

# IP Mini-Converters

## JPEG 2000 IP Video/Audio Converters



## Installation and Operation Guide

Version 1.0  
Published September 5, 2017



# Notices

---

## Trademarks

---

AJA® and Because it matters.® are registered trademarks of AJA Video Systems, Inc. for use with most AJA products. AJA™ is a trademark of AJA Video Systems, Inc. for use with recorder, router, software and camera products. Because it matters.™ is a trademark of AJA Video Systems, Inc. for use with camera products.

CION®, Corvid Ultra®, lo®, Ki Pro®, KONA®, KUMO®, ROI® and T-Tap® are registered trademarks of AJA Video Systems, Inc.

AJA Control Room™, KiStor™, Science of the Beautiful™, TruScale™, TruZoom™, V2Analog™ and V2Digital™ are trademarks of AJA Video Systems, Inc.

AirPort, Apple, Apple logo, AppleShare, AppleTalk, FireWire, iPod, iPod touch, Mac, Macintosh and ProRes, are registered trademarks of Apple Inc. Final Cut Pro, QuickTime and QuickTime logo are trademarks of Apple Inc.

Avid, Avid DNxHD and Media Composer are registered trademarks of Avid Technology, Inc.

Adobe is a registered trademark of Adobe Systems Incorporated in the United States and/or other countries.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing, LLC.

DVI is a registered trademark of DDWG.

TASCAM is a registered trademark of TEAC Corporation.

Dolby and the double-D Dolby logo are registered trademarks of Dolby Laboratories Licensing Corporation.

openGear® Ross, ROSS, ROSS®, and MLE are registered trademarks of Ross Video.

DashBoard Control System™ is a trademark of Ross Video.

All other trademarks are the property of their respective holders.

## Copyright

---

Copyright © 2017 AJA Video Systems, Inc. All rights reserved. All information in this manual is subject to change without notice. No part of this document may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopying or recording, without the express written permission of AJA Video Systems, Inc.

## Contacting AJA Support

---

When calling for support, have all information at hand prior to calling. To contact AJA for sales or support, use any of the following methods:

Telephone	+1.530.271.3190
FAX	+1.530.271.3140
Web	<a href="https://www.aja.com">https://www.aja.com</a>
Support Email	<a href="mailto:support@aja.com">support@aja.com</a>
Sales Email	<a href="mailto:sales@aja.com">sales@aja.com</a>

# Contents

---

Notices . . . . .	2
Trademarks . . . . .	2
Copyright . . . . .	2
Contacting AJA Support . . . . .	2
<b>Chapter 1 – Introduction . . . . .</b>	<b>5</b>
In This Manual . . . . .	5
Overview . . . . .	5
Features . . . . .	6
System Requirements . . . . .	7
Simplified Block Diagram . . . . .	7
I/O Connections . . . . .	8
Ready, Lock, and LAN LED Behavior . . . . .	9
Installation Overview . . . . .	10
Initial Installation for IP Mini-Converters . . . . .	11
<b>Chapter 2 – eMini-Setup . . . . .</b>	<b>12</b>
Overview . . . . .	12
Acquiring eMini-Setup . . . . .	12
eMini-Setup Documentation . . . . .	12
Installing eMini-Setup . . . . .	13
PC Installation . . . . .	13
Mac Installation . . . . .	14
Running eMini-Setup . . . . .	14
PC Startup . . . . .	14
Mac Startup . . . . .	15
Operating eMini-Setup . . . . .	15
Control Network Tab Screen . . . . .	16
Media Network Tab Screen . . . . .	17
Update Tab Screen . . . . .	18
Firmware Update Procedure . . . . .	18
Info Tab Screen . . . . .	19
<b>Chapter 3 – IP Mini-Converter Web Interface . . . . .</b>	<b>20</b>
Overview . . . . .	20
Remote Control Overview . . . . .	20
Networking Option – Using Only the Media LAN Port for Control and Media Settings . . . . .	20
Web Browser via Ethernet . . . . .	21
General Screen Information . . . . .	21
IPT-1G-HDMI Status Screen . . . . .	22
IPR-1G-HDMI Status Screen . . . . .	23
Config Screen for IPT-1G Models . . . . .	24
Config Screen for IPR-1G Models . . . . .	26
Presets Screen . . . . .	28
Presets Screen Controls . . . . .	28
Network Screen . . . . .	29
Firmware Screen . . . . .	31
Downloading and Installing Updated Firmware . . . . .	31
Booting the IP Mini-Converters from the Safeboot Firmware . . . . .	32
<b>Appendix A – Frequently Asked Questions (FAQ) . . . . .</b>	<b>34</b>
<b>Appendix B – Example Configurations . . . . .</b>	<b>36</b>
<b>Appendix C – Specifications . . . . .</b>	<b>37</b>
IPT-1G-SDI Tech Specs . . . . .	37
IPT-1G-HDMI Tech Specs . . . . .	38
IPR-1G-SDI Tech Specs . . . . .	39

IPR-1G-HDMI Tech Specs . . . . .	40
Appendix D – Safety and Compliance . . . . .	41
Index. . . . .	49

# Chapter 1 – Introduction

---

## In This Manual

---

Chapter 1 - Introduction	Introduces the units through an overview, listing of features, system requirements, a block diagram, the I/O connections, and an installation overview
Chapter 2 - eMini-Setup	Describes using the eMini-Setup application to initially communicate with and configure an IP Mini-Converter over a direct USB connection.
Chapter 3 - IP Mini-Converter Web Interface	Describes the web interface, which is used to further configure and more fully control the unit.
Appendix A - FAQ	Provides a set of frequently asked questions along with their answers.
Appendix B - Example Configurations	Provides three diagrams with essential configuration information for point-to-point and multicast applications using static and DHCP IP addresses.
Appendix C - Specifications	Provides technical specifications for each of the four IP Mini-Converter models.
Appendix D - Safety and Compliance	Covers all necessary safety and compliance information.
Index	The index offers an alphabetized topical reference point into the content of the manual, mapped to the corresponding page numbers.

## Overview

---

AJA IP Mini-Converters are designed for point of use applications for encoding, transport, reception and decoding of IP based video sources. Rugged, compact and fanless, the IP Mini-Converters (models IPT-1G-SDI, IPT-1G-HDMI, IPR-1G-SDI, and IPR-1G-HDMI) provide the bridge between Baseband and IP video for a range of applications, such as transporting and receiving video over IP to or from remote facilities in post production, source monitoring, digital signage, and video walls. IP Mini-Converters ease the cost of extensive monitoring distribution in a facility.

The IPT-1G-SDI encodes SDI video and audio as VSF TR-01 compliant JPEG 2000 encapsulated within an MPEG-2 Transport Stream. Similarly, the IPT-1G-HDMI encodes HDMI 1.4 video and audio as VSF TR-01 compliant JPEG 2000 encapsulated within an MPEG-2 Transport Stream.

The IPR-1G-SDI decodes VSF TR-01 compliant JPEG 2000, and formats the data for SDI output. The IPR-1G-HDMI decodes VSF TR-01 compliant JPEG 2000, and formats the data for HDMI 1.4 output. The audio associated with the video stream is extracted, synchronized, and then embedded into the HDMI or SDI signal as well as output on an analog RCA audio interface.

# Features

---

## IPT-1G-SDI

---

### 3G-SDI to JPEG 2000 IP Video and Audio Converter

- 1x 3G-SDI BNC output with 4:2:2 10-bits/pixel
- 1 x 3G-SDI BNC loop-through
- 1x RJ-45 (IEC 60603-7) for 10/100/1000Base-T Ethernet media output
- Essence support: VSF TR-01 compliant JPEG 2000
- Rugged, fanless, portable design
- Full 10-bit pixel processing pipeline
- Network (LAN) control and status
- Quick network setup with AJA eMini-Setup software

## IPT-1G-HDMI

---

### HDMI to JPEG 2000 IP Video and Audio Converter

- Full size HDMI 1.4 video input
- 1x RJ-45 (IEC 60603-7) for 10/100/1000Base-T Ethernet media output
- Essence support: VSF TR-01 compliant JPEG 2000
- Rugged, fanless, portable design
- Full 10-bit pixel processing pipeline
- Network (LAN) control and status
- Quick network setup with AJA eMini-Setup software

## IPR-1G-SDI

---

### JPEG 2000 IP Video and Audio to 3G-SDI Converter

- 1x RJ-45 (IEC 60603-7) for 10/100/1000Base-T Ethernet media input
- Essence support: VSF TR-01 compliant JPEG 2000
- Rugged, fanless design
- 2x 3G-SDI BNC output with 4:2:2 10-bits/pixel
- Embedded and analog audio outputs
- Full 10-bit pixel processing pipeline
- Network (LAN) control and status
- Quick network setup with AJA eMini-Setup software

## IPR-1G-HDMI

---

### JPEG 2000 IP Video and Audio to HDMI Converter

- 1x RJ-45 (IEC 60603-7) for 10/100/1000Base-T Ethernet media input
- Essence support: VSF TR-01 compliant JPEG 2000
- Rugged, fanless, portable design
- Full size HDMI 1.4 video output
- Embedded and analog audio outputs
- Full 10-bit pixel processing pipeline
- Network (LAN) control and status
- Quick network setup with AJA eMini-Setup software

## Software

- Built in web server for full remote control and configuration
- eMini-Setup software with a USB connection for initial configuration

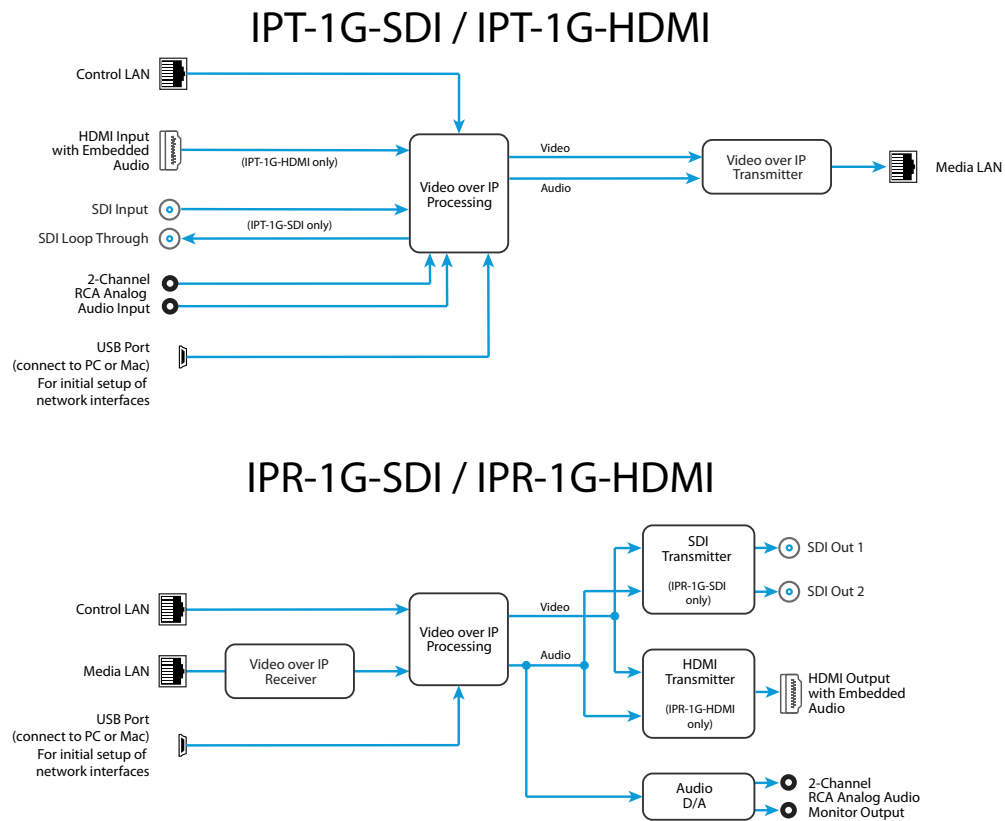
## System Requirements

Remote computer configuration and control is accomplished using the IP Mini-Converter's internal web server. A Mac OSX or Windows computer with a web browser installed is all that is required. A USB port is also required for the initial configuration using eMini-Setup.

*NOTE: Safari is the preferred web browser for control on the Mac, and additionally Chrome and Firefox on Windows. Other web browsers may work, but AJA cannot guarantee consistent operation for all web browsers or web browser versions.*

## Simplified Block Diagram

Figure 1. IP Mini-Converters Simplified Block Diagram



# I/O Connections

Figure 2. IPT-1G-SDI Connections



Figure 3. IPT-1G-HDMI Connections





Figure 4. IPR-1G-SDI Connections



Figure 5. IPR-1G-HDMI Connections



## Ready, Lock, and LAN LED Behavior

The Ready LED illuminates green when the unit has finished powering up and is ready to use.

The Lock LED behavior is as follows:

- Off (indicating not locked) when no Program Clock Reference (PCR) has been received.

- Illuminated amber when in the process of locking (PCR has been received, but Phase-Locked Loop (PLL) and/or genlock are not yet locked).
- Illuminated green when the PLL and genlock are both locked.

**NOTE:** *Achieving locked status may take 5 or more minutes depending on network jitter behavior. The output of the unit will still function during the locking period.*

The Control LAN and Media LAN LEDs illuminate to indicate a link. Blinking indicates activity. Yellow and Green indicate a 10Mbps connection. Green only indicates a 100Mbps connection. Yellow only indicates a 1000Mbps connection.

## Installation Overview

---

Detailed instructions are provided in "[Chapter 2 – eMini-Setup](#)" on page 12 and "[Chapter 3 – IP Mini-Converter Web Interface](#)" on page 20. As an overview, however, IP Mini-Converters installation typically consists of the following steps:

1. Apply power to the unit.
2. Determine the unit's IP address (DHCP), or initially configure its network settings using eMini-Setup and a USB connection. This allows you to then access the unit's user interface through a web browser.
3. Close the eMini-Setup application, and disconnect the USB cable.
4. Connect the unit to your Ethernet network. Use the Control LAN to make configuration changes. Use the Media LAN for the incoming (for IPR-1G) or outgoing (for IPT-1G) video signal over IP stream.
5. Launch a web browser and access the IP Mini-Converters using its IP address. Continue device configuration as needed from the web interface.
6. Connect the IP Mini-Converters output.
7. Configure the IP Mini-Converters basic operation.

The current IP Mini-Converters configuration settings are retained, even when powered off, so subsequent installations for an identical decoding or encoding session can be done with the following simple steps:

1. Apply power to the IP Mini-Converters.
2. Connect the unit to your network using the Control LAN and Media LAN and connect the unit's output.

**NOTE:** *Two LAN connections to the unit are not necessarily required on an ongoing basis. If it is desirable for your installation, after the IP Mini-Converters is set up, you can access all control parameters through the Media LAN with the appropriate network configuration. See "[Networking Option – Using Only the Media LAN Port for Control and Media Settings](#)" on page 20 for more information.*

**NOTE:** *The IP Mini-Converters pack an unprecedented feature set into mini converter boxes. As a result, the units use approximately 12 watts of power. They will be very warm to the touch, which is normal. The units are engineered to operate across the full temperature range, from 0 to 40 degrees C.*

**NOTE:** *For highest reliability, the mini converters rely on convection cooling instead of using a built-in fan. Therefore, when installing the units, mount in a location where they have access to air for proper cooling. Do not stack the IP Mini-Converters with other mini converters.*

# Initial Installation for IP Mini-Converters

---

## Network Configuration

---

The IP Mini-Converters require a network connection to encode or decode an IP stream. IP Mini-Converters are shipped from the factory with DHCP enabled, so if your network has a DHCP server, by simply connecting the IP Mini-Converters to your network with an Ethernet cable, the DHCP server will assign the units compatible IP addresses.

IP Mini-Converters are shipped from the factory with UPnP (Universal Plug and Play) services enabled, so they are discoverable through Windows Explorer (for networked Windows PCs).

The eMini-Setup application, available as a free download from the AJA website, is used to identify the IP Mini-Converters' current IP addresses, if configured, or to manually set the initial network configuration to work in your environment. Refer below to "[Chapter 2 – eMini-Setup](#)" on page 12 for information about installing and using AJA's eMini-Setup application.

Once configured and connected to your network, the IP Mini-Converters are ready for encoding and decoding.

# Chapter 2 – eMini-Setup

---

## Overview

---

This chapter describes using the eMini-Setup application to initially communicate with and configure an IP Mini-Converter over a direct USB connection. Once configured, the IP Mini-Converter can be accessed via an Ethernet network using a web browser. Subsequently, that device can then be reconfigured over that network, using its IP address and built-in web server.

*NOTE: The eMini-Setup application is only used to setup selected Ethernet capable AJA devices, and cannot be used to connect to or setup other AJA Mini-Converters.*

The general procedure is:

1. Acquire eMini-Setup from the AJA website and install the eMini-Setup application onto a computer.
2. Connect the IP Mini-Converter to that computer's USB port.
3. Launch the eMini-Setup application.
4. Go to the Control Network tab and Media Network tab, where the IP address settings are displayed. You can use the existing DHCP assigned IP address, or it can be changed manually.
5. You can also use eMini-Setup to load firmware to the device, although this can also be done quickly and easily using the web browser interface.

## Acquiring eMini-Setup

---

AJA's eMini-Setup application is available for download from the AJA website.

To download the latest eMini-Setup package, which includes the eMini-Setup application and documentation:

1. Go to:  
<https://www.aja.com/family/software#eminisetup>
2. Click the link corresponding to the version you want to download for Mac or Windows.

## eMini-Setup Documentation

---

Included with the eMini-Setup download is the AJA device's *Installation and Operation Guide*, which can be accessed from the eMini-Setup UI via the Help/Manual drop-down menu. This manual includes eMini-Setup information.

Documentation can also be accessed directly from the Mac eMini-Setup installer in the Documentation folder.

Documentation included with the eMini-Setup application is the version available at the time of distribution. However, AJA's documentation can be updated regularly, so newer versions may exist.

To download just the latest documentation, go to:

<https://www.aja.com/products/mini-converters/ip-converters>

Click the support button and open the Manuals link.

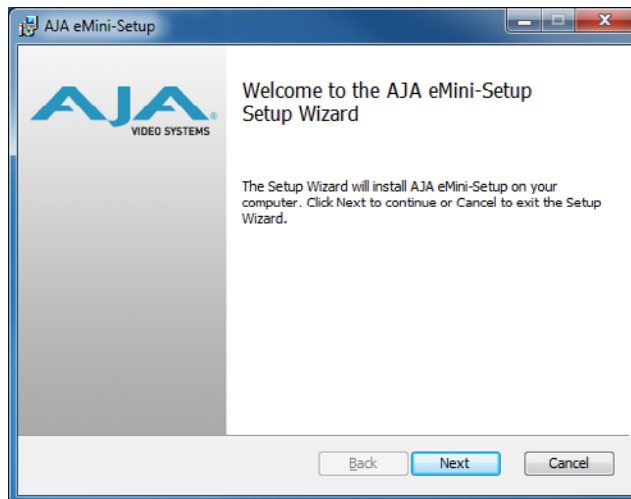
# Installing eMini-Setup

## PC Installation

To install eMini-Setup on a Windows PC:

1. Download the application from the AJA website. See ["Acquiring eMini-Setup" on page 12.](#)
2. Open the AJA\_eMini-Setup\_win.zip file.
3. Double-click on the AJA\_eMini-Setup.msi file.
4. The Setup Wizard will guide you through the installation.

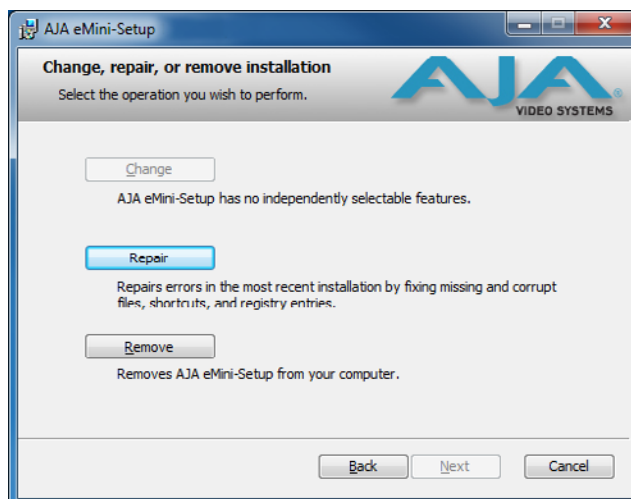
Figure 6. eMini-Setup PC Wizard



5. Click Next to begin. Answer the questions in the subsequent dialogues, including device software installation if displayed. When finished, an AJA eMini-Setup shortcut will be installed on the desktop, and you will be able to locate the eMini-Setup application in the AJA folder in the Programs listing.

**NOTE:** If the eMini-Setup application already exists on the PC, a different Setup Wizard appears.

Figure 7. eMini-Setup Wizard, Re-installation



With this screen you can **Repair** (reinstall) or **Remove** (uninstall) eMini-Setup on the PC.

## Mac Installation

To install the application on a Mac:

*NOTE: Mac computers must be Intel-based (G5, G4 and earlier models will not work with eMini-Setup).*

1. Download the application from the AJA website. See "[Acquiring eMini-Setup](#)" on page 12.
2. Unzip the file.
3. Double-click on the AJA eMini-Setup.dmg file.
4. Answer the prompt and a utility program will be launched.

Figure 8. eMini-Setup Mac Installer



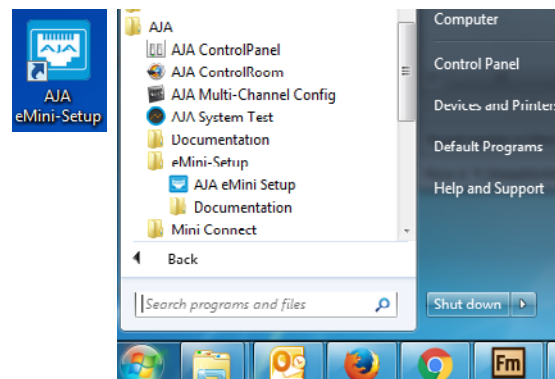
5. To complete the installation drag the "AJA eMini-Setup" icon to the Applications folder.

## Running eMini-Setup

Connect your Ethernet capable AJA device to the PC or Mac via the supplied USB cable, and then connect the external power supply (supplied) to that AJA device.

## PC Startup

To run eMini-Setup on a PC, double-click on the AJA eMini-Setup icon on your desktop, or open the AJA folder in the program list and click on the AJA eMini-Setup application located inside the eMini-Setup folder.



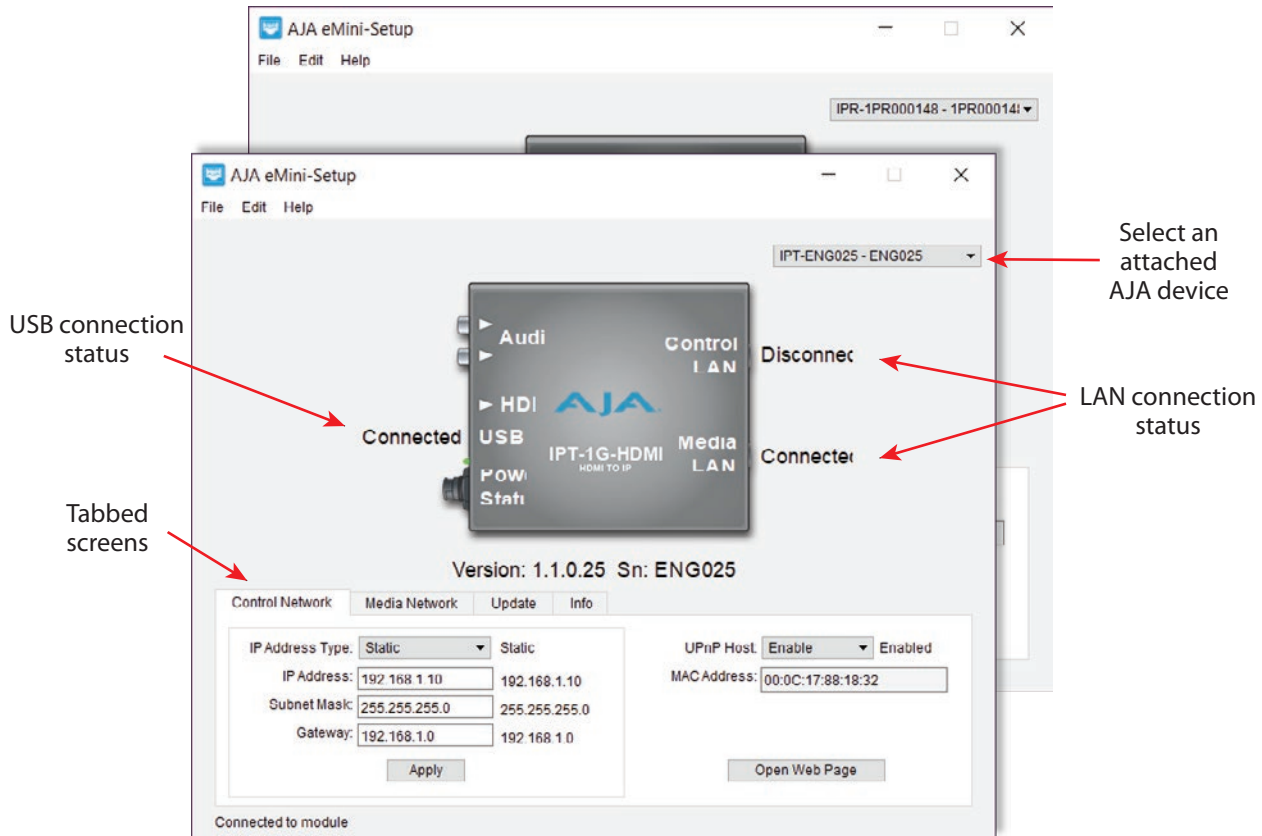
## Mac Startup

To run eMini-Setup on a Mac, open the Applications folder and locate the AJA eMini-Setup application. Double-click the application to launch it.

## Operating eMini-Setup

The eMini-Setup application provides a graphical user interface for viewing settings, modifying settings, and updating software.

Figure 9. Example eMini-Setup Screen



Selecting an AJA device from the pull down menu on the upper right causes eMini-Setup to connect to the selected AJA device.

**Version** - The version of firmware installed in the AJA device is displayed below the graphic.

**Sn** - This is the factory set unique serial number of your AJA device. If you ever call AJA Support for service, you may be asked for this number.

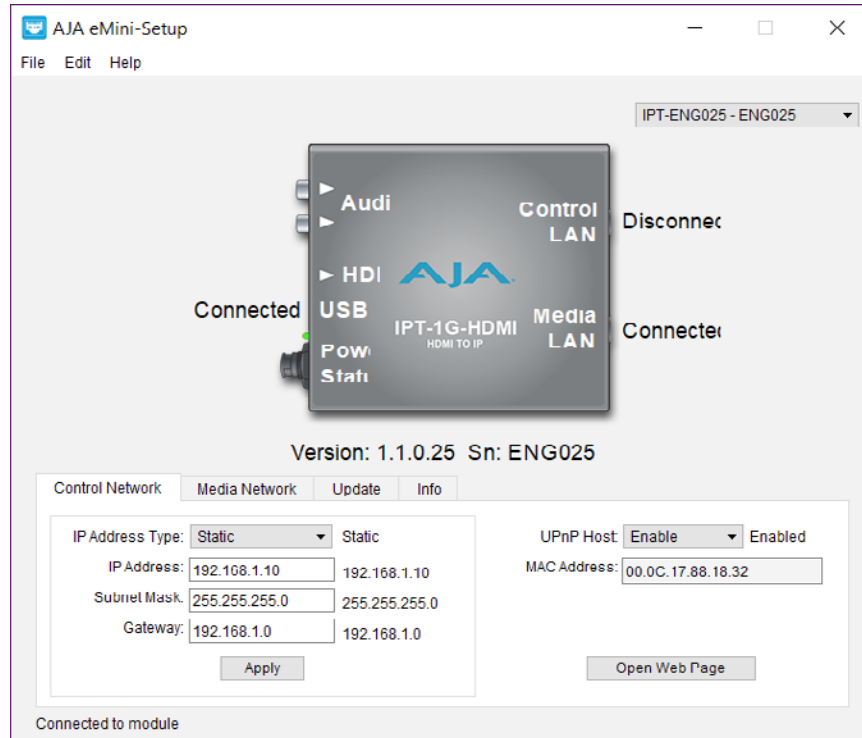
A status field at the bottom of the screen shows if the eMini-Setup application is connected and communicating with an AJA device.

**File Menu** - The File drop-down menu on the eMini-Setup application bar has a Revert to Factory Settings menu item that allows you to change the settings back to the AJA device's factory defaults.

**Edit Menu** - The Edit drop-down menu has standard Cut, Copy and Paste functions for editing text.

**Help Menu** - The Help drop-down menu has a link to the AJA device's manual.

# Control Network Tab Screen



Use this Control Network tab to change the network setup on the connected AJA device. You must click the Apply button to initiate any network configuration changes.

**IP Address Type** - Choose from DHCP or Static IP Address.

**NOTE:** A basic setup would be to run an Ethernet cable directly between the device and your laptop and set both the computer and IPT/IPR to sequential static IP addresses. This provides a rapid way to set up to access the web user interface.

**IP Address** - The current IP Address is displayed. A different IP address can be entered.

**Subnet Mask** - The current Subnet Mask is displayed. A different subnet mask can be entered.

**Gateway** - The current Gateway address is displayed. A different gateway address can be entered.

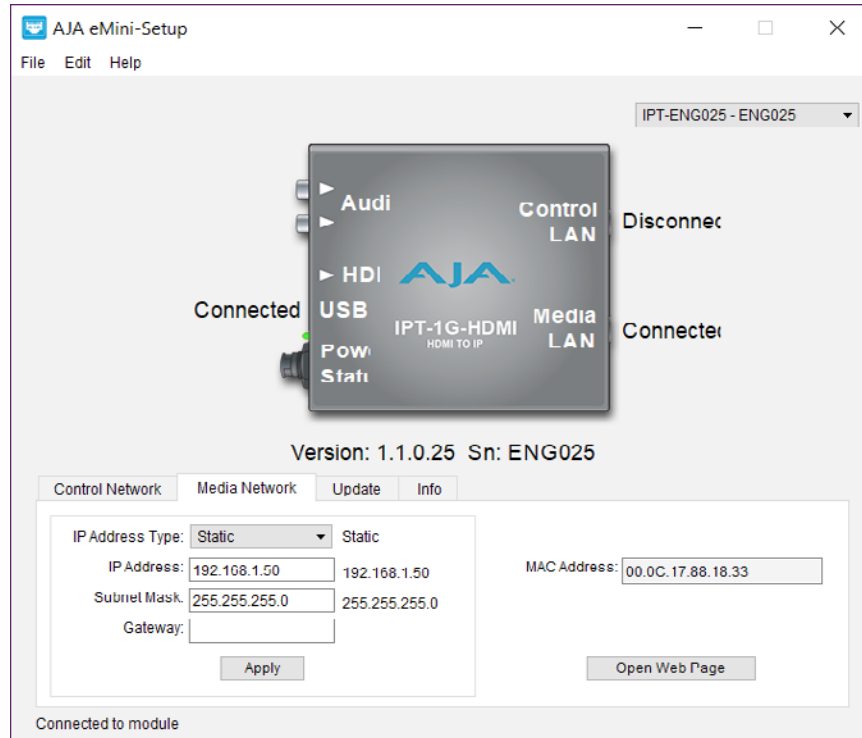
**UPnP Host** - Choose from Enable or Disable to control whether the AJA device makes itself visible for Windows network browsing.

**MAC Address** - This is the permanent MAC address of the Control LAN Ethernet port of the AJA device.

**Open Web Page** - Opens the IP Mini-Converter's web interface in a web browser.



# Media Network Tab Screen



Use this Media Network tab to change the media network setup on the connected AJA device. You must click the Apply button to initiate any network configuration changes.

**IP Address Type** - Choose from DHCP or Static IP Address.

**NOTE:** If you intend to directly connect an IPT to an IPR, then you will need to use sequential static IP addresses for both units (Transmit and Receive).

**IP Address** - The current IP Address is displayed. A different IP address can be entered.

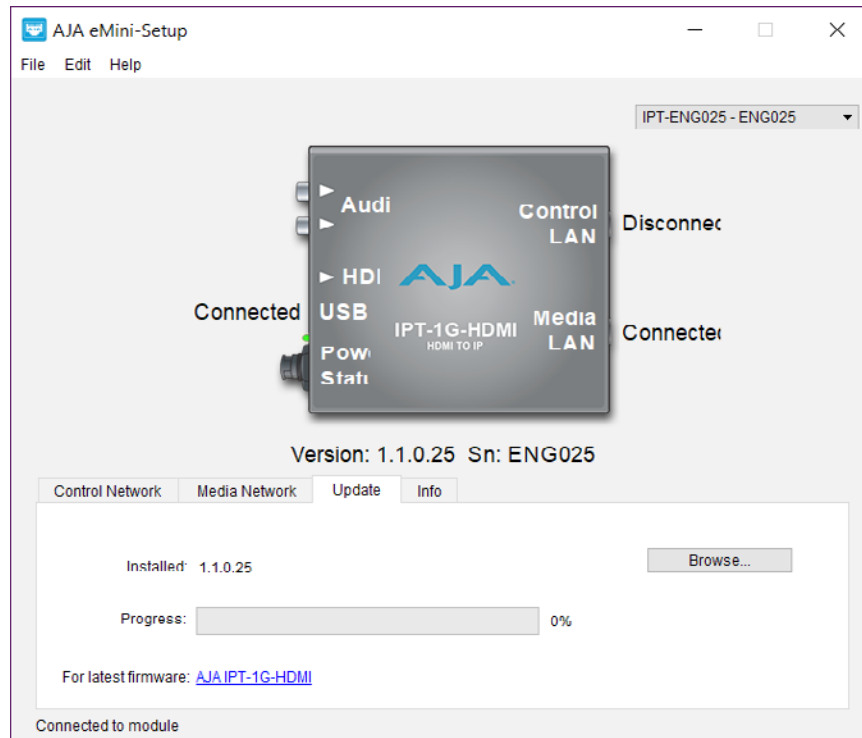
**Subnet Mask** - The current Subnet Mask is displayed. A different subnet mask can be entered.

**Gateway** - The current Gateway address is displayed. A different gateway address can be entered. On the Media LAN, the gateway may be left blank. (A gateway is required on the Control LAN).

**MAC Address** - This is the permanent MAC address of the Media LAN Ethernet port of the AJA device.

**Open Web Page** - Opens the IP Mini-Converter's web interface in a web browser.

# Update Tab Screen



Use this Update tab to install new firmware.

**Installed** - This field shows the version of the firmware currently installed.

**Browse** - This button opens a navigation window, allowing you to select the firmware and load that version of firmware into the AJA device's non-volatile memory.

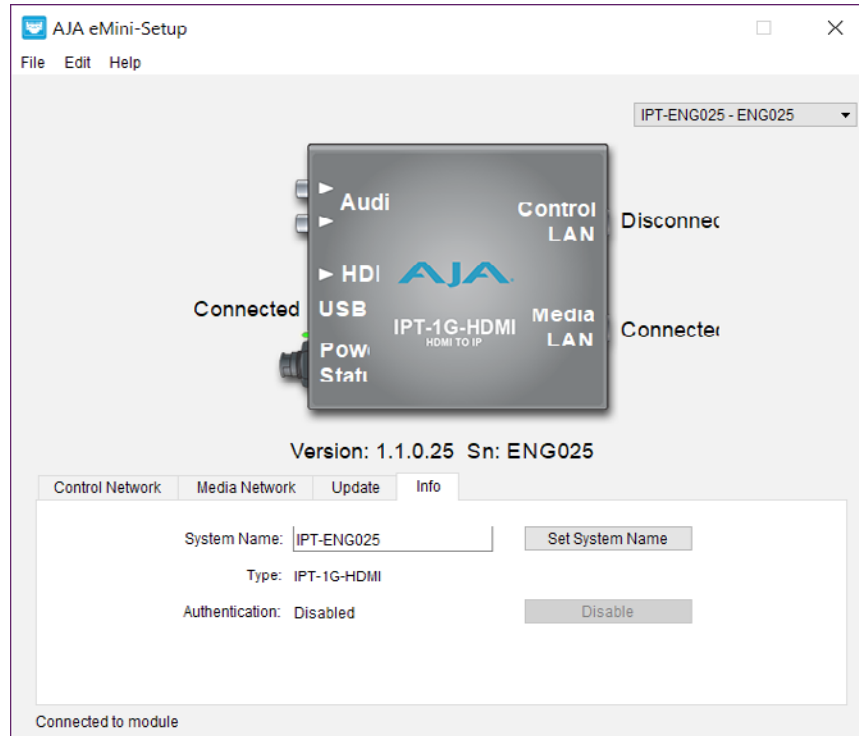
**Progress** - This indicator bar shows the progress of firmware installation.

## Firmware Update Procedure

1. Check the AJA website for new firmware.
2. If new software is found, download it and uncompress the file archive (.zip).
3. Connect the device to a Mac or PC via a USB port on the computer.
4. Click the Update tab. Click the Browse button. Navigate to the firmware (.ajas extension), open it, and confirm the update. Progress will be shown via the "Progress" bar.
5. After the update, the AJA device must be rebooted by clicking on the Reboot button in the prompt window.

See also: "[Firmware Screen](#)" on [page 31](#) regarding the process of working with firmware with the IP Mini-Converter's Web UI.

# Info Tab Screen



This tab provides basic information about the connected AJA device. This information is mostly useful when calling AJA Support for service or technical support.

**System Name** - This field allows you to give your AJA device a unique name. This can be useful if you have several attached to a Mac/PC via USB so you can distinguish between them easily.

**Type** - This is the factory set model name of the AJA device.

**Authentication** - If Authentication has been Enabled on the web browser Access tab, you can disable the security feature by clicking the Disable button.

# Chapter 3 – IP Mini-Converter Web Interface

---

## Overview

---

Once you have established network connectivity with the IP Mini-Converter, you can further configure and more fully control the unit through its web interface. Subsequently, eMini-Setup is no longer required to interface with the unit.

*NOTE: It is often best to remove the USB connection once you have acquired the web interface. This prevents accidentally using eMini-Setup to change parameters already set via the web UI.*

## Remote Control Overview

---

An optimized web server in the IP Mini-Converter allows remote control and parameter setting adjustments via a browser client running on a network wired computer. The network can be a closed local area network, a direct connection between an IP Mini-Converter and a computer, or even exposed through a firewall to a WAN.

Each IP Mini-Converter uses a standard RJ-45 connector for the LAN connection. For 10/100 Mbps, the LAN connection uses Auto MDI-X. For 1000 Mbps, the LAN connection uses standard straight-through CAT 5 Ethernet cables or null-modem (cross-over) cables without any configuration or strapping required.

*NOTE: Safari is the preferred web browser for control on the Mac, and additionally Chrome and Firefox on Windows. Other web browsers may work, but AJA cannot guarantee consistent operation for all web browsers or web browser versions.*

To connect to the IP Mini-Converter, attach the unit to your network and enter its Control Network IP address into the web browser. If authentication has been configured, you may need to enter a password.

## Networking Option – Using Only the Media LAN Port for Control and Media Settings

---

It is an option to setup your network connection to the IP Mini-Converter through an Ethernet switch so that only one Ethernet cable connects directly to the unit.

To implement this approach, follow these general steps:

1. Note the IP address of the unit's Media LAN port. This should be a static IP address.
2. Connect the controlling computer's Ethernet port that is being used to control the unit into an Ethernet switch. This requires disconnecting the Ethernet cable from the Control LAN port of the unit.
3. Connect the Media LAN port of the unit into the Ethernet switch.
4. Connect the source of the Media IP stream into the Ethernet switch.
5. Set the controlling computer's Ethernet port that is being used to control the IP Mini-Converter to DHCP.
6. From the controlling computer, point a web browser to the IP address noted in step 1. The IP Mini-Converter's web user interface displays in the browser.

# Web Browser via Ethernet

---

## General Screen Information

---

All IP Mini-Converter web screens have certain areas and controls in common. Vertical and horizontal scroll bars appear when information extends past the border of a panel.

The round blue Up/Down arrow button on each panel and many status parameters opens and closes that pane or set of parameters.

## Menu Panel

---

On the left of each screen is a Menu panel listing all the available screens. Click any of these links to jump to that screen.

## Alarms Panel

---

Alarms are displayed in a panel on the left side of each screen. Clicking on the arrow opens or closes this panel to show or hide the alarms. Hovering the mouse over an alarm (red) or warning (yellow) may provide additional detail about the condition.

## Connections Panel

---

On the right side of every screen is a Connection panel listing information for the connected IP Mini-Converter.

## Network Panel

---

Also on the right is a Network pane that lists other IP Mini-Converters on the network. The gear icon opens the Network Screen, the same as selecting Network from the Menu Panel. Right-clicking on the name of an IP Mini-Converter in this list allows you to turn on the Identify feature, which will blink all four of the Ethernet LEDs of that device at a 1 second rate.

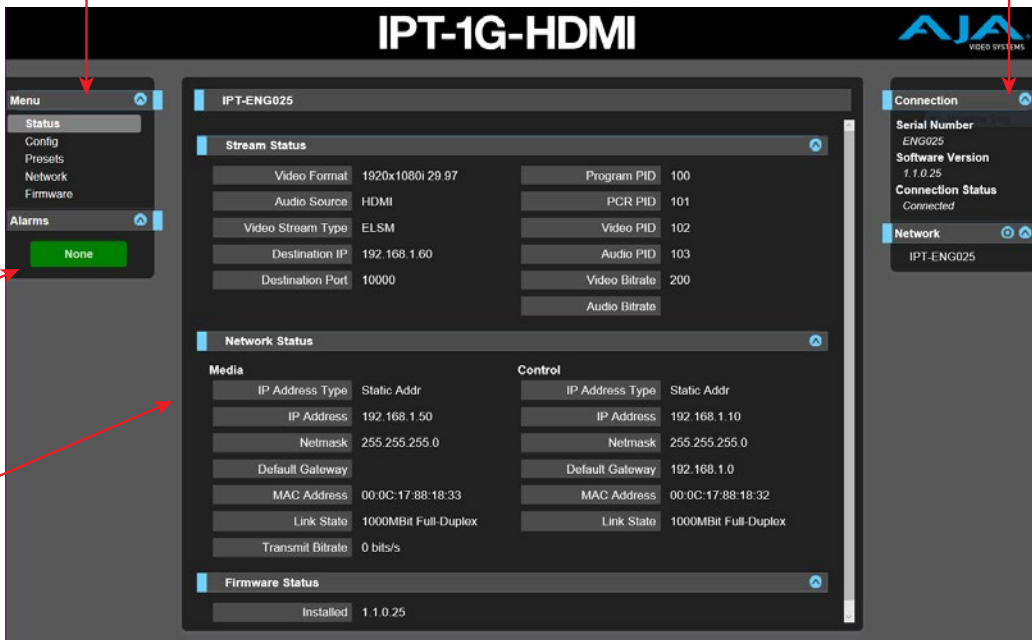
## Parameters and Information

---

The rest of the screen displays all the parameter selections and information available for the selected IP Mini-Converter screen.

Menu of Screens: Click one to display that screen.

S/N, software version and connection status



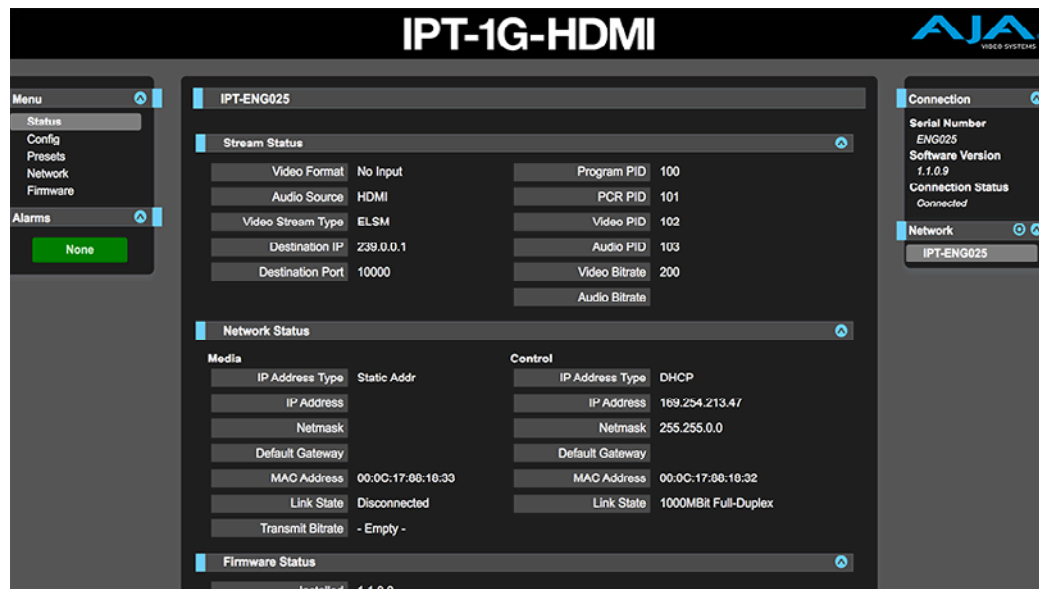
Alarms appear here

Selections and Information

## Dynamic Controls

- Hovering the mouse on a parameter name displays a brief description of its function.
- From the Config Screen, right clicking on the parameter name resets just that parameter to its factory default.
- For values with sliders, fine control is achieved using the arrow keys on the keyboard to move the slider the minimum amount. The numeric value can also be clicked on to enter a specific value.

## IPT-1G-HDMI Status Screen



The Status screen reports the current status and settings for:

- Stream Status
- Network Status
- Firmware Status

Each group of parameters can be opened or closed.

## IPR-1G-HDMI Status Screen

The screenshot displays the IPR-1G-HDMI status interface. The main content area is titled 'aja-ipr-1g-hdmi-ENG045'. It is divided into three main sections: Input Status, Network Status, and Firmware Status. The Input Status section shows parameters for Destination IP (239.0.0.102), Destination Port (8000), Video Format (1920x1080p 29.97), PLL Status (Locked), Video Stream Type (Non-ELSM), Audio Channels (2), and Audio Bit Depth (24). It also displays Program Num (1), Program PID (100 (0x64)), PCR PID (301 (0x12d)), Video PID (95 (0x5f)), Audio PID (200 (0xc8)), Video Bitrate (128.012 Mbits/s), and Audio Bitrate (2.688 Mbits/s). The Network Status section is split into Media and Control. Media includes IP Address Type (Static Addr), IP Address (172.16.17.34), Netmask (255.255.0.0), Default Gateway, MAC Address (00:0C:17:88:13:5B), Link State (1000MBit Full-Duplex), and Receive Bitrate (156.663 Mbits/s). Control includes IP Address Type (DHCP), IP Address (169.254.192.51), Netmask (255.255.0.0), Default Gateway, MAC Address (00:0C:17:88:13:5A), and Link State (Disconnected). The Firmware Status section shows the installed version as 0.0.0.34-45r. On the left, a 'Menu' sidebar lists Status, Config, Presets, Network, and Firmware, with 'Alarms' set to 'None'. On the right, a 'Connection' sidebar shows Serial Number (ENG045), Software Version (0.0.0.34-45r), and Connection Status (Connected). The AJA VIDEO SYSTEMS logo is in the top right corner.

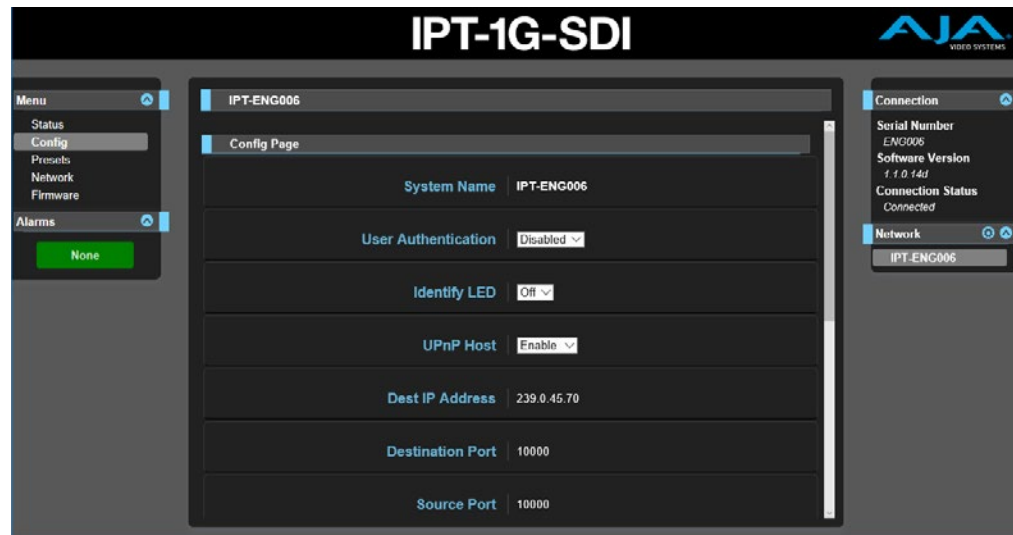
The Status screen reports the current status and settings for:

- Input Status
- Network Status
- Firmware Status

Each group of parameters can be opened or closed.

# Config Screen for IPT-1G Models

Figure 10. IPT-1G-SDI Config Screen 1 of 2



The IPT-1G Config Screen, shown in two parts, has the parameters required for the general operation of the IPT-1G Mini-Converters.

**System Name** - Defines a name for the system and gives it a unique identifier. This name is used when displaying systems through the web interface.

**User Authentication** - Enable or disable user password authentication for the web interface.

**Identify LED** - Enables flashing of the Ethernet LEDs on the unit.

**UPnP Host** - Enable or disable network discovery using Universal Plug and Play.

**Dest IP Address** - (Required) The destination IP address of the stream.

- Default Value: 239.0.0.1

**Destination Port** - (Optional) The UDP destination port of the stream.

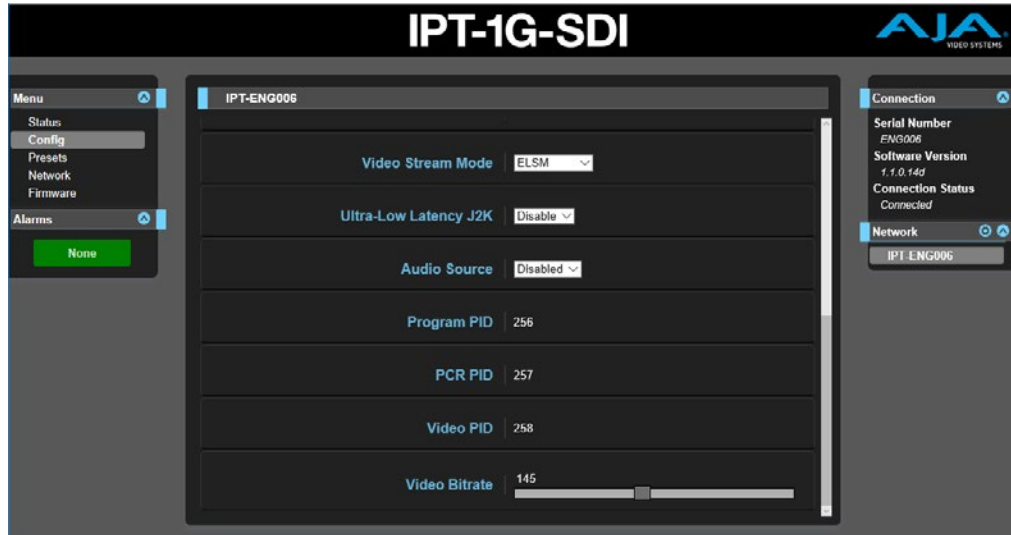
- Value Range: 0 - 65535
- Default Value: 0
- A value of zero implies the destination port number of packets is to be ignored.

**Source Port** - (Optional) The UDP source port of stream.

- Value Range: 0 - 65535
- Default Value: 0
- A value of zero implies the source port number of packets is to be ignored.



Figure 11. IPT-1G-SDI Config Screen 2 of 2



**Video Stream Mode** - Select ELSM or Non-ELSM. Select ELSM to add an elementary stream header to the video stream including image data metadata parameters associated with decoding and displaying the image data.

**Ultra Low Latency J2K** - Select Disable or Enable.

**Audio Source** - Select embedded (SDI or HDMI), Unbalanced RCA, or Disabled.

**Program PID** - Reports the PID of the selected program.

When the **Program Selection** is set to "Select Program PID," an editable **Program PID** field displays directly beneath **Program Selection**. Enter the Program PID of the desired Program, then press Return or Enter.

When the **Program Selection** is set to "Auto - First Program in PAT," "Auto - Lowest Program Num," or "Select Program Num," this field displays the auto-selected PID and cannot be edited.

- Value Range: 2 to 8190
- Default Value: 64

**PCR PID** - Reports the Program Clock Reference PID.

**Video PID** - Reports the PID of the selected video.

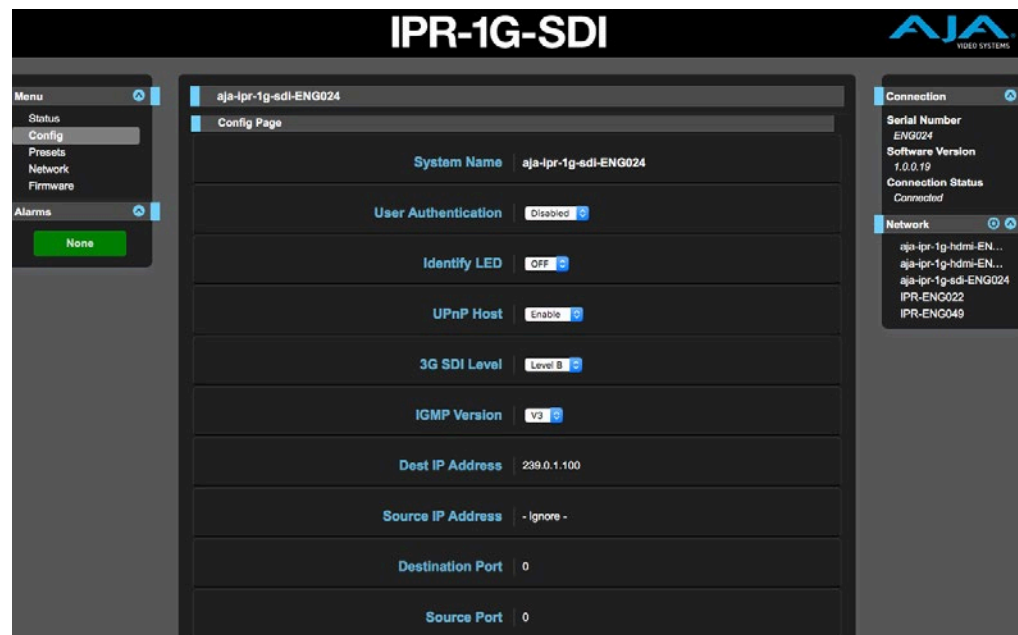
**Audio PID** - Reports the PID of the selected audio.

*NOTE: Audio PID applies only to the IPT-1G-HDMI model.*

**Video Bitrate** - Use the slider to select a value from 50 Mbps through 200 Mbps.

# Config Screen for IPR-1G Models

Figure 12. IPR-1G-SDI Config Screen 1 of 2



The IPR-1G Config Screen, shown in two parts, has the parameters required for the general operation of the IPR-1G Mini-Converters.

**System Name** - Defines a name for the system and gives it a unique identifier. This name is used when displaying systems through the web interface.

**User Authentication** - Enable or disable user password authentication for the web interface.

**Identify LED** - Enables flashing of the Ethernet LEDs on the unit.

**UPnP Host** - Enable or disable network discovery using Universal Plug and Play.

**3G SDI Level** - Select Level A or Level B for the SDI Output if it is 3G.

*NOTE: 3G SDI Level applies only to the IPR-1G-SDI model.*

**IGMP Version** - Internet Group Management Protocol Version.

*NOTE: IGMP Version applies only to the IPR-1G models.*

*NOTE: Selecting the wrong IGMP version for your network may cause long delays in processing multicast subscriptions. See your network engineer for more information.*

**Dest IP Address** - (Required) The destination IP address of the stream.

- Default Value: 239.0.0.1

**Source IP Address** - (Optional) The source IP address of the stream.

- Default Value: 239.0.0.1
- An empty value implies the source IP address of packets is to be ignored.

**Destination Port** - (Optional) The UDP destination port of the stream.

- Value Range: 0 - 65535
- Default Value: 0
- A value of zero implies the destination port number of packets is to be ignored.

**Source Port** - (Optional) The UDP source port of stream.

- Value Range: 0 - 65535
- Default Value: 0
- A value of zero implies the source port number of packets is to be ignored.

Figure 13. IPR-1G-SDI Config Screen 2 of 2



**NOTE:** The following is a list of acronyms used in this section of the Config Screen:

- Transport Stream (TS)
- Program Association Table (PAT)
- Program Map Table (PMT)
- Program Clock Reference (PCR)
- Packet Identifier Code (PID)

**Available Programs** - TS Programs available on the incoming stream.

**Program Selection** - Determines how the program to receive is selected.

- Auto - First Program in PAT
- Auto - Lowest Program Num
- Select Program Num
- Select Program PID
- Default: Auto - First Program in PAT

**Available Audio PIDs** - Reports the Audio PIDs that are available in the selected program.

**Audio Essence Number** - Select the audio number from the program.

- Value Range: 1 to 4
- Default Value: 1

**Active Program Number** - Reports the program number of the selected program. Shows "-1" when no program is active.

When **Program Selection** is set to "Select Program Num," the field **Program Number** displays with a slider control. Use the slider control to select the **Program Number**.

When **Program Selection** is set to "Auto - First Program in PAT" or "Auto - Lowest Program Num," **Active Program Num** displays the auto-selected Program Number and cannot be edited.

**Program PID** - Reports the PID of the selected program.

When the **Program Selection** is set to "Select Program PID," an editable **Program PID** field displays directly beneath **Program Selection**. Enter the Program PID of the desired Program, then press Return or Enter.

When the **Program Selection** is set to "Auto - First Program in PAT," "Auto - Lowest Program Num," or "Select Program Num," this field displays the auto-selected PID and cannot be edited.

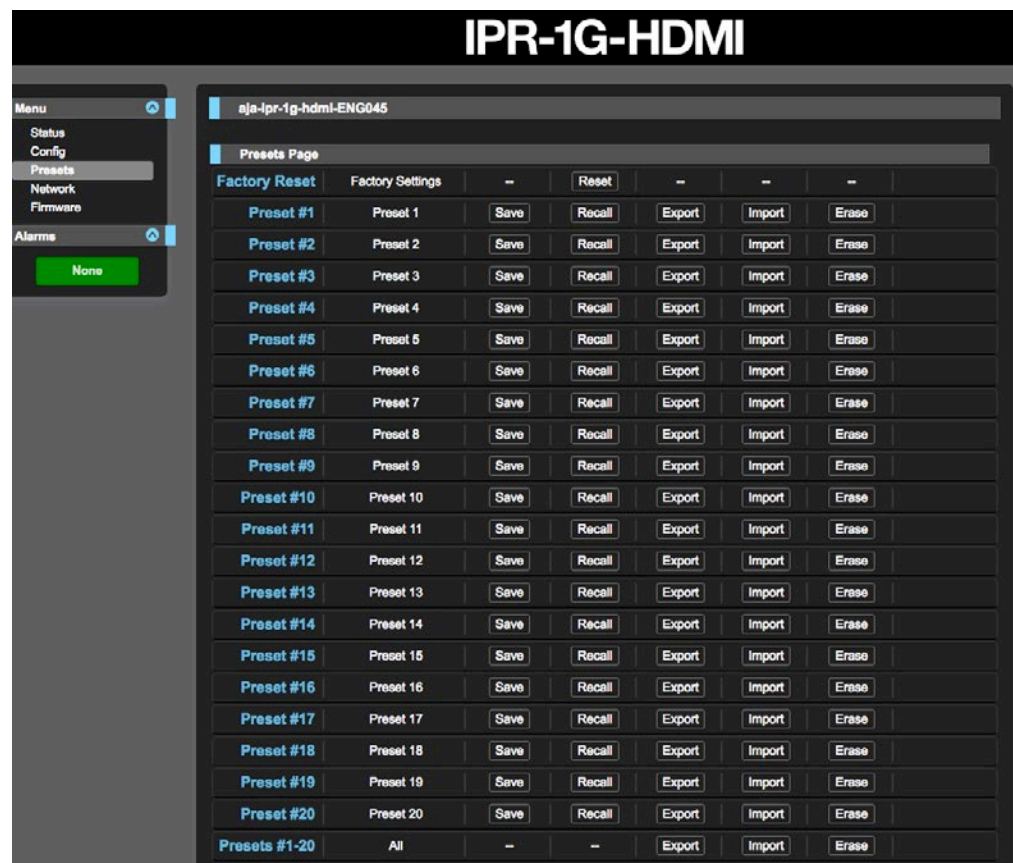
- Value Range: 2 to 8190
- Default Value: 64

**PCR PID** - Reports the Program Clock Reference PID.

**Video PID** - Reports the PID of the selected video.

**Audio PID** - Reports the PID of the selected audio.

## Presets Screen



The Presets screen allows you to save Preset Configurations into 20 separate memory registers and recall the presets whenever needed.

The Presets screen also includes Export and Import functions that allow exporting one or all presets to your computer as files and importing exported preset files from your computer. A displayed message indicates successful or failed saves, recalls, exports, and imports.

## Presets Screen Controls

**Factory Reset** - Factory Reset recalls all editable parameters to their factory default settings. Individual presets and Network settings, such as the IP Addresses, are not affected.

**Recall** - The Recall buttons recall the saved preset configurations.

**CAUTION:** *When you recall a Preset Configuration, the recalled preset immediately replaces the system's existing configuration. All previous settings are lost unless you have previously stored them in another preset configuration or an exported file.*

**Store** - The Store buttons let you save the current configuration into the preset register with the associated name and number. A preset is a set of all parameters as they were set at the time the preset was stored. Only editable parameters are saved in the presets. Non-editable parameters are not saved.

To change a preset name, click in the name's text field, type a new name, and press Enter to save the name. After entering text, you can click the mouse outside of the edit box to exit without changing the name.

**CAUTION:** *IP Mini-Converter stored presets may contain a web server access password. If you share an exported preset to someone, that person can extract the password. Before loaning the device to someone, or returning it as a rental, it is recommended that you clear the device of sensitive information.*

**Export** - The Export buttons save the associated preset contents to a file on your computer. The file gets exported to the default download location specified in your browser options. The file name is the same as the preset name with the suffix *.presets*. If you export multiple files for the same preset, a number gets appended to ensure a unique file name. The file size is small, usually less than 100 kilobytes.

**Import** - The Import buttons let you browse for and import a preset file on your computer into the preset register associated with the selected button. A dialog box warns you that the operation will overwrite the current preset contents with the file contents. You can only import presets from an IP Mini-Converter.

**Erase** - The Erase buttons erase the data in that preset.

**Export Presets 1–20 (All)** - Export All lets you save the contents of all presets to a file on your computer.

The file gets exported to the default download location specified in your browser options with the name *all.presets*. If you export multiple files, a number gets appended to ensure a unique file name.

**Import Presets 1–20 (All)** - Import All lets you browse for and import a previously exported *all.presets* file from your computer. A dialog box warns you that the operation will overwrite all 20 current preset contents with the contents stored in the file.

**Erase Presets 1–20 (All)** - Erase All erases all data from all the presets. A dialog box warns you that the operation will erase all 20 current presets.

## Network Screen

---

Use the Network Screen: Control tab to configure or modify settings for the Control LAN Ethernet port.

**Network Configuration**

**Control** | Media

**IP Address Type** Static

**IP Address** 192.168.1.10

**Netmask** 255.255.255.0

**Default Gateway** 192.168.01.1

Apply

**MAC Address** 00:0C:17:88:13:5A

**Link State** 1000MBit Full-Duplex

Use the Network Screen: Media tab to configure or modify settings for the Media LAN Ethernet port.

**Network Configuration**

Control | **Media**

**IP Address Type** DHCP

**IP Address** 172.16.250.2

**Netmask** 255.255.0.0

**Default Gateway** 0.0.0.0

**MAC Address** 00:0C:17:88:13:5B

**Link State** 1000MBit Full-Duplex

The Network screen allows you to view and change your IP Mini-Converter's network settings. Click Apply to activate any changes.

**IP Address Type** - IP Address Type determines the type of TCP/IP network configuration to be used. DHCP enables connecting to the network DHCP server, which assigns the IP Address, Netmask, and Gateway automatically. Static lets you set these parameters manually.

*NOTE: If the IP Address Type is DHCP, the IP Address, Netmask, and Default Gateway are gray, indicating they are set automatically and cannot be changed unless IP Address Type is first set to Static. Changes are saved and activated upon confirmation using the Apply button.*

- **DHCP** (default) - Selects automatic IP address assignment from the LAN DHCP server. If a DHCP server cannot be found, it fails over to the static IP address.
- **Static** - Assigns a static IP address manually. The factory default static IP address: 192.168.0.1.

**IP Address** - IP Address determines a static IP address to be used for TCP/IP networking. Consult your network administrator about how to set this value.

- If IP Address Type is set to DHCP, the IP address is set automatically by the network DHCP server and cannot be entered here.

- If IP Address Type is set to Static, enter an IP address compatible with your LAN here. Also enter a netmask and default gateway address in the following two parameters. Click Apply when you are ready to apply all three entries.
- If IP Address Type is set to DHCP and there is a DHCP failure, the IP address is set to the static IP address.

**Netmask** - Netmask determines the subnet mask to be used for TCP/IP networking.

- Enter a subnet mask compatible with your LAN. This is only needed for Static IP configurations. The factory default Subnet Mask is 255.255.255.0
- If IP Address Type is set to DHCP, the Subnet Mask is set by the DHCP server and cannot be changed by the user.

**Default Gateway** - Default Gateway determines the gateway or router used on your LAN for TCP/IP networking.

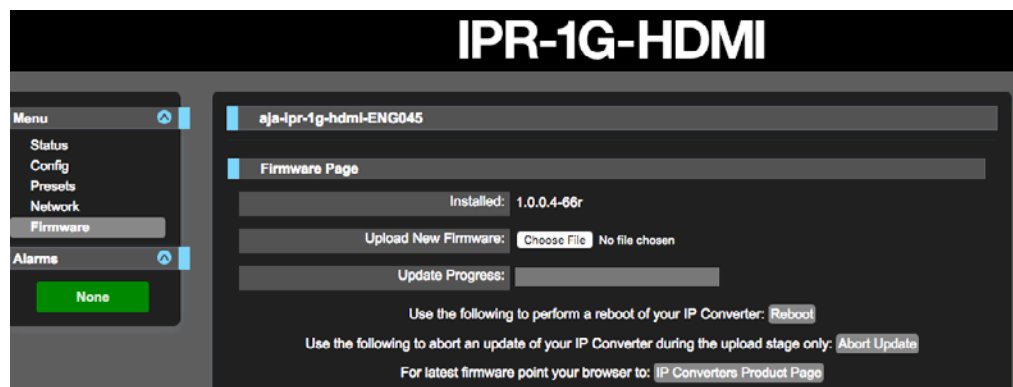
Without a properly configured default gateway (whether you have a router/gateway or not), your IP Mini-Converter will be unable to see other IP Mini-Converters on the network, although you may still be able to control this IP Mini-Converter via a web browser. Also, without a proper gateway defined, the discovery feature on the Network web page will not list other units on the network.

- Enter a default gateway or router address. This is only needed for Static IP configurations. The factory Default Gateway is 192.168.0.1.
- If IP Address Type is set to DHCP, the Default Gateway is set by the DHCP server and cannot be changed by the user.

**MAC Address** - Reports the connected IP Mini-Converter's Media Access Control Address.

**Link State** - Reports the current status of the Ethernet connection.

## Firmware Screen



## Downloading and Installing Updated Firmware

The Update Firmware screen allows you to download and install a firmware update from AJA.

### To Download and Install Updated Firmware

1. Visit the AJA website (aja.com) to locate and download the updated software. The following page provides support information and will include links to locations where you can download updates:



<https://www.aja.com/products/mini-converters/ip-converters#support>

2. After downloading the software update to your local drive, use the Browse or Choose File button to locate the local software copy.
3. Follow the prompts to load the new firmware into your unit.
4. After the firmware has finished installing, reboot the unit by disconnecting power for a few seconds, then reconnecting power.

## Booting the IP Mini-Converters from the Safeboot Firmware

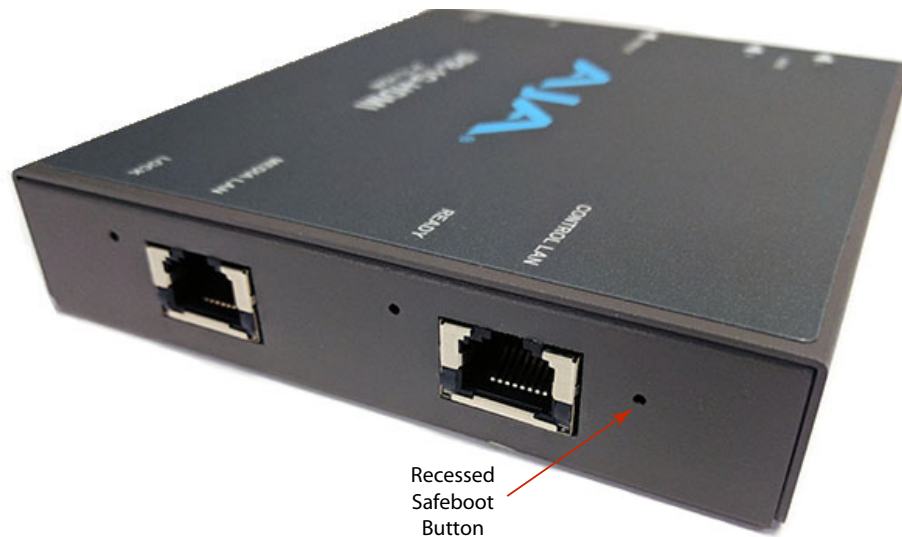
The IP Mini-Converters contain primary firmware and safeboot (secondary) firmware. To boot from the primary firmware, just cycle the unit's power.

In the event that the primary firmware becomes corrupted, you can boot the unit using the safeboot firmware.

### To Boot from the Safeboot Firmware

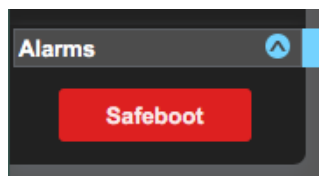
1. Remove power from the device.
2. Using a very narrow tool, such as the end of a paper clip, press down and hold the recessed safeboot button, making sure you feel the button depress. The recessed safeboot button is located next to the Control LAN port.

*Figure 14. Location of recessed safeboot button*



3. While keeping the safeboot button depressed, apply power, then continue holding down the safeboot button for three seconds.
4. Remove the paper clip from the safeboot button. The unit will boot from the safeboot firmware. After rebooting, the message "Safeboot" displays under the Alarms heading.

*Figure 15. The Safeboot alarm message*

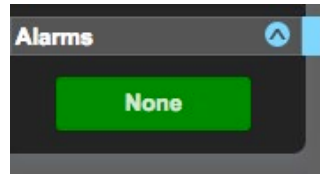




5. Finally, update the firmware as described above under "[Downloading and Installing Updated Firmware](#)" on page 31.

Following a successful firmware update and reboot, the message "None" displays under the Alarms heading.

*Figure 16. The alarm message after a successful firmware update*



# Appendix A – Frequently Asked Questions (FAQ)

---

## Question

How many channels of analog audio can be input to the IPT-1G-SDI and IPT-1G-HDMI for encoding?

## Answer

2

## Question

How many channels of analog audio can be output or monitored by the IPR-1G-SDI and IPR-1G-HDMI for decoding?

## Answer

2

## Question

How many channels of embedded SDI audio can be encoded by IPT-1G-SDI?

## Answer

2

## Question

How many channels of embedded SDI audio can be decoded by IPR-1G-SDI?

## Answer

2

## Question

How many channels of embedded HDMI audio can be encoded by IPT-1G-HDMI?

## Answer

2

## Question

How many channels of embedded HDMI audio can be decoded by IPR-1G-SDI?

## Answer

2

## Question

What video data rates are available when using IPT-1G-SDI and IPT-1G-HDMI?

## Answer

Adjustable from 50Mbps through to 200Mbps using bit rate slider.

**NOTE:** Audio and transmission mux overhead are applicable over and above the video data rate.

### Question

---

What ANC data is supported when using IPT-1G-SDI or IPT-1G-HDMI for encoding and transmitting and / or when using IPR-1G-SDI or IPR-1G-HDMI for receiving and decoding?

Answer

---

No ANC data support at this time.

### Question

---

Can I use either Unicast or Multicast setups with IPT or IPR products?

Answer

---

Yes.

### Question

---

Do I have to use a network switch when working with combinations of IPT-1G-SDI, IPT-1G-HDMI, IPR-1G-SDI and / or IPR-1G-HDMI?

Answer

---

You do not have to use a switch, as IPT to IPR connections can be point-to-point.

*NOTE: You will need to use a switch if you are intending to take advantage of multicast and / or routing transmission data to multiple destinations.*

### Question

---

What is the end-to-end latency for an IPR to IPT based on point-to-point or ideal network conditions?

Answer

---

Around 3 to 4 frames.

### Question

---

Is FEC supported?

Answer

---

No FEC support at this time.

### Question

---

Is ULL supported?

Answer

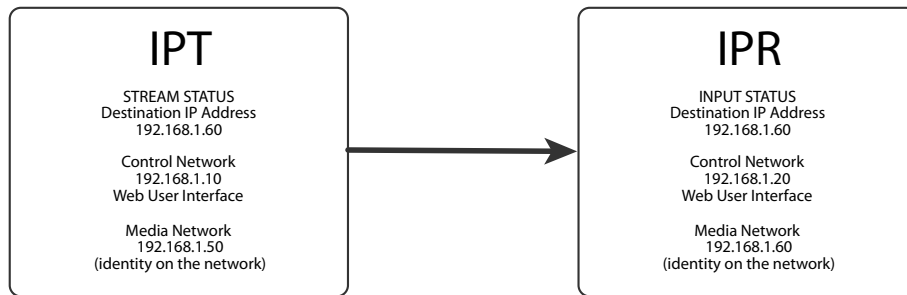
---

No ULL support at this time.

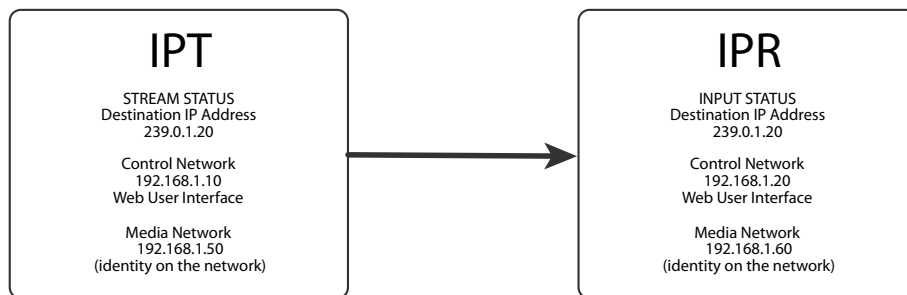
# Appendix B – Example Configurations

---

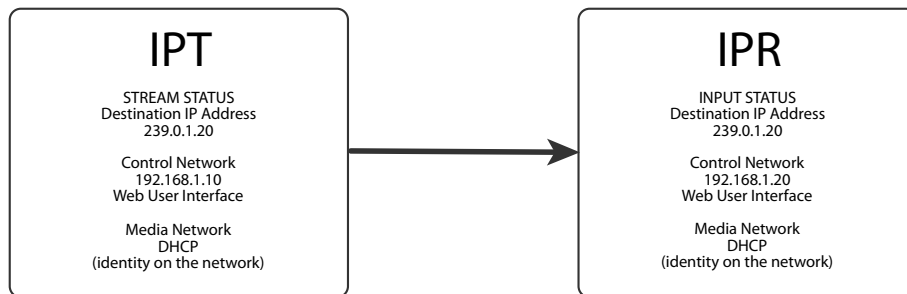
## Static IP Addresses - Unicast (point to point)



## Static IP Addresses - Multicast



## DHCP IP Addresses - Multicast



# Appendix C – Specifications

---

## IPT-1G-SDI Tech Specs

---

### Video Formats

---

- (2K) 2048 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920 x 1080i 25, 29.97
- (HD) 1280 x 720p 50, 59.94, 60
- (SD) 625i 25
- (SD) 525i 29.97

### Video Input Digital

---

- 1 x 3G SDI BNC
  - 4:2:2 10-bits/pixel
- 1 x 3G SDI BNC loop-through

### Audio Input Digital (user selectable)

---

- 2-Channel SDI embedded audio, 24-bit per channel, 48 kHz synchronous

### Audio Input Analog (user selectable)

---

- 2 x RCA analog audio (2-Channel)
  - Levels at -10 dBu (nominal)

### Essence Output

---

- 1 x RJ-45 (IEC 60603-7) for 10/100/1000 Base-T Ethernet (IEEE 802.3-2012)
- VSF TR-01 and other JPEG 2000 MPEG-2 TS workflows

### User Controls

---

- 1 x RJ-45 (IEC 60603-7) for 10/100/1000 Base-T Ethernet (IEEE 802.3-2012)
  - HTTP/1.1 (RFCs 7230, 7231, 7232, 7233, 7234, 7235)
  - Web and REST clients supported
- 1 x USB 2.0 Mini-B (IEC 62680-1) connector
  - AJA eMini-Setup of network parameters

### Size (w x d x h)

---

- 5.53" x 4.48" x 0.954" (140.462mm x 113.792mm x 24.232mm)

### Weight

---

- 0.6 lb (0.3 kg)

### Power

---

- Uses AJA power supply model DWP-U-R1, included with purchase
- 100-240V, 50/60 Hz Universal input
- +5 to 20V DC regulated, 12 watts max

### Environment

---

- Safe Operating Temperature: 0 to 40 degrees C (32 to 104 degrees F)
- Safe Storage Temperature (Power OFF): -40 to 60 degrees C (-40 to 140 degrees F)

- Operating Relative Humidity: 10-90% noncondensing
- Operating Altitude: <3,000 meters (<10,000 feet)

*NOTE: IPT-1G-SDI uses approximately 12 watts of power and convection cooling. It will be very warm to the touch, which is normal. When installing the unit, mount in a location where it has access to air for proper cooling. Do not stack the IPT-1G-SDI with other Mini-Converters.*

## IPT-1G-HDMI Tech Specs

---

### Video Formats

---

- (2K) 2048 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920 x 1080i 25, 29.97
- (HD) 1280 x 720p 50, 59.94, 60
- (SD) 625i 25
- (SD) 525i 29.97

### Video Input Digital

---

- 1 x HDMI Standard Type A connector
  - HDMI v1.4a 24/30 bits per pixel, RGB/YUV

### Audio Input Digital (user selectable)

---

- 2-Channel HDMI embedded audio, 24-bit per channel, 48 kHz synchronous

### Audio Input Analog (user selectable)

---

- 2 x RCA analog audio (2-Channel)
  - Levels at -10 dBu (nominal)

### Essence Output

---

- 1 x RJ-45 (IEC 60603-7) for 10/100/1000 Base-T Ethernet (IEEE 802.3-2012)
- VSF TR-01 and other JPEG 2000 MPEG-2 TS workflows

### User Controls

---

- 1 x RJ-45 (IEC 60603-7) for 10/100/1000 Base-T Ethernet (IEEE 802.3-2012)
  - HTTP/1.1 (RFCs 7230, 7231, 7232, 7233, 7234, 7235)
  - Web and REST clients supported
- 1 x USB 2.0 Mini-B (IEC 62680-1) connector
  - AJA eMini-Setup of network parameters

### Size (w x d x h)

---

- 5.53 x 4.48 x 0.954 (140.462mm x 113.792mm x 24.232mm)

### Weight

---

- 0.6 lb (0.3 kg)

### Power

---

- Uses AJA power supply model DWP-U-R1, included with purchase
- 100-240V, 50/60 Hz Universal input
- +5 to 20V DC regulated, 12 watts max

## Environment

---

- Safe Operating Temperature: 0 to 40 degrees C (32 to 104 degrees F)
- Safe Storage Temperature (Power OFF): -40 to 60 degrees C (-40 to 140 degrees F)
- Operating Relative Humidity: 10-90% noncondensing
- Operating Altitude: <3,000 meters (<10,000 feet)

# IPR-1G-SDI Tech Specs

---

## Video Formats

---

- (2K) 2048 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920 x 1080i 25, 29.97
- (HD) 1280 x 720p 50, 59.94, 60
- (SD) 625i 25
- (SD) 525i 29.97

## Essence Input

---

- 1 x RJ-45 (IEC 60603-7) for 10/100/1000Base-T Ethernet (IEEE 802.3-2012)
- VSF TR-01 and other JPEG 2000 MPEG-2 TS workflows

## Outputs

---

- 2 x 3G SDI BNC
  - 4:2:2 10-bits/pixel (embedded audio)
- 2 x RCA analog audio
  - Levels at -10 dBu (nominal)

## User Controls

---

- 1 x RJ-45 (IEC 60603-7) for 10/100/1000Base-T Ethernet (IEEE 802.3-2012)
  - HTTP/1.1 (RFCs 7230, 7231, 7232, 7233, 7234, 7235)
  - Web and REST clients supported
- 1 x USB 2.0 Mini-B (IEC 62680-1) connector
  - AJA eMini-Setup of network parameters

## Size (w x d x h)

---

- 5.53" x 4.48" x 0.954" (140.462mm x 113.792mm x 24.232mm)

## Weight

---

- 0.6 lb (0.3 kg)

## Power

---

- Uses AJA power supply model DWP-U-R1, included with purchase
- 100-240V, 50/60 Hz Universal input
- +5 to 20V DC regulated, 12 watts max

## Environment

---

- Safe Operating Temperature: 0 to 40 degrees C (32 to 104 degrees F)
- Safe Storage Temperature (Power OFF): -40 to 60 degrees C (-40 to 140 degrees F)
- Operating Relative Humidity: 10-90% noncondensing
- Operating Altitude: <3,000 meters (<10,000 feet)

# IPR-1G-HDMI Tech Specs

---

## Video Formats

---

- (2K) 2048 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920 x 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920 x 1080i 25, 29.97
- (HD) 1280 x 720p 50, 59.94, 60
- (SD) 625i 25
- (SD) 525i 29.97

## Essence Input

---

- 1x RJ-45 (IEC 60603-7) for 10/100/1000 Base-T Ethernet (IEEE 802.3-2012)
- VSF TR-01 and other JPEG 2000 MPEG-2 Workflows

## Outputs

---

- 1 x HDMI Standard Type A connector
  - HDMI v1.4a 24/30 bits per pixel, RGB/YUV
- 2 x RCA analog audio
  - Levels at -10dBu (nominal)

## User Controls

---

- 1 x RJ-45 (IEC 60603-7) for 10/100/1000 Base-T Ethernet (IEEE 802.3-2012)
  - HTTP/1.1 (RFCs 7230, 7231, 7232, 7233, 7234, 7235)
  - Web and REST clients supported
- 1 x USB 2.0 Mini-B (IEC 62680-1) connector
  - AJA eMini-Setup of network parameters

## Size (w x d x h)

---

- 5.53 x 4.48 x 0.954 (140.462mm x 113.792mm x 24.232mm)

## Weight

---

- 0.6 lb (0.3 kg)

## Power

---

- Uses AJA power supply model DWP-U-R1, included with purchase
- 100-240V, 50/60 Hz Universal input
- +5 to 20V DC regulated, 12 watts max

## Environment

---

- Safe Operating Temperature: 0 to 40 degrees C (32 to 104 degrees F)
- Safe Storage Temperature (Power OFF): -40 to 60 degrees C (-40 to 140 degrees F)
- Operating Relative Humidity: 10-90% noncondensing
- Operating Altitude: <3,000 meters (<10,000 feet)



# Appendix D – Safety and Compliance

---

## Federal Communications Commission (FCC) Compliance Notices

---

### Class A Interference Statement

---

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 in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### FCC Caution

---

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## Canadian ICES Statement

---

### Canadian Department of Communications Radio Interference Regulations

This digital apparatus does not exceed the Class A limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class A digital apparatus complies with Canadian ICES-003.

### Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada. Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

## European Union and European Free Trade Association (EFTA) Regulatory Compliance

---

This equipment may be operated in the countries that comprise the member countries of the European Union and the European Free Trade Association. These countries, listed in the following paragraph, are referred to as The European Community throughout this document:

AUSTRIA, BELGIUM, BULGARIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, ICELAND, IRELAND, ITALY, LATVIA, LICHTENSTEIN, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, NORWAY, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM

## Declaration of Conformity

Marking by this symbol indicates compliance with the Essential Requirements of the EMC Directive of the European Union 2014/30/EU.



This equipment meets the following conformance standards:

### Safety

EN 60065: 2014 (T-Mark License),

IEC 60065: 2014 (CB Scheme Report/Certificate)

Additional licenses issued for specific countries available on request.

### Emissions

EN 55032: 2012, CISPR 32: 2015, EN 61000-3-2: 2014, EN 61000-3-3: 2013

### Immunity

EN 55103-2: 2009, EN 61000-4-2:2009, EN 61000-4-3:2006+A1:2008+A2:2010,

EN 61000-4-4:2004+A1:2010, EN 61000-4-5:2006, EN 61000-4-6:2009, EN 61000-4-11:2004

Environments: E2, E3 and E4

The product is also licensed for additional country specific standards as required for the International Marketplace.



**Warning!** This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

**Achtung!** Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

**Attention!** Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées..

## Recycling Notice



This symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.

## Korean KCC Compliance Statement

<p>A급 기기 (업무용 방송통신기자재)</p>	<p>이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.</p>
<p>Class A (Broadcasting Communication Equipment for Office Use)</p>	<p>As an electromagnetic wave equipment for office use (Class A), this equipment is intended to use in other than home area. Sellers or users need to take note of this.</p>

## Taiwan Compliance Statement

---

### 警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

This is a Class A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## Japanese Compliance Statement

---

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

This is a Class A product based on the standard of the VCCI Council (VCCI V-3/2015.04). If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

## Translated Warning and Caution Messages

---

The following caution statements, warning conventions, and warning messages apply to this product and manual.



Warning Symbol



Caution Symbol

## Before Operation Please Read These Instructions

---



**Warning!** Read and follow all warning notices and instructions marked on the product or included in the documentation.

**Avertissement!** Lisez et conformez-vous à tous les avis et instructions d'avertissement indiqués sur le produit ou dans la documentation.

**Warnung!** Lesen und befolgen Sie die Warnhinweise und Anweisungen, die auf dem Produkt angebracht oder in der Dokumentation enthalten sind.

**¡Advertencia!** Lea y siga todas las instrucciones y advertencias marcadas en el producto o incluidas en la documentación.

**Aviso!** Leia e siga todos os avisos e instruções assinalados no produto ou incluídos na documentação.

**Avviso!** Leggere e seguire tutti gli avvisi e le istruzioni presenti sul prodotto o inclusi nella documentazione.



**Warning!** Do not use this device near water and clean only with a dry cloth.

**Avertissement!** N'utilisez pas cet appareil près de l'eau et nettoyez-le seulement avec un tissu sec..

**Warnung!** Das Gerät nicht in der Nähe von Wasser verwenden und nur mit einem trockenen Tuch säubern.

**¡Advertencia!** No utilice este dispositivo cerca del agua y límpielo solamente con un paño seco.

**Aviso!** Não utilize este dispositivo perto da água e limpe-o somente com um pano seco.

**Avviso!** Non utilizzare questo dispositivo vicino all'acqua e pulirlo soltanto con un panno asciutto.



**Warning!** Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

**Avertissement!** Ne bloquez aucune ouverture de ventilation. Suivez les instructions du fabricant lors de l'installation.

**Warnung!** Die Lüftungsöffnungen dürfen nicht blockiert werden. Nur gemäß den Anweisungen des Herstellers installieren.

**¡Advertencia!** No bloquee ninguna de las aberturas de la ventilación. Instale de acuerdo con las instrucciones del fabricante.

**Aviso!** Não obstrua nenhuma das aberturas de ventilação. Instale de acordo com as instruções do fabricante.

**Avviso!** Non ostruire le aperture di ventilazione. Installare in conformità con le istruzioni del fornitore.



**Warning!** Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

**Avertissement!** N'installez pas l'appareil près d'une source de chaleur telle que des radiateurs, des bouches d'air de chauffage, des fourneaux ou d'autres appareils (amplificateurs compris) qui produisent de la chaleur.

**Warnung!** Nicht in der Nähe von Wärmequellen wie Heizkörpern, Heizregistern, Öfen oder anderen Wärme erzeugenden Geräten (einschließlich Verstärkern) aufstellen.

**¡Advertencia!** No instale cerca de fuentes de calor tales como radiadores, registros de calor, estufas u otros aparatos (incluidos amplificadores) que generan calor.

**Aviso!** Não instale perto de nenhuma fonte de calor tal como radiadores, saídas de calor, fogões ou outros aparelhos (incluindo amplificadores) que produzam calor.

**Avviso!** Non installare vicino a fonti di calore come termosifoni, diffusori di aria calda, stufe o altri apparecchi (amplificatori compresi) che emettono calore



**Warning!** Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

**Avertissement!** La sécurité de la prise polarisée ou de la prise de type mise à la terre ne doit en aucun cas être empêchée de fonctionner. Une prise polarisée a deux broches, l'une étant plus large que l'autre. Une prise de type mise à la terre a deux broches et une troisième broche pour la mise à la terre. La broche large ou la troisième broche sont fournies pour votre sécurité. Si la prise fournie ne s'insère pas dans votre prise femelle, consultez un électricien pour le remplacement de la prise femelle obsolète.

**Warnung!** Der Sicherheitszweck des gepolten bzw. Schukosteckers ist zu berücksichtigen. Ein gepolter Stecker verfügt über zwei Pole, von denen einer breiter als der andere ist. Ein Schukostecker verfügt neben den zwei Polen noch über einen dritten Pol zur Erdung. Der breite Pol bzw. der Erdungspol dienen der Sicherheit. Wenn der zur Verfügung gestellte Stecker nicht in Ihren Anschluss passt, konsultieren Sie einen Elektriker, um den veralteten Anschluss zu ersetzen.

**¡Advertencia!** No eche por tierra la finalidad del tipo de enchufe polarizado con conexión a tierra. Un enchufe polarizado tiene dos espigas, una más ancha que la otra. Un enchufe con conexión a tierra tiene dos espigas iguales y una tercera espiga que sirve para la conexión a tierra. La espiga ancha, o la tercera espiga, sirven para su seguridad. Si el enchufe suministrado no encaja en el tomacorriente, consulte con un electricista para reemplazar el tomacorriente obsoleto.

**Aviso!** Não anule a finalidade da segurança da ficha polarizada ou do tipo ligação terra. Uma ficha polarizada tem duas lâminas sendo uma mais larga do que a outra. Uma ficha do tipo de ligação à terra tem duas lâminas e um terceiro terminal de ligação à terra. A lâmina larga ou o terceiro terminal são fornecidos para sua segurança. Se a ficha fornecida não couber na sua tomada, consulte um electricista para a substituição da tomada obsoleta.

**Avviso!** Non compromettere la sicurezza della spina polarizzata o con messa a terra. Una spina polarizzata ha due spinotti, di cui uno più largo. Una spina con messa a terra ha due spinotti e un terzo polo per la messa a terra. Lo spinotto largo o il terzo polo sono forniti per motivi di sicurezza. Se la spina fornita non si inserisce nella presa di corrente, contattare un elettricista per la sostituzione della presa obsoleta.



**Warning!** Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.

**Avertissement!** Puisque la prise principale est utilisée pour débrancher l'appareil, elle doit rester aisément accessible et fonctionnelle.

**Warnung!** Da der Netzstecker als Trennvorrichtung dient, muss er stets zugänglich und funktionsfähig sein.

**¡Advertencia!** Puesto que el enchufe de la red eléctrica se utiliza como dispositivo de desconexión, debe seguir siendo fácilmente accesible y operable.

**Aviso!** Dado que a ficha principal é utilizada como a desconexão para o dispositivo, esta deve manter-se prontamente acessível e funcional.

**Avviso!** Poiché il cavo di alimentazione viene usato come dispositivo di sconnessione, deve rimanere prontamente accessibile e operabile.



**Warning!** Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.

**Avertissement!** Protégez le cordon d'alimentation pour que l'on ne marche pas dessus ou qu'on le pince, en particulier au niveau des prises mâles, des réceptacles de convenance, et à l'endroit où il sort de l'appareil.

**Warnung!** Vermeiden Sie, dass auf das Netzkabel getreten oder das Kabel geknickt wird, insbesondere an den Steckern, den Steckdosen und am Kabelausgang am Gerät.

**¡Advertencia!** Proteja el cable de energía para que no se le pise ni apriete, en especial cerca del enchufe, los receptáculos de conveniencia y el punto del que salen del equipo.

**Aviso!** Proteja o cabo de alimentação de ser pisado ou de ser comprimido particularmente nas fichas, em tomadas de parede de conveniência e no ponto de onde sai do dispositivo.

**Avviso!** Proteggere il cavo di alimentazione in modo che nessuno ci cammini sopra e che non venga schiacciato soprattutto in corrispondenza delle spine e del punto in cui esce dal dispositivo.



**Warning!** Unplug this device during lightning storms or when unused for long periods of time.

**Avertissement!** Débranchez cet appareil pendant les orages avec éclairs ou s'il est inutilisé pendant de longues périodes.

**Warnung!** Das Gerät ist bei Gewitterstürmen oder wenn es über lange Zeiträume ungenutzt bleibt vom Netz zu trennen.

**¡Advertencia!** Desenchufe este dispositivo durante tormentas eléctricas o cuando no se lo utilice por largos periodos del tiempo.

**Aviso!** Desconecte este dispositivo da tomada durante trovoadas ou quando não é utilizado durante longos períodos de tempo.

**Avviso!** Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore, quali il treppiedi e l'esoscheletro.



**Warning!** Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

**Avertissement!** Référez-vous au personnel de service qualifié pour tout entretien. L'entretien est exigé quand l'appareil a été endommagé de quelque manière que ce soit, par exemple lorsque le cordon d'alimentation ou la prise sont endommagés, que du liquide a été versé ou des objets sont tombés dans l'appareil, que l'appareil a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement ou est tombé.

**Warnung!** Das Gerät sollte nur von qualifizierten Fachkräften gewartet werden. Eine Wartung ist fällig, wenn das Gerät in irgendeiner Weise beschädigt wurde, wie bei beschädigtem Netzkabel oder Netzstecker, falls Flüssigkeiten oder Objekte in das Gerät gelangen, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, nicht ordnungsgemäß funktioniert oder fallen gelassen wurde.

**¡Advertencia!** Consulte al personal calificado por cuestiones de reparación. El servicio de reparación se requiere cuando el dispositivo ha recibido cualquier tipo de daño, por ejemplo cable o espigas dañadas, se ha derramado líquido o se han caído objetos dentro del dispositivo, el dispositivo ha sido expuesto a la lluvia o humedad, o no funciona de modo normal, o se ha caído.

**Aviso!** Remeta todos os serviços de manutenção para o pessoal de assistência qualificado. A prestação de serviços de manutenção é exigida quando o dispositivo foi danificado mediante qualquer forma, como um cabo de alimentação ou ficha que se encontra danificado/a, quando foi derramado líquido ou caíram objectos sobre o dispositivo, quando o dispositivo foi exposto à chuva ou à humidade, quando não funciona normalmente ou quando foi deixado cair.

**Avviso!** Fare riferimento al personale qualificato per tutti gli interventi di assistenza. L'assistenza è necessaria quando il dispositivo è stato danneggiato in qualche modo, ad esempio se il cavo di alimentazione o la spina sono danneggiati, è stato rovesciato del liquido è stato rovesciato o qualche oggetto è caduto nel dispositivo, il dispositivo è stato esposto a pioggia o umidità, non funziona correttamente o è caduto



**Warning!** Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility.

**Avertissement!** Ne pas ouvrir le châssis. Aucun élément à l'intérieur du châssis ne peut être réparé par l'utilisateur. La garantie sera annulée si le châssis est ouvert par toute autre personne qu'un technicien d'un centre de service ou d'un établissement agréé AJA.

**Warnung!** Öffnen Sie das Gehäuse nicht. Keine der Geräteteile können vom Benutzer gewartet werden. Durch das Öffnen des Gehäuses wird die Garantie hinfällig, es sei denn, solche Wartungsarbeiten werden in einem AJA-Service-Center oder einem lizenzierten Betrieb vorgenommen.

**¡Advertencia!** No abra el chasis. El interior no contiene piezas reparables por el usuario. El abrir el chasis anulará la garantía a menos que se lo haga en un centro de servicio AJA o en un local autorizado.

**Advertência!** Não abra o chassi. Não há internamente nenhuma peça que permita manutenção pelo usuário. Abrir o chassi anula a garantia, a menos que a abertura seja realizada por uma central de serviços da AJA ou por um local autorizado.

**Avvertenza!** Non aprire lo chassis. All'interno non ci sono parti riparabili dall'utente. L'apertura dello chassis invaliderà la garanzia se non viene effettuata da un centro ufficiale o autorizzato AJA.



**Warning!** Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.

**Avertissement!** Retirez le ou les cordons d'alimentation en CA de la source d'alimentation principale lorsque vous déplacez l'appareil.

**Warnung!** Trennen Sie die Wechselstrom-Versorgungskabel vom Netzstrom, bevor Sie das Gerät verschieben.

**¡Advertencia!** Cuando mueva la unidad desenchufe de la red eléctrica el/los cable(s) de la fuente de alimentación CA tipo brick.

**Advertência!** Remova os cabos CA de alimentação brick da rede elétrica ao mover a unidade.

**Avvertenza!** Scollegare il cavo dell'alimentatore quando si sposta l'unità.



**Warning!** Only use attachments and accessories specified and/or sold by the manufacturer.

**Avertissement!** Utilisez seulement les attaches et accessoires spécifiés et/ou vendus par le fabricant.

**Warnung!** Verwenden Sie nur Zusatzgeräte und Zubehör angegeben und / oder verkauft wurde durch den Hersteller.

**¡Advertencia!** Utilice solamente los accesorios y conexiones especificados y/o vendidos por el fabricante.

**Aviso!** Utilize apenas equipamentos/acessórios especificados e/ou vendidos pelo fabricante.

**Avviso!** Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore.



# Index

---

- A**
  - AJA Support 2
  - Audio 5
    - Audio Essence Number 27
    - Audio PID 25, 28
    - RCA Analog Audio Output 5
  - Authentication 20
    - Disabling 19
    - Enabling or Disabling 24, 26
- B**
  - Block Diagram 7
- C**
  - Cable
    - CAT 5 Ethernet 20
    - Cross-Over 20
    - Disconnecting USB Cable 10
    - Ethernet 11, 20
    - USB Cable Supplied 14
  - Compliance 41
  - Config Screen 26
  - Configuration
    - Initial 7, 10, 11, 12
- D**
  - Decoding 5, 10, 11
  - DHCP
    - Assigned IP Address 12
    - Controlling Computer's Ethernet Port 20
    - Enabled 11
    - Failure 31
    - IP Address 10, 16, 17
    - Server 11
    - Setting IP Address Type for Media LAN Port 30
- E**
  - eMini-Setup 7, 10, 11, 12
    - Acquiring 12
    - Documentation 12
    - Downloading 12
    - Installing 13
    - Operating 15
    - Running 14
    - Screen 15
- F**
  - Features 6
  - Firmware
    - Corrupted 32
    - Downloading 31
    - Installing New 18
    - Loading 12
    - Safeboot 32
- Screen, Web UI 31
- Status 23
- Update Procedure 18
- Updating from Web UI 31
- Version Installed 15
- H**
  - HDMI
    - Embedded Audio 5
- I**
  - Installation
    - eMini-Setup on Mac 14
    - eMini-Setup on Windows 13
    - Initial 11
    - Of Firmware Using eMini-Setup 18
    - Overview 10
  - I/O Connections 8
  - IP Address 20
    - Accessing Settings Through eMini-Setup 12
    - Applying Changes with eMini-Setup 16
    - Assigning from DHCP Server 30
    - Assigning Static 30
    - Choosing DHCP or Static with eMini-Setup 16
    - Destination 24, 26
    - Determining 10, 11
    - Determining Type in Web UI 30
    - DHCP Server Assigning 11
    - Factory Default Static 30
    - Media LAN Port 20
    - Source 26
    - Using to Access Web UI 12, 20
- L**
  - LAN
    - Auto MDI-X 20
    - Behavior of Control LAN LEDs 10
    - Behavior of Media LAN LEDs 10
    - Connecting Unit to Network with Control LAN and Media LAN 10
    - Entering Compatible IP Address 31
    - Using Control LAN to Make Configuration Changes 10
    - Using Media LAN for Control and Media 10, 20
    - Using Media LAN for Incoming Media 10
    - Using Standard RJ-45 Connector 20
    - Using Straight-Through CAT 5 Ethernet Cables 20
    - Using Web UI Network Screen to Access Control LAN Port Settings 29
- Using Web UI Network Screen to Access Media LAN Port Settings 30
- LED Behavior
  - Ready, Lock and LAN 9
- N**
  - Network Configuration
    - Accessing Control and Media Parameters Through Media LAN Only 10
    - Initial Installation 11
    - IP Address Type 30
  - Network Screen
    - Configuring Settings for Control LAN Ethernet Port 29
    - Configuring Settings for Media LAN Ethernet Port 30
- O**
  - Overview
    - eMini-Setup 12
    - Installation 10
    - Remote Control 20
    - Web Interface 20
- P**
  - Presets
    - Changing Name 29
    - Erasing 29
    - Exporting 28, 29
    - File Name Suffix 29
    - Importing 29
    - Recalling 28, 29
    - Register 29
    - Saving 28
    - Screen 28
    - Screen Controls 28
- R**
  - Remote Control 7
    - Overview 20
  - RJ-45
    - Connector 20
- S**
  - Safety and Compliance 41
  - SDI
    - 3G SDI Level 26
    - Embedded Audio 5
  - Serial Number 15
  - Specifications 37
    - Technical 37
  - Status
    - eMini-Setup Application 15
    - Ethernet Connection 31
    - Firmware 23

- Input 23
- Network 23
- Screen 23
- Subnet Mask
  - Determined by Netmask 31
  - eMini-Setup 16, 17
  - Factory Default 31

## T

- Technical Support 2

## U

- Update
  - Firmware Screen 31
- Updated
  - Documentation 12
- Updated Software
  - Downloading 31
- Update Procedure
  - Firmware 18
- Update Tab 18
  - Installing New Firmware 18
- USB Cable
  - Running eMini-Setup 14
- USB Connection
  - Working with eMini-Setup 10
- USB Port
  - Connecting to Unit from Controlling Computer 12
  - Firmware Update Procedure 18
  - Required for Initial Configuration Using eMini-Setup 7, 12
- User Authentication
  - Enabling or Disabling for Web Interface 24, 26

## W

- Web Browser
  - Accessing Unit Through Its IP Address 10, 12
  - Accessing User Interface 10
  - Loading Firmware 12
  - Preferred 7
  - System Requirements 7
- Web Server
  - Access Password 29
  - Built In 7, 12, 20
  - Unit's Internal 7