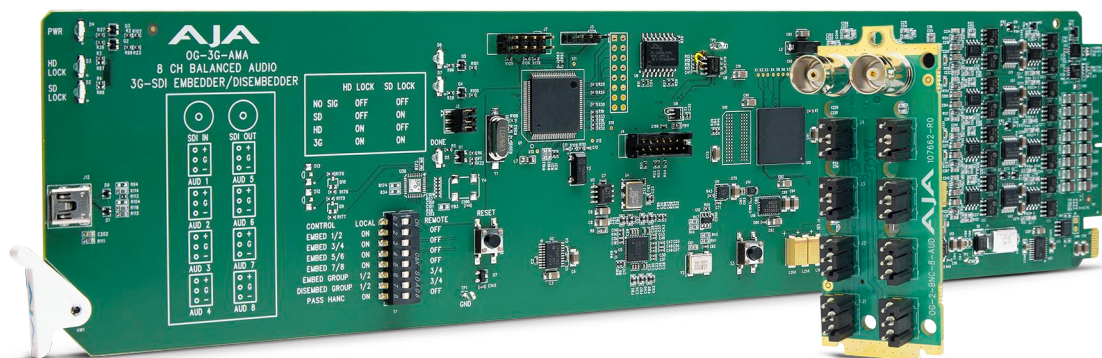


OG-3G-AMA

openGear Card



Installation and Operation Guide

Version 1.4
Published December 28, 2023



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Support Email: support@aja.com

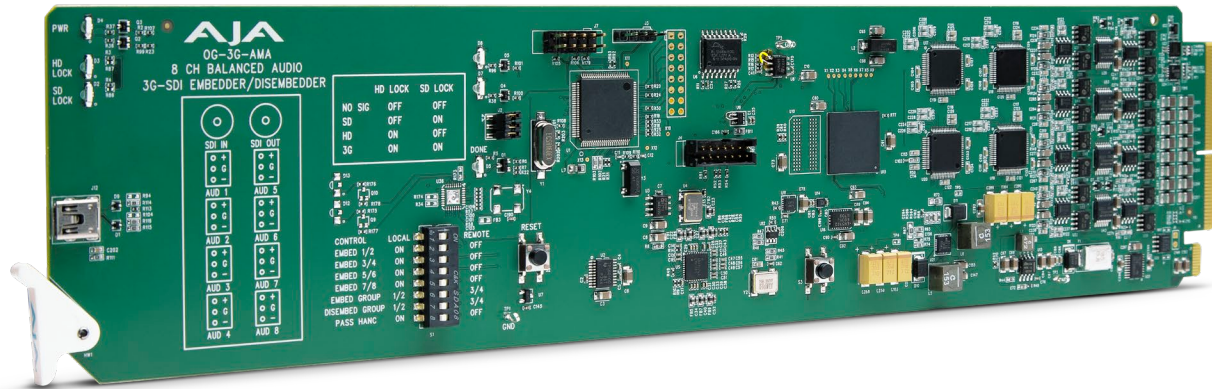
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Chapter 1 – Introduction



Overview

The OG-3G-AMA is an 8-channel openGear analog audio embedder/disembedder, supporting 3G/HD/SD-SDI video input and output up to 1080p 60. The unit can be configured to pass, embed or disembed input audio on a channel pair basis. The three-pin terminal block audio connectors can be configured as inputs or outputs.

The OG-3G-AMA automatically detects and configures to the input video standard. Horizontal ancillary data (HANC) packets in compliance with SMPTE 291M can also be dropped at the input.

NOTE: 2048 x 1080p/PsF 29.97 and 30 formats support a maximum of 8 channels embedded audio.

The OG-3G-AMA can be configured to function in the following ways:

- 8-channel embedder
- 8-channel disembedder
- 4-channel embedder and 4-channel disembedder
- 6-channel embedder and 2-channel disembedder
- 2-channel embedder and 6-channel disembedder

Designed for use in high-density openGear's 2RU frames including AJA's OG-X-FR 2RU frame, new DashBoard Software support on Windows®, macOS® and Linux® offers remote control and monitoring of the openGear architecture and provides convenient and industry-standard configuration, monitoring and control options over a PC or local network.

Features

- 3G/HD/SD-SDI Embedder/Disembedder
 - 1x BNC 3G-SDI Input
 - 1x BNC 3G-SDI Output

- 8 Channel Balanced Analog Audio I/O
 - 8x 3-Pin Terminal Block Audio Connectors
 - 8x Audio Mating Connectors
- Remote Configuration through DashBoard Control System for an openGear Frame
- Local Configuration through DIP Switches
- Embed To Selection (Ch 1-8 or Ch 9-16) on a Channel Pair Basis
- Disembed From Selection (Ch 1-8 or Ch 9-16) on a Channel Pair Basis
- Strip or Pass Incoming HANC Data
- Set Analog Audio Operating Level
- Requires Two Slots in openGear Frame
- Rear I/O Card Included

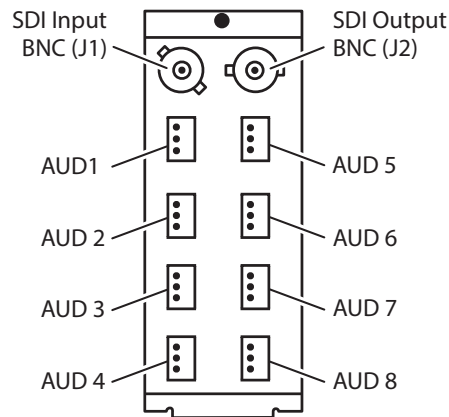
openGear and AJA

openGear is an open-architecture, modular frame system designed by Ross Video and supported by a diverse range of terminal equipment manufacturers, including AJA. Ross Video manufactures the frames, power supplies and network cards for openGear. AJA is a reseller of the openGear frames.

AJA Video is a leading manufacturer of video interface technologies, converters, digital video recording solutions and professional cameras, bringing high-quality, cost-effective products to the professional, broadcast and post-production markets. AJA products, including openGear cards, are designed and manufactured at our facilities in Grass Valley, California.

OG-3G-AMA I/O Connections

Figure 1. I/O Connections for the OG-3G-AMA



Each 3-pin analog audio connector carries one channel of analog audio that can be configured to be an input or an output.

User Controls

User Control options for the OG-3G-AMA consist of DIP switches on the card and the DashBoard Control System from Ross Video. Both options are described below.

DIP Switches

The OG-3G-AMA has an 8 position DIP switch accessible on the card. The DIP switches can be used to configure the unit's audio embedding and disembedding, and to control ancillary data. When using DIP switches for control, DashBoard displays only the Card and Status tabs and cannot be used for configuration.

Figure 2. OG-3G-AMA DIP Switches

CONTROL	LOCAL	REMOTE
EMBED 1/2	ON	OFF
EMBED 3/4	ON	OFF
EMBED 5/6	ON	OFF
EMBED 7/8	ON	OFF
EMBED GROUP	1/2	3/4
DISEMBED GROUP	1/2	3/4
PASS HANC	ON	OFF

The exact functions of the DIP switch are described in ["DIP Switch Settings" on page 11.](#)

DashBoard Control System

The DashBoard Control System, created by Ross Video, provides a control interface between Windows, macOS and Linux computers and the cards installed in an openGear frame. DashBoard operates through TCP/IP communication and requires an Ethernet connection between the controlling computer and an openGear frame.

Details for acquiring and using the DashBoard Control System are provided in ["Using the DashBoard Control System" on page 13.](#)

Parts List

Quantity	Description
1	OG-3G-AMA Front Card in ESD bag
1	BNC Rear Card
8	WECO mating connectors, part number 107654-00

Installation

Summary

Installing an OG-3G-AMA card into a OG-X openGear frame consists of the following steps:

- Install the rear card onto the back of the frame corresponding to the slot pair you will be using for the OG-3G-AMA card.
- Insert the OG-3G-AMA card into the frame in the right (even numbered) slot of the pair.
- Connect the BNC and audio cabling to the rear card.



ESD Susceptibility - Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling circuit boards in high static environments such as carpeted areas, and when wearing synthetic fiber clothing. Always exercise proper grounding precautions when working on circuit boards and related equipment.

Unpacking

Unpack each openGear product you received from the shipping container and ensure that all items are included. If any items are missing or damaged, contact your sales representative or AJA directly.

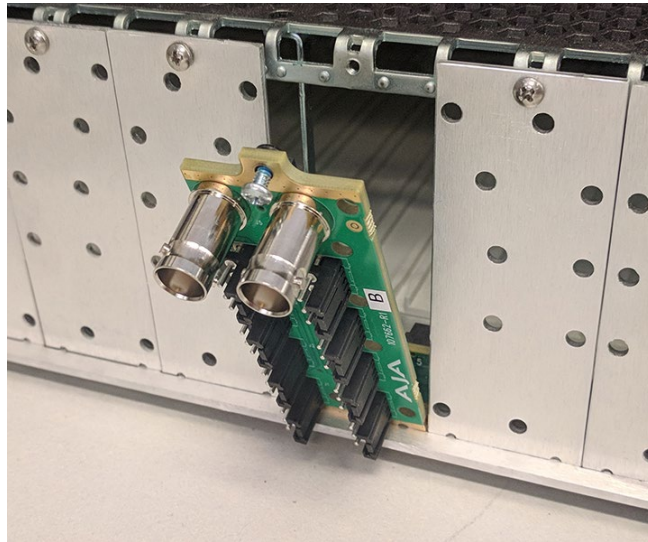
OG-3G-AMA Rear Card Installation

1. Ensure that the frame is properly installed.
2. Locate the card frame slot on the rear of the openGear frame into which you wish to install the openGear card.

NOTE: An OG-3G-AMA card occupies two slots in the frame.

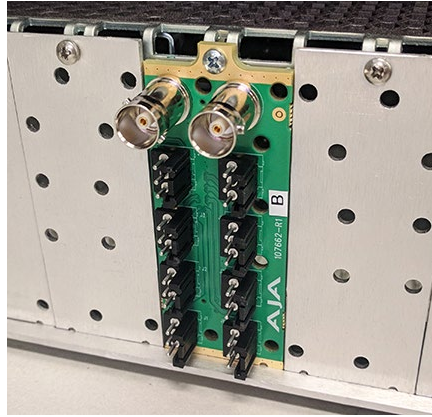
3. Using a Phillips screwdriver, unscrew the top screw from the desired blank plate and remove the blank plate.
4. Seat the bottom of the rear card in the seating slot at the base of the frame backplane.

Figure 3. Inserting Rear Card into Frame Seating Slot



5. Align the top screw of the rear card with the screw hole on the top edge of the frame backplane.
6. Ensure the rear card aligns with the desired card slot before tightening the screw.
7. Using a Phillips screwdriver, fasten the rear card to the frame backplane. Do not over tighten.

Figure 4. Rear Card Inserted into Frame Seating Slot



8. Ensure proper frame cooling and ventilation by having all rear frame slots covered with either OG card rear cards or blank plates.

OG-3G-AMA Front Card Installation

1. Open the openGear frame door as follows:
 - A. Gently pull the side door tabs towards the center of the door, releasing the door from the frame.
 - B. Using both hands, pull the door towards you. The door extender arms prevent the door from falling.
2. Locate the rear card you installed as described above. The interior slot number is dependent on the slot combinations into which you installed the rear card. This allows adequate spacing to avoid damaging the card, the cards installed in the neighboring slots, or both.
3. Hold the card by the edges and carefully align the card edges with the rails inside the frame. The slots are numbered starting from the left-most slot when facing the frame front.

IMPORTANT: OG-3G-AMA cards are installed into the right (even numbered) slot of the pair in order to connect with the rear panel.

4. Fully insert the card into the frame until the card is properly seated in the rear card.

Figure 5. Fully Inserted Card with Locked Plastic Tab



5. Close the frame door as follows:
 - A. Slide the door into the frame.
 - B. Pull and release the door tabs to ensure the frame door is securely locked to the frame.

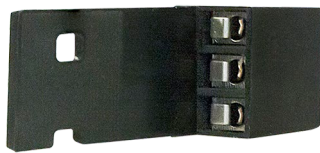
Cabling

Refer to ["OG-3G-AMA I/O Connections" on page 5](#) to identify the input and output signal connectors.

Eight WECO audio mating connectors are included with each OG-3G-AMA.

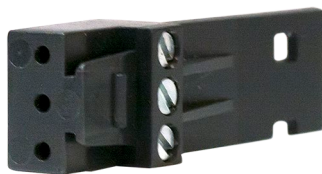
1. Insert connecting audio wires into their corresponding holes from the rear (Figure 6).

Figure 6. Rear view of the WECO mating audio connector



2. Tighten the screws on the other side of the audio mating connector (Figure 7).

Figure 7. Front view of the WECO mating audio connector



3. After you have secured the wiring for each WECO mating audio connector, connect them to the audio output connectors on the rear card of the OG-3G-AMA.

4. Add tie wraps around the audio connectors for strain relief.

Chapter 2 – Operation

Default Operational Settings

The OG-3G-AMA converter ships from the factory with the following configuration:

- Local (DIP switch) control (DashBoard shows status only).
- Input analog audio channels 1-8 are embedded to SDI output channels 1-8, overwriting any existing embedded audio.
- HANC packets for embedded audio channels 1-8 will be overwritten, and all other HANC packets will be passed through.
- The analog audio operating level is set to 0 dBfs = +24 dBu.

If these settings apply to your requirements, you can simply connect the video and audio input and output signal cables.

For other applications, you can configure the card using its DIP switch settings, or by setting Remote (DIP switch) control and using the DashBoard Control System and a PC or Mac networked to an openGear frame. Analog audio levels can only be set using the DashBoard Control System.

DIP Switches

The OG-3G-AMA DIP switches configure the audio embedding and disembedding functions.

<i>CONTROL</i>	<i>LOCAL</i>	<i>REMOTE</i>
<i>EMBED 1/2</i>	<i>ON</i>	<i>OFF</i>
<i>EMBED 3/4</i>	<i>ON</i>	<i>OFF</i>
<i>EMBED 5/6</i>	<i>ON</i>	<i>OFF</i>
<i>EMBED 7/8</i>	<i>ON</i>	<i>OFF</i>
<i>EMBED GROUP</i>	<i>1/2</i>	<i>3/4</i>
<i>DISEMBED GROUP</i>	<i>1/2</i>	<i>3/4</i>
<i>PASS HANC</i>	<i>ON</i>	<i>OFF</i>

DIP Switch Settings

DIP switch settings can be used to configure the functions of the OG-3G-AMA card. Please see the following ["Description of the DIP Switch Settings" on page 12](#) for detailed descriptions of the DIP switch settings.

Table 1. Description of the DIP Switch Settings

SWITCH	FUNCTION	LABEL	LABEL	BEHAVIOR
1	Control	Local	Remote	When set to Local, the card can be controlled only through the DIP switches, although DashBoard will display status. When set to Remote, the card can be controlled only through the DashBoard Control System.
2	Embed 1/2	On	Off	When set to On, the audio channels from Analog Audio I/O connectors 1 and 2 are embedded into the first pair of channels of the SDI Group selected by switch 6 (Embed Group). When set to Off, the audio channels from the first two channels of the SDI Group selected by switch 7 (Disembed Group) are disembedded and output as analog audio through Analog Audio I/O connectors 1 and 2.
3	Embed 3/4	On	Off	When set to On, the audio channels from Analog Audio I/O connectors 3 and 4 are embedded into the second pair of channels of the SDI Group selected by switch 6 (Embed Group). When set to Off, the audio channels from the second pair of channels of the SDI Group selected by switch 7 (Disembed Group) are disembedded and output as analog audio through Analog Audio I/O connectors 3 and 4.
4	Embed 5/6	On	Off	When set to On, the audio channels from Analog Audio I/O connectors 5 and 6 are embedded into the third pair of channels of the SDI Group selected by switch 6 (Embed Group). When set to Off, the audio channels from the third pair of channels of the SDI Group selected by switch 7 (Disembed Group) are disembedded and output as analog audio through Analog Audio I/O connectors 5 and 6.
5	Embed 7/8	On	Off	When set to On, the audio channels from Analog Audio I/O connectors 7 and 8 are embedded into the fourth pair of channels of the SDI Group selected by switch 6 (Embed Group). When set to Off, the audio channels from the fourth pair of channels of the SDI Group selected by switch 7 (Disembed Group) are disembedded and output as analog audio through Analog Audio I/O connectors 7 and 8.
6	Embed Group	1/2	3/4	When set to 1/2, analog audio will be embedded into SDI audio groups 1/2 (channels 1-8). When set to 3/4, analog audio will be embedded into SDI audio groups 3/4 (channels 9-16). Embedding by channel pair is controlled by switches 2-5.
7	Disembed Group	1/2	3/4	When set to 1/2, SDI audio group 1/2 (channels 1-8) will be disembedded to analog audio. When set to 3/4, SDI audio group 3/4 (channels 9-16) will be disembedded to analog audio. Disembedding by channel pair is controlled by switches 2-5.
8	Pass HANC	On	Off	Determine whether or not to pass the incoming embedded horizontal ancillary data (HANC) packets. When set to On, all incoming HANC packets are passed unless the embedder settings require all or part of them to be over-written. When set to Off, all incoming HANC packets are dropped before embedding any new audio packets.

NOTE: 2048x1080p/psf 29.97 and 30 formats support a maximum of 8 channels of embedded audio. When one of these formats is present and embedding is turned on, the PASS HANC DIP switch will be ignored and all incoming packets will be dropped before embedding any new audio packets.

Using the DashBoard Control System

The DashBoard Control System, created by Ross Video, is available as a free download from the Ross Video website:

<https://www.rossvideo.com/control-systems/dashboard/products/dashboard/>

Ross Video offers comprehensive documentation that covers the extensive capabilities of the DashBoard Control System:

<https://www.rossvideo.com/support/documentation/dashboard/>

This manual addresses only those essential aspects of the DashBoard Control System needed to control the OG-3G-AMA card.

Requirements

The DashBoard Control System requires the following components:

- openGear frame with a Frame Controller card
- Ethernet connection between the controlling computer and the openGear frame

NOTE: The openGear frame ships from AJA with the MFC-8322-S Frame Controller card for controlling the new AJA DashBoard cards. The openGear frame also supports the MFC-0GX-N Advanced Networking Frame Controller card, which can be used to control compatible OG cards.

DashBoard automatically discovers openGear and DashBoard Connect devices, such as openGear frames and cards that are present and accessible on your network.

Control Interface Basic Components

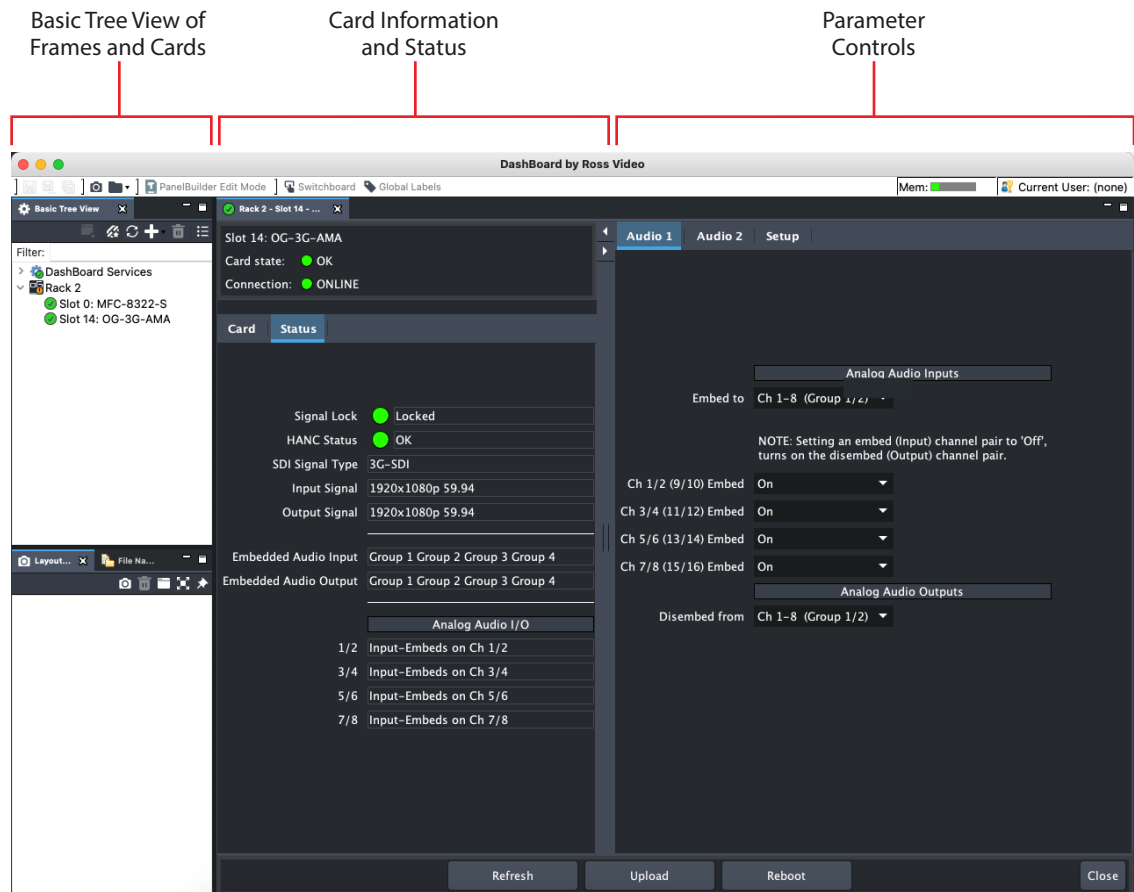
The basic components of the DashBoard Control System user interface consist of the basic tree view of frames and cards, the card information and status panel, and the parameter controls panel. These elements are shown below in Figure 6.

The basic tree view of frames and cards shows the frames and cards that are discoverable by DashBoard on your network.

The card information and status panel, shown in the middle panel, display the basic status of the card currently selected in DashBoard.

The parameter controls panel shows the tabs and parameters that the selected card has available for configuration and control.

Figure 8. Main Sections of the DashBoard User Interface



Three OG-3G-AMA Use Cases

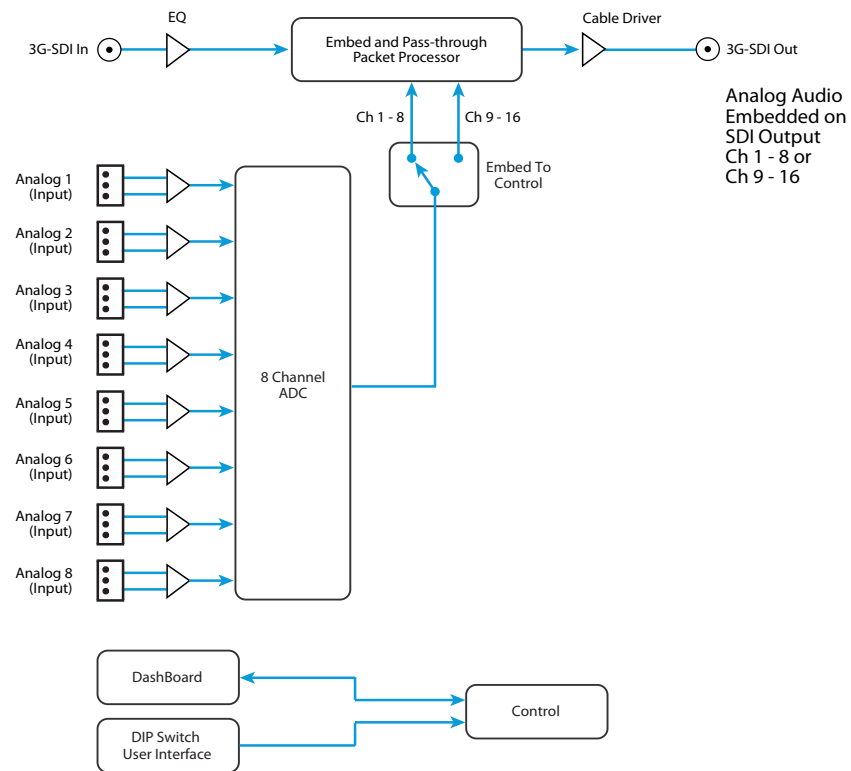
To provide detailed explanations of how to use the OG-3G-AMA DashBoard Control System, this section illustrates the following three basic use cases:

1. 8-Channel Embedder
2. 8-Channel Disembedder
3. 4-Channel Embedder and 4-Channel Disembedder

Each use case includes a simplified block diagram and a corresponding screen capture of the DashBoard Control System configured to match each example.

Use Case 1: 8-Channel Embedder

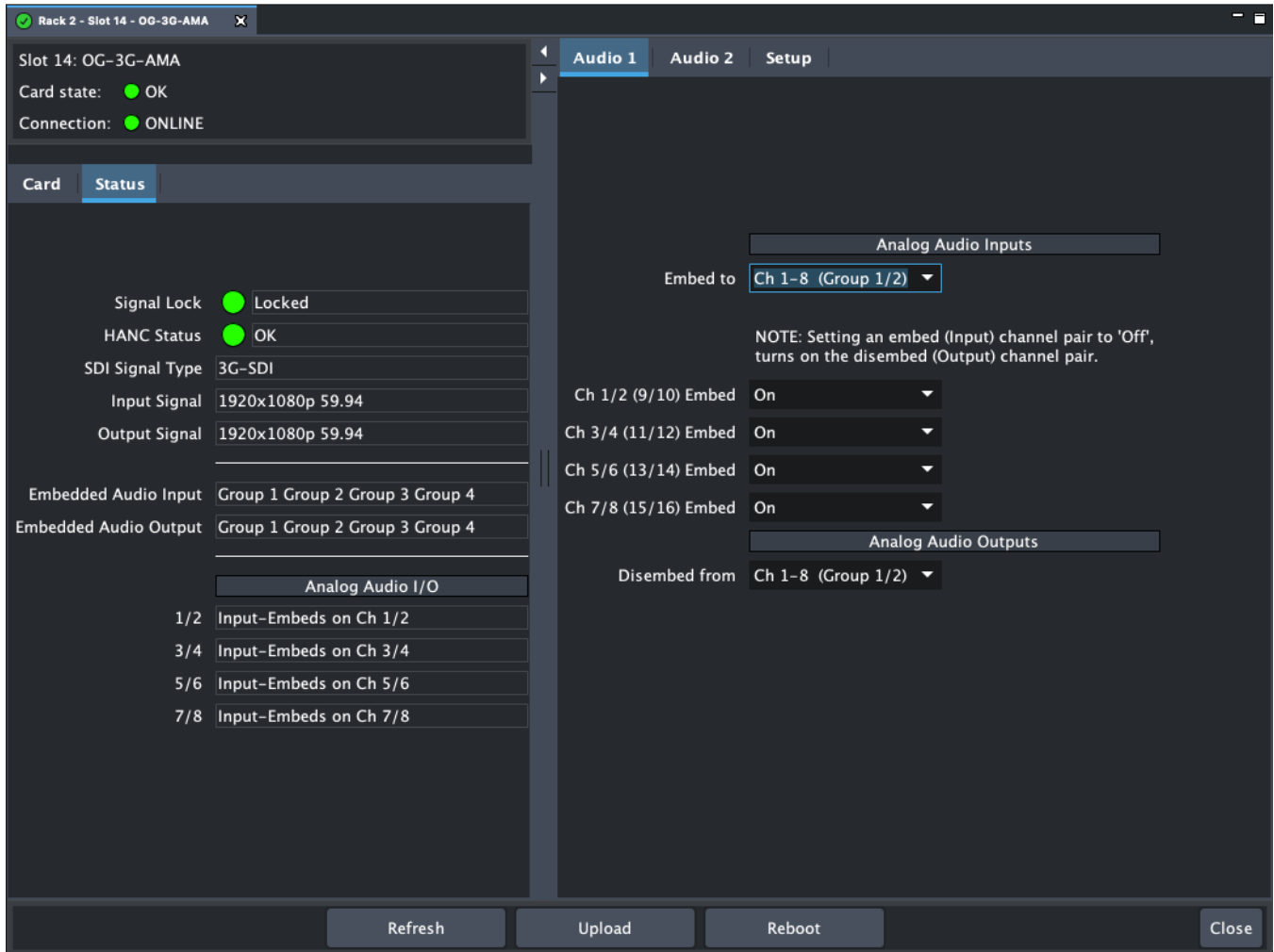
Figure 9. 8-Channel Embedder Simplified Block Diagram



DashBoard Embed/Disembed Settings

Ch 1/2 (9/10) Embed	On
Ch 3/4 (11/12) Embed	On
Ch 5/6 (13/14) Embed	On
Ch 7/8 (15/16) Embed	On

Figure 10. OG-3G-AMA Card Being Used as an 8-Channel Embedder



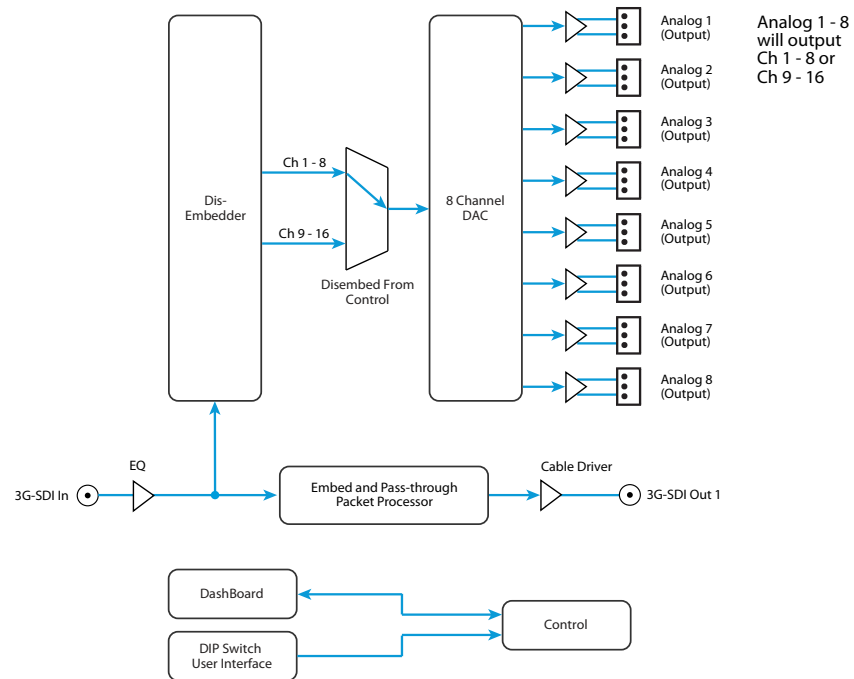
In this first example, the OG-3G-AMA is being used as an 8-channel embedder. Four pairs (eight channels) of analog audio input are being embedded into SDI channels 1 through 8.

The controls under the Audio 1 tab, under Analog Audio Inputs, show in the **Embed to** control that Channels 1-8 have been selected for embedding the analog audio inputs. Below that, each channel pair **Embed** control is turned on which enables embedding.

The reporting panel on the left, under the Status tab, reports under the Analog Audio I/O section that each pair of audio channels is configured as inputs and is being embedded into the SDI audio channel pairs for channels 1 through 8.

Use Case 2: 8-Channel Disembedder

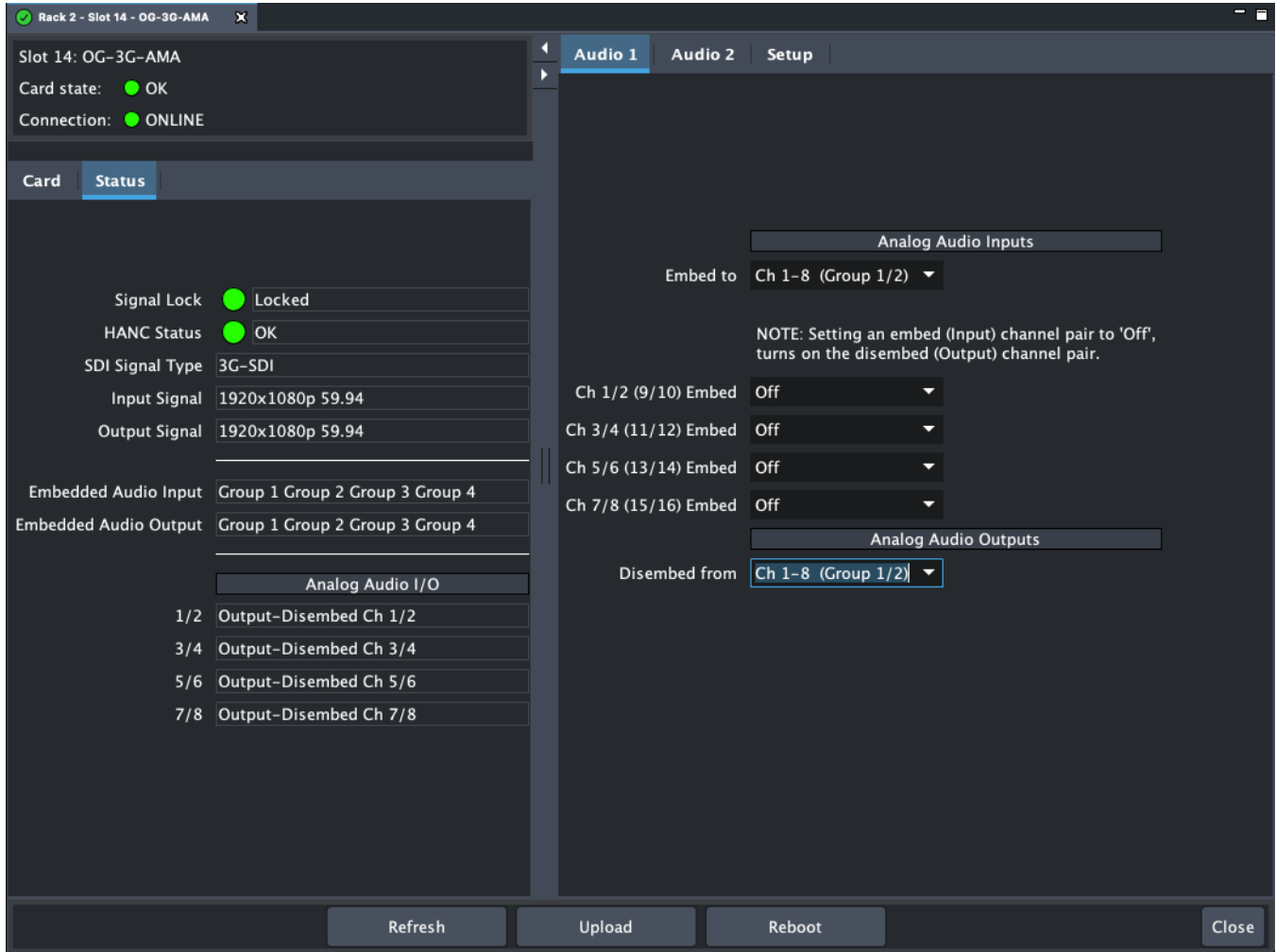
Figure 11. 8-Channel Disembedder Simplified Block Diagram



DashBoard Embed/Disembed Settings

Ch 1/2 (9/10) Embed	Off
Ch 3/4 (11/12) Embed	Off
Ch 5/6 (13/14) Embed	Off
Ch 7/8 (15/16) Embed	Off

Figure 12. OG-3G-AMA Card Being Used as an 8-Channel Disembedder



In this example, the OG-3G-AMA is being used as an 8-channel disembedder.

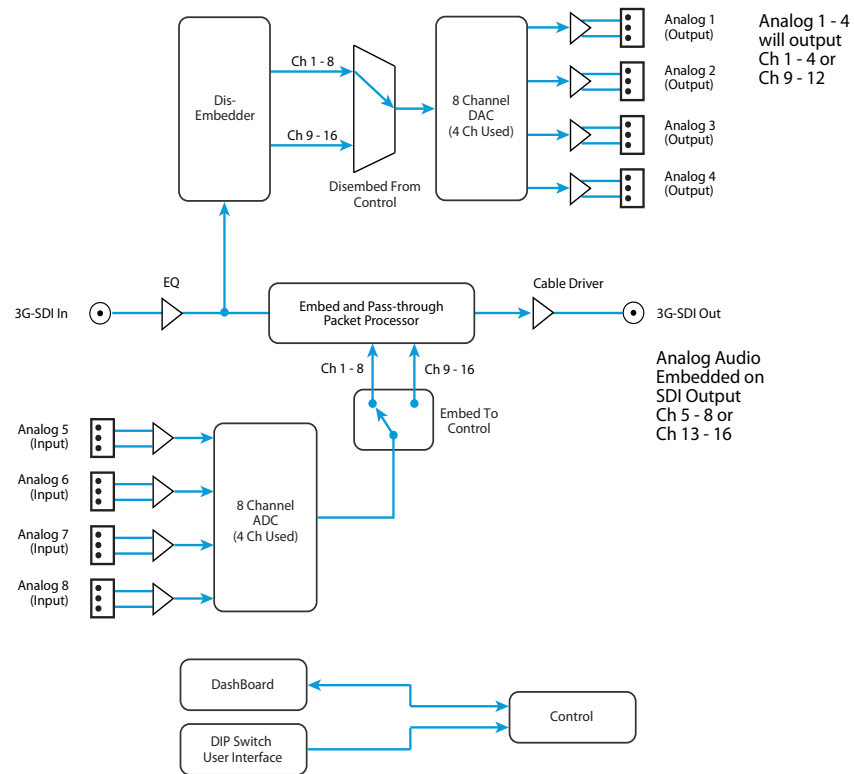
Under the Audio 1 tab, under Analog Audio Outputs, the **Disembed from** control shows that Channels 1-8 have been selected for disembedding from the SDI signal. Above that, each channel pair **Embed** control is turned off.

NOTE: When an Embed control is turned off, it changes the function from embed to disembed.

This configuration is reflected in the reporting panel on the left, under the Status tab. Under the Analog Audio I/O section, each pair of audio channels is configured as outputs and is being used to output disembedded audio from the SDI signal.

Use Case 3: 4-Channel Embedder and 4-Channel Disembedder

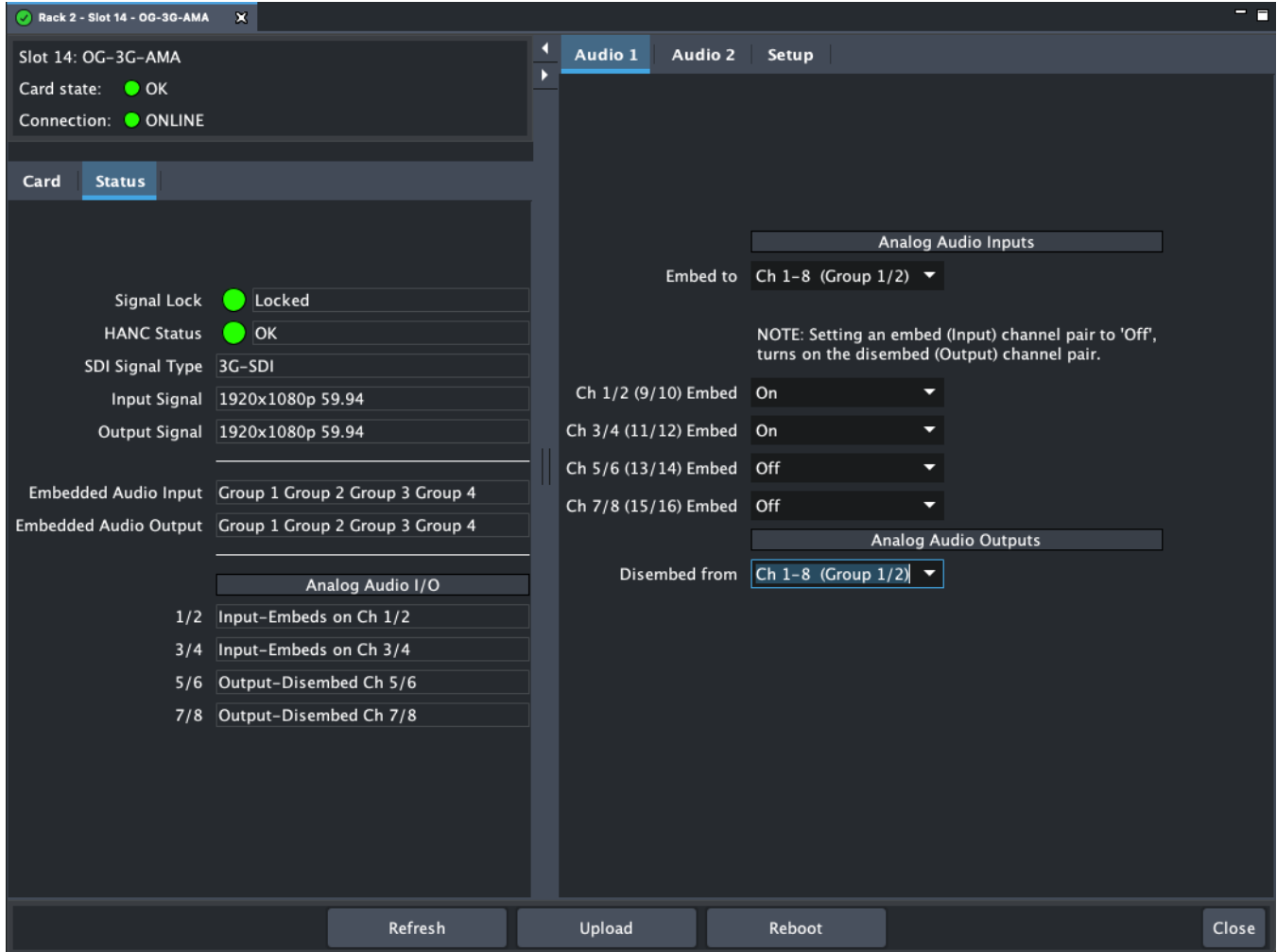
Figure 13. 4-Channel Embedder and 4-Channel Disembedder Simplified Block Diagram



DashBoard Embed/Disembed Settings

Ch 1/2 (9/10) Embed	Off
Ch 3/4 (11/12) Embed	Off
Ch 5/6 (13/14) Embed	On
Ch 7/8 (15/16) Embed	On

Figure 14. OG-3G-AMA Card Being Used as a 4-Channel Embedder and 4-Channel Disembedder



In this example, the OG-3G-AMA is being used as a 4-channel embedder and 4-channel disembedder. Analog audio from audio inputs 1/2 and 3/4 are being embedded into SDI channels 1/2 and 3/4, and embedded SDI audio channels 5/6 and 7/8 are being disembedded and output through analog audio outputs 5/6 and 7/8.

Under the Audio 1 tab, the **Embed to** control under Analog Audio Inputs shows that Channels 1-8 have been selected for embedding the selected analog audio inputs.

The **Disembed from** control Under Analog Audio Outputs shows that Channels 1-8 are selected for disembedding.

The **Embed** controls are turned on for channel pairs 1/2 and 3/4, and turned off for channel pairs 5/6 and 7/8. When an **Embed** control is turned off, it changes the function from embed to disembed.

The reporting panel on the left, under the Status tab, shows that analog audio connectors 1/2 and 3/4 are configured as inputs and are being used for embedding to SDI channels 1/2 and 3/4. Analog audio connectors 5/6 and 7/8 are configured as outputs and are being used for carrying the disembedded audio from channels 5/6 and 7/8 from the SDI signal.

Audio 1 Tab Screen

Click on the Audio 1 tab to view and make changes to the audio embedding and disembedding settings.

Figure 15. OG-3G-AMA Audio 1 Tab Screen

The screenshot shows the 'Audio 1' tab selected in a dark-themed interface. At the top, there are three tabs: 'Audio 1', 'Audio 2', and 'Setup'. Below the tabs, the 'Analog Audio Inputs' section is visible. It includes a label 'Embed to' followed by a dropdown menu set to 'Ch 1-8 (Group 1/2)'. Below this is a note: 'NOTE: Setting an embed (Input) channel pair to 'Off', turns on the disembed (Output) channel pair.' There are four rows of controls, each with a label and a dropdown menu: 'Ch 1/2 (9/10) Embed' set to 'On', 'Ch 3/4 (11/12) Embed' set to 'On', 'Ch 5/6 (13/14) Embed' set to 'On', and 'Ch 7/8 (15/16) Embed' set to 'On'. Below these is the 'Analog Audio Outputs' section, which includes a label 'Disembed from' followed by a dropdown menu set to 'Ch 1-8 (Group 1/2)'.

Analog Audio Inputs

Embed to - Select where you want to embed the analog audio. You can embed analog audio into one of the following pairs of SDI embedded audio groups:

- Ch 1-8 (Group 1/2) or
- Ch 9-16 (Group 3/4).

Ch 1/2 (9/10) Embed - Selecting On embeds the audio channels from Analog Audio I/O connectors 1 and 2 into the first pair of channels of the SDI Group selected with the **Embed to** control. Selecting Off disembeds the audio channels from the first two channels of the SDI Group selected with the **Disembed from** control and outputs them as analog audio through Analog Audio I/O connectors 1 and 2.

Ch 3/4 (11/12) Embed - Selecting On embeds the audio channels from Analog Audio I/O connectors 3 and 4 into the second pair of channels of the SDI Group selected with the **Embed to** control. Selecting Off disembeds the audio channels from the second pair of channels of the SDI Group selected with the **Disembed from** control and outputs them as analog audio through Analog Audio I/O connectors 3 and 4.

Ch 5/6 (13/14) Embed - Selecting On embeds the audio channels from Analog Audio I/O connectors 5 and 6 into the third pair of channels of the SDI Group selected with the **Embed to** control. Selecting Off disembeds the audio channels from the third pair of channels of the SDI Group selected with the **Disembed from** control and outputs them as analog audio through Analog Audio I/O connectors 5 and 6.

Ch 7/8 (15/16) Embed - Selecting On embeds the audio channels from Analog Audio I/O connectors 7 and 8 into the fourth pair of channels of the SDI Group selected with the **Embed to** control. Selecting Off disembeds the audio channels from the fourth pair of channels of the SDI Group selected with the **Disembed from** control and outputs them as analog audio through Analog Audio I/O connectors 7 and 8.

Analog Audio Outputs

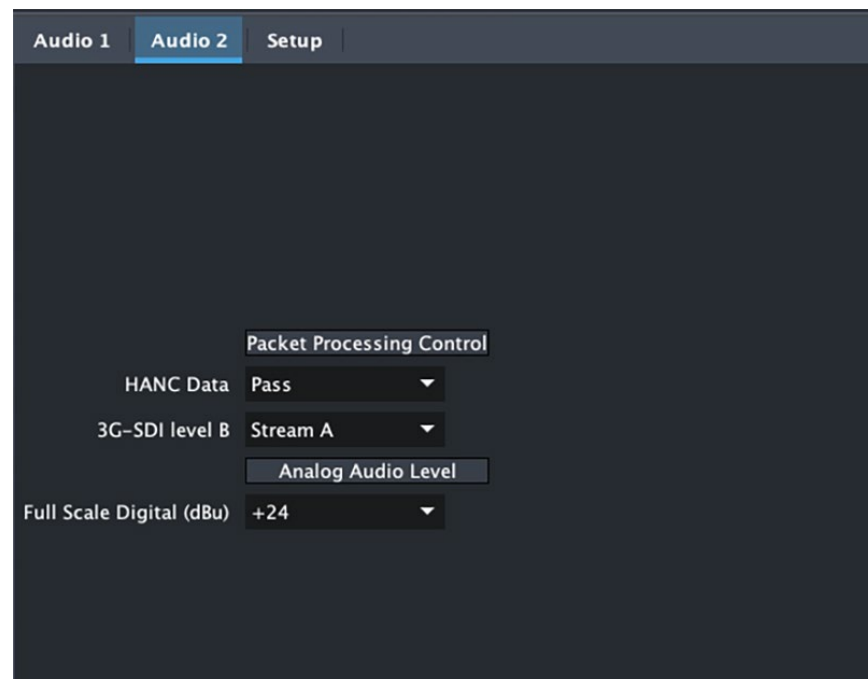
Disembed from - Select one of the following pairs of SDI embedded audio groups that you want to disembed from:

- Ch 1-8 (Group 1/2) or
- Ch 9-16 (Group 3/4).

Audio 2 Tab Screen

Click on the Audio-2 tab to view and make changes to the packet processing and audio level settings.

Figure 16. OG-3G-AMA Audio 2 Tab Screen



Packet Processing Control

HANC Data - Determine whether or not to include the horizontal ancillary data (HANC) packets in the embedded audio. The embedder settings from the Audio 1 tab determine all embedded audio output. Disembedding is not affected. Select one of the following settings:

- Pass: All incoming HANC packets are passed unless the embedder settings require all or part of them to be over-written.

- Remove: All incoming HANC packets are dropped before embedding any new audio packets.

NOTE: 2048 x 1080p/PsF 29.97 and 30 formats support a maximum of 8 channels of embedded audio. When one of these formats is present and embedding is turned on, the PASS HANC setting will be ignored and all incoming packets will be dropped before embedding any new audio packets.

3G-SDI Level B - For 3G Level B signals, selects either the audio channels of input Stream A or the audio channels of input Stream B for disembedding. This setting also controls whether output Stream A or output Stream B will receive embedded audio. This control has no effect if a 3G Level B signal is not detected. Select one of the following settings:

- Stream A
- Stream B

Analog Audio Level

Full Scale Digital (dBu) - Select from the following:

- +24 dBu
- +18 dBu
- +15 dBu (professional)
- +12 dBu (consumer)

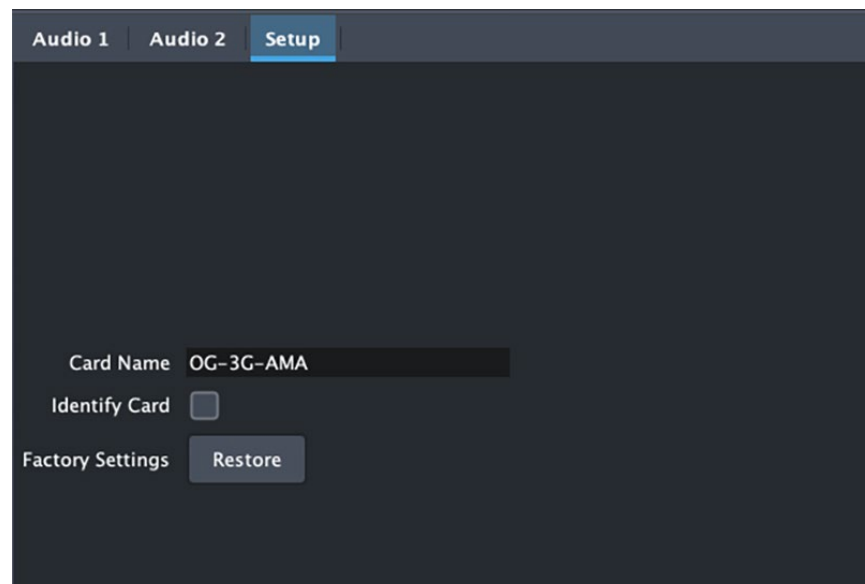
About Audio Levels

Professional audio equipment has much higher levels than consumer equipment. A 0 VU reading corresponds to +4 dBu. Connecting a professional +4 dBu device to a consumer audio input (-7 to -8 dBu) may produce overloading, whereas the output of a consumer device probably does not have sufficient power to drive a professional audio input. With consumer and semi-professional audio equipment, a VU reading of 0 dB is typically referenced to -10 dBV, which is equivalent to -7.78 dBu.

Setup Tab Screen

Click on the Setup tab to view and make changes to the card name or to restore card settings to factory default values.

Figure 17. OG-3G-AMA Setup Tab Screen



Card Name - By default, this field is pre-populated with the card name OG-3G-AMA. You can change the card name by editing the text in the Card Name field.

Identify Card - Select the checkbox to turn on the Identify Card function. When this function is turned on, an LED light on the front of the OG-3G-AMA card inside the openGear frame will blink to help you quickly identify the card. Open the front of the openGear frame in order to see the light blinking.

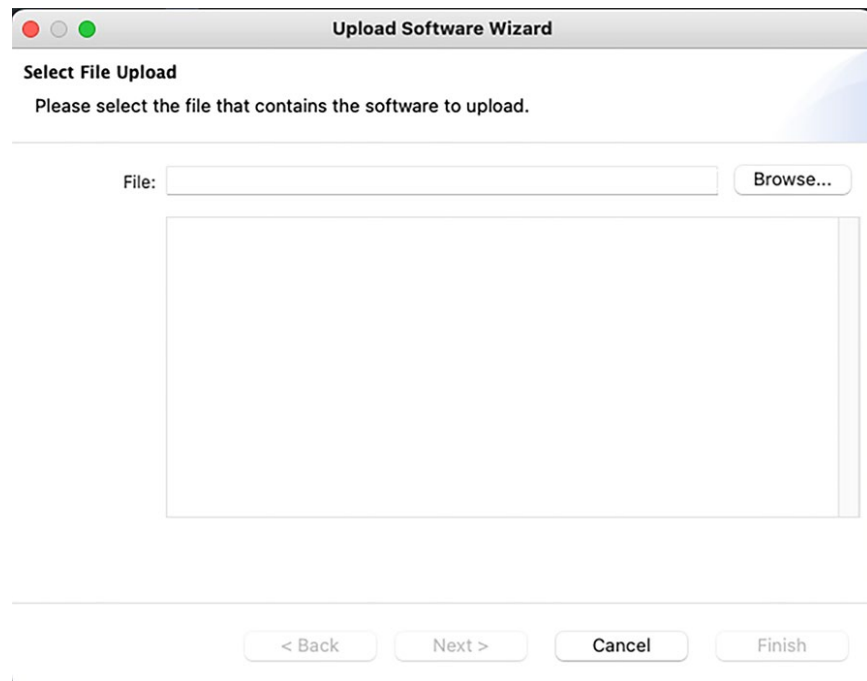
Factory Settings - If you would like to revert the card settings to factory default values, click **Restore**.

Upload Screen

To Upload New Software

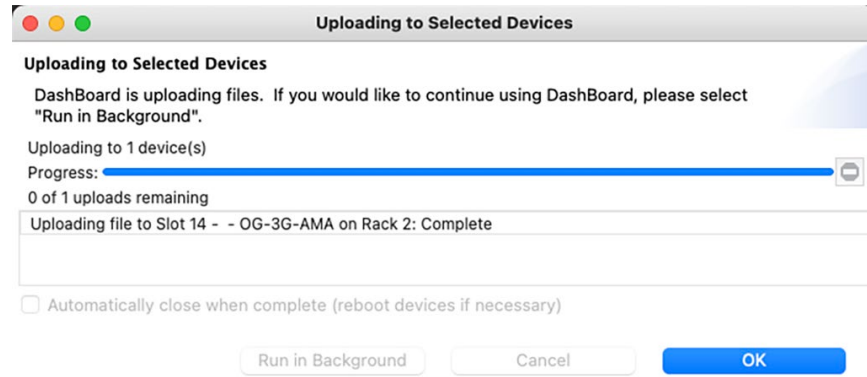
1. Check the AJA website for new software for your OG-3G-AMA. If new software is found, download it and uncompress the file archive (zip).
2. Click the Upload button in the lower panel of the DashBoard Control System to open the Upload Software Wizard.

Figure 18. OG-3G-AMA Upload Software Wizard



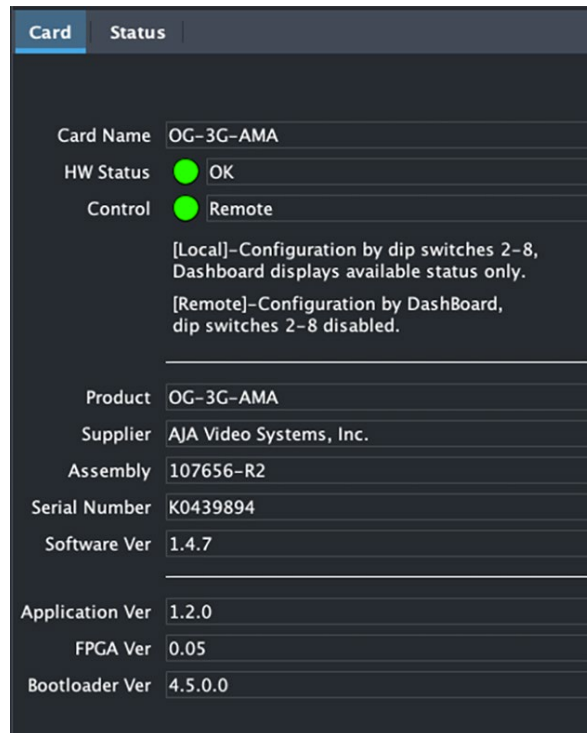
3. From the Upload Software Wizard window, select **Browse**.
4. Navigate to the location of the downloaded .bin file containing the software update. Select the .bin file, then select **Open**. The Upload Software Wizard window displays characteristics of the selected file for uploading.
5. Click **Finish**. The Uploading to Selected Devices window displays with a progress bar.

Figure 19. OG-3G-AMA Uploading to Selected Devices



6. When the progress bar indicates that the uploading is finished and status indicates "Complete," click **OK**.
7. To verify the version of software or firmware currently installed on your card, select the Card tab from the center panel of DashBoard.

Figure 20. OG-3G-AMA Card Tab Screen



Rebooting

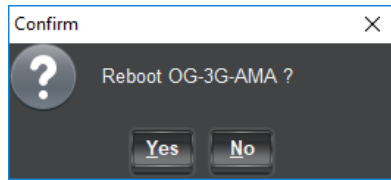
Rebooting is a standard function built in to the DashBoard Control System, and should only be performed if the board has become unresponsive.

WARNING: During a reboot, any embedding or disembedding operations will be briefly interrupted, but will be restored once the reboot has completed.

To Reboot the OG-3G-AMA

1. Click the Reboot button in the lower panel of DashBoard. The reboot confirmation message displays.

Figure 21. Reboot confirmation window



2. Click **Yes**. The message "Loading data, please wait. Refreshing device data" displays for a moment. The card will be offline for a few seconds, and any current embedding or disembedding operations will be interrupted.
3. Following a Reboot operation, the board configuration will return to the settings that were in place at the time of rebooting.

Appendix A – Specifications

OG-3G-AMA Tech Specs

Video Formats

- (2K) 2048x1080p
- (2K) 2048x1080PsF
- (HD) 1920x1080p
- (HD) 1920x1080PsF
- (HD) 1920x1080i
- (HD) 1280x720p
- (SD) 720x576i
- (SD) 720x480i
- RGB and YCbCr, 4:4:4/4:2:2, 10-bit

Video Input Digital

- 1x 3G-SDI BNC, SMPTE-259/292/424
 - Single Link SD/HD/2K
 - Single Link 3G-SDI Level A, Level B (Dual Link or Dual Stream), SMPTE 425

Video Input Formats

- 1x 3 Gb SDI (level A or B)
 - (2K) 2048x1080p 23.98, 24, 25, 29.97, 30, 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
- 1x 1.5 Gb SDI
 - (2K) 2048x1080p 23.98, 24, 25, 29.97, 30
 - (2K) 2048x1080PsF 23.98, 24, 25, 29.97, 30
 - (HD) 1920x1080p 23.98, 24, 25, 29.97, 30
 - (HD) 1920x1080PsF 23.98, 24, 25, 29.97, 30
 - (HD) 1920x1080i 50, 59.94, 60
 - (HD) 1280x720p 50, 59.94, 60
- 1x 270 Mb SDI
 - (SD) 625i 50
 - (SD) 525i 59.94

Video Output Digital

- 1x 3G-SDI BNC, SMPTE-259/292/424
 - Single Link SD/HD/2K
 - Single Link 3G-SDI Level A, Level B (Dual Link or Dual Stream), SMPTE 425

Video Output Formats

Video Out is a delayed, reclocked version of Video In, at the same frame rate, etc.
Video Out is undefined when no input.

- Video Latency, time measured between video input and video output connector:
 - 3G level A = 3.2 usec
 - 3G level B = 6.1 usec
 - HD (1.5 Gb) = 6.3 usec
 - SD (270 Mb) = 17.2 usec

Audio Inputs and Outputs

- Audio Connectors
 - 8 Analog Audio Connections (4 pairs total)
 - Each pair configurable to Inputs or Outputs
- Digital Audio Converters
 - 24-bit
- Embedded Audio
 - SMPTE 272M (SD): 20-bit, 48 kHz synchronous
 - SMPTE 299M (3G/HD): 24-bit, 48 kHz synchronous
 - Incoming embedded audio can be passed, removed, or overridden.
 - 16x channels supported (8x can be from the analog inputs)
- Embed Path Audio Latency, time measured between audio input and video output connector:
 - 1100 usec
- Disembed Path Audio Latency, time measured between video input and audio output connector:
 - 1200 usec
- Analog Audio Levels
 - Configured via DashBoard software:
 - Pro 1: 0 dBfs = +24 dBu
 - Pro 2: 0 dBfs = +18 dBu
 - Pro 3: 0 dBfs = +15 dBu
 - Consumer 1: 0 dBfs = +12 dBu

User Controls

- External DIP switch
- openGear DashBoard network control software via Windows, macOS or Linux

Size

- openGear standard form factor, front slot and rear card
- Two slots required for each card

Weight

- 0.5 lb (0.3 kg)

Power

- openGear frame compatible, 5.0 watts max per card

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.

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

EN 60065: 2014 (T-Mark License),

IEC 60065: 2014 (CB Scheme Report/Certificate)

Additional licenses issued for specific countries available on request.

Emissions

EN 55032: 2012, CISPR 32: 2015,

EN 61000-3-2: 2014, EN 61000-3-3: 2013

Immunity

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

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

EN 61000-4-11:2004

Environments: E2, E3 and E4

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



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

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

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

Recycling Notice



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

Korea KCC Compliance Statement

사 용 자 안 내 문
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 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.

Translated Warning and Caution Messages

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



Warning Symbol



Hazard Symbol



Caution Symbol

Before Operation Please Read These Instructions



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

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

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

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

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

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



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

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

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

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

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

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



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

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

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

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

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

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



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

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

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

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

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

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



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

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

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

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

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

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



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

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

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

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

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

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



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

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

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

¡Advertencia! Proteja el cable de 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 éclaircies 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.



Hazard! High Voltage. This situation or condition can cause injury due to electric shock.

Avertissement! Tension élevée. Cette situation ou condition peut causer des blessures dues à un choc électrique.

Warnung! Hochspannung. Diese Situation oder Bedingung kann zu Verletzungen durch Stromschlag führen.

¡Advertencia! Alto voltaje. Esta situación o condición puede causar lesiones debidas a una descarga eléctrica.

Aviso! Alta Tensão. Esta situação ou condição pode causar danos devido a choques elétricos.

Avviso! Alta tensione. Questa situazione o condizione può causare lesioni a causa di scosse elettriche.



Caution! To meet safety regulations for leakage current, connect the dual power supplies to separate branch circuits.

¡Advertencia! Para cumplir con las normas de seguridad para la corriente de fuga, conecte las dos fuentes de alimentación para circuitos derivados diferentes.

Attention! Pour répondre aux mesures de sécurité concernant le courant de fuite, raccorder les sources d'alimentation doubles à des circuits de dérivation distincts.

Warnung! Zur Erfüllung der Sicherheitsbestimmungen bezüglich Reststrom schließen Sie bitte die zwei Netzteile an unterschiedlichen Abzweigleitungen an.

Cuidado! Para atender aos regulamentos de segurança para correntes de fuga, conecte as fontes duplas a circuitos elétricos separados.

Attenzione! Per soddisfare le norme di sicurezza sulla corrente di perdita, collegare i doppi alimentatori a circuiti derivati separati.



Warning! Ensure Mains Power is disconnected before installing the OG-3G-AMA modules into the frame, or installing and removing options. If a Mains switch is not provided, the power cord(s) of this equipment provide the means of disconnection. The socket outlet must be installed near the equipment and must be easily accessible.

Avertissement ! Avant d'installer des modules OG-3-FR dans la structure, ainsi qu'avant d'installer ou d'enlever des options, assurez-vous d'avoir déconnecté l'alimentation électrique. S'il n'y a pas d'interrupteur électrique, il faut débrancher les câbles électriques de l'équipement. La prise électrique doit être située à proximité de l'équipement et doit être aisément accessible.

Achtung! Sicherstellen, dass die Netzleitung entkoppelt ist, bevor die OG-3-FR Module in das Gestell eingebaut oder Wahlteile eingebaut bzw. ausgebaut werden. Wenn kein Netzschalter vorgesehen ist, dient das bzw. dienen die Netzkabel dieser Vorrichtung als Entkopplungsmittel. Die Steckdose muss in der Nähe der Vorrichtung installiert und leicht zugänglich sein.

Avvertenza. Accertarsi che l'alimentazione di rete sia scollegata prima di installare i moduli OG-3-FR nel frame o di installare e rimuovere componenti opzionali. Se non è presente un interruttore di accensione/spengimento, occorre scollegare il cavo (o i cavi) di alimentazione di questo apparecchio dalla presa di corrente. La presa di corrente deve essere situata presso l'apparecchio e facilmente accessibile.

Aviso! Certifique-se que a fonte principal de energia elétrica está desconectada antes de instalar os módulos OG-3-FR no bastidor ou antes de instalar e remover opções. Se o interruptor principal não existir, o cabo elétrico deste equipamento proporciona o meio de desconexão. A tomada elétrica deverá ser instalada perto do equipamento e deverá ser de fácil acesso.

¡Advertencia! Asegúrese que la red de alimentación está desconectada antes de instalar los módulos OG-3-FR en el marco, o la instalación y extracción de opciones. Si no se proporciona un conmutador de red, el cable de alimentación de este equipo proporciona los medios de desconexión. El zócalo tomacorriente debe estar instalado cerca del equipo y debe ser fácilmente accesible.



Warning! Dual Power Cord Notice—please read this. To reduce the risk of electrical shock, disconnect both power cords before servicing equipment.

Avertissement ! Avis concernant la double alimentation électrique—à lire soigneusement. Pour éviter tout risque d'électrocution, débranchez les deux câbles électriques avant d'intervenir sur l'équipement.

Achtung! Hinweis auf Doppel-Netzkabel-bitte lesen. Um das Risiko eines Elektroschocks zu verringern, müssen beide Netzkabel ausgestöpselt werden, bevor die Vorrichtung gewartet wird.

Avvertenza. Avviso concernente il cavo di alimentazione doppio - leggere attentamente. Per ridurre il rischio di elettrocuzione, scollegare entrambi i cavi di alimentazione prima di eseguire la manutenzione o riparazioni di questo apparecchio.

Aviso! Aviso de Cabo Elétrico Duplo - por favor, leia isto. Para reduzir o risco de choque elétrico, desconecte ambos os cabos elétricos antes de fazer manutenção ao equipamento.

¡Advertencia! Aviso del doble cable de alimentación - leer esto por favor. Para reducir el riesgo de descarga eléctrica, desconecte ambos cables de alimentación antes de dar servicio al equipo.



Caution! The OG-X-FR front fan door is heavy. Remove with Caution.

Attention! La porte du ventilateur avant OG-X-FR est lourde. Retirer avec précaution.

Achtung! Die OG-X-FR Frontlüfter Tür ist schwer. Bitte vorsichtig entfernen.

¡Precaución! La puerta del ventilador frontal OG-X-FR es pesado. Extraer con precaución.

Atenção! A porta do ventilador frontal OG-X-FR é pesado. Remova com cuidado.

Attenzione! La porta ventola anteriore OG-X-FR è pesante. Rimuovere con cautela.

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Replace the product with a direct replacement or with a product that performs substantially the same function as the original product.

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