

Integrator's Complete Guide to the

# AV Bridge MATRIX PRO

Multimedia Room Solution

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## Overview

This guide provides information about the AV Bridge MATRIX PRO multimedia room solution:

- 999-8230-000 – North America
- 999-8230-001 – Europe and UK
- 999-8230-009 – Australia and New Zealand

## About this Guide

This guide covers:

- Unpacking and installing the multimedia room solution
- The multimedia room solution's physical features and user interfaces
- Administration and configuration tasks
- Operation
- Serial API command reference
- Specifications
- Troubleshooting and maintenance
- Warranty and compliance/conformity information

For your convenience, this information is also available in smaller, limited-purpose manuals:

- **Installation Guide for the AV Bridge MATRIX PRO Multimedia Room Solution** – unpacking, physical features, switch settings, installation, and initial power-up
- **Configuration and Administration Guide for the AV Bridge MATRIX PRO Multimedia Room Solution** – physical features, configuration, system administration, operation, and troubleshooting
- **Operator's Guide for the AV Bridge MATRIX PRO Multimedia Room Solution** – physical features and operation

Download manuals, dimensional drawings, and other information from [www.vaddio.com/support](http://www.vaddio.com/support).

## Features

### Inputs and Outputs:

- Quick-Connect inputs for three Vaddio cameras
- Video input for computer or other video source
- HDMI and proprietary Quick-Connect video outputs
- Four EasyMic microphone inputs
- Four additional balanced mic/line inputs with 48 V phantom power
- Four balanced audio outputs
- Simultaneous USB and IP streaming
- External RS-232 control input

### Cameras and Video:

- Automatically identifies and configures for Vaddio cameras
- Access to settings stored on each connected camera
- Independently configurable output resolutions
- Configurable picture-in-picture (PIP) for conferencing
- Split screen – top/bottom or quad split showing all four video inputs simultaneously
- Seamless video transitions with software adjustable transition time - cross-fades and straight cuts

### Audio:

- Automatic audio mixing with controls to manage audio levels manually if desired
- Acoustic echo cancellation with selectable AEC reference
- Assignable chairman priority gives one microphone a 3dB boost over the others
- Crosspoint gain configurable separately for each point in the audio matrix

### Control

- Browser-based web interface for operation, configuration and system administration
- Triggers for programmed actions such as changing the video source, moving a camera to one of its presets, and most other operations:
  - Up to 10 external hardware trigger inputs
  - Up to 50 software triggers
  - Up to four EasyMIC MicPOD One Touch triggers

## Product Compatibility

The AV Bridge MATRIX PRO is compatible with the following products.

### Vaddio Cameras

May require an update to the camera's firmware.

Product	RS-232	IP
RoboSHOT Series (may use Quick-Connect or OneLINK device)	Yes	Yes*
ConferenceSHOT Series**	Yes	Yes
ClearVIEW HD 20SE	Yes	No
PowerVIEW HD 22/30	Yes	No
ZoomSHOT 20	Yes	No
WideSHOT	Yes	No
DocCAM 20 HDBT with OneLINK device	Yes	Yes

\* IP control always uses the camera's IP address, not the address of its extension device (if one is used).

\*\* Includes cameras marked ClearSHOT 10 USB.

### Non-Vaddio Cameras

Product	RS-232	IP
Sony BRC Z330, Z700, H700, H900	Yes	No
Sony EVI-H100S	Yes	No
Sony SRG 120, SRG 300	Yes	No
Panasonic AW-HE 40, AW-HE 130	Yes	No

### Control Devices

USB joysticks

### Audio

- EasyMIC series tabletop and ceiling microphones
- EasyUSB mixers and I/O devices
- Audio-Technica AT U891R boundary microphone

### Trigger Devices

- PresenterPOD devices
- StepVIEW mats

## Unpacking the Room Solution

Make sure you received all the items you expected. Here are the packing lists for the AV Bridge MATRIX PRO multimedia room solution.

**North America: AV Bridge MATRIX PRO, part number 999-8230-000**

**Europe/UK: AV Bridge MATRIX PRO, part number 999-8230-001**

**Australia: AV Bridge MATRIX PRO, part number 999-8230-009**

- AV Bridge MATRIX PRO
- 24V, 3.75A power supply with AC cord set(s)
- 3-position phoenix-style connectors, qty 8
- 12-position phoenix-style connector
- 6 ft (1.83 m) USB 2.0 cable, type A to B
- Rack mounting ears, qty. 2
- Quick-Start Guide



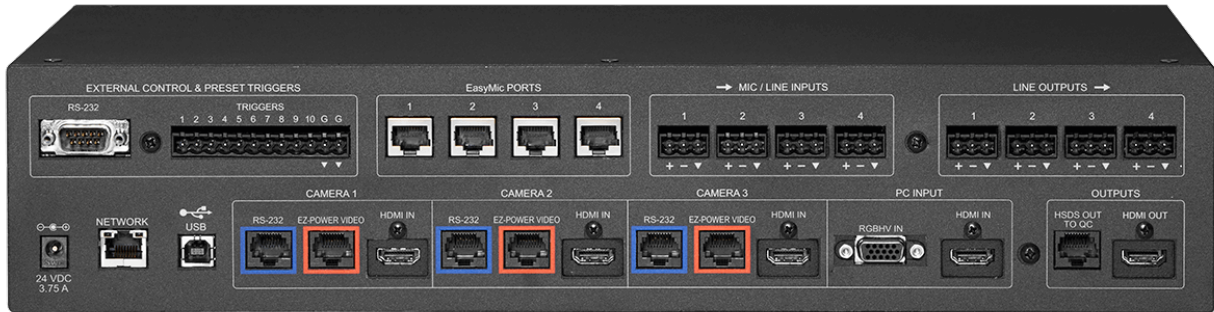


## A Quick Look at the Multimedia Room Solution



- 8-line illuminated display – View basic operation and configuration menu and system information
- Menu knob – Navigate the operation/configuration menu
- Select and Cancel buttons – Work with the operation/configuration menu
- Video Mute button – Stop sending video. Press the button again to resume sending video from the selected source. When video is muted, the AV Bridge MATRIX PRO sends a black screen or color bar pattern instead.
- Audio Mute button – Stop sending audio. Press the button again to resume sending audio.
- Dimensionally enhanced puffy badge – We have spared no expense to provide a lovely, dimensionally enhanced, puffy badge to enhance your visual experience. It's quite shiny. We hope you'll enjoy it.

## Connector Panel



- External control: RS-232 port for external control device; trigger inputs for up to 10 presenter-controlled devices
- EasyMic Ports: Connections for 4 Vaddio EasyMic tabletop or ceiling microphones
- Mic/Line Inputs: Connections for 4 additional microphones or other balanced audio sources
- Line Outputs: Connections for 4 balanced audio outputs
- 24 VDC 3.75A: Power connection
- Network: Control, IP streaming, graphics
- USB 2.0 port: Uncompressed audio and video stream
- RS-232 ports (Camera 1 – Camera 3): Camera control connections
- EZPower Video ports (Camera 1 – Camera 3): Power to and video from Vaddio cameras that are compatible with Vaddio Quick-Connect devices
- HDMI inputs (Camera 1 – Camera 3): Video from connected cameras that are not compatible with Vaddio Quick-Connect devices
- PC Input (RGBHV In and HDMI In): Video inputs for a computer or other video source
- HSDS Out to QC: Vaddio proprietary-format video output; connect to a Vaddio Quick-Connect device feeding a display or projector
- HDMI Out: HDMI video and audio output

## Installation

This section covers how to install and connect the product. It also provides safety information and other guidance related to installing the product.

### Note

*This product is intended for installation and use only in environments where all RS-232 and PoE+ connections originate within the building.*

## Don't Void Your Warranty!

### Caution

*This product is for indoor use. Do not install it outdoors or in a humid environment without the appropriate protective enclosure. Do not allow it to come into contact with any liquid.*

*Do not install or operate this product if it has been dropped, damaged, or exposed to liquids. If any of these things happen, return it to Vaddio for safety and functional testing.*

## Cabling Notes

Use Cat-5e or better cable and standard RJ-45 connectors (568B termination). We recommend using high-quality connectors and a high-quality crimping tool.

### Note

*Use standard RJ-45 connectors and a good crimping tool. Do not use pass-through RJ-45 connectors. Poorly terminated cables can damage the connectors on the product, cause intermittent connections, and degrade signal quality. Test cable pin-outs and continuity before connecting them.*



**Intact** – will make reliable contact with cable connector



**Damaged** – Bent contact fingers will NOT make reliable contact with cable connector

### Caution

*Check Cat-5 cables for continuity before using them. Using the wrong pin-out may damage the camera system and void the warranty.*



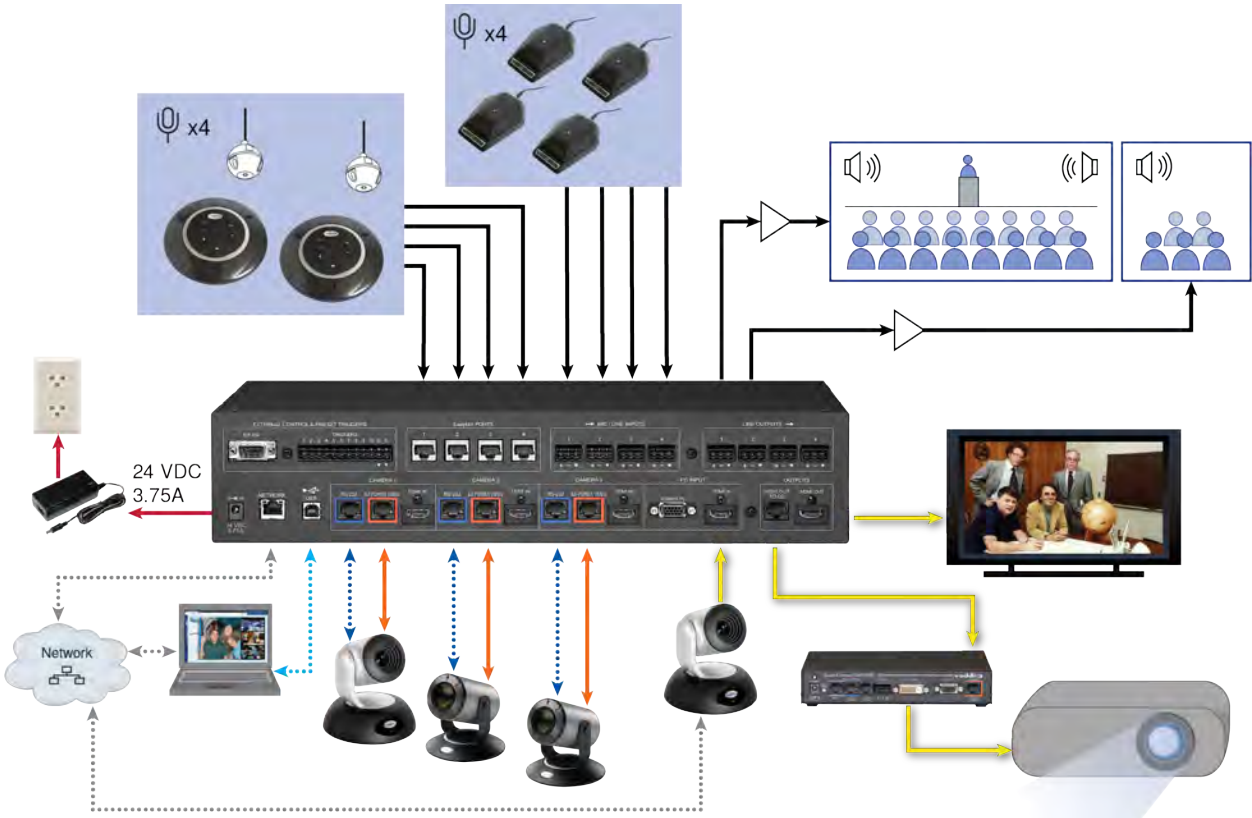
### Pro Tip

*To prevent tragic mishaps, label both ends of every cable.*

## Basic Connections

This diagram illustrates some of the possibilities of the AV Bridge MATRIX PRO – multiple camera and microphone inputs, multiple display and audio outputs.

In place of at least one of the EasyMic microphones, you can connect an EasyUSB Pro Mic I/O with up to four PZM microphones connected to it.



**Note**

*Because the AV Bridge MATRIX PRO provides camera extension functionality, cable distance for cameras 1 through 3 is up to 100 ft. (30 m) for PTZ cameras, or 150 ft. (45 m) for fixed cameras.*

## RS-232 Serial Communication Settings and Port Pin-outs

The RS-232 serial ports (color-coded blue) on the back panel provide camera control for video inputs 1 through 3.

Camera communication parameters are as follows:

Parameter	Value
Communication Speed	9600 bps (default)
Start bits	1
Stop bits	1
Data bits	8
Parity	None
Flow control	None

Camera RS-232 connector pin-out:

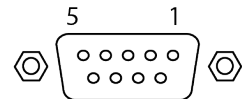
- Pin 1: Not used
- Pin 2: Not used
- Pin 3: Not used
- Pin 4: Not used
- Pin 5: Not used
- Pin 6: GND
- Pin 7: TXD (to RXD of camera)
- Pin 8: RXD (from TXD of camera)

### Caution

*Check Cat-5 cables for continuity before using them. Using the wrong pin-out may damage the camera system and void the warranty.*

External Control connector pin-out:

- Pin 1: Not used
- Pin 2: TXD (to RXD of connected device)
- Pin 3: RXD ( to TXD of connected device)
- Pin 4: Not used
- Pin 5: GND
- Pins 6 – 9: Not used



External control communication parameters are as follows:

Parameter	Value
Communication Speed	38400 bps (default)
Start bits	1
Stop bits	1
Data bits	8
Parity	None
Flow control	None

Depending on the equipment connected to the RS-232 port, you may need a null-modem (crossover) cable.

## Ensuring Compatibility

Although the AV Bridge MATRIX PRO automatically identifies and configures for Vaddio cameras when they are connected, Vaddio products may be unable to communicate with each other if the firmware for one or more devices is out of date. When you set up a Vaddio pro A/V product, be sure the associated Vaddio cameras have been updated to a firmware version that supports the device.

## Powering Up

1. Power up all the cameras to be used.
2. Connect the power supply.
3. Power up the camera controller, if your setup includes one.

When you power up the AV Bridge MATRIX PRO for the first time, you will need to access the web interface to configure it for operation.

To see the current IP address, dial to the Network menu on the front panel and press the Select button. Browse to this address to access the web interface.

## Web Interface

The multimedia room solution provides a web interface to allow configuration via the IP network connection, using a browser. The web interface allows you to:

- Set idle session behavior and passwords
- Manage network and streaming settings
- Add identifying information to the web interface
- Back up, reboot, reset, or update the device
- View information about the device's firmware and current settings
- Operate the device

When connected to a LAN that has a DHCP server, the multimedia room solution will get its IP address, gateway and routing information automatically and you will be able to browse to it. In the absence of a DHCP server, the switcher's default IP address is 169.254.1.1 and its subnet mask is 255.255.0.0.

You can configure a static IP address either through the network or from a computer connected directly to the Ethernet port.

To see the current IP address, dial to the Network menu on the front panel and press the Select button. Browse to this address to access the web interface.

## Compatible Web Browsers

Supported web browsers:

- Chrome®
- Firefox®
- Microsoft® Internet Explorer®
- Safari®

Other browsers may also work.

We recommend Chrome or Firefox.

## User Access

You can access the web interface using the device's IP address. If your network supports hostname resolution, you can use the hostname instead.

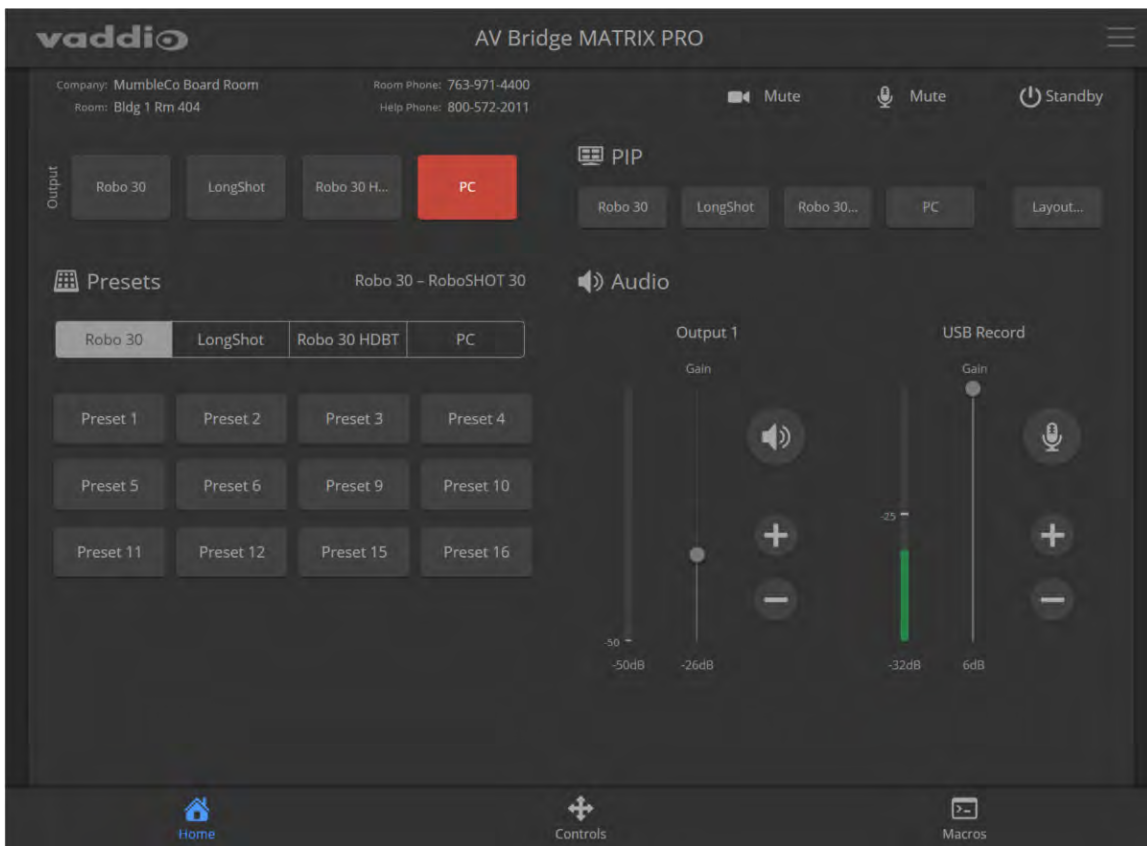
### Note

Only the operator's pages are available with user or guest access.

1. The IP address is available on the front panel display. If it is not currently visible, dial to the Network menu on the front panel and press Select.
2. Enter the IP address or hostname in your browser's address bar. If you use the hostname, you may need to enter `http://` as a prefix to keep the browser from treating it as a search query.

If the system is configured for guest access, you will not need to log in.

If a login is required, the username is `user`. Contact the system administrator if you do not know the current password.





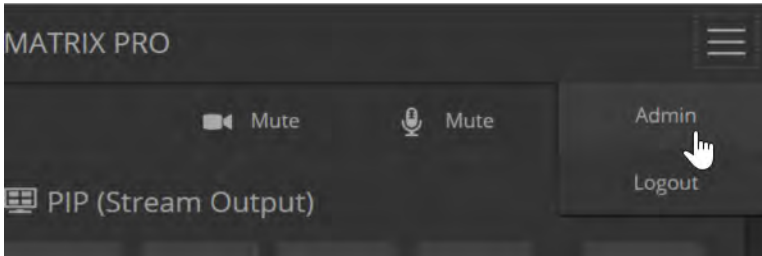
## Admin Access

If no administrative controls (such as networking, security, or system pages) are available, you're logged in at the user level, or guest access is enabled and you're not logged in at all. The menu access button provides access to the admin login button.

For administrative access, log in as **admin**. The default password is **password**. The admin has access to all pages of the web interface.

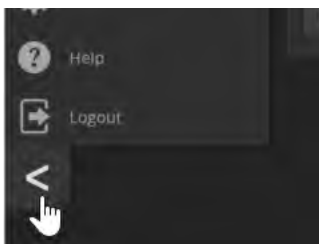
### Note

*For best security, Vaddio strongly recommends changing the default password(s). Using default passwords leaves the product vulnerable to tampering. See [Managing Access and Passwords](#).*



The admin account has access to:

- **Video Switching page** – Select the video sources for stream and program outputs; control the current program source.
- **Video Inputs pages** – Control cameras and other video sources
- **Video Outputs pages** – Specify the video mute pattern, transition effects, PIP source and layout for stream output, and picture mode for program output
- **Audio pages**– Configure audio inputs and outputs; specify the output to use as the reference for acoustic echo cancellation (AEC)
- **Control Devices pages** – Create macros and associate them with triggers
- **Streaming page**– Configure USB and IP streaming
- **User Interface page** – Configure standby behavior, enable/disable front panel controls, and lock video output switching
- **Room Labels page** – Information to display on the web interface screens, including the conference room name and phone number and the in-house number for AV assistance.
- **Networking page**– Configure date and time settings, hostname, and IP addressing
- **Security page**– Set passwords, manage guest access, and enable/disable Telnet access
- **Diagnostics page**– View or download logs when troubleshooting issues.
- **System pages**– Reboot, restore factory defaults, run firmware updates, and view firmware version; push firmware updates to connected EasyMIC microphones
- **Help page**– Tech support contact information and a link to the product information library on the Vaddio website.
- **Logout button**– A graceful way to leave the web interface in a password-protected state.



## Compact Menu View

By default, the navigation buttons display an icon and a text label. The web interface provides a compact view of the menu buttons along with the default view. The button at the bottom of the menu toggles between the two views.

## Web Interface Cheat Sheets

Where to find the controls you need right now.

### With admin access:

What do you need?	Go to this page
Audio mute/unmute	Available from any page
Video mute/unmute	Available from any page
All audio functions	Audio
Audio channels available from the operator's interface	User Interface
Camera controls	Video Switching or Video Inputs
Video input settings – color space, video mute pattern, source pairing	Video Inputs
Video output resolution, color space, video mute pattern	Video Outputs
Video transition effect and speed, PIP	Video Outputs
Video transition style and speed (global)	Video Switching
Video mute pattern	Video Outputs
IP streaming and USB streaming settings	Streaming
Program and stream sources, PIP source and layout	Video Switching
How downstream cameras behave on standby	User Interface
Passwords for admin and user accounts; guest access; Telnet access	Security
Enable/disable session timeout	Security
Hostname and network settings	Networking
Time and date settings	Networking
Macros and triggers	Control Devices
Reboot or factory reset	System
Backup and restore operations	System
Firmware update and current version	System
Helpdesk phone number for end users	Room Labels
Contact information for Vaddio helpdesk	Help
Diagnostic log	Diagnostics
Information about the device's location	Room Labels
Standby	Available from any page
Logout	Available from any page

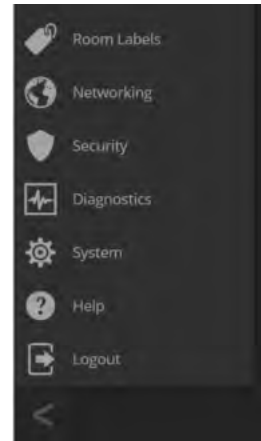
**With guest or user access:**

What do you need?	Go to this page
Audio mute/unmute	Available from any page
Video mute/unmute	Available from any page
Information about the device's location	Available from any page, if defined
Volume – Audio master output and USB Record	Home
Camera pan, tilt, zoom, and focus controls (availability depends on the camera's capabilities)	Controls
Camera presets	Home
Program and stream sources	Available from any page
PIP source and layout	Available from any page
Macros	Macros
Standby	Available from any page
Logout	Available from any page

## System Administration Tasks

System administration for the AV Bridge MATRIX PRO multimedia room solution include:

- Adding information about the equipment's location and relevant phone numbers on the Room Labels page
- Enabling NTP updating to maintain the system time and date and specify the time zone on the Networking page
- Configuring hostname and network settings on the Networking page
- Setting passwords and enabling or disabling idle session timeout on the Security page
- Viewing and downloading diagnostic logs on the Diagnostics page
- Rebooting or starting a factory reset from the System page
- Starting a firmware update from the System page
- Locating the information to contact Technical Support on the Help page



### **Note**

*Typically, you do not need to configure the device to work with connected Vaddio products; this is done automatically.*

## Configuring the Device for Your Network

### NETWORKING PAGE

#### Note

DHCP is the default setting, but the device will use the default address of 169.254.1.1 if no DHCP server is available.

You will be able to enter the IP address, subnet mask, and gateway only if you set IP Address to Static.

#### Note

If you don't completely understand all the implications of the steps below, please contact your IT staff or Vaddio Technical Support for assistance. Changes in network configuration can result in loss of network contact with the device.

1. Edit the device hostname if necessary. The hostname serves as the device URL. If the network supports hostname resolution, you can use the hostname instead of the device's IP address when you open a web interface session. The hostname is also used as the filename for exported configuration data, so it can help you identify the source of an exported data file.
2. If the device needs to use static IP addressing, select Static.
3. For static IP addressing, enter the appropriate IP address, subnet mask, and gateway address.

The screenshot displays the Vaddio AV Bridge MATRIX PRO web interface. The top header includes the Vaddio logo and contact information: "MumbleCo Board Room, Bldg 1, Rm 404" and "Rm Tel 763-971-4400, Help Tel 800-572-2011". A left sidebar contains navigation icons for Video Switching, Video Inputs, Video Outputs, Audio, Control Devices, Streaming, User Interface, Room Labels, Networking (highlighted), Security, Diagnostics, System, Help, and Logout. The main content area is divided into two sections: "Date & Time Settings" and "Network Configuration".

**Date & Time Settings**

- Device System Time: Wed Feb 21 21:30 UTC 2018 (with Refresh button)
- Automatic NTP Updating:  Enabled
- Time Zone: Universal (dropdown menu)
- NTP Server: pool.ntp.org
- Buttons: Cancel, Save

**Network Configuration**

Hostname: vaddio-avbmp-00-17-EB-80-20-7C

**Network Interfaces**

Ethernet Port (eth0:WAN)

IP Address:  DHCP  Static

- MAC Address: 00:17:EB:80:20:7C
- IP Address: 10.30.240.30
- Subnet Mask: 255.255.255.0
- Gateway: 10.30.240.254

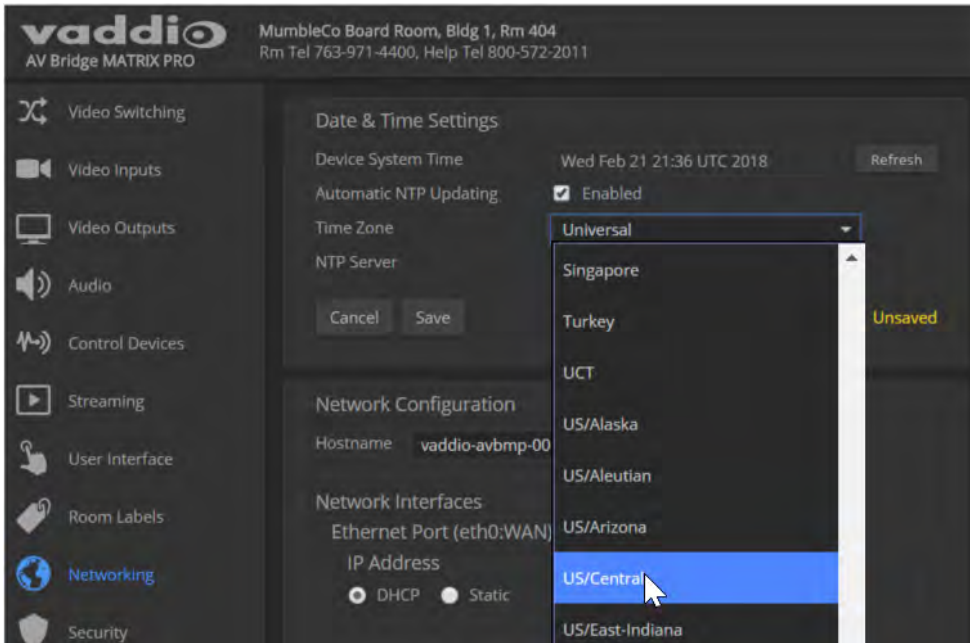
Buttons: Cancel, Save

## Setting System Time and Time Zone

### NETWORKING PAGE

Allowing the switcher to contact a network time protocol (NTP) server ensures that its system time is correct, and makes the time zone editable. You also have the option to specify which NTP server to use.

1. Enable Automatic NTP Updating.
2. Select the desired time zone from the list.
3. If desired, specify the NTP server to use. If you are not sure about this, use the default.
4. Save your changes.
5. To update the system time immediately, select Refresh. Otherwise, the time will update the next time the device contacts the NTP server.



## Managing Access and Passwords

### SECURITY PAGE

Set up the appropriate level of security to conform to your organization's requirements.

**Idle session time-out** – check the box labeled Automatically Expire Idle Sessions to automatically log you out of the web interface after 30 minutes without interaction.

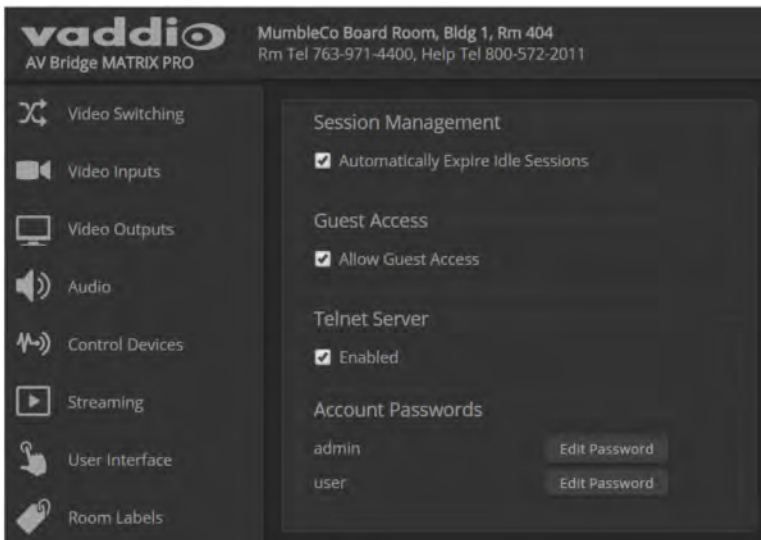
**Require a password for user access** – clear the box labeled Allow Guest Access. (A password is always required for administrative access via the web interface or a Telnet session.)

**Disable Telnet access** – clear the box labeled Telnet Server Enabled.

**Change a password** – Select Edit Password for the appropriate account (user or admin) to open the Edit Password dialog box.

### Note

*For best security, Vaddio strongly recommends changing the user and admin passwords. Using the default passwords leaves the product vulnerable to tampering.*

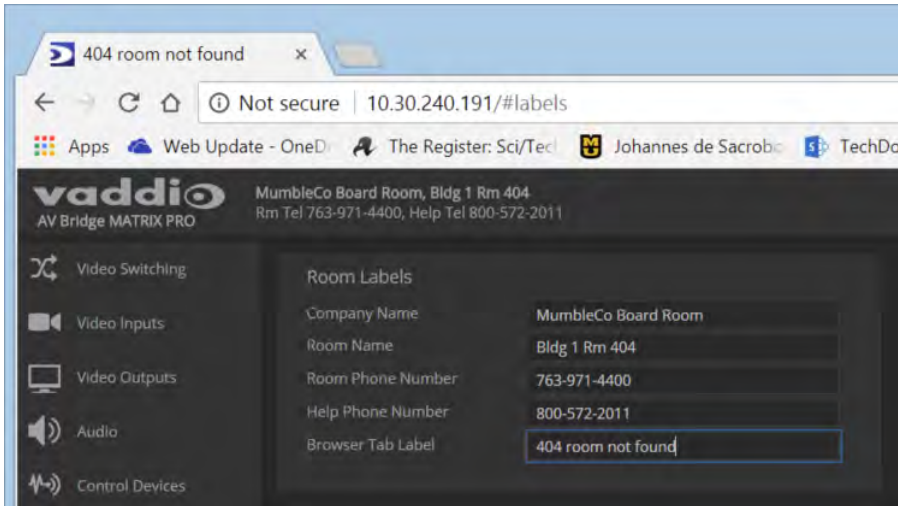


## Adding Room Information

### ROOM LABELS PAGE

Enter information about the location of the equipment and the local IT or A/V help line. This information will be displayed on all pages of the web interface.

If you are using version 2.0.0 firmware or later, you can also specify how the browser tab is labeled.



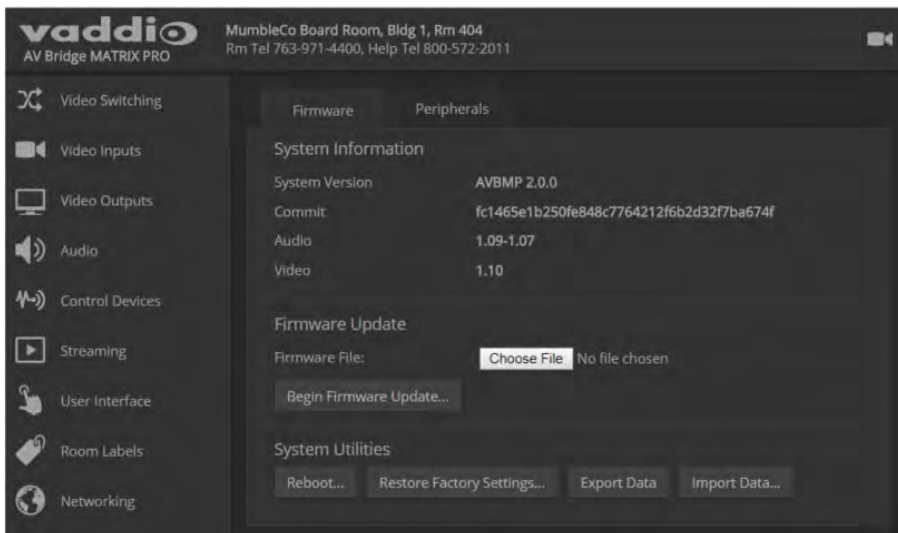
## Rebooting

### SYSTEM PAGE

This can help if the device stops responding as you expect.

In the System Utilities section, select Reboot, then confirm. You will need to log in again after the reboot.

If rebooting the device doesn't fix the problem, you may need to [reset to factory defaults](#). But before you take that step, [back up the configuration](#).





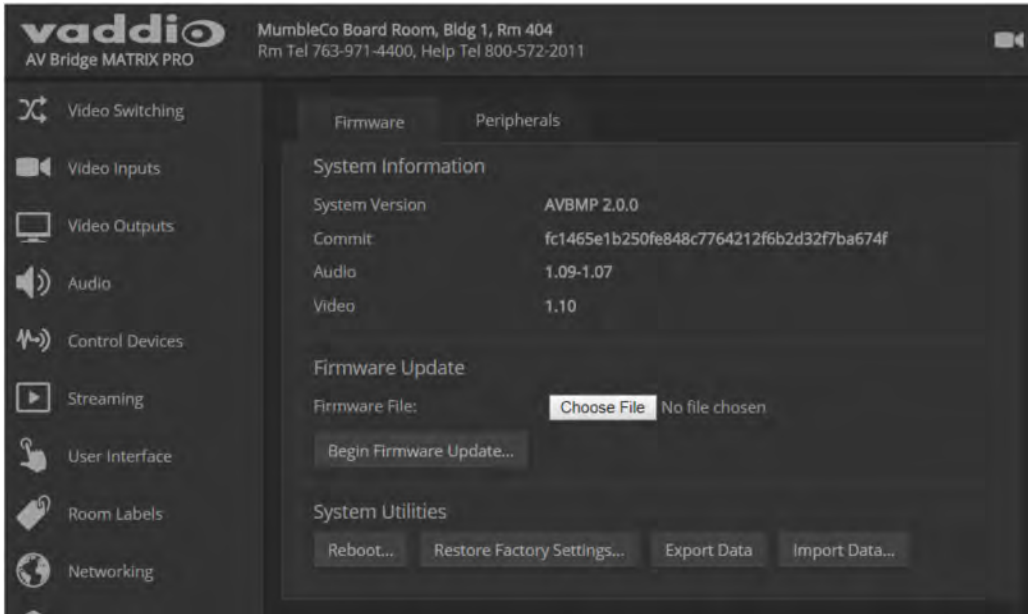
## Exporting and Importing Configuration Data

SYSTEM PAGE, FIRMWARE TAB

If your organization uses several of the same product, you may choose to configure one of them, verify that the configuration is good, and then copy it to the others. Most Vaddio professional AV products and cameras have this capability.

### Note

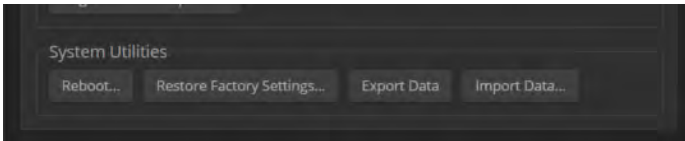
*Vaddio products using older firmware may be unable to import a configuration file that was exported from a different version of firmware.*



### To export a configuration:

To save a copy of the current configuration, select Export Data.

The configuration exports as a `.dat` file and downloads to your default file download location. The filename is the device's hostname followed by the `.dat` file extension. If you only need to back up the configuration, you're done.



### Note

*This operation does not copy device-specific data such as hostname or sensitive data such as passwords.*

### To import a configuration:

1. Select Import. The Import Data box opens.
2. Select Choose File, and browse to the `.dat` file to be imported.
3. Select Begin Importing Data. When the import is complete, the device reboots and you will need to log in again.

## Updating the Firmware

SYSTEM PAGE, FIRMWARE TAB

From time to time, we issue new firmware to introduce new features and other product improvements, and to fix issues that turn up. We recommend keeping all your Vaddio products up to date, to get the most out of them.

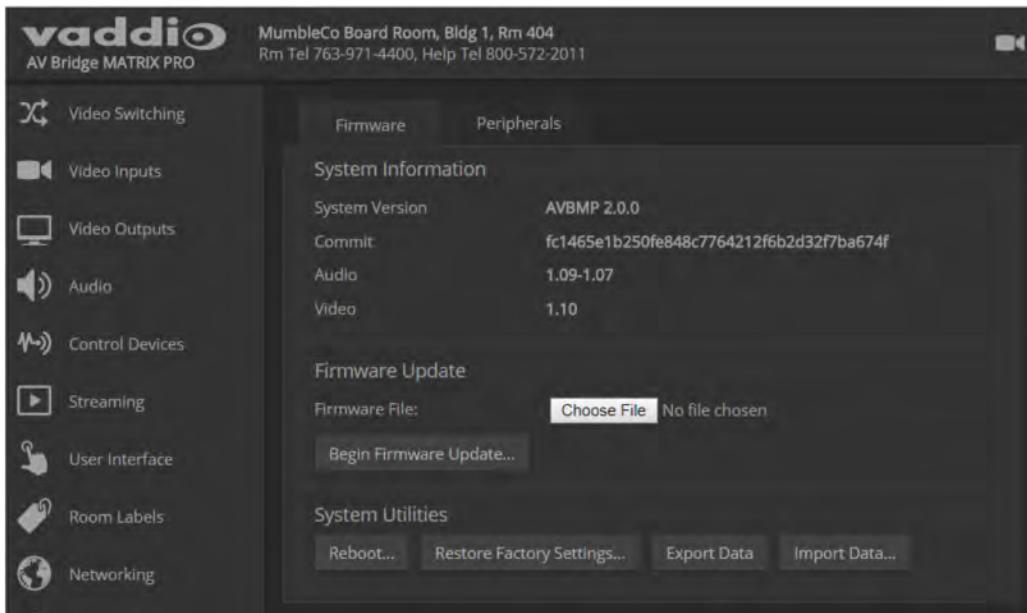
Firmware updates do not change the configuration or password.

### Note

*It is rare for an update to generate errors. If this happens, please read them carefully and record them. Screen shots of the error message may be very helpful in troubleshooting the problem. If the update does not finish successfully, contact Vaddio technical support immediately.*

1. In a separate browser tab or window, go to the appropriate product page, or to the software updates section of [support.vaddio.com](http://support.vaddio.com) and download the appropriate update file.
2. In the Firmware Update pane, select Choose File. Then browse to the update file and select it.
3. Select Begin Firmware Update.
4. READ the information in the Confirm dialog box and be sure you understand it.
5. When you are ready to start the update, select Continue. The device reboots as the last step in the update process.

We recommend checking for firmware updates for your Vaddio cameras when you update other products that work with them.



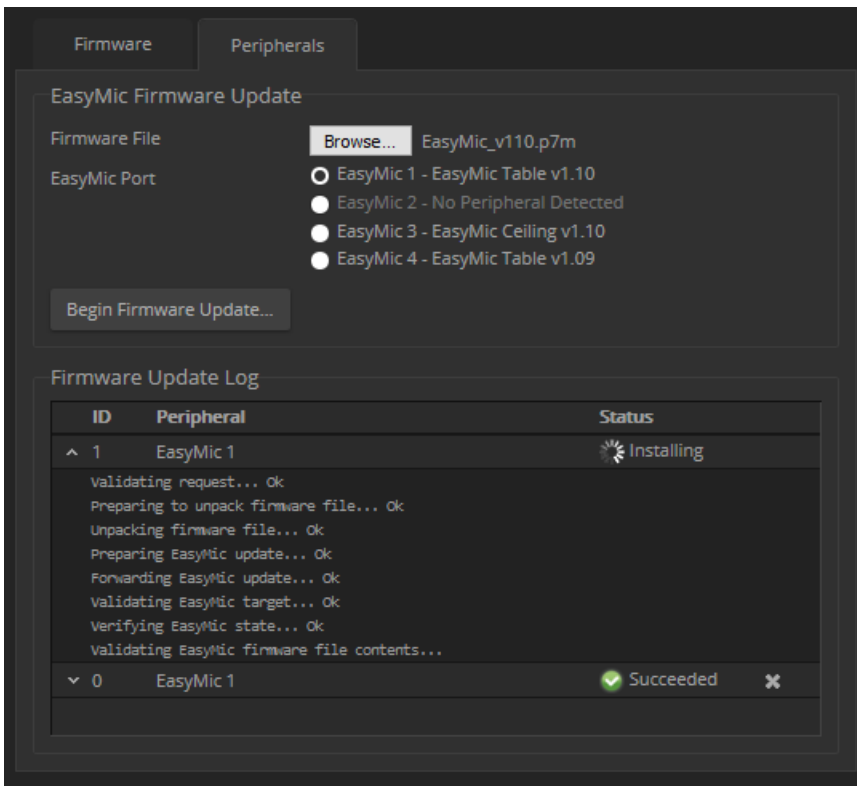
## Updating Microphone Firmware

SYSTEM PAGE, PERIPHERALS TAB

If you are using version 2.0.0 firmware or later, you can use the AV Bridge MATRIX PRO to update the connected Vaddio microphones. The process is similar to updating the AV Bridge MATRIX PRO firmware. Only one microphone at a time can be updated.

1. In a separate browser tab or window, go to the appropriate product page, or to the software updates section of [support.vaddio.com](http://support.vaddio.com) and download the appropriate update file.
2. On the Peripherals tab, select the port connection for the microphone to be updated.
3. Select Choose File. Then browse to the update file and select it.
4. Select Begin Firmware Update.
5. READ the information in the Confirm dialog box and be sure you understand it.
6. When you are ready to start the update, select Continue.

The Firmware Update Log pane displays log messages during the update, and displays "Succeeded" when the microphone is updated and ready to use.



## Restoring Factory Defaults

### SYSTEM PAGE

Restoring factory settings will overwrite anything you have added or customized, such as the admin password, video, and audio configurations.

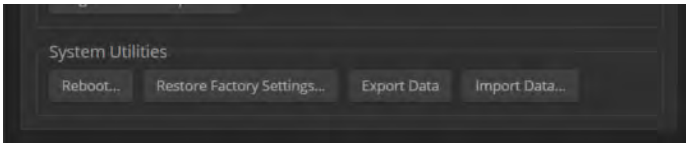
If you export a known good configuration, you can import it again after restoring factory settings. See [Exporting and importing configuration data](#).

#### **To restore the original factory settings:**

Select Restore Factory Settings.

A confirmation message informs you that the action cannot be undone. This is your cue to make sure you have successfully exported the configuration.

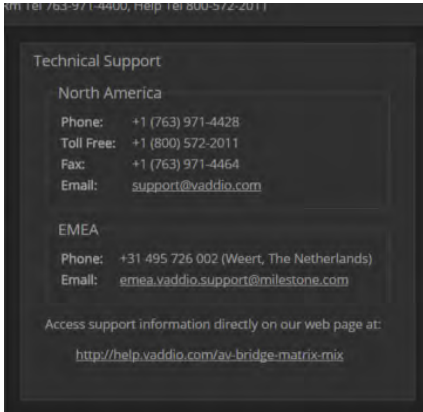
This operation logs you out and resets the admin password to its factory default value of `password`.



## Contacting Vaddio Technical Support

### HELP PAGE

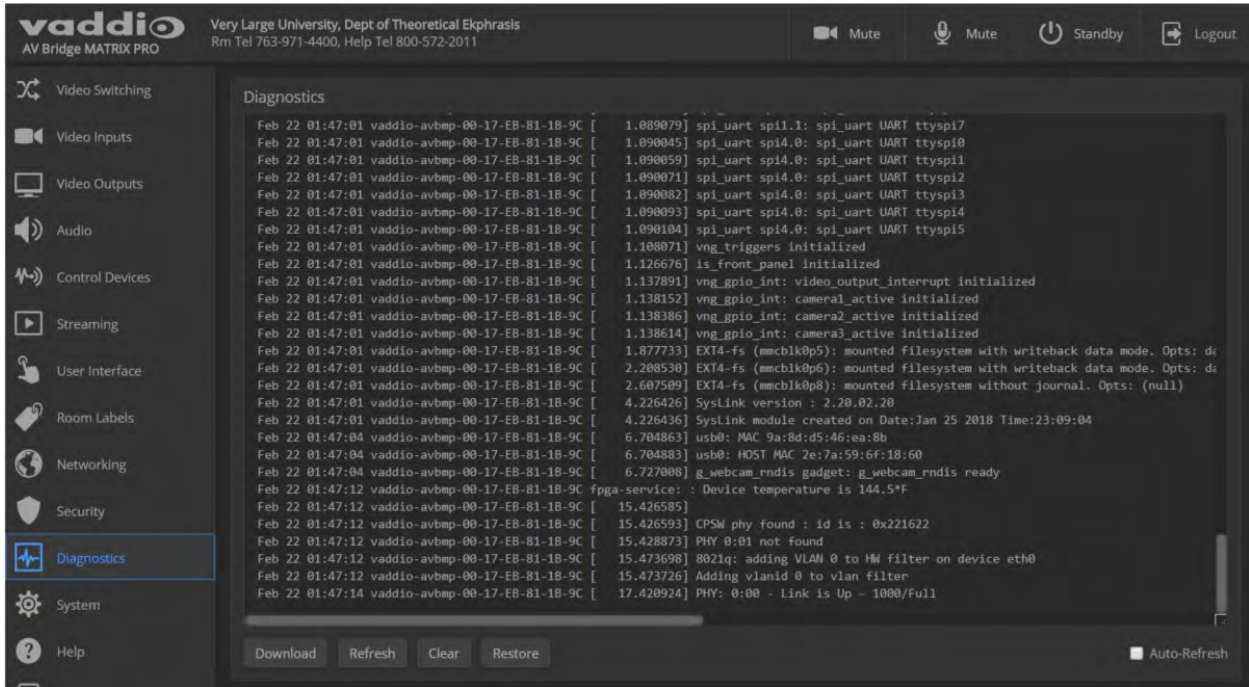
If you can't resolve an issue using your troubleshooting skills (or the [Troubleshooting](#) table in this manual), we are here to help. You'll find technical support contact information on the Help page.



## Viewing Diagnostic Logs

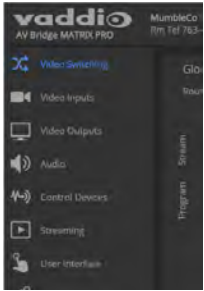
### DIAGNOSTICS PAGE

If you encounter a problem that you can't solve, your Vaddio technical support representative may ask you to download and email the log file available from the Diagnostics screen.



## Performance and Behavior Settings

Performance and behavior settings for the AV Bridge MATRIX PRO multimedia room solution include:



- Configuring video inputs, outputs, and switching behavior
- Adjusting audio inputs and outputs
- Configuring the audio matrix
- Creating macros and associating them with triggers
- Configuring USB streaming and IP streaming
- Specifying what happens when the switcher goes to standby mode
- Specifying which audio inputs are available from the operator's interface (web or multiviewer)
- Locking the front panel controls

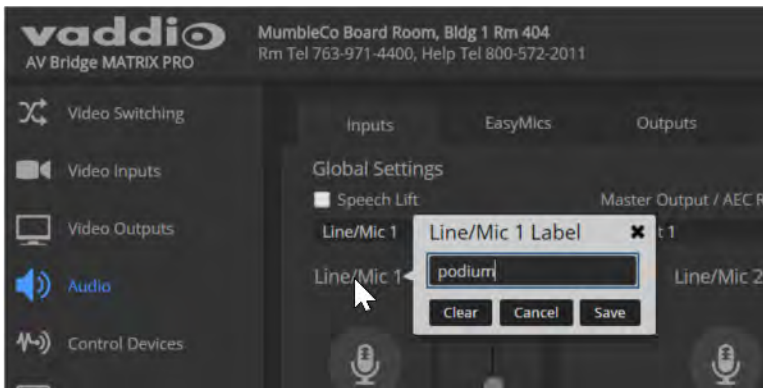
## Customizing Labels

Some of the labels in the web interface are customizable – because you may find, for example, that "Podium" is a more useful label than "Line/Mic 1." You can rename:

- Video sources
- Camera presets
- Audio inputs and outputs

When in doubt, try it.

Right-click the label you want to rename. If it is customizable, it opens a dialog box.

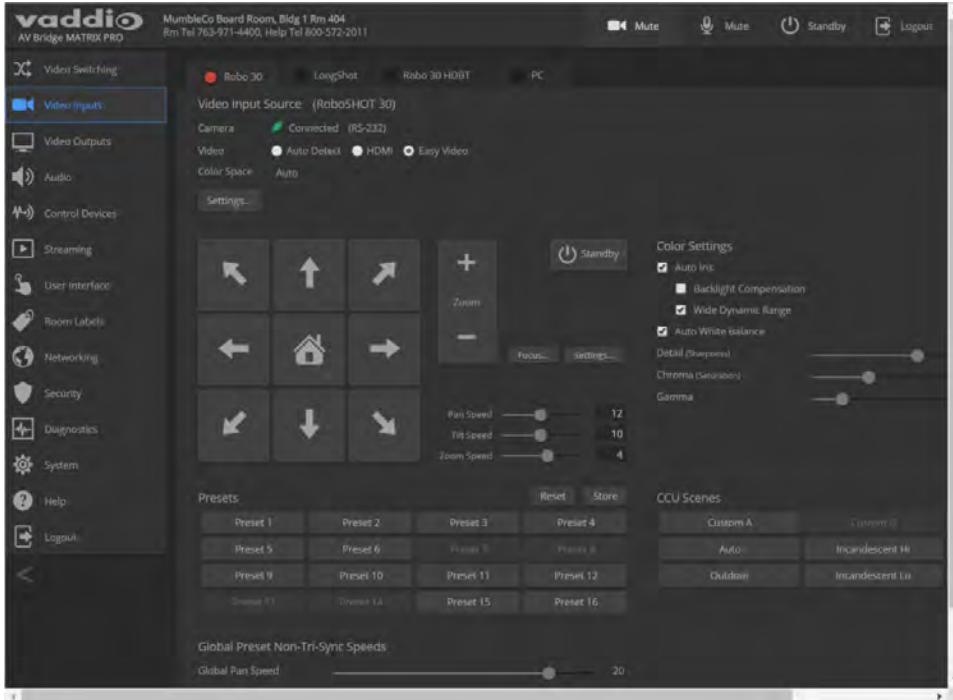


## Working with Video Inputs

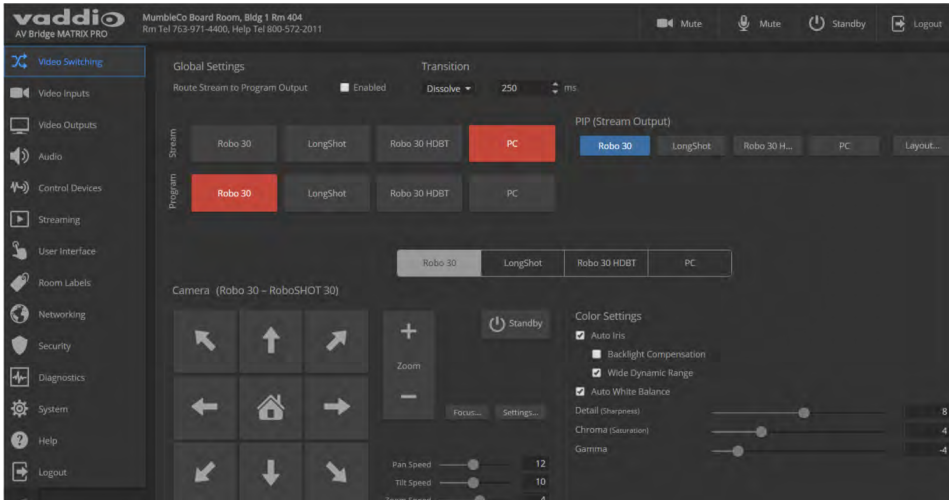
### VIDEO INPUTS PAGE

The web interface provides a control page with tabs for each camera and other video input device, allowing you to control the connected cameras without accessing their individual web interfaces. A red tally indicator identifies the tab for the current program source.

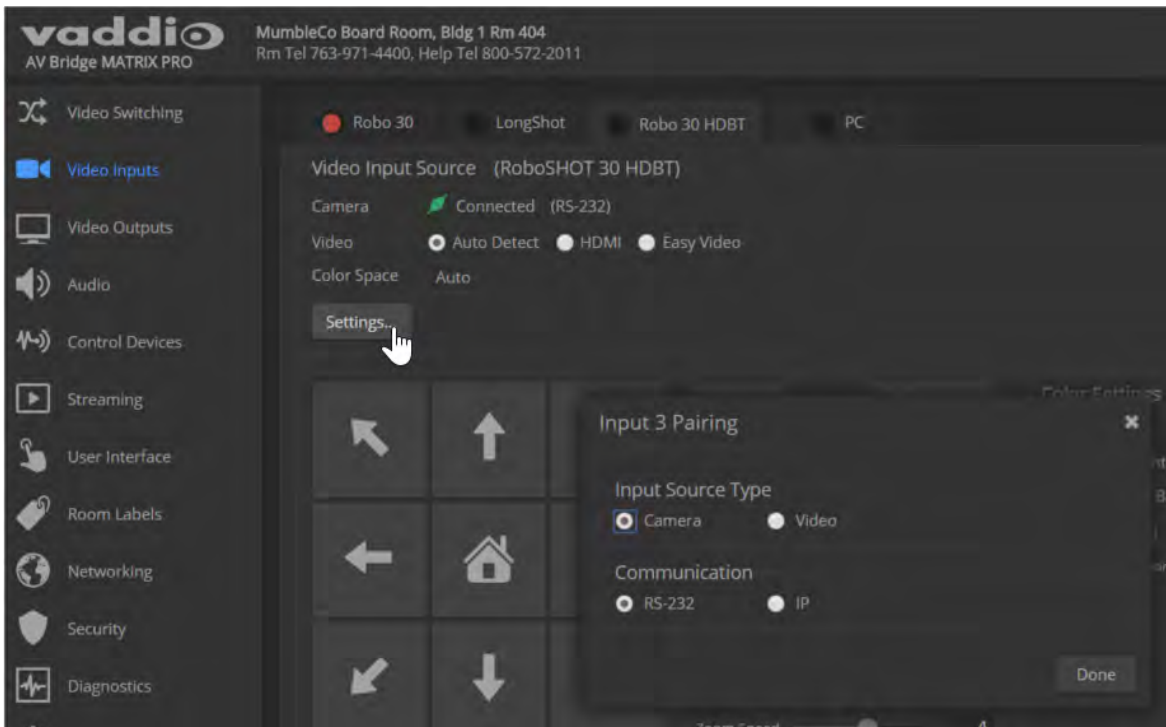
The tabs for connected Vaddio cameras present the same controls present in the cameras' own web interfaces.



Controls for the connected video sources (inputs 1 through 4) are also available from the Video Switching page.



In most cases, the AV Bridge MATRIX PRO will configure correctly for the devices connected as video inputs; however, each tab on the Video Inputs page presents configuration controls.



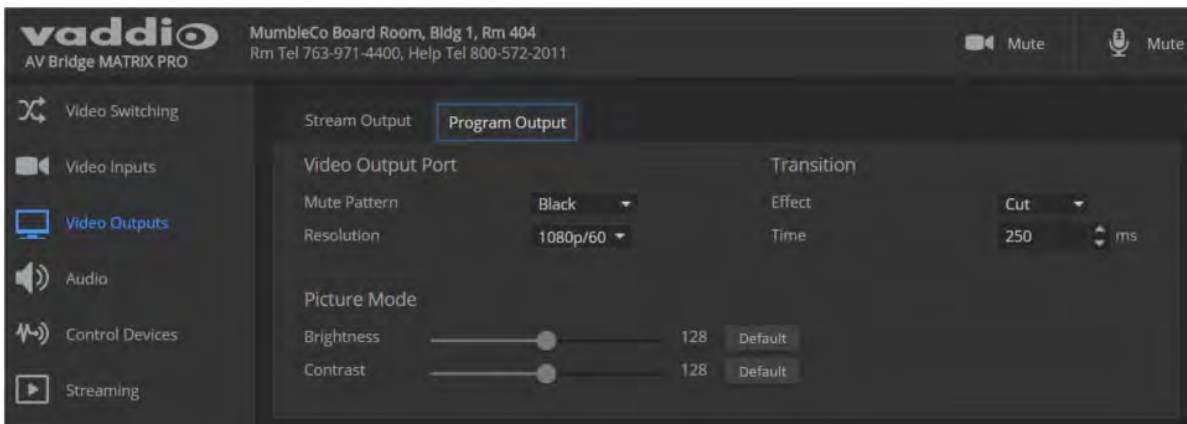
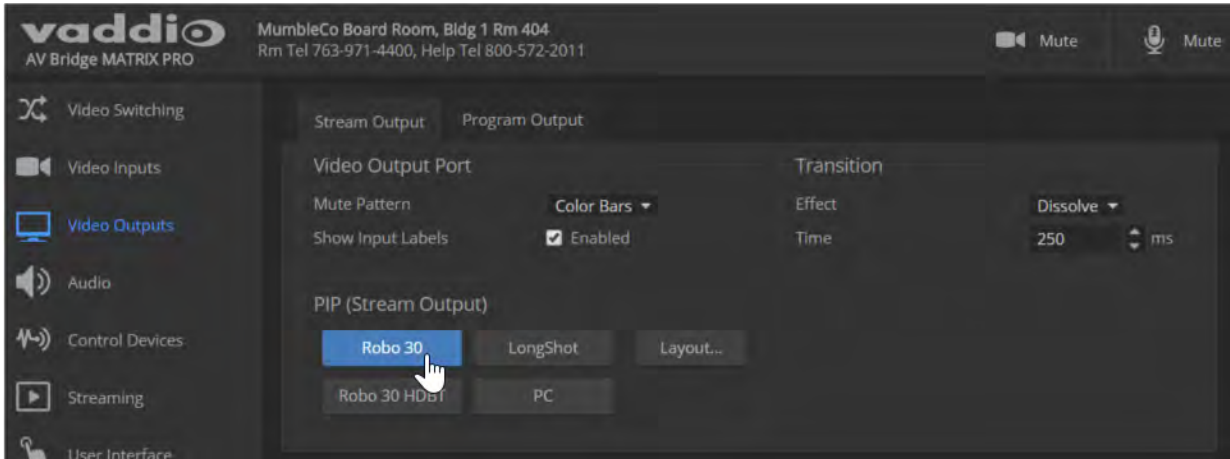


## Configuring Video Outputs

The Video Outputs page provides controls to configure the video outputs. Select the tab for the output you need to work with.

Controls available for the program and stream outputs include:

- Output resolution/frame rate (Program output)
- Video mute pattern
- Video transition effect and time
- PIP source and layout (Stream output)
- Brightness and contrast (Program output; for use with displays that lack these adjustments)

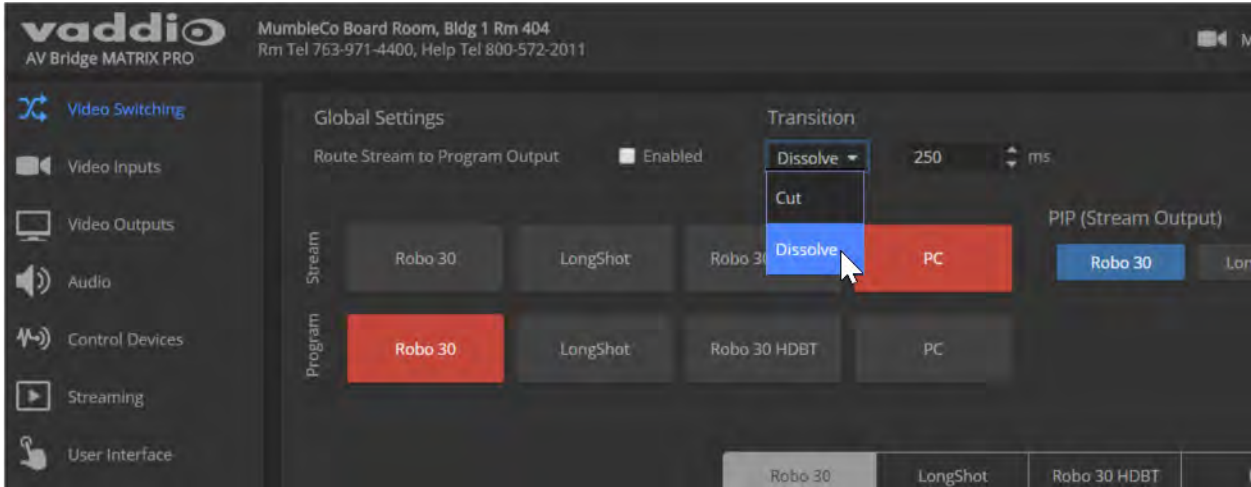


## Setting Video Transition Type and Speed

### VIDEO SWITCHING PAGE

The video transition settings determine how the program output behaves when you switch its source from one video input to another.

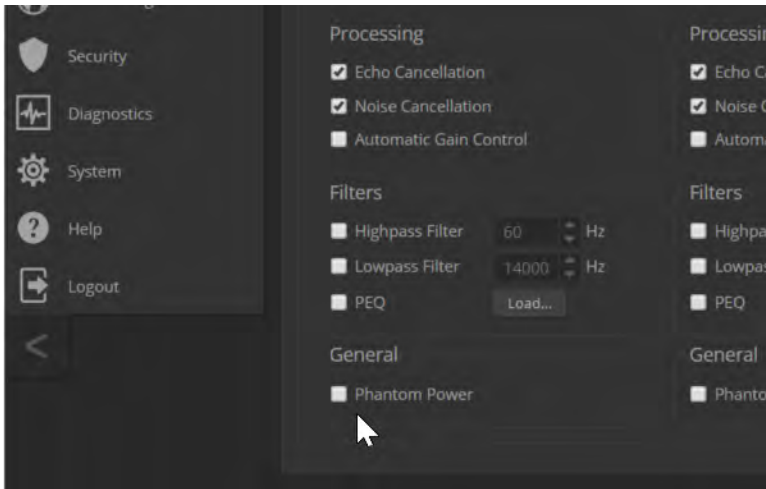
In the Global settings area, select the transition type for the currently selected switching mode. If necessary, adjust the transition time.



## Enabling Phantom Power to Microphones

### AUDIO PAGE, INPUTS TAB

To supply 48 VDC phantom power to a connected microphone, check the Phantom Power checkbox below the controls for the Line/Mic input.

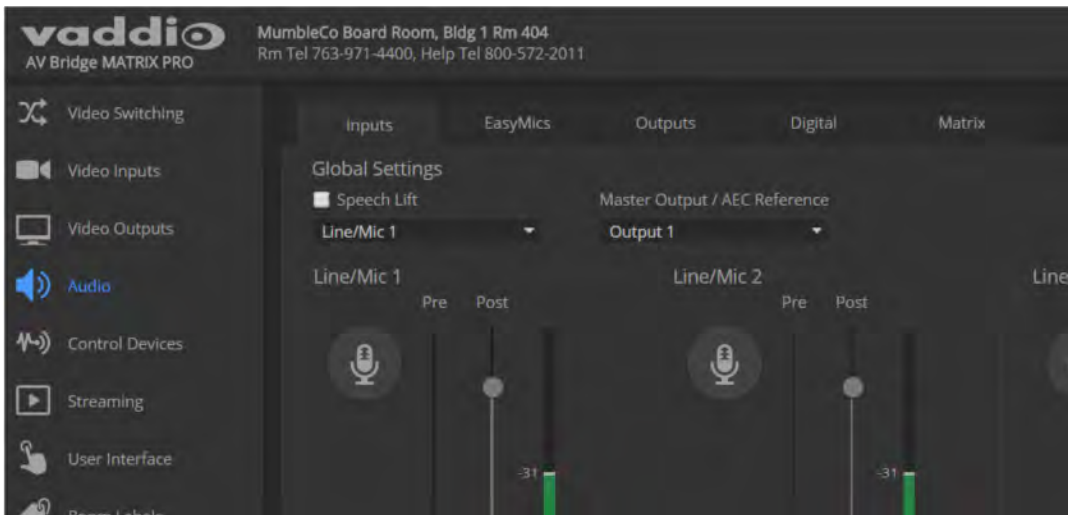


## Configuring Audio Settings

### AUDIO PAGE

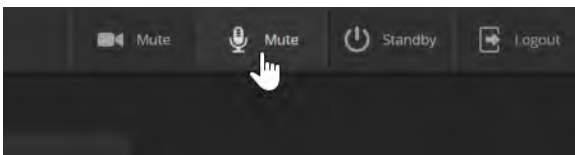
The web interface provides separate controls for each of the audio inputs and outputs:

- Inputs (corresponding to the Mic/Line Inputs area of the connector panel) – Line/Mic inputs 1 through 4
- EasyMics (corresponding to the EasyMic Ports area of the connector panel) – Vaddio tabletop and ceiling microphones
- Outputs (corresponding to the Line Outputs area of the connector panel) – powered speakers or other audio outputs
- Digital (corresponding to the USB, PC HDMI In, and HDMI Out connectors) – USB playback and record, HDMI audio input and output
- Matrix – defines audio routing.



### Muting the Microphones

Use the microphone mute control at the top of any page.



## Controlling Volume on Individual Inputs or Outputs

### AUDIO PAGE, INPUTS, EASYMICS, OUTPUTS, AND DIGITAL TABS

Use the button to mute the desired audio input or output. Use the slider to set the volume.

#### **Note**

*For best performance with most computers, we recommend setting the USB Record volume high.*



## Default Microphone Settings

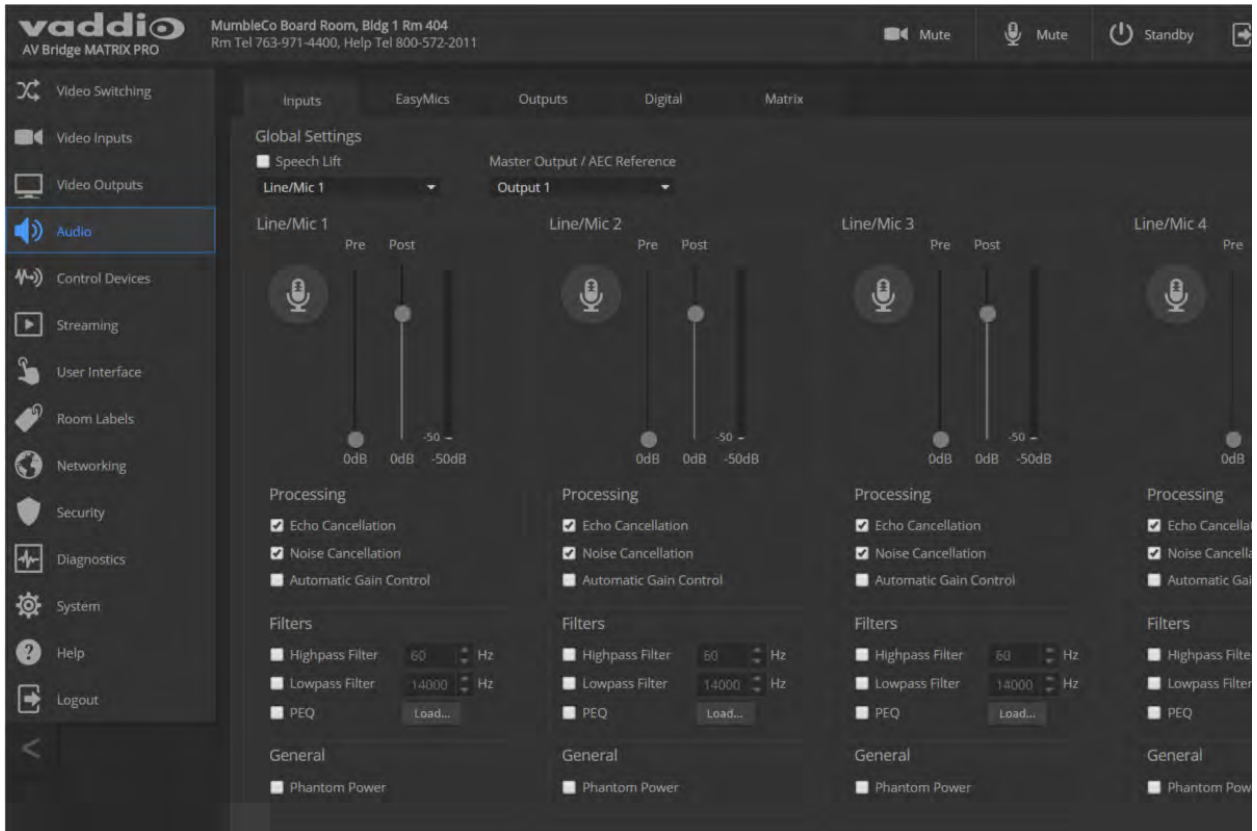
AUDIO PAGE, INPUTS AND EASYMICS TABS

**Acoustic Echo Cancellation** – Enabled; prevents audio feedback by cancelling the specified output signal out of the line/mic input.

**Noise Cancellation** – Enabled; suppresses ambient noise.

**Automatic Gain Control** – Disabled; adjusts gain to compensate for differences in volume as different people speak.

**Mic Boost (EasyMics only)** – Disabled; increases microphone volume by 3dB. *Vaddio does not recommend enabling Mic Boost.*



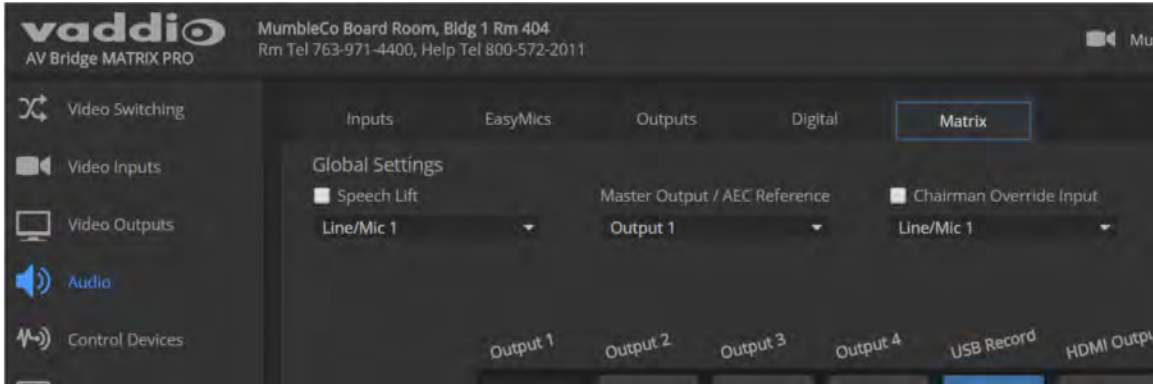
## Microphone Settings for Environments with Audiences

AUDIO PAGE, INPUTS AND MATRIX TABS

**Speech Lift:** Feeds the signal from the specified microphone to the speakers in the room, so that people in the back of the room can hear the person who is speaking.

**Master Output/AEC Reference:** Specifies the audio output that will be used as the reference for acoustic echo cancellation.

**Chairman Override:** Gives priority to the specified microphone when more than one person is speaking. (Matrix tab only)



## Microphone Adjustments

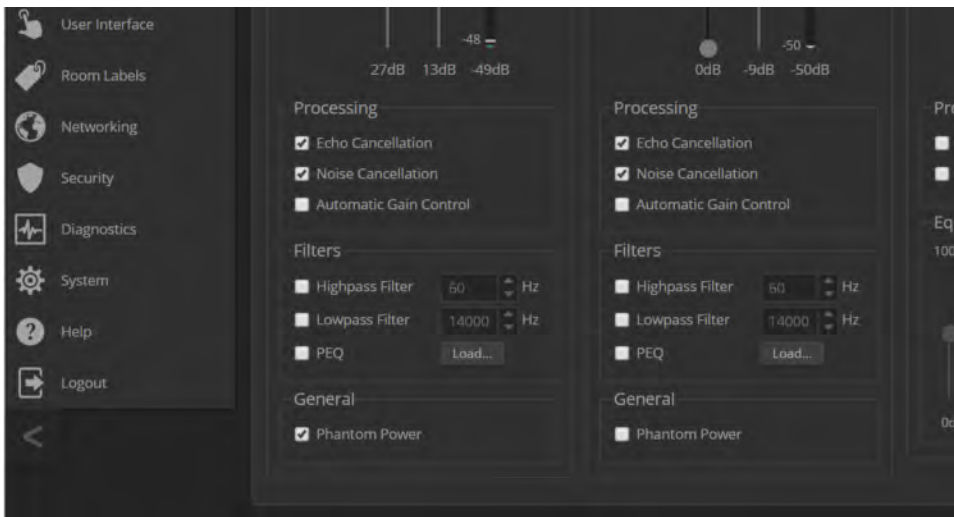
### AUDIO PAGE, INPUTS TAB

#### To adjust for more natural speech reproduction:

- **High-pass filter** – Specify the lowest frequency that the microphone should pick up. Use this setting to reduce low-frequency background noise such as heating/air conditioning systems.
- **Low-pass filter** – Specify the highest frequency that the microphone should pick up. Use this setting to reduce hissing sounds and make speech sound natural.
- **PEQ** (parametric equalizer) – Increase or reduce the volume of specific frequency ranges to compensate for the audio challenges unique to the situation.

#### Note

*As a best practice, use the equalizer to attenuate undesirable frequency ranges rather than to boost the desirable frequencies.*



## Speaker Adjustments

AUDIO PAGE, ANALOG AND STREAMING TABS

AUDIO PAGE, OUTPUTS AND

### To sync the sound with the video:

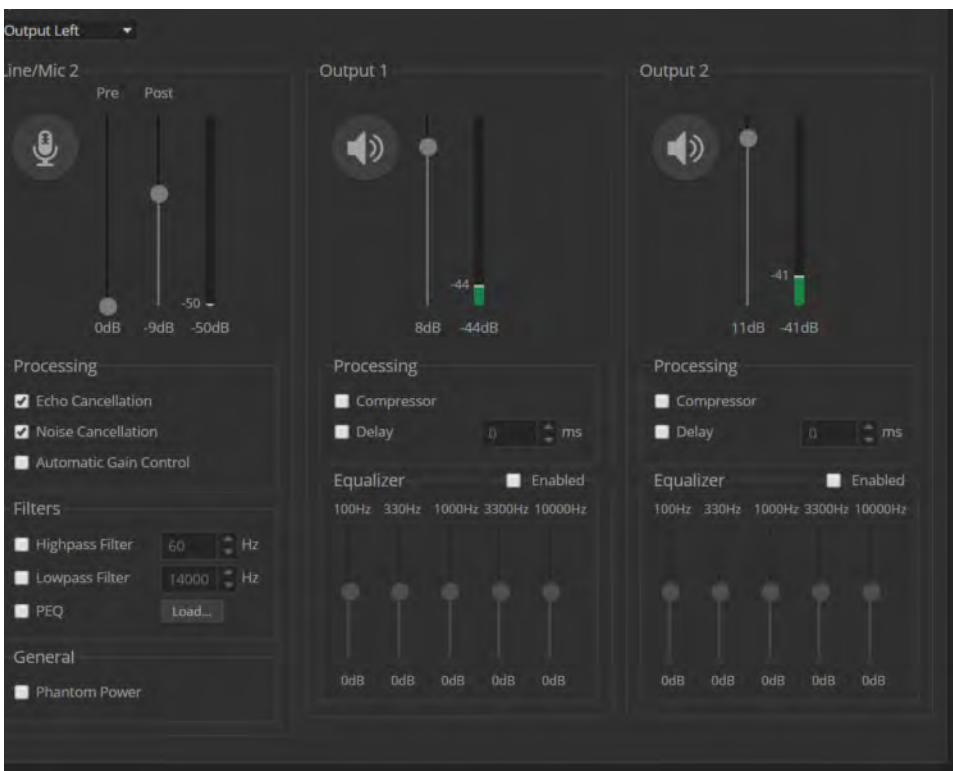
If the video lags noticeably behind the audio, check the Delay box for the appropriate audio outputs (Outputs or Digital tab) and enter a delay value in msec. The delay may differ from one output to another.

### To compensate for differing speech volumes:

If some people on the far end are inaudible while others are too loud, check the Compressor box to reduce the dynamic range from the connected speakers. (Outputs tab only.)

### To compensate for specific audio issues on the far end:

Use the equalizers for the analog outputs to attenuate specific frequency ranges. This can help if the far-end audio includes unwanted elements such as a rumbling HVAC system or a cricket in the room. (Outputs tab only.)





## Routing Audio

### AUDIO PAGE, MATRIX TAB

The audio matrix shows where each audio output originates. Each column of the matrix shows one audio output, and each row shows one audio input. Table cells highlighted in blue mean that the input represented in that row is routed to the output represented in that column.

To specify how the AV Bridge MATRIX PRO uses a given audio input, locate its row. Locate the column representing the desired output and select the table cell where the desired row and column intersect.

**vaddio** AV Bridge MATRIX PRO

MumbleCo Board Room, Bldg 1 Rm 404  
Rm Tel 763-971-4400, Help Tel 800-572-2011

Mute Mute Standby Logout

Video Switching  
Video Inputs  
Video Outputs  
Audio  
Control Devices  
Streaming  
User Interface  
Room Labels  
Networking  
Security  
Diagnostics  
System  
Help  
Logout

Inputs EasyMics Outputs Digital Matrix

Global Settings  
 Speech Lift  
 Master Output / AEC Reference  
 Chairman Override Input

Line/Mic 3 Output 4 Line/Mic 4

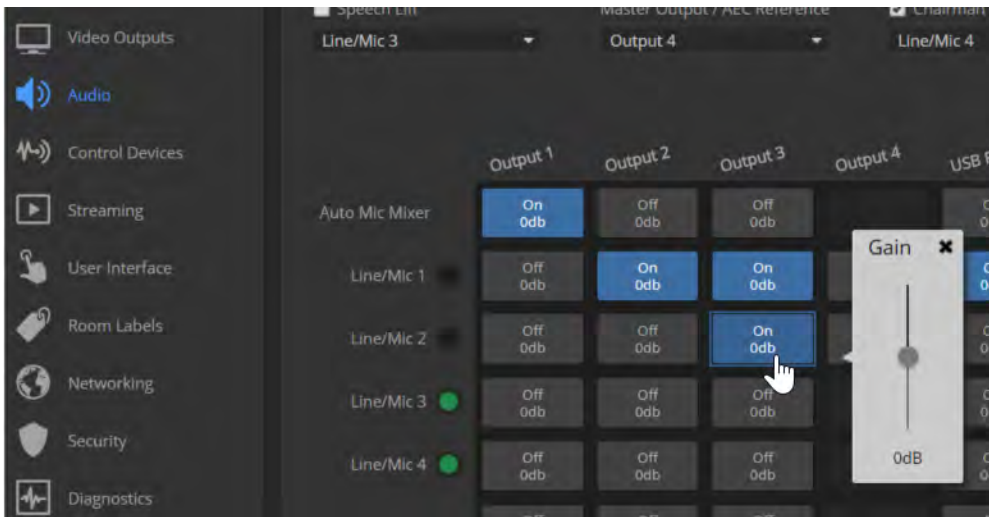
	Output 1	Output 2	Output 3	Output 4	USB Record	HDMI Output
Auto Mic Mixer	On 0db	Off 0db	Off 0db		Off 0db	Off 0db
Line/Mic 1	Off 0db	On 0db	On 0db	Off 0db	On 0db	Off 0db
Line/Mic 2	Off 0db	Off 0db	On 0db	Off 0db	Off 0db	Off 0db
Line/Mic 3	Off 0db	Off 0db	Off 0db		Off 0db	Off 0db
Line/Mic 4	Off 0db	Off 0db	Off 0db		Off 0db	Off 0db
EasyMic 1	Off 0db	Off 0db	Off 0db		Off 0db	Off 0db
EasyMic 2	Off 0db	Off 0db	Off 0db		Off 0db	Off 0db
EasyMic 3	Off 0db	Off 0db	Off 0db		On 3.95db	Off 0db
EasyMic 4	Off 0db	Off 0db	Off 0db		Off 0db	Off 0db
USB Playback	On 0db	Off 0db	Off 0db	Off 0db		Off 0db
HDMI Input	Off 0db	Off 0db	Off 0db	Off 0db	Off 0db	Off 0db

Auto Mic Mixer  
 Line/Mic 1  
 Line/Mic 2  
 Line/Mic 3  
 Line/Mic 4  
 EasyMic 1  
 EasyMic 2  
 EasyMic 3  
 EasyMic 4

Legend  
● In Auto Mic Mixer  
  Enabled  
  Disabled  
  Unavailable  
■ Speech Lift

## Setting Gain Between Input and Output (Crosspoint Gain)

To adjust crosspoint gain between any input and the output to which it is routed, right-click the table cell in the matrix to open a gain control.



## Configuring Streaming Settings

### STREAMING PAGE

#### **Note**

*After making changes on this page, save them.*

### Enable or Disable Streaming

IP and USB streaming are enabled by default. Use the Enable USB Streaming and Enable IP Streaming checkboxes to change this. You may need to reboot the device for your change to take effect.

## Edit the USB Device Name

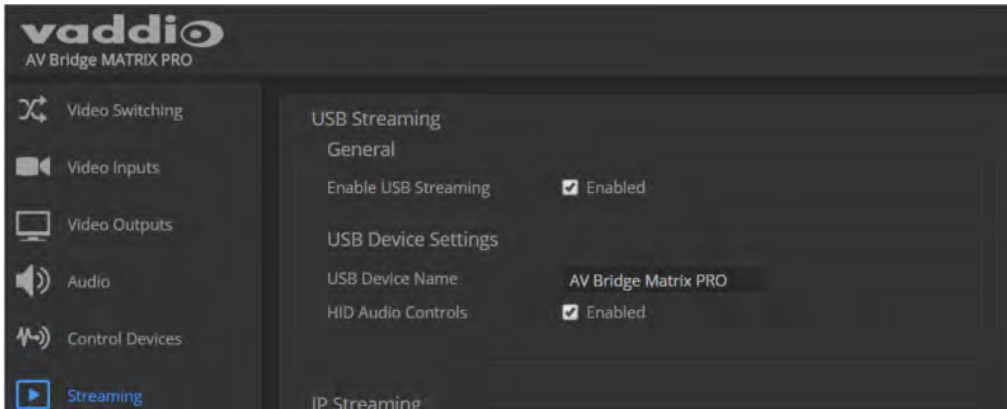
To change the way the camera shows up in your soft client's camera selection list, edit the USB Device Name.

## Allow Soft Client Control of the System

To allow conferencing applications to control the audio, check the Enabled box for HID Audio Controls.

**Note**

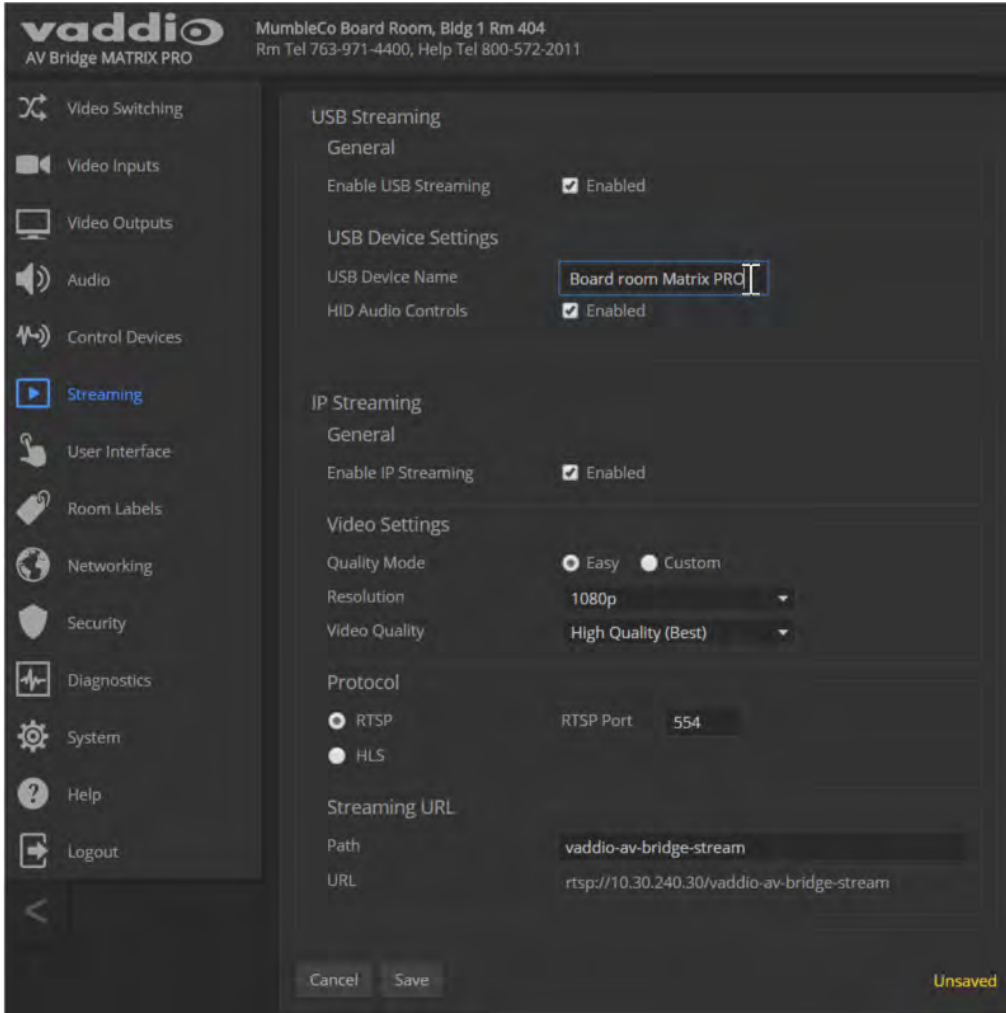
*USB streaming settings are automatically negotiated with the conferencing application.*



## Set IP Streaming Settings

If you are not sure about these settings, start with the defaults.

1. Select the video Quality Mode: Easy or Custom. Easy automatically sets the recommended frame rate; Custom provides additional control.
2. Select the desired IP streaming resolution.
3. Easy quality mode only: Select Video Quality.
4. Custom quality mode only: Select the desired IP streaming frame rate.



## Advanced IP Streaming Settings

**RTSP and RTSP port:** In most cases, RTSP (the default protocol) is preferable. We recommend using the default RTSP port number unless you need to change it.

**HLS:** For Apple® environments.

**Streaming URL:** Edit the path to change the portion of the streaming URL that appears after the IP address.

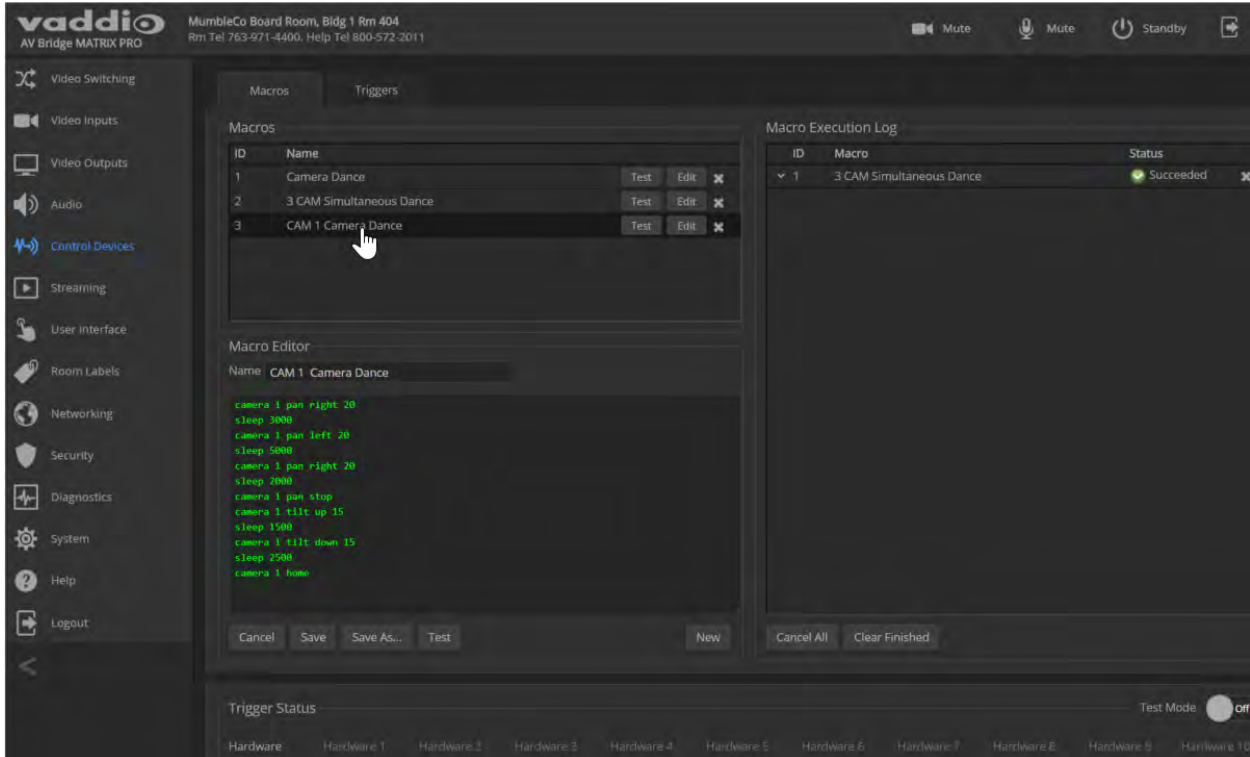
## Setting up Macros and Triggers

### CONTROL DEVICES PAGE

Macros may use any of the device's serial API commands. See [Serial Command API](#).

#### To edit an existing macro:

Select the Edit button associated with the macro, or select the macro name. The macro opens in the Macro Editor.



#### To write and test a macro:

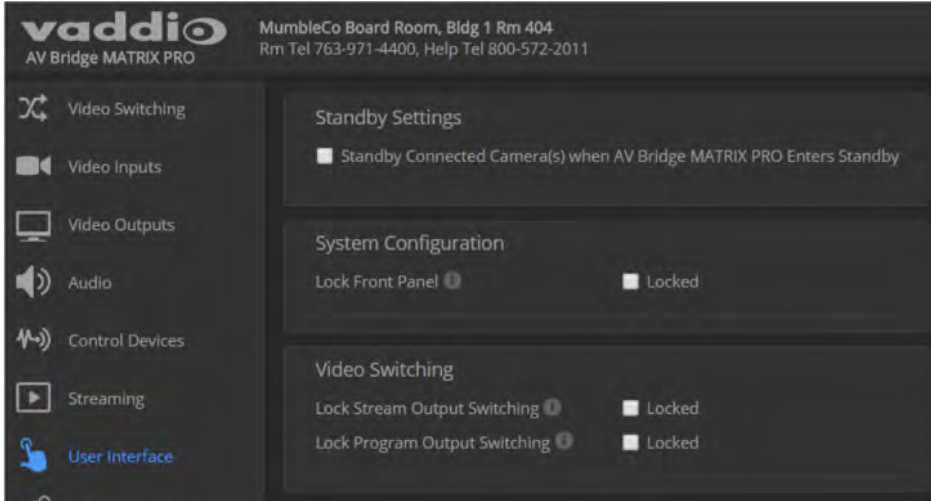
1. In the Macro Editor area, select New.
2. Give the macro a brief, descriptive name.
3. Enter the commands to perform the desired actions.
4. Save the macro.
5. Select Test to verify that the macro does what it needs to do. The Macro Execution Log displays each command as it executes, and indicates any syntax errors that may be present.
6. Make changes as needed, saving and testing until you get the desired results.

## Configuring Standby Behavior

### USER INTERFACE PAGE

To place the cameras in standby mode along with the AV Bridge MATRIX PRO, check the box marked "Standby Connected Cameras when AV Bridge MATRIX PRO Enters Standby."

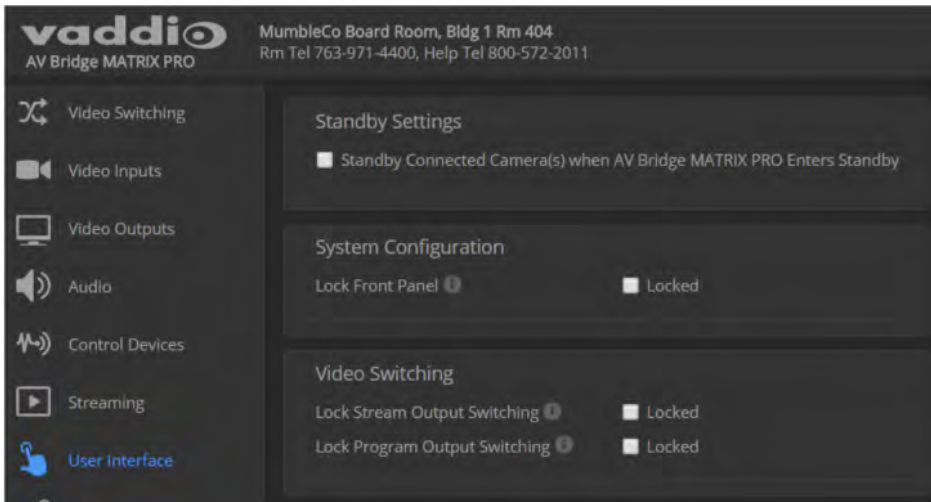
Leave this check box unchecked if the cameras should remain powered up.



## Locking the Front Panel Controls

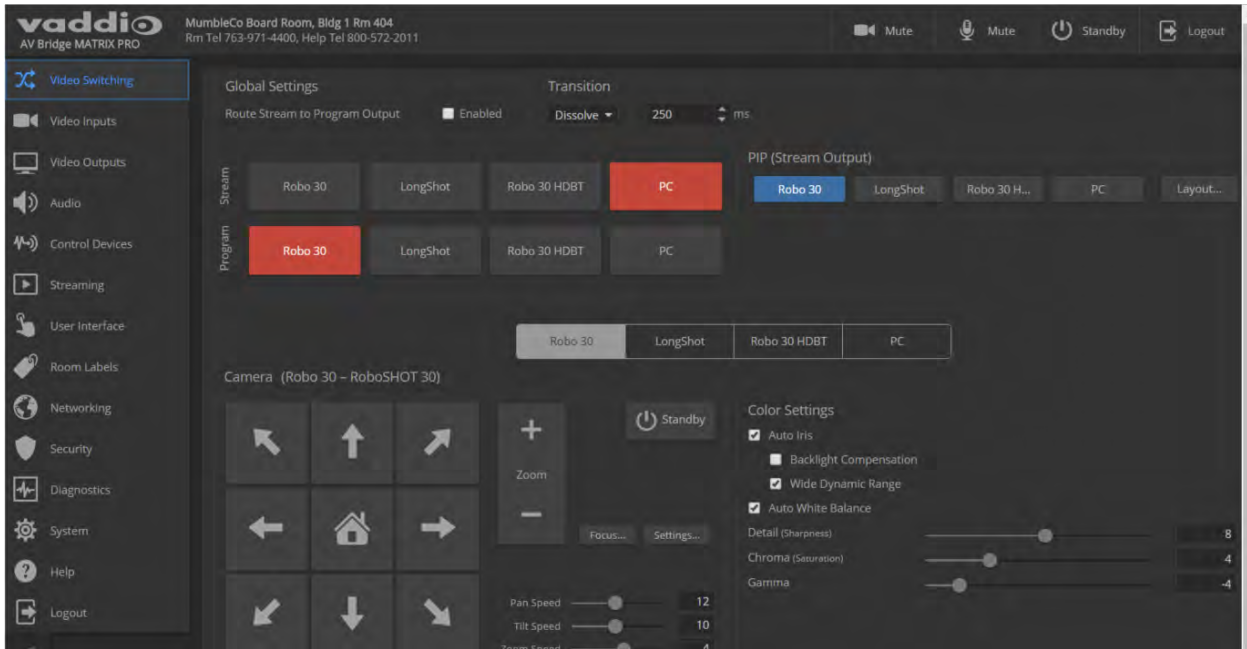
### USER INTERFACE PAGE

To disable the front panel controls, check the Front Panel Lock box in the System Configuration section of the User Interface page. The front panel message shows that the controls are locked, and displays the device's IP address.



## Operating the Device from the Admin Interface

The Video Switching page provides most of the controls available on the operator's pages (guest access or user account login). Note that the administrator has color, lighting, and speed controls that are not available to the operator.



## Operating the Multimedia Room Solution

The AV Bridge MATRIX PRO provides a web-based operator interface in addition to the front panel controls for basic functions. To access the web interface, you may need to log in with the User account credentials, depending on how the device is configured. The admin login is not required.

### Using the Front Panel for Basic Operation

The front panel provides basic information and controls.

**Note**

*The administrator has the option to lock the front panel.*

### Muting Audio and Video from the Front Panel

You may choose to mute audio, video, or both for privacy, or while preparing the room for a meeting or other event. The Audio Mute and Video Mute buttons on the front panel correspond to controls in the web interface and commands in the serial API.

**Audio mute** disables the microphone inputs and the audio portion of the stream. It does not disable PC audio input or HDMI audio output; if you mute audio while playing content from a PC, the audio portion of the content is not muted.

**Video mute** disables all video outputs and sends the selected video mute pattern – either black video or color bars.

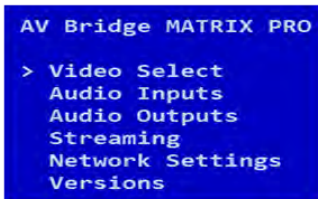
### Front Panel Display Menu

The illuminated display presents a menu of basic information and controls, including:

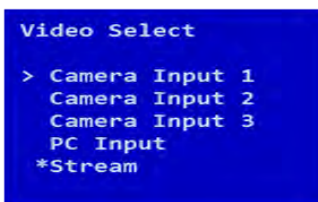
- Video source for the program output
- Volume settings for audio inputs and outputs
- Information on streaming, network settings, and firmware versions

**To work with the front panel display menu:**

- Use the menu knob to navigate through the menu. The > symbol shows what will be selected when you press the Select button.
- Press the Select button to open the desired sub-menu or select the desired option.
- To return to the main menu, press the Cancel button.

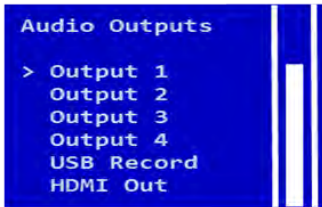
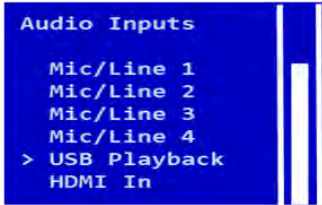


**Video Select:** Control. This menu indicates the current source of the program output with the \* symbol. Use the menu knob and Select button to select a different program source

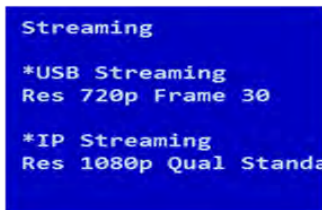




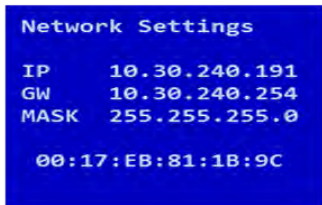
**Audio Inputs** and **Audio Outputs**: Control. These menus display the current volume setting for the selected item. Use the menu knob and Select button to adjust the volume.



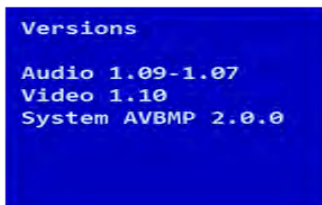
**Streaming**: Information only. This menu displays the resolution for each stream, along with the frame rate for the USB stream and the quality setting for the IP stream. USB streaming resolution is auto-negotiated; IP streaming is configured in the web interface.



**Network Settings**: Information only. This menu displays the IP address, gateway address, subnet mask, and MAC address.



**Versions**: Information only. This menu displays the firmware versions in use.



## About Viewing Streams

You will need additional information and software to view the IP and USB streams from the AV Bridge MATRIX PRO.

To view the IP stream:

- You will need to know the streaming URL for the IP stream. This information is available on the front panel, under the Network menu.
- The AV Bridge MATRIX PRO must be configured to enable IP streaming.
- You will need a stream viewer application such as VLC Media Player.

To view the USB stream:

- The AV Bridge MATRIX PRO must be configured to enable USB streaming.
- You will need to use a soft conferencing application to view the USB stream.

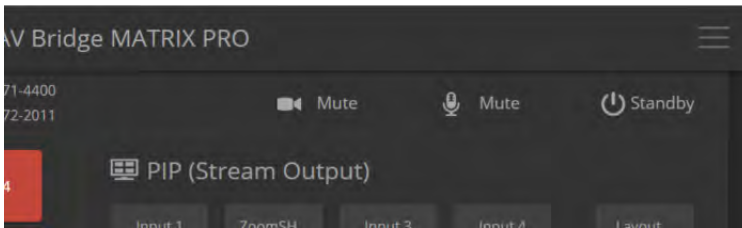
When viewing either stream, keep in mind that there is always inherent latency and network-dependent latency, so the video and audio may not be synchronized. An audio delay adjustment is available to administrators on the Audio page of the web interface. See [Speaker Adjustments](#).

## Muting Audio or Video from the Web Interface

Audio and video mute controls are available on the front panel and at the top of each page of the web interface.

**Audio mute** disables the microphone inputs and the audio portion of the stream. It does not disable PC audio input or HDMI audio output; if you mute audio while playing content from a PC, the audio portion of the content is not muted.

**Video mute** disables all video outputs and sends the selected video mute pattern – either black video or color bars.



## Selecting Cameras

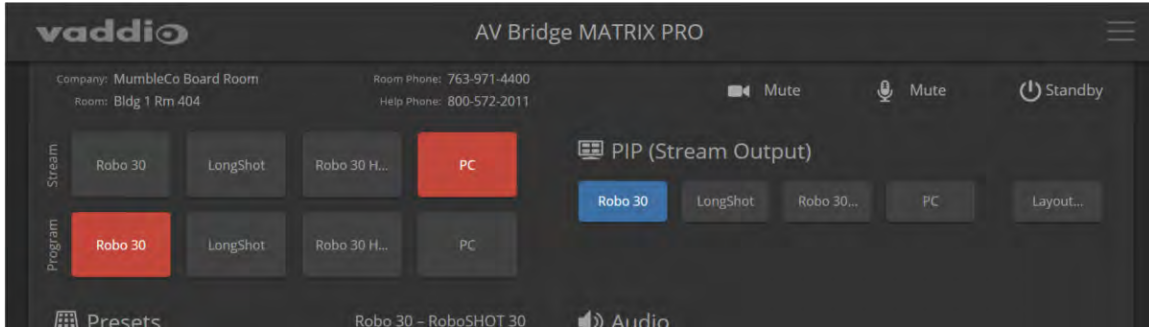
### OPERATOR'S HOME PAGE

The web interface shows the active video sources in red. Depending on the current configuration, you may be able to set Stream and Program outputs separately. If the device is configured to route the stream to the Program output, the web interface displays only one row of buttons for the video output.

**Note**

*The IP and USB streams use the same video source.*

Select the desired source for the available output(s).



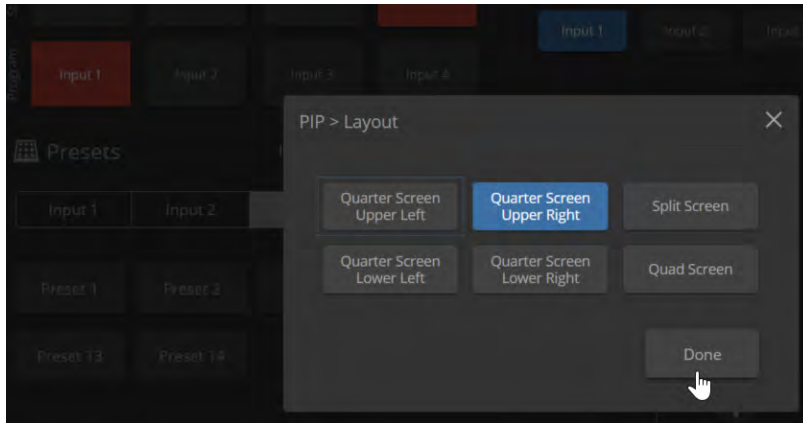
## Selecting a PIP Source and Layout

### ALL OPERATOR PAGES

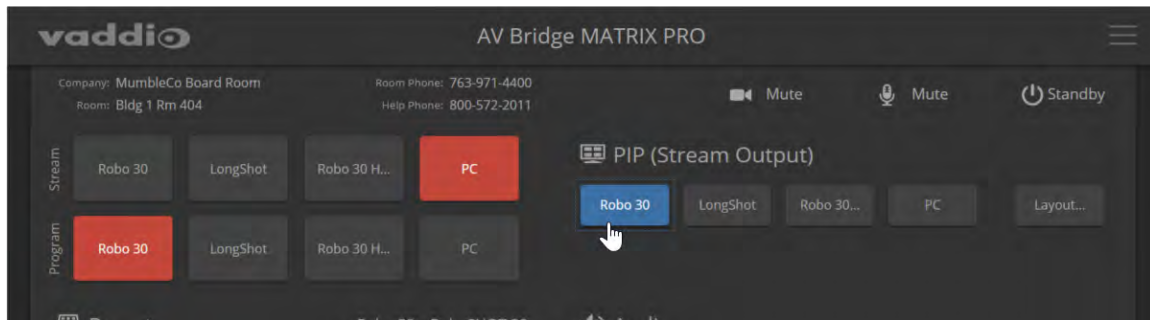
The PIP is only available in the stream.

In the web interface, the button for the active PIP source is highlighted. If all four PIP source buttons are highlighted, the stream is using the quad screen layout; if no buttons are highlighted, there is no PIP.

1. Select Layout to check or change the PIP layout.



2. Select the desired PIP source, if not using the Quad Screen layout.

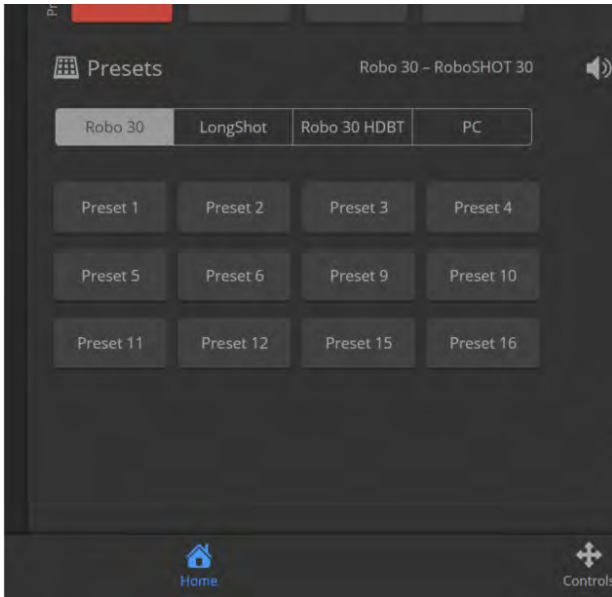


## Moving to Camera Presets

### OPERATOR'S HOME PAGE

If presets have been defined for the selected video input, they are available on the Home page. The administrator has the option to customize the labels for the video inputs and the presets for each.

Select the video input to work with, then select the desired preset.

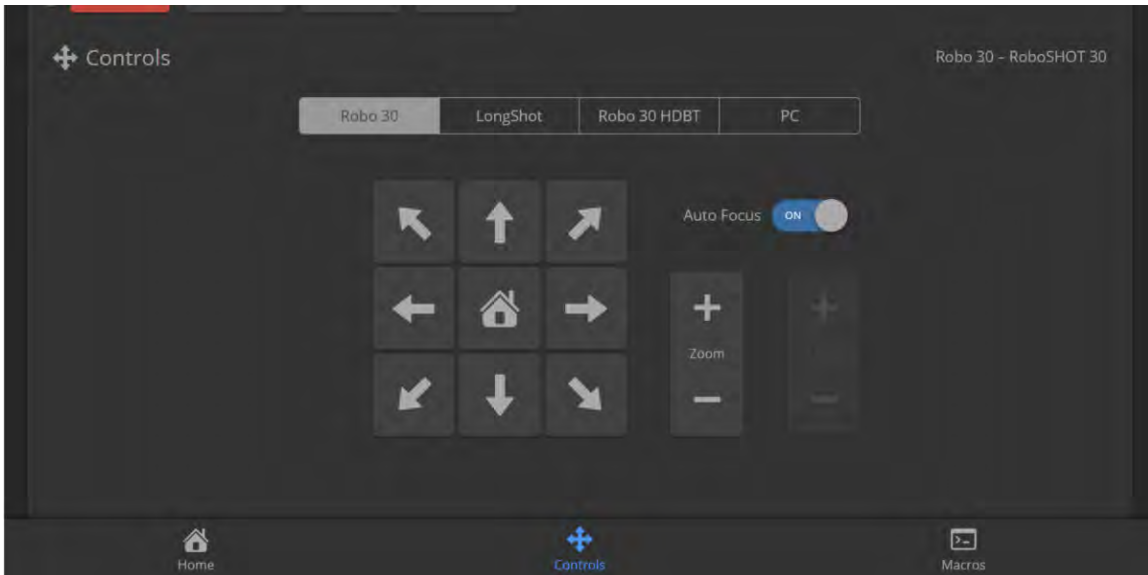


## Controlling Pan, Tilt, Zoom, and Focus

### OPERATOR'S CONTROLS PAGE

The Controls page presents the same controls that are available from the selected video input's web interface. No controls are available for Input 4 unless the connected device is a camera.

Select the video input to work with, then move or focus the camera as needed.



## Working with Audio

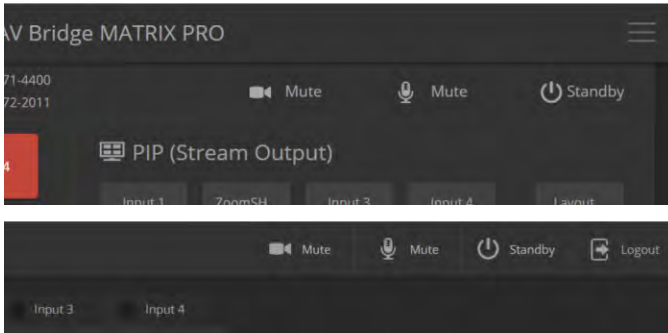
### OPERATOR'S HOME PAGE

Audio controls include mute/unmute buttons, volume read-outs, and volume slider controls for the audio output currently used as the master/AEC reference and for USB Record (the audio originating at your end of a conference).



## Going to Standby (Low Power) Mode

The standby control is available at the top of each page of the web interface.



Depending on how the device is configured, connected cameras may also go to standby mode. See [Configuring Standby Behavior](#).

## Serial Command API

The Vaddio serial command API allows an external device such as an AMX or Crestron presentation system to control the device. It is also used for device macros. The serial command API can be accessed via Telnet or direct RS-232 connection. Commands are the same using either communication protocol.

### Note

*When you connect via Telnet, you must log in using the admin account.*

The command format follows a get/set structure. Here are some examples:

Command	<code>camera 3 pan right</code>
Response	OK >
Command	<code>camera 3 focus mode auto</code>
Response	OK >
Command	<code>camera 3 ccu get iris</code>
Response	iris 6 OK >

Use a question mark as a command parameter to bring up a list of commands, subcommands, or command parameters. For example:

```
> camera focus ?
```

```
near   Focus the camera near
far    Focus the camera far
stop   Stop the camera focus
mode   Camera focus mode
```

Things you might need to know about control via Telnet session:

- Command lines are terminated with a carriage return.
- All ASCII characters (including carriage returns) are echoed to the terminal program and appended with the VT100 string ESC[J (hex 1B 5B 4A), which most terminal programs automatically strip.
- CTRL-5 clears the current serial buffer on the device.

Typographical conventions:

- n{x|y|z} – Choose x, y, or z.
- n<variable> – The named variable (such as <ip address>) is required.
- n<x..y> – A value in the range of x through y is required.
- n[optional] – This parameter (such as [speed<1..7>]) is not required.

For information about the RS-232 serial interface, see [RS-232 Serial Communication Settings and Port Pin-out](#).

## Camera and Video Commands

The base command `camera` provides camera control functionality. Subcommands include positioning (home, pan, tilt, zoom), stored information (preset, ccu), focus, and standby. The camera number must be specified. These commands will work with RoboSHOT cameras and may work with older Vaddio cameras. Note that, although video input 4 is designed to accommodate a laptop, it may be used as a fourth camera input.

The base command `video` deals with the video output from the AV Bridge MATRIX PRO, providing control over video source selection, PIP behavior, and video mute.

### camera home

Moves the specified camera to its home position.

Synopsis	<code>camera &lt;1 – 4&gt; home</code>	
Required	<code>&lt;1..4&gt;</code>	Specify the camera to move.
Example	<code>camera 3 home</code> Moves camera 3 to its home position.	

### camera pan

Moves the specified camera horizontally

Synopsis	<code>camera &lt;1..4&gt; pan { left [&lt;speed&gt;]   right [&lt;speed&gt;]   stop }</code>	
Required	<code>&lt;1..4&gt;</code>	Specify the camera to pan.
Options	<code>left</code>	Moves the camera left.
	<code>right</code>	Moves the camera right.
	<code>stop</code>	Stops the camera's horizontal movement.
	<code>speed &lt;1..24&gt;</code>	Optional: integer 1 – 24 specifies the speed for right or left movement. Default speed is 12.
Examples	<code>camera 3 pan left</code> Pans camera 3 left at the default speed.	
	<code>camera 3 pan right 20</code> Pans camera 3 right using a speed of 20.	
	<code>camera 3 pan stop</code> Stops camera 3's horizontal motion.	



## camera tilt

Moves the specified camera vertically.

Synopsis	camera <1..4> tilt { up [<speed>]   down [<speed>]   stop }	
Required	<1..4>	Specify the camera to tilt.
Options	up	Moves the camera up.
	down	Moves the camera down.
	stop	Stops the camera's vertical movement.
	speed <1..20>	Optional: integer 1 – 20 specifies the speed for up or down movement. Default speed is 10.
Examples	<b>camera 3 tilt up</b> Tilts camera 3 up at the default speed.	
	<b>camera 2 tilt down 20</b> Tilts camera 2 down using a speed of 20.	
	<b>camera 3 tilt stop</b> Stops camera 3's vertical motion.	

## camera zoom

Moves the specified camera in toward the subject or out away from the subject.

Synopsis	camera <1..4> zoom { in [<speed>]   out [<speed>]   stop }	
Required	<1..4>	Specify the camera to zoom.
Options	in	Zooms the camera in.
	out	Zooms the camera out.
	stop	Stops the camera's zoom movement.
	speed <1..7>	Optional - integer 1 – 7 specifies the speed for zoom movement. Default speed is 3.
Examples	<b>camera 3 zoom in</b> Zooms camera 3 in at the default speed.	
	<b>camera 2 zoom out 7</b> Zooms camera 2 out using a speed of 7.	
	<b>camera 2 zoom stop</b> Stops camera 2's zoom motion.	


## camera preset

Moves the camera to the specified preset, or stores the current camera position and optionally CCU information, either with or without specifying that Tri-Synchronous Motion is to be used when moving to this position.

Synopsis	camera <1..4> preset { recall   store} <1..16> [tri-sync <1..24>] [save-ccu]	
Options	recall <1..16>	Moves the camera to the specified preset, using Tri-Synchronous Motion if this was saved with the preset. If CCU information was saved with the preset, the camera switches to the CCU setting associated with the preset.
	store <1..16>	Stores the current camera position as the specified preset.
	tri-sync <1..24>	Optional: Specifies that the camera uses Tri-Synchronous Motion to move to this position, using the specified speed.
	save-ccu	Optional: Saves the current CCU settings as part of the preset. If not specified, the last color settings are used when recalled.
Examples	<pre>&gt;camera 2 preset recall 3 OK &gt;</pre> <p>Moves camera 2 to its stored preset 3.</p> <pre>&gt;camera 2 preset store 1 OK &gt;</pre> <p>Saves camera 2's current position as its preset 1.</p> <pre>&gt;camera 2 preset store 4 tri-sync 15 OK &gt;</pre> <p>Stores camera 2's current position as preset 4. The camera will use Tri-Synchronous Motion at speed 15 when it is recalled to this preset.</p> <pre>&gt;camera 2 preset store 2 tri-sync 10 save-ccu OK &gt;</pre> <p>Stores camera 2's current position as preset 2. The camera applies the current CCU settings and uses Tri-Synchronous Motion at speed 10 when it is recalled to this preset.</p>	

## camera ccu get

Returns or sets CCU (lighting) information for the specified camera.

Synopsis	camera <1..4> ccu get <param>	
	auto_white_balance	Returns the current state of the auto white balance setting (on or off).
	red_gain	Returns the red gain value as an integer (0 to 255).
	blue_gain	Returns the blue gain value as an integer (0 to 255).
	backlight_compensation	Returns the current state of the backlight compensation setting (on or off).
	iris	Returns the iris value as an integer (0 to 11).
	auto_iris	Returns the current auto-iris state (on or off).
	gain	Returns the gain value as an integer (0 to 11).
	detail	Returns the detail value as an integer (0 to 15).
	chroma	Returns the chroma value as an integer (0 to 14).
	wide_dynamic_range	Returns the current state for Wide Dynamic Range (on or off). Returns <code>null</code> if the camera does not support this feature.
	all	Returns all current CCU settings.
Examples	<pre>&gt;camera 3 ccu get iris iris 6 OK &gt;  Returns the current iris value.  &gt;camera 3 ccu get red_gain red_gain 201 OK &gt;  Returns the current red gain value.  &gt;camera 3 ccu get all auto_iris on auto_white_balance on backlight_compensation off blue_gain 193 chroma 2 detail 8 gain 3 iris 11 red_gain 201 wide_dynamic_range off OK &gt;  Returns all current CCU settings.</pre>	


### camera ccu scene

Stores the current CCU scene to the specified camera, or recalls the specified ccu scene for the specified camera.

Synopsis	camera <1..4> ccu scene {recall {factory <1..6>   custom <1..3>}   store custom <1..3>}	
Options	recall factory <1..6> recall custom <1..3>	Recalls the camera to the specified scene (factory 1 – 6 or custom 1 – 3).
	store custom <1..3>	Saves the current scene as the specified custom scene.
Examples	<pre>&gt;camera 2 ccu scene recall factory 2 OK &gt; Sets camera 2 to use factory CCU scene 2.  &gt;camera 2 ccu scene store custom 1 OK &gt; Saves the current CCU scene to camera 2 as its custom CCU scene 1.</pre>	

## camera ccu set

Sets the specified CCU (lighting) information.

Synopsis	camera <1..4> ccu set <param> <value>	
Options 	auto_white_balance {on   off}	Sets the current state of the auto white balance setting (on or off). Auto white balance overrides red gain and blue gain manual settings.
	red_gain <0..255>	Sets the red gain value as an integer (0 to 255). Can only be used when auto white balance is off.
	blue_gain <0..255>	Sets the blue gain value as an integer (0 to 255). Can only be used when auto white balance is off.
	backlight_compensation {on   off}	Sets the current state of the backlight compensation setting (on or off). Can only be used when wide dynamic range mode is off.
	iris <0..11>	Sets the iris value as an integer (0 to 11). Can only be used when auto-iris is off.
	auto_iris {on   off}	Sets the auto-iris state (on or off). Auto-iris disables manual iris and gain when it is on.
	gain <0..11>	Sets gain value as an integer (0 to 11). Can only be used when auto-iris is off.
	detail <0..15>	Sets the detail value as an integer (0 to 15).
	chroma <0..14>	Sets the chroma value as an integer (0 to 14).
	wide_dynamic_range {on   off}	Sets Wide Dynamic Range mode on or off. Can only be used when backlight compensation is off.
Examples	<pre>&gt;camera 2 ccu set auto_iris off OK &gt; Turns off auto-iris mode for camera 2, returning the camera to manual iris control.  &gt;camera 2 ccu set red_gain 10 OK &gt; Sets camera 2's red gain value to 10.</pre>	

## camera comm type

Gets or sets the way the AV Bridge MATRIX PRO communicates with the specified camera.

### Notes

*Serial communication is not available for camera 4.*

*If IP is selected, you may need to use the `camera comm host` command to set the camera's IP address or hostname.*

Synopsis	<code>camera &lt;1..4&gt; comm type { get   set { ip   serial } }</code>	
Required	<code>&lt;1..4&gt;</code>	Specify the camera to configure.
Options	<code>get</code>	Returns the current type of communication used with the specified camera.
	<code>set</code>	Sets the type of communication with the camera.
	<code>ip</code>	Specifies that communication will be over the IP network.
	<code>serial</code>	Specifies that communication will be over the RS-232 serial connection.
Examples	<pre>camera 1 comm type get serial OK &gt;</pre> <p>Returns the information that camera 1 is using an RS-232 serial connection to the AV Bridge MATRIX PRO.</p>	

## camera comm host

Gets or sets the specified camera's hostname or IP address.

### Note

*The AV Bridge MATRIX PRO web interface does not display this information for the connected cameras. If you need to change the way the cameras are labeled in the web interface, you will need to log in to the web interface as admin.*

Synopsis	camera <1..4> comm host {get   set { <IP address>   <hostname>}}	
Required	<1..4>	Specify the camera to configure.
Options	get	Returns the current host information (IP address or hostname) for the specified camera.
	set	Sets the IP address or hostname for the specified camera.
	<IP address>	The IP address to assign to the camera.
	<hostname>	The hostname to assign to the camera.
Examples	<pre>camera 1 comm host get host: null OK &gt;</pre> <p>Camera 1 does not have either a hostname or a static IP address.</p> <pre>camera 1 comm host set Bubba OK &gt;</pre> <p>We have just given Camera 1 the hostname Bubba.</p>	

## camera standby

Set or change standby status for the specified camera.

Synopsis	camera <1..4> standby { off   on   toggle   get }	
Required	<1..4>	Specify the camera to place in standby (low-power) mode.
Options	off	Brings the camera out of standby mode.
	on	Stops video and puts the camera in standby mode.
	toggle	Changes the camera's standby state – if it was not in standby mode, it enters standby; if it was in standby mode, it "wakes up."
	get	Returns the camera's current standby state.
Examples	<p><b>camera 3 standby off</b> Brings camera 3 out of standby mode.</p> <p><b>camera 2 standby on</b> Puts camera 2 in standby mode.</p> <p><b>camera 2 standby get</b> Returns the standby status of camera 2 in a form like this:</p> <pre>standby:      off OK &gt;</pre>	

## video source

Gets or sets the source for the specified video output.

Synopsis	video { program   stream } source { get   set } <input1..input4>	
Options	program	The program (display) output.
	stream	The USB and IP stream outputs.
	get	Returns the current source for the specified output.
	set	Sets the source for the specified output.
	input1..input4	The video sources available
Examples	<p><b>video program source get</b> source:      input3 OK &gt;</p> <p>The camera at Input 3 is the current source for the program output.</p>	
	<p><b>video program source set input1</b> OK &gt;</p> <p>Sets the program (display) output to use the camera at Input 1 as its source.</p>	



## video stream pip

Turns the PIP on or off and sets its source. Note that the PIP is only available in the streaming outputs.

Synopsis	video stream pip {on   off   toggle   inset}	
Options	on	Turns on the PIP.
	off	Turns off the PIP.
	toggle	Changes the state of the PIP – turns it on if it was off, or off if it was on.
	inset <input1..input4>	Specify one of the four video inputs as the source for the PIP.
Examples	<pre>video stream pip inset input2 OK &gt; Sets the camera at input 2 as the source for the PIP.  video stream pip on OK &gt; Turns on the PIP.</pre>	

## video mute

Gets or sets the video mute status of the specified channel. When video is muted, the device sends a mute pattern such as blue or black video with an on-screen message stating that video mute is on. This can be desirable when preparing the room or when privacy is needed.

Synopsis	video mute { get   off   on   toggle}	
Options	get	Returns the current video mute status.
	off	Unmutes the video. (Normal video resumes.)
	on	Mutes the video. (Black screen with message)
	toggle	Changes the video mute status.
Examples	<pre>video mute get mute: off OK &gt; Video is not muted.  video mute on Transmits the video mute pattern (color bars or black video).</pre>	

## Audio Commands

The base command `audio` provides control over microphones and speakers, and allows you to specify sources for audio outputs (route).

### audio mute

Gets or sets the mute status of the specified audio channel.

Synopsis	<code>audio [channel] mute {get   on   off   toggle}</code>	
Channels	<code>master</code>	Gets or sets the mute status of the audio master control. This is equivalent to the Mute button on the front panel or in the operator's web interface.
	<code>line_in_1 through line_in_4</code>	Gets or sets the mute status of the specified Audio Line In.
	<code>easy_mic_1 through easy_mic_4</code>	Gets or sets the mute status of the specified EasyMic input.
	<code>usb3_playback</code>	Gets or sets the mute status of the USB3 Playback input (far-end audio in soft conferencing applications).
	<code>hdmi_in</code>	Gets or sets the mute status of the HDMI audio input.
	<code>usb3_record</code>	Gets or sets the mute status of the USB3 Record output (near-end audio in soft conferencing applications).
	<code>line_out_1 through line_out_4</code>	Gets or sets the mute status of the specified Audio Line Out.
	<code>hdmi_out</code>	Gets or sets the mute status of the HDMI audio (program) output.
Options	<code>get</code>	Returns the current mute state of the specified channel.
	<code>on</code>	Mutes the audio for the specified channel.
	<code>off</code>	Unmutes the audio for the specified channel.
	<code>toggle</code>	Changes the mute state for the specified channel – unmutes if it was muted, mutes if it was not.
Examples	<pre>&gt; audio master mute get mute: off OK &gt;</pre> <p>Returns the current mute state of master mute. It is off, so audio is not globally muted. Some audio channels may be muted, however.</p>	
	<pre>&gt; audio line_out_1 mute on OK &gt;</pre> <p>Mutes the Line Out 1 port.</p>	

## audio volume

Gets or sets the volume of the specified audio channel. The valid range depends on the channel.

Synopsis	audio [ channel ] volume { get   up   down   set <level> }	
Channels	master	Gets or sets the volume of the audio master control. This is equivalent to the Mute button on the front panel or in the operator's web interface.
	line_in_1 through line_in_4	Gets or sets the volume of the specified Audio Line In.
	easy_mic_1 through easy_mic_4	Gets or sets the volume of the specified EasyMic input.
	usb3_playback	Gets or sets the volume of the USB3 Playback input (far-end audio in soft conferencing applications).
	hdmi_in	Gets or sets the volume of the HDMI audio input.
	usb3_record	Gets or sets the volume of the USB3 Record output (near-end audio in soft conferencing applications).
	line_out_1 through line_out_4	Gets or sets the volume of the specified Audio Line Out.
	hdmi_out	Gets or sets the volume of the HDMI audio (program) output.
Options	get	Returns the current volume of the specified channel.
	up	Increases the volume of the specified channel by 1 dB.
	down	Reduces the volume of the specified channel by 1 dB.
	set <level>	Sets the volume of the specified channel in dB. Valid ranges: Line in, line out, master/AEC reference: -50.0 to 20.0 dB USB, IP, and HDMI: -42.0 to 6.0 dB
Examples	<pre>audio line_in_1 volume up OK &gt;</pre> <p>Increases the volume for Line In 1 by 1 dB.</p> <pre>audio line_out_1 volume get volume -10.0 dB OK &gt;</pre> <p>Returns the current volume for the speaker connected to the line out port.</p>	

## audio route

Gets or sets the input routed to the specified output.

### Note

*If Speech Lift is enabled, the designated master (AEC reference) output must have the "lifted" input in its route list. The designated master output cannot have the auto\_mic\_mix input in its route list. The designated master output can only have line inputs in its route list if they are the enabled speech lift, or are not included in the auto mic mix.*

Synopsis	audio <channel> route {get   set <inputs>}	
Outputs	usb3_record	Gets or sets the gain for the input routed to the USB3 Record output (near-end audio in soft conferencing applications)
	line_out_1 through line_out_4	Gets or sets the gain for the input routed to the specified audio line out.
	hdmi_out	Gets or sets the gain for the input routed to the HDMI audio (program) output.
Options	get	Returns the routing for the specified output.
	set	Sets the routing for the specified output.
Inputs	line_in_1 through line_in_4	Routing gain of the specified audio line input for the chosen output
	easy_mic_1 through easy_mic_4	Routing gain of the specified EasyMic input for the chosen output
	usb3_playback	Routing gain of USB Playback (far-end audio in soft conferencing applications) for the chosen output.
	hdmi_in	Routing gain of the HDMI input for the chosen output
Examples	<pre>&gt; audio usb3_record route get [ easy_mic_3 line_in_1 ] OK &gt;</pre> <p>Returns the current source for USB3 Record. EasyMic3 and Audio Line In 1 are currently routed to the USB3 Record output.</p> <pre>&gt; audio hdmi_out route set usb_playback</pre> <p>Routes USB playback (far-end audio in soft conferencing applications) to HDMI audio out.</p>	

## audio crosspoint-gain

Returns or sets the input routing gain, in dB, for a given output and input.

Synopsis	audio <output> crosspoint-gain <input> {get   set <level>}	
Outputs	usb3_record	Gets or sets the gain for the input routed to the USB3 Record output (near-end audio in soft conferencing applications)
	line_out_1 through line_out_4	Gets or sets the gain for the input routed to the specified audio line out.
	hdmi_out	Gets or sets the gain for the input routed to the HDMI audio (program) output.
Inputs	line_in_1 through line_in_4	Routing gain of the specified audio line input for the chosen output
	easy_mic_1 through easy_mic_4	Routing gain of the specified EasyMic input for the chosen output
	usb3_playback	Routing gain of USB Playback (far-end audio in soft conferencing applications) for the chosen output.
	hdmi_in	Routing gain of the HDMI input for the chosen output
Options	get	Returns the routing gain from the specified input to the specified output.
	set <-12.00 .. 12.00>	Sets the routing gain from the specified input to the specified output. Valid range is -12.00 dB to 12.00 dB.
Examples	<pre>&gt; audio usb_record crosspoint-gain easy_mic_3 get 4 OK &gt;</pre> <p>Returns the current gain setting of the crosspoint between USB Record and EasyMic 1 in dB.</p> <pre>&gt; audio usb3_record crosspoint-gain easy_mic_3 set 6.00 OK &gt;</pre> <p>Sets the crosspoint gain of USB Record and EasyMic 1 to 6 dB.</p>	

## System Administration and Other Commands

These commands provide control over how the AV Bridge MATRIX PRO behaves (trigger, streaming, network), enable you to manage the equipment (system, version), and give you tools to manage the session (sleep, history, help, exit). Most of the behavior and management commands have subcommands.

### trigger

Turn an existing trigger on or off. This command has no effect if the specified trigger has not been defined.

#### Note

*If the web interface's macro/trigger test mode is in use, this command is disabled.*

Synopsis	trigger <1..10> {off   on   block <seconds> }	
Required	<1..10>	The trigger index (identifier) – triggers 1 through 10 are available.
	{off   on}	Set the state of the trigger.
Optional	block	Block execution of subsequent command to allow macros to finish executing (similar to <code>sleep</code> ). The default time to block is 60 seconds.
	<seconds>	Number of seconds to block.
Example	<b>trigger 3 on</b> Turns trigger 3 on. <b>trigger 1 off block 10</b> Turns off trigger 1, and blocks for up to 10 seconds while any macros in progress finish.	

## streaming settings get

Returns current IP and USB streaming settings.

Synopsis	<code>streaming settings get</code>	
Parameters	<code>IP Custom_Frame_Rate</code>	Frame rate selected in Custom quality mode.
	<code>IP Custom_Resolution</code>	Resolution selected in Custom quality mode.
	<code>IP Enabled</code>	May be <code>true</code> or <code>false</code> . Specifies whether IP streaming is enabled.
	<code>IP Port</code>	The RTSP port number used for IP streaming. Default is 554.
	<code>IP Preset_Quality</code>	Video quality selected in Easy video quality mode.
	<code>IP Preset_Resolution</code>	Resolution selected in Easy video quality mode.
	<code>IP Protocol</code>	The IP streaming protocol in use.
	<code>IP URL</code>	The URL where the stream is available.
	<code>IP Video_Mode</code>	Video quality mode selected ( <code>preset</code> or <code>custom</code> ).
	<code>USB Enabled</code>	Specifies whether USB streaming is enabled.
	<code>USB Active</code>	Specifies whether USB streaming is active (in a conference).
	<code>USB Device</code>	The USB device name
	<code>USB Frame_Rate</code>	The current frame rate for the USB stream. If the device is not in a conference (not streaming USB), the frame rate is 0.
	<code>USB Resolution</code>	The current resolution for the USB stream. If the device is not in a conference (not streaming USB), the resolution is 0x0.
Example	<pre>&gt;<b>streaming settings get</b> IP Custom_Frame_Rate 10 IP Custom_Resolution 720p IP Enabled true IP Port 554 IP Preset_Quality High Quality (Best) IP Preset_Resolution 1080p IP Protocol RTSP IP URL vaddio-av-bridge-stream IP Video_Mode preset USB Active false USB Device AV Bridge Matrix PRO USB Enabled true USB Frame_Rate 0 USB Resolution 0x0 OK &gt;</pre>	

## network settings get

Returns the device's current network settings, including MAC address, IP address, netmask, and gateway.

Synopsis	<code>network settings get</code>
Example	<pre> <b>network settings get</b> Name:          eth0:WAN MAC Address:   00:04:a3:85:0a:ee IP Address:    10.10.8.116 Netmask:       255.255.255.0 VLAN:          Disabled Gateway:       10.10.8.100 OK &gt; </pre>

## network ping

Sends an ICMP ECHO\_REQUEST to the specified IP address or hostname.

Synopsis	<code>network ping [count &lt;count&gt;] [size &lt;size&gt;] &lt;destination-ip&gt;</code>	
Options	<count>	The number of ECHO_REQUEST packets to send. Default is five packets.
	<size>	The size of each ECHO_REQUEST packet. Default is 56 bytes.
	<destination-ip>	The IP address where the ECHO_REQUEST packets will be sent.
Examples	<pre> &gt;<b>network ping 192.168.1.66</b> PING 192.168.1.66 (192.168.1.66): 56 data bytes 64 bytes from 192.168.1.66: seq=0 ttl=64 time=0.476 ms 64 bytes from 192.168.1.66: seq=1 ttl=64 time=0.416 ms 64 bytes from 192.168.1.66: seq=2 ttl=64 time=0.410 ms 64 bytes from 192.168.1.66: seq=3 ttl=64 time=0.410 ms 64 bytes from 192.168.1.66: seq=4 ttl=64 time=3.112 ms --- 192.168.1.66 ping statistics --- 5 packets transmitted, 5 packets received, 0% packet loss round-trip min/avg/max = 0.410/0.964/3.112 ms &gt; </pre> <p>Sends five ECHO_REQUEST packets of 56 bytes each to the host at 192.168.1.66.</p>	
	<pre> &gt;<b>network ping count 10 size 100 192.168.1.1</b> </pre> <p>Sends 10 ECHO_REQUEST packets of 100 bytes each to the host at 192.168.1.1. The command returns data in the same form as above.</p>	



## system standby

Gets, sets, or toggles the camera controller's current standby status.

Cameras currently connected to the video inputs may also go to standby when you set `system standby on`. This depends on how the device is configured.

Synopsis	<code>system standby { get   on   off   toggle }</code>	
Options	<code>get</code>	Returns the device's current standby status.
	<code>on</code>	Sets the device to standby mode.
	<code>off</code>	Brings the device out of standby mode.
	<code>toggle</code>	Changes the device's standby status.
Examples	<b><code>system standby get</code></b> Returns the factory reset status in this form: <pre>standby:      off</pre> (the device is not in standby mode.)	
	<b><code>system standby on</code></b> Immediately sets the device to standby mode.	


## system reboot

Reboots the system either immediately or after the specified delay. Note that a reboot is required when resetting the system to factory defaults (`system factory-reset`).

Synopsis	<code>system reboot [&lt;seconds&gt;]</code>	
Options	<code>&lt;seconds&gt;</code>	The number of seconds to delay the reboot.
Examples	<pre>&gt;system reboot OK &gt;</pre> The system is going down for reboot NOW! avbmp-D8-80-39-62-A7-C5 Reboots the system immediately.	
	<pre>&gt;system reboot 30</pre> Reboots the system in 30 seconds. The response is in the same form; the system message appears at the end of the delay.	

## system factory-reset

Gets or sets the factory reset status. When the factory reset status is on, the system resets to factory defaults on reboot.

Synopsis	<code>system factory-reset { get   on   off }</code>	
Options	<code>get</code>	Returns the device's current factory reset status.
	<code>on</code>	Enables factory reset on reboot.
	<code>off</code>	Disables factory reset on reboot.
Examples 	<pre>&gt;<b>system factory-reset get</b> factory-reset (software):    off factory-reset (hardware):    off OK &gt;</pre> <p>Returns the factory reset status.</p> <p>This evaluates the most recent <code>system factory-reset on</code> or <code>off</code> command, if one has been received, then reads the rear panel DIP switches and returns the status <code>on</code> if they are all in the down position.</p> <pre>&gt;<b>system factory-reset on</b> factory-reset (software):    on factory-reset (hardware):    off OK &gt;</pre> <p>Enables factory reset upon reboot.</p> <p><b>Note</b> <i>This command does not initiate a factory reset. The factory reset takes place on the next reboot.</i></p>	

## history

Returns the most recently issued commands from the current Telnet session. Since many of the programs read user input a line at a time, the command history is used to keep track of these lines and recall historic information.

Synopsis	<code>history &lt;limit&gt;</code>	
Options	<code>&lt;limit&gt;</code>	Integer value specifying the maximum number of commands to return.
Examples	<b>history</b> Displays the current command buffer.	
	<b>history 5</b> Sets the history command buffer to remember the last 5 unique entries.	
Additional information	<p>You can navigate the command history using the up and down arrow keys.</p> <p>This command supports the expansion functionality from which previous commands can be recalled from within a single session. History expansion is performed immediately after a complete line is read.</p> <p>Examples of history expansion:</p> <ul style="list-style-type: none"> <li>* <b>!!</b> Substitute the last command line.</li> <li>* <b>!4</b> Substitute the 4th command line (absolute as per 'history' command)</li> <li>* <b>!-3</b> Substitute the command line entered 3 lines before (relative)</li> </ul>	



## sleep

Pauses command execution for the specified number of milliseconds.

Synopsis	<code>sleep &lt;milliseconds&gt;</code>	
Options	<code>&lt;milliseconds&gt;</code>	The number of milliseconds (1 - 10000) to pause
Example	<b>sleep 7000</b> Pause for 7 seconds (7000 milliseconds) before returning.	

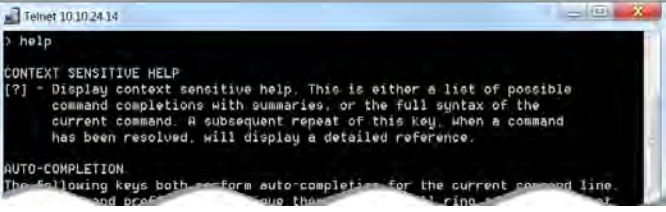
## version

Returns the current firmware version.

Synopsis	<code>version</code>
Example	<p><b>version</b></p> <p>Returns current firmware version information in a form something like this:</p> <pre>Audio          1.09-1.07 Commit         6d0f5f005ec720c6b1f83c16686df348f2f7ebb9 System Version AVBMP 2.0.0 Video          1.10 OK &gt;</pre>

## help

Displays an overview of the CLI syntax.

Synopsis	help
Example	<p><b>help</b></p>  <pre> Telnet 10.10.24.14 &gt; help CONTEXT SENSITIVE HELP [?] - Display context sensitive help. This is either a list of possible command completions with summaries, or the full syntax of the current command. A subsequent repeat of this key, when a command has been resolved, will display a detailed reference.  AUTO-COMPLETION The following keys both perform auto-completion for the current command line. The following keys both perform auto-completion for the current command line. </pre>

**Note:**

Use ? as a command parameter to see information about a given command's syntax.

## exit

Ends the command session. If the session is via Telnet, the Telnet socket closes as the session ends. If the session is via RS-232 serial connection, the session ends and a new session automatically opens.

Synopsis	exit
Example	<b>exit</b>

## Specifications

### Inputs and Outputs

<b>Cameras and Video</b>			
<b>Camera Inputs</b>	3 EZ Power Video (Vaddio proprietary) 3 HDMI	<b>Other Video Inputs (PC or Other Source)</b>	1 HDMI 1 RGBHV
<b>Program Outputs</b>	HDMI Out HSDS (Vaddio proprietary)	<b>Streaming Outputs</b>	USB 2.0; UVC and UAC drivers IP; H.264 and AAC audio encoding; RTSP format
<b>EZ Power Video In Resolutions</b>	1080p/60/59.94/50/30/25 1080i/59.94/50 720p/60/59.94/50	<b>Program HSDS Out to QC Resolutions</b>	1080p/25/30/50/59.94/60 720p/25/30/50/59.94/60
<b>HDMI In Resolutions (Cameras 1 - 3 + PC)</b>	1080p/60/59.94/50 1080i/59.94/50 720p/60/59.94/50 1440x900/60 1360x768/60 1280x800/60	<b>Program HDMI Out Resolutions</b>	1080p/25/30/50/59.94/60 720p/25/30/50/59.94/60
<b>RGBHV in Resolutions (PC)</b>	1360x768/60 1280x800/60 1280x768/60 1280x720/60 1024x768/60	<b>Streaming Resolutions</b>	USB 2.0 Stream: Auto-negotiated up to 1080p/30 IP Stream: Up to 1080p/30
<b>Audio</b>			
<b>Inputs</b>	Four EasyMIC ports Four mic/line inputs with 48V phantom power available	<b>Outputs</b>	Four line-level outputs HDMI audio supported on HDMI output Streaming audio supported on streaming outputs
<b>Mic/Line Inputs (Balanced)</b>		<b>Line Outputs (Balanced)</b>	
<b>Frequency Response</b>	20Hz to 20 KHz	<b>Frequency Response</b>	20Hz to 20 KHz
<b>Dynamic Range</b>	>90 dB	<b>Dynamic Range</b>	>90 dB
<b>THD + Noise</b>	< 0.1% (Mic Level)	<b>THD + Noise</b>	< 0.2%
<b>Impedance</b>	>20 KΩ	<b>Impedance</b>	< 50 Ω
<b>HDMI Audio</b>		<b>IP and USB Streaming Audio</b>	
<b>Channels</b>	Stereo	<b>Channels</b>	Stereo
<b>Sample Rate</b>	48 KHz	<b>Sample Rate</b>	48 KHz
<b>Resolution</b>	16 bit	<b>Resolution</b>	16 bit
<b>Control</b>			
<b>Control Interfaces</b>	Front panel controls Serial API (RS-232 or Telnet) Browser-based web interface	<b>Triggers</b>	10 hardware triggers 4 One-Touch triggers Up to 50 software triggers
<b>Camera Control</b>	RS-232 control connections for cameras 1-3 IP control for a camera connected using the PC Input (Input 4) HDMI connection Operator controls for cameras available in the AV Bridge MATRIX PRO web interface.		

**Power, Physical and Environmental**

<b>Input Power</b>	24 VDC, 3.75 A	<b>Audio line in phantom power</b>	48 VDC, 10 mA
<b>Height</b>	2 RU; 3.47 in. (8.8 cm)	<b>Width</b>	16.7 in. (42.5 cm)
<b>Depth</b>	8 in. (20.3 cm)	<b>Weight</b>	5.6 lb (2.5 kg)
<b>Temperature Humidity</b>	Operating: 32° to 104° F (0° to 40° C); Storage: 23° to 140° F (-5° to 60° C) Operating and Storage: 15% to 80% RH non-condensing		

*Specifications are subject to change without notice.*

## Troubleshooting and Care


If the equipment does not behave as you expect, use this table to determine whether to call Vaddio Technical Support.


### Note

*If the equipment behaves in a way that suggests even a remote possibility of a bad cable, please try a known good, factory made patch cable with the same pin-out. Our technical support team encounters defective factory-made cables from time to time, and we've seen cables that only worked some of the time. A cable may pass a standard continuity check but be unable to pass enough power to the connected device.*

*Crimping tools can crimp unevenly, contacts can break internally, and individual conductors in the cable can break inside the jacketing material. Any of these can cause insufficient or intermittent contact, resulting in a cable that passes a continuity check but does not work when it is routed into place or repositioned.*

(The author would like to confess having made more than a few almost-good cables. It happens.)

What is it doing?	Possible causes	Check and correct
Nothing. The display is off and the buttons do not light up. 	Power is not connected.	Check the connections from the wall outlet to the power supply and from the power supply to the device.
	The wall outlet is not active. (Check by finding out if it powers something else, such as a laptop or phone charger.)	Use a different outlet.
	The device or its power supply is bad.	Contact your reseller or Vaddio Technical Support.
Unable to access the web interface.	The device is not connected to the network.	Check to be sure the network cable is connected. Check using a known good cable.
	The device is not at the IP address you browsed to.	Read the IP address from the front of the device. If it is 169.254.1.1, the device needs to be configured for your network. See <a href="#">Configuring the Device for Your Network</a> .
Unable to log in successfully.	The web interface is out of sync with the unit. This can happen if more than one person is controlling the device.	Use the browser's page refresh button.
	The password has been changed.	Contact your system administrator. If you are the system administrator, call Vaddio Technical Support.
Unable to access the device's stream.	Streaming is not enabled on the device.	Log in to the device's web interface as admin and enable the appropriate stream.

What is it doing?	Possible causes	Check and correct
Unresponsive camera (no video, unable to control the camera, or both)	A cable is connected to the wrong port.	Check and correct cable connections.
	A cable is bad. (This can even be a problem with factory cables.)	Check using a known good cable with the same pin-out.
	There is a problem with the camera.	Refer to the troubleshooting information in the camera manual.
DHCP addresses are not assigned properly when cameras are connected to all three EZPower Video connections.	The AV Bridge MATRIX PRO does not have enough power to drive all three cameras.	Be sure you are using the 24 VDC, 3.75A power supply.
The display connected to the HDMI output shows a pattern of color bars or a blue screen.	Video is muted.	Unmute the video.
The display connected to the HDMI output shows a black screen.	Video is muted.	Unmute the video.
	The Program video source is in standby mode or is disconnected.	Check the camera or other video source.
	"Route Stream to Program Output" is selected and streaming is disabled.	In the admin interface, deselect "Route Stream to Program Output" or enable at least one of the streams (reboot required).
Various audio issues. Microphones requiring phantom power do not perform properly.	Wrong power supply connected. 	Be sure you are using the 24 VDC, 3.75A power supply. According to the engineer who identified this problem, it looks just like a 12 VDC power supply, but works much better.

## Operation, Storage, and Care

For smears or smudges on the product, wipe with a clean, soft cloth. Do not use any abrasive chemicals.

Keep this device away from food and liquids.

Do not operate or store the device under any of the following conditions:

- Temperatures above 40°C (104°F) or below 0°C (32°F)
- High humidity, condensing or wet environments
- Inclement weather
- Severe vibration
- In a microwave oven
- Dry environments with an excess of static discharge



Do not attempt to take this product apart. There are no user-serviceable components inside.



## Compliance Statements and Declarations of Conformity

Compliance testing was performed to the following regulations:

FCC Part 15 (15.107, 15.109), Subpart B	Class A
ICES-003, Issue 54: 2012	Class A
EMC Directive 2004/108/EC	Class A
EN 55022: December 2010	Class A
EN 55024: November 2010	Class A
KN22 2008 (CISPR 22: 2006)	Class A
KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)	Class A
IEC 60950-1:2005 (2nd Edition); Am 1: 2009 + Am 2: 2013	Safety
EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013	Safety

### FCC Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B, of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference including interference that may cause undesired operation of the device.

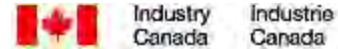
Changes or modifications not expressly approved by Vaddio can affect emission compliance and could void the user's authority to operate this equipment.



### ICES-003 Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.



## European Compliance

This product has been evaluated for electromagnetic compatibility under the EMC Directive for Emissions and Immunity and meets the requirements for a Class A digital device. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Standard(s) To Which Conformity Is Declared:



**EMC Directive 2004/108/EC**

**EN 55022: December 2010**

**EN 55024: November 2010**

EN 61000-4-2: 1995 + Amendments A1: 1998 + A2: 2001

EN 61000-4-3: 2006 + A1: 2008

EN 61000-4-4: 2004 + Corrigendum 2006

EN 61000-4-5: 2006

EN 61000-4-6: 2009

EN 61000-4-8: 2010

EN 61000-4-11: 2004

**KN22 2008 (CISPR 22: 2006)**

**KN24 2008 (CISPR 24: 1997 + A1: 2000 + A2: 2002)**

EN 61000-4-2

EN 61000-4-3

EN 61000-4-4

EN 61000-4-5

EN 61000-4-6

EN 61000-4-8

EN 61000-4-11

**IEC 60950-1: 2005 (2nd Edition); Am 1: 2009 + Am 2: 2013**

**EN 60950-1: 2006 + A11: 2009 + A1: 2010 + A12: 2011 + A2: 2013**

Conducted and Radiated Emissions

Immunity

Electrostatic Discharge

Radiated Immunity

Electrical Fast Transients

Surge Immunity

Conducted Immunity

Power Frequency Magnetic Field

Voltage Dips, Interrupts and Fluctuations

Conducted and Radiated Emissions

IT Immunity Characteristics

Electrostatic Discharge

Radiated Immunity

Electrical Fast Transients

Surge Immunity

Conducted Immunity

Power Frequency Magnetic Field

Voltage Dips, Interrupts and Fluctuations

Safety

Safety

## Warranty Information

See Vaddio Warranty, Service and Return Policies posted on [support.vaddio.com](http://support.vaddio.com) for complete details.

**Hardware\* warranty:** Two (2) year limited warranty on all parts and labor for Vaddio manufactured products. Vaddio warrants its manufactured products against defects in materials and workmanship for a period of two years from the day of purchase, to the original purchaser, if Vaddio receives notice of such defects during the warranty. Vaddio, at its option, will repair or replace products that prove to be defective. Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.

**Exclusions:** The above warranty shall not apply to defects resulting from improper or inadequate maintenance by the customer, customers applied software or interfacing, unauthorized modifications or misuse, mishandling, operation outside the normal environmental specifications for the product, use of the incorrect power supply, modified power supply or improper site operation and maintenance. OEM and special order products manufactured by other companies are excluded and are covered by the manufacturer's warranty.

**Vaddio Service Department:** Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty. If the product is out of warranty, Vaddio will test then repair the product or products. The cost of parts and labor charge will be estimated by a technician and confirmed by the customer prior to repair. All components must be returned for testing as a complete unit. Vaddio will not accept responsibility for shipment after it has left the premises.

**Vaddio Technical Support:** Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted by email at [support@vaddio.com](mailto:support@vaddio.com) or by phone at one of the phone numbers listed on [support.vaddio.com](http://support.vaddio.com).

**Return Material Authorization (RMA) number:** Before returning a product for repair or replacement request an RMA from Vaddio's technical support. Provide the technician with a return phone number, e-mail address, shipping address, product serial numbers and original purchase order number. Describe the reason for repairs or returns as well as the date of purchase. See the General RMA Terms and Procedures section for more information. RMAs are valid for 30 days and will be issued to Vaddio dealers only. End users must return products through Vaddio dealers. Include the assigned RMA number in all correspondence with Vaddio. Write the assigned RMA number clearly on the shipping label of the box when returning the product. All products returned for credit are subject to a restocking charge. Special order product are non-cancelable and not returnable.

**Voided warranty:** The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, use of incorrect power supply, use of a modified power supply or unauthorized repair.

**Shipping and handling:** Vaddio will not pay for inbound shipping transportation or insurance charges or accept any responsibility for laws and ordinances from inbound transit. Vaddio will pay for outbound shipping, transportation, and insurance charges for all items under warranty but will not assume responsibility for loss and/or damage by the outbound freight carrier. If the return shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. Contact your carrier immediately.

**Products not under warranty:** Payment arrangements are required before outbound shipment for all out of warranty products.

## Photo Credits

European Space Agency (ESA) astronaut Samantha Cristoforetti, a Flight Engineer with Expedition 42, photographs the Earth through a window in the Cupola on the International Space Station

By NASA - [https://blogs.nasa.gov/ISS\\_Science\\_Blog/2015/03/06/women-in-space-part-two-whats-gender-got-to-do-with-it/](https://blogs.nasa.gov/ISS_Science_Blog/2015/03/06/women-in-space-part-two-whats-gender-got-to-do-with-it/), Public Domain, <https://commons.wikimedia.org/w/index.php?curid=38834990>

Carl Sagan, Bruce Murray, Louis Friedman (founders) and Harry Ashmore (advisor), on the occasion of signing the papers formally incorporating The Planetary Society

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Expedition 42 on orbit crew portrait, International Space Station, Mar. 7, 2015 – Barry Wilmore (Commander) Top, Upside down, to the right cosmonaut Elena Serova, & ESA European Space Agency Samantha Cristoforetti. Bottom center US astronaut Terry Virts, top left cosmonauts Alexander Samokutyaev and Anton Shkaplerov.

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European Space Agency astronaut Luca Parmitano, Expedition 36 flight engineer, outside the International Space Station

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Chris Cassidy, Luca Parmitano, and Karen Nyberg, ISS, 2013. Photo Credit: NASA

Nicolas Altobelli, Rosetta Scientist at ESA's European Space Astronomy Centre, Villanueva de la Cañada, Madrid, Spain

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