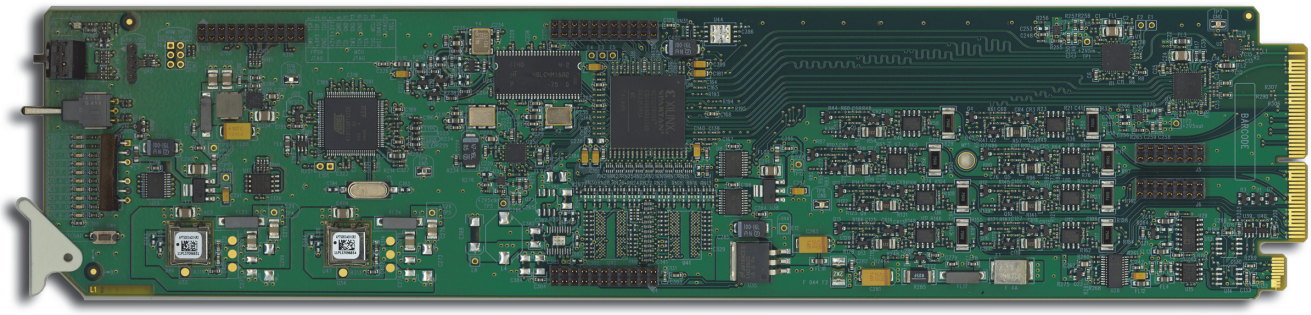
openGear

DMX-8259 Series

AES/EBU/Analog Audio De-Multiplexers

User Manual



ROSS

Video Production Technology

DMX-8259 Series User Manual

- Ross Part Number: 8259DR-004-04
- Release Date: May 8, 2013.

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

Copyright

Patents

This product is protected by the following US Patents: 4,205,346; 5,115,314; 5,280,346; 5,561,404; 7,304,886; 7,508,455; 7,602,446; 7,834,886; 7,914,332. This product is protected by the following Canadian Patents: 2039277; 1237518; 1127289. 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.

Trademarks

- ROSS is a registered trademark of Ross Video Limited.
- Ross, ROSS, ROSS®, and MLE are registered trademarks of Ross Video Limited.
- openGear® is a registered trademark of Ross Video Limited.
- DashBoard Control System™ is a trademark of Ross Video Limited.
- Dolby® is a registered trademark of Dolby Laboratories.
- SanDisk® and CompactFlash® are registered trademarks of SanDisk Corporation, registered in the United States and other countries.
- All other product names and any registered and unregistered trademarks mentioned in this manual are used for identification purposes only and remain the exclusive property of their respective owners.

Important Regulatory and Safety Notices to Service Personnel

Before using this product and nay 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

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.

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 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.*

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 DFR-8300 and OG3-FR series frame. Refer to the DFR-8300 and OG3-FR Series Frame User Manual for important safety instructions regarding the proper installation and safe operation of the frame as well as its 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 with 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.

Warning — *This product includes an "Ethernet Port" which allows this product to be connected to a local area network (LAN). Only connect to networks that remain inside the building. Do not connect to networks that go outside the building.*

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 appariel numerique de la classe "A" est conforme a 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

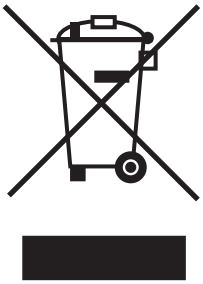
Routine maintenance to this openGear product is not required. This product contains no user serviceable parts. If the module does not appear to be working properly, please contact Technical Support using the numbers listed under the "Contact Us" section on the last page of this manual. All openGear products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



If you need more information on the collection, re-use, 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.

Company Address

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

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

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

Contents

Introduction

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 DMX-8259 Series AES/EBU/Analog Audio De-Multiplexer. Your DMX-8259 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 DMX-8259 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 DMX-8259, 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 DMX-8259 AES/EBU/Analog Audio De-Multiplexer is a high quality program audio de-multiplexer.Various configuration options, including internally generated patterns and tones, are available for audio and video output scenarios should a loss of input occur.

DMX-8259-A and DMX-8259-B Overview

The DMX-8259-A and DMX-8259-B AES/EBU Audio De-Multiplexers are capable of de-embedding up to 8 AES/EBU pairs (16 audio channels) from an HD/SD-SDI signal. Audio proc control on each channel allows for audio processing with gain of +/-20dB, audio delay up to 1 second and channel invert. Each card supports full channel assignment to the discrete outputs.

Note that the DMX-8259-A provides eight unbalanced 75ohm connections while the DMX-8259-B provides eight balanced 110ohm connections.

DMX-8259-C Overview

The DMX-8259-C Analog Audio De-Multiplexer is capable of de-embedding up to either four or eight analog audio channels from an HD/SD-SDI signal with one multi-rate SDI input. (DMX-8259-4C and DMX-8259-8C respectively)

The DMX-8259-C includes audio proc control on each channel that allows for audio processing with gain of +/-10dB, audio delay up to 1 second, and channel invert. The DMX-8259-C supports any channel assignment to the discrete inputs and can re-map any of the existing embedded channels.

Features

The following features make the DMX-8259 the ideal solution for de-multiplexing audio sources from and HD/SD-SDI signal:

- Supports HD-SD SDI SMPTE 292M (1.5Gbps), SMPTE 259M (270Mbps), and SMPTE 424M (3Gbps)[1]
- Audio de-embedding for all popular formats 480i, 576i, 720p, 1080i, and 1080p (Level A)[1]
- DMX-8259-A provides eight AES-3id 75ohm unbalanced outputs
- DMX-8259-B provides eight AES-3id 110ohm balanced outputs
- DMX-8259-4C provides four analog outputs
- DMX-8259-8C provides eight analog outputs
- DMX-8259-A and DMX-8259-B support de-embedding of non-PCM data such as Dolby® Digital and Dolby® E
- Audio controls such as gain, invert, and delay
- Analog gain control done entirely in the analog domain
- Assign any embedded channel to any discrete audio output
- Ability to re-map channels in embedded video stream
- Ability to strip VANC data from specific or all lines of a video output
- Programmable video output on SDI input loss
- Silence output on loss of audio input

1. Not supported when the card is installed in the DFR-8310 series frames.

- Programmable silence detection and timeout thresholds
- No audio breakout cable required
- Reports status and configuration remotely via the DashBoard
- Fits openGear frames
- Fully compliant with openGear specifications
- 5-year transferable warranty

Functional Block Diagrams

This section provides functional block diagrams that outline the workflow of the DMX-8259.

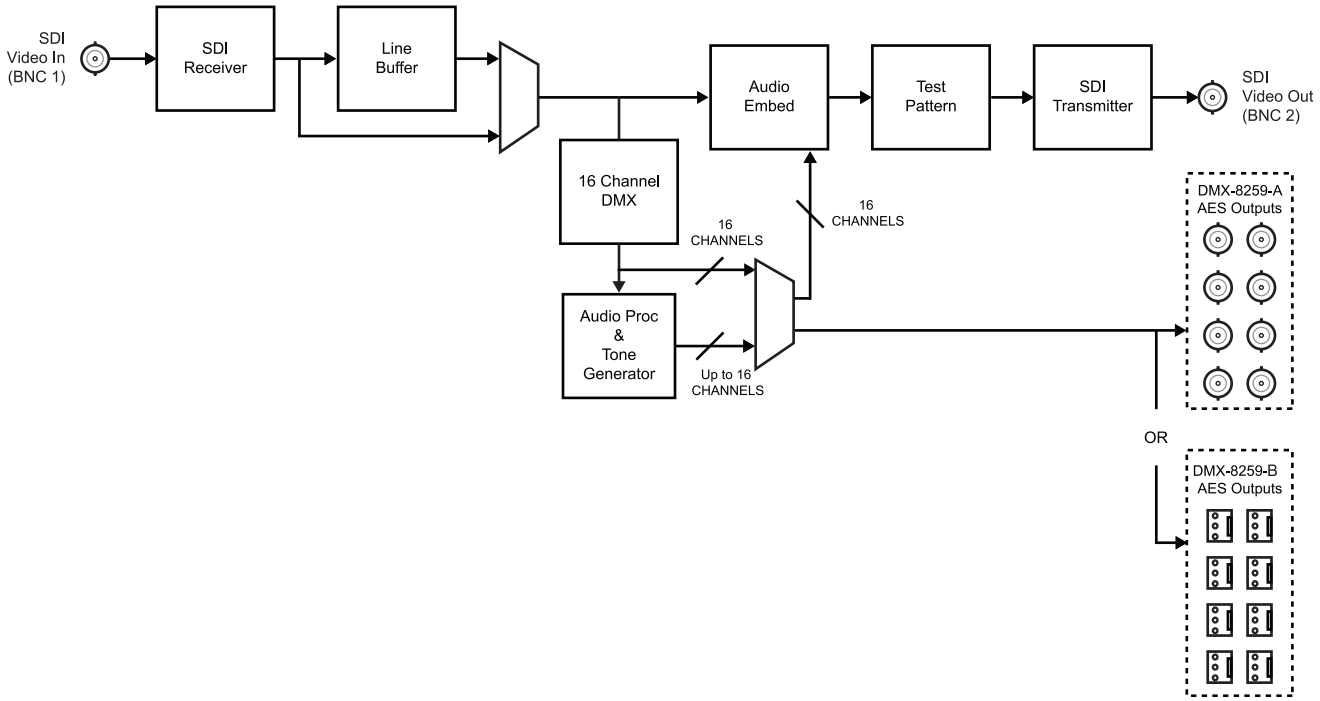


Figure 1.1 *DMX-8259-A and DMX-8259-B — Simplified Block Diagram*

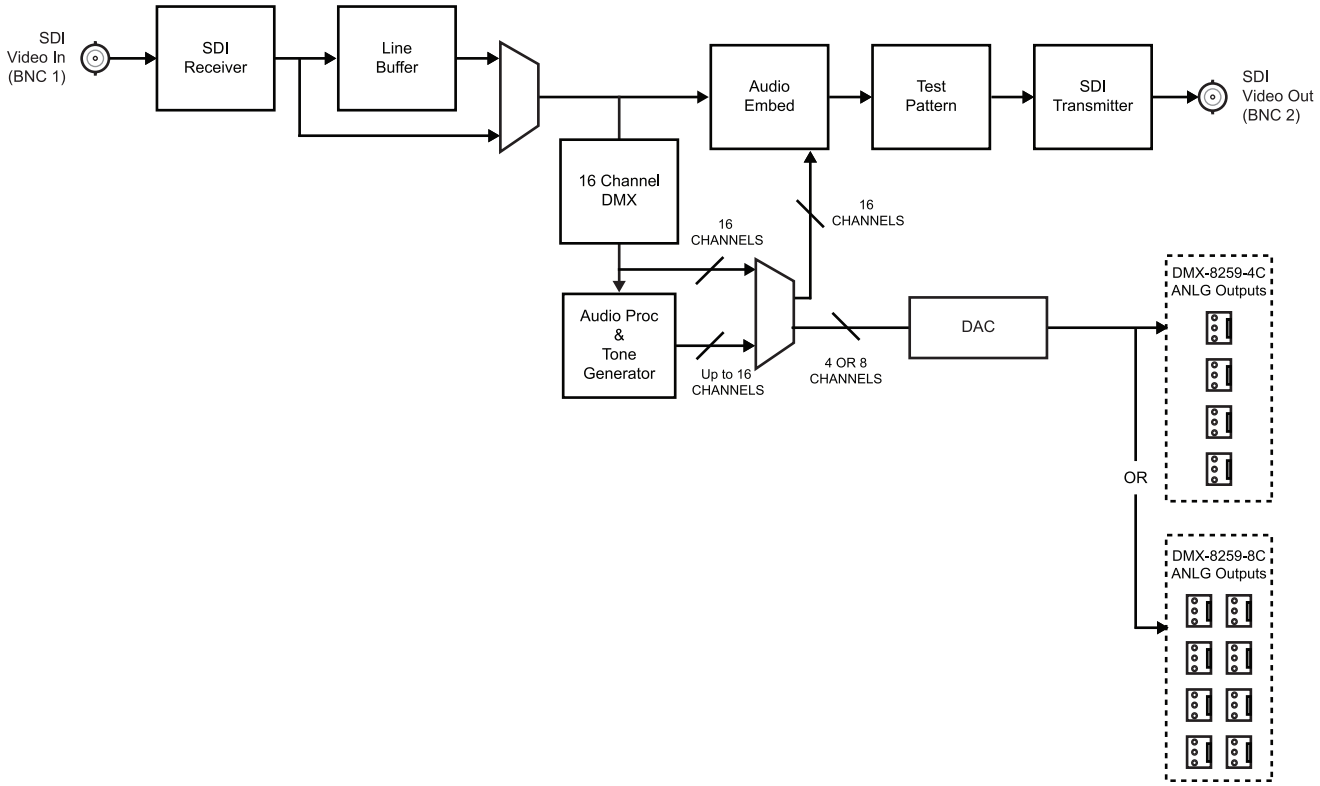


Figure 1.2 *DMX-8259-C — Simplified Block Diagram*

User Interfaces

The DMX-8259 includes the following interfaces for control and monitoring for your card.

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 openGear frame through the Network Controller Card. The DashBoard software and user manual are available for download from our website.

For More Information on...

- the DMX-8259 menus in DashBoard, refer to the chapter "**DashBoard Menus**" on page 4-1.
- using DashBoard, refer to the ***DashBoard User Manual***.

Card-edge Controls

The front-edge of the DMX-8259 features LED indicators for the power, signal status, and communication activity. The card-edge also includes the **SW2** and **SW3** switches that are used in conjunction to navigate the card-edge menu system.

For More Information on...

- the card-edge controls and LEDs, refer to the chapter "**User Controls**" on page 3-1.
- the card-edge menus, refer to the chapter "**Card-edge Menus**" on page 5-1.

SNMP Monitoring and Control

The Network Controller Card in the openGear frame can provide optional support for remote monitoring of your frame and the using Simple Network Management Protocol (SNMP), which is compatible with many third-party monitoring and control tools.

For More Information on...

- enabling SNMP Monitoring and Control for your frame, refer to the ***MFC-8300 Series User Manual***.
- SNMP controls on the DMX-8259, refer to your DMX-8259 Management Information Base (MIB) file.

Documentation Terms and Conventions

The following terms and conventions are used throughout this manual.

Terms

The following terms are used:

- "**525-line mode**" refers to broadcast situations using **NTSC** composite (analog) signal reference inputs.
- "**625-line mode**" refers to broadcast situations using **PAL-B** composite (analog) signal reference inputs.
- "**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 the DFR-8310 series and DFR-8321 series frames and any available options.
- "**DMX-8259**" refers to all versions unless otherwise indicated.
- "**DMX-8259-C**" refers to the DMX-8259-4C and DMX-8259-8C unless otherwise noted.
- "**Frame**" refers to openGear frame that houses the DMX-8259, as well as any openGear frames.
- "**OG3-FR series**" refers to the OG3-FR series frames and any available options.
- "**openGear frame**" refers to all versions of the DFR-8300 series and OG3-FR series frames and any available options unless otherwise noted.
- "**Operator**" and "**User**" refer to the person who uses DMX-8259.
- "**PAL**" refers to PAL-B, or PAL-G unless otherwise stated.
- "**System**" and "**Video system**" refer to the mix of interconnected production and terminal equipment in your environment.

Conventions

The following conventions are used:

- The "**Operating Tips**" and "**Note**" boxes are used throughout this manual to provide additional user information.

Installation

In This Chapter

This chapter provides instructions for installing the Rear Module(s) for the DMX-8259, installing the card into the frame, cabling details, and updating the card software.

The following topics are discussed:

- Before You Begin
- Installing the DMX-8259
- Cabling for the DMX-8259
- Software Upgrades

Before You Begin

Before proceeding with the instructions in this chapter, ensure that your openGear frame is properly installed according to the instructions in the ***DFR-8300 and OG3-FR Series User Manual***.

Static Discharge

Throughout this chapter, please heed the following cautionary 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 DMX-8259 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 DMX-8259

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 your application and the frame you are using.

Supported Rear Modules

This section briefly summarizes the supported rear modules for each model of DMX-8258.

Rear Modules for the DMX-8259-A

When installing the DMX-8259-A:

- **DFR-8310 series frames** — The **8310AR-030** Rear Module is required. The DMX-8259-A is also compatible with the DFR-8310-BNC frame (with the cooling fan option installed).
- **DFR-8321 series frames** and **OG3-FR series frames** — The **8320AR-041** Rear Module is required.

Rear Modules for the DMX-8259-B

When installing the DMX-8259-B:

- **DFR-8310 series frames** — The **8310AR-034** Rear Module is required. The DMX-8259-B is not compatible with the DFR-8310-BNC frames.
- **DFR-8321 series frames** and **OG3-FR series frames** — The **8320AR-034** Rear Module is required.

Rear Modules for the DMX-8259-4C

When installing the DMX-8259-4C:

- **DFR-8310 series frames** — The **8310AR-034** Rear Module is required. The DMX-8259-4C is not compatible with the DFR-8310-BNC frame.
- **DFR-8321 series frames** and **OG3-FR series frames** — The **8320AR-034** Rear Module is required.

Rear Modules for the DMX-8259-8C

When installing the DMX-8259-8C:

- **DFR-8310 series frames** — The **8310AR-034** Rear Module is required. The DMX-8259-8C is not compatible with the DFR-8310-BNC frame.
- **DFR-8321 series frames** and **OG3-FR series frames** — The **8320AR-034** Rear Module is required.

Installing a Rear Module

If the Rear Module is already installed, proceed to the section "**Installing the DMX-8259**" on page 2-4.

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 DMX-8259 installation. If there is no Blank Plate installed, proceed to the next step.

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**)

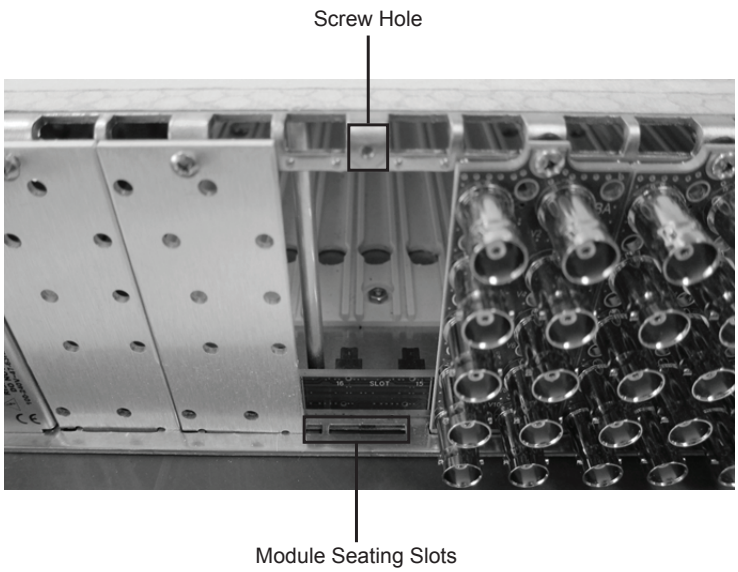


Figure 2.1 *Rear Module Installation in an openGear Frame (DMX-8259 not shown)*

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 DMX-8259

This section outlines how to install the DMX-8259 in an openGear frame. If the DMX-8259 is to be installed in any compatible frame other than a Ross Video product, refer to the frame manufacturer's manual for specific instructions.

Caution — *Do not populate Slot 10 in the DFR-8310 series frame with an DMX-8259-C. Attempting to populate Slot 10 may damage the MFC-8300 series Frame Controller card, the DMX-8259-C, or both.*

To install the DMX-8259 in a openGear frame

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

2. Hold the DMX-8259 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 is properly seated in the Rear Module.

4. Verify whether your Rear Module Label is self-adhesive by checking the back of the label for a thin wax sheet. You must remove the wax sheet before affixing the label.

5. Affix the supplied Rear Module Label to the BNC area of the Rear Module.

Cabling for the DMX-8259

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

DMX-8259-A Cabling Overview

The DMX-8259-A is used with the following Rear Modules:

- **8310AR-030** Rear Module — Each rear module occupies one slot and accommodates one card. This rear module provides one SDI input, one SDI output, and eight AES unbalanced outputs at 75ohm. (**Figure 2.2**)
- **8320AR-041** Full Rear Module — Each rear module occupies two slots and accommodates one card. This rear module provides one SDI input, one SDI output, and eight AES unbalanced outputs at 75ohm.(**Figure 2.2**)

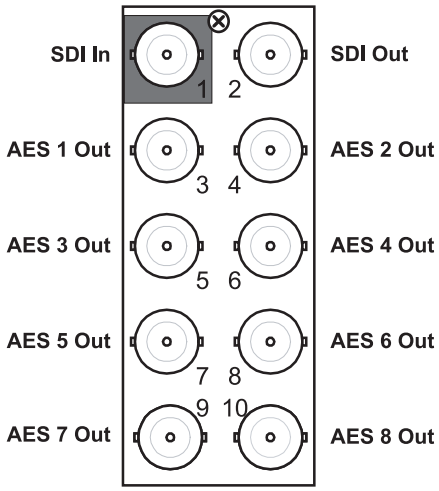


Figure 2.2 *Cable Connections for the DMX-8259-A*

DMX-8259-B Cabling Overview

The DMX-8259-B is used with the following Rear Modules:

- **8310AR-034** Rear Module — Each rear module occupies one slot and accommodates one card. This rear module provides one SDI input, one SDI output, and eight balanced AES outputs at 110ohm. (**Figure 2.3**)
- **8320AR-034** Rear Module — Each rear module occupies two slots and accommodates one card. This rear module and provides one SDI input, one SDI output, and eight balanced AES outputs at 110ohm. (**Figure 2.3**)

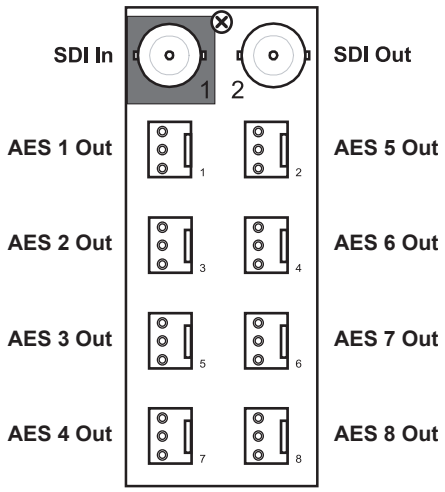


Figure 2.3 *Cable Connections for the DMX-8259-B*

DMX-8259-4C Cabling Overview

The DMX-8259-4C is used with the following Rear Modules:

- **8310AR-034** Rear Module — Each rear module occupies one slot and accommodates one card. This rear module provides one SDI Input, one SDI output, and four analog outputs. (**Figure 2.4**)
- **8320AR-034** Rear Module — Each rear module occupies two slots and accommodates one card. This rear module provides one SDI Input, one SDI output, and four analog outputs. (**Figure 2.4**)

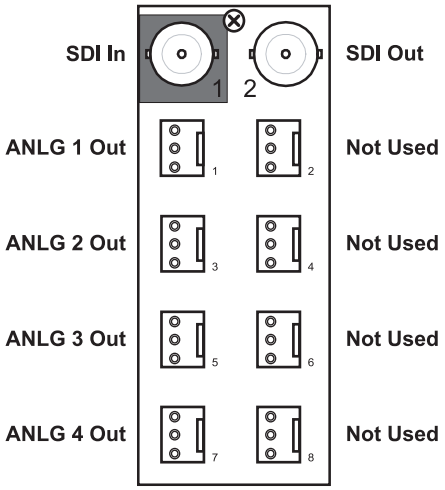


Figure 2.4 *Cable Connections for the DMX-8259-4C*

DMX-8259-8C Cabling Overview

The DMX-8259-8C is used with the following Rear Modules:

- **8310AR-034** Rear Module — Each rear module occupies one slot and accommodates one card. This rear module provides one SDI Input, one SDI output, and eight analog outputs. (**Figure 2.5**)

- **8320AR-034** Rear Module — Each rear module occupies two slots and accommodates one card. This rear module provides one SDI Input, one SDI output, and eight analog outputs. (**Figure 2.5**)

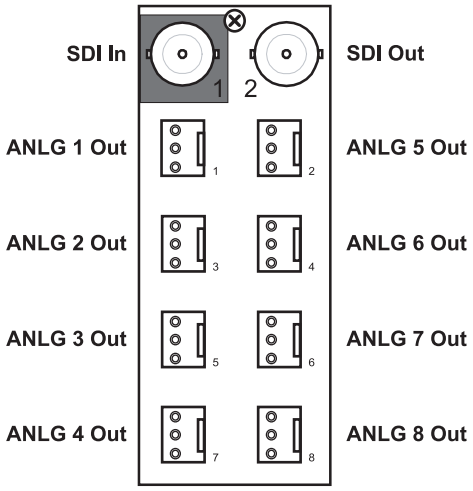


Figure 2.5 *Cable Connections for the DMX-8259-8C*

Audio Cabling for the DMX-8259-B and DMX-8259-C

The 8310AR-034 and 8320AR-034 Rear Modules provide 3-pin audio terminal blocks with removable connectors for audio sources. Each connector has locations for the positive, negative, and grounded wires of a balanced audio cable.

To cable the audio connections

1. Insert an audio wire to the designated polarity slot on the connector of the rear module.

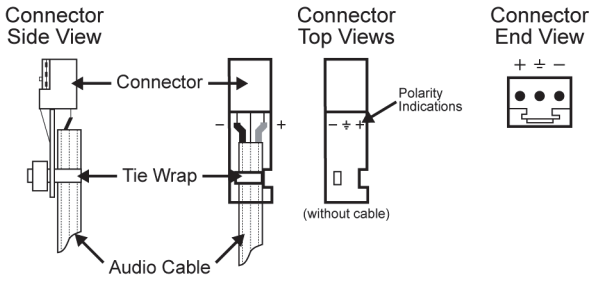


Figure 2.6 *Connector Wiring for Rear Module Input Sockets*

2. Use a tweaker screwdriver to tighten the corresponding capture screw.
3. Repeat steps 1 and 2 for each wire on each connector.
4. Once the cables are wired to the connectors, install the connectors on the terminal blocks for the rear module.

Software Upgrades

This section provides instructions for upgrading the software for your DMX-8259 using the DashBoard Control System™.

To upload software to the DMX-8259

1. Contact Ross Technical Support for the latest software version file.
2. In DashBoard, display the **Device** tab of the DMX-8259 by double-clicking its status indicator in the **Basic Tree View**.
3. From the **Device** tab, click **Upload** to display the **Select File for upload** dialog box.
4. Navigate to the *.bin upload file you wish to upload. DashBoard automatically selects the last directory that you loaded from.
5. Click **Open** to display a confirmation dialog box. This dialog box displays the selected upload file name, type, size, and the file creation date.
6. From the **Confirmation** dialog box, select one of the following:
   - **Cancel** — Select this option to cancel the upload of the file and return to the **Device View**.
   - **Continue** — Select this option to upload the file. While uploading, an **Uploading Progress** dialog box opens.

Important — *Clicking the **Cancel** button while uploading will leave the card in an invalid state. Do not click **Cancel** unless the uploading progress has stopped completely for 60 seconds or more.*

7. Monitor the upgrade progress bar displayed in DashBoard while the software is upgraded on your DMX-8259.
8. To complete the upgrade process, you must reboot the card as follows:
   - From the **Device** tab, click **Reboot** to reboot DMX-8259. The reboot process takes up to 30 seconds.

Note — *The communications processor of the DMX-8259 requires approximately 30 seconds to re-start and re-establish network communications.*

   - The DMX-8259 automatically saves all your settings before starting the reboot process.
   - The status of all the cards in the frame are grayed out until the reboot process is complete.

User Controls

In This Chapter

This chapter provides a general overview of the user controls available on the DMX-8259.

The following topics are discussed:

- Card Overview
- Control and Monitoring Features
- Reference Compatibility
- Operation Notes

Card Overview

This section provides a general overview of the DMX-8259 components. For information on the LEDs available on the card-edge, refer to the section "**Control and Monitoring Features**" on page 3-3.

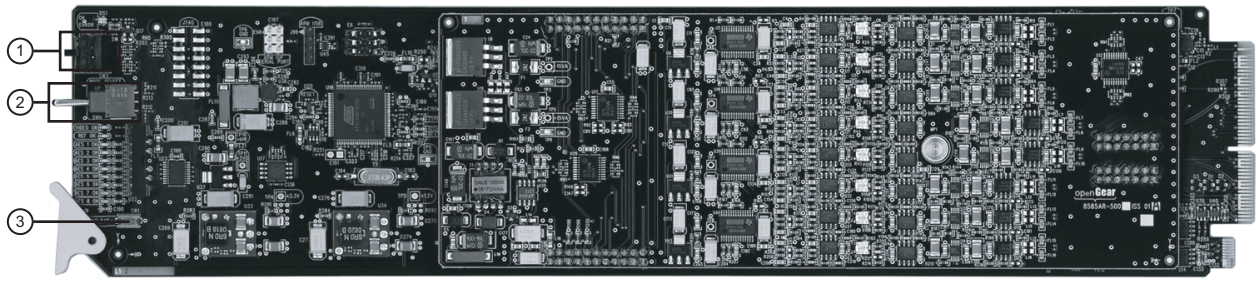


***Figure 3.1** DMX-8259 — Card-edge Components*

1) Function Select Switch (**SW2**)	2) Mode Select Switch (**SW3**)	3) Bootload Button (**SW1**)

1. Function Select Switch (SW2)

Use **SW2** to select general operation functions and menu items and works in conjunction with the Mode Select Switch (**SW3**).

2. Mode Select Switch (SW3)

Use **SW3** to enable, disable, and select specific configurations within the operational function modes menu (selected first with **SW2**).

3. Bootload Button (SW1)

SW1 is used for factory service in the unlikely event of a complete card failure. Do not press this button unless instructed to do so by Ross Technical Support.

For More Information on...

- using the **SW2** and **SW3** switches, refer to the section "**Card-edge Menus**" on page 5-1.
- the LEDs located on the card-edge, refer to the section "**Status and Selection LEDs on the DMX-8259**" on page 3-3.

Control and Monitoring Features

This section provides information on the card-edge LEDs for the DMX-8259. Refer to **Figure 3.2** for the location of the LEDs and controls.

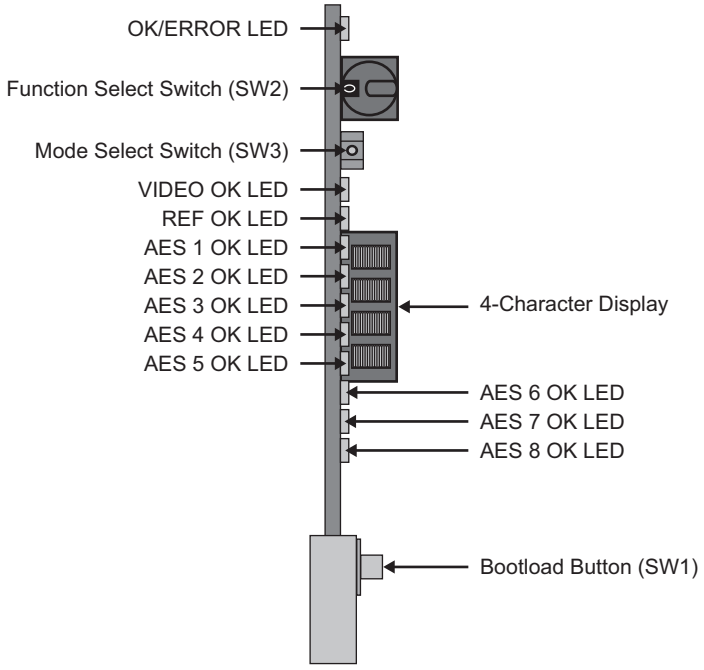


***Figure 3.2** DMX-8259 Card-edge Controls*

Status and Selection LEDs on the DMX-8259

The front-edge of the DMX-8259 has LED indicators for the power, video input status, and communication activity. Basic LED displays and descriptions are provided in **Table 3.1**.

Table 3.1 LEDs on the DMX-8259

LED	Color	Display and Description
OK/ERROR	Green	When lit green, this LED indicates that the card is functioning normal and that no anomalies have been detected. The following conditions must be satisfied: • a valid input signal is present • a valid reference signal is present when a reference is required, and that the reference standard matches the input standard.
	Flashing Green	When flashing green, this LED indicates the bootloader is waiting for a software upload.
	Flashing Green and Orange	When lit green with flashing orange, this LED indicates there is a signal error such as a missing or invalid input or reference.
	Orange	When lit orange, this LED indicates the card is powering on.
	Red	When lit red, this LED indicates the card is not operational.
	Off	When off, this LED indicates there is no power to the card.

Table 3.1 LEDs on the DMX-8259

LED	Color	Display and Description
VIDEO OK	Green	When lit, this LED indicates that the video input is valid.
	Flashing Green	When flashing, this LED indicates that video is present, but the input format is unsupported.
	Off	When unlit, this LED indicates the absence of an input signal.
REF OK	Green	When lit green, this LED indicates a valid reference signal.
	Flashing Green	When flashing, this LED indicates that the reference signal is present but the format is invalid.
	Off	When unlit, this LED indicates that a reference signal is not present, or is not compatible with the input format.
AES 1 OK	Orange	When lit, this LED indicates the presence of the embedded audio Group 1 on the video input.
AES 2 OK	Orange	When lit, this LED indicates the presence of the embedded audio Group 2 on the video input.
AES 3 OK	Orange	When lit, this LED indicates the presence of the embedded audio Group 3 on the video input.
AES 4 OK	Orange	When lit, this LED indicates the presence of the embedded audio Group 4 on the video input.
AES 5 OK	This LED is not implemented.	
AES 6 OK	This LED is not implemented.	
AES 7 OK	This LED is not implemented.	
AES 8 OK	This LED is not implemented.	

Reference Compatibility

It is important to remember that if you are using **Frame 1** or **Frame 2** as the reference, the input video frame rate must match the reference frame rate.

Frame Rate Compatibility

Refer to **Table 3.2** for frame rate compatibility.

Table 3.2 Output/Reference Compatibility

Reference	Output							
	480i 59.94Hz	720p 59.94Hz	1080i 59.94Hz	1080p 59.94Hz	576i 50Hz	720p 50Hz	1080i 50Hz	1080p 50Hz
480i 59.94Hz	✓	✓	✓	✓				
720p 59.94Hz		✓		✓				
1080i 59.94Hz	✓	✓	✓	✓				
576i 50Hz					✓	✓	✓	✓
720p 50Hz						✓		✓
1080i 50Hz					✓	✓	✓	✓

Operation Notes

This section provides brief notes when operating the DMX-8259.

Audio Proc Amp Controls

The DMX-8259 includes Processing Amplifiers (Proc Amps) for the audio outputs on the card. Note that these features are not available when using the card-edge controls.

Proc Amp adjustments are applied in the following order:

1. **Delay** — This option enables you to adjust the delay of the audio channel. If you have enabled the Delay Lock feature, changing the delay value for one channel automatically changes the value for the other channel.
2. **Gain** — This option allows you to adjust the gain by +/- 20dB in 1dB increments. If you have enabled the Gain Lock feature, changing the gain value for one channel automatically changes the value for the other channel. Note that when using a DMX-8259-C, you can adjust the gain by +/- 10dB.
3. **Invert** — This option enables you to invert the polarity of the audio signal for the selected channel.

Minimum Delay Overview

The line buffer stores incoming video in relation to the incoming video clock timing. The video data is then read out in relation to the reference timing. This allows the input video to be switched between sources that may not be perfectly timed without timing glitches. Video source timing must remain within the buffer window to properly switch between sources. **Table 3.3** provides information on the buffer window available depending on how the Minimum Delay feature is configured in DashBoard.

Table 3.3 Minimum Delay

If the option is...	Format	Minimum Delay	Maximum Delay
Disabled	SD	1/4 line	1/2 line
	HD	1/4 line	1/2 line
	3G	1/4 line	1/2 line
Enabled	SD	1/8 line	1/4 line
	HD	1/16 line	1/8 line
	3G	1/16 line	1/8 line

De-embedding Non-PCM Signals

This section is applicable to the DMX-8259-A and DMX-8259-B. Note that when de-embedding non-PCM signals, channel pairs must be kept together.

To configure the card to de-embed non-PCM signals

1. Launch DashBoard on your computer and display the **Device View** for the card you wish to configure.
2. Select the **AES Outputs** tab for the output channel you wish to configure.
3. Set the **Channel Gain** to **0**.

4. Clear the applicable **Ch Invert** checkbox to disable inverting on the channel.

HANC Processing

SMPTE 291M formatted ancillary packets, such as SMPTE 12M-2 (timecode), that are found in the Luma portion (Y stream) of the HANC in an HD video signal (other than audio related packets) will be passed from input to output.

VANC Processing

The **VANC Processing** tab in DashBoard provides options for replacing the full active portion of selected lines of video with black.

The **VANC Processing** tab is divided into separate sub-tabs for each format (1080p, 1080i, 720p, 576i, and 480i) to provide selection of the lines. This enables you to individually select any combination of lines, from line 1 up to the third line after the VI for the current video format. For interlaced formats, the lines in the two fields are separately configured. **Table 3.4** lists the allowable line selections based on format.

Table 3.4 VANC Processing — Line Selection

Format	Field 1 Lines	Field 2 Lines
1080p	1-44	-
1080i	1-23	562-586
720p	1-28	-
576i	1-25	313-338
480i	1-23	264-285

To delete the VANC components in a line

1. Display the **Device View** in DashBoard for the DMX-8259 you wish to configure.
2. Select the **VANC Processing** tab.
3. Select the sub-tab, located at the bottom of the **VANC Processing** tab, for the applicable video format.

DashBoard Menus

In This Chapter

This chapter briefly summarizes the menus, items, and parameters available in the DashBoard Control System™ for the DMX-8259. Parameters marked with an asterisk (*) are the factory default values.

The following topics are discussed:

Status Tabs

This section summarizes the read-only information displayed in the **Status** tabs. The fields in the **Status** tabs vary in severity from green (valid), yellow (caution), to red (alarm). DashBoard reports the most severe alarm for a single field.

Signal Tab

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

Table 4.1 Status Tab Items

Tab Title	Item	Parameters	Description
Signal	Signal Status	OK	Indicates when the card is functioning normally or if anomalies are detected
		Invalid Format	
		Incompatible	
		Non-Sync Video	
		Group Not Present	
		Group Channel Silent	
	Audio Status	OK	Indicates the status of the audio source
		Source Missing	
		Source Async	
		PCM-Silent	
		Group 4 reduced to 20bit[a]	
	Reference Status	OK	Indicates that a valid reference source is present
		No Ref - Video	The following conditions are occurring: • Card reference is set to Frame 1 or Frame 2 • A valid reference signal is not present • Card has gone to Video Timing Mode
		No Ref - Free Run	The following conditions are occurring: • Card reference is set to Frame 1 or Frame 2 • A valid reference signal is not present • A valid video signal is not present • Card has gone to Free Run Mode
		Invalid Format - Video	Card has detected an invalid[b] reference format and has switched to Video Timing Mode
		Invalid Format - Free Run	The following conditions are occurring: • Card has detected an invalid[c] reference format • Input video is missing or invalid • Card has switched to Free Run Mode

Table 4.1 Status Tab Items

Tab Title	Item	Parameters	Description
Signal	Input Format	#	Indicates the input video format
	Reference Format	#	Indicates the reference video format
	Output Format	#	Indicates the output video format
	Embedded Audio Status - Group #	PCM	Indicates the presence of output
		No Input	
		PCM-Silent	
		Non-PCM	
		Async	
		Mixed	

a. This parameter indicates that there are more than 3 groups of 24bit SD embedded audio sources.
b. Refer to the section "**Reference Compatibility**" on page 3-5 for a complete list of supported formats.

Product Tab

Table 4.2 summarizes the **Product** tab fields available in DashBoard for the DMX-8259.

Table 4.2 Product Tab Items

Tab Title	Item	Parameters	Description
Product	Product	DMX-8259-#	
	Supplier	Ross Video Ltd.	
	Board Rev	##	Indicates the board version
	Rear Module	#	Type of rear module in the slot
	Board S/N	######	Indicates the board serial number
	Software Rev	##.##	Indicates the software version
	Firmware Rev	#.###	Indicates the firmware version
	Daughter Card Type[a]	##	Indicates if a daughter card is installed

a. This field is not available when using an DMX-8259-A.

Hardware Tab

Table 4.3 summarizes the **Hardware** tab fields available in DashBoard for the DMX-8259.

Table 4.3 Hardware Tab Items

Tab Title	Item	Parameters	Description
Hardware	HW Status	OK	Indicates the status of the hardware. Some messages displayed are dependent on the settings in the **Alarms Enable** tab.
		FPGA load invalid	
		Incomp I/O module	
		Current out of spec	
		Internal Error	
	Voltage (mV)	#	Supply Voltage
	Current (mA)	#	Current consumption of card
	CPU Headroom	#	Processing power available
	RAM Available	#/##	On-board processing memory available
	Uptime (h)		Displays the number of hours since the last reboot of the card
	Configuration Bank	#	Storage count

Setup Tab

Table 4.4 summarizes the **Setup** options available in DashBoard for the DMX-8259.

Table 4.4 Setup Menu Items

Menu Title	Item	Parameters	Description
Setup	Reference	Frame 1*	Selects the reference source
		Frame 2	
		Video	
	Minimum Delay	Selected*	Provides the shortest video delay through the card. When using SD, the delay is 7us. When using HD, the delay is 1.5us.
		Cleared	The total video delay through the card will be the values above plus half a video line
	Loss of Input	Black	Configures the output in the event of a loss of video input
		Blue	
		Custom*	Sets the output to a custom color in the event of a loss of video input. Use the Y, Cr, and Cb sliders to configure the color.
	Y slider		Sets the luminance component of the Loss of Input and/or Test Pattern Custom video signal.
	Cr slider		Sets the Cr component of the Loss of Input and/or Test Pattern Custom video signal.
	Cb slider		Sets the Cb component of the Loss of Input and/or Test Pattern Custom video signal.
	Test Pattern[a]	None*	Disables the test pattern feature
		Black	Specifies the type of test pattern to output. This setting is not retained on power down. Note that the test pattern replaces all of output picture but not the HANC, while the VANC is blanked.
		Blue	
		Custom Color	
		75% Color Bars	
		100% Color Bars	
		75% SMPTE Bars	
		Matrix Pathological	
		Luma Ramp	
		Y/C Ramp	
	SD Audio	20 Bit*	Embeds 20bit audio
		24 Bit	Embeds 24bit audio
		Auto	Embeds 20-24bit audio depending on the source and number of bits

Table 4.4 Setup Menu Items

Menu Title	Item	Parameters	Description
Setup	Silence Threshold (dB)	-96 to 0	Audio below the specified threshold value is considered silent
	Silence Timeout (sec)	1 to 60	Audio silent for longer than the specified value raises an alarm
	Analog Output Input # - De-Emphasis[b]	Off*	Analog de-emphasis is always disabled
		On	Analog de-emphasis is always enabled
		Auto	Analog de-emphasis is enabled depending on the channel status emphasis bits
	Edit Permission	Unlocked	All menu options are unlocked and can be edited
		Locked	All menu items, except this one, are locked and read-only
	All Audio	Reset	Resets the parameters in the Embedded Audio Outputs tab to factory defaults
	Factory Defaults	Reset	Resets all parameters to factory defaults

a. This setting is not retained on power down.
b. Only available when using a DMX-8259-C.

Input Status Tab

Table 4.5 summarizes the **Input Status** options available in DashBoard for the DMX-8259.

Table 4.5 Input Status Menu Items

Menu Title	Item	Parameters	Description
Video Input & Embed	Input Format (Read-only)	#	Displays the format of the video input
	CRC Errors (Read-only)	#	Displays the count of the CRC errors on the video input. This 14bit counter is reset on loss of video, or by user request. The counter is non-latching, and will roll over from maximum count to zero. • For SD formats, it displays both active picture and full frame errors. • For HD formats, it displays the total count of errors.
	Error Count	Reset	Resets the CRC Errors field
Embedded Audio - Group # Channel #	Channel # (Read-only)	PCM	Displays the status of the Channel A input
		No Input	
		PCM-Silent	
		Non-PCM	
		Async	
		Mixed	
	Word Length (Read-only)	#bit	Displays the number of audio bits

AES Outputs 1-8 Tabs

Table 4.6 summarizes the **AES Outputs 1-4** and **AES Outputs 5-8** options available in DashBoard for the DMX-8259-A and DMX-8259-B.

Table 4.6 AES Outputs Menu Items

Menu Title	Item	Parameters	Description
AES #	Ch # Source	Mute	Selects the source of the specified AES output
		Group # Ch #	
		#Hz	
		#kHz	
	Ch # Delay (ms)	0* to 1000	Adjusts the delay of the specified audio channel
	Delay Lock	Selected	Locks the Delay slider of both channels together. If the values for the two channels are different, that change is maintained when the channels are locked.
		Cleared*	The Delay slider is unlocked
	Ch # Gain (dB)	-20 to +20[a]	Adjusts the gain of the specified audio channel
	Gain Lock	Selected*	Locks the Gain slider of both channels together. If the values for the two channels are different, that change is maintained when the channels are locked.
		Cleared	The Gain slider is unlocked
	Ch # Invert	Selected	Inverts the audio signal of the specified channel
		Cleared*	The audio signal is not inverted
	Output	Reset	Resets the parameters for the selected output to the default values
	Outputs #-#	Reset	Resets the indicated output parameters to the default values

a. The default value is 0.

Analog Outputs Tabs

Table 4.7 summarizes the **Analog Outputs** options available in DashBoard for the DMX-8259-4C and DMX-8259-8C.

Table 4.7 Analog Outputs Menu Items

Menu Title	Item	Parameters	Description
Output #	Source	Mute	Selects the source of the analog output.
		Group # Channel #	
		#Hz	
		#kHz	
	Delay (ms)	0* to 1000	Adjusts the delay of the audio channel
	Gain (dB)	-10 to +10[a]	Adjusts the gain of the audio channel
	Invert	Selected	Inverts the audio signal of the channel
		Cleared*	The audio signal is not inverted
	Output	Reset	Resets the parameters for the selected input to the default values

a. The default value is 0.

Embedded Outputs Tab

Table 4.8 summarizes the **Embedded Outputs** options available in DashBoard.

Table 4.8 Embedded Outputs Menu Items

Menu Title	Item	Parameters	Description
Group #	Enable	Selected*	Determines if the group is inserted in the output or not.
		Cleared	
	Ch # Source	Mute	Configures the Primary Source that is inserted in to the embedded group if present.
		Group# Ch#	
		#kHz Tone	
	Group #	Reset	Resets the specific group sources to the default values
	All Groups	Reset	Resets all groups to the default values

VANC Processing Tab

Table 4.9 summarizes the **VANC Processing** options available in DashBoard.

Table 4.9 VANC Processing Menu Items

Menu Title	Item	Parameters	Description
480i, 576i, 1080i	Line	#[a]	Indicates the specific line the VANC components will be deleted from
	Field #	Pass*	VANC components are passed unmodified to the card output
		Strip	VANC components are deleted from the card output
720p, 1080p	Line	#[a]	Indicates the specific line the VANC components will be deleted from
	Option	Pass*	VANC components are passed unmodified to the card output
		Strip	VANC components are deleted from the card output
	All Lines	Pass	All VANC components are passed unmodified to the card output
		Strip	All VANC components are deleted from the card output

a. The range is dependent on the format.

Alarm Enables Tab

Table 4.10 summarizes the **Alarm Enables** options available in DashBoard for the DMX-8259.

Table 4.10 Alarms Menu Items

Menu Title	Item	Parameters	Description
Video Input & Reference Alarm	No Input	Selected*	Signal Status field reports loss of input.
		Cleared	Disables the alarm
	Invalid Input	Selected*	Input Format field reports when the input video is a format that is not accepted
		Cleared	Disables the alarm
	Incompatible Input	Selected*	Input Format field reports when the frame rate is not the same as the reference input
		Cleared	Disables the alarm
	Non-Sync Input	Selected*	Signal Status field reports if the video input is asynchronous to the reference
		Cleared	Disables the alarm
	No Reference	Selected*	Reference Status field reports loss of input conditions
		Cleared	Disables the alarm
	Invalid Reference	Selected*	Reference Format field reports when the reference is a format that is not acceptable
		Cleared	Disables the alarm
Hardware	Incompat Rear Module	Selected*	HW Status field reports when the rear module is not compatible with the card
		Cleared	Disables the alarm
	Incompat Daughter Card	Selected*	HW Status field reports when the daughter card is not compatible with the board
		Cleared	Disables the alarm
Embedded Input Audio - Group #	Group not present	Selected*	Signal Status field reports when a group is not present on the input
		Cleared	Disables the alarm
	Channel # Silent	Selected*	Signal Status field reports when the specified channel is detected as silent
		Cleared	Disables the alarm
AES Outputs - AES # (DMX-8259-A, DMX-8259-B)	Source Missing	Selected	Audio Status field reports when the source is not detected
		Cleared	Disables the alarm
	Source Async	Selected	Audio Status field reports when the selected output source is asynchronous to the input video
		Cleared	Disables the alarm

Table 4.10 Alarms Menu Items

Menu Title	Item	Parameters	Description
Analog Outputs - Output # (DMX-8259-C)	Source Missing	Selected*	Audio Status field reports when the selected output is not present or is silent
		Cleared	Disables the alarm
	Source Async	Selected*	Audio Status field reports when the selected output is asynchronous to the input video
		Cleared	Disables the alarm
Embedded Outputs - Group #	Source Missing	Selected*	Embedded Audio Status field reports when the selected source is not present or is silent
		Cleared	Disables the alarm
	Source Async	Selected*	Embedded Audio Status field reports when the selected source is asynchronous to the input video
		Cleared	Disables the alarm
	SD 24Bit	Selected*	Audio Status field reports when the selected configuration would embed 4 groups of 24bit audio in an SD output. Group 4 is down-sampled to 20bit audio
		Cleared	Disables the alarm
	All Alarms	Set	Enables all alarms
	All Alarms	Clear	Disables all alarms

Card-edge Menus

In This Chapter

This section summarizes the Card-edge Menu system of the DMX-8259 and how to navigate the menus and options using the **SW2** and **SW3** switches on the DMX-8259 card-edge.

The following topics are discussed:

- Navigating the Card-edge Menus
- Card-edge Menus
- Menu Descriptions

Navigating the Card-edge Menus

Use the following procedure to navigate the card-edge menus of the DMX-8259:

1. Locate **SW2** and **SW3** on the DMX-8259 card-edge. Refer to **Figure 3.2** on page 3-3 for locations.
2. Rotate **SW2** to the required menu.
3. Toggle **SW3** to select the required parameter.

Note — *Do not power down the card before ensuring that all edited parameters are saved. Saving edited parameters can take up to 10 seconds.*

Card-edge Menus

Table 5.1 lists all the menus, and menu items, available using the card-edge controls. To activate some of these parameters, it may be necessary to toggle **SW3** in either direction, or it may require that **SW3** be held in either direction for a few seconds. Default values are indicated with an asterisk (*). Refer to the section "**Menu Descriptions**" on page 5-5 for a brief summary of the menus available on the card-edge.

Table 5.1 Card-edge Menus and Items

Menu Select	Card-Edge Menu Label	Menu Name	Card-Edge Item Label	Item Name
0	DMX-8259-X slot #	Home		
1	Fact Def	Factory Default	n/a	Factory Default
2	Ref Src	Reference Source	Fr 1*	Frame 1 Reference
			Fr 2	Frame 2 Reference
			Vid	Video
3	LOI	Loss of Input	Black	
			Blue	
			Custom*	
4	Test Patt	Test Pattern	None*	
			75%	SMPTE Bars
			YC Ramp	Y/C Ramp
			L Ramp	Luma Ramp
			Matr Path	Matrix Pathological
			Blue	Flat Field Blue
			Black	Flat Field Black
			100%	100% Full Field Bars
5	Grp Sel	Group Select	Grp 1	Group 1
			Grp 2	Group 2
			Grp 3	Group 3
			Grp 4	Group 4
6	Grp Enbl	Group Enable	Enabled*	
			Disabled	
7	Ch1 Src	Channel 1 Source	Mute	
			T4k	4kHz Tone
			T2k	2kHz Tone
			T1k	1kHz Tone
			T.5k	500Hz Tone
			G1C1 - G4C4	Group 1, Channel 1 to Group 4, Channel 4
8	Ch2 Src	Channel 2 Source	Same as above	

Table 5.1 Card-edge Menus and Items

Menu Select	Card-Edge Menu Label	Menu Name	Card-Edge Item Label	Item Name
9	Ch3 Src	Channel 3 Source	Same as above	
A	Ch4 Src	Channel 4 Source	Same as above	
B	AES Sel (DMX-8259-A, DMX-8259-B)	AES Output Select	AES1*- AES8	AES 1 to AES 8
	Alg Sel (DMX-8259-4C)	Analog Channel Select 1-4	Alg1 - Alg4	Analog 1 to Analog 4
	Alg Sel (DMX-8259-8C)	Analog Channel Select 1-8	Alg1 - Alg8	Analog 1 to Analog 8
C	ChA Src (DMX-8259-A, DMX-8259-B)	Channel A Source	G1C1 - G4C4	Group 1, Channel 1 to Group 4, Channel 4
	Source (DMX-8259-4C)	Analog Source	G1C1 - G4C4	Group 1, Channel 1 to Group 4, Channel 4
	Source (DMX-8259-8C)	Analog Source	G1C1 - G4C4	Group 1, Channel 1 to Group 4, Channel 4
D	ChB Src (DMX-8259-A, DMX-8259-B)	Channel B Source	G1C1 - G4C4	Group 1, Channel 1 to Group 4, Channel 4

Menu Descriptions

This section briefly summarizes the menu parameters available in the card-edge display of the DMX-8259.

0 — Home

This read-only menu displays the product name and the slot the card is installed in the frame.

1 — Factory Defaults

This function enables you to return all controls to their factory default values. Use the following procedure to reset the card parameters to factory default values using the card-edge controls:

1. Rotate **SW2** to **1**. The Four Character Display displays "**Fact Def**".
2. Toggle **SW3** down and hold for 3 seconds.
3. Release **SW3**.

2 — Reference Source

This menu enables you to select where the card will look for a reference. The choices are Frame Reference 1 (**Fr 1**), Frame Reference 2 (**Fr 2**), and Video (**Vid**). Refer to the section "**Reference Compatibility**" on page 3-5 for a list of support reference formats.

3 — Loss of Input

Use this menu to select what type of video displays at the system's outputs when the input video signal is lost or invalid.

4 — Test Pattern

This menu enables you to specify the type of test pattern to output. Note that this setting is not retained on power down.

5 — Group Select

This menu enables you to select the embedded group before assigning sources to the channels, enabling the group, and selecting backup sources. This menu is used in conjunction with Menus 6 to E.

6 — Group Enable

Use this menu to determine if the selected group is embedded in the output or not.

7, 8, 9, A — Channel # Source

Use Menus 7 to A to configure the source that is inserted into the embedded group if present. These menus are used in conjunction with Menu 5 (Group Select). The following are the default values based on the group selected:

- Group 1 — When Menu 5 is set to Grp1, the default value of Menu 7 is G1C1.
- Group 2 — When Menu 5 is set to Grp 2, the default value of Menu 8 is G2C2.
- Group 3 — When Menu 5 is set to Grp 3, the default value of Menu 9 is G3C3.
- Group 4 — When Menu 5 is set to Grp 4, the default value of Menu A is G4C4.

B — AES Select

Use Menu B to specify an AES output to configure on the DMX-8259-A or DMX-8259-B. This menu is also used to identify an analog channel to configure for the DMX-8259-C. This menu is used in conjunction with Menus C (Channel A Source) and D (Channel B Source). The default value is 1.

C — Channel A Source

Use Menu C to select the Channel A source for a specific AES output (DMX-8259-A or DMX-8259-B) or the analog channel output (DMX-8259-C). This menu is used in conjunction with Menu B.

The following are the **DMX-8259-A** or **DMX-8259-B** default values based on the AES source selected:

- When Menu B is set to AES1, the default value of Menu C is G1C1.
- When Menu B is set to AES2, the default value of Menu C is G1C3.
- When Menu B is set to AES3, the default value of Menu C is G2C1.
- When Menu B is set to AES4, the default value of Menu C is G2C3.
- When Menu B is set to AES5, the default value of Menu C is G3C1.
- When Menu B is set to AES6, the default value of Menu C is G3C3.
- When Menu B is set to AES7, the default value of Menu C is G4C1.
- When Menu B is set to AES8, the default value of Menu C is G4C3.

The following are the **DMX-8259-C** default values based on the analog channel source selected:

- When Menu B is set to 1, the default value of Menu C is G1C1.
- When Menu B is set to 2, the default value of Menu C is G1C2.
- When Menu B is set to 3, the default value of Menu C is G1C3.
- When Menu B is set to 4, the default value of Menu C is G1C4.
- When Menu B is set to 5, the default value of Menu C is G2C1. (DMX-8259-8C only)
- When Menu B is set to 6, the default value of Menu C is G2C2. (DMX-8259-8C only)
- When Menu B is set to 7, the default value of Menu C is G2C3. (DMX-8259-8C only)
- When Menu B is set to 8, the default value of Menu C is G2C4. (DMX-8259-8C only)

D — Channel B Source (DMX-8259-A, DMX-8259-B only)

Use Menu D to select the Channel B source for a specific AES output. This menu is used in conjunction with Menu B (AES Select). The following are the default values based on the AES selected:

- When Menu B is set to AES1, the default value of Menu D is G1C2.
- When Menu B is set to AES2, the default value of Menu D is G1C4.
- When Menu B is set to AES3, the default value of Menu D is G2C2.
- When Menu B is set to AES4, the default value of Menu D is G2C4.
- When Menu B is set to AES5, the default value of Menu D is G3C2.
- When Menu B is set to AES6, the default value of Menu D is G3C4.
- When Menu B is set to AES7, the default value of Menu D is G4C2.
- When Menu B is set to AES8, the default value of Menu D is G4C4.

Specifications

In This Chapter

This chapter provides technical specification details on the DMX-8259. Note that specifications are subject to change without notice.

The following topics are discussed:

- DMX-8259-A Technical Specifications
- DMX-8259-B Technical Specifications
- DMX-8259-C Technical Specifications
- Channel Status Data Table

DMX-8259-A Technical Specifications

This section includes the technical specifications for the DMX-8259-A.

Table 6.1 DMX-8259-A Technical Specifications

Category	Parameter	Specification
SDI Input	Number of Inputs	1 HD-SDI
	SDI Data Rates and SMPTE Standards Accommodated	SMPTE 292M, SMPTE 259M, SMPTE 424M[a]
	Impedance	75ohm
	Return Loss	>15dB to 1.5GHz >15dB to 3.00GHz
	Equalization (Belden 1694A cable)	SD: < 300m (1000ft) HD: < 100m (300ft) 3G: < 60m (200ft)
	Connector Type	BNC
SDI Output	Number of Outputs	1
	SDI Data Rates and SMPTE Standards Accommodated	SMPTE 292M, SMPTE 259M, SMPTE 424M[a]
	Impedance	75ohm
	Return Loss	>15dB to 1.5GHz >8dB to 3.0GHz
	Signal Level	800mV, +/- 10%
	DC Offset	<50mV
	Rise and Fall Time (20-80%)	SD: 600ps typical HD: 120ps typical 3G: 130ps typical
	Overshoot	<10%
	Minimum Video Delay	SD: 7us HD: 2.2us 3G: 1.1us
	Connector Type	BNC
AES Outputs	Number of Outputs	8
	AES Standards Accommodated	AES-3id-2001
	Impedance	75ohm
	Output Level	1V p-p
	Sampling Rate	48kHz
	Connector Type	BNC
Environmental	Operating Range	5°C to 40°C ambient
Power	Total Power Consumption	7W

a. Not supported when using the DFR-8310 series frames.

DMX-8259-B Technical Specifications

This section includes the technical specifications for the DMX-8259-B.

Table 6.2 DMX-8259-B Technical Specifications

Category	Parameter	Specification
SDI Input	Number of Inputs	1 HD-SDI
	SDI Data Rates and SMPTE Standards Accommodated	SMPTE 292M, SMPTE 259M, SMPTE 424M[a]
	Impedance	75ohm
	Return Loss	>15dB to 1.5GHz >10dB to 3.0GHz
	Equalization (Belden 1694A cable)	SD: < 300m (1000ft) HD: < 100m (300ft) 3G: < 50m (150ft)
	Connector Type	BNC
SDI Output	Number of Outputs	1 HD-SDI
	SDI Data Rates and SMPTE Standards Accommodated	SMPTE 292M, SMPTE 259M, SMPTE 424M[a]
	Impedance	75ohm
	Return Loss	>15dB to 1.5GHz >10dB to 3.0GHz
	Signal Level	800mV, +/- 10%
	DC Offset	<50mV
	Rise and Fall Time (20-80%)	SD: 600ps typical HD: 120ps typical 3G: 130ps typical
	Overshoot	<10%
	Minimum Video Delay	SD: 7us HD: 2.2us 3G: 1.1us
	Connector Type	BNC

Table 6.2 DMX-8259-B Technical Specifications

Category	Parameter	Specification
AES Outputs	Number of Outputs	8
	SDI Data Rates and SMPTE Standards Accommodated	AES-3id-2001
	Impedance	110ohm
	Minimum Input	100mV
	Maximum Input	10Vp-p
	Minimum Audio Delay	2.3ms (SRC enabled)
	Sampling Rate	up to 96KHz
	Equalization	>450m of Belden 1492 cable
	Return Loss	>26dB 100KHz to 6MHz
	Output Amplitude	4Vp-p
	Rise and Fall Times	30ns
	Jitter	4.5mUI
	Connector Type	WECO™
Environmental	Operating Range	5°C to 40°C ambient
Power	Total Power Consumption	12W

a. Not supported when using the DFR-8310 series frames.

DMX-8259-C Technical Specifications

This section includes the technical specifications for the DMX-8259-4C and DMX-8259-8C.

Table 6.3 DMX-8259-4C and DMX-8259-8C Technical Specifications

Category	Parameter	Specification
SDI Input	Number of Inputs	1
	SDI Data Rates and SMPTE Standards Accommodated	SMPTE 292M, SMPTE 259M, SMPTE 424M[a]
	Impedance	75ohm
	Return Loss	>15dB to 1.5GHz >10dB to 3.0GHz
	Equalization (Belden 1694A cable)	SD: < 300m (1000ft) HD: < 100m (300ft) 3G: < 50m (150ft)
	Connector Type	BNC
SDI Output	Number of Outputs	1
	SDI Data Rates and SMPTE Standards Accommodated	SMPTE 292M, SMPTE 259M, SMPTE 424M[a]
	Impedance	75ohm
	Return Loss	>15dB to 1.5GHz >10dB to 3.0GHz
	Signal Level	800mV, +/- 10%
	DC Offset	<50mV
	Rise and Fall Time (20-80%)	SD: 600ps typical HD: 120ps typical 3G: 130ps typical
	Overshoot	<10%
	Minimum Video Delay	SD: 7us HD: 2.2us 3G: 1.1us
	Connector Type	BNC
Analog Audio Outputs	Number of Outputs	DMX-8259-4C: 4 outputs DMX-8259-8C: 8 outputs
	Maximum Output Level	+ 27dBu
	Frequency Response	± 0.07dB 22Hz to 20Hz @ Fs = 48kHz
	Signal to Noise Ratio	-90dB
	THD	> -76dB
	Amplitude Linearity	< 0.5dB @ -100dBFS
	Crosstalk	<-80dB (20Hz to 20kHz)
Environmental	Operating Range	5°C to 40°C ambient

Table 6.3 DMX-8259-4C and DMX-8259-8C Technical Specifications

Category	Parameter	Specification
Power	Total Power Consumption	DMX-8259-4C: 8W DMX-8259-8C: 9W

a. Not supported when using the DFR-8310 series frames.

Channel Status Data Table

The following table shows the channel status bit information that is used for all output audio.

Table 6.4 Channel Status Data

Byte	Bit	Function	Transmitted
0	0	Professional or Consumer use of Channel Status Block	Professional (1)
	1	Normal Audio or Non-Audio Mode	Normal Audio (0)
	2-4	Emphasis	No Emphasis (100)
	5	Lock Indication	Locked (0)
	6-7	Sampling Rate	48kHz (01)
1	0-3	Channel Mode	2 channel stereo (0001)
	4-7	User Bit Mode	192-bit (0001)
2	0-2	Auxiliary Bit Usage	20-bit audio sample, Aux bits undefined (000)
	3-5	Sample Word Length	20- or 24-bits (101)
	6-7	Alignment Level	Not Indicated (00)
3	0-7	Multi-channel Modes	Undefined (0)
4	0-1	Digital Audio Reference Signal	Not a Reference (0)
	2	Reserved	0
	3-6	Sampling Frequency	Not Indicated (0000)
	7	Sampling Frequency Scaling Flag	No Scaling (0)
5	0-7	Reserved	Unused (0)
6-9		ASCII Source ID	Unused (0)
10-13		ASCII Destination ID	Unused (0)
14-17		Local Sample Address	Unused (0)
18-21		Time of Day	Unused (0)
22	0-7	C data reliability	Only the first 5 Status Bytes are marked as Reliable. All other Status Bytes are marked as Unreliable.
23	0-7	CRC	Calculated CRC

Passing the Status Bytes

The DMX-8259 replaces Channel Status Bytes according to **Table 6.4** or passes Status Bytes through from input to output. In order for the Channel Status Bytes on the incoming embedded stream to be re-embedded, the outgoing Data Word Length must match the specified word length in the Channel Status bits.

Service Information

In This Chapter

This chapter contains the following sections:

- Troubleshooting Checklist
- Warranty and Repair Policy

Troubleshooting Checklist

Routine maintenance to this openGear product is not required. In the event of problems with your DMX-8259, 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. **Input Signal Status** — Verify that source equipment is operating correctly and that a valid signal is being supplied.
4. **Output Signal Path** — Verify that destination equipment is operating correctly and receiving a valid signal.
5. **Unit Exchange** — Exchanging a suspect unit with a unit that is known to be working correctly is an efficient method for localizing problems to individual units.

Bootload Button

In the unlikely event of a complete card failure, you may be instructed by a Ross Technical Support specialist to perform a complete software reload on the DMX-8259.

To reload the software on a DMX-8259

1. Eject the card from the frame.
2. Press and hold the **Bootload** button, while re-inserting the card into the frame.
3. Release the button.
   - The **POWER** LED flashes green while the card is waiting for a new software load.
   - If a new software load is not sent to the card within 60 seconds, the card will attempt to restart with its last operational software load.
   - Software loads can be sent to the DMX-8259 via the ethernet connection on the rear of the frame.

Warranty and Repair Policy

The DMX-8259 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 DMX-8259 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 DMX-8259 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 DMX-8259 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 DMX-8259 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 DMX-8259, 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 DMX-8259. 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.

Notes:

Notes:

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
General Information	Telephone:	+1 613 • 652 • 4886
	Fax:	+1 613 • 652 • 4425
	Email:	solutions@rossvideo.com
	Website:	http://www.rossvideo.com

Visit Us

Visit our website for:

- Company information and news
- Related products and full product lines
- Online catalog
- Testimonials