



## ADA-8405-C User Guide

# 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](mailto:solutions@rossvideo.com).



David Ross  
CEO, Ross Video  
[dross@rossvideo.com](mailto: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-8405-C · User Guide

- Ross Part Number: **8405CDR-004-04**
- Release Date: April 27, 2023.

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

## Copyright

©2023 Ross Video Limited, Ross®, and any related marks are trademarks or registered trademarks of Ross Video Limited. All other trademarks are the property of their respective companies. PATENTS ISSUED and PENDING. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, mechanical, photocopying, recording or otherwise, without the prior written permission of Ross Video. While every precaution has been taken in the preparation of this document, Ross Video assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.

## 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.

## Notice

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](mailto: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 <b>Industrial (Class A) electromagnetic wave suitability equipment</b> 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 "**Contact Us**" 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](mailto:techsupport@rossvideo.com)

E-mail (General Information): [solutions@rossvideo.com](mailto:solutions@rossvideo.com)

Website: <http://www.rossvideo.com>



# Contents

Introduction	9
Related Publications .....	9
Documentation Conventions .....	9
Interface Elements .....	9
User Entered Text .....	9
Referenced Guides .....	10
Menu Sequences .....	10
Important Instructions .....	10
Contacting Technical Support .....	10
Before You Begin	11
Overview .....	11
Features .....	11
Functional Block Diagrams .....	11
User Interfaces .....	12
DashBoard Control System .....	12
Card-edge Controls .....	12
Hardware Overview	13
Main PCB Overview .....	13
Monitoring via the Card-edge .....	14
Supported Rear Modules .....	14
DFR-8310 Series Overview .....	14
DFR-8321, OG3-FR, and OGX-FR Series Overview .....	15
Physical Installation	17
Before You Begin .....	17
Static Discharge .....	17
Unpacking .....	17
Installing the Rear Module .....	17
Installing the ADA-8405-C Card .....	18
Configuring the DIP Switches	19
Before You Begin .....	19
Enabling Card-edge Control .....	19
Setting the Output Mode .....	19
Specifying the Gain .....	19
DashBoard Menus	21
Status Tabs .....	21
Product Tab .....	21
Settings Tab .....	21
Upgrading the Software	23
Technical Specifications	25
Analog Inputs Specifications .....	25
Analog Outputs Specifications .....	25
Performance .....	25

Power Specifications .....	25
Service Information .....	27
Troubleshooting Checklist .....	27
Warranty and Repair Policy .....	27
Glossary .....	29



# Introduction

This guide covers the installation, configuration, and use of the ADA-8405-C. 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 features including the cabling and monitoring features of the rear module.
- “**Physical Installation**” provides instructions for the physical installation of the card and its rear module, and provides information on connecting to your facility network.
- “**Configuring the DIP Switches**” provides a brief summary of how to configure the ADA-8405-C using the DIP Switches on the card.
- “**DashBoard Menus**” summarizes the ADA-8405-C menus, items, and parameters in DashBoard.
- “**Upgrading the Software**” provides instructions for upgrading the ADA-8405-C software using DashBoard.
- “**Technical Specifications**” provides technical specification details on the ADA-8405-C.
- “**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-8405-C 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 Manual***.

## 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. They will provide you with an appropriate value for the IP Address, Subnet Mask, and Gateway for your device.

## 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.

- **Technical Support:** (+1) 613-652-4886
- **After Hours Emergency:** (+1) 613-349-0006
- **E-mail:** [techsupport@rossvideo.com](mailto:techsupport@rossvideo.com)
- **Website:** <http://www.rossvideo.com>

# Before You Begin

This chapter provides general information to keep in mind before installing and configuring your ADA-8405-C.

## Overview

The ADA-8405-C is a remote gain analog audio distribution amplifier designed for broadcast use. It can be used as either a mono 1x8, or two channel (stereo) 1x4 audio DA. When used with a Full Rear Module, it provides eight copies of the single (mono) input signal or four copies each of the two (stereo) inputs.

The 8320AR-043 Split Rear Module can support two ADA-8405-C cards, each operating as a 1x4 audio DA. This can be used to separate left and right stereo pair signals to be amplified in separate paths for critical signals.

The ADA-8405-C is also ideal to distribute timecode (LTC) throughout a facility. In single channel, 1x8 mode, the ADA-8405-C provides eight copies of the incoming single when used with the Full Rear Modules or four copies of the incoming signal when used with the 8320AR-043 Split Rear Module.

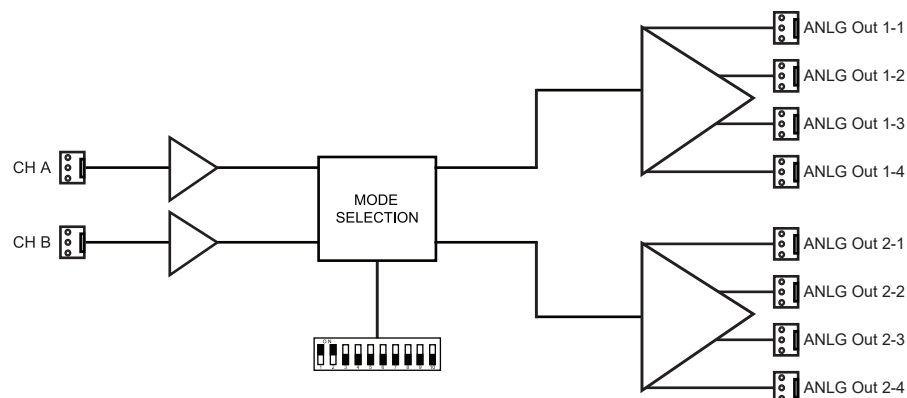
## Features

The following features make the ADA-8405-C the best solution for distributing analog audio signals:

- 1x8 Mono or 1x4 stereo analog audio distribution
- +/- 15dB remote gain control
- Summing capability
- Low distortion
- Supports balanced LTC timecode distribution
- Higher density with up to 20 cards in the DFR-8321 and OG3-FR series frames using 8320AR-043 Split Rear Modules
- Balanced inputs/outputs
- 5-year transferable warranty

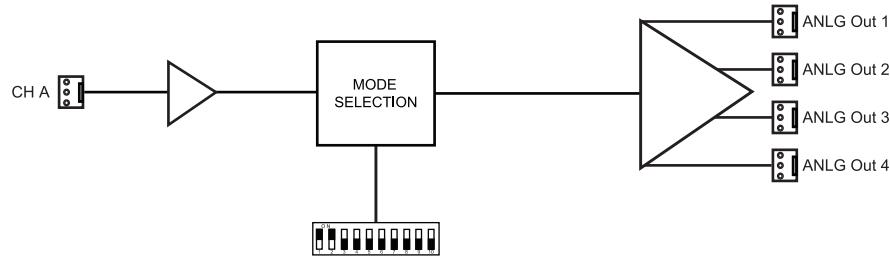
## Functional Block Diagrams

**Figure 1** illustrates the ADA-8405-C when the **Operating Mode** is set to **Stereo DA (2x4)** and using the 8310AR-042 or 8320AR-042 rear modules.



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

**Figure 2** illustrates the ADA-8405-C when using the 8320AR-043 split rear module.



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

## User Interfaces

The ADA-8405-C 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 frame through the MFC-8300 Series Network Controller Card.

#### For More Information on...

- the menus in DashBoard, refer to “**DashBoard Menus**” on page 21.
- using DashBoard, refer to the ***DashBoard User Manual*** available from our website.

### Card-edge Controls

The ADA-8405-C provides card-edge controls for adjusting the output levels, selecting the operation mode, and configuring remote control options. The front-edge of the ADA-8405-C also includes LEDs that display the status of the input signals. As selections are made in the menus, the LEDs display the status of the input signals.

#### For More Information on...

- adjusting the output levels, refer to “**Hardware Overview**” on page 13.
- using the DIP switches on the card-edge, refer to “**Configuring the DIP Switches**” on page 19.
- monitoring the status using the card-edge LEDs, refer to “**Hardware Overview**” on page 13.

# Hardware Overview

This chapter presents information on the ADA-8405-C hardware components and features.

## For More Information on...

- using the DIP Switches, refer to “**Configuring the DIP Switches**”.

## Main PCB Overview

The main PCB is a typical openGear card. An ejector on one end secures the module to the slot inside the openGear frame, and the other end inserts into a connector on the back of the rear module.

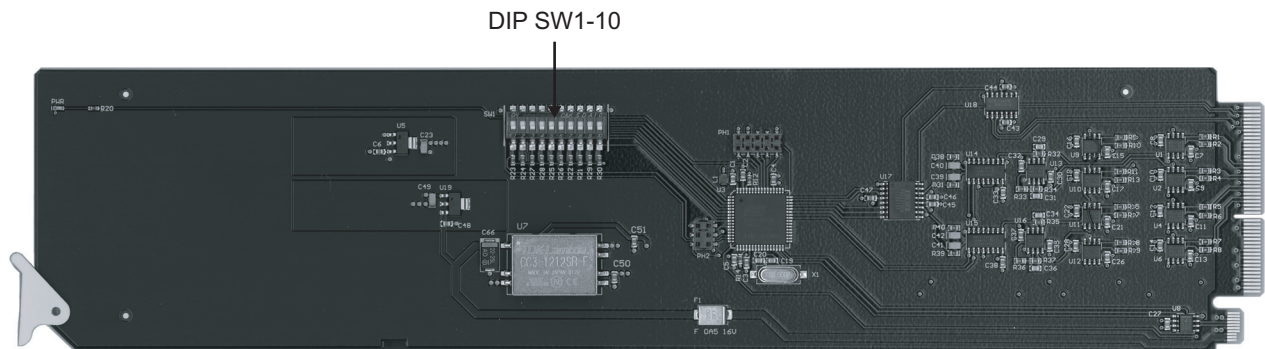


Figure 3 ADA-8405-C — Base Card Components

### SW1 — Remote Control

Use **SW1** to disable remote control of the ADA-8405-C from DashBoard.

Set **SW1** as follows:

- › **ON** — Select this setting to disable remote control from DashBoard. The parameters and settings cannot be changed via DashBoard and must be changed using the card-edge controls. You can still monitor the status of the card using DashBoard.
- › **OFF** — Select this setting to control the ADA-8405-C exclusively from DashBoard. The card-edge controls are ignored. This is the default setting.

### SW2 — DIP Switch Control

Use **SW2** to determine whether DIP Switch settings are applied or ignored.

Set **SW2** as follows:

- › **ON** — DIP Switch status is reported in DashBoard, and DIP Switch settings are applied. Any parameter adjustments made in DashBoard are ignored.
- › **OFF** — DIP Switch status is reported in DashBoard, however DIP Switch settings are ignored. Parameter adjustments made in DashBoard are applied. This is the default setting.

### SW3, SW4 — Output Mode Selection

**SW3** and **SW4** are used in conjunction to set the output mode of the ADA-8405-C. Refer to “**Setting the Output Mode**” for details.

### SW5

This DIP Switch is not implemented.

## SW6 - SW10 — Gain Control

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

## Monitoring via the Card-edge

The front-edge of the main PCB has LED indicators for indicating alarms, and communication activity. (**Figure 4**)

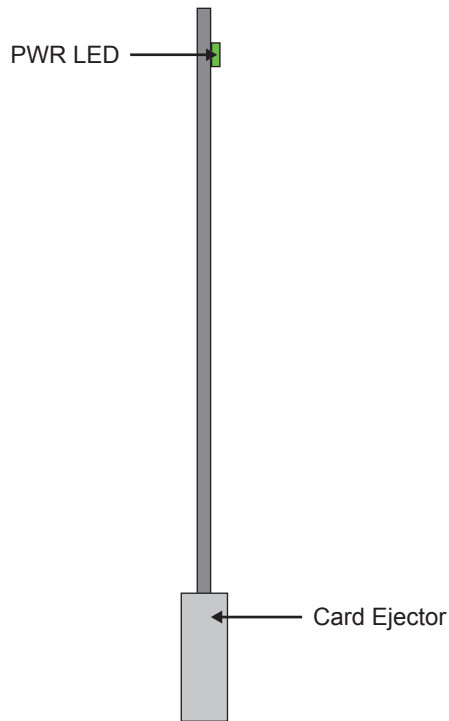


Figure 4 ADA-8405-C Card-edge LEDs

**Table 1** describes the PWR LED.

**Table 1 LEDs on the ADA-8405-C**

LED	Color	Display and Description
PWR	Green	When lit, this LED indicates the card is powered on.

## Supported Rear Modules

This section provides information for connecting cables to the installed rear modules. Connect the input and output cables according to the following sections.

### DFR-8310 Series Overview

The ADA-8405-C is used with the following rear modules:

- 8310AR-042 — Each module occupies one slot and accommodates one card. This rear module provides two analog inputs, and eight analog outputs. (**Figure 5**)

## DFR-8321, OG3-FR, and OGX-FR Series Overview

The ADA-8405-C is used with the following rear modules:

- 8320AR-042 — Each module occupies two slots and accommodates one card. This rear module provides two analog inputs and eight analog outputs. (**Figure 5**)
- 8320AR-043 — Each module occupies two slots and accommodates two cards. This rear module provides one analog input and four analog outputs per card. (**Figure 6**)

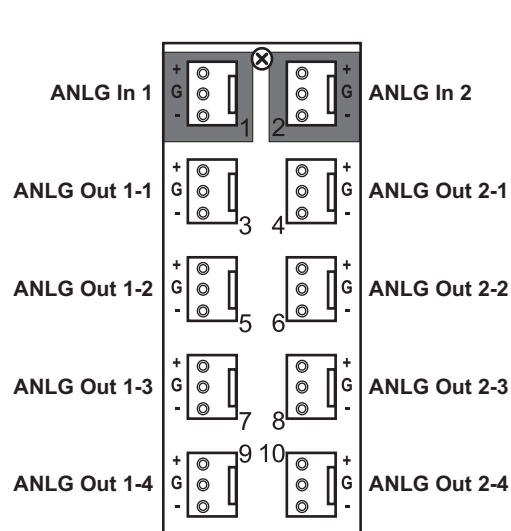


Figure 5 Cable Connections for the 8310AR-042 and 8320AR-042 Full Rear Modules

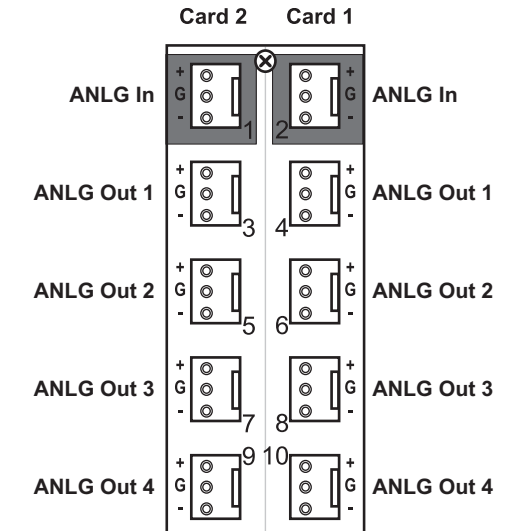


Figure 6 Cable Connections for the 8320AR-043 Split Rear Module





# Physical Installation

This chapter provides instructions for installing the rear module(s) for the ADA-8405-C, installing the card into the frame, cabling details, and updating the card software.

## Before You Begin

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

## Static Discharge

Whenever handling the ADA-8405-C 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-8405-C 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.

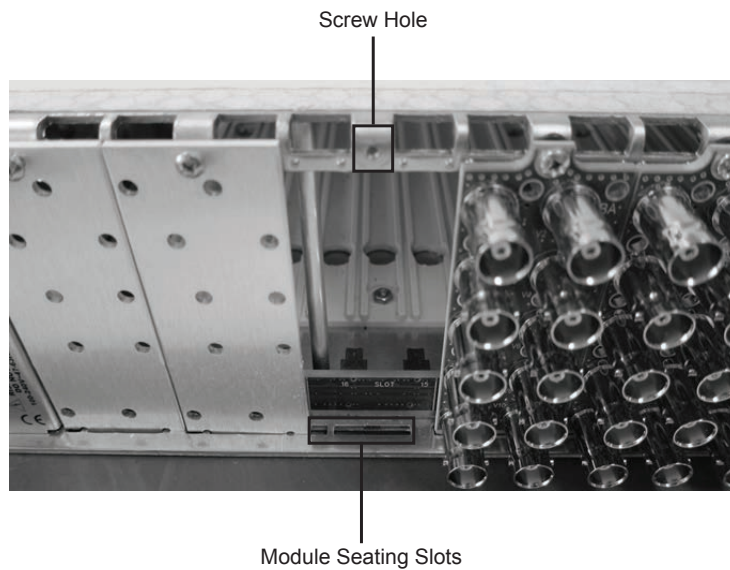
## Installing the Rear Module

This section outlines how to install a rear module 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.

★ If the rear module is already installed, proceed to “**Installing the ADA-8405-C Card**”.

### 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-8405-C installation.
3. Install the bottom of the rear module in the **Module Seating Slot** at the base of the frame's back plane. **Figure 7**



*Figure 7 Rear Module Installation in an openGear Frame (ADA-8405-C not shown)*

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-8405-C Card

This section outlines how to install the ADA-8405-C in an openGear frame. If the ADA-8405-C 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-8405-C in an openGear frame

1. Locate the rear module you installed in the procedure **"To install a rear module in your openGear frame"**.
2. Hold the ADA-8405-C 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.

# Configuring the DIP Switches

This chapter provides a brief summary of the DIP Switches of the ADA-8405-C.

## Before You Begin

**Figure 8** shows all the DIP Switches in the **OFF** position.

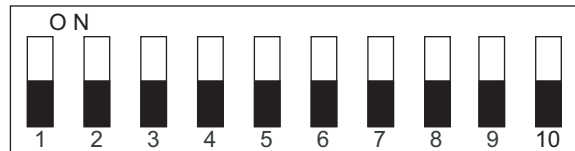


Figure 8 DIP Switches — OFF Positions

## Enabling Card-edge Control

Ensure that **SW1** is set to **ON** and **SW2** is set to **ON** if you are going to use the card-edge DIP Switches to change settings on the card. You can still monitor the card status in DashBoard.

## Setting the Output Mode

**SW3** and **SW4** are used in conjunction to set the output mode of the ADA-8405-C. **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 DA (1x4)
OFF	ON	Mono DA (1x8)
ON	ON	Stereo Sum

## Specifying the Gain

**SW6** to **SW10** are used in conjunction to specify the coarse level gain adjustment applied to the output of the ADA-8405-C. **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

**Table 3 Specifying the Gain**

SW6	SW7	SW8	SW9	SW10	Gain (dB)
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

# DashBoard Menus

This chapter briefly summarizes the menus, items, and parameters available from DashBoard for the ADA-8405-C. Parameters marked with an asterisk (\*) are the factory 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.

### Product Tab

**Table 4** summarizes the read-only information displayed in the **Product** tab.

**Table 4 Product Tab Items**

Item	Parameters	Description
<b>Card Info</b>		
Card Name	Analog Audio and Timecode Distribution Amplifier	
Product	ADA-8405-C	
Supplier	Ross Video Ltd.	
Serial Number	#	Indicates the serial number of the board
Software Rev	#.##	Indicates the software version

## Settings Tab

**Table 5** summarizes the **Settings** options available in DashBoard.

**Table 5 Settings Menu Items**


Item	Parameters	Description
Mode	Stereo DA (2x4)	ANLG In 1 outputs to ANLG Out 1-1, 1-2, 1-3, and 1-4
		ANLG In 2 outputs to ANLG Out 2-1, 2-2, 2-3, and 2-4
	Mono DA (1x8)	ANLG In 1 outputs to all eight ANLG outputs
	Stereo Sum	Card outputs a sum of ANLG In 1 and 2 to all eight ANLG outputs
STEREO Gain Control	0 to 100	Adjusts the audio gain for all outputs
Left Trim Control (dB)	-15 to +15	Specifies the coarse level gain adjustment applied to ANLG In 1
Right Trim Control (dB)	-15 to +15	Specifies the coarse level gain adjustment applied to ANLG In 2



# Upgrading the Software

The ADA-8405-C 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-8405-C 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.





# Technical Specifications

This chapter provides the technical specification information for the ADA-8405-C.

★ Note that specifications are subject to change without notice.

## Analog Inputs Specifications

**Table 6 Technical Specifications — Analog Inputs**

Item	Specifications
Number of Inputs	8310AR-042 and 8320AR-042: 2 8320AR-043: 1
Input Impedance	>20Kohm, balanced
Connector	WECO®
Maximum Input Level	+27.5dBu

## Analog Outputs Specifications

**Table 7 Technical Specifications — Analog Outputs**

Item	Specifications
Maximum Output Level	+27dBu
Impedance	66ohm balanced
Isolation	>60dB

## Performance

**Table 8 Technical Specifications — Performance**

Item	Specifications
Gain	-15dB to +15dB
Frequency Response	±0.1dB from 20Hz to 20kHz
Noise	<-85dBu, 10kHz to 22kHz at unity gain
Inter-channel Crosstalk	<90dB 20Hz to 20kHz
Harmonic Distortion	<0.01%

## Power Specifications

**Table 9 Technical Specifications — Power**

Item	Specifications
Maximum Power Consumption	>4.5W



# Service Information

This chapter provides information on the warranty and repair policy for your ADA-8405-C.

## Troubleshooting Checklist

Routine maintenance to this openGear product is not required. In the event of problems with your ADA-8405-C, 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 under the “**Contact Us**” section.

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** — Check 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** — 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-8405-C 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-8405-C 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-8405-C 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-8405-C 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-8405-C 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-8405-C, 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-8405-C. 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:

**Card** — refers to all ADA-8405-C models unless otherwise noted.

**DashBoard** — the DashBoard Control System.

**Frame** — the openGear frame that houses the ADA-8405-C unless otherwise noted.

**MIB** — management information base.

**Network Controller Card** — the MFC-OG3-N and any available options unless otherwise noted.

**openGear Frame** — refers to the DFR-8320, OG3-FR, and OGX-FR series frames unless otherwise noted.

**PAL** — PAL-B and PAL-G unless otherwise noted.

**Production aperture** — the image lattice that represents the maximum possible image extent in a given standard (e.g. the full size of all active pixels and active lines). For example, the 1080i production aperture would be 1920x1080.

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

**User** — the person who uses the ADA-8405-C.

