



Issue: 01

ADC-8432 • Analog to AES/EBU Digital Audio Converter User Manual

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Important Regulatory and Safety Notices

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

Products may require specific equipment, and /or installation procedures 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



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 or injury to persons or equipment.



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.



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.



Notice

The symbol with the word “**Notice**” within the equipment manual indicates a 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.



**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.

Important Safety Instructions



Caution

This product is intended to be a component product of the openGear 8000 series frame. Refer to the openGear 8000 series frame User Manual for important safety instructions regarding the proper installation and safe operation of the frame as well as it's component products.



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.



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 type and rating. Only use attachments/accessories specified by the manufacturer.

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 users will be required to correct the interference at their 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.

Cet appareil numérique de 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

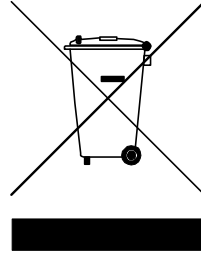
Routine maintenance to this openGear product is not required. This product contains no user serviceable parts. If the module does not appear to be working properly, please contact Technical Support using the numbers listed under the "Contact Us" section on the last page of this manual. All openGear products 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 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.

Contents

Introduction	1-1
In This Chapter	1-1
A Word of Thanks	1-1
Overview	1-1
Functional Block Diagrams	1-2
Features	1-3
Documentation Terms	1-3
Installation and Setup	2-1
In This Chapter	2-1
Static Discharge	2-1
Unpacking	2-1
Rear Module Installation (Optional)	2-2
Board Installation	2-3
BNC Labels	2-3
Cable Connections	2-4
User Controls	3-1
In This Chapter	3-1
Jumper and DIP Switch Locations	3-1
Jumpers and Potentiometers	3-2
DIP Switches	3-3
LEDs	3-5
Control and Monitoring	4-1
In This Chapter	4-1
DashBoard Control System	4-1
The Menu System	4-1
Specifications	5-1
In This Chapter	5-1
Service Information	6-1
In This Chapter	6-1
Troubleshooting Checklist	6-1
Power LED Conditions	6-2
Warranty and Repair Policy	6-2

Ordering Information

7-1

ADC-8432 and Related Products.....	7-1
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Introduction

In This Chapter

This chapter contains the following sections:

- A Word of Thanks
- Overview
- Functional Block Diagram
- Features
- Documentation Terms

A Word of Thanks

Congratulations on choosing the openGear **ADC-8432 Analog to AES/EBU Digital Audio Converter**. The ADC-8432 is part of a full line of Digital 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 ADC-8432 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 ADC-8432, 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.

Overview

The openGear ADC-8432 is a broadcast quality Analog Audio to AES/EBU Converter used to convert two analog audio channels to an AES/EBU signal. The ADC-8432 accepts one stereo (Left, Right) analog audio pair and provides four copies of the AES/EBU signal. The conversion from analog to digital is performed with 24-bit precision. The ADC-8432 supports sampling rates of 32kHz to 192kHz with AES (DARS) reference or internal reference. The AES output frequency (32kHz to 192kHz) can be determined by the reference selected as long as it is a valid DARS Audio reference.

A coarse input attenuator jumper (20dB or 18dB) and fine input attenuator potentiometers for each channel are provided to precisely match your facility's house reference audio levels.

The ADC-8432 is fully compliant with all openGear technical specifications and supports remote control and monitoring via the DashBoard Control System.

Functional Block Diagrams

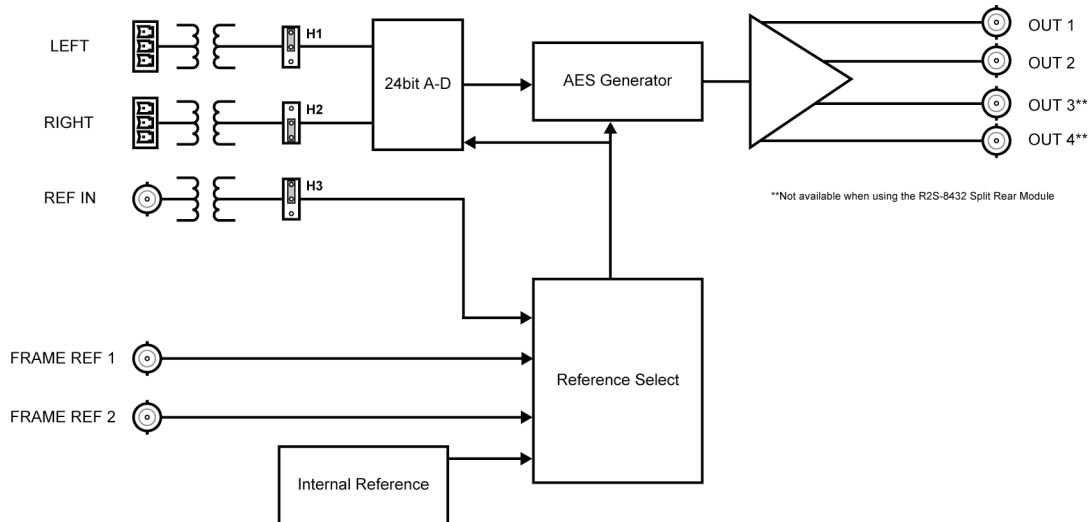


Figure 1. Simplified Block Diagram of ADC-8432 (75Ω)

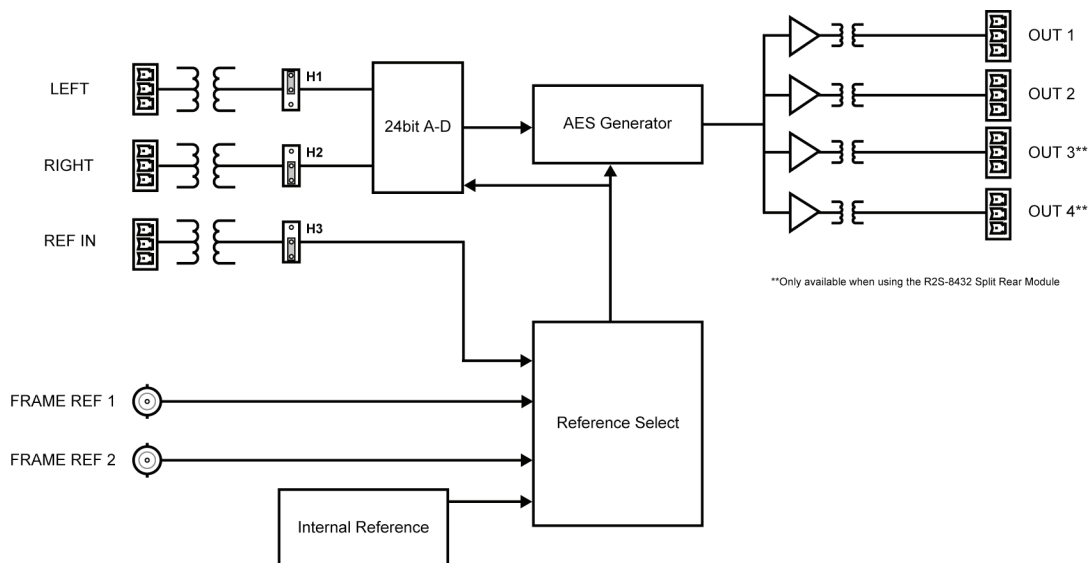


Figure 2. Simplified Block Diagram of ADC-8432 (110Ω)

Features

The following features make the ADC-8432 the best solution for analog to digital audio conversion:

- Converts analog audio to AES/EBU digital audio and provides AES/EBU signal distribution
- Can synchronize to frame or external Digital Audio Reference Signal (DARS) audio reference signals (but not to a video reference signal)
- Internal clock generates audio sampling frequencies of 32kHz, 44.1kHz, 48kHz, 96kHz or 192kHz
- 24-bit technology provides the highest quality signal conversion
- Suitable for 75Ω or 110Ω environments by selecting the required rear module
- Higher density with up to 20 cards in a DFR-8320 series frame
- Fits DFR-8310 and DFR-8320 series frames
- 5 year transferable warranty
- Fully compliant with openGear specifications

Documentation Terms

The following terms are used throughout this guide:

- “**Frame**” refers to the DFR-8300 series frame that houses the **ADC-8432** card, as well as any openGear frames.
- All references to the **DFR-8300 series frames** also includes all version of the 10-slot (DFR-8310) and 20-slot (DFR-8320) frames and any available options.
- “**Operator**” and “**User**” refer to the person who uses the **ADC-8432**.
- “**Board**”, and “**Card**” refer to the **ADC-8432** card itself, including all components and switches.
- “**System**” and “**Video system**” refer to the mix of interconnected production and terminal equipment in which the **ADC-8432** operates.

Installation and Setup

In This Chapter

This chapter contains the following sections:

- Static Discharge
- Unpacking
- Rear Module Installation (Optional)
- Board Installation
- BNC Labels
- Cable Connections

Static Discharge

Whenever handling the ADC-8432 and other related equipment, please observe all static discharge precautions as described in the following note:



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

Unpacking

Unpack each ADC-8432 you received from the shipping container, and check the contents against the packing list to ensure that all items are included. If any items are missing or damaged, contact your sales representative or Ross Video directly.

Rear Module Installation (Optional)

The ADC-8432 is compatible with the DFR-8310 and DFR-8320 series frames. The procedure for installing the Rear Module in your openGear frame is the same regardless of the frame. If you received a Rear Module with your ADC-8432, you will need to install the module in your DFR-8300 series frame before you can install the ADC-8432 in the frame, or connect cables to the card frame slot you have chosen for the ADC-8432.

75Ω Rear Modules for the ADC-8432

The required 75Ω Rear Module for the ADC-8432 depends on the openGear frame you are installing the card into. Note that Slot 1 is the left most slot as you look into the openGear frame from the front.

- **DFR-8310 series frames** — When installing the ADC-8432 in the DFR-8310 series frames in an 75Ω environment, use the **R1-8432** Rear Module.
- **DFR-8320 series frames** — When installing the ADC-8432 in the DFR-8320 series frames, use the **R2-8432** Full Rear Module or the **R2S-8432** Split Rear Module. When using a Full Rear Module in the DFR-8320 frame, use the even numbered slots, such as 2,4,6 etc. to ensure that the card aligns with the rear module.

110Ω Rear Modules for the ADC-8432

The required 110Ω Rear Module for the ADC-8432 depends on the openGear frame you are installing the card into. Note that Slot 1 is the left most slot as you look into the openGear frame from the front.

- **DFR-8310 series frames** — When installing the ADC-8432 in the DFR-8310 series frames in an 110Ω environment, use the **R1A-8432** Rear Module. Ross Video recommends using Slots 1, 3, 5, 7 and 9 in the DFR-8310 series frames.
- **DFR-8320 series frames** — When installing the ADC-8432 in the DFR-8320 series frames, use the **R2A-8432** Full Rear Module or the **R2AS-8432** Split Rear Module. When using a Full Rear Module in the DFR-8320 frame, use the even numbered slots, such as 2,4,6 etc. to ensure that the card aligns with the rear module.

Installing the Rear Module

If the Rear Module is already installed, skip this section.

Use the following procedure to install a Rear Module in a DFR-8300 series frame:

1. Refer to the DFR-8300 series frame User Manual to ensure that the frame is properly installed according to instructions.
2. On the rear of the frame, locate the card frame slot.
3. Remove the Blank Plate from the rear of the selected card frame slot. If there is no Blank Plate installed, proceed to the next step.
4. As shown in **Figure 3**, seat the bottom of the rear module in the seating slot at the base of the back plane of the frame.

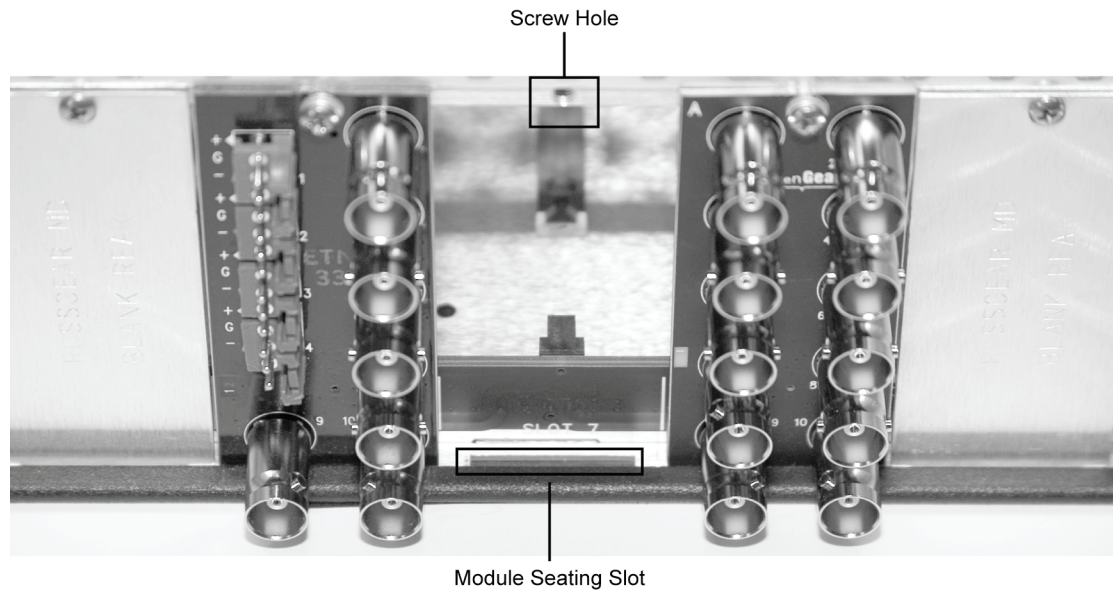


Figure 3. Rear Module Installation — DFR-8310 Series Frame (ADC-8432 not shown)

5. Align the top hole of the rear module with the screw hole on the top edge of the back plane of the frame.
6. Using a Phillips driver, and the supplied screw, fasten the rear module to the DFR-8300 series back plane. Do not over tighten.
7. Ensure proper frame cooling and ventilation by having all rear frame slots covered with Rear Modules or Blank (metal) Plates. If you need Blank Plates, refer to the chapter, **“Ordering Information”** in your frame User Manual, and contact your Ross Video sales representative.

This completes the procedure for installing a Rear Module in a DFR-8300 series frame.

Board Installation

Use the following procedure to install the ADC-8432 in a DFR-8300 series frame:

1. Refer to the User Manual of your frame to ensure that the frame is properly installed according to instructions. Ross Video recommends locating the ADC-8432 cards as outlined in the section **“Rear Modules for the ADC-8432”** of this manual.
2. After selecting the desired card frame slot, hold the ADC-8432 card 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 plugs are properly seated on the midplane and rear module.

This completes the procedure for installing the ADC-8432 in a DFR-8300 series frame.

BNC Labels

Affix the supplied BNC label, as per the included instructions, to the BNC area on the rear of the rack frame.

Cable Connections

This section provides information for connecting cables to the installed Rear Modules of your DFR-8300 series frame backplane.

Connections for the DFR-8310 Series Frames

In the DFR-8310 series frames, the ADC-8432 occupies one slot and provides 4 outputs. Connect the input and output cables as follows:

- **R1-8432 Rear Module** — Each card occupies one slot and provides one 75Ω AES/EBU external reference input, four 75Ω AES/EBU outputs on BNC connectors, and one stereo analog audio input on 3-pin Weco™ block connectors. Refer to **Figure 4** for cable connections.
- **R1A-8432 Rear Module** — Each card occupies one slot and provides one 110Ω AES/EBU external reference input, four 110Ω AES/EBU outputs on WECO connectors, and one stereo analog audio input on 3-pin Weco block connectors. Refer to **Figure 5** for cable connections.

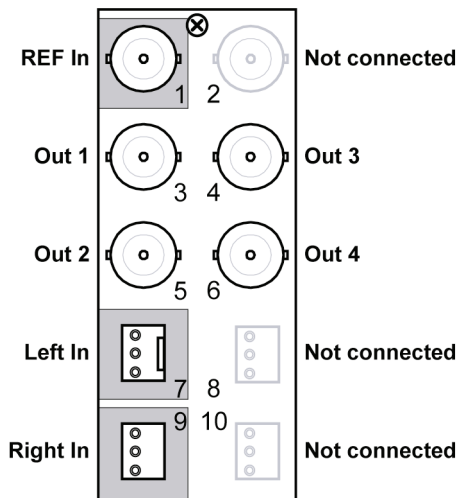


Figure 4. Cable Connections for the R1-8432 and R2-8432 Rear Modules

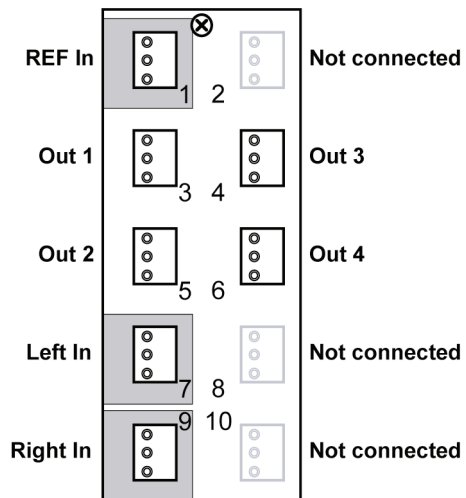


Figure 5. Cable Connections for the R1A-8432 and the R2A-8432 Rear Modules

Connections for the DFR-8320 Series Frames

In the DFR-8320 series frames, connect the input and output cables as follows:

- **R2-8432 Rear Module** — Each card occupies two slots and provides one 75Ω AES/EBU external reference input, four 75Ω AES/EBU outputs on BNC connectors, and one stereo analog audio input on 3-pin Weco block connectors. Refer to **Figure 4** for cable connections.
- **R2A-8432 Rear Module** — Each card occupies two slots and provides one 110Ω AES/EBU external reference input, four 110Ω AES/EBU outputs on BNC connectors, and one stereo analog audio input on 3-pin Weco block connectors. Refer to **Figure 5** for cable connections.

- **R2S-8432 Rear Module** — Each card occupies one slot and provides one 75 Ω AES/EBU external reference input, two 75 Ω AES/EBU outputs, and one stereo analog audio input. Refer to **Figure 6** for cable connections.
- **R2AS-8432 Rear Module** — Each card occupies one slot and provides one 110 Ω AES/EBU external reference input, two 110 Ω AES/EBU outputs, and one stereo analog audio input. Refer to **Figure 7** for cable connections.

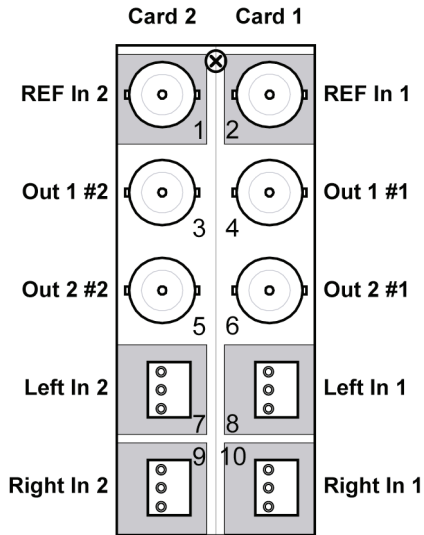


Figure 6. Cable Connections for the DFR-8320 frames with the R2S-8432 Full Rear Module

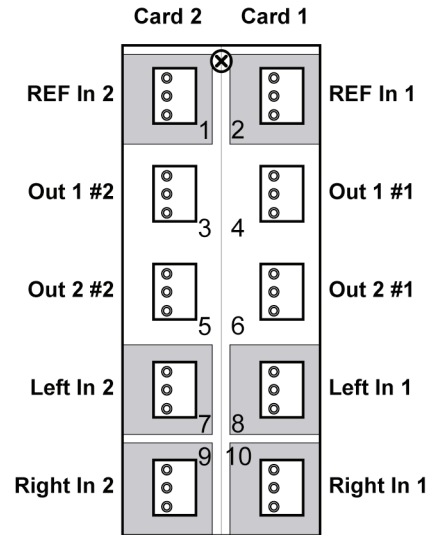


Figure 7. Cable Connections for the DFR-8320 frames with the R2AS-8432 Rear Module

User Controls

In This Chapter

This chapter contains a description of the ADC-8432 user controls. The following topics are discussed:

- Jumper and DIP Switch Locations
- Jumpers and Potentiometers
- DIP Switches
- LEDs

Jumper and DIP Switch Locations

Use the following sections, the card labeling, and **Figure 8** to set up the DIP switches.

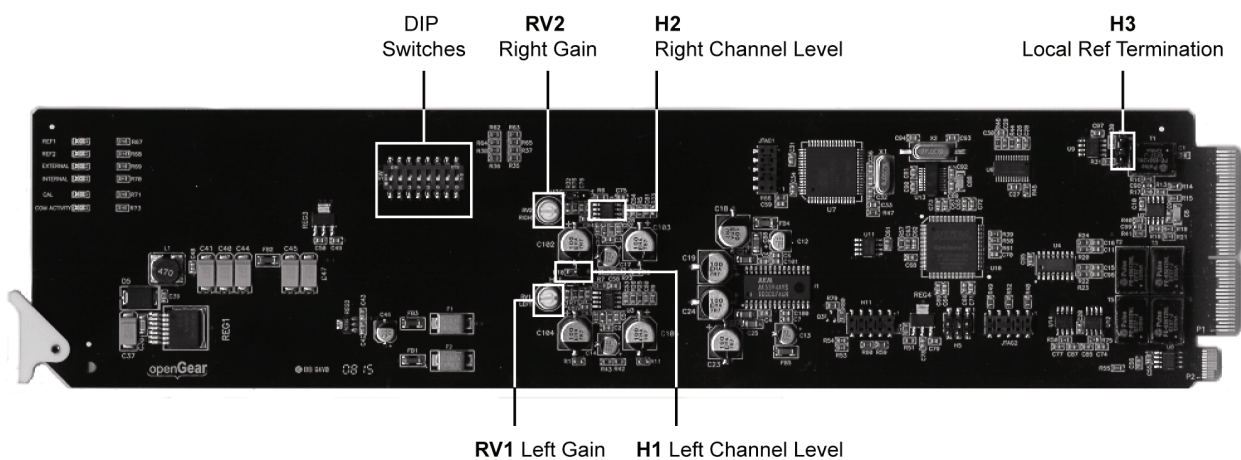


Figure 8. Switch Locations

Jumpers and Potentiometers

This section provides a brief summary of the jumpers of the ADC-8432. Refer to **Figure 9** for jumper and potentiometer locations and **Figure 10** for pin positions.

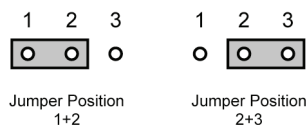


Figure 9. Jumper Positions

H1 — Left Channel Level

Use **H1** to set the coarse level gain adjustment for the left audio channel. The **RV1** potentiometer adds continuous fine adjustment for the left channel.

Set **H1** as follows:

- **20dBFS** — Set **H1** into position 1+2 as shown in **Figure 9**. This is the default setting.
- **18dBFS** — Set **H1** into position 2+3 as shown in **Figure 9**.

H2 — Right Channel Level

Use **H2** to set the coarse level gain adjustment for the right channel audio. The **RV2** potentiometer adds continuous fine adjustment for the right channel.

Set **H2** as follows:

- **20dBFS** — Set **H2** into position 1+2 as shown in **Figure 9**. This is the default setting.
- **18dBFS** — Set **H2** into position 2+3 as shown in **Figure 9**.

H3 — Local Ref Termination

Use **H3** to select the local reference termination. Refer to **Figure 8** for jumper locations and the card labeling for pin positions.

Set **H3** as follows:

- **75** — Set **H3** into this position (top two pins) to select a local reference termination of 75Ω. This is the default setting.
- **110** — Set **H3** into this position (bottom two pins) to select a local reference termination of 110Ω.
- **HI or no termination** — Set **H3** into one pin or do not connect the jumper to select no local reference termination.

RV1, RV2 — Left Gain and Right Gain

The fine input level and headroom adjustment is made using the Left Gain (**RV1**) and Right Gain (**RV2**) potentiometers. These potentiometers provide ± 0.2 dB adjustment on the -20 dBFS jumper setting and the -18 dBFS jumper setting. If necessary, use a tweaker screwdriver to adjust the fine analog audio input and output levels of each channel.

DIP Switches

This section provides a brief summary of the DIP switches of the ADC-8432. Refer to **Figure 8** for DIP Switch locations. **Figure 11** shows all the DIP Switches in the **OFF** position.

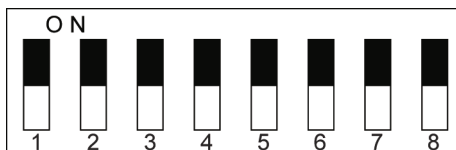


Figure 10. Jumper and Switch Locations

DIP SW1 and SW2 — Reference Select

SW1 and **SW2** are used in combination to select the reference source of the ADC-8432.

- In the case where an external reference is used, the sample rate is determined by the external reference. If the external reference is lost, **SW3**, **SW4**, and **SW5** dictate the sampling rate. If the reference is re-established, the sample rate returns to the sample rate dictated by the reference signal. The reference must be an AES or DARS signal.
- In the case where the card uses the internally generated reference signal, **SW3**, **SW4** and **SW5** inform the card of the sampling rate to use. Refer to Table 2 for details.

Table 1 lists the combination of DIP Switch settings for **SW1** and **SW2**.

Table 1. DIP SW1 and SW2 Settings Descriptions

SW1 (REF SEL MSB)	SW2 (REF SEL LSB)	Description
OFF	OFF	Frame Reference 1
OFF	ON	Frame Reference 2
ON	OFF	External Reference (Rear Module)
ON	ON	Internal Reference

DIP SW3, SW4 and SW5 — Internal Sample Rate

SW3, **SW4**, and **SW5** are used in combination to set the internal sample reference rate. Ensure that **SW1** and **SW2** are both set to the **ON** position. **Table 2** lists the combinations for **SW3**, **SW4** and **SW5**.

Table 2. DIP SW3, SW4 and SW5 Settings Descriptions

SW3 (SR SEL MSB)	SW4 (SR SEL)	SW5 (SR SEL LSB)	Description
OFF	OFF	OFF	32kHz
OFF	OFF	ON	44.1kHz
OFF	ON	OFF	48kHz
OFF	ON	ON	96kHz
ON	--	--	192kHz

DIP SW6

This feature is not yet implemented.

DIP SW7 — Default DIP Switch/Memory

SW7 is used to enable or disable the parameters set by the DIP Switches on the ADC-8432.

Set **SW7** as follows:

- **ON** — Select this setting to retrieve the ADC-8432 parameters from the non-volatile memory. The DIP Switch settings are ignored.
- **OFF** — Select this setting to enable the ADC-8432 to retrieve parameters from the DIP Switches.

DIP SW8 — DashBoard Disable

SW8 is used to disable remote control of the ADC-8432 from the DashBoard Control System.

Set **SW8** 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 controls. You can still monitor the status of the card using DashBoard.
- **OFF** — Select this setting to control the ADC-8432 exclusively from DashBoard. The card controls are ignored.

LEDs

The front-edge of the card features LEDs that display the status of the input signals. This section provides a general description of the Status LEDs identified in **Figure 12**.

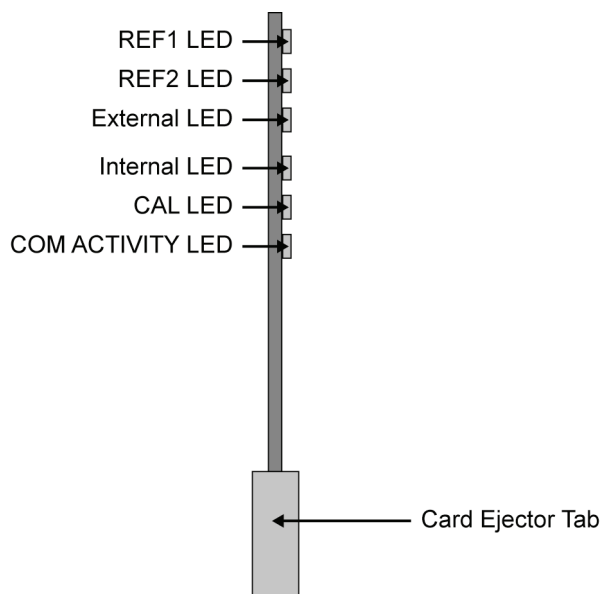


Figure 11. LED Locations on the Card-edge

As selections are made in the menus, the LEDs display the status of the input signals. Descriptions are provided in **Table 3**.

Table 3. Status LED Descriptions

LED	Color	Display and Description
REF 1	Green	When on, this LED indicates that frame reference 1 is selected and the card is locked to that signal. When flashing, this LED indicates that REF 1 is selected but the signal is missing or corrupted. (The card will automatically switch to the internal reference and the internal reference LED will turn on).
REF 2	Green	When on, this LED indicates that frame reference 2 is selected and the card is locked to that signal. When flashing, this LED indicates that REF 2 is selected but the signal is missing or corrupted. (The card will automatically switch to the internal reference and the internal reference LED will turn on).
External	Green	When on, this LED indicates that external reference is selected and the card is locked to that signal. When flashing, this LED indicates that External Ref is selected but the signal is missing or corrupted. (The card will automatically switch to the internal reference and the internal reference LED will turn on).

LED	Color	Display and Description
Internal	Yellow	When on, this LED indicates that internal reference is selected either through dip switch selection, automatically or via DashBoard, and the card is locked to the internal reference (see above).
CAL	Red	When on, this LED indicates that the sampling frequency has changed and the card is self calibrating (very short duration).
COM Activity	Green	When on, this LED indicates that communications on the CAN bus is operating properly.

Control and Monitoring

In This Chapter

This chapter provides a detailed explanation of controlling and monitoring your ADC-8432.

The following topics are discussed:

- DashBoard Control System Software
- The Menu System

DashBoard Control System

The DashBoard Control System enables you to monitor and control openGear frames and controller cards from a computer. DashBoard communicates with other cards in the DFR-8310 series frame through the MFC-8310-N Network controller card. This card is required in order to use the DashBoard Control System to configure the ADC-8432.

The DashBoard Control System software and user manual can be downloaded from the Ross Video website.

Using the DashBoard Menus

You must first install the DashBoard Control System on your computer. Refer to the *DashBoard User Manual* for software installation procedures and using DashBoard.

The Menu System

The following sections and tables describe the Configuration and Status menus, with items, and parameters available on the ADC-8432, accessed from DashBoard.

Status Menus

This section summarizes the **Status** Menu options available through the DashBoard Control System.

Table 4. Status Menu Functions

Menu	Item	Parameters	Description
Card Info (Read-only)	Product	ADC-8432	
	Name	Analog to Digital Converter	
	Supplier	Ross Video Ltd.	
	Software Rev	###	
Card Status (Read-only)	Card Status	Green	OK
		Yellow	Ref Input Unlocked
		Red	Error
	Ref Input	Unlocked	
		Locked	

Configuration Menus

This section summarizes the **Configuration** Menu options available through the DashBoard Control System.

Table 5. Configuration Menu Functions

Menus	Items	Parameters	Description
Card Settings	Internal Ref Sample Rate	32kHz	Specifies the internal reference sample rate. If your reference is lost, the output change rates to match specified the Internal Ref Sample Rate.
		44.1kHz	
		48kHz	
		96kHz	
		192kHz	
	Reference	Frame Ref 1	External reference connected to Frame 1 and selected
		Frame Ref 2	External reference connected to Frame 2 and selected
		External	Reference connected to rear module and selected
		Internal	Uses the internally generated reference as configured above
	Settings	Save	Saves the current settings

Specifications

In This Chapter

This chapter includes the Technical Specifications table for the ADC-8432 card.

Table 6. ADC-8432 - Technical Specifications

Category	Parameter	Specification
Analog Input	Number of Inputs	2 balanced channels (1 stereo pair)
	Connector	Terminal Block (Weco™)
	Input Impedance	>20kOhms
	Nominal Input Level	+4dB
Reference Input	Signal	Audio – AES-3id/AES-3 (depending on the rear module) 32kHz, 44.1kHz, 48kHz, 96kHz, 192kHz
	Input Impedance	Selectable between 75, 110 and HI
	AES Input Level	200mV p-p minimum 2.5V p-p maximum
AES/EBU Output	Number of Outputs	Full Rear Module: 4 Split Rear Module: 2
	Connector	BNC or Terminal Block (Weco) (depending on rear module)
	Sample Rate	DARS or AES Ref or internal reference of 32kHz to 192kHz
	Output Impedance	75 or 110Ω (depending on rear module)
	Output Level	1.0V p-p ±10%
Performance	Quantization	24bits
	Frequency Response	±0.1dB @ 48kHz (20Hz to 20kHz)
	Signal to Noise Ratio	-110dB unweighed
	Measured at –20dBFS	-112 dB ‘A’ weighted, -120dB CCITT weighted
	THD+N at –20dBFS	-110dB (<0.002%)
	Crosstalk	<-80dB
	Jitter	<10mUI peak @ 48kHz (AES reference)
Other	Maximum Power Consumption	4W
	Warranty	5 year transferable

Specifications are subject to change without notice.

Service Information

In This Chapter

This chapter contains the following sections:

- Troubleshooting Checklist
- Power LED Conditions
- Warranty and Repair Policy

Troubleshooting Checklist

Routine maintenance to your card is not required. In the event of problems with your ADC-8432, the following basic troubleshooting checklist may help identify the source of the problem. If the module still does not appear to be working properly after checking all possible causes, please contact your openGear products distributor, or the Ross Video Technical Support department at the numbers listed under the “**Contact Us**” section at the end of this manual.

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. **Reseat 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.

Power LED Conditions

The top front edge of the module has a Power LED which indicates card status. The Power LED displays the following conditions:

- **Off**— no power to the card.
- **Orange**— the card is running internal diagnostics while powering up.
- **Green**— normal operation.
- **Flashing Green**— the card is receiving a new software load from the frame.
- **Green/Flashing Orange**— signal or configuration problem, check signal status and settings.
- **Red**— solid or flashing means the card is not operational. Reseat card in frame, check the Rear Module connections, or call Ross Technical Support.

Warranty and Repair Policy

The ADC-8432 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 ADC-8432 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 ADC-8432 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 User Manual provides all pertinent information for the safe installation and operation of your ADC-8432. Ross Video policy dictates that all repairs to the ADC-8432 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 ADC-8432, 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 ADC-8432. If required, a temporary replacement module 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.

Ordering Information

ADC-8432 and Related Products

Your **ADC-8432** Analog to AES/EBU Digital Audio Converter is a part of the openGear family of products. Ross Video offers a full line of openGear terminal equipment including distribution, conversion, monitoring, synchronizers, encoders, decoders, AES, keyers, switches, as well as analog audio and video products.

Standard Equipment

- **ADC-8432** Analog to AES/EBU Digital Audio Converter
- **8432DR-004** Analog to AES/EBU Digital Audio Converter User Manual

Optional Equipment

- **8432DR-004** Analog to AES/EBU Digital Audio Converter User Manual (additional)
- **R1-8432** 75Ω Rear Module for the ADC-8432 (DFR-8310-C frames)
- **R1A-8432** 110Ω Rear Module for the ADC-8432 (DFR-8310-C frames)
- **DFR-8310-N** Digital Products Frame and Power Supply with Cooling Fans, and MFC-8310-N card (2RU, holds up to 10 cards)
- **DFR-8320-CNS** Digital Products Frame, Power Supply, Cooling Fans, MFC-8310-N, COMM I/O Module and SNMP-8310 (2RU, holds up to 20 cards)
- **R2-8432** 75Ω Full Rear Module for the ADC-8432 (DFR-8320 series frames)
- **R2A-8432** 110Ω Full Rear Module for the ADC-8432 (DFR-8320 series frames)
- **R2S-8432** 75Ω Split Rear Module for the ADC-8432 (DFR-8320 series frames)
- **R2AS-8432** 110Ω Split Rear Module for the ADC-8432 (DFR-8320 series frames)

Please contact your openGear sales representative for a complete list of the available options.

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

PHONE	General Business Office and Technical Support	613 • 652 • 4886
	After Hours Support	613 • 349 • 0006
	Fax	613 • 652 • 4425
E-MAIL	General Information	solutions@rossvideo.com
	Technical Support	techsupport@rossvideo.com
POSTAL SERVICE	Ross Video Limited	8 John Street, Iroquois, Ontario, Canada K0E 1K0
	Ross Video Incorporated	P.O. Box 880, Ogdensburg, New York, USA 13669-0880

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