

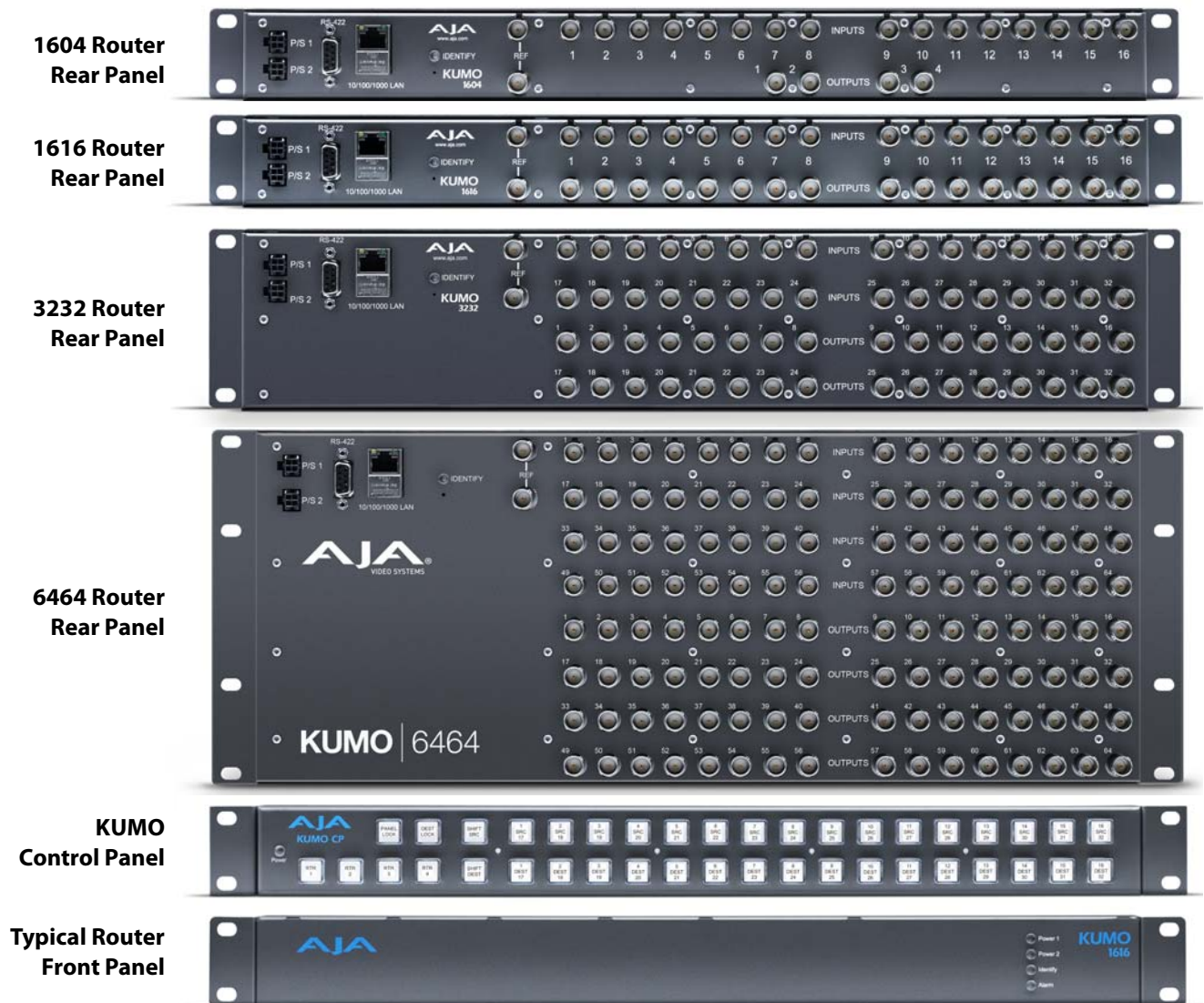
KUMO

Quick Start Guide

Introduction

This Quick Start Guide provides a basic overview of KUMO system configuration.

Figure 1. KUMO Devices



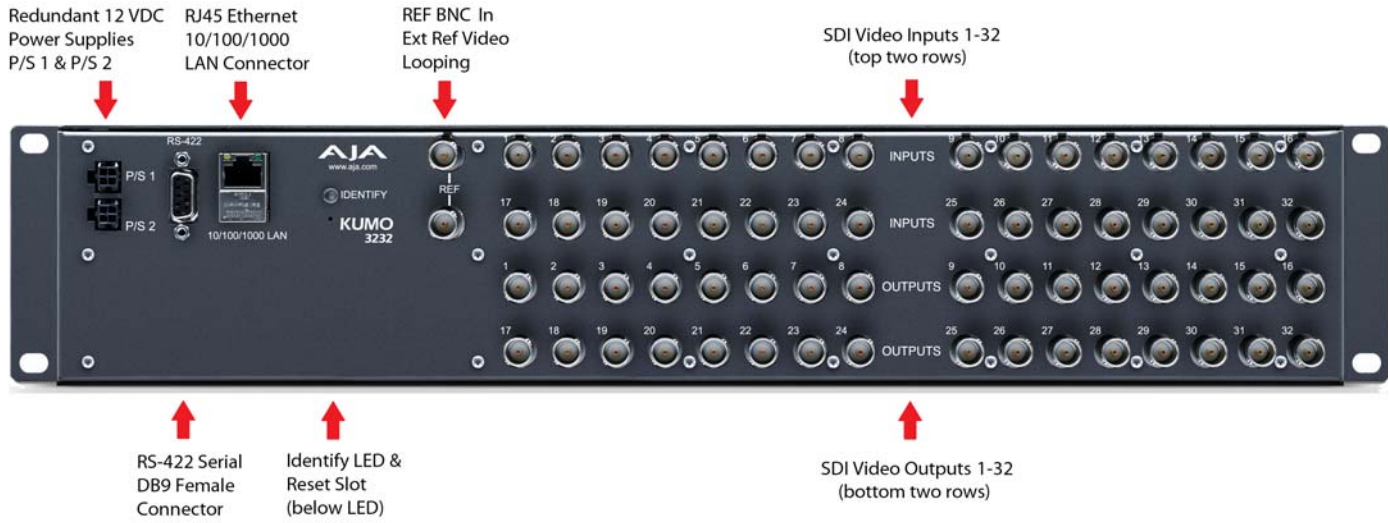
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KUMO Router Connections

Figure 2. KUMO Router Connections (3232 shown, other models similar)



P/S 1 & P/S 2 Power Connectors

Power to the KUMO unit is supplied by a power supply brick that accepts a 110-220VAC, 50/60Hz power input and supplies +12 VDC to KUMO via connector PS/1 or PS2. One power supply is provided, and it may be connected to either of the two power connectors. An optional second power supply can provide redundancy to help protect against outages.

IMPORTANT: The power connector has a latch, similar to an Ethernet connector. Depress the latch (facing the outside edge of the KUMO device) before disconnecting the power cable from the unit.

RJ45 Ethernet Connector

The RJ45 Ethernet connector allows you to connect KUMO to an Ethernet 10/100/1000 Ethernet LAN using CAT5 cable and access KUMO's built in web server. Multiple configurations are possible, including standalone control, a local LAN, or a WAN. This also allows control over the network using GVG Native Protocol.

REF BNC Connector

The REF BNC connector is the looping input for synchronizing the crosspoint switch timing of KUMO to your house video signals. Apply an analog NTSC, PAL, or Tri-level sync signal to this input. Be sure to terminate with a 75 Ohm BNC terminator the second connector, or if you loop to other equipment terminate the last connected device.

When reference is present, KUMO will switch at the SMPTE RP168 designated switch point with respect to the reference input. If no reference is present, the KUMO will switch at random times.

Video Inputs and Outputs

Depending on your KUMO model, up to 64 SDI video inputs and outputs can be connected to the video input and output BNC connectors.

RS-422 DB9 Connector

KUMO devices include an RS-422 female DB9 connector for making serial connections to other equipment. This control connection enables interoperability with other devices, including those that use GVG Native Protocol.

KUMO Control Panel Connections

Similar to the KUMO router, KUMO CP has an RJ45 Ethernet connector, an RS-422 connector, and power supply connectors, but has no BNC connectors.

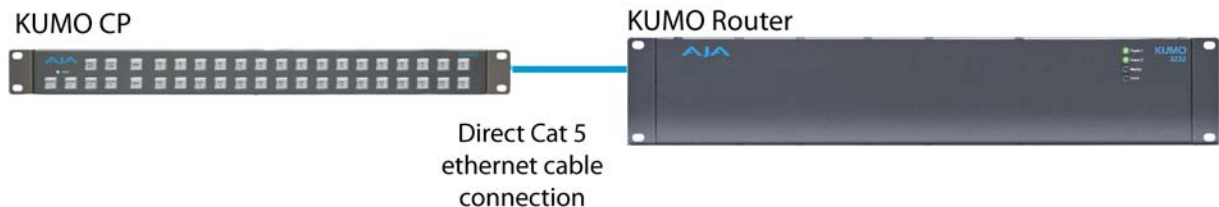
Quick Start Configuration

NOTE: The 32 button KUMO hardware Control Panel cannot be used with the KUMO 6464 router. Control of the KUMO 6464 router is available via web browser, Ethernet control, and RS-422.

Default Auto Configure KUMO Router and CP

If you purchased a KUMO CP along with a KUMO 1604, 1616, or 3232 router, the easiest way to get your system operating is to simply direct connect them with a single Ethernet cable and power up both units. KUMO devices are compatible with both CAT-5 straight-through and cross-over Ethernet cables. The KUMO CP will use an Auto Configure function to set itself up to operate with the KUMO router it is directly connected to. The KUMO CP panel buttons will light and, if SDI BNC connections have been made, you will be able to route sources to destinations.

Figure 3. KUMO Router Direct Connection to KUMO CP



The KUMO CP Auto Configure assigns Router Select Button 1 to the attached router.

NOTE: A KUMO CP that has had its network settings configured previously will not automatically configure to find a directly connected KUMO router. However, you can force the KUMO CP to reset its Auto Configure by pressing the **RTR 1** and **SHIFT DEST** buttons together for four seconds.

DHCP on an Existing Network

Another easy way to get your KUMO system operating is to connect KUMO routers to an existing network configured with a DHCP server. When the units reset during power up, they will see the DHCP server and automatically be given compatible IP network settings. If auto discovery is configured on a computer on that network, that computer will be able to find and control the KUMO router via a web browser (see below).

Computer Auto Discovery

Computers can support network auto discovery, which makes the network configuration process easy. Two methods of connecting using this technique are described below.

Mac Configuration with Safari Browser Using Bonjour

The Mac OSX Safari browser has Bonjour built-in, which can be used to auto-detect and connect to an Ethernet device like a KUMO Router. To do so:

1. Ensure the KUMO to be controlled is powered up and connected via Ethernet (directly to a Mac or via LAN).
2. Start Safari browser on a Mac.
3. Click on the top menu Bookmark->Bonjour->Webpages drop-down and click on a listed AJA KUMO router or control panel.

NOTE: *If Bonjour is not visible in the Bookmark drop-down, go to Safari->Preferences->Advanced and check the "Include Bonjour in the Bookmarks menu" checkbox.*

4. Safari will display the KUMO web user-interface, which you can use to control and configure that KUMO device.

Windows PC Configuration using UPnP

If your Windows PC supports UPnP protocols (most do) and UPnP network discovery service is enabled (refer to your Microsoft Windows documentation), you can control KUMO routers by simply selecting one from a device list:

1. Ensure the KUMO to be controlled is powered up and connected via Ethernet (directly to the PC or via LAN).
2. Use your Windows Control Panel or File Explorer to go to Computer->Network.
3. Look at the list under "Other Devices"—double click a KUMO's name to launch your Windows PC's default browser.
4. The browser will display the KUMO web user-interface, which you can use to control and configure that KUMO device.

KUMO Temporary Static IP Address

KUMO devices also offer a factory default static IP address, allowing a direct and fail-safe way to connect via a computer connected to KUMO either directly or via a LAN connection. The computer you use will need to be set to a static IP address that is compatible with the KUMO temporary IP address. Once connected, the KUMO device's network settings can be reconfigured to work with your facility network. The KUMO default static IP address is temporary and is intended only to allow an initial connection.

NOTE: *All KUMO routers and control panels have the same temporary default IP address, so more than one device set to this default cannot reside on the same network simultaneously. Work with only one device at a time.*

Table 1. KUMO Device Temporary Static IP Address Values

Device	IP address	Subnet Mask
KUMO Router and KUMO CP	192.168.101.1	255.255.255.0

NOTE: The default static address is temporary and will be disabled the next time KUMO restarts. Any changes in the Network configuration will be saved upon restart.

To set KUMO to its default static IP address:

1. Power up the KUMO device and wait for it to boot normally.
2. Reset the KUMO device:
 - For a KUMO router, insert a straightened paper clip or similar device into the reset slot on the rear and hold for six seconds. The KUMO will restart with the default IP. When the KUMO router default IP is set the Identify LED will blink.
 - For a KUMO CP, press and hold the two SHIFT buttons on the panel for 5 seconds. When the KUMO CP default IP is set, the Source and Destination buttons will flash alternately.

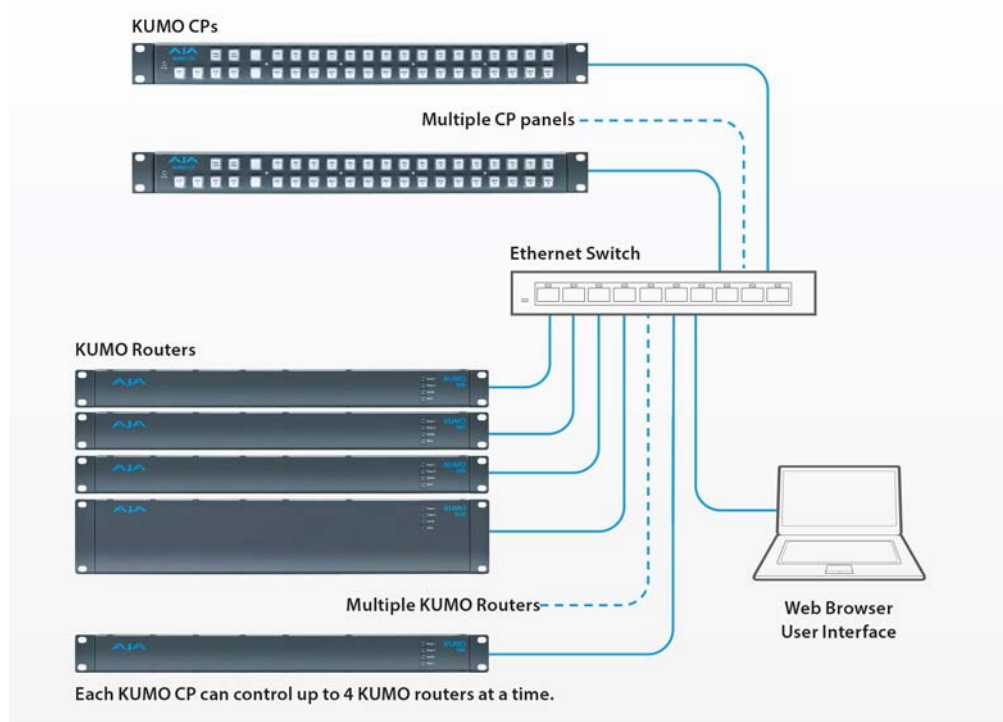
Figure 4. KUMO Router (left) and KUMO CP (right) Reset Locations



- IMPORTANT:** Be sure to record your computer's existing TCP-IP settings before the next step so that you can return the computer to normal operation after this procedure.
3. Configure your computer to 192.168.101.X. Do not use .1 at the end of the address to avoid duplicate IP addresses.
 4. Start a web browser and enter 192.168.101.1 as the web address. This is the KUMO temporary static IP address.
 5. Once you've connected using the static IP, you can then enter a desired network configuration using the KUMO device's Network tab.

Larger System Control Configurations

Figure 5. Multiple KUMO Routers and KUMO CPs with Web Browser UI Control.



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If the KUMO will be attached to a WAN, talk to your IT administrator and obtain the details on how to configure the KUMO (DHCP or static IP).

TCP-IP Network Connection

KUMO supports traditional TCP-IP networking through DHCP or Static IP addressing.

IMPORTANT: When using KUMO in a DHCP or Static IP addressed network, it is best to select and maintain a consistent network scheme. If a mixture of DHCP and Static IP addresses are used, inconsistent performance can result. The most stable operation is achieved when all IP addressing is either DHCP or Static.

Default DHCP Configuration

DHCP is the default initial configuration routine for KUMO devices. If you start up on a DHCP network, KUMO will accept assigned IP addresses. After DHCP initialization, use your zeroconf browser to view the KUMO webpage and view the assigned IP address.

Static IP Configuration

If your IT administrator prefers an assigned IP address that is fixed (called a “Static IP”), you will need to set network parameters using the KUMO UI Network page where you will enter:

- IP address type—Static IP
- a unique IP address
- the Subnet Mask and default gateway IP address (your LAN’s internet router)

You will need to press the Return key on the keyboard for every field changed.

Figure 6. KUMO User Interface Network Tab

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HOME CONFIGURATION **NETWORK** FIRMWARE ALARMS IDENTIFY Reference: 1080i 29.97

Click IP Address Text to Edit

System Name: KUMO3232-559

IP Address Type:

IP Address: 10.9.250.19

Netmask: 255.255.0.0

Default Gateway: 10.9.0.2

MAC Address: 00:0C:17:0D:80:3B

Update Network Settings:

WARNING: When you change the network configuration on your KUMO, you can make it invisible to your web browser or difficult to find on your network. It can take a minute or two for the KUMO to appear in the Bonjour browsing sidebar of your web browser, so be patient before you decide it is gone. If you cannot access the device, you can press and hold the safeboot button on the unit and when the Identify LED lights, the KUMO will have a temporary IP address of 192.168.101.1 and a netmask of 255.255.255.0 allowing you to connect to it there and fix any network configuration errors.

Select KUMO to Control from Webpage

Each KUMO device has a built in web server that generates a webpage. KUMO devices see each other on the network and list those other KUMO devices in their webpages. From the Home screen, use the pulldown menu in the upper left to see all of the KUMO devices present on the local LAN and select the router you want to control, or select the KUMO CP you want to use.

Figure 7. KUMO Router Selection

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HOME CONFIGURATION NETWORK FIRMWARE ALARMS IDENTIFY Reference: 1080i 29.97

KUMO3232-559

KUMO1616-519.local

KUMO3232-559.local

KUMOC40-749.local

Refresh...

Source 5 Source 6 Source 7 Source 8 Source 9 Source10 Source11 Source12 Source13 Source14 Source15 Source16

Source17 Source18 Source19 Source20 Source21 Source22 Source23 Source24 Source25 Source26 Source27 Source28 Source29 Source30 Source31 Source32

DESTINATION

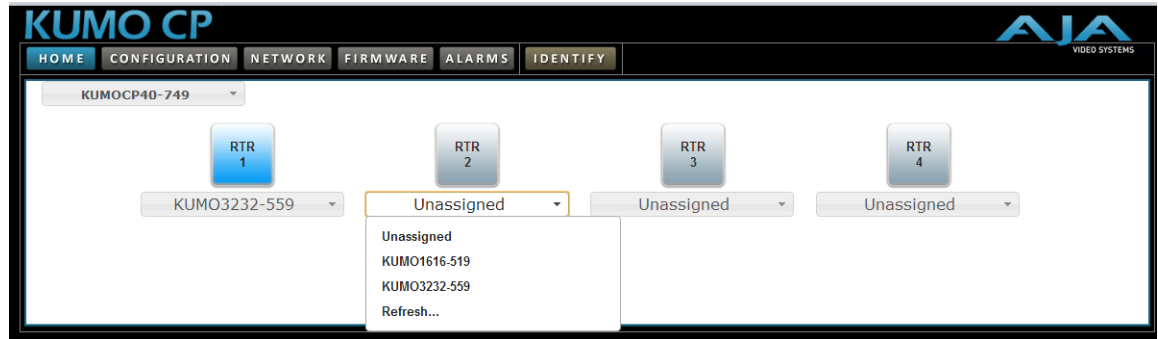
1 Dest 1 2 Dest 2 3 Dest 3 4 Dest 4 5 Dest 5 6 Dest 6 7 Dest 7 8 Dest 8 9 Dest 9 10 Dest 10 11 Dest 11 12 Dest 12 13 Dest 13 14 Dest 14 15 Dest 15 16 Dest 16

17 Dest 17 18 Dest 18 19 Dest 19 20 Dest 20 21 Dest 21 22 Dest 22 23 Dest 23 24 Dest 24 25 Dest 25 26 Dest 26 27 Dest 27 28 Dest 28 29 Dest 29 30 Dest 30 31 Dest 31 32 Dest 32

Assign KUMO CP to Control KUMO Routers

With multiple KUMO routers and KUMO CPs on the same network, you can assign which routers are able to be controlled by a panel by configuring the four Router Select buttons on the panel. On the KUMO CP webpage, go to the Home page, click on the box below the RTR button, and select the KUMO router from the drop-down list.

Figure 8. KUMO CP Router Button Assignment



Locating a Specific KUMO Device on the Network

Identify Button Click on the web UI Identify button to find the physical location of the currently controlled KUMO router or panel.



The web browser button will alternate between blue and gray background color in Identify mode. Click again to turn the Identify function off.

- On a KUMO router, the Identify LEDs on the front and back will flash, enabling quick physical location of the router in a populated rack of equipment.

Figure 9. KUMO Router Identify LEDs.



- On a KUMO CP, the Source and Destination button rows will flash alternately. Also, the Identify LED on the back of the panel will flash.