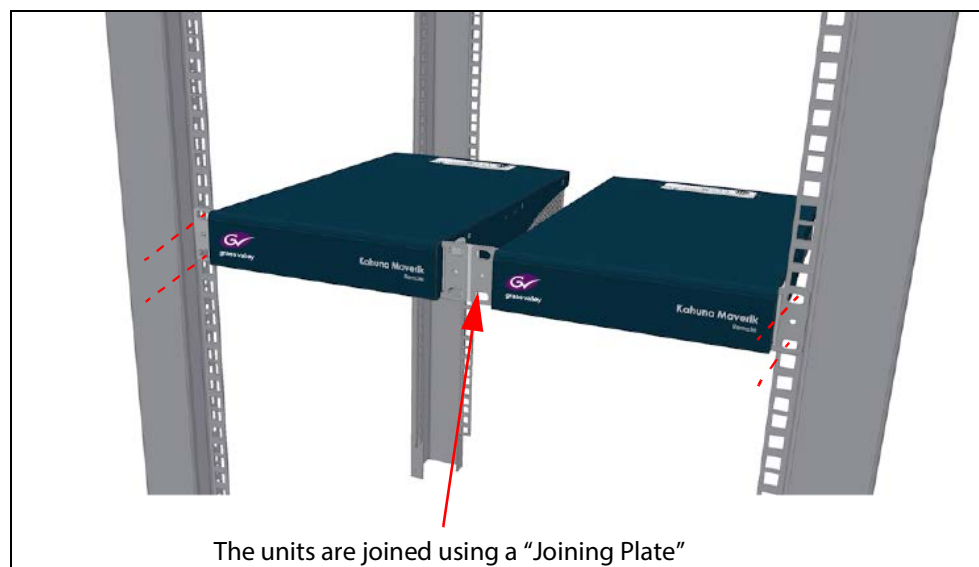
☞ **Note**

The Mav Remote must have ventilation to allow cooling, and must not be installed into an enclosed space.
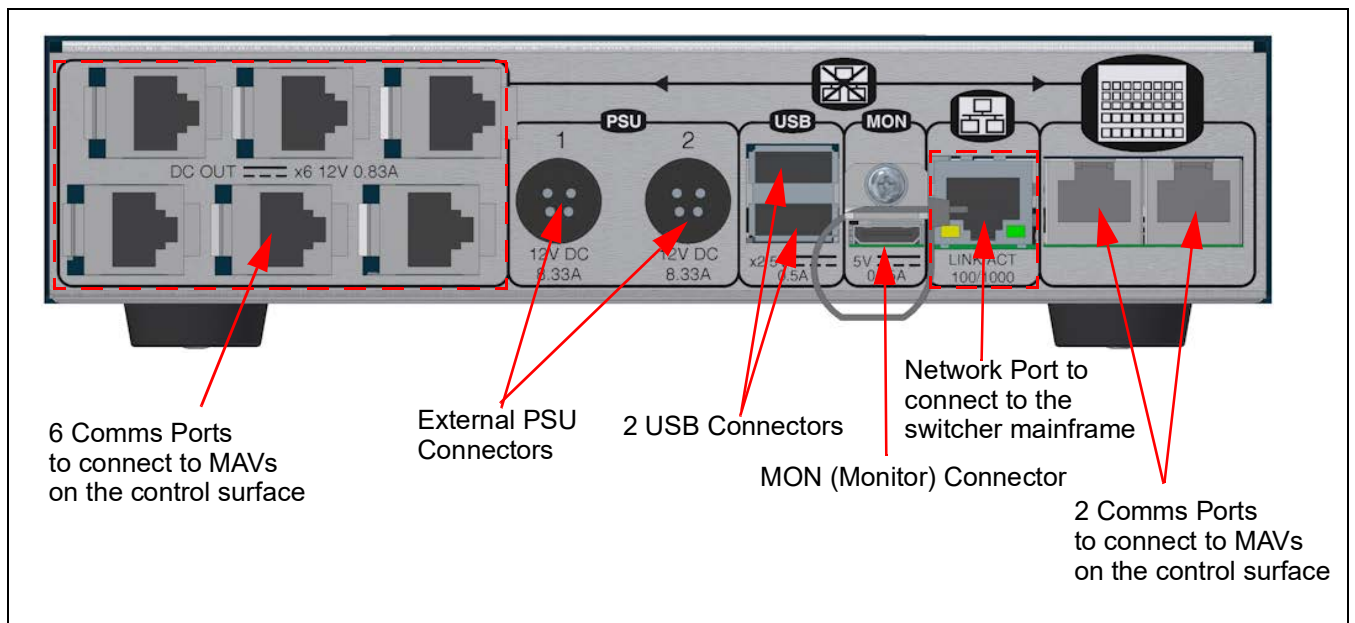
Cabling and Connections 4

Mav Remote Connections

The Mav Remote is a rack mountable/desk top hardware element that provides a means of control to the Grass Valley switcher range.

Essentially the Mav Remote enables control of the video hardware from a remote location away from the main control surface. It allows engineering to remotely control a mainframe, operators to have a smaller means of control when used with MAV modules.

- The Mav Remote has 2 external PSU connectors, one PSU can power the MAV-GUI, the other PSU is for redundancy.
- The Mav Remote has a network port which connect directly to the switcher mainframe.
- The Mav Remote has 8x Comms ports and can have up to 16 individual MAV modules connected to it.

Mav Remote Connections

6 Comms Ports to connect to MAVs on the control surface

External PSU Connectors

2 USB Connectors

MON (Monitor) Connector

Network Port to connect to the switcher mainframe

2 Comms Ports to connect to MAVs on the control surface

The "**Monitor**" connector takes a mini HDMI lead. To make sure that the lead stays in place, there is a cable tie fitted to secure the body of the HDMI lead to a plate above the connector socket (as shown below).
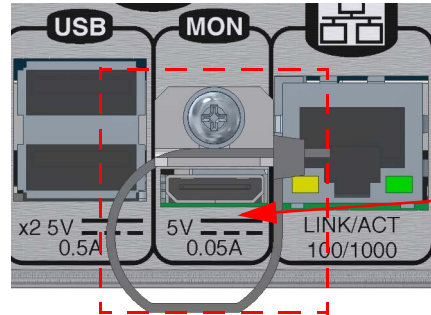
Fit the HDMI lead to the Monitor port.
Then place the cable tie around
the bracket and cable and pull the cable tie
to secure

MAV-GUI Connections - continued

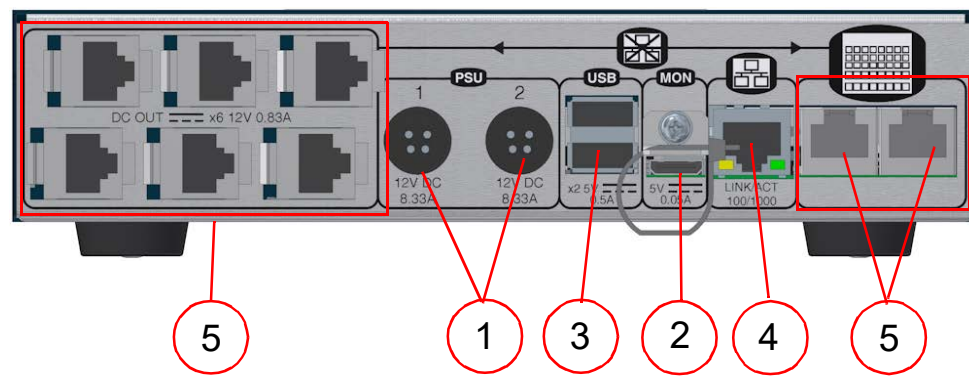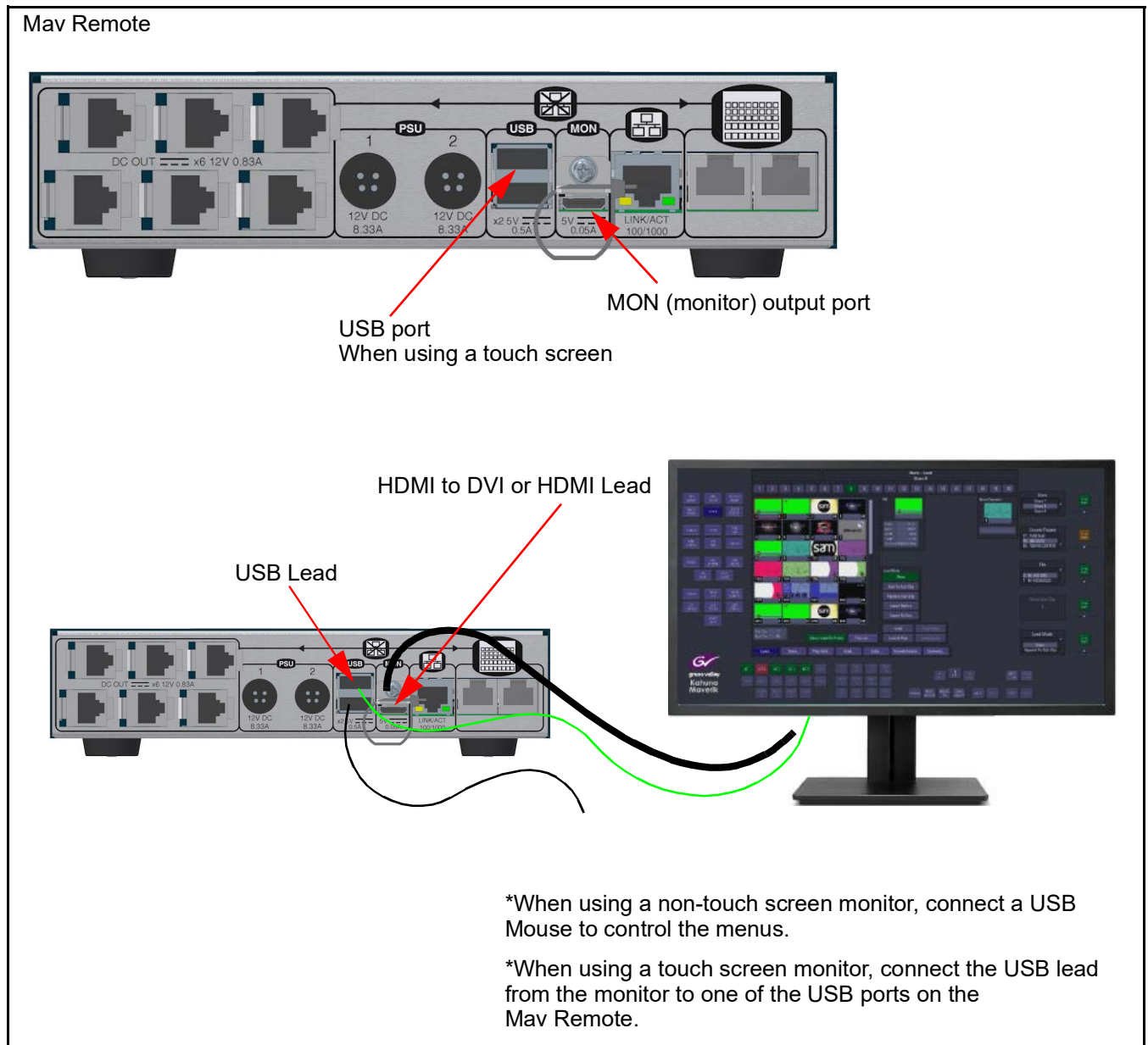Diagram below shows the connector information for the Mav Remote

| Table 1: Mav Remote Connectors	
Connector	**Description**
1	PSU Connectors - Kycon KPPX 4Pin or Compatible 12V DC 8.33A
2	Monitor Output
3	2x USB 2 Connectors
4	10/100/1000 base T, RJ45 network connectors to the switcher mainframe
5	Connection to other MAV modules **NOT Ethernet, connections must be direct to MAV modules. Do Not use network switches or hubs.** CAT5 or above cables - crossover cables are **Not** suitable.

Connecting a Touch Screen Monitor to the Mav Remote

The Mav Remote monitor port can be used to connect to an external "computer" touch screen or normal display monitor. The external monitor will have to have a 1920 x 1080 display resolution and it is recommended that the monitor be larger than 21 inches.

Mav Remote

MON (monitor) output port

USB port
When using a touch screen

HDMI to DVI or HDMI Lead

USB Lead

*When using a non-touch screen monitor, connect a USB Mouse to control the menus.

*When using a touch screen monitor, connect the USB lead from the monitor to one of the USB ports on the Mav Remote.

For Kula - Connection Diagram for Kula working with K-Touch
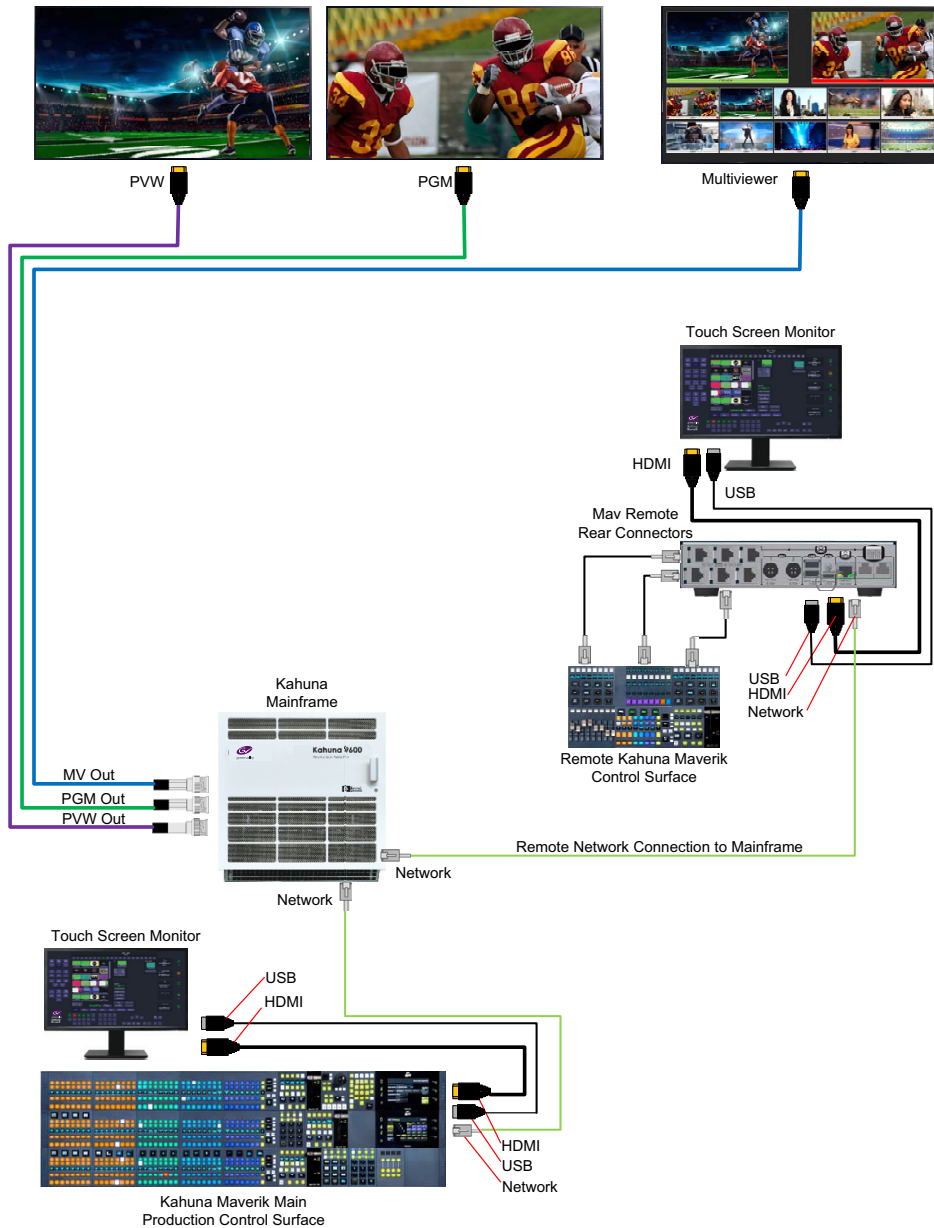
K-Touch Connection Diagram using the Mav Remote
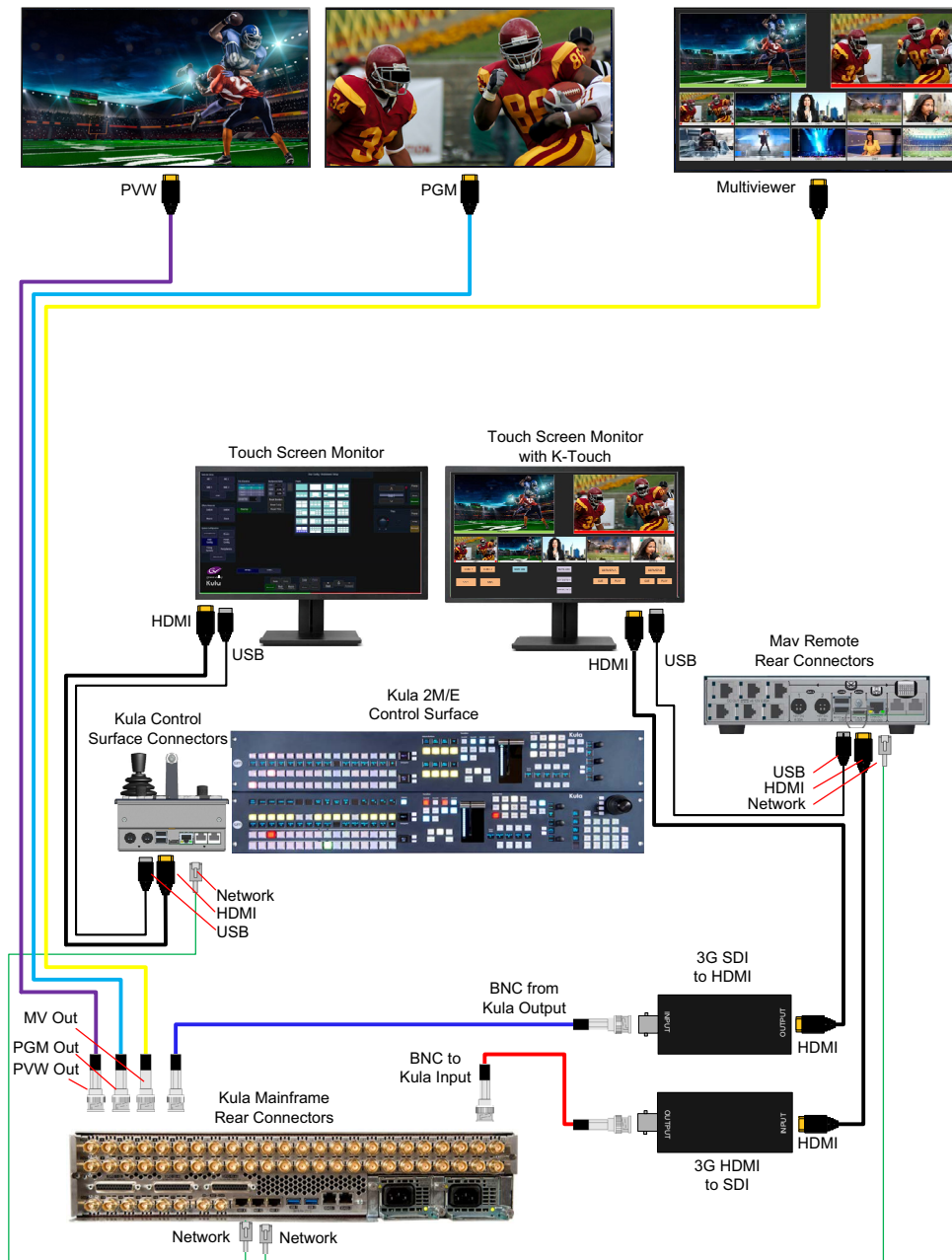
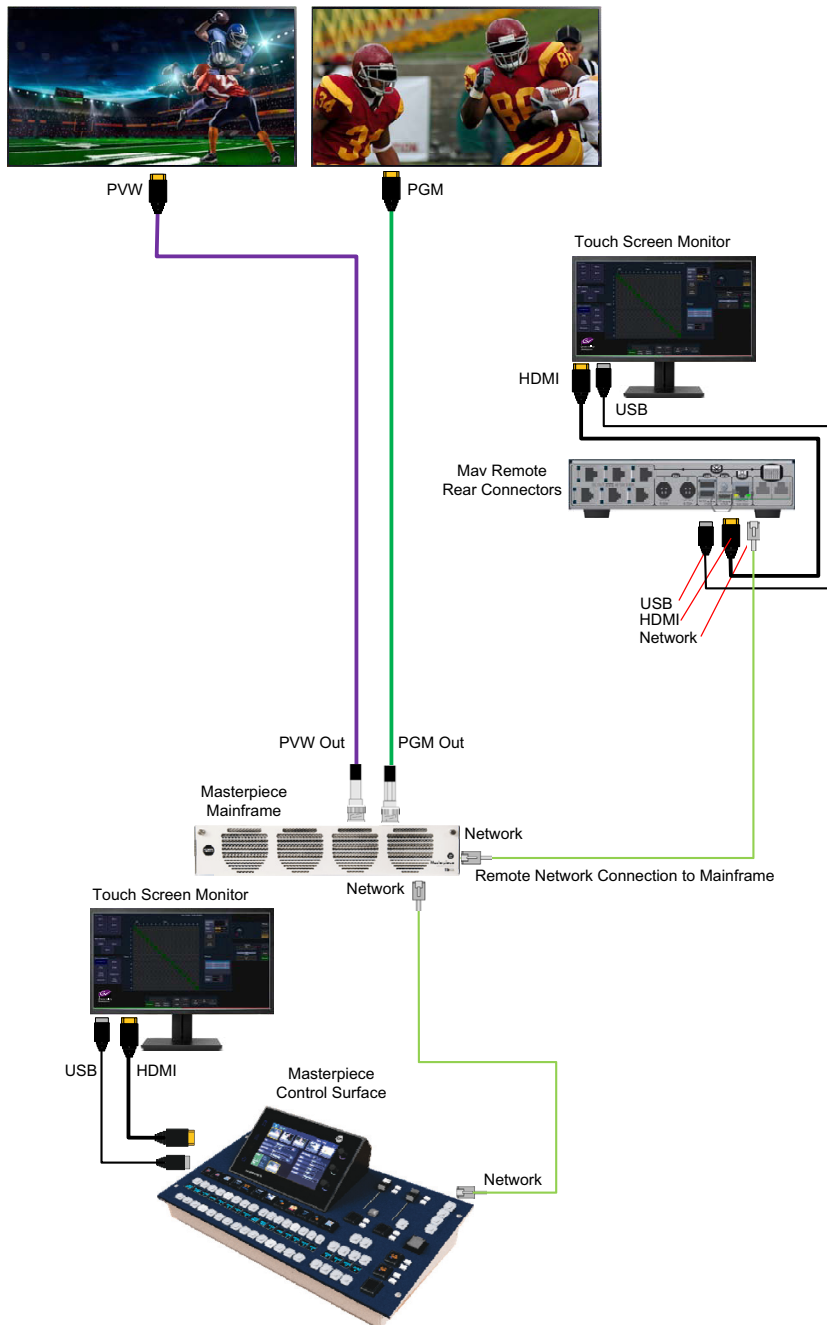# For Kahuna - Connection Diagram for Mav Remote Production

The Mav Remote control mechanism is ideal for Remote Production applications, forms part of a wider switcher control strategy within any production facility and can be deployed with any Grass Valley switcher.

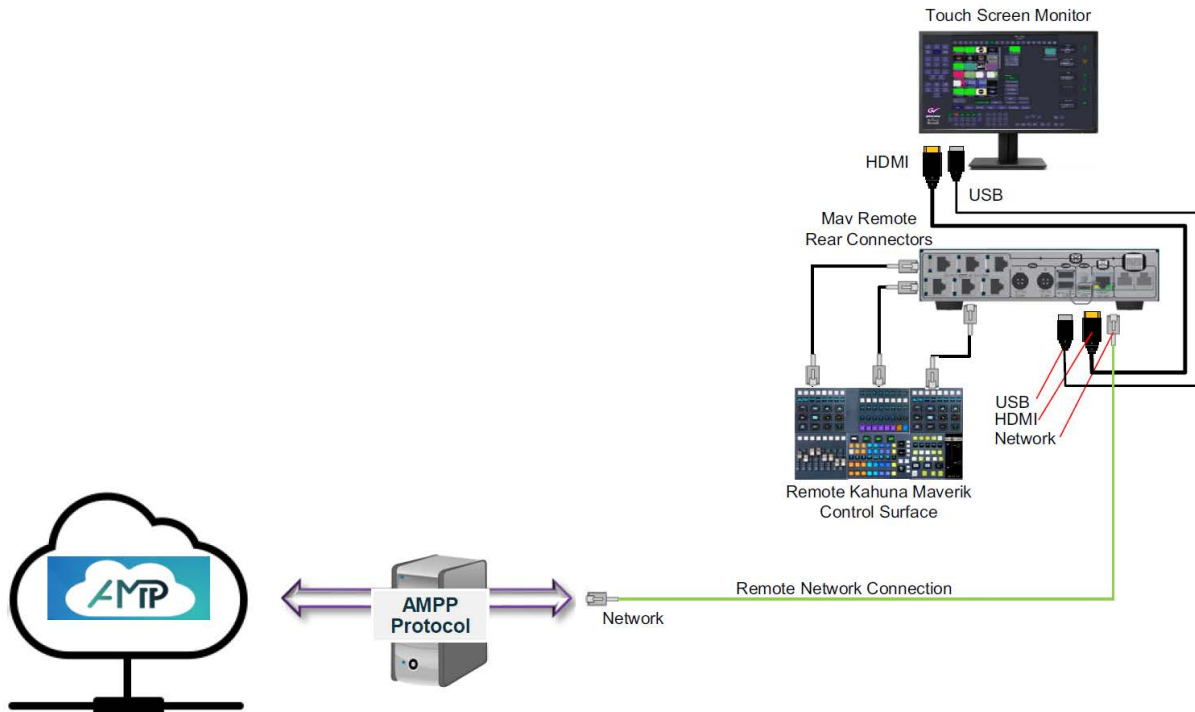**Kahuna Connection Diagram using the Mav Remote**

PVW

PGM

Multiviewer

Touch Screen Monitor

HDMI

USB

Mav Remote
Rear Connectors

USB
HDMI
Network

Remote Kahuna Maverik
Control Surface

Kahuna
Mainframe

MV Out
PGM Out
PVW Out

Remote Network Connection to Mainframe

Network

Network

Touch Screen Monitor

USB

HDMI

HDMI
USB
Network

Kahuna Maverik Main
Production Control Surface

For Masterpiece - Connection Diagram for Remote Production

Masterpiece Connection Diagram using the Mav Remote

PVW

PGM

Touch Screen Monitor

HDMI

USB

Mav Remote
Rear Connectors

USB
HDMI
Network

PVW Out

PGM Out

Masterpiece
Mainframe

Network

Network

Remote Network Connection to Mainframe

Touch Screen Monitor

USB

HDMI

Masterpiece
Control Surface

Network

For AMPP - Connection Diagram for AMPP

Touch Screen Monitor

HDMI

USB

Mav Remote
Rear Connectors

USB
HDMI
Network

Remote Kahuna Maverik
Control Surface
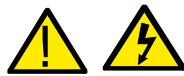
AMPP
Protocol

Remote Network Connection

Network

Power Supplies

Mav Remote External Power Supplies

Each Mav Remote purchased is supplied with 2 external 12V power supplies. One of the power supplies powers the Mav Remote, the other is for redundancy.

The Power Supplies have NO user serviceable parts inside and are welded shut. Do not attempt to open the power supply cases.

Snap and Lock type connector
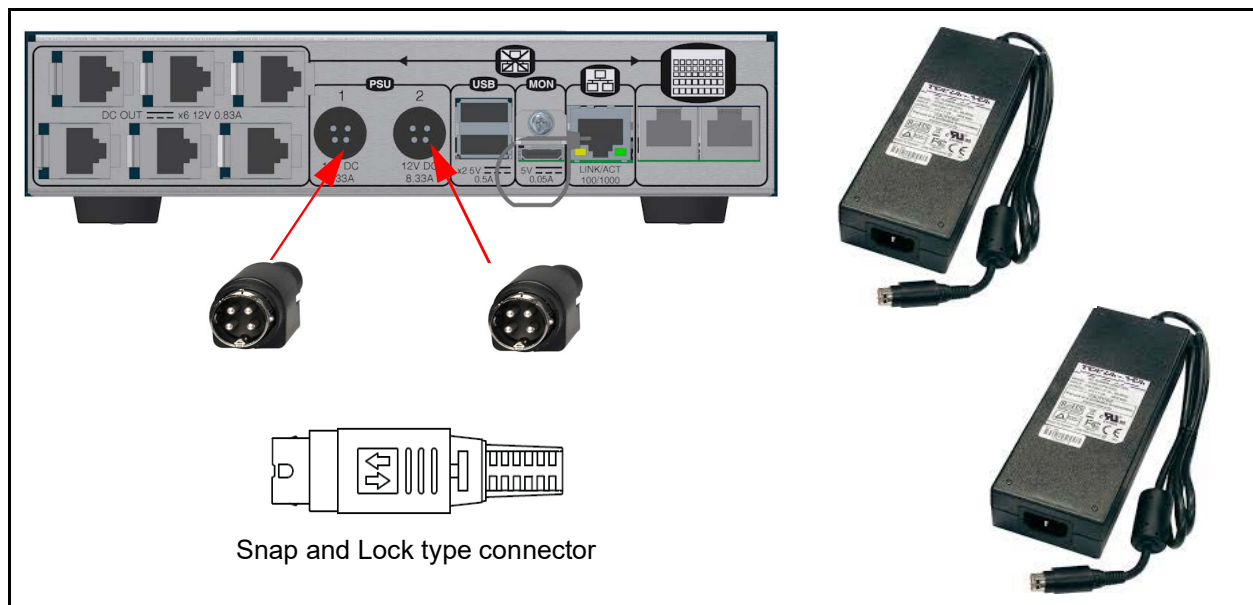
☞ **Note**

Make sure that the mains power is turned **Off** before connecting the PSU to the Mav Remote.

The power supply connector plug that connects to the Mav Remote is a 4 pin "Snap and Lock" type, care should be taken when connecting and un-connecting from the Mav Remote.

⚠ **Caution**

Do not allow the power supplies to hang freely from the Mav Remote. Make sure that the cables are not under any stress.

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Power-up and Configure

With the Mav Remote connected to the touch screen GUI, the network cable and the power supplies connected, at power-up the Mav Remote will go through a boot-up sequence.

☞ **Note**

The example that will be worked through in the following pages is for a Kahuna system. The menus for Kula and Masterpiece will look very similar and have the same functions to setup.

If this is the first time the Mav Remote has been setup, it probably will not see the mainframe on the network and the first menu that you will see will look like the one displayed below.

No Mainframe or Logical Switcher displayed
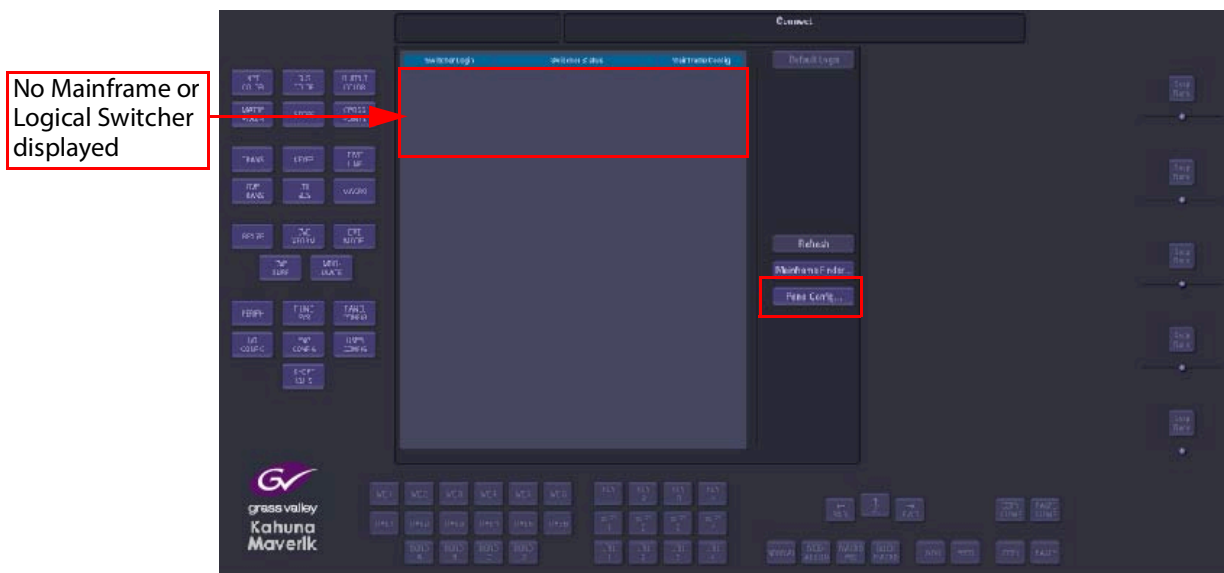
There is no mainframe or logical switcher displayed in the menu.
Find out the IP address of the mainframe you want to connect to then on the GUI attached to the Mav Remote touch the **{Panel Config...}** menu link button.

In the Panel Config main menu touch the **{IP Mainframes...}** menu link button.

The **{IP Mainframes}** menu is used to connect to other mainframes on a network. If a mainframe is on a different VLAN or on a totally different network, the user has to know the **"Outgoing Gateway"** of the facility they are working in, the **"IP address"** of the mainframe they wish to connect to and the **"Return Path Gateway".** All these parameters have to be entered before being able to connect to the mainframe.
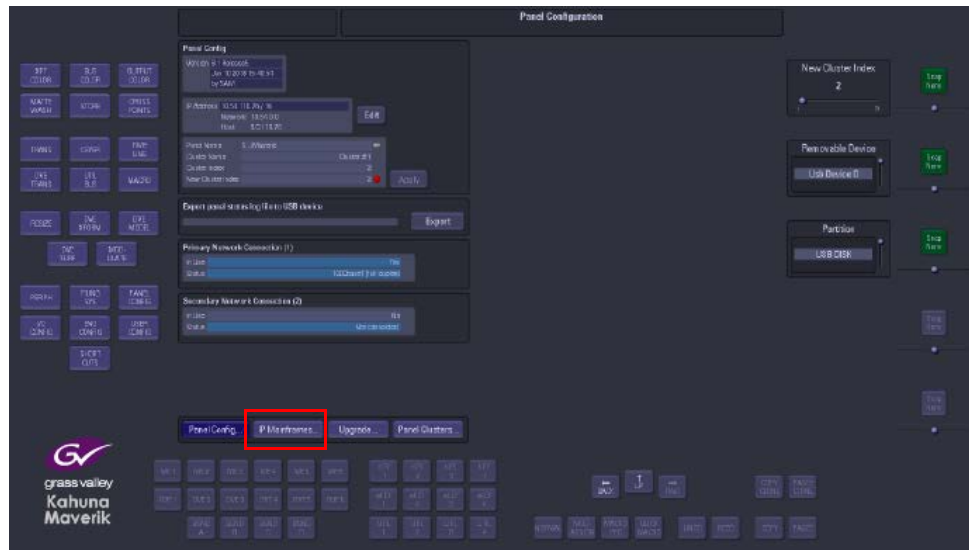
If the mainframe is on the same network as the Mav Remote, you just need to enter the mainframe IP address. Touch the **{Edit}** button and enter the IP address into the number pad displayed in the menu on the GUI.

If the mainframe is on a different network, you will need to enter the gateway IP address that the mainframe is on in the "**Outgoing Gateway**" parameter, and add the gateway that the Mav Remote is on in the "**Return Path Gateway**" parameter.
When this has been done, touch the **{Add IP Network}** button.
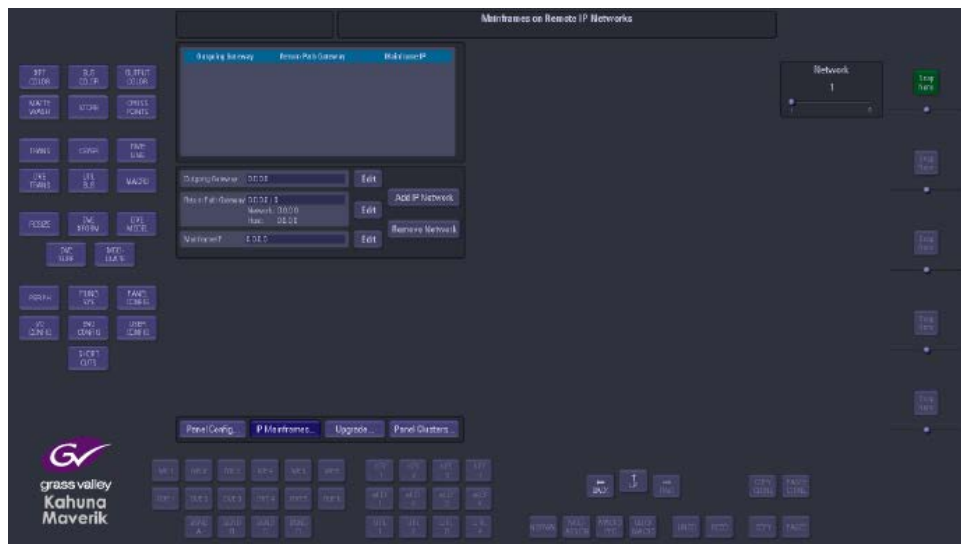
The mainframe should now be displayed in the menu. Touch the **{Arrow Up}** button to go back to the "**Connect**" menu.
The "**Connect**" menu should now look like the menu displayed below.
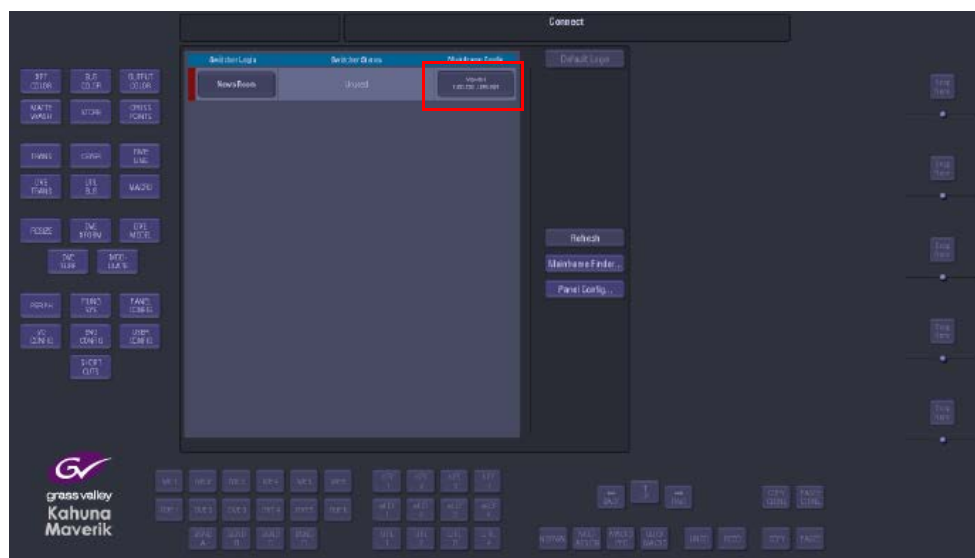
If the menu looks like the one above, you can touch the "**Switcher Login**" button and the Mav Remote will log into the system.

If the "**Mainframe Config**" button is red this means that the mainframe software is different to the Mav Remote software. Touch the **{Mainframe Config}** button and a dialog will be displayed asking you if you want to upgrade the Mav Remote to the current mainframe software version, touch "**Yes**" to upgrade the software. Once complete, touch the "**Switcher Login**" button to log into the system.

AMPP Configuring

Enter the IP address details of the AMPP system you are connecting to.
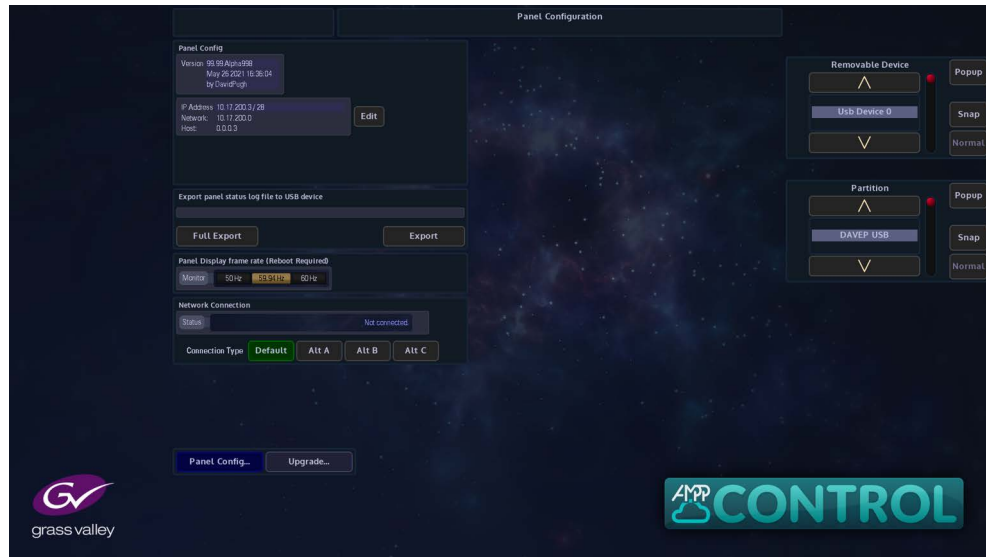
As new Maverik AMPP Control and AMPP enhancements become available, the unit can be upgraded.
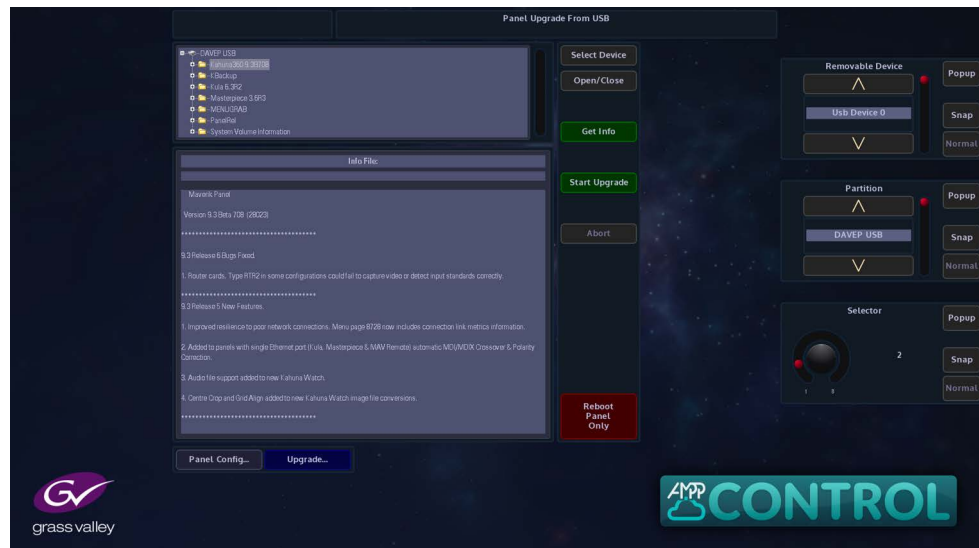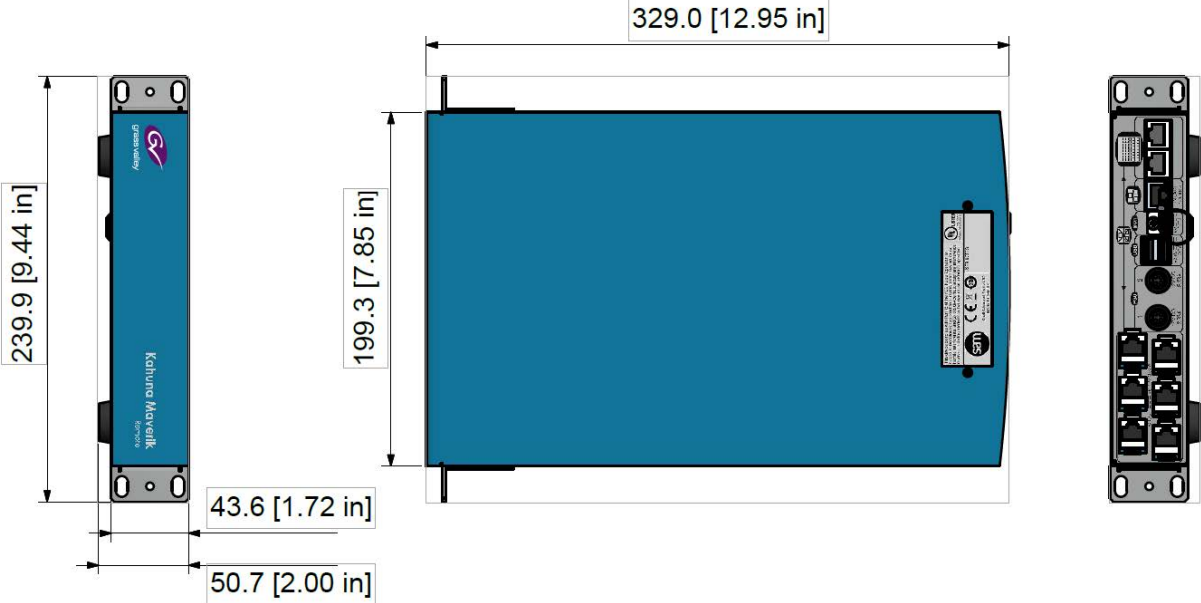
Dimensions

Mav Remote Dimensions

Table 2: Mav Remote Dimensions	
Width Depth Height	9.44 inches~ 239.9 mm 12.95 inches~ 329 mm 2.00 inches ~ 50.7 mm (including feet)
Weight	TBC lbs ~ TBCkg
Environmental	41 to 104°F~ 5 to 40°C non-condensing

Specifications

Mav Remote Specifications

Table 3: Mav Remote	
Connector	**Description**
Video Output	1x Monitor Output
USB	2x USB 2 Connectors
Network	1x 10/100/1000 base T, Auto - MDX/MDXI on RJ45 connectors
Connections to MAV modules	8x RJ45 connectors for Comms and 2x +12V 0.42A power supply Connection to other MAV modules NOT Ethernet, connections must be direct to MAV modules. **Do Not** use network switches or hubs. CAT5 or above cables - crossover cables are **Not** suitable.

Table 4: Mav Remote Power Supplies	
Power Supply	**Description**
To the Mav Remote	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 Mav Remote. 2 supplied as standard per Mav Remote, One PSU provides Dual Redundancy.

Table 5: Mav Remote External Mains Power Supply Requirements	
Voltage	100V - 240V 50/60Hz
Power	Less than 100Watts (per Mav Remote)

Contact Us

Grass Valley Technical Support

For technical assistance, contact our international support center, at
1-800-547-8949 (US and Canada) or +1 530 478 4148.

To obtain a local phone number for the support center nearest you, please consult the
Contact Us section of Grass Valley's website (www.grassvalley.com).

An on-line form for e-mail contact is also available from the website.

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