DANTE-12GAM Series

12G-SDI/Dante 32/64-Channel Embedder/Disembedder with Video SFP Options

Installation and Operation Guide

Version 1.0r1
Published December 1, 2025

AJA VIDEO SYSTEMS

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.

Corvid Ultra®, Io®, 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™, V2Analog™ and V2Digital™ are trademarks of AJA Video Systems, Inc.

Audinate®, the Audinate logo and Dante® are registered trademarks of Audinate Pty Ltd.

All other trademarks are the property of their respective owners."

Copyright

Contacting AJA Support

Please have all pertinent information at hand prior to contacting AJA support or sales.

Support Telephone: +1.530.271.3190
Support Website: https://www.aja.com/support/contact
Support Email: support@aja.com
Sales Email: sales@aja.com
Shipping Address: AJA Video Systems
180 Litton Drive
Grass Valley, CA 95945, USA

Contents

Chapter 1 – Introduction

Overview

The DANTE-12GAM Series is a family of standalone Converter 12G-SDI solutions that send and receive SDI embedded audio to and from the Dante audio ecosystem. They are ideal for handling broadcast audio over SDI with the ability to transport the audio in and out of an Ethernet environment.

The DANTE-12GAM is a dual 12G-SDI, 16-Channel per SDI port (for a total of 32 channels per Dante embedder/disembedder). Dante allows uncompressed, multi-channel, low latency high-resolution digital audio to be distributed across a switched Ethernet network using standard TCP/IP protocols while meeting the stringent quality requirements of professional audio.

The DANTE-12GAM Series provide a simple method of bridging audio to and from the Dante domain to source and destination equipment containing SDI I/O with embedded audio.

Dante audio networking provides digital audio distribution over local networking with low latency, using standard network hardware or by connecting into a standard network infrastructure. This offers many advantages, including audio system scalability, easier installation, and simplified wiring.

The DANTE-12GAM automatically detects and configures to the input video standard. 12G-SDI formats up to 4K/UltraHD 60 are supported (see *"DANTE-12GAM Tech Specs" on page 76* for a complete listing). The SDI outputs have minimal video latency and support up to 32 channels of embedded audio.

Key Features

- Support for 12G/6G/3G/1.5G SDI audio embedding to and from the Dante® audio ecosystem.
- Single video channel with independent 12G-SDI Input and Output ports, each supporting 16 audio channels, totaling 32 channels of Dante® audio in a compact, portable design.

- Upgradeable to second video channel via additional SFP and license, expanding support to up to 64-channels of audio.
- PTPv2, SMPTE 2110-30, AES67 compatible.
- 1x Primary and 1x Secondary etherCON GigE ports for Dante network redundancy.
- PoE + on Primary Ethernet simplifying wiring.
- Internal SDI signal generator which enables transmitting Dante audio channels over SDI without having an external SDI source signal.
- AJA WebUI support for remote signal status and configuration.
- USB-C port for LAN configuration using free AJA eMini-Setup software.
- Front panel LCD information and configuration screen.
- 4x Physical control buttons (Back, Enter, Up, Down).
- 12V, 60W Power Supply Included.
- Five-year warranty.

DANTE-12GAM Series Models

The AJA DANTE-12GAM Series is comprised of three AJA Dante converter products:

- **DANTE-12GAM** *"DANTE-12GAM" on page 6.*

  Standalone Mini-Converter with 12G-SDI Input and Output that can disembed 16 channels of audio in and embed 16 channels of audio out for a total of up to 32 channels of audio.
- **DANTE-12GAM-TR-LC** *"DANTE-12GAM-TR-LC" on page 7.*

  Standalone Mini-Converter with Dual 12G-SDI channel for a total of up to 64 channels of Dante® audio. The first 12G-SDI channel uses the BNC I/O connector, and the second SFP channel uses the Video SFP Cage with a FiberLC-TR-12G Dual LC 12G Fiber Transceiver SFP Module.
- **DANTE-12GAM-TR-BNC** *"DANTE-12GAM-TR-BNC" on page 8.*

  Standalone Mini-Converter with Dual 12G-SDI channel for a total of up to 64 channels of Dante® audio. The first 12G-SDI channel uses the BNC I/O connector, and the second SFP channel uses the Video SFP Cage with a BNC-TR-12G Dual Coax Transceiver SFP Module.

We detail these models and their configurations in the following sections.

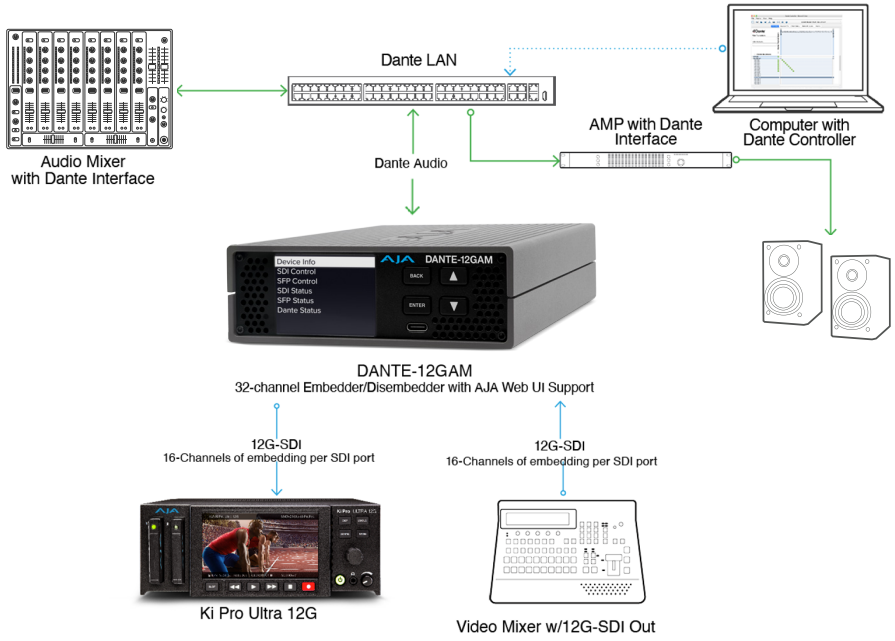
DANTE-12GAM

- Support for 12G/6G/3G/1.5G SDI audio embedding to and from the Dante® audio ecosystem.
- 1x 12G-SDI BNC Input and Output up to 4K/UltraHD.
- 1x Primary and 1x Secondary etherCon GigE ports for Dante network redundancy.
- Single video channel with independent 12G-SDI Input and Output ports, each supporting 16 audio channels, totaling 32 channels of Dante® audio in a compact design.
- Up to 32-channels of simultaneous SDI/ Dante® audio bridging per device.
- Upgradeable to second SFP channel, for up to 64-channels of simultaneous SDI/ Dante® audio bridging per device.
- Additional hardware and license purchases are required for the 64-channel upgrade.

DANTE-12GAM System

In the system shown below a DANTE-12GAM performs simultaneous embed/disembed to/from 12G-SDI/Dante Audio. It is connected to equipment typically used in a Dante Audio environment including a Dante Mixer, Dante Amp with Speakers, Computer running Dante Controller, and a Managed Network Switch. An SDI Recorder such as AJA DANTE-12GAM, and 12G-SDI Video Mixer are shown.

Figure 1. Simultaneous Embed/Disembed to/from 12G-SDI/Dante Audio



- Connect the Primary Ethernet port using suitable CAT cable to an appropriate Managed Network PoE+ or PoE++ Switch.
- Connect the approved DC Power Supply if not using PoE+ for power.

DANTE-12GAM-TR-LC

DANTE-12GAM-TR-LC Key Features

The DANTE-12GAM-TR-LC includes key features of the DANTE-12GAM, plus the following additional features:

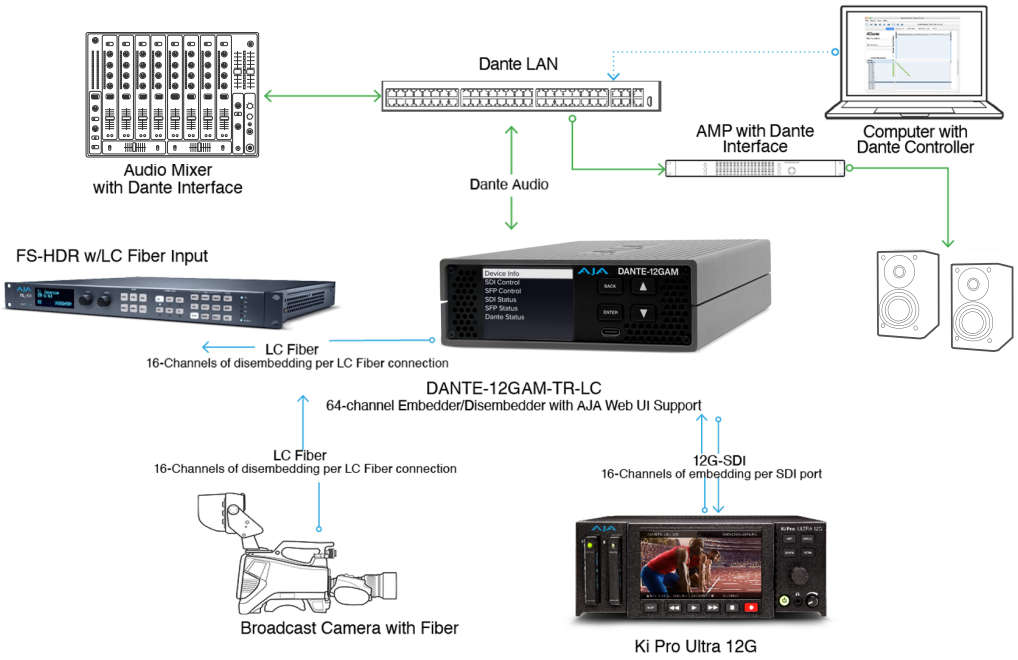
- Dual video channels with independent 12G-SDI Input and Output fiber connectors, each supporting 16 audio channels, totaling 64 Dante® audio channels in a compact design.
- 1x 12G-SDI Fiber LC Transceiver SFP.
- 2x Internal Signal Generators which enables transmitting Dante® audio channels over SDI without having an external SDI source signal.

DANTE-12GAM-TR-LC System

Below we show a DANTE-12GAM-TR-LC which includes a FiberLC-TR-12G Dual LC 12G Fiber Transceiver SFP Module. Here it performs 64 channels of audio bridging for 12G-SDI Fiber/Dante with a Broadcast Camera and an AJA DANTE-12GAM SDI Recorder.

It is also connected to typical equipment used in a Dante Audio environment such as Mixer, Amp with Speakers, Computer and a Managed Network Switch.

Figure 2. 64 channels of audio bridging for 12G-SDI Fiber/Dante Audio



1x 12G-SDI Fiber LC Transceiver SFP+, SMPTE 297/292/424/2081/2082

- Wavelength: Rx 1260 nm (min), 1620 nm (max)
- Optical Sensitivity: -10 dBm (min 12 Gbps), -14 dBm (min 3 Gbps)
- Overload Power: -2 dBm (min)
- YCbCr 4:2:2/4:4:4/4:2:0
- RGB 4:4:4, SMPTE or Full level

DANTE-12GAM-TR-BNC

DANTE-12GAM-TR-BNC Key Features

The DANTE-12GAM-TR-BNC includes all of the DANTE-12GAM, plus the following additional features:

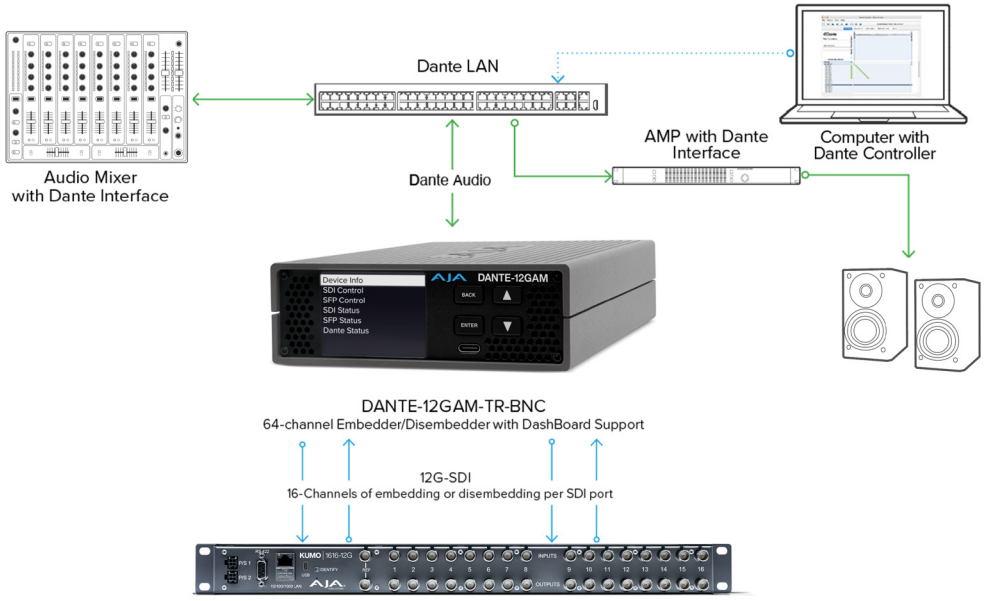
- Dual video channels with independent 12G-SDI Input and Output ports, each supporting 16 audio channels, totaling 64 Dante® audio channels in a compact design
- 1x 12G-SDI HD-BNC Transceiver connector
- Up to 64-channels of simultaneous SDI/ Dante® audio bridging per device
- 2x Internal Signal Generators which enable transmitting Dante® audio channels over SDI without having an external SDI source signal

DANTE-12GAM-TR-BNC System

Below we show a DANTE-12GAM-TR-BNC which includes a BNC-TR-12G Dual Coax Transceiver SFP Module for 32 more channels of 12G-SDI/Dante Audio. Here it performs 64 channels of audio bridging for 12G-SDI/Dante Audio together with an AJA KUMO 1616 -12G 16x16 SDI router.

It is also connected to typical equipment used in a Dante Audio environment such as Mixer, Amp with Speakers, Computer and a Managed Network Switch.

Figure 3. 64 channels of audio bridging for 12G-SDI/Dante Audio



1x BNC-TR-12G Dual BNC 12G Coax Transceiver SFP, SMPTE 297/292/424/2081/2082

- Wavelength: Rx 1260 nm (min), 1620 nm (max)
- Optical Sensitivity: -10 dBm (min 12 Gbps), -14 dBm (min 3 Gbps)
- Overload Power: -2 dBm (min)
- YCbCr 4:2:2/4:4:4/4:2:0
- RGB 4:4:4, SMPTE or Full level

Adding Second Video Channel to DANTE-12GAM

Figure 4. FiberLC-TR-12G Dual LC 12G Fiber Transceiver SFP Module by AJA

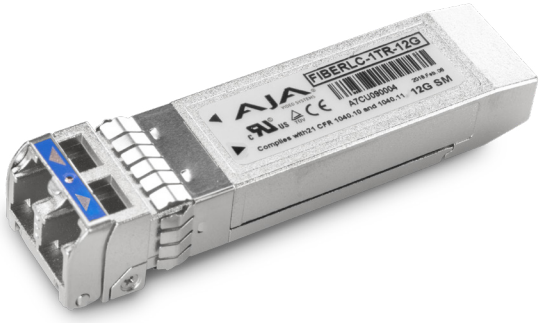


Figure 5. BNC-TR-12G Dual Coax Transceiver SFP Module by AJA

If you have initially purchased a single channel DANTE-12GAM but would like to later upgrade to the dual channel version, this can be accomplished by purchasing the unlock license directly from AJA or from an AJA authorized reseller.

Obtain License from AJA or an AJA Authorized Reseller

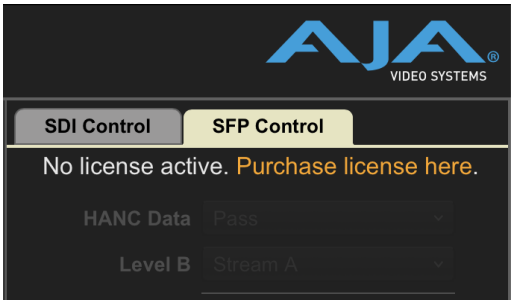
1. Confirm the specific SFP Fiber module(s) which is compatible with your DANTE-12GAM, by using AJA's SFP Configuration tool: https://www.aja.com/software/configurator
2. Order directly from AJA Shop
   https://www.aja.com/products/dante-12gam/license;
   -or-
   from an AJA Authorized Reseller
   https://www.aja.com/where-to-buy.
3. Obtain the unlock license required by DANTE-12GAM firmware to permit the second channel of video (including for embedded Dante audio). The authorized license is provided in the form of a file. See the following section for how to install the license to a DANTE-12GAM
4. Purchase that specific AJA approved SFP Fiber module from an AJA authorized reseller. To locate a reseller, see the "Where to Buy" link: https://www.aja.com/where-to-buy

Install the License into the DANTE-12GAM

Before a second channel license has been installed, you'll see a "No License Active" message in the SFP Control Tab, along with a purchase link.

Notice that all of the Control Tab controls are grayed-out, since they are unavailable until after the second video channel license has been installed.

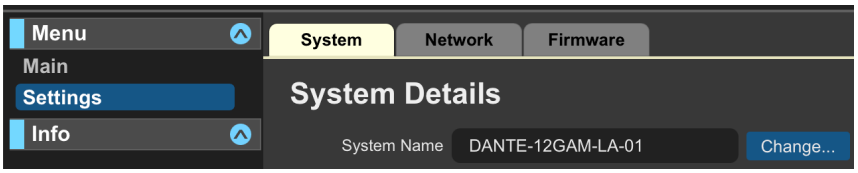
Figure 6. SFP Control Tab Before License Installation



After you have obtained the second channel license file (see above), you will need to install it to the DANTE-12GAM device:

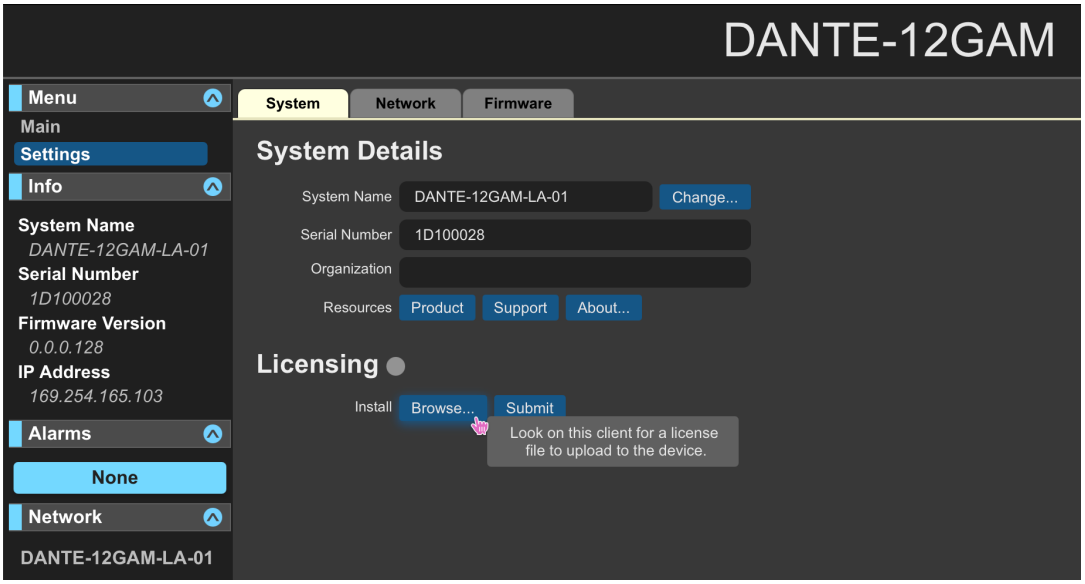
1. Select Settings from the Menu pane (if not already selected).
2. Select the System Tab (if not already selected).

Figure 7. Select Settings and Select System Tab



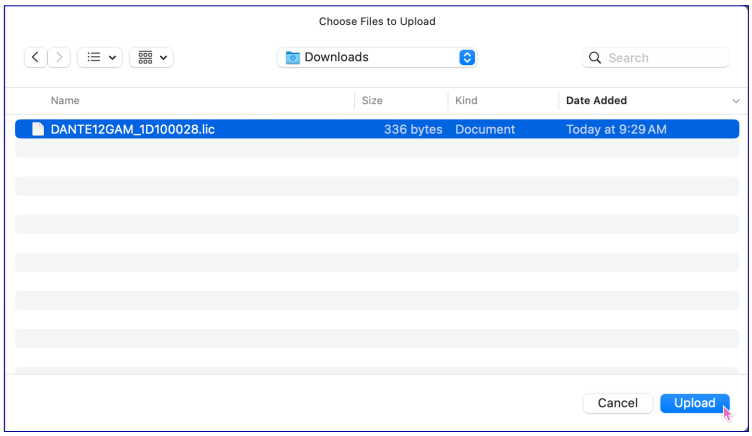
3. In the Licensing section of the System Tab, Click on **Browse**.

Figure 8. Click on Browse to locate a Downloaded License File



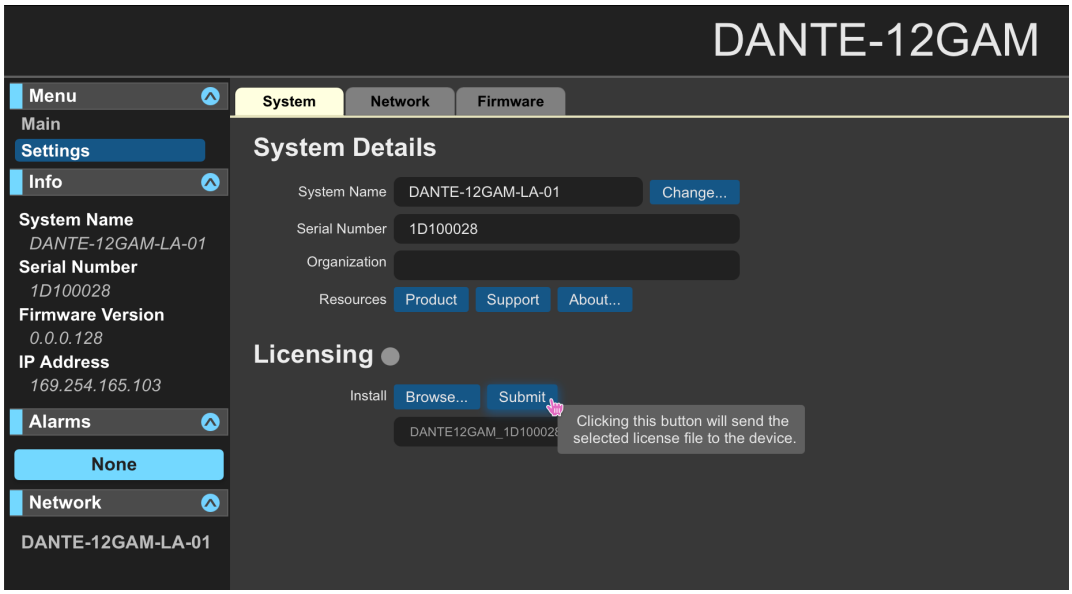
4. Browse to your downloaded 'DANTE12GAM_(nnnnn).lic' license file and select it.
5. Click **Upload.**

Figure 9. Browse to downloaded License File and Click Upload



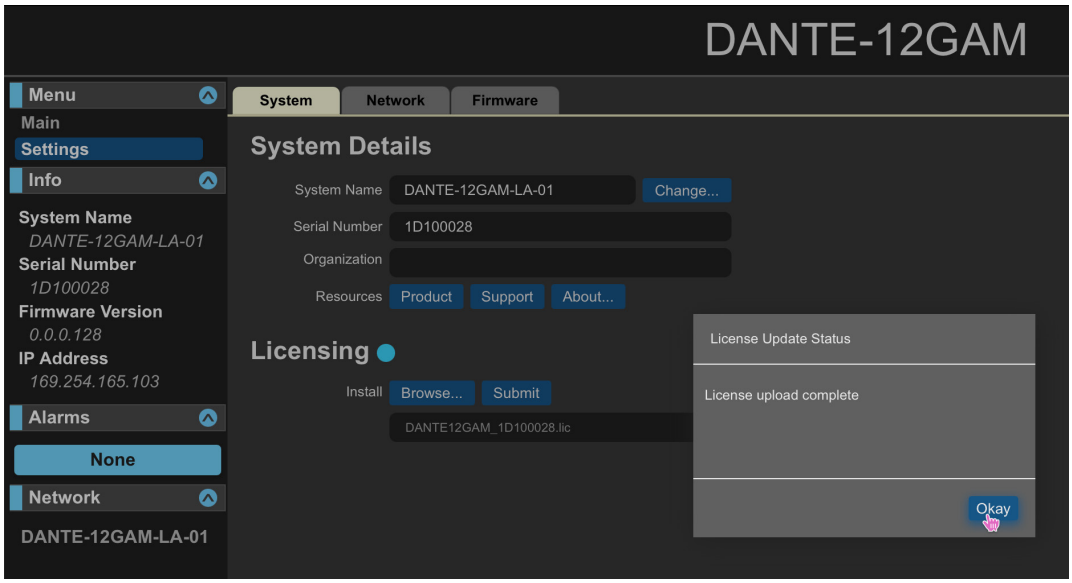
6. Click **Submit**.

Figure 10. Click Submit to Load License into DANTE-12GAM



7. Click **OK** to complete the license installation and activation.

Figure 11. Click OK to Complete License Installation

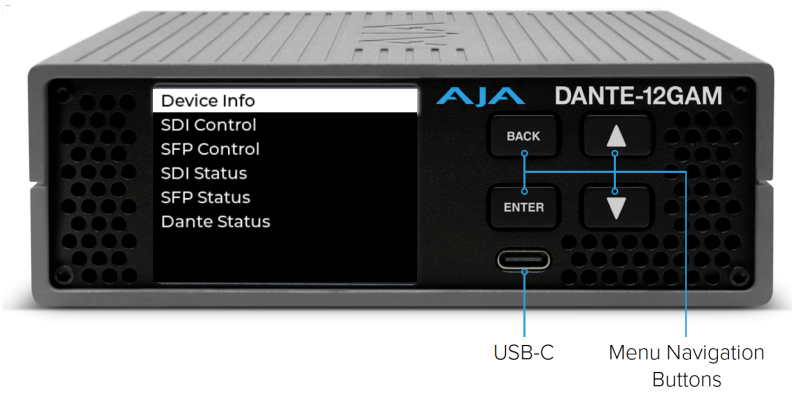


Display and Control Buttons

DANTE-12GAM's front panel display and buttons are used for viewing status information and for direct control of some features. Up, Down, Back and Enter buttons are used to navigate the functions on the display.

There is also an additional front panel USB-C port, for convenient use of the AJA eMini-Setup application.

Figure 12. DANTE-12GAM Front Panel with Display and Buttons



NOTE: See Chapter 3: Front Panel Display on page 34 for detailed information on the front panel.

NOTE: See "eMini-Setup" on page 66 for use of the eMini-Setup application, primarily used for initial device IP configuration

IMPORTANT: The USB-C port on the front panel provides USB 2.0 compatibility and does not provide USB power sufficient for USB devices that require it.

USB-C Port

Used only for connection to AJA eMini-Setup application. 3-ft. USB-C to USB-C and 3-ft. USB-C to USB-A cables are included.

NOTE: USB 2.0; not for power

NOTE: See Chapter 4 "eMini-Setup" on page 66.

Power

1x 12V, 60W 10-18VDC regulated, 4-pin mini-XLR

- PoE+ on Primary Ethernet port
- Single power supply is included

DANTE-12GAM Power Behavior

1. If DC power is plugged in, that will be the power used, regardless of the order of power connection between DC and PoE+.
   A. If the DANTE-12GAM starts with PoE+ and DC power is applied after, the unit will switch to DC power with no impact to the unit's operation.
   B. If PoE+ power fails, there will be no impact since DC is already in use.
   C. If PoE+ power is restored, there will be no impact since DC is already in use.
2. If DC power fails, the unit will momentarily lose power and power back up via PoE+.

AES67 Feature Summary:

DANTE-12GAM will generate AES67 flows with the following format:

- Multicast only
- Non-redundant
- Destination address in range 239.nnn.0.0 - 239.nnn.255.255 (239.nnn/16), port 5004
  - Nnn can be configured using Dante Controller. The default is 69. Must match receive address range
- 48kHz sampling rate
- 24-bit linear (L24) encoding
- 1 msec packet time
- Up to 8 channels per stream

DANTE-12GAM will only consume AES67 flows with the following format:

- Multicast only
- Non-redundant
- Destination address in range 239.nnn.0.0 - 239.nnn.255.255 (239.nnn/16), port 5004. Must match destination address range
- 48kHz sampling rate
- L16 or L24 encoding
- 25usec, 333usec, 1msec packet time
- Up to 8 channels per stream

Dante Applications

A number of software applications from Audinate are used to work with the Dante ecosystem.

Dante Controller

Dante Controller shows the DANTE-12GAM as having 16 routable audio sources and 16 routable audio destinations per video channel. By using Dante Controller's Group function, you can "split" these into two separately collapsible channel groups: (1-8) and (9-16). When a second video channel is added by means of the SFP module, these additional two groups are numbered channels (17-24) and (25-32).

Use Dante Controller to set up the audio routing between Dante devices, and adjust network, video, audio and other settings for the DANTE-12GAM. Dante Controller's intuitive user interface makes it easy to name, route, multicast and effectively transport dozens (or with multiple DANTE-12GAMs, hundreds) of channels of high quality digital audio in real-time over an Ethernet network.

Dante Domain Manager

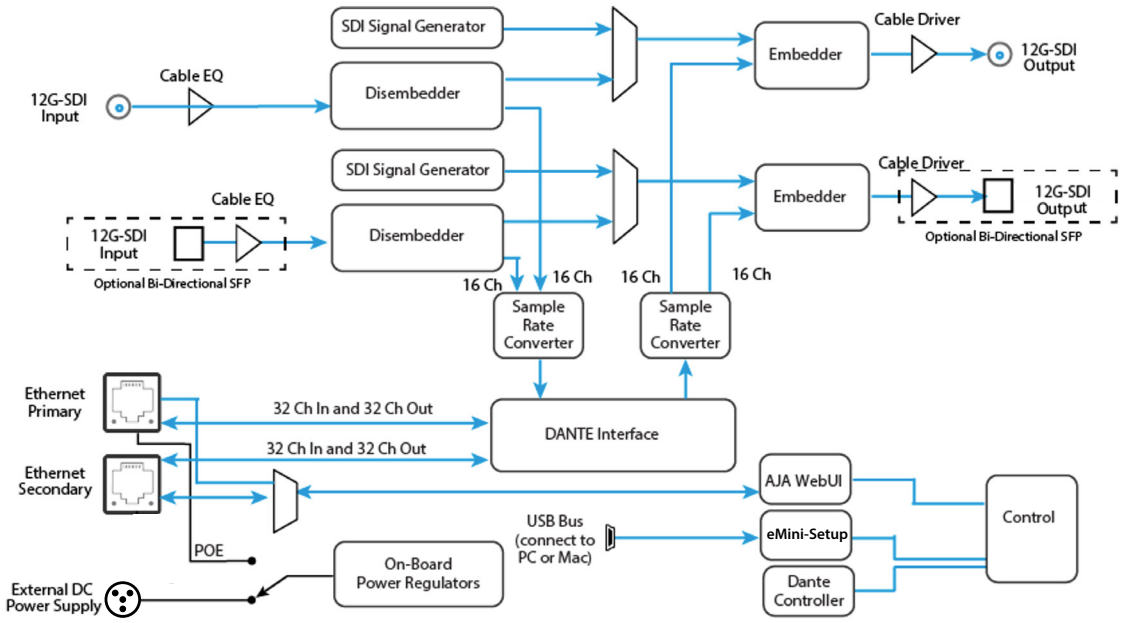
Use Dante Domain Manager to manage the Dante network. It supports setting up authentication, security, and other similar attributes for management of various network architectures.

NOTE: Dante Domain Manager is required to use the device in SMPTE ST 2110-30 Mode. See: https://www.getdante.com/products/network-management/dante-domain-manager/

NOTE: When connecting a DANTE-12GAM to a 2110-30 source using Dante Domain Manager (DDM), ensure the "RTP Prefix V4" value matches the second octet of the 2110-30 multicast address. For example, if your 2110-30 source is at 239.69.1.1 port 12345, set "RTP Prefix V4" to "69". You can find the "RTP Prefix V4" parameter in DDM under Domains > "YOURDOMAINNAME" > ADVANCED SETTINGS.

DANTE-12GAM Simplified Block Diagram

Figure 13. DANTE-12GAM Block Diagram



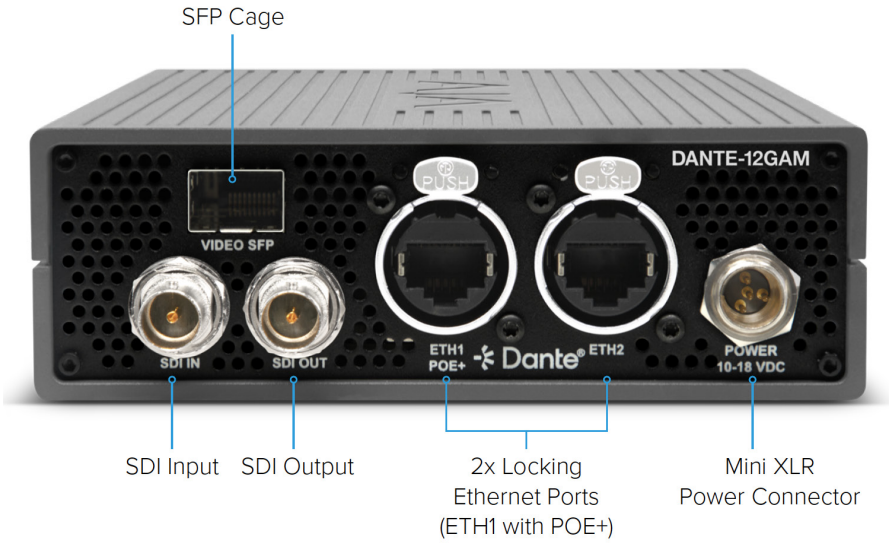
Internal Signal Generators

The DANTE-12GAM provides one Internal Signal Generator for each video channel, enabling users to extend Dante audio over SDI coax cabling up to 200m and further with fiber without requiring external SDI source signals.

The on-board Internal Signal Generator, with three selectable static test patterns, creates a 1.5G SDI signal, eliminating the need for an incoming SDI video source when moving a Dante digital audio source over SDI with DANTE-12GAM.

DANTE-12GAM Series Rear Panel Connections

Figure 14. Rear View of DANTE-12GAM Series Connectors



Rear Panel Cabling & SFP Module: Setup Checklist

1. Connect the Primary Ethernet port using suitable CAT cable to an appropriate Managed Network PoE+ or PoE++ Switch.
2. Connect the approved AJA DC Power Supply if not using PoE+ for power. See *"Power" on page 77.*

IMPORTANT: It is recommended that if possible, ideally a DC Power Supply should remain connected to the Mini XLR Power on the DANTE-12GAM even when using PoE+. This will prevent the DANTE-12GAM from losing power and subsequently rebooting in the event of a loss and restoration of PoE+ power.

3. Connect an SDI video source (if one is available) to the SDI Input (SDI 1).
4. Connect your SDI video output to an SDI router, Monitor and/or other SDI equipment.
5. Install an SFP module for second bi-directional video channel (optional). The SFP module can be either SDI or fiber. See *"Adding Second Video Channel to DANTE-12GAM" on page 9*.
6. Connect an SDI (or fiber) video source (if one is available) to the second channel SFP module Input.
7. Connect an SFP video output to your fiber or other SDI equipment, such as a router or monitor, or fiber switch, etc. depending upon which SFP module is installed.

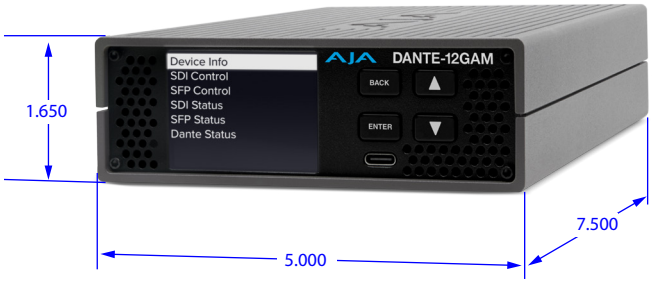
Ethernet Link & Status LEDs

The ETH 1 PoE+ and ETH 2 connectors have Link & Status LEDs.

- Left LED (green)
  - Flashing indicates activity.
  - No light means that there is no current connection.
- Right LED (green)
  - A solid LED represents the Ethernet link is 1Gbps
  - No light represents the Ethernet link is 100Mbps

Form Factor

Figure 15. DANTE-12GAM Dimensions (inches; oblique view)

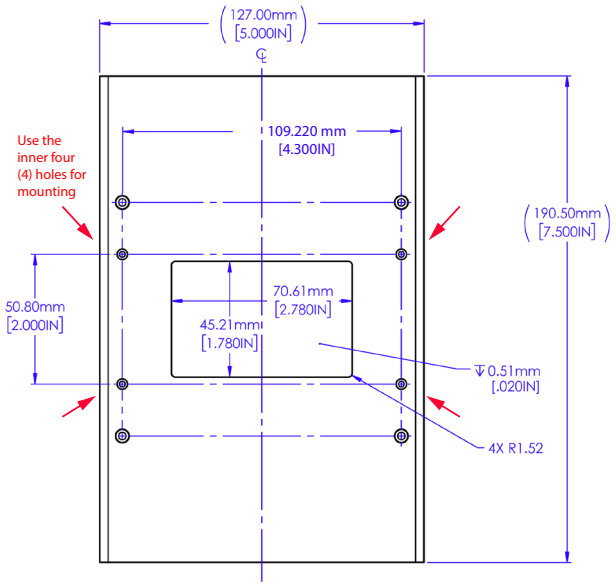


The single-rack-height, <1/3-wide (5.000") form factor supports up to three devices per 1RU high rack space.

Figure 16. DANTE-12GAM Dimensions (inches; top view)

Mounting Holes

Figure 17. DANTE-12GAM Mounting Holes (bottom view)



Above we show the bottom mounting holes for DANTE-12GAM. They may be used for mounting to available third-party 1RU rack shelves.

NOTE: Threads inside the holes take 4-40 x 0.312 Phillips Flat Head screws.

SFP Cable and Port Safety

A Class 1 laser product, like an SFP module, is a device containing a laser of any class, but its design ensures that human exposure to the laser radiation does not exceed the Maximum Permissible Exposure (MPE) limit. The SFP module is self-contained, and the laser light is safely housed inside unless a fiber optic cable is disconnected.

Although certified Class 1 laser products are designed to be safe, it is critical to follow best practices, especially with fiber optic equipment where an accidental disconnection could expose the beam.

IMPORTANT: Cover open ports: Always keep protective dust caps on optical transmit and receive ports when they are not connected to a fiber optic cable.

***WARNING:* Avoid visual inspection: Never look directly into an active fiber optic cable or transceiver port. The invisible infrared light can cause eye damage.**

CAUTION: *Use proper tools: If visual inspection is necessary, always use an optical power meter or a digital inspection scope, never an optical microscope or the naked eye.*

CAUTION: *Be cautious with amplified signals: In rare cases, high-power long-haul equipment can use more powerful lasers. This equipment will have higher-class safety warnings and potentially interlocks to prevent exposure. However, typical data center SFPs are safe for normal handling.*

Chapter 2 – Software Operation

Overview of Operation

User operation of the DANTE-12GAM is comprised of four complementary control methods, one hardware and three software:

- DANTE-12GAM's **Front Panel Display**. Used for displaying essential information including for the DANTE-12GAM device, as well as network and signal status; this is right at the device's location, without requiring connection to, nor operation from a computer. See *"Front Panel Display" on page 50.*
- AJA's **eMini-Setup*** utility application. Used primarily for a Static IP configuration, plus additional status information and additional controls. See Chapter 4, *"AJA eMini-Setup" on page 66.*
- DANTE-12GAM's **WebUI*** (built-in web server) providing an intuitive browser-based Interface for use of all features and controls.* *See "DANTE-12GAM WebUI" below on this page.*
- Audinate's **Dante Controller*** application, for channel routing of Dante Audio Transmitters to Dante Audio Receivers, signal, device and network configuration.** *See "Dante Controller" on page 33.*

*NOTE: *USB connection and a host computer is required.*

*IMPORTANT: **You may immediately launch the WebUI by entering the default DHCP IP address shown on the Display into a web browser. See "Quick Start Launch of WebUI" on page 64.*

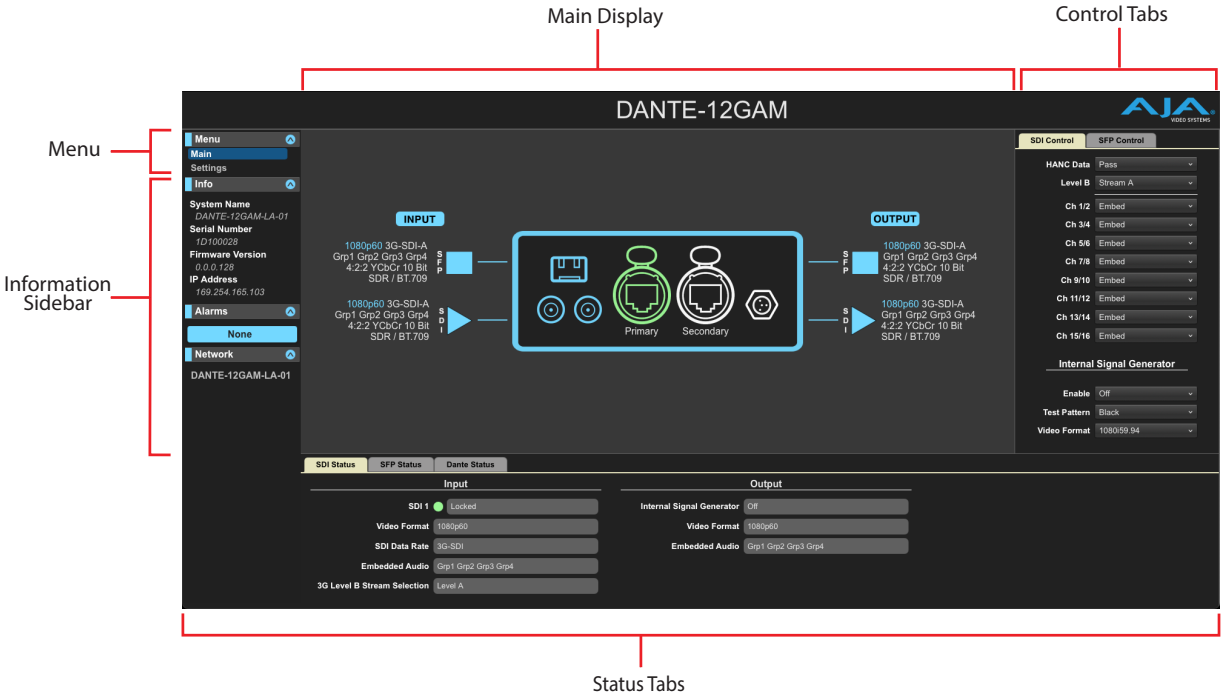
DANTE-12GAM WebUI

Overview

The DANTE-12GAM WebUI consists of four control groups, or panels:

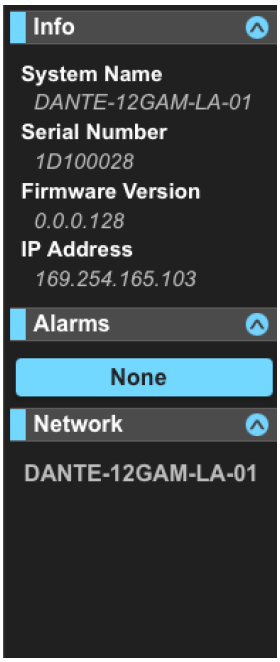
- Info Sidebar & Menu (left)
- Main Display (center)
- Control Tabs (right)
- Status Tabs (below)

Figure 18. Control Groups (Panels) of the DANTE-12GAM WebUI



Info Sidebar (left panel)

Figure 19. WebUI Info Sidebar



Info

- System Name
- Serial Number
- Firmware Version
- IP Address

NOTE: The Info fields are non-editable.

Alarms

The DANTE-12GAM provides a fan alarm. A fan alarm may or may not lead to an over-temperature condition. Contact AJA Support if a fan alarm continues to return after clearing the alarm via the WebUI.

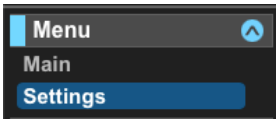
Network

- The System Names for all AJA devices which are connected to the Dante Network will appear under Network.

Menu/Settings (left panel)

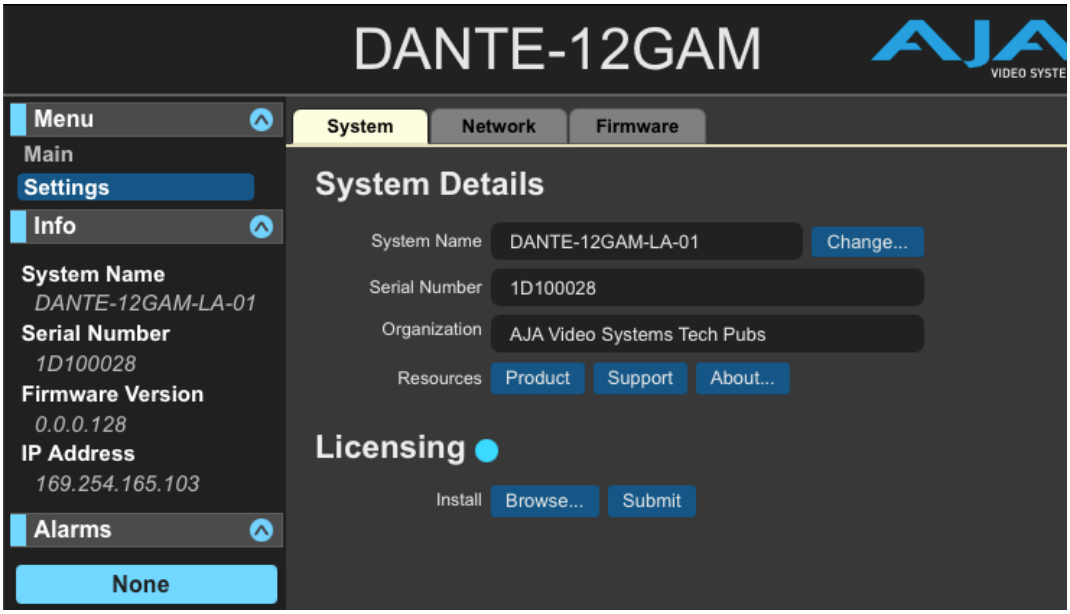
Under the Menu/Settings in the left panel, there are three tabs: System, Network and Firmware. These are detailed in the following sections.

Figure 20. Settings on the Menu Tab Selected



System Settings Tab

Figure 21. System Settings Tab



System Name

The DANTE-12GAM may be renamed. Its System Name is limited to a maximum of 44 characters, and all international characters are supported.

Serial Number

The serial number is fixed and cannot be changed.

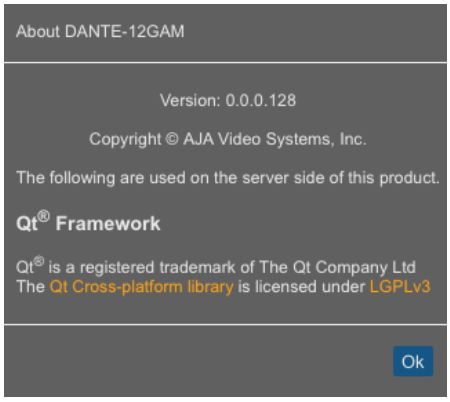
Organization Name

An organization name may be entered as desired. The Organization Name is limited to 44 characters, and all international characters are supported.

Resources

- The **Product** button opens up the web page at: https://www.aja.com/products/dante-12gam.
- The **Support** button opens up the web page at: https://www.aja.com/support/contact.
- The **About** button opens up the DANTE-12GAM Info screen:

Figure 22. The About DANTE-12GAM information screen



Licensing

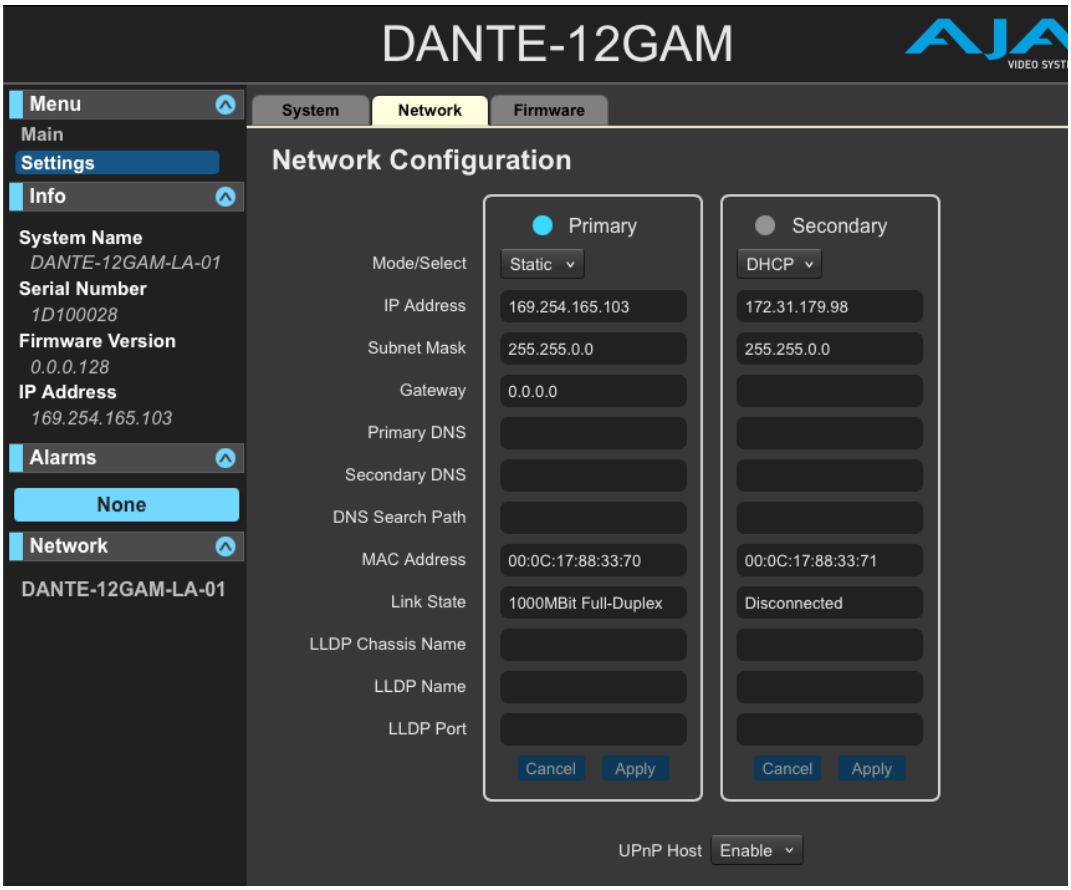
The **Browse** button is used to browse to a downloaded authorized AJA license file.

The **Submit** button is used to install the selected license file into the DANTE-12GAM.

1. Download the authorization license from AJA.
2. Click **Browse** to browse to and select the downloaded license file.
3. Click **Submit** to upload the license file to the device.
4. Click **OK** to complete the license activation.

Network Settings Tab

Figure 23. Network Settings Tab



Mode/Select

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.

DHCP (default) - Selects automatic IP address assignment from the LAN DHCP server. If a DHCP server cannot be found, DANTE-12GAM will fall back to the previously entered Static IP address. If no Static IP address had been entered, the system fails over to a link local static IP address (169.254.x.x).

Static - Assigns a static IP address manually.

IP Address

The current IP address is displayed. A different static IP address can be entered.

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.
- If IP Address Type is set to Static, enter an IP address compatible with your LAN. This must be initially configured using AJA eMini-Setup.
- If IP Address Type is set to DHCP and there is a DHCP failure, the IP address is set to a link local static IP address.

Subnet Mask

The current Subnet Mask is displayed. A different netmask can be entered.

Subnet Mask determines the subnet mask to be used for TCP/IP networking.

- Use a subnet mask compatible with your LAN. This is only needed for Static IP configurations. The factory default Subnet Mask is 255.255.0.0.
- If IP Address Type is set to DHCP, the Subnet Mask is set by the DHCP server and cannot be changed by the user.

Gateway

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

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 DANTE-12GAM will be unable to see other DANTE-12GAMs on the network, although you may still be able to control this DANTE-12GAM 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.

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

If your DANTE-12GAM needs to communicate to servers on another LAN or WAN, you have to enter the address of the computer/router that is making that external connection. If all of your devices, and the systems they need to talk to, are on a single LAN, then you can enter any unused LAN address as the Gateway here.

*IMPORTANT: *For most applications, use of 0.0.0.0 for the Gateway is recommended.*

NOTE: Group functionality requires all participating devices have the same valid Gateway address.

Primary DNS

The IP address of the first Domain Name System (DNS) server your device uses to translate domain names (like "google.com") into IP addresses. DNS is like the Internet's phone book.

Secondary DNS

Secondary DNS: The IP address of a backup DNS server used if the primary DNS server is unavailable. Provides redundancy for name resolution.

Primary and Secondary DNS Servers - In DHCP mode, reports the current DNS Server IP addresses. In Static mode, allows entry of DNS Server IP addresses.

***CAUTION:** If DNS servers are not present or have incorrectly entered IPs, then wherever DANTE-12GAM specifies machines by name the names won't work, although numeric IP addresses will still work.*

***CAUTION:** When using Static IP addressing for DANTE-12GAM, be sure to also enter a valid DNS server address in the "Primary DNS Server" field.*

DNS Search Path

A list of domain suffixes automatically appended to a hostname when attempting to resolve it. This allows you to use shortened host names (e.g., using "server1" instead of "server1.example.com").

MAC Address

A unique hardware address assigned to a network interface card (NIC). It identifies the specific hardware device on the network. Unlike an IP address, it is typically fixed and cannot be changed by the user. This is the permanent MAC address of the AJA device.

Link State

Reports the link speed of the Ethernet connection.

LLDP Chassis Name

A descriptive name identifying the physical housing or frame of a network device, as advertised using the Link Layer Discovery Protocol (LLDP). Helps identify devices on the network.

LLDP Name

A descriptive name for a specific network device or interface, as advertised using LLDP. Provides a human-readable identifier.

LLDP Port

The name or identifier assigned to a network port on a device, as advertised using LLDP. This allows for easy identification of ports during network management.

UPnP Host

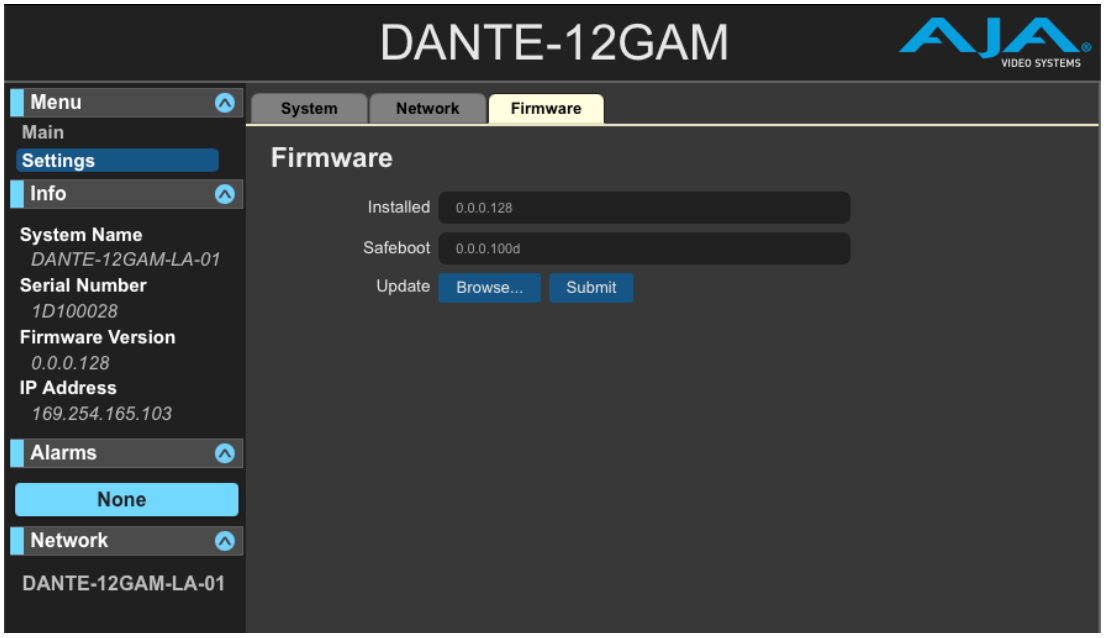
When this parameter is enabled, you can view the DANTE-12GAM on a Windows Network. Any DANTE-12GAM on the network will be listed under Other Devices. If your system does not have network discovery enabled, you may need to enable it following the Windows help instructions to make network devices visible in the Windows Network window.

Choose from:

- Enable
- Disable

Firmware Settings Tab

Figure 24. Firmware Settings Tab



Firmware: Installed

Displays the currently installed firmware in the DANTE-12GAM device.

Firmware: Safeboot

Displays the currently installed Safeboot firmware version.

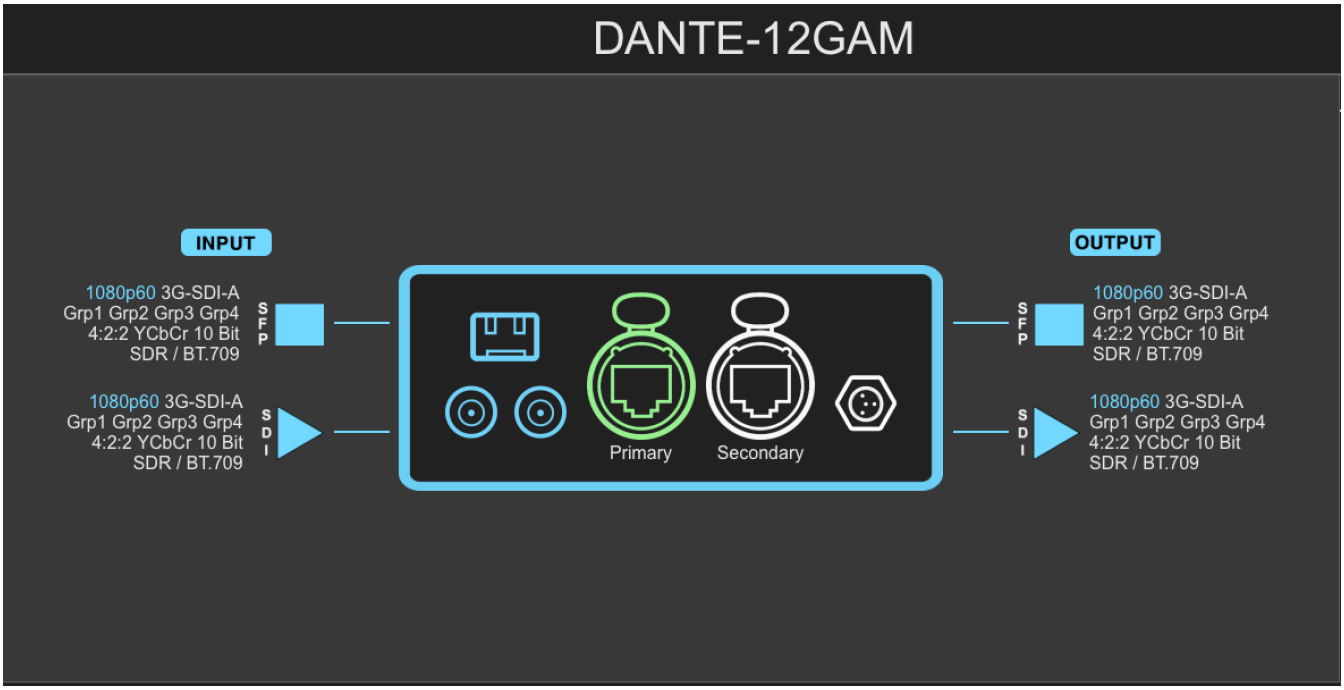
IMPORTANT: If the unit becomes unresponsive, first power cycle the device. If that does not resolve the issue, the next step is to enter the Safeboot mode by unplugging the PoE+ Ethernet and the DC power supply. Next, hold down the Enter button while reconnecting the DC power.

Firmware: Update

Use the **Browse** button to select downloaded firmware update. Click the **Submit** button to install. (Follow the installation prompts.)

Main Display (center panel)

Figure 25. DANTE-12GAM WebUI Main Display



Graphic Display I/O Icon States:

- SFP:
  - Blue - Active supported signal
  - White - No signal detected
  - Red - Bad signal
  - Gray - License not activated
- SDI:
  - Blue - Active supported signal
  - White - No signal detected
  - Red - Bad signal
- Primary EtherCon:
  - Blue - Active supported connection
  - White - No active connection
  - Red - Bad connection
  - Green - Active supported connection, Powered over Ethernet
- Secondary EtherCon:
  - Blue - Active supported connection
  - White - No active connection
  - Red - Bad connection

NOTE: Secondary EtherCon does not support PoE+

- Mini-XLR DC Power:
  - White: No active connection
  - Green - Active DC power

Input Graphic Display (SDI)

- SDI Input
  - SDI Lock
  - SDI Data Rate
  - Video Format
  - Embedded Audio Group
  - Color Space
  - Bit Depth
  - Colorimetry
  - 3G Level B Stream Selection

Input Graphic Display (SFP Fiber if applicable)

- Optical Fiber SFP Input
  - SDI Lock
  - SDI Data Rate
  - Video Format
  - Embedded Audio Group
  - Color Space
  - Bit Depth
  - Colorimetry
  - 3G Level B Stream Selection

Output Graphic Display (SDI)

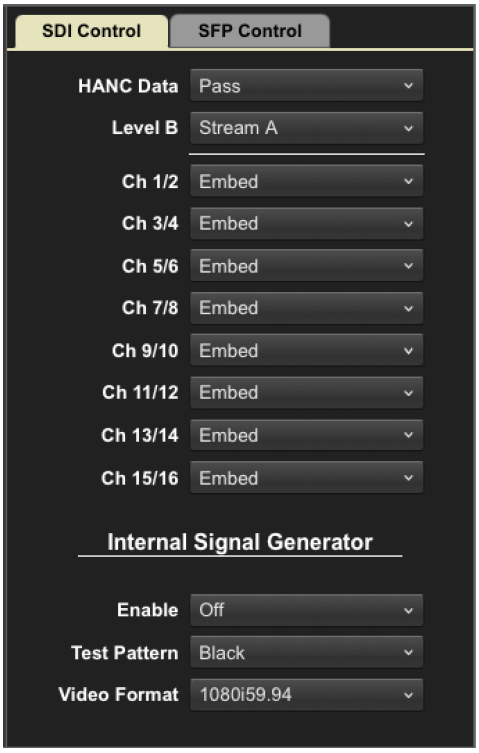
- Internal Signal Generator
- Video Format
- Embedded Audio

Output Graphic Display (SFP Fiber if applicable)

- Internal Signal Generator
- Video Format
- Embedded Audio

Control Tabs (right panel)

Figure 26. WebUI SDI & SFP Control Tabs (SDI Selected)



SDI Control Tab (Channel 1)

SDI HANC Data

- Pass
  - When Pass is selected, all incoming HANC packets are passed unless the embedder settings require all or part of them to be over-written.
- Delete
  - When Delete is selected, all incoming HANC packets are dropped before embedding any new audio packets. The embedder settings determine all embedded audio output. Disembedding is not affected.

SDI 3G Level B Stream Selection

- Stream A
- Stream B

For 3G Level B signals, select either the 16 audio channels of input Stream A or the 16 channels of input Stream B for disembedding. This setting also controls whether output Stream A or output Stream B will receive embedded.

SDI Pass/Embed Options

Choose which SDI audio channels will embed incoming Dante audio channels. When Pass is selected, the corresponding incoming and outgoing audio channel pair for SDI 1 remain unchanged. When Embed is selected, the selected channel pair will embed the corresponding incoming Dante channel pair into the outgoing SDI 1 signal.

IMPORTANT: If a channel is not set up to embed in the WebUI, you can still make the route in Dante Controller but the audio will not be embedded.

- CH 1/2
  - Pass
  - Embed
- CH 3/4
  - Pass
  - Embed
- CH 5/6
  - Pass
  - Embed
- CH 7/8
  - Pass
  - Embed
- CH 9/10
  - Pass
  - Embed
- CH 11/12
  - Pass
  - Embed
- CH 13/14
  - Pass
  - Embed
- CH 15/16
  - Pass
  - Embed

SDI Internal Signal Generator

There are two independent Internal Signal Generators, one for Video Channel 1 and one for Video Channel 2 (SFP). The Internal Signal Generators enable the DANTE-12GAM to output a 1.5G SDI video with embedded Dante audio without an SDI input signal present. You can embed Dante audio into these SDI video streams. If an input video signal is present, embedded audio will be disembedded and available to route within the Dante network.

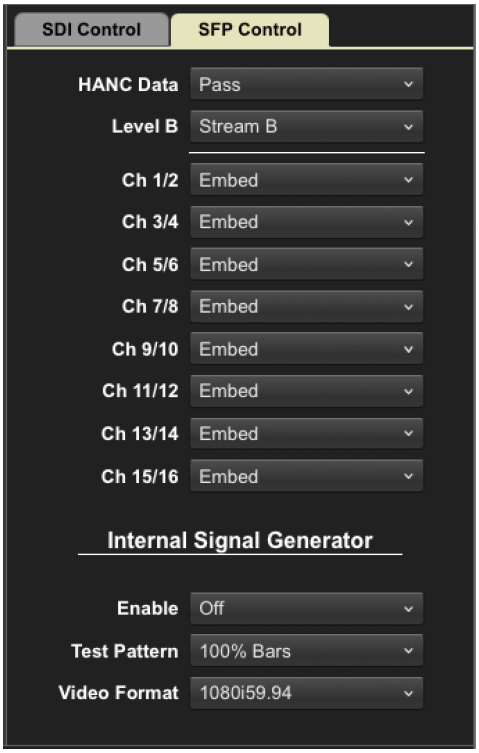
IMPORTANT: The Internal Signal Generator supersedes the input video signal. Make sure it is turned off when an input signal is present.

- Enable - Select from the following:
  - Off
  - On
- Test Pattern - Select from the following:
  - Black
  - 100% Bars
  - Grey
- Video Format – Select from the following:
  - 1280x720p 50
  - 1280x720p 59.94
  - 1920x1080i 50
  - 1920x1080i 59.94

NOTE: When the Internal Signal Generator is enabled, the Video Format info will be displayed Yellow instead of Blue to signify that a test pattern is being outputted instead of a connected SDI Input.

SFP Control Tab (Channel 2; when licensed)

Figure 27. WebUI SDI & SFP Control Tabs (SFP Tab Selected)



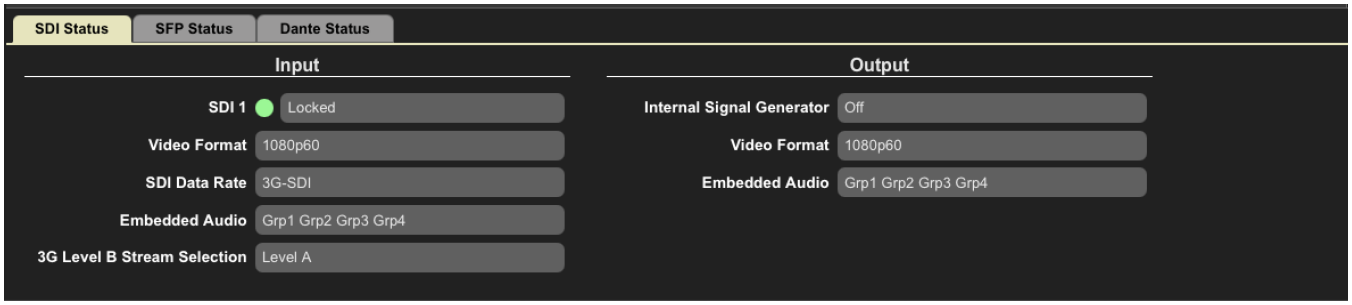
The SFP Control Tab has each and all of the same options as the *"SDI Control Tab (Channel 1)" on page 29*.

Status Tabs (lower panel)

SDI Status Tab

The SDI Status tab indicates the status of key aspects of signal presence such as SDI 1 Lock, SDI Signal Type, Input Signal, Output Signal, and which groups are present in the ingoing and outgoing embedded audio.

Figure 28. SDI Status Tab



SDI Input

- SDI 1
  - Locked
  - Not Locked

- Video Format
  - Displays the active signal raster and frame rate for the SDI 1 Input
- SDI Data Rate
  - Provides status of a 12G, 6G, 3G, 1.5G SDI signal
- Embedded Audio
  - Grp1, Grp2, Grp3, Grp4

NOTE: If no groups are displayed, then the SDI source has not been properly connected to the DANTE-12GAM.

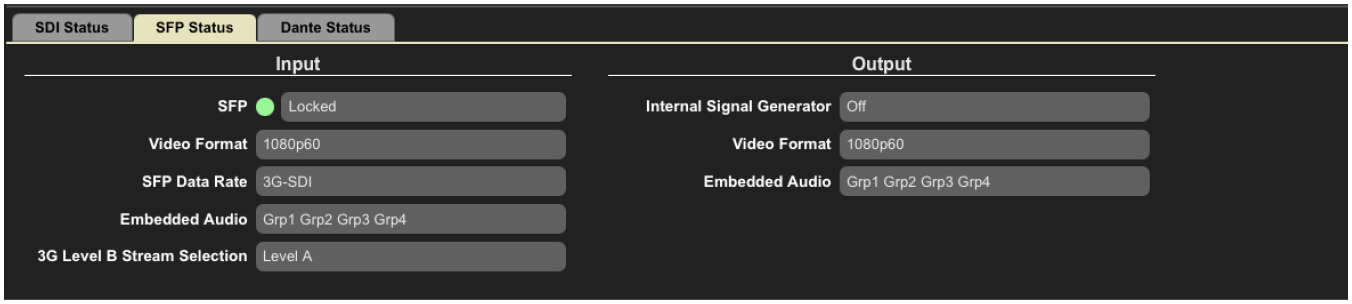
- 3G Level B Stream Selection
  - Level A
  - Level B

SDI Output

- Internal Signal Generator
  - On
  - Off
- Video Format
  - Displays the active signal raster and frame rate for the SDI 1 Output
- Embedded Audio
  - Grp1, Grp2, Grp3, Grp4

SFP Status Tab (Channel 2; when licensed)

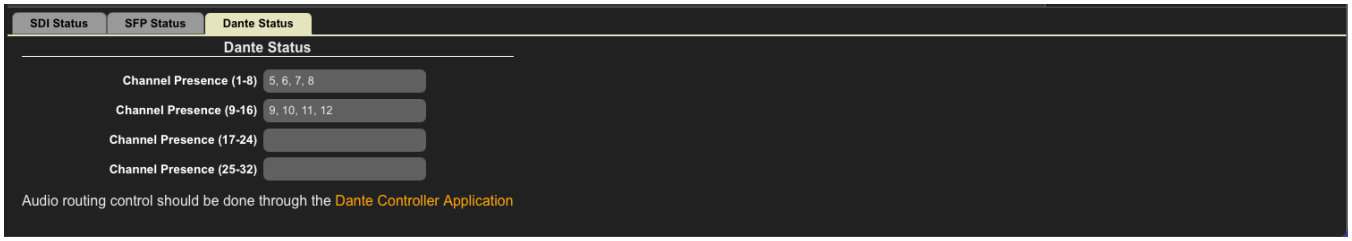
Figure 29. SFP Status Tab



The SFP Status Tab has each and all of the same options as the SDI Status Tab. (See previous section.)

Dante Status Tab

Figure 30. WebUI Dante Status Tab



The Dante Status tab screen indicates what audio channels are being actively routed to the DANTE-12GAM through the Dante network for the following four channel groups.

The example shown above is actively routing channels 5,6,7 & 8 as well as channels 9,10,11 & 12.

Channel Presence 1-8 (SDI)

- 1,2,3,4,5,6,7,8

Channel Presence 9-16 (SDI)

- 9,10,11,12,13,14,15,16

Channel Presence 17-24 (SFP Option)

- 17,18,19,20,21,22,23,24

Channel Presence 25-32 (SFP Option)

- 25,26,27,28,29,30,31,32

NOTE: If one or more channels are muted (non-active in the Dante Controller routing matrix), then those channel numbers will be missing from the Presence field channel lists.

Audio routing control should be done through the Dante Controller Application

Dante Controller

Downloading & Installing Dante Controller

Dante Controller by Audinate must be installed on at least one PC or Mac on the Dante network in order to control and route Dante audio.

Dante Controller is available as a free download from the Audinate website. Check their website to confirm that your setup meets the minimum hardware component and operating system requirements of Dante Controller.

https://www.audinate.com/products/software/dante-controller

Installing Dante Controller on Windows

Once you have downloaded the self-installing Dante Controller file, navigate to the directory where you have downloaded it (e.g. Desktop). To install:

1. Ensure you are logged on to your PC as an administrator.
2. Navigate to and double-click the Dante Controller installer file.
3. Read the license agreement. If you agree to the terms, select the 'I agree' check box and click Install. If you do not agree to the terms, click Close.
4. Confirm / acknowledge any Windows security prompts that are displayed.
5. Dante Controller will then be installed. Dante Controller will be added to the start menu, under 'Audinate'.

Installing Dante Controller on MacOS

To install Dante Controller on macOS:

1. Double-click the Dante Controller .dmg file. A drive icon will appear on your Desktop Finder window.
2. Double click on this to open.
3. Double click the Dante Controller .pkg. This will run the installer.

4. Read the license text, and if you accept the terms of the agreement, click Agree If you do not accept, click Disagree to terminate the installation.

Starting up Dante Controller

Launching the Dante Controller Application

Windows

By default Dante Controller will be installed in

`C:\Program Files (x86)\Audinate\Dante Controller\`

It can be started in several ways:

- Using the Start menu: Start > Audinate > Dante Controller > Dante Controller
- Run by going to Start > Run and entering

`C:\Program Files\Audinate\Dante Controller\DanteController.exe` in the dialog box

- Navigate to the directory where it is installed, and double-click the Dante Controller icon.

MacOS

The Dante Controller application will be installed in the Applications folder.

To start:

- Navigate to Applications folder, and double-click the Dante Controller icon; or
- Drag the icon to the Dock and click on it.

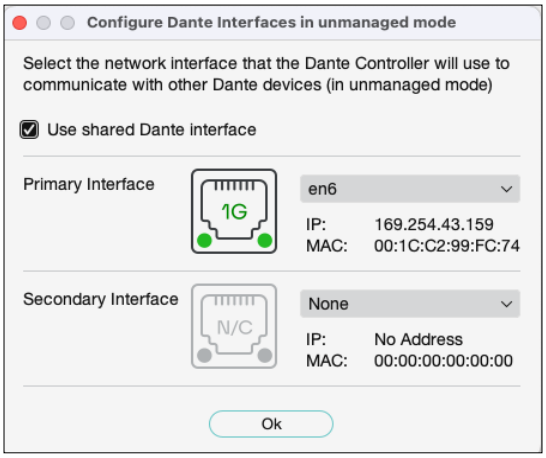
Configuring Dante Controller

Network Interface Selection

Dante Controller communicates with other Dante devices on the primary network. Dante Controller supports connection to primary Dante networks via Ethernet and WiFi network interfaces.

The first time Dante Controller is run, you may be presented with the Configure Dante Interfaces dialog (shown below). Use this dialog to select the primary Dante interface. Once interface has been selected, it is remembered for future use, and this dialog will not be shown when Dante Controller is run subsequently.

Figure 31. Network Interface Selection



Available Dante Controller Training

Audinate offers comprehensive training videos that cover the extensive capabilities of the Dante Controller:

The video series "Getting Started with Dante" provides a high-level overview of Dante audio networking. Please refer to these videos and other materials to learn how to setup and use a Dante system:

https://www.getdante.com/resources/training/

In addition, Audinate as well as others offer many introductory through advanced video series, "Dante Controller 101," that goes over the essential functions and features of Dante Controller:

https://www.getdante.com/resources/training/dante-certification-program/

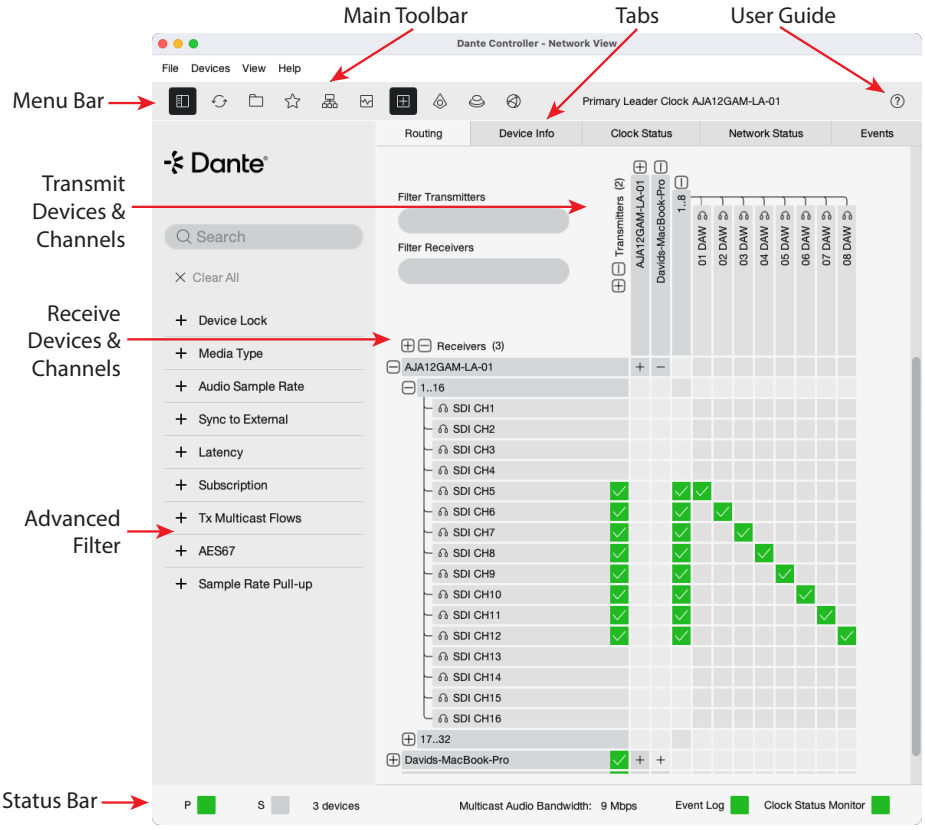
Using Dante Controller with DANTE-12GAM

Introduction to Dante Controller's Network View

When Dante Controller is started, it always displays the Routing Tab within the Network View. In this view the network is shown in the form of a grid. Devices with transmit channels are displayed along the top row of the grid, and those with receive channels are displayed along the left-hand column of the grid.

Click the '+' icons to view the channels, and click the '-' icons to collapse them. Transmitters and Receivers are shown below with Channel Groups enabled. Green check marks denote valid audio channel 'Routes'. On the left pane is a configurable advanced Filter, which is very useful for large networks with many devices and many channels connected.

Figure 32. The Dante Controller User Interface (Network View/Routing Tab)



Online Dante Controller Guide by Audinate

Audinate provides a comprehensive online guide for Dante Controller:

https://dev.audinate.com/GA/dante-controller/userguide/webhelp/content/front_page.htm.

NOTE: Link above is for Dante Controller version 4.15.x. Inside Dante Controller is a link which will open the latest online guide for that specific version of the application.

Network View: a DANTE-12GAM Routing Example

In the example below a 'DAW' (Digital Audio Workstation) computer is sending eight channels of its audio to the DANTE-12GAM over the Dante Network.

Figure 33. Dante Controller/Network View/Routing Tab

DAW Computer Transmits 8 channels of Audio over the Dante network

No Connection ('Empty')

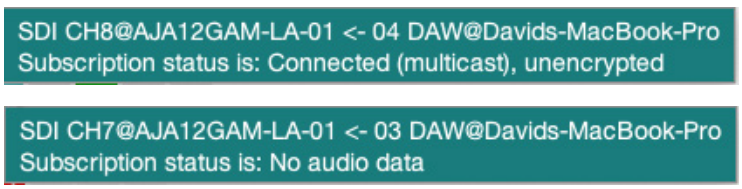
Active Channel Connection ('Route')

Click on a Matrix square to toggle a Route On/Off

DANTE-12GAM Receives 8 channels of Dante Audio (available for embedding and transmitting)

Tool Tip - Hovering your mouse over a Route (Subscription) in the matrix will reveal a small popup showing live information about that Route including the channels, the Dante devices connected, the type of Subscription, and the connection status.

Figure 34. Tooltip Examples Showing Good & Bad Subscription Status



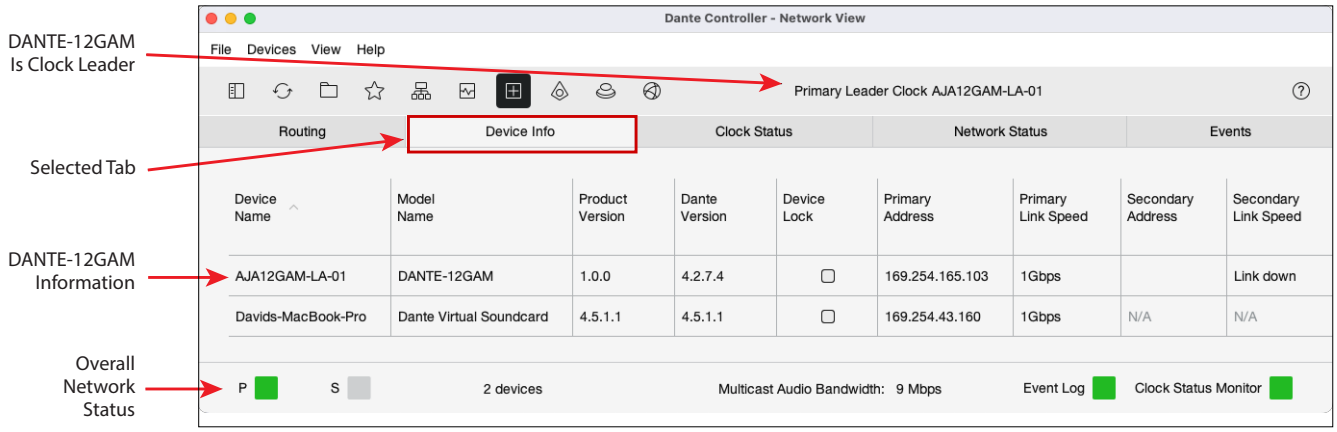
The Subscription Icons at Routes in the matrix indicate status of the channel connection:

Figure 35. Subscription Icons

	In Progress	*The Subscription is in progress.*
	Subscribed	*Connection is established and fully functional*
	Warning	*This may indicate that:* • *The subscription is unresolved, possibly because the transmitting device is not visible on the network (for example, because it has been removed, or switched off); or:* • *There is another connectivity issue in the physical network that is affecting a media signal*
	Error	*An error has occurred - for example, there is insufficient bandwidth to establish the subscription*
	Pending	*Device is part-way through setting up subscription. Most commonly seen when subscribing many channels at a time*

Network View: Device Info Tab

Figure 36. Dante Controller/Network View/Device Info Tab



Use the Device Info tab to view the IP addresses of all the devices on your network. The Primary Address of all devices should follow the same IP address scheme (e.g. 169.254.*.* or 10.12.0.*).

The Device Info tab provides a network-wide overview of device configuration and operating information.

Double-clicking on a listed device opens up the Device View window.

The tabular view presents the following information, in columns from the left:

- Device Name
- Model Name
- Product Version
- Dante Version
- Device Lock
- Primary Address
- Primary Link Speed

- Secondary Address (reserved for future use)
- Secondary Link Speed (reserved for future use)

In the example Network View/Device Info Tab we show below, the DANTE-12GAM is the Clock Leader, and it is connected to the Primary Link (ETH 1). The Multicast Audio Bandwidth is 9 Mbps. The MacBook-Pro is shown to be using Audinate's Dante Virtual Soundcard to connect that DAW to the Dante Network.

The status of the Clock Status Monitor and Event log are good. The Secondary Link is down (not connected.)

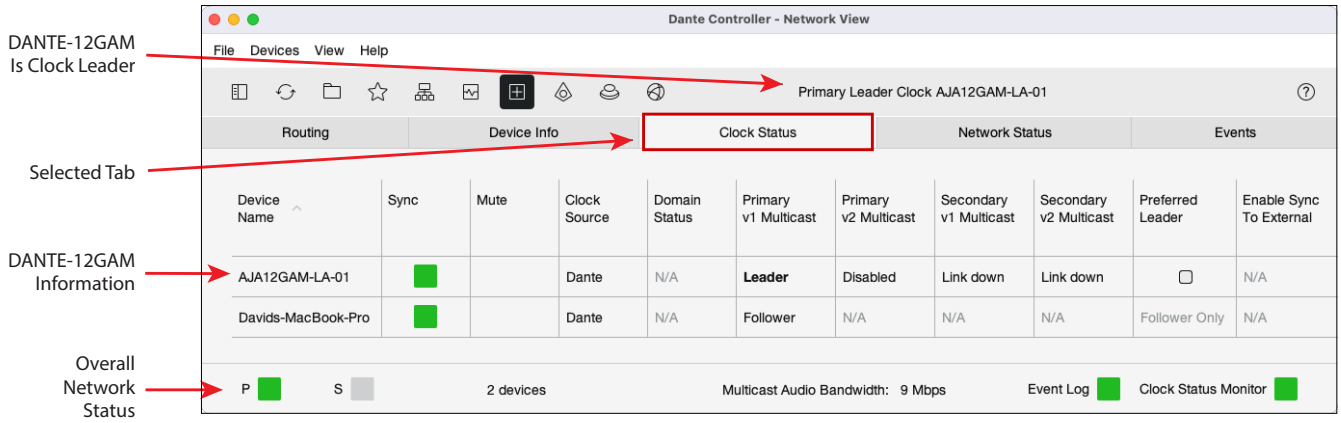
NOTE: A Dante interface may have a preferred link speed. Where it does, and an interface is not operating at that preferred link speed, the values in the Link Speed columns will be shown in red.

NOTE: Some older Dante devices or devices running older firmware may not show this information.

If a device name is shown in red, it means Dante Controller has automatically detected an error condition, such as an IP address configuration issue, or the device has entered failsafe. Double-click the red device name to see more information.

Network View: Clock Status Tab

Figure 37. Network View: Clock Status Tab



The Clock Status tab provides a network-wide overview of the clocking state within the network. This view provides a convenient way of quickly scanning the network for clock information.

Parameters and information available include:

- Device Name
- Sync
- Mute
- Clock Source
- Primary v1 Multicast
- Primary v2 Multicast
- Secondary v1 Multicast (reserved for future use)
- Secondary v2 Multicast (reserved for future use)
- Preferred Leader
- Enable Sync to External
- Active and Passive Clock Status Monitoring
- Clock Status Monitor
- Clock Status History

- Number of connected Dante devices
- Multicast Audio Bandwidth
- Event Log Status

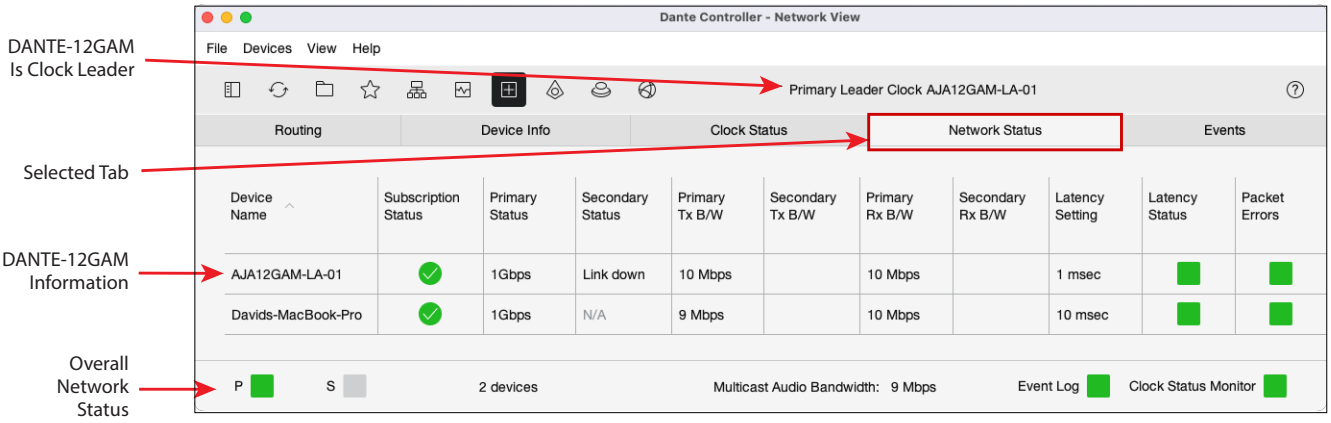
In the example shown below, the DANTE-12GAM is Leader for the Primary v1 Multicast. The Multicast Audio Bandwidth is 9 Mbps. The Secondary Multicasts v1 and v2 links are both down.

The event Log and the Clock Status Monitor are both status of good. There are two Dante devices connected to the Dante Network.

NOTE: If no clock status information is displayed for a particular device, it can indicate a ConMon (Dante control and monitoring service) failure on the device. The device may need to be reset or restored.

Network View: Network Status Tab

Figure 38. Network View: Network Status Tab



In the example shown above, the DANTE-12GAM is Clock Leader, both Dante devices are in excellent Subscription Status, and the overall Network Status is nominal.

The Network Status tab provides a range of network-related information across all devices in the network.

This view includes subscription status, bandwidth and latency information, and can be used to quickly identify any potential network traffic issues.

The tabular view presents the following information, in columns from the left:

- Device Name
- Subscription Status
- Primary Status
- Secondary Status (reserved for future use)
- Bandwidth Columns
- Primary Tx B/W
- Secondary Tx B/W (reserved for future use)
- Primary Rx B/W
- Secondary Tx B/W (reserved for future use)
- Latency Setting
- Latency Errors (See below for color legend)
- Packet Errors (See below for color legend)
- Clock Status Monitor
- Clock Status History
- Number of connected Dante devices

- Multicast Audio Bandwidth
- Event Log Status

Latency Errors column - displays icons representing the recent latency performance of the DANTE-12GAM.

- A green light indicates that the device is subscribed, and there are no latency problems - i.e. all audio packets are arriving well within the device's latency setting.
- An amber light indicates that audio packets for one or more channels are arriving at or near the limit of the device's latency setting. You may need to increase the device's latency, or reconfigure the network to prevent audio glitches due to packet loss from late-arriving audio packets.
- A red light indicates that one or more audio packets have arrived outside the device's latency setting. This will result in audio glitches. The device's latency setting should be increased, or the network reconfigured (for example, by reducing the number of network nodes in between the transmitter and the receiver).
- A gray light indicates that the device is not currently subscribed.

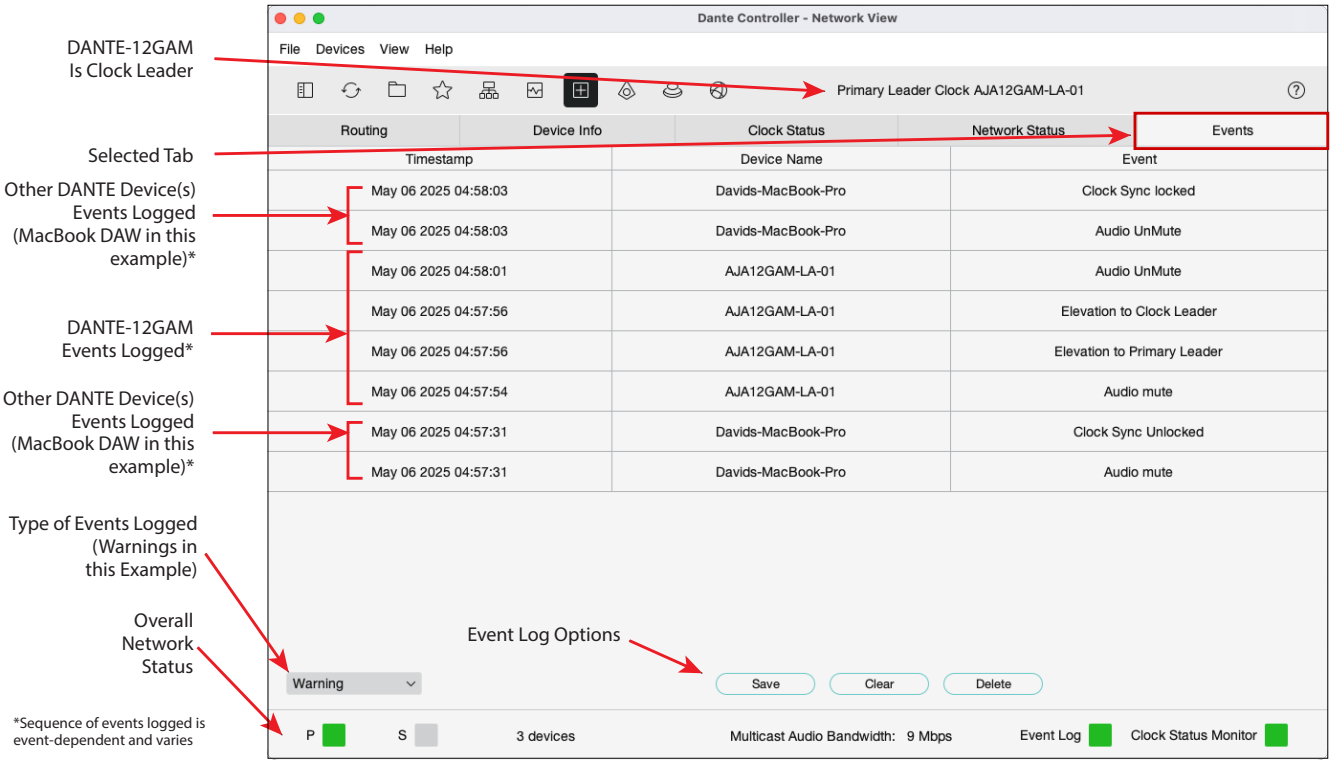
Packet Errors column - displays icon representing packet errors status.

- A red light in the Packet Errors column indicates that one or more media packets have been corrupted in between the switch and the receiver. This is usually due to a faulty Ethernet cable.

Use the Clear Counters button in the Device View > Status tab to clear the packet errors history for a device.

Network View: Events Tab

Figure 39. Network View: Events Tab (Example)



The Events tab provides information on significant changes and failures in the network.

Dante Controller continually monitors Dante devices and the network as a whole. It is able to watch for problematic configurations, unexpected problems and communication failures between itself and Dante network devices. Events are displayed and stored in an event log.

Events fall into one of three categories: Information, Warning and Error. There is a pulldown menu at left for selecting a filter by category type.

Functions available include:

- Filtering the Event List
- Clearing the Event List
- Saving the Event Log
- Automatic Event Logging
- Event Classification

Dante Controller's Device View

Double-clicking on any device which appears in the Device Info Tab will open the Device View window for that particular device. Or use the Main Menu or Main Menu Bar to select Device View.

NOTE: If desired, you may have multiple Device View windows, as well as the Network View window, all open at the same time.

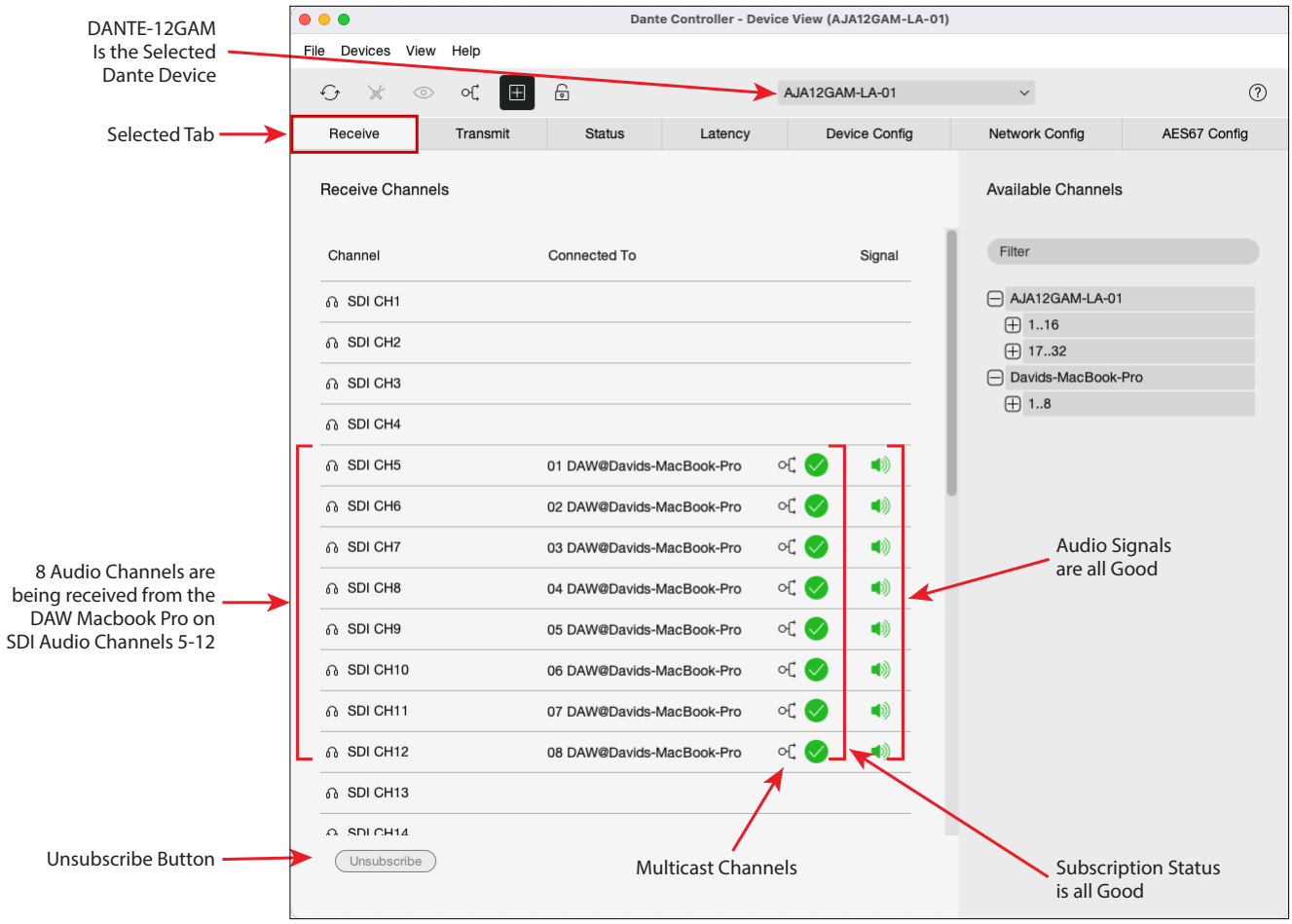
The Device View is used to view and modify detailed information and settings for a specific device. Device view can be activated by double-clicking a device name in any of the Network View tabs (except Events), or by selecting Device View from the Device menu (Ctrl + D, or Command + D) in the Network View window. The Device View opens in a new window.

The name of the device being viewed is displayed in the middle of the toolbar. In the screenshot above, Dante AV 4K-R is the device being displayed in the drop-down list box. The device viewed can be changed by selecting another device from the drop-down list.

Multiple Device View windows may be opened from the Network View, so that several devices can be examined simultaneously.

Device View: DANTE-12GAM Receive Tab Example

Figure 40. Dante Controller/Device View/DANTE-12GAM Receive Tab

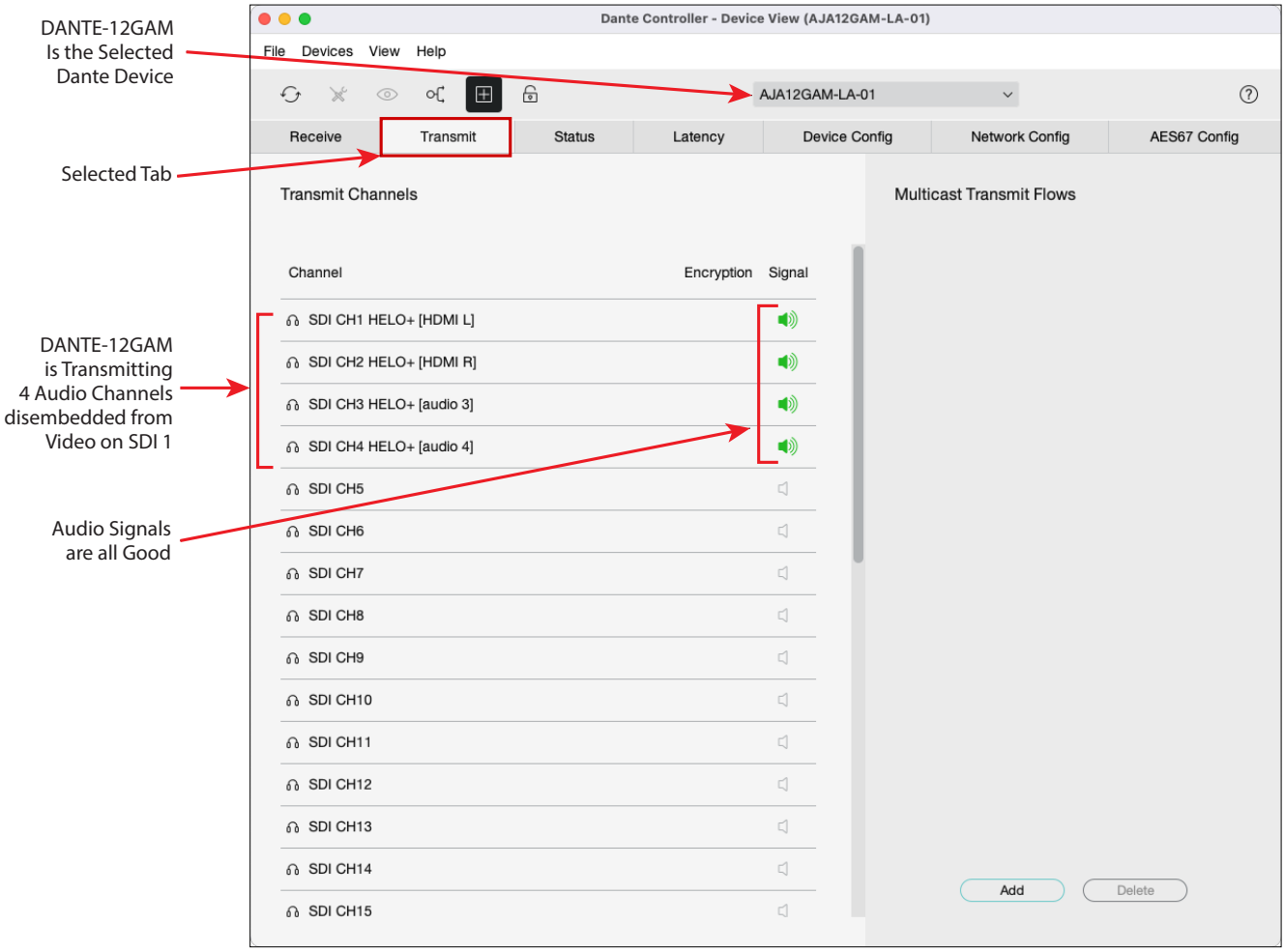


The Receive tab displays a list of all subscribed and dormant receive channels on the current device, plus subscription information for the subscribed channels. It also allows the creation of subscriptions from the Available Channels list.

The example below shows the DANTE-12GAM is receiving 8 channels of audio from a MacBook DAW computer to its SDI audio channels 5-12. Signal Status, Channel Subscriptions Status, and Multicast Status are all good.

Device View: DANTE-12GAM Transmit Tab Example

Figure 41. Dante Controller/Device View/DANTE-12GAM Transmit Tab (SDI)



The Transmit tab is used to inspect and modify the transmit configuration of a device. The example below shows that the DANTE-12GAM device is embedding and transmitting four audio channels over its SDI 1 output connection.

Device View: Status Tab

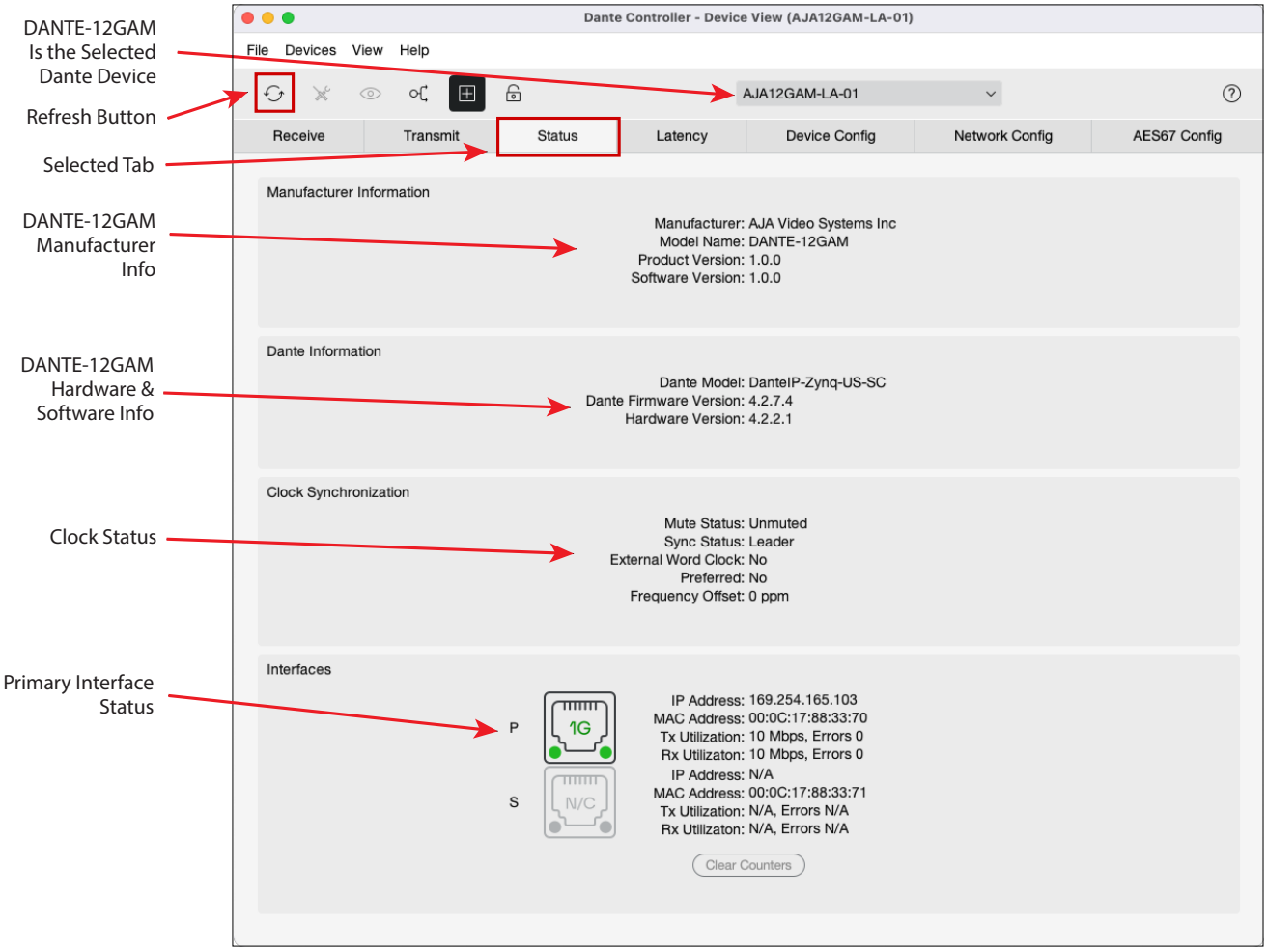
The Status tab is used to obtain current information about a Dante device. Below we show how it appears when an AJA DANTE-12GAM device is selected.

The tab is divided into sections. The information presented on this tab can be very useful when investigating networking or clocking issues in the system. The Refresh button can be used to update this information if required.

Status Information

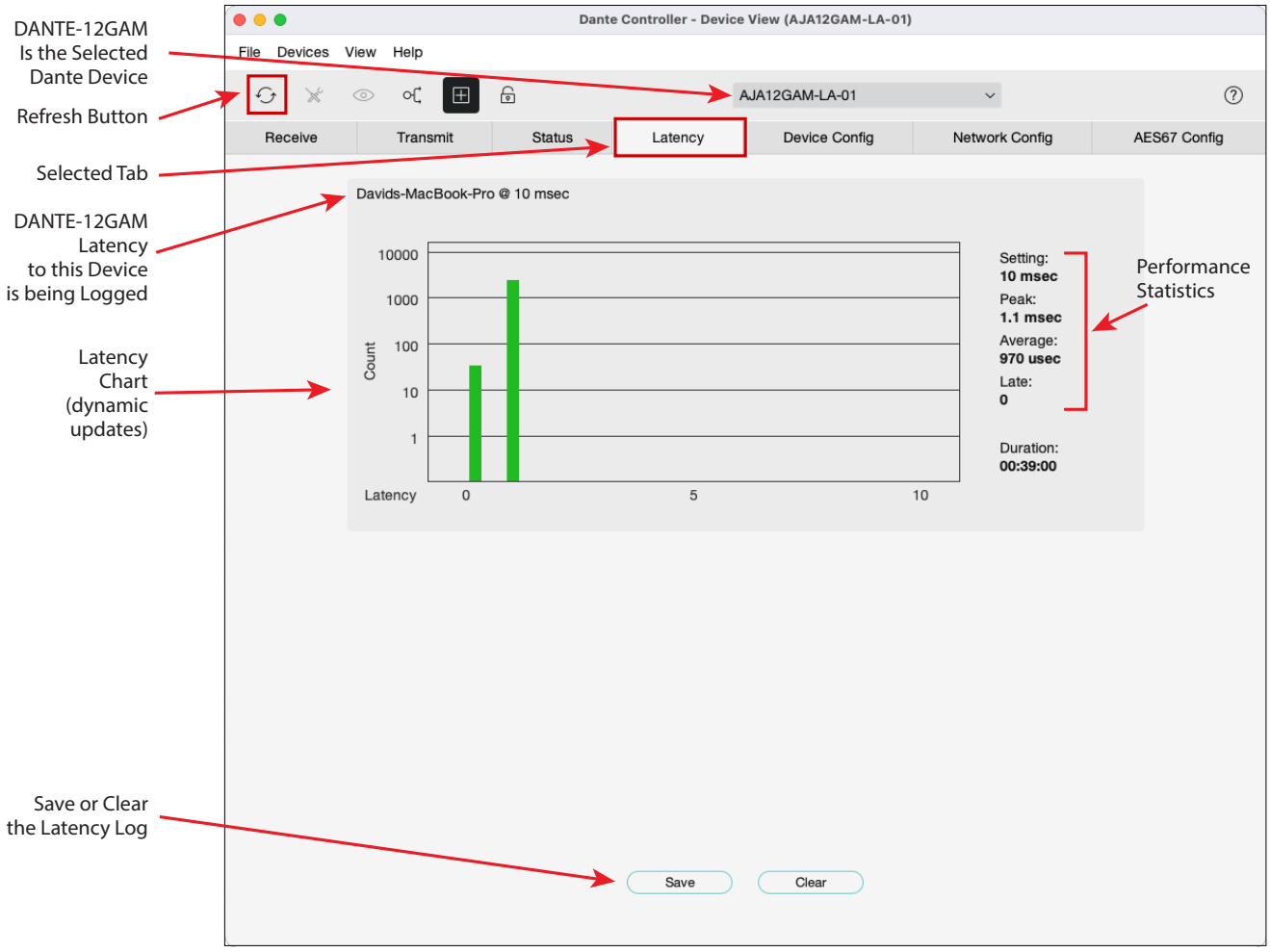
- Manufacturer Information
- Dante Information
- Clock Synchronization
- Interfaces

Figure 42. Dante Controller/Device View/Status Tab



Device View: DANTE-12GAM Latency Tab

Figure 43. Dante Controller/Device View/DANTE-12GAM Latency Tab

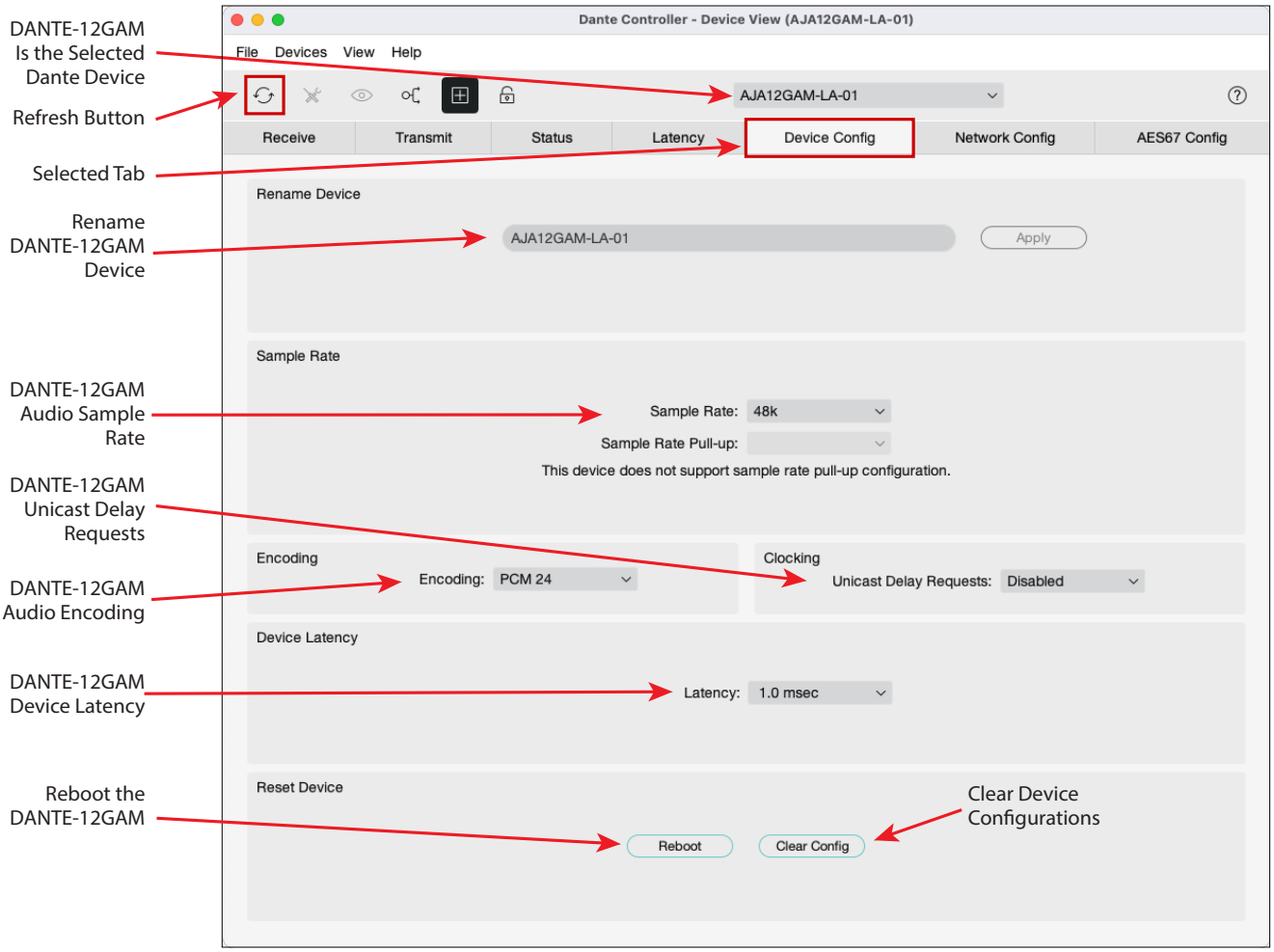


For the Latency tab displays histograms of audio packet latency for each transmitter that it is subscribed to. In this example, the DANTE-12GAM is subscribed to the DAW Macbook Pro, so that is the latency which is displayed.

Peak and Average latencies are frequently updated automatically.

Device View: AJA DANTE-12GAM Device Config Tab

Figure 44. Dante Controller/Device View/DANTE-12GAM Device Config Tab



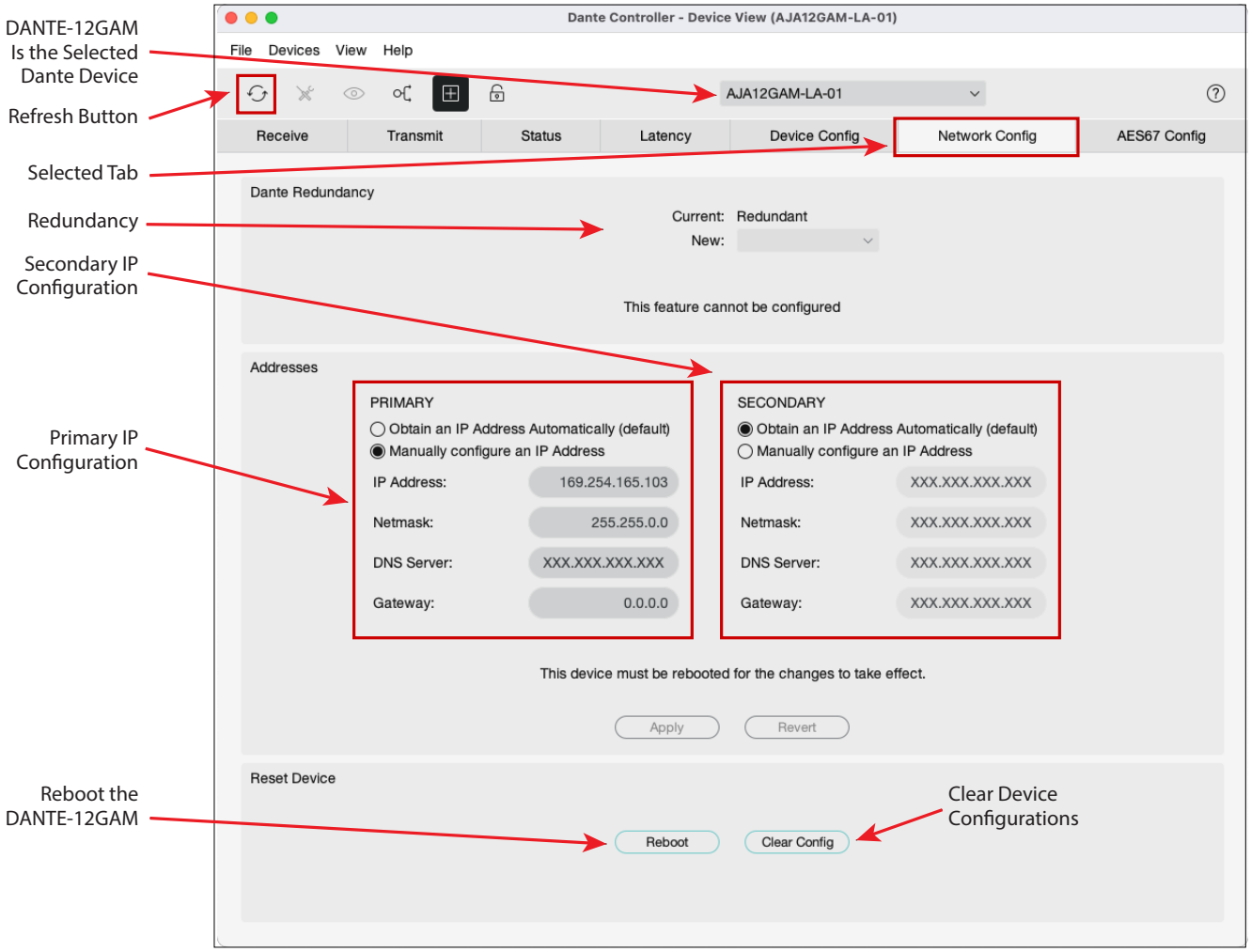
This tab on the device view window allows you to configure DANTE-12GAM-specific parameters.

Configuration Controls

- Rename Device
- Sample Rate
- Encoding
- Device Latency
- Reset Device

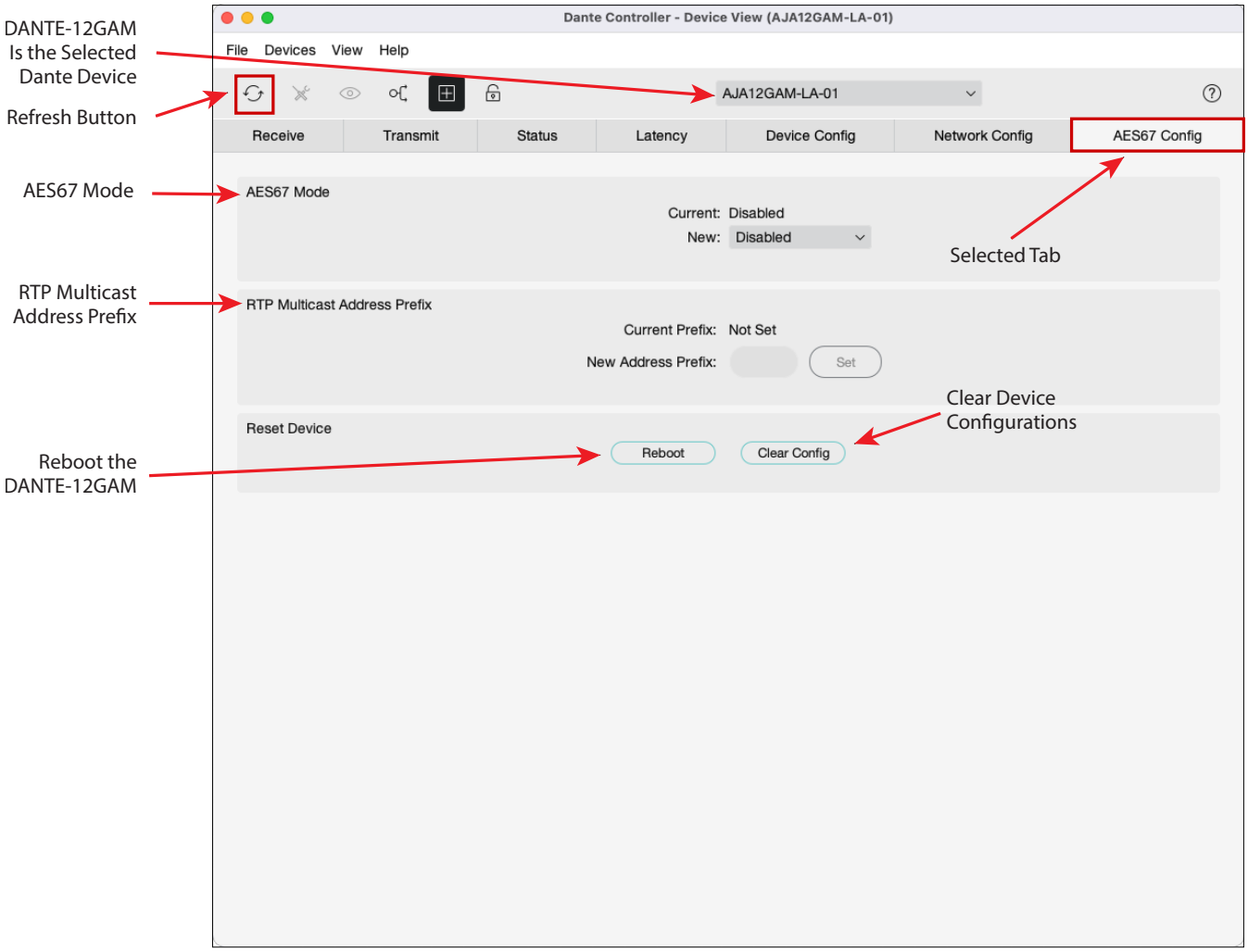
Device View: AJA DANTE-12GAM Network Config Tab

Figure 45. Dante Controller/Device View/Network Config Tab



Device View: AJA DANTE-12GAM AES67 Config Tab

Figure 46. Dante Controller/Device View/AES67 Config Tab



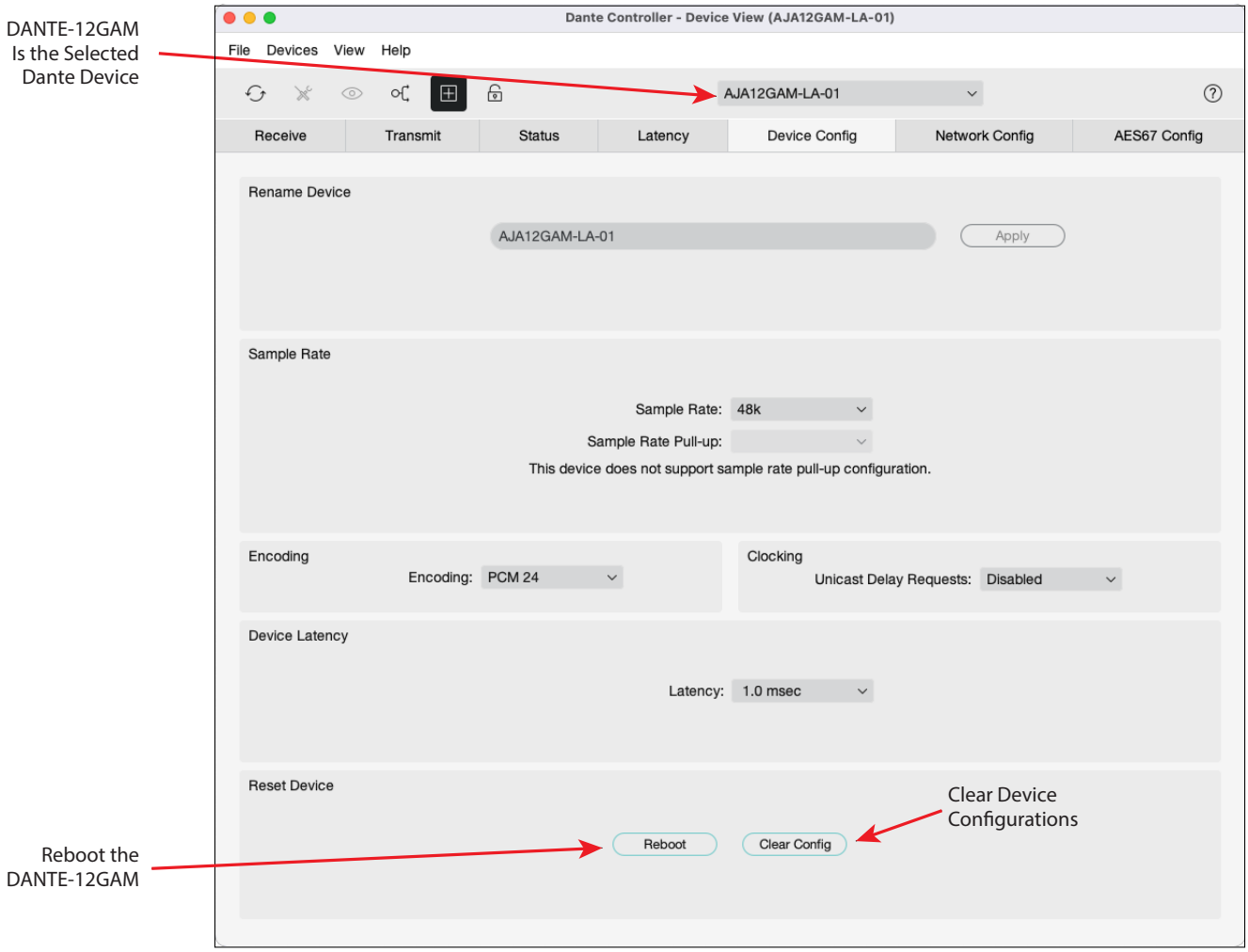
Updating Previously Installed Devices

For devices that have previously been installed using earlier versions of software and firmware, please use the following steps:

1. Install the latest software and firmware updates.
2. Under the Setup tab in WebUI, select **Restore** next to the Factory Settings control.
3. For Dante Controller, if you previously customized the device name, you can reset its name by selecting Clear Config and Reboot from the Device View.

IMPORTANT: Renaming devices will cause their previous Dante Controller Network View/ Routing Tab routes to go into an error state. Reconnect the channel routes after renaming to restore channel route signal flows.

Figure 47. Clear Config and Reboot buttons in Dante Controller



4. When the progress bar indicates that the reboot is finished and status indicates "Complete," click **OK**.

Chapter 3 – Front Panel Display

Home Screen

Figure 48. DANTE-12GAM Front Panel Display showing Home Screen

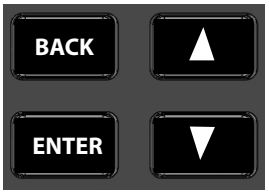
The DANTE-12GAM Home Screen includes six main tabs.

NOTE: The Device Info tab is shown 'selected' (highlighted) above. Pressing the Enter button will open the Screen for the currently selected tab.

- **Device Info** - provides device information including IP configuration, hardware and software status, unit serial number, MAC address, application version and alarm status.
- **SDI Control** - provides SDI control options for HANC Data, 3G-SDI Level B, Audio Embed/Pass and Internal Signal Generator.
- **SFP Control** - provides SFP control options for HANC Data, 3G-SDI Level B, Audio Embed/Pass and Internal Signal Generator.
- **SDI Status** - provides SDI signal lock status, data rate, video format, SDI 3G Level-B, color space, bit depth, EOTF and colorimetry information.
- **SFP Status** - provides SFP signal lock status, data rate, video format, SDI 3G Level-B, color space, bit depth, EOTF and colorimetry information.
- **Dante Status** - provides Dante audio channels status.

Control Buttons

Figure 49. DANTE-12GAM Front Panel Control Buttons.



On any display screen:

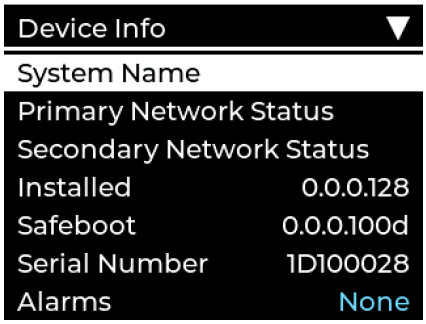
- Navigate to the desired tab using the **Up Arrow** and **Down Arrow** buttons.
- Press the **Enter** button to open that tab's controls.
- Press the **Back** button to return to the previous screen.

The six Status and Control tabs are detailed in the following sections.

Device Info Tab

Navigating

Figure 50. Device Info Tab Screen



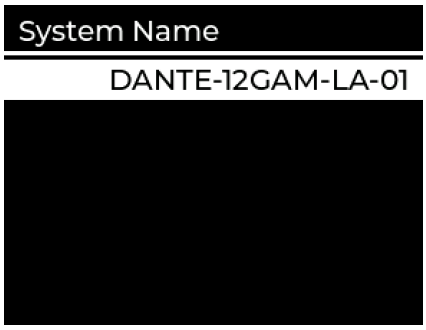
Use the Up and Down buttons to select (highlight) the desired option and then press the Enter button for the System Name, or for the Primary or Secondary Network Screens. The other four options (Installed, Safeboot, Serial Number, and Alarms) are status info only, and pressing the Enter button does nothing.

System Name

Use the Up and Down buttons to select (highlight) System Name then press the Enter button to open the System Name Screen.

NOTE: The System Name may be changed by using either the "WebUI Controls and Status Displays" (see pg page 16), or by using the "AJA eMini-Setup" utility (see page 66). The System Name cannot be changed using the DANTE-12GAM's front panel.

Figure 51. Device Info Tab/System Name Screen



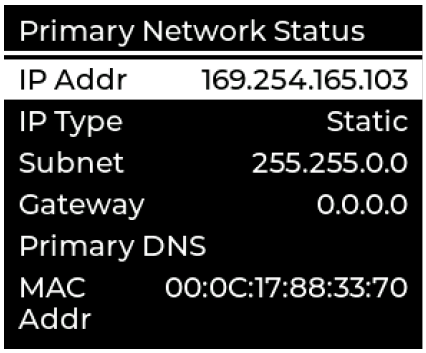
Primary Network Status

Use the Up and Down buttons to select (highlight) Primary Network Status and then press the Enter button to open the Primary Network Status screen. These parameters cannot be changed using the DANTE-12GAM front panel Buttons.

NOTE: Primary Network settings may be changed initially by using the eMini-Setup utility (over a connected USB cable), and thereafter by using the WebUI in a browser or by using Dante Controller; (both are connected over the Dante Network).

NOTE: Subsequent network configurations are best done using Dante Controller.

Figure 52. Device Info Tab/Primary Network Status Screen

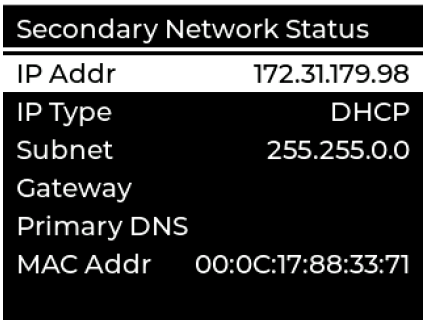


Secondary Network Status

Use the Up and Down buttons to select (highlight) the Secondary Network Status then press the Enter button to open that screen, showing network parameters. Secondary Network parameters cannot be changed using the DANTE-12GAM front panel Buttons.

NOTE: Secondary Network settings may be changed initially by using the eMini-Setup utility (over a connected USB cable), and then thereafter by using the WebUI in a browser (connected over the Dante Network).

Figure 53. Device Info Tab/Secondary Network Status Screen



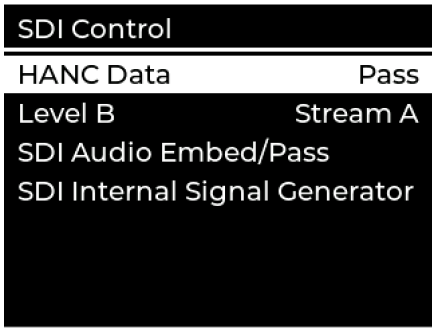
The Secondary Network Status Screen includes each and all of the status or control options included on the Primary Network Status Screen. (See previous section.)

IMPORTANT: We recommend that you do not use the Secondary IP address to open up an AJA WebUI as it may create control issues.

SDI Control Tab

Navigating

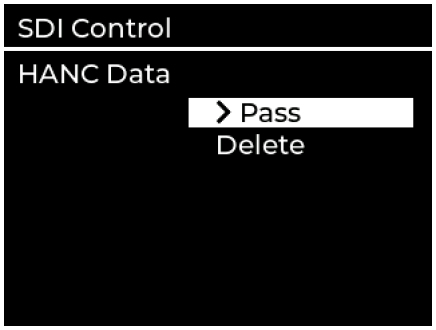
Figure 54. SDI Control Tab Screen



Use the Up and Down buttons to select (highlight) the desired SDI Control option and then press the Enter button to open that screen. For the SDI Control Screen, all four options have status or control screens which open by pressing the Enter button.

SDI HANC Data

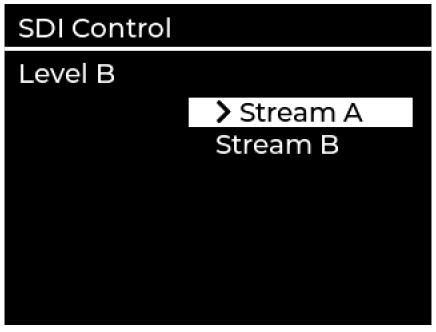
Figure 55. SDI Control Tab/HANC Data Control Screen



Select HANC Data Pass or Delete.

SDI Level B Stream A/Stream B Select

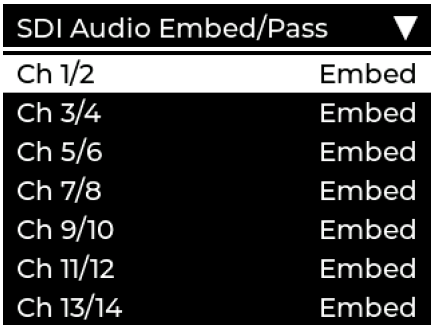
Figure 56. SDI Control Tab/Level B Stream A/Stream B Select Screen



Select Level B Stream A or Stream B.

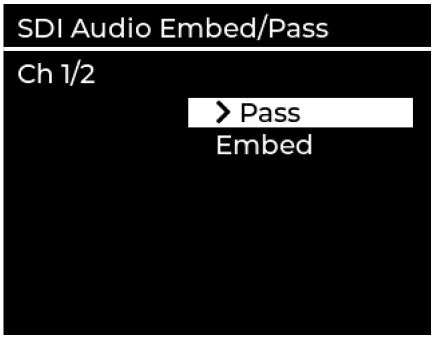
SDI Audio Embed/Pass

Figure 57. SDI Control Tab/SDI Audio Embed/Pass Screen



Use the Up and Down buttons to select (highlight) the desired Audio Embed/Pass Audio Channel pair, and then press the Enter button to open the SDI Audio Embed/Pass control screen for that pair.

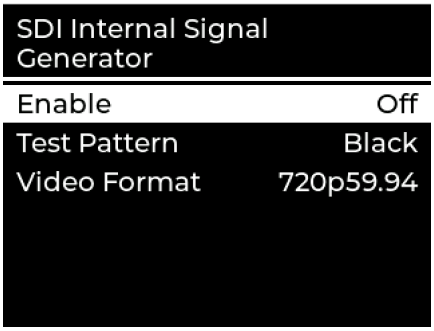
Figure 58. SDI Control Tab/SDI Audio Embed/Pass Screen



Select Ch (n/n) Pass or Embed. Use the Back button to exit and to subsequently navigate to and configure other Audio Channel pairs.

SDI Internal Signal Generator

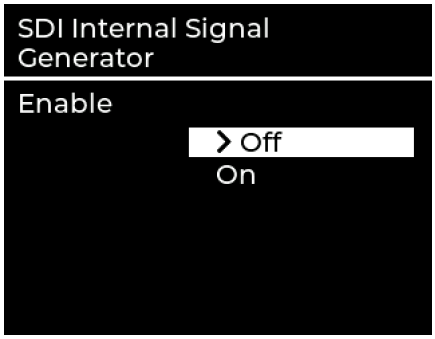
Figure 59. SDI Control Tab/SDI Internal Signal Generator Screen



Use the Up and Down buttons to select (highlight) the desired SDI Internal Signal Generator control option, the press the Enter button to open either the Enable, Test Pattern, or Video Format Screen.

SDI Internal Signal Generator On/Off

Figure 60. SDI Control Tab/SDI Internal Signal Generator Enable On/Off Screen

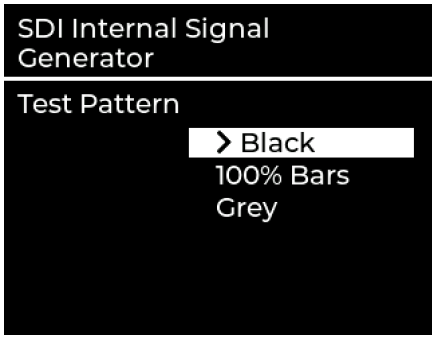


Choose either On or Off.

- When On is selected, the Signal Generator will replace any other video channel output (if one was present).
- Enabling the Internal Signal Generator will also allow embedded audio to be output SDI and/or SFP video channels even if there was no video signal associated with the input (as through Dante Controller routing.)

SDI Internal Signal Generator Test Pattern Configure

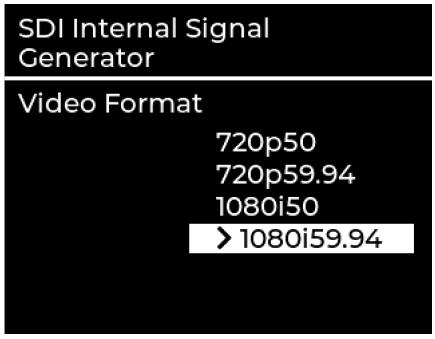
Figure 61. SDI Control Tab/SDI Internal Signal Generator Test Pattern Screen



Select Black, 100% Bars, or Grey.

SDI Internal Signal Generator Video Format Select

Figure 62. SDI Control Tab/SDI Internal Signal Generator Video Format Screen

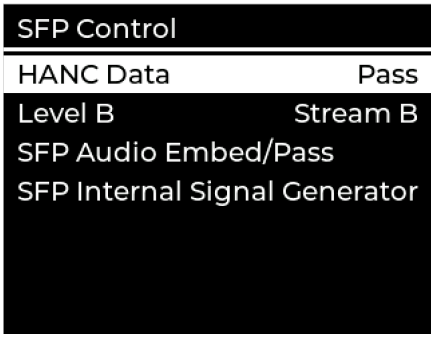


Select 720p50, 720p59.94, 1080i50 or 1080i59.94.

SFP Control Tab

Navigating

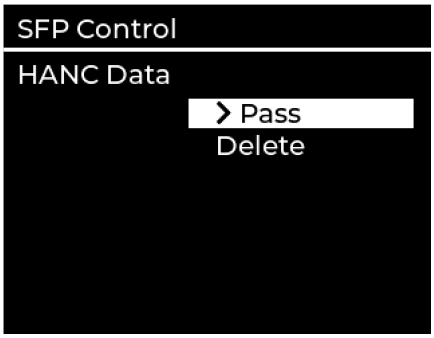
Figure 63. SFP Control Tab Screen



Use the Up and Down buttons to select (highlight) the desired SFP Control option and then press the Enter button to open that screen. For the SFP Control Screen, all four options have status or control screens which open by pressing the Enter button.

SFP HANC Data

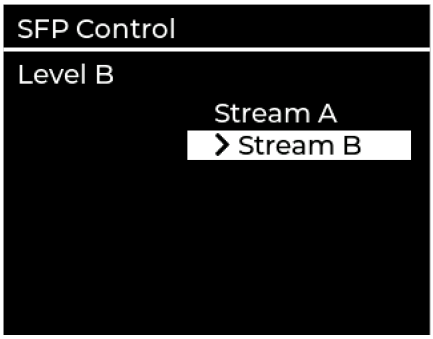
Figure 64. SFP Control Tab/HANC Data Control Screen



Select HANC Data Pass or Delete.

SFP Stream A/B Select

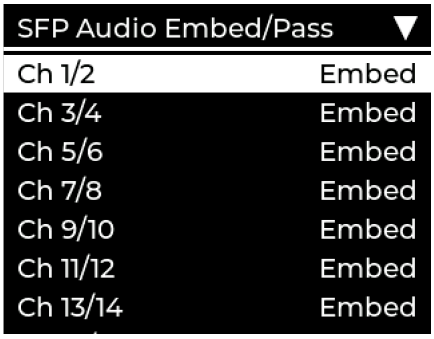
Figure 65. SFP Control Tab/Stream A/B Select Screen



Select Level Stream A or Stream B.

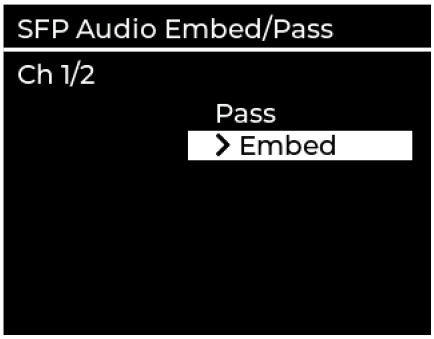
SFP Audio Embed/Pass

Figure 66. SFP Control Tab/SFP Audio Embed/Pass Screen



Use the Up and Down buttons to select (highlight) the desired Audio Embed/Pass Audio Channel pair, and then press the Enter button to open the SFP Audio Embed/Pass control screen for that pair.

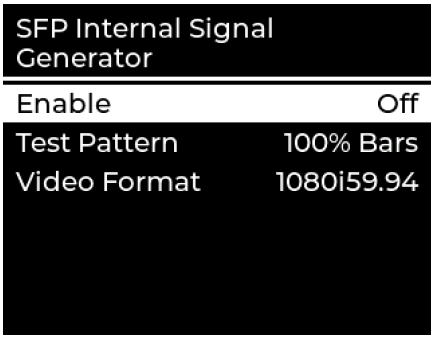
Figure 67. SFP Control Tab/SFP Audio Embed/Pass Screen



Select Ch (n/n) Pass or Embed. Use the Back button to exit and to subsequently navigate to and configure other Audio Channel pairs.

SFP Internal Signal Generator

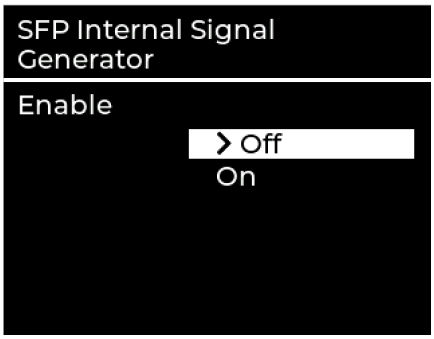
Figure 68. SFP Control Tab/SFP Internal Signal Generator Screen



Use the Up and Down buttons to select (highlight) the desired SFP Internal Signal Generator control option, the press the Enter button to open either the Enable, Test Pattern, or Video Format Screen.

SFP Internal Signal Generator On/Off

Figure 69. SFP Control Tab/SFP Internal Signal Generator Enable On/Off Screen

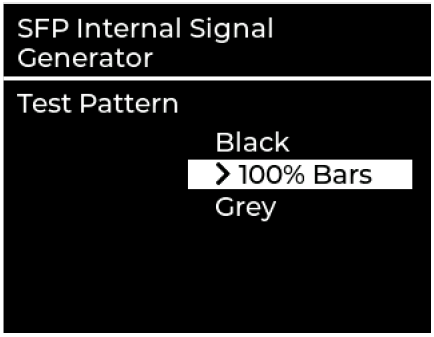


Choose either On or Off.

- When On is selected, the Signal Generator will replace any other video channel output (if one was present).
- Enabling the Internal Signal Generator will also allow embedded audio to be output SDI and/or SFP video channels even if there was no video signal associated with the input (as through Dante Controller routing.)

SFP Internal Signal Generator Test Pattern Configure

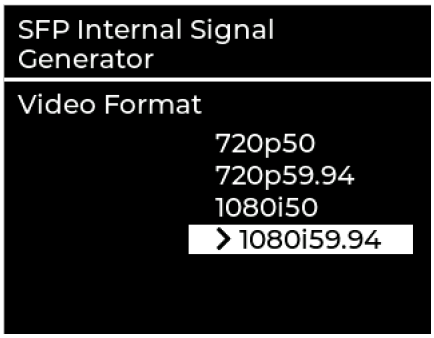
Figure 70. SFP Control Tab/SFP Internal Test Pattern Control Screen



Select Black, 100% Bars, or Grey.

SFP Internal Signal Generator Video Format Select

Figure 71. SFP Control Tab/SFP Internal Signal Generator Video Format Screen

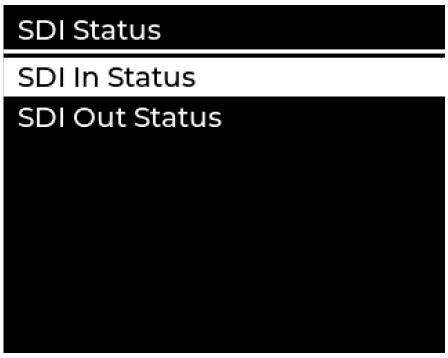


Select 720p50, 720p59.94, 1080i50 or 1080i59.94.

SDI Status Tab

Navigating

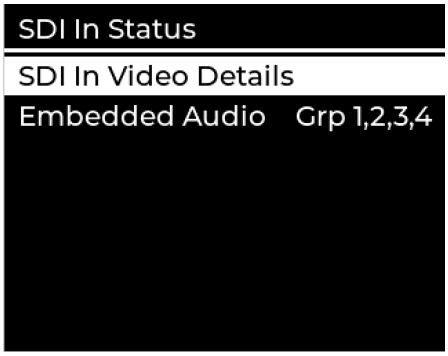
Figure 72. SDI Status Tab Screen



Use the Up and Down buttons to select (highlight) either the SDI In Status or the SDI Out Status option and then press the Enter button to open that screen.

SDI In Status

Figure 73. SDI In Status Screen

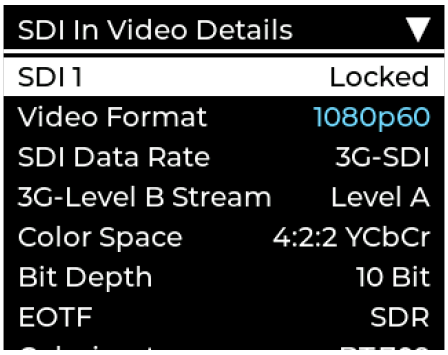


If not already highlighted, use the Up and Down buttons to select (highlight) the SDI In Video Details option, and then press the Enter button to open that Screen.

The Embedded Audio is a status information display only, and pressing the Enter Button on that option when it is highlighted does nothing.

SDI In Video Details

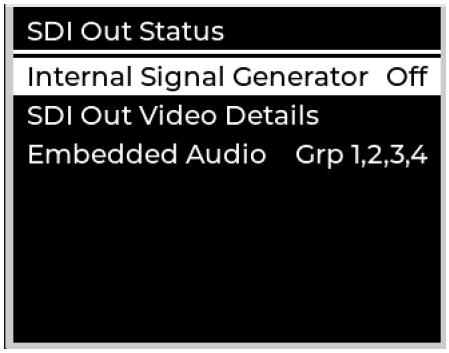
Figure 74. SDI In Video Details Screen



All SDI Out Video Details displayed on this Screen are automatically controlled by the SDI input video signal parameters, and cannot be edited.

SDI Out Status

Figure 75. SDI Out Status Screen

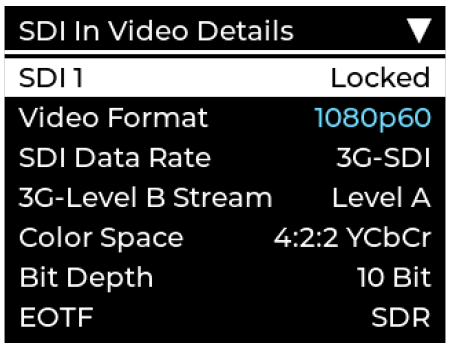


If not already highlighted, use the Up and Down buttons to select (highlight) the Internal the SDI Out Video Details option, and then press the Enter button to open that Screen.

Both the Internal Signal Generator Status and the Embedded Audio status are information displays only, so pressing the Enter Button on either of those options when it is highlighted does nothing.

SDI In Video Details

Figure 76. SDI In Video Details Screen

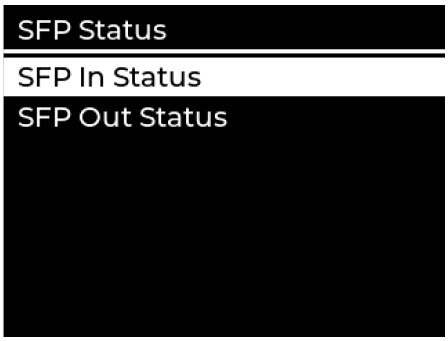


All SDI In Video Details displayed on this Screen are automatically controlled by the SDI input video signal parameters, and cannot be edited.

SFP Status Tab

Navigating

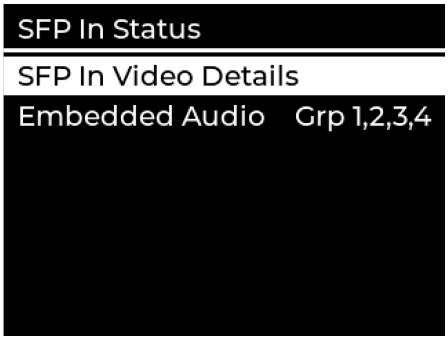
Figure 77. SFP Status Tab Screen



Use the Up and Down buttons to select (highlight) either the SFP In Status or the SFP Out Status option, and then press the Enter button to open that Screen.

SFP In Status

Figure 78. SFP In Status Screen

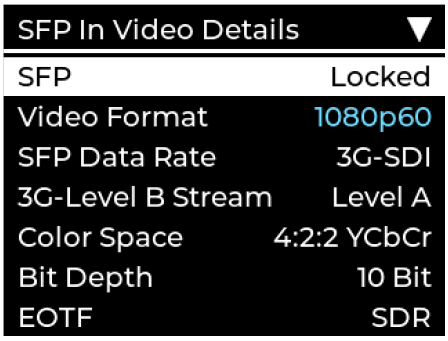


If not already highlighted, use the Up and Down buttons to select (highlight) the SFP In Video Details option, and then press the Enter button to open that Screen.

The Embedded Audio is a status information display only, and pressing the Enter Button on that option when it is highlighted does nothing.

SFP In Video Details

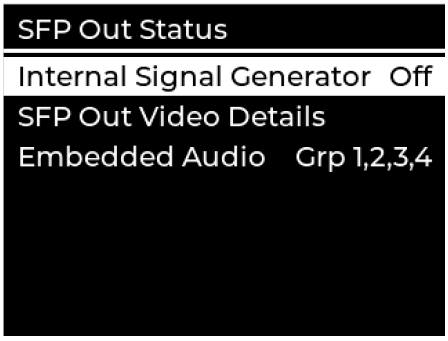
Figure 79. SFP In Status Tab/SFP In Video Details Screen



All SFP In Video Details displayed on this Screen are automatically controlled by the SFP input video signal parameters, and cannot be edited.

SFP Out Status

Figure 80. SFP Out Status Screen

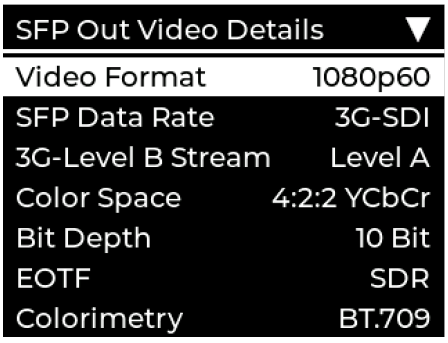


If not already highlighted, use the Up and Down buttons to select (highlight) the Internal the SFP Out Video Details option, and then press the Enter button to open that Screen.

Both the Internal Signal Generator Status and the Embedded Audio status are information displays only, and pressing the Enter Button on either of those options while highlighted does nothing.

SFP Out Video Details

Figure 81. SFP Out Status Tab/SFP Out Video Details Screen

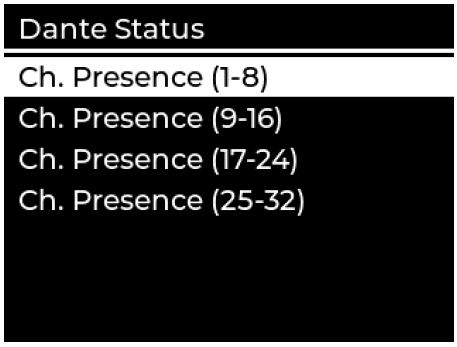


All SFP Out Video Details displayed on this Screen are automatically controlled by the SFP input video signal parameters, and cannot be edited.

Dante Status Tab

Navigating

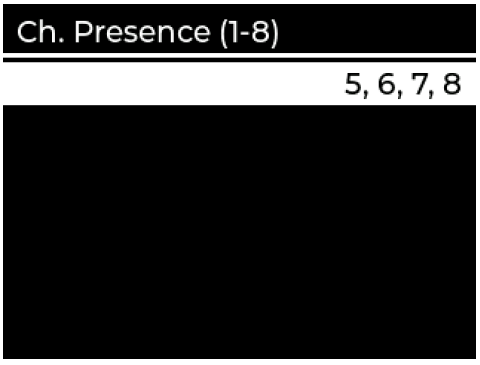
Figure 82. Dante Status Tab Screen



Use the Up and Down buttons to select (highlight) the desired Dante Status Channel Presence Range, and press the Enter button to open that range's information screen.

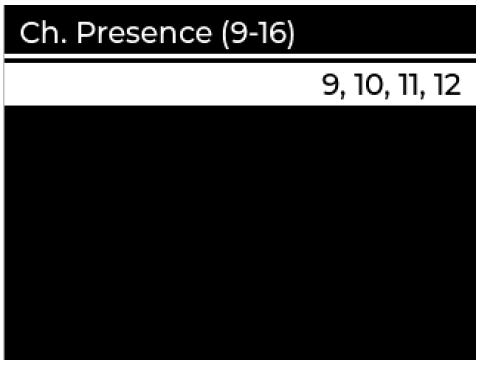
Dante Channel Range Presence

Figure 83. Dante Status Tab/Dante Ch. Presence (1-8) Status Screen



NOTE: In this example, channels 5, 6, 7 and 8 are embedded.

Figure 84. Dante Status Tab/Dante Ch. Presence (9-16) Status Screen



NOTE: In this example, channels 9, 10, 11 and 12 are embedded.

Dante Presence Status will be displayed for the selected Dante Channel Range. The Dante Channel Presence values cannot be edited using the DANTE-12GAM front panel buttons; they are automatically populated.

Quick Start Launch of WebUI

By reading the IP address on the Front Panel Display after power-up, you have the option to immediately launch the DANTE-12GAM WebUI simply by entering the DANTE-12GAM's IP address into a web browser.

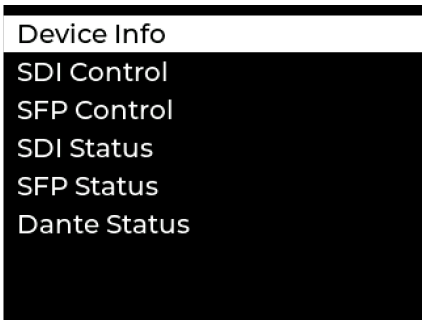
The Front Panel Display and Control Buttons are self-evident enough that most users will intuitively navigate to the IP address.

The exact procedure steps to display the IP Address are detailed below.

Copy IP Address on Front Display to Browser URL

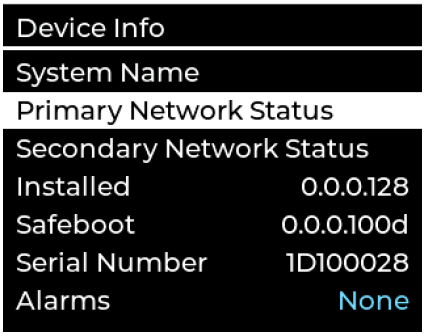
1. On the Home Screen of the DANTE-12GAM's Front Panel Display, use the Up and Down buttons to highlight the Device Info Tab.

Figure 85. Device Info Tab Selected



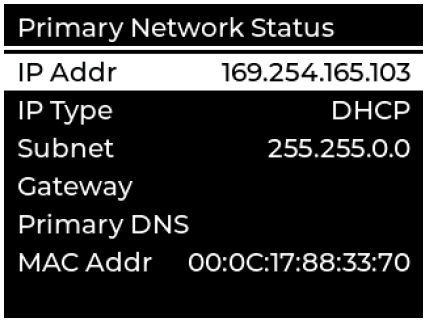
2. Press the Enter button to open the Device Info Screen.
3. Use the Up and Down buttons to highlight Primary Network Status.

Figure 86. Primary Network Status Selected



4. Press the Enter key to open the Primary Network Status Screen:

Figure 87. Primary Network Status Screen



5. Note down the default DHCP-assigned IP address ('IP Addr').
6. Open a web browser on your host computer and type that IP Address into the browser's URL field.
7. The DANTE-12GAM WebUI will immediately open.

NOTE: In the event that the DHCP address as auto-assigned to DANTE-12GAM (upon power-up) is compatible with your Dante network, then you might have the option to not use eMini-Setup. Simply continue using the WebUI to control your DANTE-12GAM

Chapter 4 – AJA eMini-Setup

Overview

This Chapter describes using the AJA eMini-Setup software for quick and easy network settings configuration for the DANTE-12GAM mini-converter. Available for both Windows or macOS, the AJA eMini-Setup application provides a graphic interface for configuring network (IP) settings, updating device software, and other features.

The eMini-Setup utility application is most often used when the DANTE-12GAM's default IP address, as auto-assigned by DHCP upon power-up, is not compatible with the Dante audio network. When that is the case, a Static IP address configuration will be used for the DANTE-12GAM, and the AJA eMini-Setup utility application is employed to set that up.

While there are also additional device settings and controls available for the DANTE-12GAM while using eMini-Setup, generally speaking all settings other than initial IP settings are best (and most conveniently) done using the WebUI once that is online. See *"Software Operation" on page 19.*

Why and When to Use eMini-Setup

In the event that the DHCP address, as it was auto-assigned to DANTE-12GAM upon power-up, is compatible with your Dante network, then you might have the option to not use eMini-Setup. Simply enter the known DANTE-12GAM IP address into the browser's URL field. The *"Quick Start Launch of WebUI" on page 64* in the previous Chapter shows exactly how to do this.

So long as the DANTE-12GAM connection using the DHCP-assigned subnet is on the same subnet as your Dante audio network devices, and there are no other known network conflicts, then in this case you may optionally skip the USB cable altogether and simply not use the eMini-Setup utility at all.

One advantage, however of using a Static IP address over DHCP's dynamic address allocation, is that once you have bookmarked a DHCP-assigned IP address in the browser, it can easily become obsolete in the future when the DHCP address auto-assignments unpredictably change. Attempting to use such a 'dead' bookmark could result in a "Server not Found" error message in the browser.

Thereafter, that DANTE-12GAM's IP settings, as well as all features and options for the DANTE-12GAM can be reconfigured using its WebUI.

IMPORTANT: Do not combine Internet traffic with your Dante network audio content by using the same network interface on the host computer for both. Dante audio (and video) networks should be isolated from the Internet (unless there is an additional extent of network management such as the use of Audinate's Dante Domain Manager or 'DDM'). Combining Internet and Dante audio streams by connecting both to the same ethernet switch without DDM or other advanced IT management, can result in degraded and unstable audio performance, unpredictable behaviors and even outright failure of channel connections.

Download and Install eMini-Setup

A USB-connected host computer is required.

1. Connect the host computer to the DANTE-12GAM converter using the USB-C port on its front panel.

NOTE: Avoid using a USB hub, unless it is high-quality and independently powered.

2. Download the eMini-Setup installer from the AJA website: https://www.aja.com/products/aja-emini-setup.
3. Follow the prompts in the eMini-Setup installer.
4. Launch eMini-Setup.

NOTE: Additional documentation is available at the eMini-Setup support page on aja.com. See https://www.aja.com/products/aja-emini-setup#support.

Launching eMini-Setup

Overview

1. If not connected, connect your DANTE-12GAM device to the PC or Mac via the supplied USB cable.
2. If not already done, download and install the AJA eMini-Setup application on your connected host computer; (see previous topic above).
3. Open the Primary Network Tab Screen.
4. Configure the DANTE-12GAM IP to be compatible with other Dante devices on the network and with the DANTE-12GAM WebUI.
5. Once the DANTE-12GAM IP has been configured, thereafter the WebUI may used.
6. If desired, the USB cable may be removed and the eMini-Setup app closed.

NOTE: Units ship from the factory with the IP Address default settings for Dynamic Host Configuration Protocol (DHCP).

NOTE: Additional documentation is available at AJA's eMini-Setup support page: https://www.aja.com/products/aja-emini-setup#support

Windows Startup

To run eMini-Setup on a Windows PC, double-click on the **AJA eMini-Setup** icon on your desktop. Or use the Windows Task Bar Search to enter "eMini-Setup" and the Icon to launch the installed application will appear.

macOS Startup

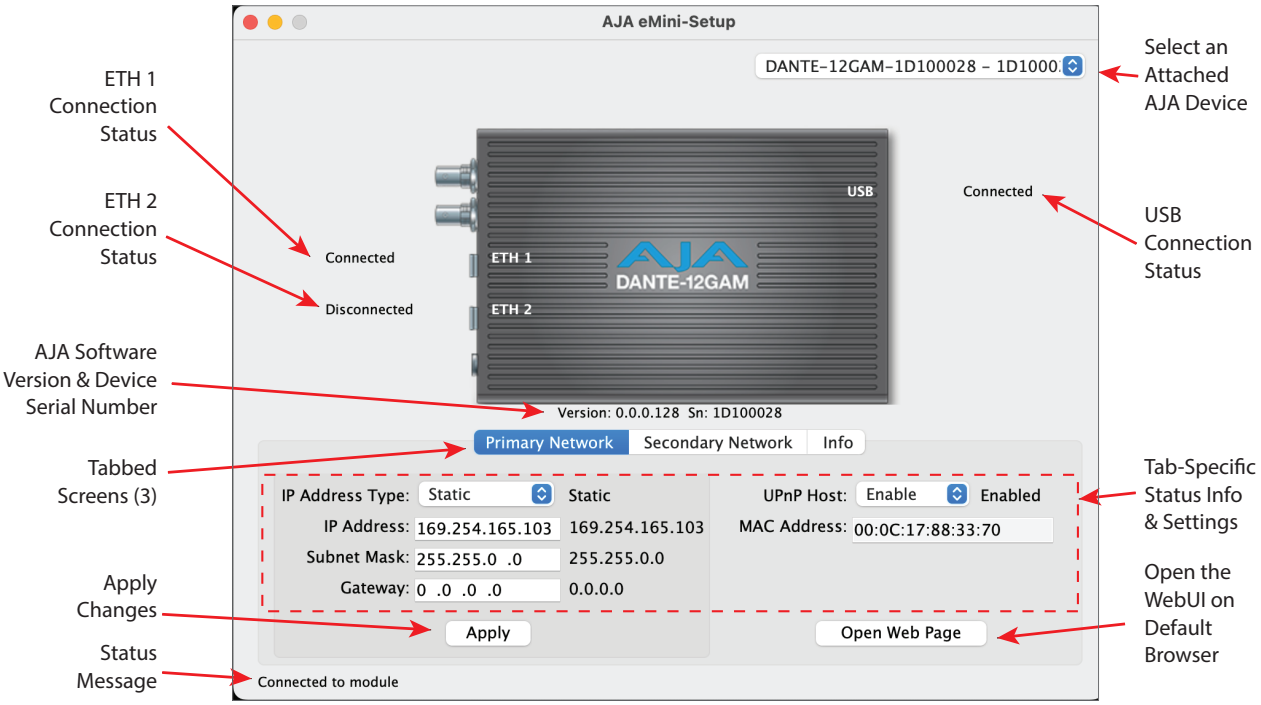
To run eMini-Setup on a Mac, open the Applications folder and locate the **AJA eMini-Setup** application. Double-click the application to launch it.

Operating eMini-Setup

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

The eMini-Setup app appears as one compact window showing the state of the DANTE-12GAM device as well as all of its input and output connections. It has three tabbed panes at the bottom, with various controls that appear separately within each tab when selected.

Figure 88. Guide to the DANTE-12GAM eMini-Setup Screen



AJA Device Selection Menu

Selecting an AJA device with the pull-down menu on the upper right connects eMini-Setup to that AJA device.

NOTE: Only USB-connected and compatible AJA devices will appear in this menu.*

IMPORTANT: Use of a USB hub with eMini-Setup is not recommended, due to sometimes unstable connection(s). If necessary, use a high-quality hub, having its own independent power. If you have any issues with USB, contact AJA support.

*NOTE: *The AJA eMini-Setup application is only compatible with certain specific AJA products. These are detailed on the eMini-Setup software product features page. See https://www.aja.com/products/aja-emini-setup#features.*

USB Connection Status

Shows status of connection between the AJA device and the host computer.

eMini-Setup Tab-Specific Status Info & Settings

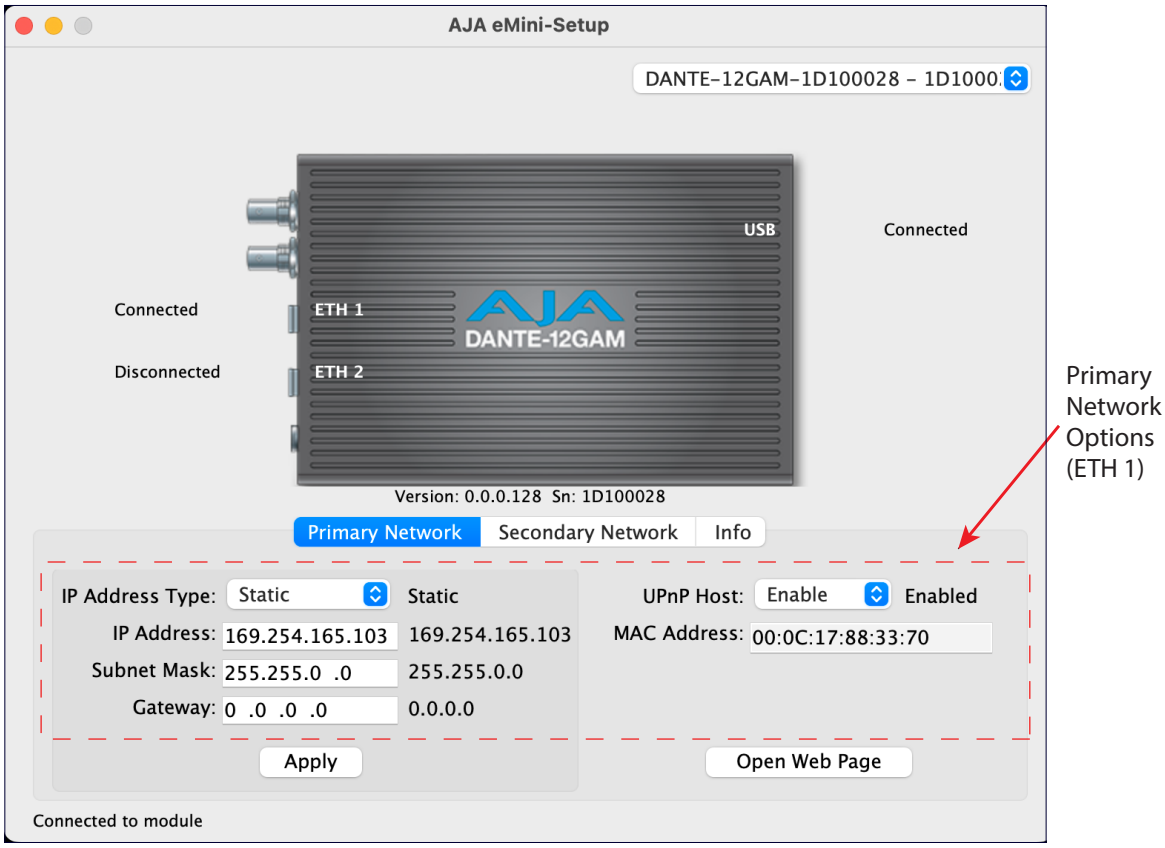
The area immediately below the navigation tabs contains the status and user-adjustable control options for that tab.

eMini-Setup AJA Device Identification

- 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.

Primary Network Tab Screen

Figure 89. DANTE-12GAM eMini-Setup Primary Network Tab Screen



This tab lets you change the primary network setup on the connected AJA device. You must click the **Apply** button to initiate any IP address changes.

IP Address Type (Primary Network)

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.:

DHCP (default) - Selects automatic IP address assignment from the LAN DHCP server. If a DHCP server cannot be found, DANTE-12GAM will fall back to the previously entered Static IP address. If no Static IP address had been entered, the system fails over to a link local static IP address (169.254.x.x).

Static - Assigns a static IP address manually. Choose from:

- DHCP
- Static IP Address

IP Address (Primary Network)

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.

- If IP Address Type is set to Static, enter an IP address compatible with your LAN. This must be initially configured using AJA eMini-Setup.
- If IP Address Type is set to DHCP and there is a DHCP failure, the IP address is set to a link local static IP address. The current IP address is displayed when an IP Address Type of **Static** is selected. A different static IP address can be entered.

Subnet Mask (Primary Network)

The current Subnet Mask is displayed. A different netmask can be entered.

Subnet Mask determines the subnet mask to be used for TCP/IP networking.•

- Use a subnet mask compatible with your LAN. This is only needed for Static IP configurations. The factory default Subnet Mask is 255.255.0.0.•
- If IP Address Type is set to DHCP, the Subnet Mask is set by the DHCP server and cannot be changed by the user.

Gateway (Primary Network)

The current Gateway address is displayed. A different IP address can be entered.

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 DANTE-12GAM will be unable to see other DANTE-12GAM on the network, although you may still be able to control this DANTE-12GAM 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.

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

IMPORTANT: For a local network configuration, a setting of 0.0.0.0 for the Gateway is suggested.

If your DANTE-12GAM needs to communicate to servers on another LAN or WAN, then you will have to enter the address of the computer/router that is making that external connection. If all of your devices, and the systems they need to talk to, are on a single LAN, then you can enter any unused LAN address as the Gateway here.

NOTE: Group functionality requires all participating devices have the same valid Gateway address.

UPnP Host (Primary Network)

When this parameter is enabled, you can view the DANTE-12GAM on a Windows Network. Any DANTE-12GAM on the network will be listed under Other Devices. If your system does not have network discovery enabled, you may need to enable it following the Windows help instructions to make network devices visible in the Windows Network window.

Choose from:

- Enable
- Disable

MAC Address

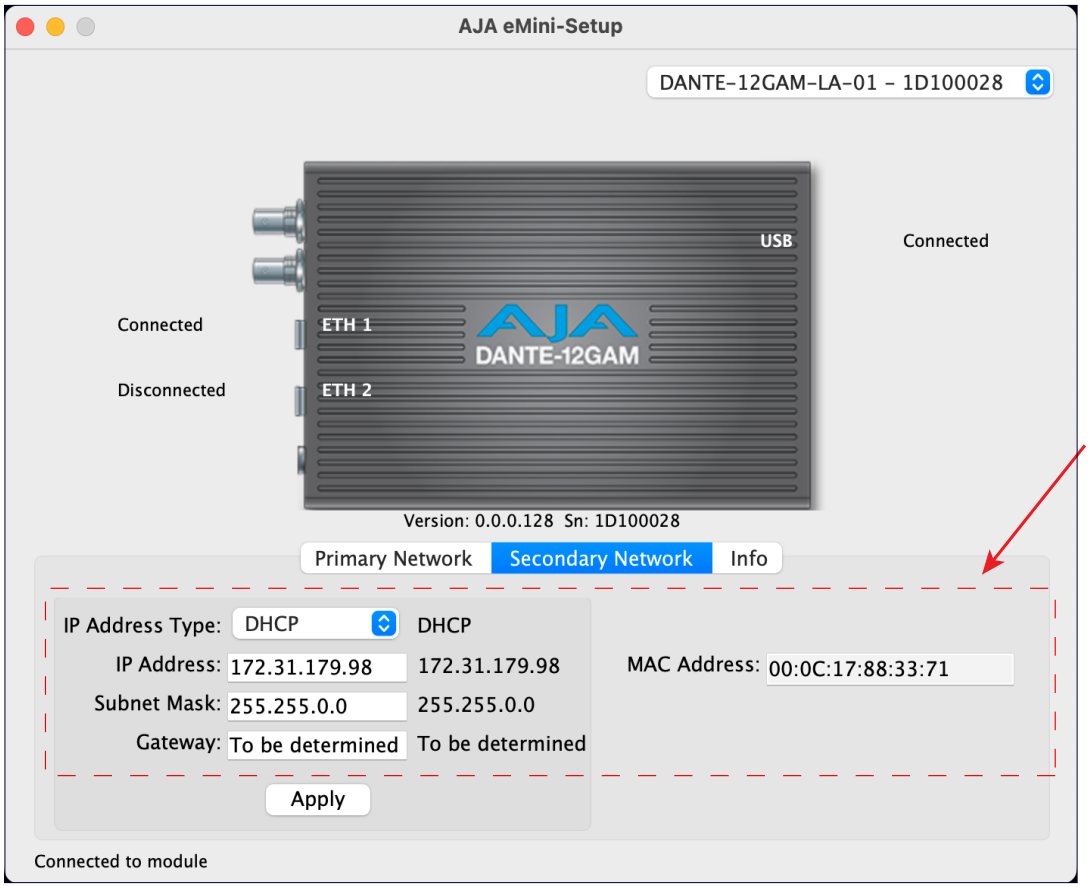
The MAC Address is a unique hardware address assigned to a network interface card (NIC). It identifies the specific hardware device on the network. Unlike an IP address, it is typically fixed and cannot be changed by the user. This is the permanent MAC address of the AJA device.

Open Web Page

After successfully configuring the DANTE-12GAM's network settings and while connected to the network, clicking on this button opens the DANTE-12GAM's WebUI server, allowing complete remote control of the device.

Secondary Network Tab Screen

Figure 90. DANTE-12GAM eMini-Setup Secondary Network Tab



The Secondary Network tab lets you change the secondary network setup on the connected AJA DANTE-12GAM device. You must click **Apply** to initiate any IP address changes.

IP Address Type (Secondary Network)

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:

DHCP (default) - Selects automatic IP address assignment from the LAN DHCP server. If a DHCP server cannot be found, DANTE-12GAM will fall back to the previously entered Static IP address. If no Static IP address had been entered, the system fails over to a link local static IP address (169.254.x.x).

Static - Assigns a static IP address manually. Choose from:

- DHCP
- Static IP Address

IP Address (Secondary Network)

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.
- If IP Address Type is set to Static, enter an IP address compatible with your LAN. This must be initially configured using AJA eMini-Setup.

If IP Address Type is set to DHCP and there is a DHCP failure, the IP address is set to a link local static IP address. The current IP address is displayed when an IP Address Type of **Static** is selected. A different static IP address can be entered.

Subnet Mask (Secondary Network)

The current Subnet Mask is displayed. A different netmask can be entered.

Subnet Mask determines the subnet mask to be used for TCP/IP networking.•

- Use a subnet mask compatible with your LAN. This is only needed for Static IP configurations. The factory default Subnet Mask is 255.255.0.0.•
- If IP Address Type is set to DHCP, the Subnet Mask is set by the DHCP server and cannot be changed by the user.

Gateway (Secondary Network)

The current Gateway address is displayed. A different IP address can be entered.

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 DANTE-12GAM will be unable to see other DANTE-12GAM on the network, although you may still be able to control this DANTE-12GAM 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.

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

IMPORTANT: For a local network configuration, a setting of 0.0.0.0 for the Gateway is suggested.

If your DANTE-12GAM needs to communicate to servers on another LAN or WAN, then you will have to enter the address of the computer/router that is making that external connection. If all of your devices, and the systems they need to talk to, are on a single LAN, then you can enter any unused LAN address as the Gateway here.

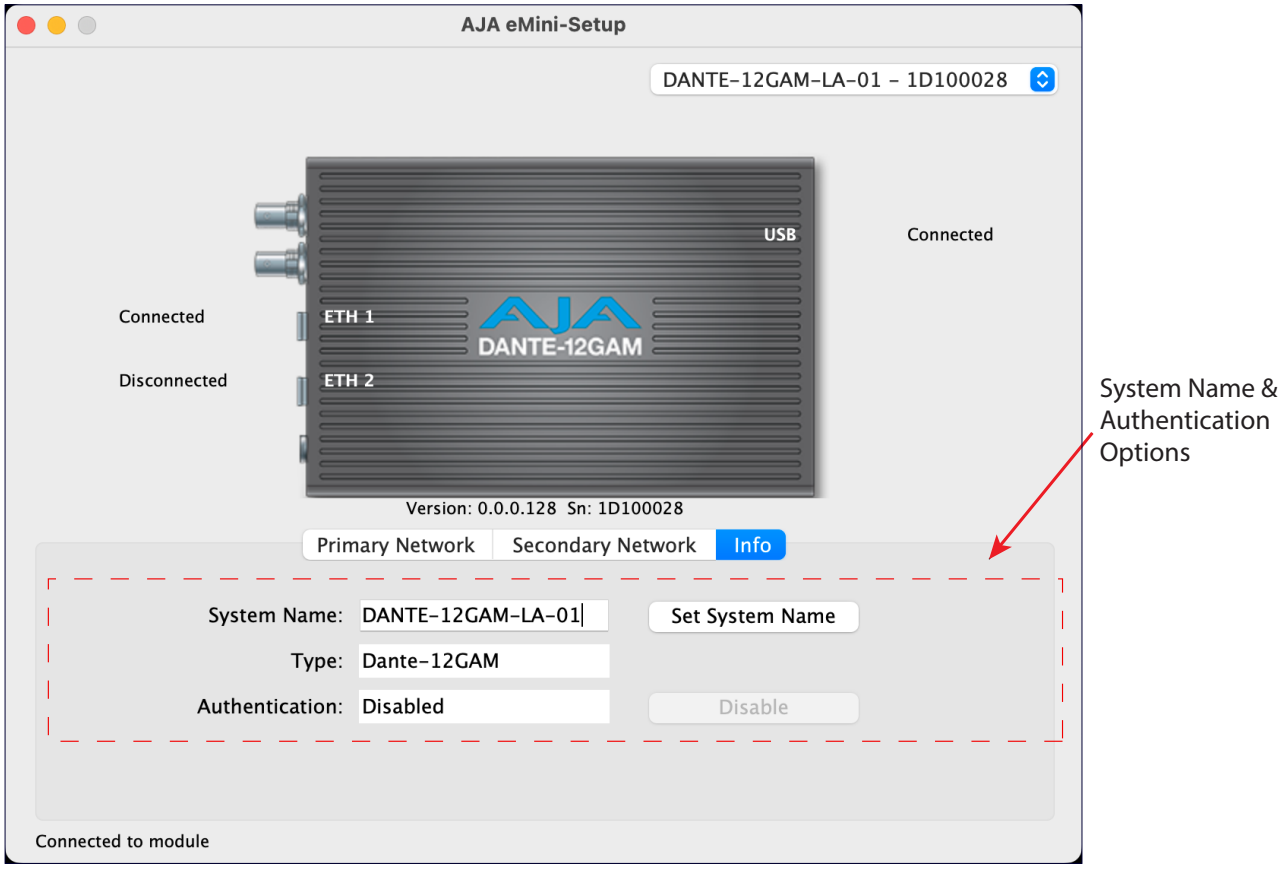
NOTE: Group functionality requires all participating devices have the same valid Gateway address.

MAC Address

The MAC Address is a unique hardware address assigned to a network interface card (NIC). It identifies the specific hardware device on the network. Unlike an IP address, it is typically fixed and cannot be changed by the user. This is the permanent MAC address of the AJA device.

Info Tab Screen

Figure 91. DANTE-12GAM eMini-Setup Info Tab Screen



This tab provides basic information about the connected AJA device. This information is 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 very useful, for example when used in high density rack applications with many devices. Enter the desired name, then click **Set System Name**.

NOTE: International characters are fully supported in the system name.

Type

This is the factory set model name of the AJA device. It is not user-editable.

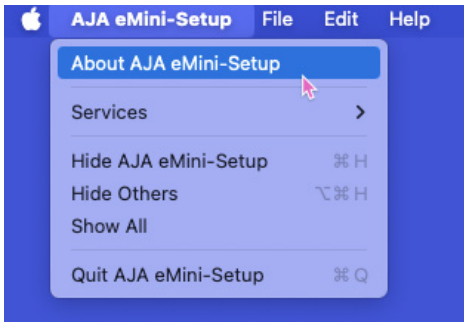
Authentication

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

Application Menu Bar

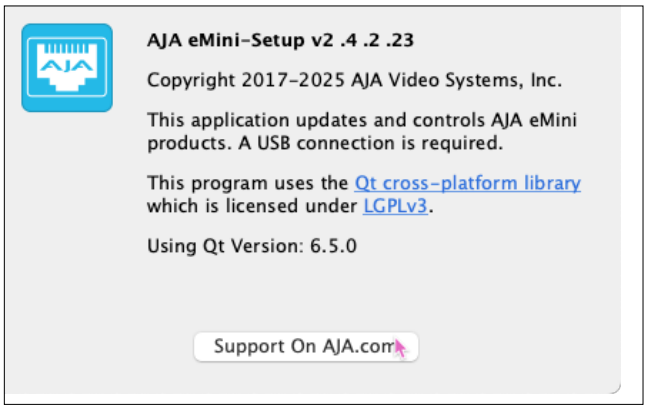
AJA eMini-setup has an Application Menu Bar, located at the top left corner of the user's computer screen (shown here in macOS).

Figure 92. eMini-Setup Main Menu Bar/ About eMini-Setup Menu



Click **About AJA eMini-Setup t**o open the application information window:

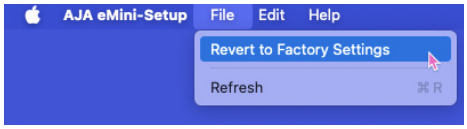
Figure 93. eMini-Setup Main Menu Bar/ Application Information Window



Click **Support On AJA.com** to open the support documentation page for the eMini-Setup application. https://www.aja.com/products/aja-emini-setup#support

File Menu

Figure 94. eMini-Setup File Menu/ Revert to Factory Settings



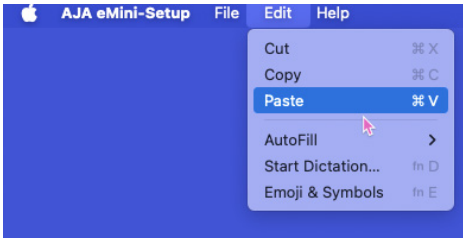
Click **Revert to Factory Settings** to restore all settings of the DANTE-12GAM to original factory values. All user-configured settings will be completely wiped and replaced with default factory values.

Figure 95. eMini-Setup File Menu/ Refresh USB Connection

Click **Refresh** to restore the USB connection between the DANTE-12GAM and the host computer, such as after disconnecting and reconnecting the USB cable, or after restarting the computer.

Edit Menu

Figure 96. eMini-Setup Edit Menu

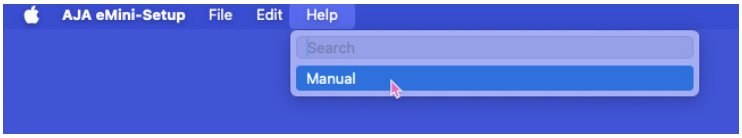


The usual **Cut/Copy/Paste** keyboard shortcuts (as well as the Edit Menu selections) may be used throughout all user-editable fields in the AJA eMini-Setup application.

NOTE: Above, a macOS installation of AJA eMini-Setup is shown. However the equivalent keyboard shortcuts and Menu options also appear in the Windows version of eMini-Setup.

Help Menu

Figure 97. eMini-Setup Help Menu



Click **Manual** to launch the aja.com documentation support page for the DANTE-12GAM: https://www.aja.com/products/dante-12gam#support.

Appendix A – Specifications

DANTE-12GAM Tech Specs

Video Formats

- (4K) 4096x2160p 23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60
- (UltraHD) 3840x2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (2K) 2048x1080p 23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60
- (2K) 2048x1080PsF 23.98, 24, 25, 29.97, 30
- (HD) 1920x1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1920x1080PsF 23.98, 24, 25, 29.97, 30
- (HD) 1920x1080i 50, 59.94, 60
- (HD) 1280x720p 50, 59.94, 60
- RGB and YCbCr, 4:4:4/4:2:2, 10 or 12-bit

NOTE: Raster and frame rate dependent, please see Dante-12GAM Video Formats in the Documents.

Video Input Digital

- 1-channel independent 12G-SDI BNC connectors, SMPTE 292/424/2081/2082
  - Single Link HD/2K/UltraHD/4K

Video Output Digital

- 1-channel independent 12G-SDI BNC connectors, SMPTE 292/424/2081/2082
  - Single Link HD/2K/UltraHD/4K

Video Optical SFP Input/Output (DANTE-12GAM-TR-LC)

- 1x FiberLC-TR-12G Dual LC 12G Fiber Transceiver SFP, SMPTE 297/292/424/2081/2082
  - Wavelength: Rx 1260 nm (min), 1620 nm (max)
  - Optical Sensitivity: -10 dBm (min 12 Gbps), -14 dBm (min 3 Gbps)
  - Overload Power: -2 dBm (min)

Video Electrical SFP Input/Output (DANTE-12GAM-TR-BNC)

- 1x BNC-TR-12G Dual BNC 12G Coax Transceiver SFP, SMPTE 292/424/2081/2082

Internal Signal Generators

- 2x independent internal signal generators

Cable Equalization

(Belden 1694A coax)

- 12 Gbps, 60m
  - 6 Gbps, 120m
  - 3 Gbps, 180m
  - 1.5 Gbps, 200m

Video Path Delay

- Video Latency, time measured between video input and video output connector:
  - 12G = 3.6 µsec
  - 6G = 7.2 µsec

- 3G level B Dual Link = 7.2 µsec
- 3G level A = 3.6 µsec
- HD (1.5 Gb) = 7.2 µsec

Digital Audio Input/Output

- SDI: 1x independent 12G-SDI BNC connectors, 16 embedded channels each
- DANTE: 1x primary Nuetrik etherCON RJ-45 Connector and 1x secondary Nuetrik etherCon RJ-45 Connector, Up to 32-channels
- Video Optical SFP (TR-LC Option): 1x independent 12G-SDI Fiber LC SFP connector, 16 embedded channels each
- Video Electrical SFP (TR-BNC Option): 1x independent 12G-SDI BNC SFP connector, 16 embedded channels each

SDI Embedded Audio

- SMPTE 299M (12G/6G/3G/1.5G): 24-bit, 48 kHz synchronous
- Incoming embedded audio can be passed, removed, or overridden
- 4 groups (16-channels) of audio supported per SDI path

NOTE: 2048x1080p/PsF 29.97 and 30 formats support a maximum of 8-channels embedded audio.

Dante Audio

- Sample Rates: 44.1kHz, 48kHz, 88.2kHz, 96kHz
- Encoding: PCM 16, PCM 24, PCM 32

Audio Latency

- Embed Path 1500 µsec
- Disembed Path 1410 µsec

Network Interface

- 2x Nuetrik etherCon RJ45, 100/1000 Ethernet
- Rest Interface

User Interface

- Onboard LCD display with buttons for enter, back, up, & down operation
- AJA WebUI
- DANTE Controller, Dante Domain Manger & Network management Applications
- USB-C port for initial Static IP configuration using AJA eMini-Setup

Size (w x d x h)

- 5.0" x 8.09" x 1.65" (127 x 205.49 x 41.81 mm)

Weight

- 1.92 lbs (.87 kg)

Power

- Enclosure: 10-18VDC regulated, 4-pin mini-XLR, 16W typical 3G-SDI, 21W typical 12G-SDI, 25W max
- IEEE 802.3at Class 4, Type 2 (25.5, Max) PoE+ on Primary Ethernet port
- AC Adapter included: 100-240VAC, 50/60 Hz, universal input, 60W

Environment

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

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

Appendix B – 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.

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.

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, European Free Trade Association (EFTA) and United Kingdom Regulatory Compliance

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

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

Declaration of Conformity

Marking by these symbols 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

IEC 62368-1: 2014 + A11 (T-Mark License),

EN 62368-1: 2014 (CB Scheme Report/Certificate)

Emissions

CISPR 32: 2015 + AMD1: 2019, EN 55032: 2015 + A11: 2020,

EN 61000-3-2: 2019, EN 61000-3-3: 2013 + A2: 2021 + AC: 202

Immunity

CISPR 35: 2016, EN 55035: 2017 + A11: 2020, EN 61000-4-2: 2009,

EN 61000-4-3: 2006 + A1: 2008 + A2: 2010, EN 61000-4-4: 2012, EN 61000-4-5: 2014 + A1: 2017,

EN 61000-4-6: 2014, EN 61000-4-8: 2010, EN 61000-4-11: 2020

Laser

EN 60825-1: 2014+A11 and EN 60825-2: 2004+A1+A2,

CDRH Compliant Class 1 (TUV Cert No. 50135086)

Also licensed for Standards: FDA 21 CFR 1040.10 and 1040.11

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.

Korea KCC Compliance Statement

사 용 자 안 내 문
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정 용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

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.

Japan 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 32: 2016). 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.

Chinese Compliance Statement

This product has been tested to the following Chinese standards:

GB 17625.1-2022; GB/T 9254.1-2021; GB 4943.1-2022

This is to certify that the above mentioned product(s) complies with the requirements of certification rules of CQC12-045800-2022 under certificate number CQC25001486521.

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! Active fiber-optic cables emit radiation invisible to the human eye. Do not look directly at the end of an active fiber-optic cable or the fiber connector on a DANTE-12GAM; these models are Class 1 Laser Products.

Avertissement! Les câbles fibre optique émettent des radiations invisibles à l'oeil humain. Ne regardez pas directement l'extrémité d'un câble fibre optique ou d'un connecteur de fibre d'un DANTE-12GAM; ces modèles sont des produits laser de Classe 1.

Warnung! Glasfaserkabel emittieren im Betrieb Strahlung, die für das menschliche Auge unsichtbar ist. Nicht direkt in das Ende eines im Betrieb befindlichen Glasfaserkabels bzw. den Glasfaserkabelanschluss am DANTE-12GAM schauen; diese Modelle sind Lasergeräte der Klasse 1.

¡Advertencia! Los cables de fibra óptica activos emiten radiación invisible al ojo humano. No mire directamente hacia el extremo de un cable de fibra óptica activo o hacia el conector de fibra óptica del DANTE-12GAM; estos modelos están clasificados como Productos Láser Clase 1.

Advertência! Os cabos de fibra óptica emitem radiação invisível para o olho humano. Não olhe diretamente para a extremidade de um cabo de fibra óptica ativo ou para o conector da fibra em um DANTE-12GAM; esses modelos são Produtos de Laser Classe 1.

Avvertenza! I cavi a fibre ottiche emettono radiazioni invisibili all'occhio umano. Non guardare direttamente l'estremità di un cavo in fibra ottica attivo o il connettore in fibra su un DANTE-12GAM; questi modelli sono prodotti laser di classe 1

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.

Caution! The AJA DANTE-12GAM contains a lithium battery soldered in place permanently (it is not user replaceable). If you ever dispose of the DANTE-12GAM, ensure you follow local regulations for safe disposal. The lithium battery shall not be exposed to excessive heat, such as sunshine or fire.

Attention ! L'AJA DANTE-12GAM comporte une batterie au lithium rendue inamovible par soudage (elle ne peut être changée par l'utilisateur). Si jamais vous souhaitez vous débarrasser du DANTE-12GAM, veillez à le faire en toute sécurité et dans le respect de la réglementation locale. La batterie au lithium ne doit pas être exposée à une chaleur excessive, qu'il s'agisse du soleil ou d'un feu.

Vorsicht! Der AJA DANTE-12GAM enthält eine Lithiumbatterie, die dauerhaft in Stellung gelötet ist (sie kann nicht vom Anwender ausgewechselt werden). Wenn der DANTE-12GAM jemals entsorgt wird, müssen die örtlichen Regeln bezüglich sicherer Entsorgung befolgt werden. Die Lithiumbatterie darf keiner übermäßigen Wärme ausgesetzt werden, wie z.B. Sonneneinstrahlung oder Feuer.

Attenzione! Il DANTE-12GAM di AJA contiene una batteria al litio saldata in modo permanente (non può essere sostituita dall'utente). Se si elimina il DANTE-12GAM, seguire scrupolosamente le norme locali concernenti lo smaltimento in sicurezza. La batteria al litio non deve essere esposta a calore eccessivo, come quello della luce solare diretta o del fuoco.

Cuidado! O AJA DANTE-12GAM contém uma bateria de lítio soldada permanentemente no lugar (não pode ser substituída pelo utilizador). Ao eliminar o DANTE-12GAM, certifique-se que o faz seguindo as regulamentações locais para uma eliminação segura. A bateria de lítio não deverá ser exposta a calor excessivo, como por exemplo, luz do sol ou lume.

¡Cuidado! El AJA DANTE-12GAM contiene una batería de litio soldada en su lugar de forma permanente (no es reemplazable por el usuario). Si alguna vez decide deshacerse del Pro Ultra Ki, asegúrese de seguir las regulaciones locales para la eliminación segura. La batería de litio no debe exponerse a excesivo calor, como el sol o fuego.

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 expiga 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 rimane 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 corriente 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 éclairsou 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.

5 Year Warranty and Liability Information

Limited Warranty on Hardware

AJA Video Systems, Inc. (AJA Video) warrants that the hardware product, not including software components, will be free from defects in materials and workmanship for a period of five years from the date of purchase. AJA Video provides a separate software warranty as part of the license agreement applicable to software components.

If the Customer brings a valid claim under this limited warranty for a hardware product (hereafter, a "product") during the applicable warranty period, AJA Video will, at its sole option and as the Customer's sole remedy for breach of the above warranty, provide one of the following remedies:

- Repair or facilitate the repair the product within a reasonable period of time, free of charge for parts and labor.
- Replace the product with a direct replacement or with a product that performs substantially the same function as the original product.
- Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

To obtain service under this warranty, the Customer must notify AJA Video of the defect before expiration of the warranty period and make suitable arrangements for the performance of service by contacting AJA Video support through the channels set forth on the support contacts web page at https://www.aja.com/support. Except as stated, the Customer shall bear all shipping, packing, insurance and other costs, excluding parts and labor, to effectuate repair. Customer shall pack and ship the defective product to a service center designated by AJA Video, with shipping charges prepaid. AJA Video shall pay to return the product to Customer, but only if to a location within the country in which the AJA Video service center is located. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES OR LIMITATIONS ON APPLICABLE STATUTORY RIGHTS OF A CONSUMER, SO SOME OR ALL OF THE TERMS OF THIS PARAGRAPH MAY NOT APPLY TO YOU.

Limitation of Liability

Under no circumstances shall AJA video BE LIABLE IN ANY WAY FOR ANY LOST, CORRUPTED OR DESTROYED DATA, FOOTAGE OR WORK, OR FOR ANY OTHER INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOST PROFITS, OR FOR ANY THIRD PARTY CLAIM, IN CONNECTION WITH THE PRODUCT, WHETHER RESULTING FROM DEFECTS IN THE PRODUCT, SOFTWARE OR HARDWARE FAILURE, OR ANY OTHER CAUSE WHATSOEVER, EVEN IF AJA VIDEO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. AJA VIDEO'S LIABILITY IN CONNECTION WITH THE PRODUCT SHALL UNDER NO CIRCUMSTANCES EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCT. The foregoing limitations apply even if any remedy set forth in this LIMITED WARRANTY fails of its essential purpose. SOME JURISDICTIONS DO NOT ALLOW THE LIMITATION OF LIABILITY FOR PERSONAL INJURY, OR OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO SOME OR ALL OF THE TERMS OF THIS PARAGRAPH MAY NOT APPLY TO YOU.

Governing Law and Language; Your Rights

This limited warranty is the only warranty provided by AJA Video on the hardware product. It supersedes all prior or contemporaneous understandings regarding such subject matter. No amendment to or modification of this warranty will be binding unless in writing and signed by AJA Video. The laws of the State of California, USA will govern this warranty and any dispute arising from it. Any translation of this Agreement is intended for convenience and to meet local requirements and in the event of a dispute between the English and any non-English versions, the English version of this warranty will govern. This limited warranty gives you specific legal rights and you may have other rights that vary from jurisdiction to jurisdiction, some of which are noted above.

AJA Software License Agreement

AJA VIDEO SYSTEMS, INC.

THIS IS AN AGREEMENT BETWEEN YOU AND AJA VIDEO SYSTEMS, INC. ("AJA") THAT GOVERNS YOUR USE OF the software ACCOMPANYING THIS LICENSE (E.G., AS installed on the device with which this license is provided).

The "AJA Software" referenced in this Agreement includes all such software, whether made available to you on disk, in read only memory, on any other media or in any other form, and all updates, corrections, enhancements and new versions of such software made available by AJA, together with all related documentation. BY INSTALLING OR USING THE AJA SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT INSTALL OR USE IT AND, IF APPLICABLE, RETURN THE AJA SOFTWARE TO THE PLACE WHERE YOU OBTAINED IT FOR A REFUND.

1. License Grant. AJA hereby grants you a nonexclusive, personal, non-sublicenseable and limited license to install and use AJA Software on a computer or AJA device. The foregoing license also includes the right to make copies of the AJA Software in machine-readable form for installation and backup purposes only, and provided that each copy you make must include all copyright or other proprietary notices contained on the original.

2. Limitations. You may not decompile, reverse engineer, disassemble, modify, or create derivative works of the AJA Software or any part thereof except to the extent (if any) authorized by applicable law notwithstanding the foregoing restriction. You may not rent, lease, lend, loan, distribute or act as a service bureau or "cloud service" provider with respect to use of the AJA Software or any functionality thereof. THE AJA SOFTWARE IS NOT INTENDED FOR USE IN THE OPERATION OF NUCLEAR FACILITIES, AIRCRAFT NAVIGATION OR COMMUNICATION SYSTEMS, AIR TRAFFIC CONTROL SYSTEMS, LIFE SUPPORT MACHINES OR OTHER EQUIPMENT IN WHICH THE FAILURE OF THE AJA SOFTWARE COULD LEAD TO DEATH, PERSONAL INJURY, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE.

3. Reservation of Rights. The AJA Software is protected by law, including without limitation copyright law. The AJA Software is licensed, not sold, to you. AJA and its licensors reserve all rights not expressly granted to you by this Agreement. You own the media on which the AJA Software is recorded but AJA and/or AJA's licensor(s) retain ownership of the AJA Software itself. You may not use the AJA Software for any illegal purpose.

4. Transfer. You may make a one-time permanent transfer of all of your license rights to the AJA Software to another person or entity, provided that: (a) you transfer all of the AJA Software, including all its component parts, original media, printed materials and this Agreement; (b) you do not retain any copies of the AJA Software, including any copies stored on a computer or other device; and (c) you transfer the AJA Software subject to this Agreement, and the person or entity receiving the AJA Software accepts the terms and conditions of this Agreement.

5. NFR (Not for Resale) Copies and Add-On Features: Notwithstanding anything to the contrary in this Agreement, (a) AJA Software that is labeled "Not for Resale" or otherwise provided to you on a promotional or demonstration basis may be used only for your demonstration, testing and evaluation purposes and may not be resold or transferred; and (b) AJA may make available certain software components ("Add-On Features") under separate terms and conditions, in which case those separate terms and conditions apply and the Add-On Features are not considered AJA Software under this Agreement.

6. Termination. Your rights in the AJA Software are conditioned on complying with this Agreement, and those rights (together with this Agreement) will terminate automatically, without notice from AJA, if you fail to comply with any term(s) of this Agreement. Upon termination of this Agreement, you must cease all use of the AJA Software and destroy all copies, full or partial, of the AJA Software in your possession or control.

7. Limited Warranty on AJA Software. If you comply with all terms of this Agreement and use the AJA Software in accordance with its documentation, and you install any patches or other updates made available to the AJA Software by AJA, AJA warrants that the AJA Software will perform substantially in accordance with its documentation for a period of ninety (90) days from the date of your original retail purchase. Your exclusive remedy under this warranty will be, at AJA's option, a refund of the purchase

price of the product containing the AJA Software or an update to or replacement of the AJA Software (or applicable component of it). THIS LIMITED WARRANTY AND ANY IMPLIED WARRANTIES ON THE AJA SOFTWARE INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY, OF SATISFACTORY QUALITY, OR OF FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO NINETY (90) DAYS FROM THE DATE OF ORIGINAL RETAIL PURCHASE. SOME JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG A WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY BY JURISDICTION.

8. Disclaimer of Other Warranties on Aja Software. EXCEPT FOR THE LIMITED WARRANTY ON AJA SOFTWARE SET FORTH ABOVE, AJA AND AJA'S LICENSORS (COLLECTIVELY REFERRED TO AS "AJA" FOR THE PURPOSES OF SECTIONS 8 AND 9) HEREBY DISCLAIM ALL WARRANTIES AND CONDITIONS WITH RESPECT TO THE AJA SOFTWARE, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES AND/OR CONDITIONS OF MERCHANTABILITY, OF SATISFACTORY QUALITY, OF FITNESS FOR A PARTICULAR PURPOSE, OF ACCURACY, AND OF QUIET ENJOYMENT. FURTHER, AJA DOES NOT MAKE ANY WARRANTY REGARDING NON-INFRINGEMENT OF THIRD PARTY RIGHTS. SUBJECT ONLY TO THE LIMITED WARRANTY SET FORTH IN SECTION 7, YOU EXPRESSLY ACKNOWLEDGE AND AGREE THAT USE OF THE AJA SOFTWARE IS AT YOUR SOLE RISK. AJA DOES NOT WARRANT AGAINST INTERFERENCE WITH YOUR ENJOYMENT OF THE AJA SOFTWARE, THAT THE AJA SOFTWARE WILL MEET YOUR REQUIREMENTS, THAT THE OPERATION OF THE AJA SOFTWARE WILL BE UNINTERRUPTED OR ERROR-FREE, OR THAT DEFECTS IN THE AJA SOFTWARE WILL BE CORRECTED. NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY AJA OR AN AJA AUTHORIZED REPRESENTATIVE WILL CREATE A WARRANTY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES OR LIMITATIONS ON APPLICABLE STATUTORY RIGHTS OF A CONSUMER, SO SOME OR ALL OF THE TERMS OF THIS PARAGRAPH MAY NOT APPLY TO YOU.

9. Limitation of Liability. TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL AJA BE LIABLE FOR PERSONAL INJURY, OR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR LOST PROFITS WHATSOEVER, INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF DATA, BUSINESS INTERRUPTION OR ANY OTHER COMMERCIAL DAMAGES OR LOSSES, ARISING OUT OF OR RELATED TO YOUR USE OR INABILITY TO USE THE AJA SOFTWARE, HOWEVER CAUSED, REGARDLESS OF THE THEORY OF LIABILITY (E.G., WHETHER UNDER CONTRACT, TORT OR OTHERWISE) AND EVEN IF AJA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. In no event will AJA's total liability to you for all damages (INCLUDING WITHOUT LIMITATION BREACH OF WARRANTY) exceed the amount of fifty dollars ($50.00). The foregoing limitations will apply even if the any remedy set forth in this agreement fails of its essential purpose. SOME JURISDICTIONS DO NOT ALLOW THE LIMITATION OF LIABILITY FOR PERSONAL INJURY, OR OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO SOME OR ALL OF THE TERMS OF THIS PARAGRAPH MAY NOT APPLY TO YOU.

10. Export Law Assurances. You may not use or otherwise export or reexport the AJA Software except as authorized by United States law and the laws of the jurisdiction in which the AJA Software was obtained. In particular, but without limitation, the AJA Software may not be exported or re-exported (a) into (or to a national or resident of) any U.S. embargoed countries, or (b) to anyone on the U.S. Treasury Department's list of Specially Designated Nationals or the U.S. Department of Commerce Denied Persons List or Entity List or any similar legal designation. By using the AJA Software, you represent and warrant that you are not located in, under control of, or a national or resident of any such country or on any such list.

11. Government End Users. The AJA Software including its documentation is a "Commercial Item", as that term is defined at 48 C.F.R. § 2.101, consisting of "Commercial Computer Software" and "Commercial Computer Software Documentation", as such terms are used in 48 C.F.R. § 12.212 or 48 C.F.R. § 227.7202 (or their successors), as applicable. Consistent with these provisions, the AJA Software is licensed to U.S. Government end users (a) only as a Commercial Item and (b) with only those rights as are granted to all other end users pursuant to this Agreement. Unpublished-rights reserved under the copyright laws of the United States.

12. Controlling Law and Severability. This Agreement will be governed by and construed in accordance with the laws of the State of California, as applied to agreements entered into and to be performed entirely within California between California residents. This Agreement will not be governed by the United Nations

Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded. If for any reason a court of competent jurisdiction finds any provision, or portion thereof, to be unenforceable, the remainder of this Agreement will continue in full force and effect.

13. Complete Agreement; Governing Language. This Agreement constitutes the entire agreement between the parties with respect to the use of the AJA Software licensed hereunder and supersedes all prior or contemporaneous understandings regarding such subject matter. No amendment to or modification of this Agreement will be binding unless in writing and signed by AJA. Any translation of this Agreement is intended for convenience and to meet local requirements and in the event of a dispute between the English and any non-English versions, the English version of this Agreement will govern.

Index