ADA-8402-B User Guide

www.rossvideo.com

Thank You for Choosing Ross

You've made a great choice. We expect you will be very happy with your purchase of Ross Technology.

Our mission is to:

1. Provide a Superior Customer Experience
   - offer the best product quality and support
2. Make Cool Practical Technology
   - develop great products that customers love

Ross has become well known for the Ross Video Code of Ethics. It guides our interactions and empowers our employees. I hope you enjoy reading it below.

If anything at all with your Ross experience does not live up to your expectations be sure to reach out to us at *solutions@rossvideo.com*.

David Ross
CEO, Ross Video
dross@rossvideo.com

Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
6. We will keep our promises.
7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

ADA-8402-B · User Guide

- Ross Part Number: **8402BDR-004-04**
- Revision: 2
- Release Date: October 2, 2025.

The information contained in this Guide is subject to change without notice or obligation.

Copyright

Patents

Patent numbers US 7,034,886; US 7,508,455; US 7,602,446; US 7,802,802 B2; US 7,834,886; US 7,914,332; US 8,307,284; US 8,407,374 B2; US 8,499,019 B2; US 8,519,949 B2; US 8,743,292 B2; GB 2,419,119 B; GB 2,447,380 B; and other patents pending.

Notices

The material in this manual is furnished for informational use only. It is subject to change without notice and should not be construed as commitment by Ross Video Limited. Ross Video Limited assumes no responsibility or liability for errors or inaccuracies that may appear in this manual.

Safety Notices

Refer to the "**Important Regulatory and Safety Notices**" document that accompanied your product.

Statement of Compliance

This product has been determined to be compliant with the applicable standards, regulations, and directives for the countries where the product is marketed.

Compliance documentation, such as certification or Declaration of Compliance for the product is available upon request by contacting techsupport@rossvideo.com. Please include the product; model number identifiers and serial number and country that compliance information is needed in request.

EMC Notices

US FCC Part 15

This equipment has been tested and found to comply with the limits for a class A Digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a Commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice — *Changes or modifications to this equipment not expressly approved by Ross Video Ltd. could void the user's authority to operate this equipment.*

Canada

This Class "A" digital apparatus complies with Canadian ICES-003 and part 15 of the FCC Rules.

Cet appareil numerique de la classe "A" est conforme a la norme NMB-003 du Canada.

European Union

This equipment is in compliance with the essential requirements and other relevant provisions established under regulation (EC) No 765/2008 and Decision No 768/2008/EC referred to as the "New Legislative Framework".

Warning — *This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.*

Australia/New Zealand

This equipment is in compliance with the provisions established under the Radiocommunications Act 1992 and Radiocommunications Labeling (Electromagnetic Compatibility) Notice 2008.

Korea

This equipment is in compliance with the provisions established under the Radio Waves Act.

Class A equipment (Broadcasting and communications service for business use)

This device is a business-use (Class A) EMC-compliant device. The seller and user are advised to be aware of this fact. This device is intended for use in areas outside home.

Type of Equipment	User's Guide
A급 기기 (업무용 방송통신기자재)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.
Class A Equipment (Industrial Broadcasting & Communication Equipment)	This equipment is **Industrial (Class A) electromagnetic wave suitability equipment** and seller or user should take notice of it, and this equipment is to be used in the places except for home.

International

This equipment has been tested under the requirements of CISPR 22:2008 or CISPR 32:2015 and found to comply with the limits for a Class A Digital device.

Notice — *This is a Class A product. In domestic environments, this product may cause radio interference, in which case the user may have to take adequate measures.*

Maintenance/User Serviceable Parts

Routine maintenance to this openGear product is not required. This product contains no user serviceable parts. If the module does not appear to be working properly, please contact Technical Support using the numbers listed under the "**Contacting Technical Support**" section of this manual. All openGear products are covered by a generous 5-year warranty and will be repaired without charge for materials or labor within this period. See "**Warranty and Repair Policy**" in this manual for details.

Environmental Information

The equipment may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration. You can also contact Ross Video for more information on the environmental performances of our products.

Company Address

Ross Video Limited
8 John Street
Iroquois, Ontario, K0E 1K0
Canada

Ross Video Incorporated
P.O. Box 880
Ogdensburg, New York
USA 13669-0880

General Business Office: (+1) 613 • 652 • 4886
Fax: (+1) 613 • 652 • 4425
Technical Support: (+1) 613 • 652 • 4886
After Hours Emergency: (+1) 613 • 349 • 0006
E-mail (Technical Support): techsupport@rossvideo.com
E-mail (General Information): solutions@rossvideo.com
Website: http://www.rossvideo.com

Contents

Introduction

This guide covers the installation, configuration, and use of the ADA-8402-B. The following chapters are included:

- "**Introduction**" summarizes the guide and provides important terms, and conventions.
- "**Before You Begin**" provides general information to keep in mind before installing and configuring your card.
- "**Hardware Overview**" provides a basic introduction to the hardware and monitoring features of the card. This chapter also outlines how to configure the card-edge DIP Switches.
- "**Physical Installation**" provides instructions for the physical installation of the card and its rear module.
- "**Cabling**" provides information on cabling each supported rear module.
- "**Getting Started**" provides a general overview of the accessing the ADA-8402-B in DashBoard.
- "**Upgrading the Software**" provides instructions for upgrading the software for your ADA-8402-B using DashBoard.
- "**DashBoard Menus**" summarizes the ADA-8402-B menus, items, and parameters in DashBoard.
- "**Technical Specifications**" provides technical specification details on the ADA-8402-B.
- "**Service Information**" provides information on the warranty and repair policy for your card.
- "**Glossary**" provides a list of terms used throughout this guide.

Related Publications

It is recommended to consult the following Ross documentation before installing and configuring your ADA-8402-B card:

- ***DashBoard User Guide***, Ross Part Number: 8351DR-004
- ***MFC-OG3-N and MFC-8322-S User Guide***, Ross Part Number: 8322DR-004
- ***OG3-FR Series User Guide***, Ross Part Number: 8322DR-005
- ***OGX-FR Series User Guide***, Ross Part Number: 8322DR-204

Documentation Conventions

Special text formats are used in this guide to identify parts of the user interface, text that a user must enter, or a sequence of menus and sub-menus that must be followed to reach a particular command.

Interface Elements

Bold text is used to identify a user interface element such as a dialog box, menu item, or button. For example:

In the **Network** tab, click **Apply**.

User Entered Text

Courier text is used to identify text that a user must enter. For example:

In the **Language** box, enter **`English`**.

Referenced Guides

Text set in bold and italic represent the titles of referenced guides, manuals, or documents. For example:

For more information, refer to the ***DashBoard User Guide***.

Menu Sequences

Menu arrows are used in procedures to identify a sequence of menu items that you must follow. For example, if a step reads "**File** > **Save As**," you would click the **File** menu and then click **Save As**.

Important Instructions

Star icons are used to identify important instructions or features. For example:

✶ Contact your IT department before connecting to your facility network to ensure that there are no conflicts.

Contacting Technical Support

At Ross Video, we take pride in the quality of our products, but if problems occur, help is as close as the nearest telephone.

Our 24-hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support is provided directly by Ross Video personnel. During business hours (Eastern Time), technical support personnel are available by telephone. After hours and on weekends, a direct emergency technical support phone line is available. If the technical support person who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. This team of highly trained staff is available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

- **Toll Free Technical Support (North America)**: 1-844-652-0645
- **Toll Free Technical Support (International)**: +800 1005 0100
- **Technical Support**: (+1) 613-652-4886
- **After Hours Emergency**: (+1) 613-349-0006
- **E-mail**: techsupport@rossvideo.com
- **Website**: http://www.rossvideo.com

Before You Begin

The ADA-8402-B is an AES/EBU Distribution Amplifier (110ohm) designed for broadcast use. It provides eight copies of the incoming balanced AES3 signal when used with the 8310AR-042 or 8320AR-042 Full Rear Modules or four copies of the incoming signal when used with the 8320AR-043 Split Rear Module. The ADA-8402-B supports audio sampling frequencies from 32kHz to 96kHz. Cable equalization and reclocking techniques enable the ADA-8402-B to recover the incoming digital audio signal reliably.

The ADA-8402-B also includes built-in loudness measurement. The card is capable of reading the ITU1770 LKFS Audio Measurements and displaying the measurement in DashBoard.

The 8320AR-043 high density split rear module can accommodate up to 2x ADA-8402-B cards, each configured as a 1x4 DA, accommodating up to 20 channels of distribution per 2RU frame.

Features

The following features make the ADA-8402-B the best solution for distributing digital audio signals:

- Operates as a:
  - 1x8 AES distribution amplifier (8310AR-042, 8320AR-042, or 8320AR-042A full rear module) or
  - 1x4 (high density) AES distribution amplifier (8320AR-043 or 8320AR-043A split rear module)
- 110ohm balanced AES3 I/O
- Ideal for distributing Dolby® E and Dolby® Digital signals
- Reports ITU1770 LKFS Audio Measurements in DashBoard
- Cable equalization and data reclocking on the incoming AES/EBU signal
- Supports audio sampling frequencies from 32kHz to 96kHz
- Provides level matching and level control of output signals
- Higher density with up to 20 cards per frame using the 8320AR-043 Split Rear Modules
- Fits the openGear frames
- 5 year transferable warranty

Functional Block Diagrams

This section provides the functional block diagrams that outline the workflow of the ADA-8402-B.

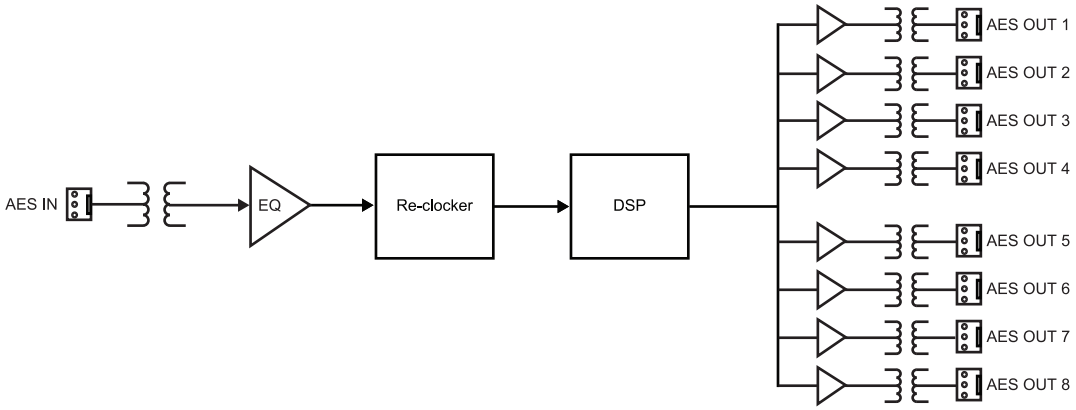


Figure 1 Simplified Block Diagram — 8310AR-042 and 8320AR-042 Full Rear Modules

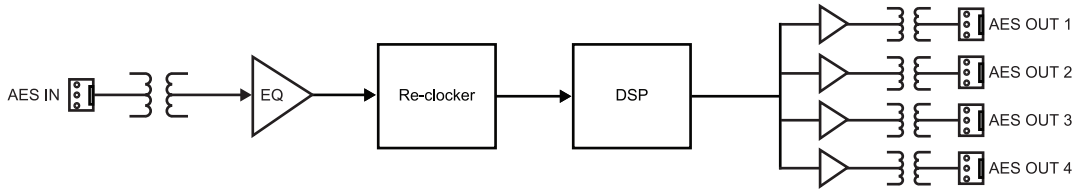


Figure 2 Simplified Block Diagram — 8320AR-043 Split Rear Module

User Interfaces

The ADA-8402-B offers the following interfaces for control and monitoring.

DashBoard Control System

The DashBoard Control System enables you to monitor and control openGear frames and cards from a computer. DashBoard communicates with other cards in the DFR-8300 series frame through the Network Controller Card.

For More Information on...

- the menus in DashBoard, refer to "**DashBoard Menus**".
- using DashBoard, refer to the ***DashBoard User Guide***.

Card-edge Controls

The ADA-8402-B provides LEDs on the card-edge that display the status of the input signals.

For More Information on...

- adjusting the output levels, refer to "**Setting the Output Mode**".
- monitoring the status using the card-edge LEDs, refer to "**Monitoring Features**".

Hardware Overview

This chapter provides a general overview of the user controls available on the ADA-8402-B.

Card Overview

This section provides a general overview of the card-edge controls for the ADA-8402-B.

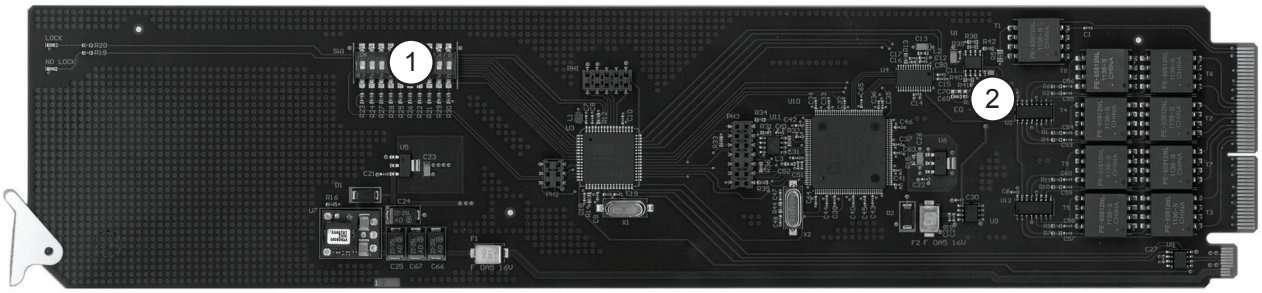


Figure 3 ADA-8402-B — Components

1) DIP Switches	2) EQ Adjustment (J3)

1. DIP Switches

This is a block of ten DIP Switches that can be used to specify the card control, selecting the output mode, and applying a gain to the output from the card-edge.

2. EQ Adjustment (J3)

Set **J3** to **IN** (**Figure 4**) to extend reach, or to improve jitter, on long cable runs. The default position is **OUT** (**Figure 5**) which disables this feature.

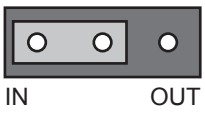


Figure 4 J3 — IN Position

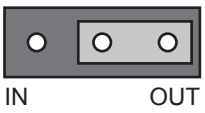


Figure 5 J3 — OUT Position

Configuring the DIP Switches

This section provides a brief summary of the DIP Switches of the ADA-8402-B. **Figure 6** shows all the DIP Switches in the **OFF** position.

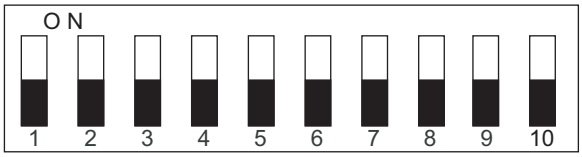


Figure 6 DIP Switches — OFF Positions

SW1, SW2 — Remote Control

SW1 and SW2 are used to specify whether control is via DashBoard or the card-edge DIP switches. Refer to "**Enabling Card-edge Control**" for details.

SW3, SW4 — Output Mode Selection

SW3 and **SW4** are used in conjunction to set the output mode of the ADA-8402-B. Refer to "**Setting the Output Mode**" for details.

SW5

This DIP Switch is not implemented.

SW6 to SW10 - Gain Control

These switches are used in conjunction to apply a specific Gain value (dB). Refer to "**Specifying the Gain**" for details.

Enabling Card-edge Control

SW1 and **SW2** are used in conjunction to enable/disable the card-edge DIP Switches to change settings on the card. You can still monitor the card status in DashBoard. **Table 1** lists the combinations of DIP Switch settings for **SW3** and **SW4**.

Table 1 Setting the Card-edge Control

SW1	SW2	Description
OFF	OFF	Control is from DashBoard only. The DIP switch settings are ignored. This is the default setting.
OFF	ON	Not implemented. Do not use.
ON	OFF	Not implemented. Do not use.
ON	ON	DashBoard control is disabled. The DIP switch settings are applied.

Setting the Output Mode

SW3 and **SW4**, are used in conjunction to set the output mode of the ADA-8402-B. **Table 2** lists the combinations of DIP Switch settings for **SW3** and **SW4**.

Table 2 Setting the Output Mode

SW3	SW4	Mode Selected
OFF	OFF	Stereo
OFF	ON	Mono
ON	OFF	Left Only
ON	ON	Right Only

Specifying the Gain

SW6-**SW10** are used in conjunction to specify the coarse level gain adjustment applied to the output of the ADA-8402-B. **Table 3** lists the combinations of DIP Switch settings for **SW6**-**SW10**.

Table 3 Specifying the Gain

SW6	SW7	SW8	SW9	SW10	Gain (dB)
OFF	OFF	OFF	OFF	OFF	UNITY
OFF	OFF	OFF	OFF	ON	1
OFF	OFF	OFF	ON	OFF	2
OFF	OFF	OFF	ON	ON	3
OFF	OFF	ON	OFF	OFF	4
OFF	OFF	ON	OFF	ON	5
OFF	OFF	ON	ON	OFF	6
OFF	OFF	ON	ON	ON	7
OFF	ON	OFF	OFF	OFF	8
OFF	ON	OFF	OFF	ON	9
OFF	ON	OFF	ON	OFF	10
OFF	ON	OFF	ON	ON	11
OFF	ON	ON	OFF	OFF	12
OFF	ON	ON	OFF	ON	13
OFF	ON	ON	ON	OFF	14
OFF	ON	ON	ON	ON	15
ON	OFF	OFF	OFF	OFF	UNITY
ON	OFF	OFF	OFF	ON	-1
ON	OFF	OFF	ON	OFF	-2
ON	OFF	OFF	ON	ON	-3
ON	OFF	ON	OFF	OFF	-4
ON	OFF	ON	OFF	ON	-5
ON	OFF	ON	ON	OFF	-6
ON	OFF	ON	ON	ON	-7
ON	ON	OFF	OFF	OFF	-8
ON	ON	OFF	OFF	ON	-9
ON	ON	OFF	ON	OFF	-10
ON	ON	OFF	ON	ON	-11
ON	ON	ON	OFF	OFF	-12
ON	ON	ON	OFF	ON	-13
ON	ON	ON	ON	OFF	-14
ON	ON	ON	ON	ON	-15

Monitoring Features

This section provides information on the LEDs for the ADA-8402-B. Refer to **Figure 7** for the location of the LEDs.

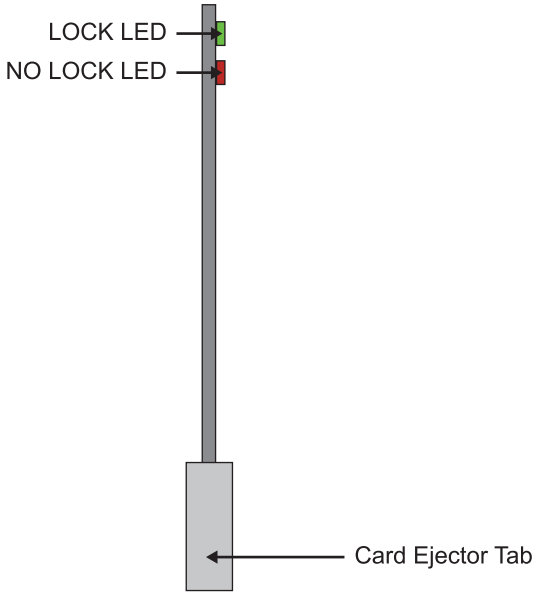


Figure 7 ADA-8402-B Card-edge Controls

Status and Selection LEDs on the ADA-8402-B

Basic LED displays and descriptions are provided in **Table 4**.

Table 4 LEDs on the ADA-8402-B

LED	Color	Display and Description
LOCK	Green	When lit green, this LED indicates a valid AES/EBU input signal.
NO LOCK	Red	When lit red, this LED indicates an invalid AES/EBU input signal.

Physical Installation

This chapter provides instructions for installing the rear module(s) for the ADA-8402-B, and installing the card into the frame.

Before You Begin

Before proceeding with the instructions in this chapter, ensure that your openGear frame is properly installed according to the instructions in the openGear frame manual.

Static Discharge

Whenever handling the ADA-8402-B and other related equipment, please observe all static discharge precautions as described in the following note:

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 synthetic fiber clothing is worn. Always exercise proper grounding precautions when working on circuit boards and related equipment.*

Unpacking

Unpack each ADA-8402-B 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 Ross Video directly.

Supported Rear Modules

The rear module for the ADA-8402-B depends on the openGear frame you are installing the card into.

- **DFR-8310 series frame** — The 8310AR-042 rear module is required. The ADA-8402-B is not compatible with the DFR-8310-BNC frame.
- **DFR-8321 series and OG3-FR series frame** — The 8320AR-042, 8320AR-042A, 8320AR-043, or the 8320AR-043A rear module can be used. When using a Full Rear Module, use the even numbered slots, such as 2 or 4, to ensure that the card aligns with the rear module.

Installing the ADA-8402-B

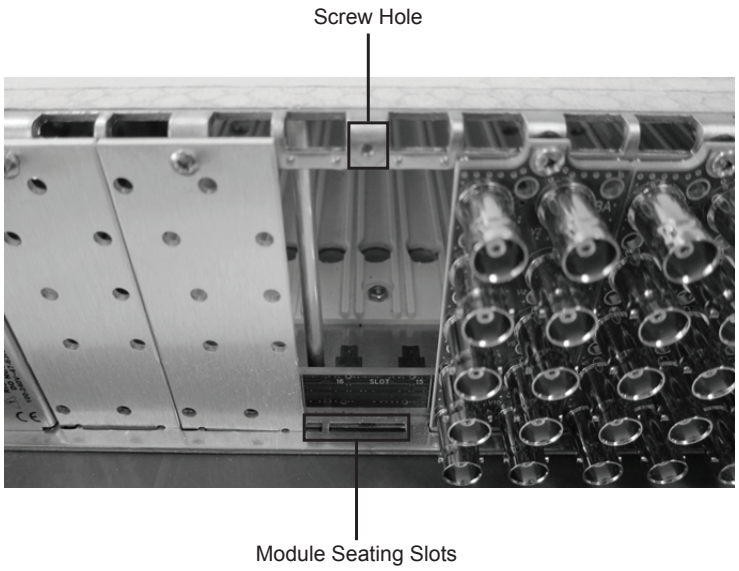
This section outlines how to install a rear module and card in an openGear frame. The same procedure applies regardless of the frame or card type. However, the specific rear module you need to install depends on the frame you are using.

Installing a Rear Module

If the rear module is already installed, proceed to "**Installing the ADA-8402-B**".

To install a rear module in your openGear frame

1. Locate the card frame slots on the rear of the frame.
2. Remove the Blank Plate from the slot you have chosen for the ADA-8402-B installation.
3. Install the bottom of the rear module in the **Module Seating Slot** at the base of the frame's back plane.



4. Align the top hole of the rear module with the screw on the top-edge of the frame back plane.
5. Using a Phillips screwdriver and the supplied screw, fasten the rear module to the back plane of the frame. Do not over tighten.
6. Ensure proper frame cooling and ventilation by having all rear frame slots covered with rear modules or Blank Plates.

Installing the ADA-8402-B

This section outlines how to install the ADA-8402-B in an openGear frame. If the ADA-8402-B is to be installed in any compatible frame other than a Ross Video product, refer to the frame manufacturer's manual for specific instructions.

To install the ADA-8402-B in an openGear frame

1. Locate the rear module you installed in the procedure "**Installing a Rear Module**".
2. Hold the ADA-8402-B by the edges and carefully align the card-edges with the slots in the frame.
3. Fully insert the card into the frame until the rear connection plus is properly seated in the rear module.
4. Verify whether your label is self-adhesive by checking the back of the label before applying the label to the rear module surface.
5. Affix the supplied **Rear Module Label** to the BNC area of the rear module.

Cabling

This chapter provides information for connecting cables to the installed rear modules on the openGear frames. Connect the input and output cables according to the following sections.

✶ The input is internally terminated in 110ohm and it is not necessary to terminate unused outputs.

8310AR-042 Cabling

In the DFR-8310 series frames, each 8310AR-042 rear module occupies one slot and accommodates one card. This rear module provides one AES input and eight AES outputs. (**Figure 8**)

8320AR-042 and 8320AR-042A Cabling

In the DFR-8321, OG3-FR, and OGX-FR Series frames, the ADA-8402-B is used with the following full rear modules:

- 8320AR-042 — Each rear module occupies two slots and accommodates one card. This rear module provides one AES input and eight AES outputs. (**Figure 8**)
- 8320AR-042A — Each rear module occupies two slots and accommodates one card. This rear module provides one AES input and eight AES outputs. (**Figure 9**)

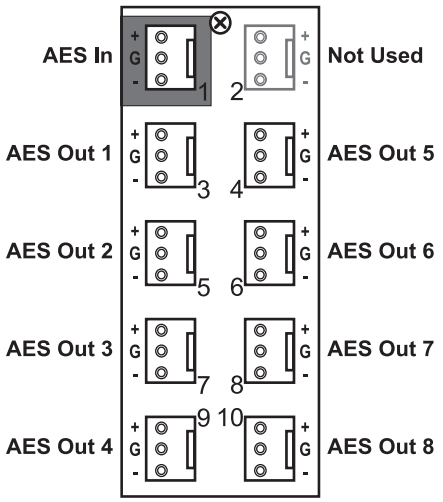


Figure 8 Cabling for the 8310AR-042 and 8320AR-042

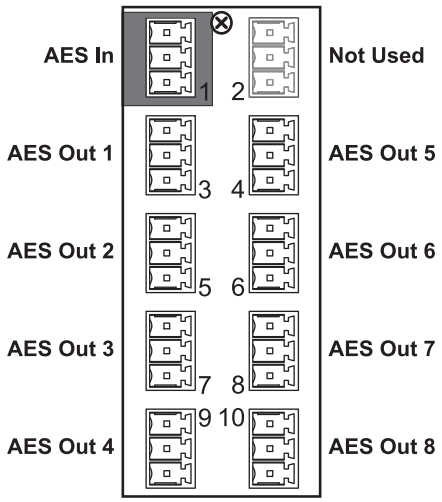


Figure 9 Cabling for the 8320AR-042A

8320AR-043 and 8320AR-043A Cabling

The ADA-8402-B is used with the following split rear modules:

- 8320AR-043 — Each rear module occupies two slots and accommodates two cards. This rear module provides one AES input and four outputs per card. (**Figure 10**)
- 8320AR-043A — Each rear module occupies two slots and accommodates two cards. This rear module provides one AES input and four outputs per card. (**Figure 11**)

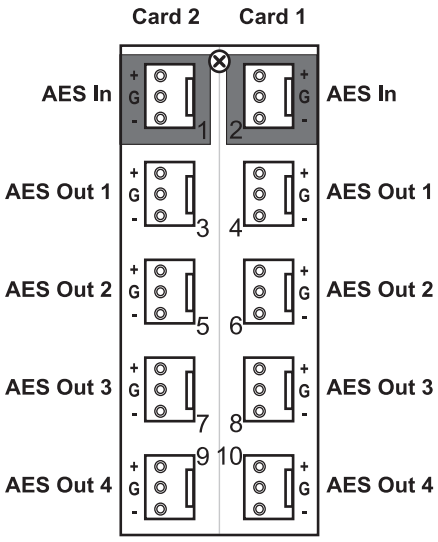


Figure 10 Cabling for the 8320AR-043

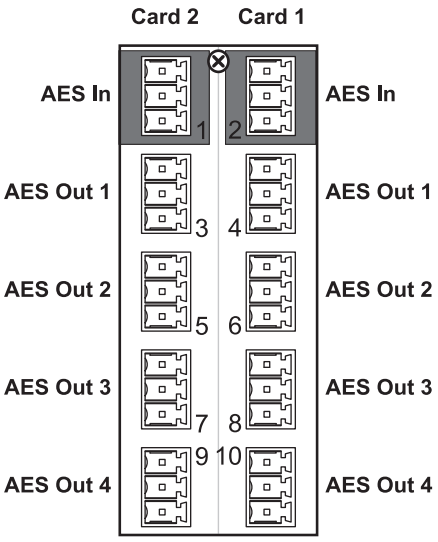


Figure 11 Cabling for the 8320AR-043A

Getting Started

The DashBoard Control System enables you to monitor and control openGear frames and cards from a computer. DashBoard communicates with other cards in the frame through the Network Controller Card. The DashBoard Control System software and manual are available for download from our website. This chapter provides instructions for launching DashBoard, and accessing the ADA-8402-B interfaces.

For More Information on…

- on the ADA-8402-B interfaces in DashBoard, refer to "**DashBoard Menus**".

Launching DashBoard

Before proceeding, ensure that the DashBoard is installed on a PC connected to your facility network. The DashBoard software and user manual are available from the Ross Video website.

For More Information on…

- using DashBoard, refer to the ***DashBoard User Guide***.

To launch DashBoard

1. Ensure that you are running DashBoard software version 6.2.0 or higher.
2. Launch DashBoard by double-clicking its icon on your desktop.
3. Ensure that the openGear frame with the ADA-8402-B card is displayed in the Tree View located on the left-side of the DashBoard window.

✶ It may take 30 seconds or more to update the Tree View. Consult the ***MFC-8300 Series*** or ***MFC-OG3 Series User Guide*** and ***DashBoard User Guide*** should the Tree View not display the ADA-8402-B card.

Accessing the ADA-8402-B Interfaces in DashBoard

The interfaces are accessed by double-clicking the ADA-8402-B node in the DashBoard Tree View.

To access a card in DashBoard

1. In the Basic Tree View of DashBoard, locate the openGear frame the ADA-8402-B is installed in.
2. Expand the openGear frame node to display a list of sub-nodes.

   Each sub-node represents a slot in the frame that is populated with an openGear card.
3. Double-click the **ADA-8402-B** sub-node to display its interface in the DashBoard window.

Upgrading the Software

The ADA-8402-B can be upgraded in the field via DashBoard.

To upgrade the software on a card

1. Contact Ross Technical Support for the latest software version file.
2. Ensure the Ethernet cable is connected to the **Ethernet** port on the openGear frame.
3. From the **Tree View**, expand the node for the ADA-8402-B you want to access.
4. Double-click the **Global** sub-node to display the interface in the right-half of DashBoard.
5. Select **Upload**, located near the bottom of the interface, to display the **Select file Upload** dialog.
6. Navigate to the ***.bin** file you want to upload.
7. Click **Open**.
8. If you are upgrading a single card:
   a. Click **Finish** to start the upgrade.
   b. Proceed to step 10.
9. If you are upgrading multiple cards:
   a. Click **Next >** to display the **Select Destination** menu. This menu provides a list of the compatible cards.
   b. Specify the card(s) to upload the file to by selecting the check box(es) for the cards you want to upload the file to.
   c. Verify the card(s) you want to upload the file to. The **Error/Warning** fields indicate any errors, such as incompatible software or card type mismatch.
   d. Click **Finish**.
10. Monitor the upgrade.
    - An **Upload Status** dialog enables you to monitor the upgrade process.
    - Notice that each card is listed in the dialog with a button. This button is replaced with a **Reboot** button once the software file is loaded to that card.

✶ Avoid clicking the individual Reboot buttons until all cards have successfully completed the file upload process and the OK button, located in the bottom right corner of the dialog, is enabled.

- Click **OK** to reboot all the cards listed in the **Uploading to Selected Devices** dialog.
- The **Reboot Confirm** dialog displays, indicating the number of cards that will reboot. Click **Yes** to continue the upgrade process. Note that clicking **Cancel** or **No** returns you to the **Uploading to Selected Devices** dialog without rebooting the card(s).
- The card(s) are temporarily taken off-line during the reboot process. The process is complete once the status indicators for the **Card State** and **Connection** return to their previous status.

DashBoard Menus

This chapter provides a summary of the DashBoard menus available for the ADA-8402-B. Parameters noted with an asterisk (*) are the default values.

✶ Wait 30 seconds after the last setting change to ensure all changes are saved to the non-volatile memory of the card.

Status Tabs

This section summarizes the read-only information displayed in the **Status** tabs. The fields in these tabs vary in severity from green (valid), yellow (caution), to red (alarm). DashBoard reports the most severe alarm for a single field. Alarm colors are noted within the tables as text set in brackets next to the menu parameter name.

Status Tab

Table 5 summarizes the read-only information of the **Status** tab.

Table 5 Status Tab

Item	Parameters	Description
AES Audio Status	Locked (Green)	Card is functioning properly and a valid AES audio signal is present
	Not Locked (Red)	AES audio signal is not present
LKFS (10Sec)	#	Card reads and reports the ITU1770 LKFS Audio Measurements

Product Tab

Table 6 summarizes the read-only information of the **Product** tab.

Table 6 Product Tab

Item	Parameters	Description
Card Name	AES/EBU Distribution Amplifier (110ohm)	
Product	ADA-8402-B	
Supplier	Ross Video Ltd.	
Serial Number	#	Indicates the serial number of the board
Software Rev	#.##	Indicates the software version

Settings Tab

Table 7 summarizes the **Settings** options available in DashBoard.

Table 7 Settings Tab

Item	Parameters	Description
Mode	Mono	Channel A and B are summed together • Use the CHA Trim Control to alter the gain of the Channel A input • Use the CHB Trim Control to alter the gain of the Channel B input • Note that the STEREO Gain will adjust the output after the channels are summed.
	Stereo	Channel A and B are independent. • Use the CHA Trim Control to alter the gain of Channel A input • Use the CHB Trim Control to alter the gain of Channel B input • Note that the STEREO Gain will adjust the output of both channels.
	L Only	Specifies Channel A as the output on both channels. • Use the CHA Trim Control to alter the output gain • The CHB Trim Control has no effect on the output • Note that the STEREO Gain will adjust the output Channel A only.
	R Only	Specifies Channel B as the output on both channels. • The CHA Trim Control has no effect on the output • Use the CHB Trim Control to alter the output gain • Note that the STEREO Gain will adjust the output Channel B only.
STEREO Gain Control	0 to 100	Specifies the coarse level gain adjustment applied to the output of the card
CH# Trim Control (dB)	-15 to +15	Alters the input gain for the specified channel. How the Mode is set determines what channel(s) the Trim Control alters.

Technical Specifications

This chapter provides the technical specification information for the ADA-8402-B.

✶ Specifications are subject to change without notice.

Table 8 ADA-8402-B Technical Specifications

Parameter	Specification
AES Input	
Number of Inputs	1
Standards	AES-3 (SMPTE 276M)
Sampling Rates	All rates from 32kHz to 96kHz
Impedance (transformer balanced)	110ohm
Equalization	2000ft (650m) over 110ohm, twisted-pair cable
Input Level	0.2-7Vp-p
Connector	3-pin
AES Outputs	
Number of Outputs	8310AR-042 and 8320AR-042: 8
	8320AR-043: 4
Standards	AES-3 (SMPTE 276M)
Resolution	24Bit
Return Loss	-25dB
Impedance (transformer balanced)	110ohm
Output Jitter	<5ns
Output Level	2.5Vp-p nominal
Connector	3-pin
Power	
Max. Power Consumption	>2.2W

Service Information

This chapter provides information on the warranty and repair policy for your ADA-8402-B.

Troubleshooting Checklist

Routine maintenance to this openGear product is not required. In the event of problems with your ADA-8402-B, the following basic troubleshooting checklist may help identify the source of the problem. If the frame still does not appear to be working properly after checking all possible causes, please contact your openGear products distributor, or the Technical Support department at the numbers listed in "**Contacting Technical Support**".

1. **Visual Review** — Performing a quick visual check may reveal many problems, such as connectors not properly seated or loose cables. Check the card, the frame, and any associated peripheral equipment for signs of trouble.
2. **Power Check** — Verify the power indicator LED on the distribution frame front panel for the presence of power. If the power LED is not illuminated, verify that the power cable is connected to a power source and that power is available at the power main. Confirm that the power supplies are fully seated in their slots. If the power LED is still not illuminated, replace the power supply with one that is verified to work.
3. **Re-seat the Card in the Frame** — Eject the card and reinsert it in the frame.
4. **Check Control Settings** — Refer to the Installation and Operation sections of the manual and verify all user-adjustable component settings.
5. **Input Signal Status** — Verify that source equipment is operating correctly and that a valid signal is being supplied.
6. **Output Signal Path** — Verify that destination equipment is operating correctly and receiving a valid signal.
7. **Card Exchange** — Exchanging a suspect card with a card that is known to be working correctly is an efficient method for localizing problems to individual cards.

Warranty and Repair Policy

The ADA-8402-B is warranted to be free of any defect with respect to performance, quality, reliability, and workmanship for a period of FIVE (5) years from the date of shipment from our factory. In the event that your ADA-8402-B proves to be defective in any way during this warranty period, Ross Video Limited reserves the right to repair or replace this piece of equipment with a unit of equal or superior performance characteristics.

Should you find that this ADA-8402-B has failed after your warranty period has expired, we will repair your defective product should suitable replacement components be available. You, the owner, will bear any labor and/or part costs incurred in the repair or refurbishment of said equipment beyond the FIVE (5) year warranty period.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profits) incurred by the use of this product. Implied warranties are expressly limited to the duration of this warranty.

This ADA-8402-B User Manual provides all pertinent information for the safe installation and operation of your openGear Product. Ross Video policy dictates that all repairs to the ADA-8402-B are to be conducted only by an authorized Ross Video Limited factory representative. Therefore, any unauthorized attempt to repair this product, by anyone other than an authorized Ross Video Limited factory representative, will automatically void the warranty. Please contact Ross Video Technical Support for more information.

In Case of Problems

Should any problem arise with your ADA-8402-B, please contact the Ross Video Technical Support Department. (Contact information is supplied at the end of this publication.)

A Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions, should you wish our factory to repair your ADA-8402-B. If required, a temporary replacement frame will be made available at a nominal charge. Any shipping costs incurred will be the responsibility of you, the customer. All products shipped to you from Ross Video Limited will be shipped collect.

The Ross Video Technical Support Department will continue to provide advice on any product manufactured by Ross Video Limited, beyond the warranty period without charge, for the life of the equipment.

Glossary

The following terms are used throughout this guide:

DashBoard — the DashBoard Control System.

Frame — the openGear frame that houses the ADA-8402-B unless otherwise noted.

Network Controller Card — the MFC-OG3-N, MFC-OGX-N, MFC-8322-S, and any available options unless otherwise noted.

openGear Frame — refers to the OG3-FR and OGX-FR series frames unless otherwise noted.

System— the mix of interconnected production and terminal equipment in your environment.

User — the person who uses the ADA-8402-B.