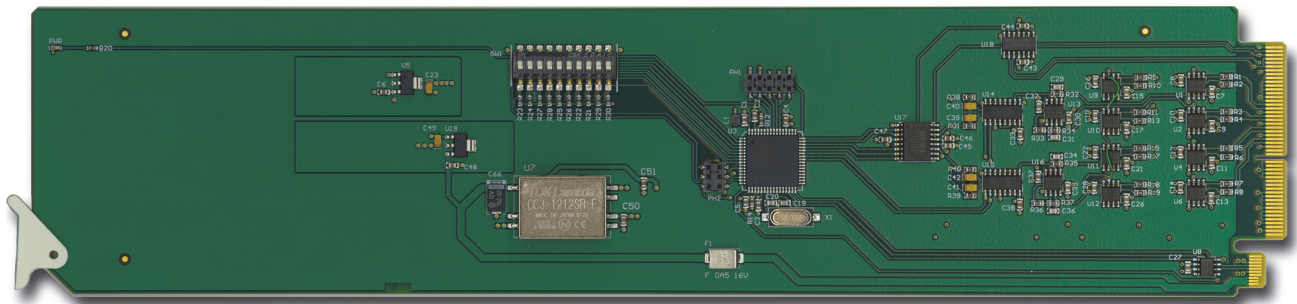


# ADA-8405-C

## Analog Audio and Timecode Distribution Amplifier User Manual



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# ADA-8405-C User Manual

- Ross Part Number: 8405CDR-004-01
- Release Date: May 24, 2012.

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

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# Important Regulatory and Safety Notices to Service Personnel

Before using this product and any associated equipment, refer to the “**Important Safety Instructions**” listed below to avoid personnel injury and to prevent product damage.

Product may require specific equipment, and/or installation procedures to be carried out to satisfy certain regulatory compliance requirements. Notices have been included in this publication to call attention to these specific requirements.

## Symbol Meanings



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*This symbol on the equipment refers you to important operating and maintenance (servicing) instructions within the Product Manual Documentation. Failure to heed this information may present a major risk of damage to persons or equipment.*

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**Warning** — The symbol with the word “**Warning**” within the equipment manual indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

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**Caution** — The symbol with the word “**Caution**” within the equipment manual indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

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**Notice** — The symbol with the word “**Notice**” within the equipment manual indicates a potentially hazardous situation, which, if not avoided, may result in major or minor equipment damage or a situation which could place the equipment in a non-compliant operating state.

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**ESD Susceptibility** — This symbol is used to alert the user that an electrical or electronic device or assembly is susceptible to damage from an ESD event.

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## Important Safety Instructions



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**Caution** — This product is intended to be a component product of the DFR-8300 series frame. Refer to the DFR-8300 Series Frame User Manual for important safety instructions regarding the proper installation and safe operation of the frame as well as its component products.

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**Warning** — Certain parts of this equipment namely the power supply area still present a safety hazard, with the power switch in the OFF position. To avoid electrical shock, disconnect all A/C power cords from the chassis’ rear appliance connectors before servicing this area.

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**Warning** — Service barriers within this product are intended to protect the operator and service personnel from hazardous voltages. For continued safety, replace all barriers after any servicing.

*This product contains safety critical parts, which if incorrectly replaced may present a risk of fire or electrical shock. Components contained within the product’s power supplies and power supply area, are not intended to be customer serviced and should be returned to the factory for repair. To reduce the risk of fire, replacement fuses must be the same time and rating. Only use attachments/accessories specified by the manufacturer.*

---

## EMC Notices

### United States of America 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 their own expense.



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

---

### CANADA

This Class "A" digital apparatus complies with Canadian ICES-003.

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

### EUROPE

This equipment is in compliance with the essential requirements and other relevant provisions of CE Directive 93/68/EEC.

### INTERNATIONAL

This equipment has been tested to **CISPR 22:1997** along with amendments **A1:2000** and **A2:2002**, 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 on the last page 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 the "Warranty and Repair Policy" section in this manual for details.

## Environmental Information

**The equipment that you purchased required the extraction and use of natural resources for its production. It 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 wheelee bin symbol invites you to use these systems.



If you need more information on the collection, resuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performance of our products.

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## Company Address



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

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# Introduction

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## In This Chapter

This chapter contains the following sections:

- Overview
- Functional Block Diagrams
- User Interfaces
- Documentation Terms and Conventions

## A Word of Thanks

Congratulations on choosing an openGear ADA-8405-C Analog Audio and Timecode Distribution Amplifier with Remote Gain. The ADA-8405-C is part of a full line of products within the openGear Terminal Equipment family of products, backed by Ross Video's experience in engineering and design expertise since 1974.

You will be pleased at how easily your new ADA-8405-C fits into your overall working environment. Equally pleasing is the product quality, reliability and functionality. Thank you for joining the group of worldwide satisfied Ross Video customers!

Should you have a question pertaining to the installation or operation of your ADA-8405-C, please contact us at the numbers listed on the back cover of this manual. Our technical support staff is always available for consultation, training, or service.

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## 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 the standard R2C-8405 Full Rear Module, it provides eight copies of the single (mono) input signal or four copies each of the two (stereo) inputs.

The R2CS-8405 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 signal when used with the R2C-8405 Full Rear Module or four copies of the incoming signal when used with the R2CS-8405 Split Rear Module.

## Features

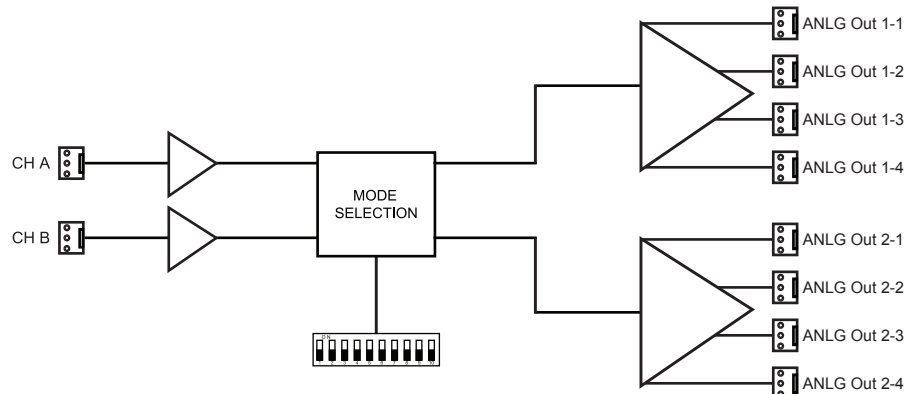
The following features make the ADA-8405-C the best solution for distributing analog audio signals:

- 1x8 Mono or 1x4 Stereo Analog Audio Distribution
- +/- 15dB Remote Gain control
- Summing capability
- Low Distortion
- 1x8 or High Density 1x4 Timecode (LTC) Distribution
- Higher density with up to 20 cards per frame in the DFR-8321 series frames using R2CS-8405 Split Rear Modules
- Balanced I/O
- 5-year transferable warranty

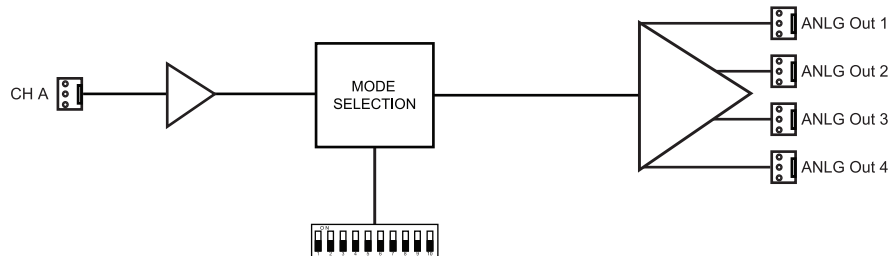
# Functional Block Diagrams

This section provides the functional block diagrams that outline the workflow of the ADA-8405-C.

**Figure 1.1** 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 1.1** Simplified Block Diagram — 8310AR-042 and 8320AR-042 Full Rear Module



**Figure 1.2** Simplified Block Diagram — 8320AR-042 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 DFR-8300 series frame through the MFC-8300 Series Network Controller Card.

### *For More Information...*

- on the menus in DashBoard, refer to the chapter “**DashBoard Menus**” on page 4-1.
- on 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 the section “**Card Overview**” on page 3-2.
- on using the DIP switches on the card-edge, refer to the section “**Configuring the DIP Switches**” on page 3-3.
- on monitoring the status using the card-edge LEDs, refer to the section “**Control and Monitoring Features**” on page 3-5.

---

# Documentation Terms and Conventions

The following terms and conventions are used throughout this manual:

- “**Board**”, and “**Card**” refer to openGear terminal devices within openGear frames, including all components and switches.
- “**DashBoard**” refers to the DashBoard Control System™.
- “**DFR-8300 series frame**” refers to all versions of the 10-slot (DFR-8310 series) and 20-slot (DFR-8321 series) frames and any available options unless otherwise noted.
- “**Frame**” refers to DFR-8300 series frame that houses the ADA-8405-C card, as well as any openGear frames.
- “**Operator**” and “**User**” refer to the person who uses ADA-8405-C.
- “**System**” and “**Video system**” refer to the mix of interconnected production and terminal equipment in your environment.
- The “**Operating Tips**” and “**Note**” boxes are used throughout this manual to provide additional user information.



# Installation

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## In This Chapter

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.

The following topics are discussed:

- Before You Begin
- Installing the ADA-8405-C
- Cabling for the ADA-8405-C
- Software Upgrades for the ADA-8405-C

---

## Before You Begin

Before proceeding with the instructions in this chapter, ensure that your DFR-8300 series frame is properly installed according to the instructions in the *DFR-8300 Series 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:



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**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 ADA-8405-C

This section outlines how to install a Rear Module in a DFR-8300 series 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.

## Rear Modules for the ADA-8405-C

The Rear Module for the ADA-8405-C depends on the openGear frame you are installing the card into.

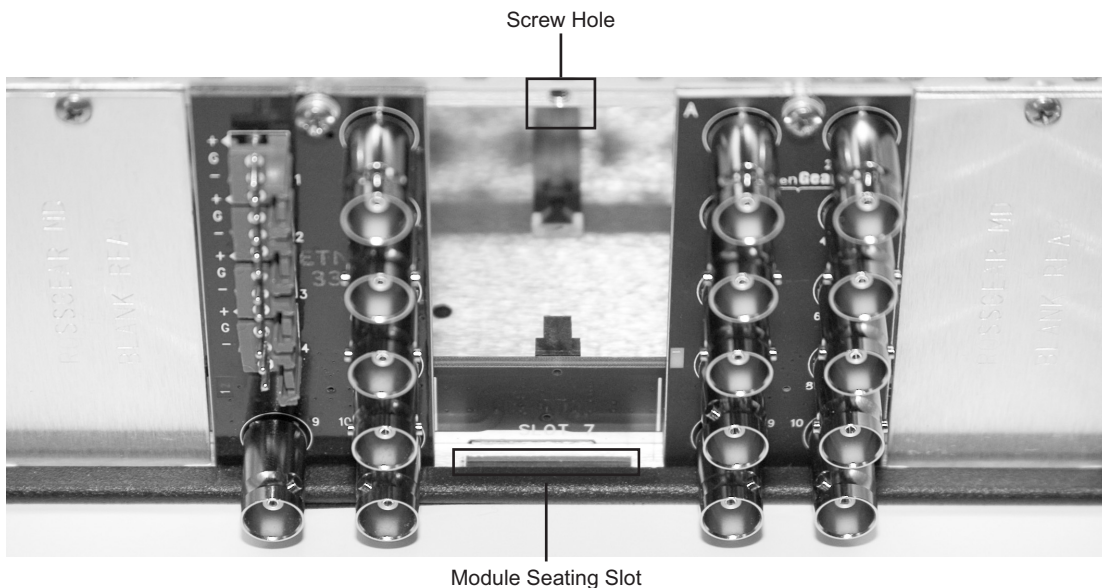
- **DFR-8310 series frame** — When installing the ADA-8405-C in the DFR-8310 series frames, the **8310AR-042** Full Rear Module (R1C-8405) is required. The ADA-8405-C is not compatible with the DFR-8310-BNC frames.
- **DFR-8321 series frame** — When installing the ADA-8405-C in the DFR-8321 series frames, the **8320AR-042** Full Rear Module (R2C-8405), or the **8320AR-043** Split Rear Module (R2CS-8405) can be used. When using a Full Rear Module in the DFR-8321 series frame, use the even numbered slots, such as 2 or 4, to ensure that the card aligns with the rear module.

## Installing a Rear Module

If the Rear Module is already installed, proceed to the section “**Installing the ADA-8405-C**” on page 2-4.

Use the following procedure to install a Rear Module in your DFR-8300 series 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 2.1**)



**Figure 2.1** Rear Module Installation in a DFR-8300 Series 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

This section outlines how to install the ADA-8405-C in a DFR-8300 series 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.

Use the following procedure to install the ADA-8405-C in a DFR-8300 series frame:

1. Locate the Rear Module you installed in the procedure “**Installing a Rear Module**” on page 2-3.
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.

# Cabling for the ADA-8405-C

This section provides information for connecting cables to the installed Rear Modules on the DFR-8300 series frames. Connect the input and output cables according to the following sections.

## DFR-8310 Series Frame Cabling Overview

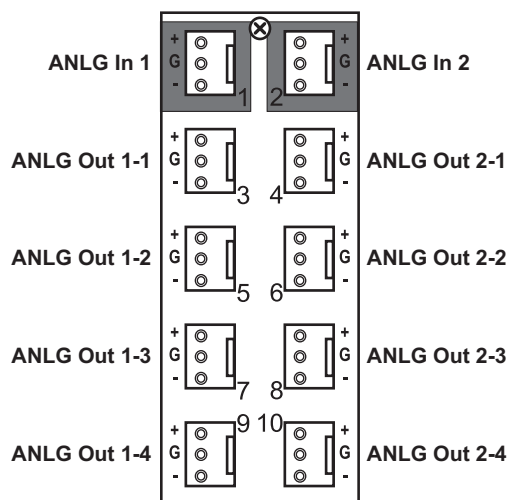
In the DFR-8310 series frames, the ADA-8405-C is used with the following Rear Modules:

- **8310AR-042** Full Rear Module — Each module occupies one slot and accommodates one card. This rear module provides two analog inputs, and eight analog outputs. (**Figure 2.2**)

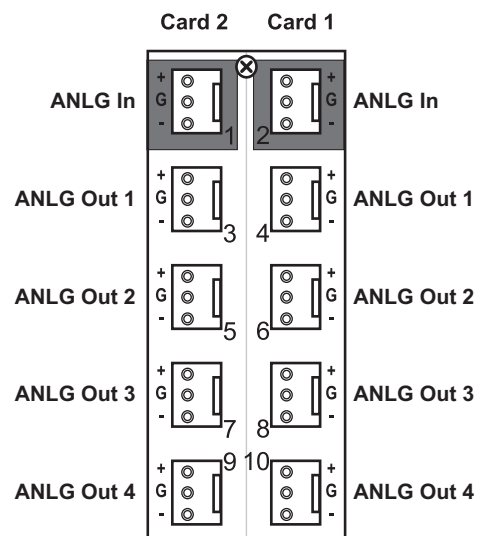
## DFR-8321 Series Frame Cabling Overview

In the DFR-8321 series frames, the ADA-8405-C is used with the following Rear Modules:

- **8320AR-042** Full Rear Module — Each module occupies two slots and accommodates one card. This rear module provides two analog inputs and eight analog outputs. (**Figure 2.2**)
- **8320AR-043** Split Rear Module — Each module occupies two slots and accommodates two cards. This rear module provides one analog input and four analog outputs per card. (**Figure 2.3**)



**Figure 2.2** Cable Connections for the 8310AR-042 and 8320AR-042 Full Rear Modules



**Figure 2.3** Cable Connections for the 8320AR-043 Split Rear Module

---

# Software Upgrades for the ADA-8405-C

The card can be upgraded in the field via the MFC-8300 series Network Controller card in your frame.



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**Note** — *DashBoard version 3.0.0 or higher is required for this procedure.*

---

## To upgrade the software on the ADA-8405-C

1. Contact Ross Technical Support for the latest software version file.
2. Display the **Device View** of the card by double-clicking its status indicator in the **Basic Tree View**.
3. From the **Device View**, click **Upload** to display the **Select file for upload** dialog.
4. Navigate to the \*.bin upload file you wish to upload.
5. Click **Open**.
6. If you are upgrading a single card, click **Finish**. Proceed to step 8.
7. If you are upgrading multiple cards:
  - Click **Next >** to display the **Select Destination** menu. This menu provides a list of the compatible cards based on the card selected in step 2.
  - Specify the card(s) to upload the file to by selecting the check box(es) for the cards you wish to upload the file to.
  - Verify that the card(s) you wish to upload the file to. The **Error/Warning** fields indicate any errors, such as incompatible software or card type mismatch.
  - Click **Finish**.
8. Monitor the upgrade.
  - Monitor the upgrade progress bar displayed in DashBoard.
  - The card(s) are automatically re-booted and temporarily taken offline during the re-boot process. The process is complete once the status indicators for the **Card State** and **Connection** fields return to their previous status.

# User Controls

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## In This Chapter

This chapter provides a general overview of the user controls available on the ADA-8405-C.

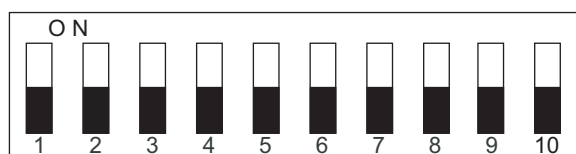
The following topics are discussed:

- Card Overview
- Configuring the DIP Switches
- Control and Monitoring Features



## Configuring the DIP Switches

This section provides a brief summary of the DIP Switches of the ADA-8405-C. Refer to **Figure 3.1** for the DIP Switch locations. **Figure 3.2** shows all the DIP Switches in the **OFF** position.



**Figure 3.2** 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 3.1** lists the combinations of DIP Switch settings for **SW3** and **SW4**.

**Table 3.1** 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-SW10** are used in conjunction to specify the coarse level gain adjustment applied to the output of the ADA-8405-C. **Table 3.2** lists the combinations of DIP Switch settings for **SW6-SW10**.

**Table 3.2** 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

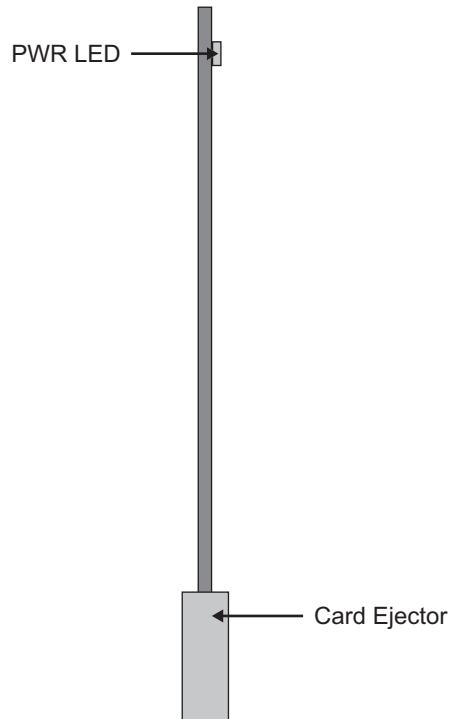
**Table 3.2 Specifying the Gain**

<b>SW6</b>	<b>SW7</b>	<b>SW8</b>	<b>SW9</b>	<b>SW10</b>	<b>Gain (dB)</b>
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

---

## Control and Monitoring Features

This section provides information on the card-edge LEDs for the ADA-8405-C. Refer to **Figure 3.3** for the location of the LEDs.



**Figure 3.3** ADA-8405-C Card-edge LEDs

### Status and Selection LEDs on the ADA-8405-C

Basic LED displays and descriptions are provided in **Table 3.3**.

**Table 3.3** LEDs on the ADA-8405-C

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



# DashBoard Menus

---

## In This Chapter

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

The following topic is discussed:

- Status Tabs
- Settings Tab

---

## Status Tabs

This section summarizes the read-only information displayed in the Status tabs.

### Product Tab

**Table 4.1** summarizes the read-only information displayed in the **Product** tab.

**Table 4.1 Product Tab Items**

Tab Title	Item	Parameters	Description
<b>Card Info (Read-only)</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 4.2 summarizes the **Settings** options available in DashBoard.

**Table 4.2 Settings Menu Items**

Tab Title	Item	Parameters	Description
<b>Settings</b>	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



# Specifications

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## In This Chapter

This chapter provides the technical specification information for the ADA-8405-C. Note that specifications are subject to change without notice.

The following topics are discussed:

- Technical Specifications

---

# Technical Specifications

This section provides the technical specifications for the ADA-8405-C.

**Table 5.1 ADA-8405-C Technical Specifications**

Category	Parameter	Specification
<b>Analog Inputs</b>	Number of Inputs	8310AR-042 and 8320AR-042: 2 8320AR-043: 1
	Input Impedance	>20Kohm, balanced
	Connector	WECO®
	Maximum Input Level	+27.5dBu
<b>Performance</b>	Gain	-15dB to +15dB
	Frequency Response	±0.1dB from 20Hz to 20kHz
	Noise	<-85dBu, 10-22kHz at unity gain
	Harmonic Distortion	<0.01%
<b>Analog Outputs</b>	Maximum Output Level	+27dBu
	Impedance	60ohm balanced
	Isolation	>60dB
<b>Power</b>	Maximum Power Consumption	>4.5W

# Service Information

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## In This Chapter

This chapter contains the following sections:

- Troubleshooting Checklist
- Warranty and Repair Policy

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# 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** — 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.

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## 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.

# Contact Us

Contact our friendly and professional support representatives for the following:

- Name and address of your local dealer
- Product information and pricing
- Technical support
- Upcoming trade show information

## Technical Support

Telephone: +1 613 • 652 • 4886  
After Hours Emergency: +1 613 • 349 • 0006  
Email: [techsupport@rossvideo.com](mailto:techsupport@rossvideo.com)

## General Information

Telephone: +1 613 • 652 • 4886  
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Website: <http://www.rossvideo.com>

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